

MILLING LINE





| | | |
|----------------------------------------------------------------------------|-----------------------------------------------|----------------|
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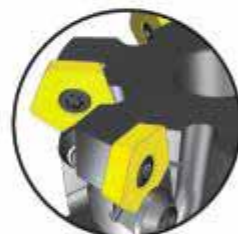
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TORIDEX

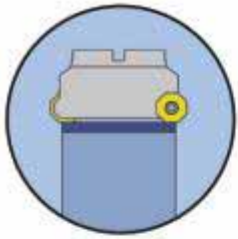
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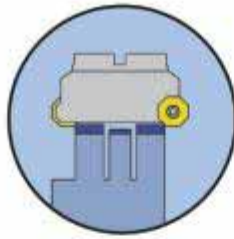
JETMILL

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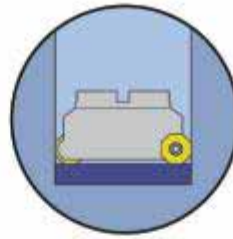




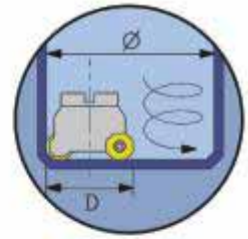
Spianatura
Facemilling
Planfräsen



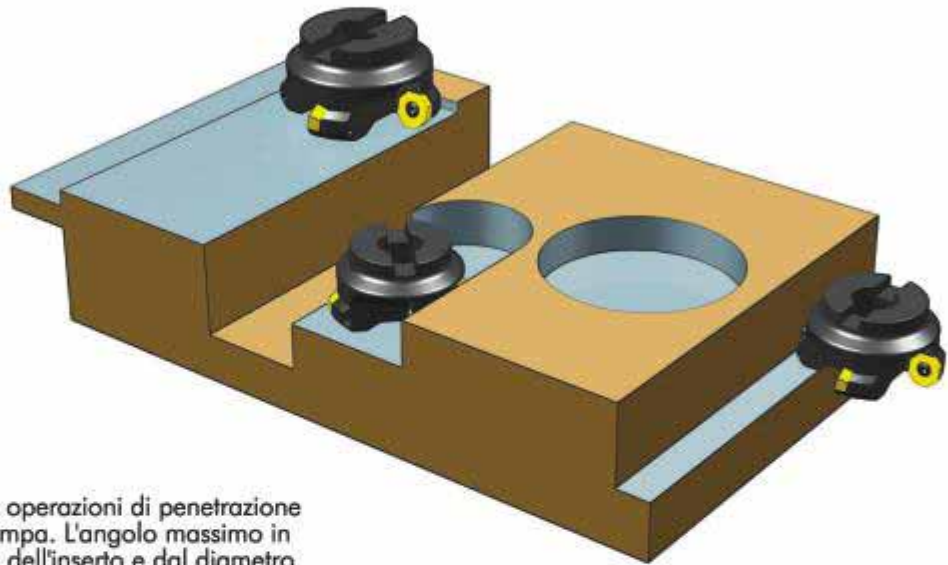
Lavorazione a taglio
interrotto
Demanding intermittent
machining
Schere Bearbeitung bei
unterbrochenem Schnitt



Esecuzione di cave
Full slot milling
Vollnutenfräsen



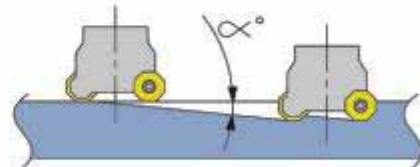
Interpolazione elicoidale
Helical interpolation
Zirkularfräsen



FRESATURA IN RAMPA Nelle operazioni di penetrazione è preferibile usare il sistema in rampa. L'angolo massimo in rampa dipende dalla dimensione dell'inserto e dal diametro della fresa. L'angolo α° per ogni fresa è indicato nella tabella qui di seguito.

RAMPING In penetrating operations ramping is preferred. The maximum ramping angle is dependent on insert size and cutter diameter. The angle α for each cutter is presented in the table below.

EINTAUCHEN ALS RAMPE Wir empfehlen mittels einer Rampe einzutauchen. Der maximale Eintauchwinkel ist abhängig von der Plattengröße und dem Fräserdurchmesser. Der Winkel α° für jeden Fräser ist in der untenstehenden Tabelle angegeben.



| CODE N° | D | Fresatura in rampa Ramping Schräges Eintauchen α° | Interpolazione elicoidale Helical interpolation Zirkularfräsen | |
|---------|-----|------------------------------------------------------------------------|----------------------------------------------------------------------|-------|
| | | | Ø MIN | Ø MAX |
| 801222 | 32 | 12° | 53 | 82 |
| 801523 | 40 | 9° | 69 | 98 |
| 802023 | 50 | 7° | 79 | 118 |
| 802030 | 50 | 7° | 79 | 118 |
| 802140 | 63 | 5°30' | 115 | 144 |
| 803050 | 80 | 4° | 149 | 178 |
| 804060 | 100 | 3° | 189 | 218 |
| 805070 | 125 | 2° | 239 | 268 |



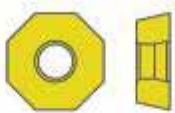
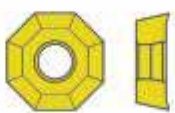
| | CODE N° | D | D1 | D2 | L | H | Z | ap | |
|--------|---------|-----|-----|-------|-----|----|-----|-----|---------------------------|
| | 801222 | 32 | 42 | 32 | 120 | 40 | 2 | 4,4 | |
| 801523 | 40 | 50 | 32 | 120 | 40 | 3 | 4,4 | | |
| 802023 | 50 | 60 | 32 | 120 | 40 | 3 | 4,4 | | |
| | 802030 | 50 | 60 | 22 | 20 | 40 | 3 | 4,4 | ODEW150508 ODET 150508 |
| | 802140 | 63 | 73 | 22 | 20 | 40 | 4 | 4,4 | |
| | 803050 | 80 | 90 | 27 | 25 | 50 | 5 | 4,4 | |
| | 804060 | 100 | 110 | 32 | | 50 | 6 | 4,4 | |
| | 805070 | 125 | 135 | 40 | | 63 | 7 | 4,4 | |
| | 806080 | 160 | 170 | 40/40 | | 63 | 8 | 4,4 | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | |
|---------|------------------|-----------------|
| 801222 | VS5N (torx20) | CV5 (torx20) |
| 801523 | | |
| 802023 | | |
| 802030 | | |
| 802140 | | |
| 803050 | | |
| 804060 | | |
| 805070 | | |
| 806080 | | |



INSERTI • INSERTS • WENDEPLATTEN

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-----------------------------------------------------------------------------------|------------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | ODEW150508 | | • | • | | • | • | • | | |
|  | ODET150508 | • | • | | | • | • | | | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-------|------------|---------|---------|---------|
| | | N/mm ² | HB | | fz = mm | | | |
| | | | | | 0,15 | 0,25 | 0,35 | 0,45 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK25G | 235/175 | 180/140 | 130/105 | 105/90 |
| | | | | RK40G | 210/180 | 160/130 | 120/100 | 110/80 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | RK25G | 160/130 | 125/105 | 115/90 | |
| | | | | RK40G | 150/120 | 120/100 | 110/90 | 100/80 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | RK40G | 120/100 | 105/90 | 95/85 | |
| | | | | | | | | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RB10 | 250/230 | 210/190 | 190/170 | 160/140 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 190/150 | 170/130 | 140/110 | 110/90 |

MULTIDEX 45

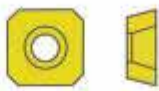
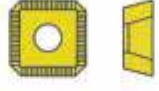


| | CODE N° | D | D1 | D2 | H | L1 | Z | ap | |
|--|---------|----|----|----|----|----|---|-----|---------------------------|
| | 451030 | 40 | 52 | 16 | 40 | 19 | 3 | 5,5 | SEHW1204AF SEHT 1204AF |
| | 452040 | 50 | 62 | 22 | 40 | 20 | 4 | 5,5 | |
| | 452150 | 63 | 75 | 22 | 40 | 20 | 5 | 5,5 | |
| | 453050 | 80 | 92 | 27 | 50 | 25 | 5 | 5,5 | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | |
|---------|------------------|-----------------|
| 451030 | VS5N (torx20) | CV5 (torx20) |
| 452040 | | |
| 452150 | | |
| 453050 | | |

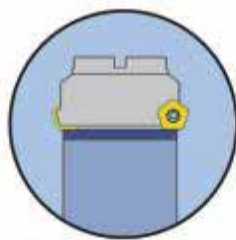
INSERTI • INSERTS • WENDEPLATTEN

| | | | | | | | | | | |
|-----------------------------------------------------------------------------------|------------|-----|-----|-------|------|-------|-------|-------|--------|------|
|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | SEHW1204AF | ● | ● | | ● | ● | ● | | | ● |
|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | SEHT1204AF | ● | ● | | | ● | ● | | | |

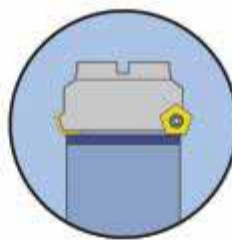
PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-------|------------|---------|---------|---------|
| | | N/mm ² | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,20 | 0,30 | 0,40 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK25G | 235/175 | 180/130 | 135/110 | 115/90 |
| | | | | RK40G | 210/170 | 170/120 | 125/100 | 110/80 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | RK25G | 160/125 | 135/110 | | |
| | | | | RK40G | 145/125 | 120/105 | 100/90 | |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | RK40G | 105/90 | | | |
| | Acciaio inossidabile Stainless steel Rostfreie Stähle | | | RK40G | 160/120 | 145/120 | | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RB10 | 180/140 | 145/120 | 130/90 | 105/80 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 150/110 | 120/90 | | |
| | Leghe di Alluminio Aluminium alloys Aluminiumlegierungen | | 30-100 | ZH20 | 1000/800 | 870/750 | 760/600 | 620/500 |

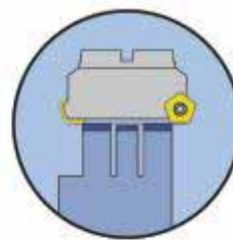
PENTADEX 66



Profondità di passata
sino a 10 mm.
Depth of cut until 10 mm.
Schnitttiefe bis 10 mm.



Sgrossatura e finitura
speculare
Roughing and mirror
finishing
Schrupp- und
Schlichtbearbeitung



Indicato nella lavorazione
a taglio interrotto
Suitable for interrupted
cut operation
Einsetzbar für
unterbrochenen Schnitt

Fresa a spianare per operazioni di sgrossatura e finitura con basso assorbimento di potenza.

Face cutter for finishing and roughing operation with very low power absorption.

Planfräser für Fein- und Schruppbearbeitung mit sehr geringer Kraftaufnahme.


| | CODE N° | D | D1 | D2 | H | L1 | Z | ap | | |
|--|---------|-----|----|----|----|----|---|----|--|----------------|
| | 662150 | 66 | 48 | 27 | 55 | 27 | 5 | 10 | | PDHW 120420 |
| | 663060 | 80 | 60 | 27 | 55 | 27 | 6 | 10 | | |
| | 664070 | 100 | 80 | 32 | 55 | | 7 | 10 | | |

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| CODE N° | | | |
|---------|------------------|------|-----------------|
| 662150 | VS5N (torx20) | ST30 | CV5 (torx20) |
| 663060 | | | |
| 664070 | | | |

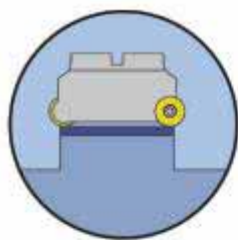
PENTADEX 66

INSERTI • INSERTS • WENDEPLATTEN

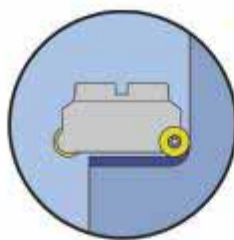
| | | | | | | | | | | |
|-----------------------------------------------------------------------------------|------------|-----|-----|-------|------|-------|-------|-------|--------|------|
|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | PDHW120420 | | • | | • | | • | | | • |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

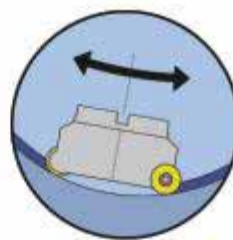
| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-------|------------|---------|---------|---------|
| | | N/mm2 | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,25 | 0,35 | 0,45 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK40G | 220/180 | 175/140 | 120/100 | 105/85 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | | 150/130 | 125/110 | 105/90 | 90/75 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | | 120/100 | 105/90 | 90/75 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RB10 | 230/200 | 205/170 | 160/140 | 130/110 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 170/150 | 140/120 | 115/90 | 100/80 |
| | Leghe di Alluminio Aluminium alloys Aluminiumlegierungen | | 30-100 | ZH20 | 800/700 | 720/680 | 700/650 | 620/500 |



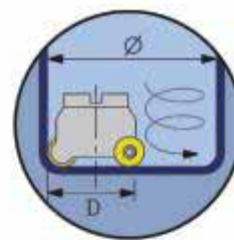
Spianatura
Facemilling
Planfräsen



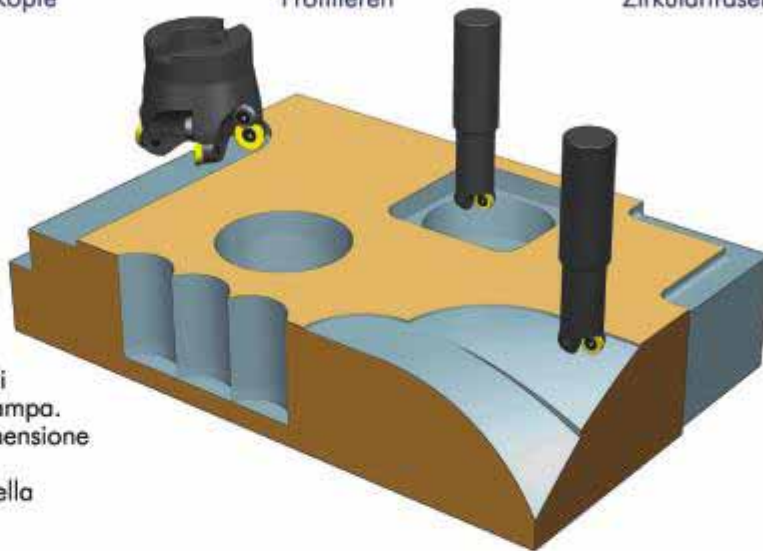
Spallamenti retti
Shoulder milling
Eckmesserköpfe



Profilatura
Profiling
Profilieren



Interpolazione elicoidale
Helical interpolation
Zirkularfräsen

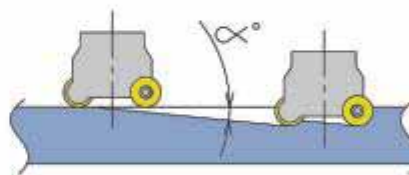


FRESATURA IN RAMPA Nelle operazioni di penetrazione è preferibile usare il sistema in rampa. L'angolo massimo in rampa dipende dalla dimensione dell'inserto e dal diametro della fresa. L'angolo α° per ogni fresa è indicato nella tabella qui di seguito.

RAMPING In penetrating operations ramping is preferred. The maximum ramping angle is dependent on insert size and cutter diameter. The angle α° for each cutter is presented in the table below.

EINTAUCHEN ALS RAMPE

Wir empfehlen mittels einer Rampe einzutauchen. Der maximale Eintauchwinkel ist abhängig von der Plattengröße und dem Fräserdurchmesser. Der Winkel α° für jeden Fräser ist in der untenstehenden Tabelle angegeben.



| CODE N° | D | Fresatura in rampa Ramping Schräges Eintauchen α° | Interpolazione elicoidale Helical interpolation Zirkularfräsen | | | |
|-----------|-----|------------------------------------------------------------------------|----------------------------------------------------------------------|-------|-------|-------|
| | | | d=12 | | d=16 | |
| | | | Ø MIN | Ø MAX | Ø MIN | Ø MAX |
| CX2532-35 | 25 | 21° | 38 | 48 | | |
| CX3233-35 | 32 | 12° | 52 | 62 | | |
| CX4034 | 40 | 14° | | | 64 | 78 |
| CX4015-42 | 42 | 6°30' | 72 | 82 | | |
| CX5051 | 50 | 5°30' | 88 | 98 | | |
| CX5042 | 50 | 10° | | | 84 | 98 |
| CX5004-52 | 52 | 10° | | | 86 | 100 |
| CX5015-52 | 52 | 5°20' | 92 | 102 | | |
| CX6316 | 63 | 4° | 114 | 124 | | |
| CX6325 | 63 | 7°20' | | | 110 | 124 |
| CX6506-66 | 66 | 3°50' | | | 116 | 130 |
| CX6505-66 | 66 | 7° | 120 | 130 | | |
| CX8006 | 80 | 6° | | | 144 | 158 |
| CX10007 | 100 | 4°30' | | | 184 | 198 |
| CX12508 | 125 | 3°20' | | | 234 | 248 |



| | CODE N° | D | D2 | L | L1 | L2 | Z | op | |
|-----------|---------|----|----|-----|-----|----|-----|-----------------------------|--|
| | CX1231 | 12 | 16 | 20 | 40 | 90 | 2 | 3,5 | |
| CX1232 | 12 | 16 | 20 | 60 | 110 | 2 | 3,5 | | |
| CX1233 | 12 | 16 | 20 | 80 | 130 | 2 | 3,5 | | |
| CX1531 | 15 | 16 | 40 | 40 | 90 | 2 | 3,5 | RDHX0702MOT | |
| CX1532 | 15 | 16 | 40 | 60 | 110 | 2 | 3,5 | | |
| CX1533 | 15 | 20 | 40 | 80 | 130 | 2 | 3,5 | | |
| CX1534 | 15 | 20 | 40 | 100 | 150 | 2 | 3,5 | | |
| CX1535 | 15 | 25 | 40 | 120 | 178 | 2 | 3,5 | RDH. 1003MOT RDMX1003MOT | |
| CX2021 | 20 | 20 | 40 | 40 | 92 | 2 | 5 | | |
| CX2022 | 20 | 20 | 60 | 60 | 112 | 2 | 5 | | |
| CX2023 | 20 | 25 | 60 | 80 | 138 | 2 | 5 | | |
| CX2024 | 20 | 25 | 60 | 100 | 158 | 2 | 5 | | |
| CX2025 | 20 | 25 | 60 | 120 | 178 | 2 | 5 | | |
| CX2532-35 | 25 | 25 | | 74 | 130 | 2 | 6 | RDH. 12T3MOT RDMX12T3MOT | |
| CX3233-35 | 32 | 32 | | 90 | 150 | 3 | 6 | | |
| CX4034 | 40 | 32 | | 110 | 170 | 3 | 8 | RDH. 1604MOT RDMX1604MOT | |

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| CODE N° | | | |
|------------------------|-------------------|------|-------------------|
| CX12.. | VS2M (torx8) | | CV002 (torx20) |
| CX15.. | VS2 (torx8) | | |
| CX20.. | VS35L (torx15) | | CV004 (torx15) |
| CX2532-35 CX3233-35 | | ST40 | |
| CX4034 | VS5N (torx20) | ST30 | CV5 (torx20) |





| | CODE N° | D | D2 | L1 | H | Z | ap | |
|--|-----------|-----|----|----|----|---|----|-----------------------------|
| | CX4015-42 | 42 | 16 | 19 | 42 | 5 | 6 | RDH. 12T3MOT RDMX12T3MOT |
| | CX5051 | 50 | 22 | 22 | 50 | 5 | 6 | |
| | CX5015-52 | 52 | 22 | 22 | 50 | 5 | 6 | |
| | CX6316 | 63 | 27 | 27 | 55 | 6 | 6 | |
| | CX6506-66 | 66 | 27 | 27 | 55 | 6 | 6 | |
| | CX5042 | 50 | 22 | 22 | 50 | 4 | 8 | RDH. 1604MOT RDMX1604MOT |
| | CX5004-52 | 52 | 22 | 22 | 50 | 4 | 8 | |
| | CX6325 | 63 | 27 | 27 | 55 | 5 | 8 | |
| | CX6505-66 | 66 | 27 | 27 | 55 | 5 | 8 | |
| | CX8006 | 80 | 27 | 27 | 55 | 6 | 8 | |
| | CX10007 | 100 | 32 | | 55 | 7 | 8 | |
| | CX12508 | 125 | 40 | | 55 | 8 | 8 | |

RICAMBI • SPARES • ERSATZTEILE

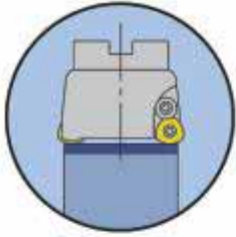
| CODE N° | | | |
|-----------|-------------------|------|-------------------|
| CX4015-42 | VS35L (torx15) | ST40 | CV004 (torx15) |
| CX5051 | | | |
| CX5015-52 | | | |
| CX6316 | | | |
| CX6506-66 | | | |
| CX5042 | VS5N (torx20) | ST30 | CV5 (torx20) |
| CX5004-52 | | | |
| CX6325 | | | |
| CX6505-66 | | | |
| CX8006 | | | |
| CX10007 | | | |
| CX12508 | | | |

INSERTI • INSERTS • WENDEPLATTEN

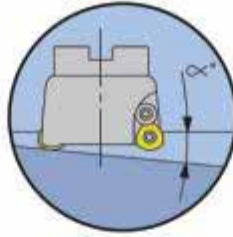
| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-----------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------|-------------|-------|------|-------|-------|-------|--------|------|
| | |  | RDHX0701MOT | | ● | | ● | | ● | |
| | RDHX0702MOT | | ● | | ● | | ● | | | ● |
| | RDHX1003MOT | ● | ● | ● | | ● | ● | ● | | |
| | RDMX1003MOT | | ● | | | | ● | | | |
| | RDHX12T3MOT | ● | ● | | ● | ● | ● | | | ● |
| | RDMX12T3MOT | | ● | | | | ● | | | |
| | RDHX1604MOT | | ● | | ● | | ● | | | ● |
| | RDMX1604MOT | ● | ● | | ○ | ● | ● | | | ○ |
|  | RDHT1003MOT | | | ● | | | | ● | | |
| | RDHT12T3MOT | | ● | ● | | | ● | ● | | |
| | RDHT1604MOT | | ● | | | | ● | | | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

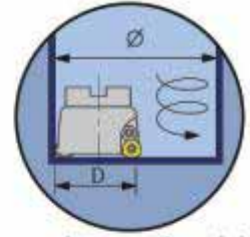
| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|---------------|------------|---------|---------|---------|
| | | N/mm2 | HB | | fz = mm | | | |
| | | | | | 0,15 | 0,25 | 0,40 | 0,50 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK25G | 225/165 | 180/140 | 130/100 | 110/90 |
| | | | | RK40G | 200/150 | 160/125 | 120/95 | 105/80 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | RK25G | 160/130 | 135/110 | 120/100 | |
| | | | | RK40G | 150/115 | 125/110 | 115/95 | 100/80 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | RK40G | 125/105 | 110/100 | 100/80 | 85/75 |
| | Acciaio inossidabile Stainless steel Rostfreie Stähle | | | RK40G | 160/120 | | | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK03E RB10 | 210/170 | 180/160 | 165/130 | 150/110 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 180/140 | 165/120 | 140/100 | 120/90 |



Spianatura
Facemilling
Planfräsen



Fresatura in rampa
Ramping
Eintauchen als Rampe

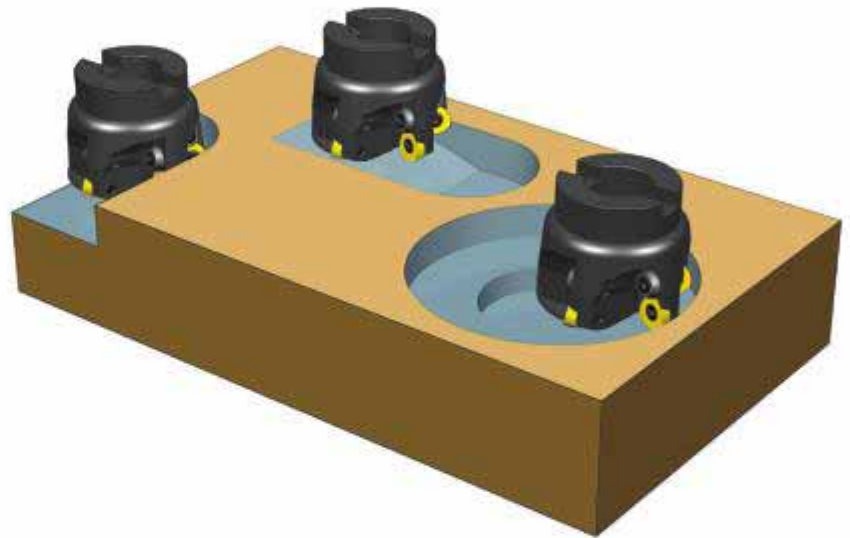


Interpolazione elicoidale
Helical interpolation
Zirkularfräsen

JET MILL offre numerosi vantaggi. Particolarmente adatta per lavori di svuotamento, non richiede preforo e consente avanzamenti molto elevati. Il sistema di doppio serraggio garantisce massima aderenza e stabilità dell'inserto.

JET MILL offers several advantages. It is particularly suitable for emptying operation and it allows machining with high feed rate. The double clamping system guarantees the insert maximum adherence and stability.

JET MILL bringt mehr Vorteile. Er ist geeignet für Ausräumoperationen, er benötigt keine Vorbohrungen und er erlaubt Bearbeitungen mit hohen Vorschüben. Das doppelte Klemmsystem garantiert beste Positionierung und Stabilität.



| CODE N° | D | ap | Fresatura in rampa Ramping Schräges Eintauchen α° | Interpolazione elicoidale Helical interpolation Zirkularfräsen einer Bohrung ins Volle | |
|---------|----|-----|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------|
| | | | | Ø MIN | Ø MAX |
| JM2532 | 25 | 1,5 | 14° | 33 | 47 |
| JM3233 | 32 | 1,5 | 11° | 47 | 61 |
| JM4204 | 42 | 1,5 | 7° | 64 | 79 |
| JM5204 | 52 | 2,0 | 5° | 76 | 101 |
| JM6605 | 66 | 2,0 | 4°10' | 104 | 129 |
| JM8005 | 80 | 2,0 | 2°35' | 132 | 157 |




| | CODE N° | D | D2 | H | ap | L1 | L2 | Z | |
|--------|---------|----|----|-----|-----|-----|-----|---|------------|
| | JM2532 | 25 | 25 | | 1,5 | 65 | 150 | 2 | |
| JM3233 | 32 | 32 | | 1,5 | 120 | 200 | 3 | | |
| | JM4204 | 42 | 16 | 42 | 1,5 | | | 4 | JDHW14M520 |
| | JM5204 | 52 | 22 | 50 | 2,0 | | | 4 | |
| | JM6605 | 66 | 27 | 55 | 2,0 | | | 5 | |
| | JM8005 | 80 | 27 | 55 | 2,0 | | | 5 | |

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| CODE N° | | | | | |
|---------|-------------------|------|-------------------|--|-----------------|
| JM2532 | VS35L (torx15) | ST40 | CV004 (torx15) | | |
| JM3233 | | | | | |
| JM4204 | | | | | |
| JM5204 | VS5N (torx20) | ST30 | | | CV5 (torx20) |
| JM6605 | | | | | |
| JM8005 | | | | | |

INSERTI • INSERTS • WENDEPLATTEN

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-----------------------------------------------------------------------------------|------------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | JDHW10T310 | | ● | | ● | | ● | | | ● |
| | JDHW14M520 | | ● | | ● | | ● | | | ● |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|---------------|------------|---------|---------|---------|
| | | N/mm2 | HB | | fz = mm | | | |
| | | | | | 0,70 | 1,0 | 2,0 | 3,0 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK40G | 250/120 | 230/115 | 200/100 | 180/90 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | | 200/110 | 185/100 | 170/95 | 155/80 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | | 150/90 | 130/80 | 110/70 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK40G RB10 | 250/150 | 230/120 | 200/110 | 180/100 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 230/120 | 200/105 | 170/90 | 150/80 |



HELIDEX

pag. 19



MINIDRILL

pag. 22



JET 90

pag. 23

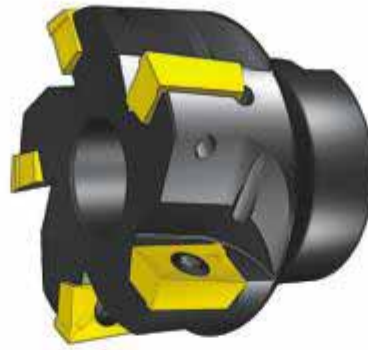




| | CODE N° | D | D2 | ap | L1 | L2 | Z | APKT1003PDR |
|--|---------|----|----|----|----|----|---|-----------------|
| | MH1021 | 10 | 16 | 10 | 24 | 80 | 1 | |
| | MH1221 | 12 | 16 | 10 | 26 | 80 | 1 | |
| | MH1622 | 16 | 16 | 10 | 30 | 85 | 2 | |
| | MH1722 | 17 | 16 | 10 | 30 | 85 | 2 | |
| | MH2023 | 20 | 20 | 10 | 30 | 90 | 3 | |
| | MH2123 | 21 | 20 | 10 | 30 | 90 | 3 | |
| | MH2524 | 25 | 25 | 10 | 30 | 95 | 4 | |
| | MH3225 | 32 | 25 | 10 | 30 | 95 | 5 | |





| | CODE N° | D | D2 | ap | L1 | L2 | Z | APKT1003PDR |
|--|---------|----|----|------|-----|-----|---|-----------------|
| | MH1021L | 10 | 16 | 10 | 31 | 160 | 1 | |
| | MH1221L | 12 | 16 | 10 | 31 | 160 | 1 | |
| | MH1622L | 16 | 16 | 10 | 41 | 180 | 2 | |
| | MH1722L | 17 | 16 | 10 | 25 | 180 | 2 | |
| | MH2022L | 20 | 20 | 10 | 41 | 200 | 2 | |
| | MH2023L | 20 | 20 | 10 | 41 | 200 | 3 | |
| | MH2122L | 21 | 20 | 10 | 25 | 250 | 2 | |
| | MH2532L | 25 | 25 | 13,5 | 50 | 200 | 2 | |
| | MH3233L | 32 | 32 | 13,5 | 50 | 250 | 3 | |
| | MH4033L | 40 | 32 | 13,5 | 190 | 250 | 3 | |



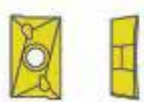
| | CODE N° | D | D2 | ap | L1 | H | Z | |
|----------|----------|----|------|----|----|----|-------------|--|
| | MH401006 | 40 | 22 | 10 | 20 | 40 | 6 | |
| MH501007 | 50 | 22 | 10 | 20 | 40 | 7 | | |
| MH631008 | 63 | 22 | 10 | 20 | 40 | 8 | | |
| MH501505 | 50 | 22 | 13,5 | 20 | 40 | 5 | ADKT1505PDR | |
| MH631506 | 63 | 22 | 13,5 | 20 | 40 | 6 | | |
| MH801507 | 80 | 27 | 13,5 | 25 | 50 | 7 | | |
| MH401604 | 40 | 16 | 15 | 20 | 40 | 4 | APKT1604PDR | |
| MH501605 | 50 | 22 | 15 | 20 | 40 | 5 | | |
| MH631606 | 63 | 22 | 15 | 20 | 40 | 6 | | |
| MH801607 | 80 | 27 | 15 | 25 | 50 | 7 | | |



RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | |  |  |
|---------|---------|----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| MH1021 | MH1021L | MH401006 | VS2 (Torx8) | CV002 (torx8) |
| MH1221 | MH1221L | MH501007 | | |
| MH1622 | MH1622L | MH631008 | | |
| MH1722 | MH1722L | | | |
| MH2023 | MH2022L | | | |
| MH2123 | MH2023L | | | |
| MH2524 | MH2122L | | | |
| MH3225 | | | | |
| | MH2532L | MH501505 | VS4 (Torx15) | CV004 (torx15) |
| | MH3233L | MH631506 | | |
| | MH4033L | MH801507 | | |
| | | MH401604 | | |
| | | MH501605 | | |
| | | MH631606 | | |
| | | MH801607 | | |

INSERTI • INSERTS • WENDEPLATTEN

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-------------------------------------------------------------------------------------|-------------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | APKT1003PDR | | | ● | | | | ● | | |
| APKT1604PDR | | | ● | | | | ● | | | |
| ADKT1505PDR | | | ● | | | | ● | | | |

MINIDRILL



| | | | | | | | | |
|--|---------|----|----|-----|----|----|---|----------------------------|
| | CODE N° | D | D2 | L | L1 | ap | Z | |
| | MN2032 | 20 | 20 | 106 | 56 | 6 | 2 | 1CCMW060208 1ADGW100308 |
| | MN2032L | 20 | 25 | 130 | 65 | 6 | 2 | 1CCMW060208 1ADGW100308 |
| | MN2532L | 25 | 25 | 150 | 80 | 9 | 2 | 1CCMW09T308 1ADGW130308 |
| | MN3232L | 32 | 32 | 170 | 90 | 12 | 2 | 1CCMW120408 1APGW160408 |

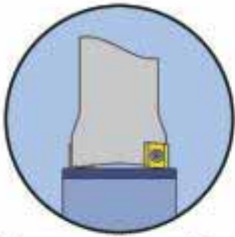
RICAMBI • SPARES • ERSATZTEILE

| | | |
|-------------------|------------------------------|---------------------------------|
| CODE N° | | |
| MN2032 MN2032L | VS2-VS4T (torx8)-(torx15) | CV002-CV004 (torx8)-(torx15) |
| MN2532L | VS4-VS4T (torx15) | CV004 (torx15) |
| MN3232L | VS5N (torx20) | CV5 (torx20) |

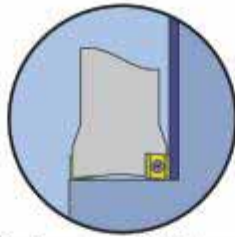
INSERTI • INSERTS • WENDEPLATTEN

| | | | | | | | | | | |
|--|------------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | CCMW060208 | | ● | | | | ● | | | |
| | CCMW09T308 | | ● | | | | ● | | | |
| | CCMW120408 | | ● | | | | ● | | | |
| | ADGW100308 | | ● | | ● | | ● | | | ● |
| | ADGW130308 | | ● | | | | ● | | | |
| | APGW160408 | | ● | | | | ● | | | |

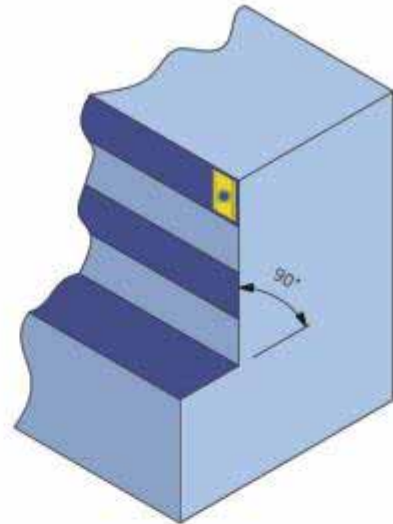
JET 90



Finitura spallamenti retti
Finishing shoulder milling
Schlichten Eckmesserköpfe



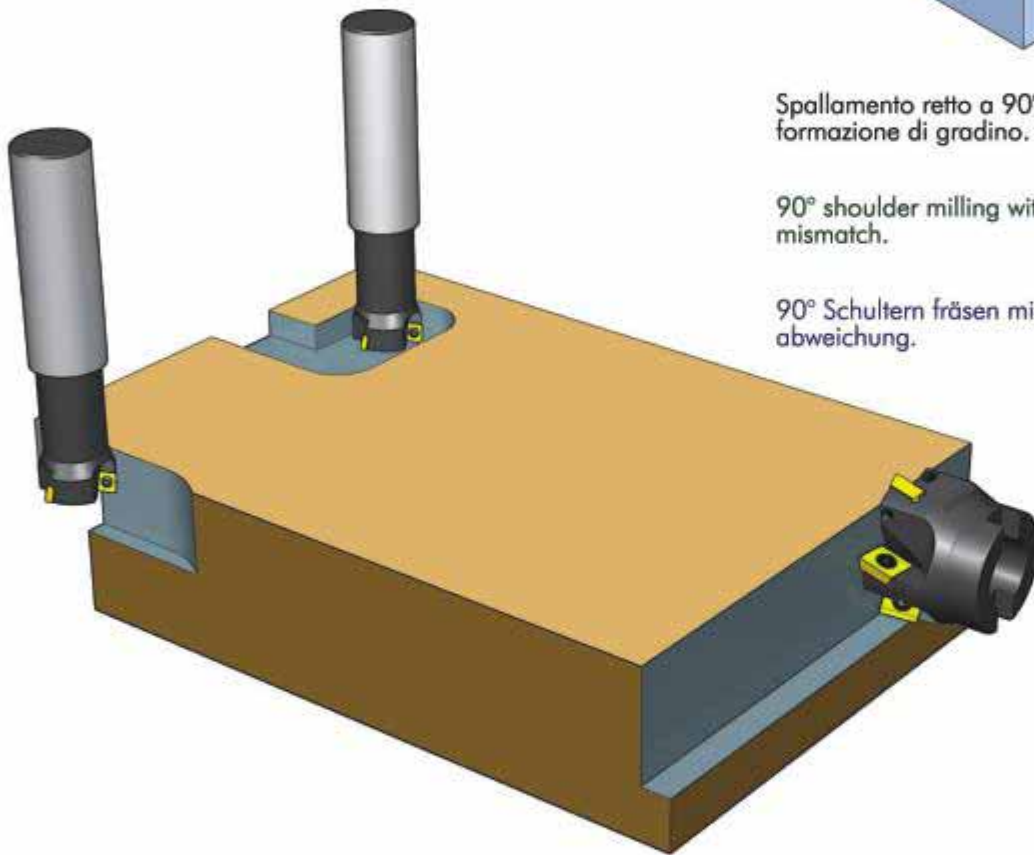
Spianatura di finitura
Finishing facemilling
Schlichten planfräsen



Spallamento retto a 90° con minima
formazione di gradino.

90° shoulder milling with minimized
mismatch.

90° Schultern fräsen mit minimaler
abweichung.



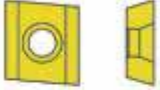


| | CODE N° | D | D2 | H | op | L1 | L2 | Z | |
|--------|---------|--------|----|----|----|----|-----|----|-------------|
| | | JE1632 | 16 | 16 | | 10 | 30 | 90 | 2 |
| JE2033 | | 20 | 20 | | 10 | 40 | 110 | 3 | |
| JE2533 | | 25 | 25 | | 10 | 45 | 120 | 3 | |
| JE3234 | | 32 | 32 | | 10 | 50 | 120 | 4 | |
| | JE4005 | 40 | 16 | 36 | 10 | | | 5 | ADHT1003PER |
| | JE5005 | 50 | 22 | 40 | 14 | | | 5 | ADHT1404PER |
| | JE6306 | 63 | 22 | 40 | 14 | | | 5 | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | | |
|---------|------------------|------------------|-----------------|
| JE1632 | VS2 (torx8) | CV002 (torx8) | |
| JE2033 | | | |
| JE2533 | | | |
| JE3234 | | | |
| JE4005 | VS5N (torx20) | | CV5 (torx20) |
| JE5005 | | | |
| JE6306 | | | |

INSERTI • INSERTS • WENDEPLATTEN

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-----------------------------------------------------------------------------------|-------------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | ADHT1003PER | | ● | | | | ● | | | |
| | ADHT1404PER | | ● | | | | ● | | | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-------|------------|---------|---------|---------|
| | | N/mm ² | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,15 | 0,20 | 0,25 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK40G | 200/140 | 180/130 | 155/120 | 145/115 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | | 160/125 | 145/120 | 130/110 | |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | | 135/115 | 120/105 | 105/90 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK40G | 170/110 | 140/100 | 120/85 | 100/70 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 130/90 | 110/65 | | |



MILLCOP MG

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COPIDRILL CD

pag. 31



COPIBALL CA

pag. 33



JET BF

pag. 37



COPIDRILL CARBIDE CCD - HSM

pag. 40



COPIBALL CARBIDE CC - HSM

pag. 40



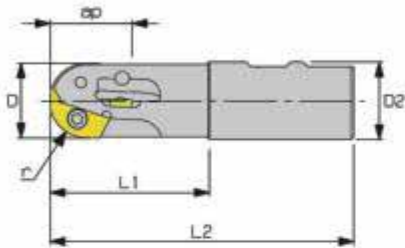
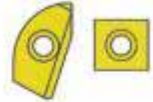
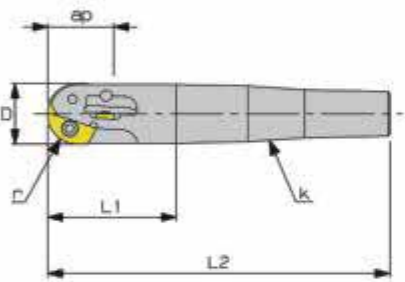
JET CARBIDE CCBF - HSM

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MILLCOP MG



|  | CODE N° | D | D2 | K | ap | L1 | L2 | r | Z |  |
|------------------------------------------------------------------------------------|----------|----|----|-----|----|-----|-----|------|------|-------------------------------------------------------------------------------------|
| | MG2532 | 25 | 25 | | | 15 | 60 | 117 | 12,5 | |
| MG2532L | 25 | 32 | | | 15 | 110 | 170 | 12,5 | 2 | |
| MG3234 | 32 | 32 | | | 31 | 65 | 125 | 16 | 2 | 2RCCW230516 2SDLW090308 |
| MG3236L | 32 | 32 | | | 45 | 120 | 180 | 16 | 2 | |
|  | MG2542 | 25 | | CM3 | 15 | 60 | 146 | 12,5 | 2 | 2RCCW190412 |
| | MG2542L | 25 | | CM4 | 15 | 110 | 219 | 12,5 | 2 | |
| | MG3244 | 32 | | CM4 | 31 | 65 | 174 | 16 | 2 | 2RCCW230516 2SDLW090308 |
| | MG3244L | 32 | | CM4 | 31 | 90 | 199 | 16 | 2 | |
| | MG3244XL | 32 | | CM4 | 45 | 120 | 228 | 16 | 2 | 2RCCW230516 4SDLW090308 |
| | MG3246L | 32 | | CM5 | 45 | 120 | 256 | 16 | 2 | |



MILLCOP MG







| | CODE N° | D | D2 | K | ap | L1 | L2 | r | Z | |
|--|---------|--------|----|-----|----|-----|-----|-----|----|----------------------------------------------|
| | | MG4035 | 40 | 32 | | 52 | 95 | 155 | 20 | 1 |
| | MG4037L | 40 | 40 | | 70 | 150 | 220 | 20 | 1 | 1 RDCW250620 1 RDEW220620 5 SPLW1204AD |
| | MG5037L | 50 | 40 | | 75 | 160 | 230 | 25 | 1 | 1 RDCW250625 1 RDEW290625 5 SPLW1204AD |
| | MG4045 | 40 | | CM4 | 52 | 95 | 204 | 20 | 1 | 1 RDCW250620 1 RDEW220620 3 SPLW1204AD |
| | MG4057L | 40 | | CM5 | 70 | 150 | 286 | 20 | 1 | 1 RDCW250620 1 RDEW220620 5 SPLW1204AD |
| | MG5055 | 50 | | CM5 | 58 | 101 | 237 | 25 | 1 | 1 RDCW250625 1 RDEW290625 3 SPLW1204AD |
| | MG5057L | 50 | | CM5 | 75 | 160 | 296 | 25 | 1 | 1 RDCW250625 1 RDEW290625 5 SPLW1204AD |

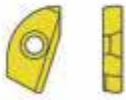
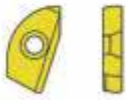

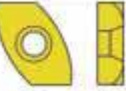
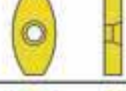



MILLCOP MG

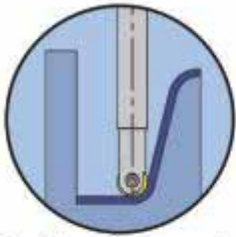
RICAMBI • SPARES • ERSATZTEILE

| CODE N° |  |  |  |  |
|----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| MG2532 | VS40C (torx15) | | | CC4 (torx15) |
| MG2532L | | | | |
| MG2542 | | | | |
| MG2542L | | | | |
| MG3234 | VS50C (torx20) | VS4T (torx15) | | CC4 (torx15) CC5 (torx20) |
| MG3236L | | | | |
| MG3244 | | | | |
| MG3244L | | | | |
| MG3244XL | | | | |
| MG3246L | | | | |
| MG4035 | VS5N (torx20) | | ST30 | CC5 (torx20) |
| MG4037L | | | | |
| MG4045 | | | | |
| MG4057L | | | | |
| MG5037L | | | | |
| MG5055 | | | | |
| MG5057L | | | | |

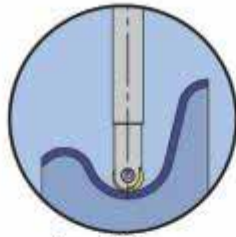
INSERTI • INSERTS • WENDEPLATTEN

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-------------------------------------------------------------------------------------|------------|-----|-----|-------|------|-------|-------|-------|--------|------|
|  | RCCW190412 | | ● | | | | ● | | | |
| | RCCW230516 | | ● | | | | ● | | | |
|  | SDLW090308 | ● | ● | | | ● | ● | | | |
|  | RDCW250620 | | ● | | | | ● | | | |
| | RDCW250625 | | ● | | | | ● | | | |
|  | RDEW220620 | | ● | | | | ● | | | |
| | RDEW290625 | | ● | | | | ● | | | |
|  | SPLW1204AD | | ● | | ● | | ● | | | ● |

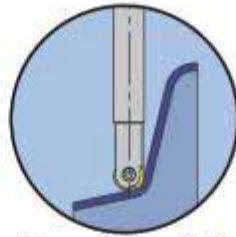
COPIDRILL CD • COPIBALL



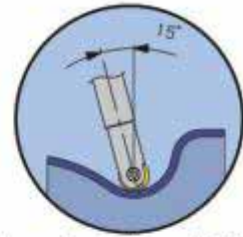
Copiatrice in generale
General copying
Allgemeines kopierfräsen



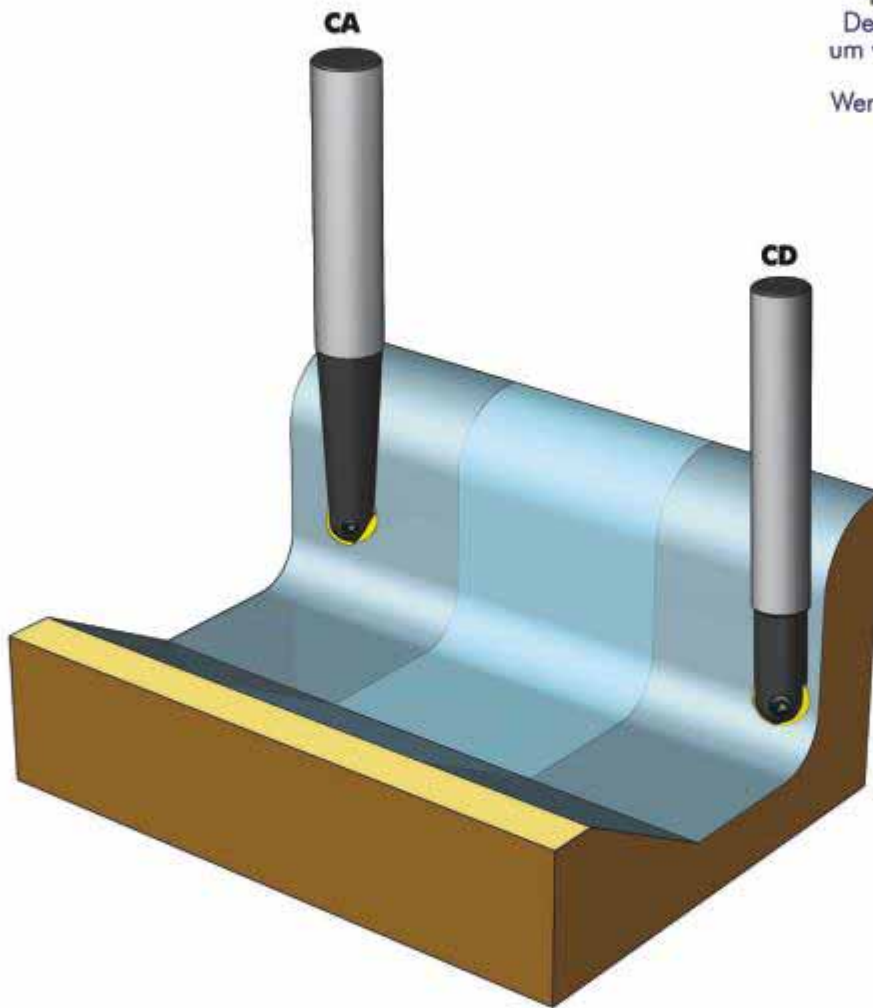
Semifinitura
Semifinishing
Vorschlichten



Copiatrice di Superfinitura
Superfinishing for copy milling
Super-Schlichten für die
Kopierbearbeitung



Inclinare l'asse fresa di 10°-15°
elimina la Vc.0, e aumenta
a durata dell'inserto
Tilt the cutter axis of 10°-15°
decrease the Vc.0 and
increase the insert's life
Den Fräser 10°-15° anstellen,
um vC=0 zu vermeiden und die
Lebensdauer der
Wendeschneidplatte zu erhöhen



COPIDRILL: frese di semifinitura e finitura in copiatrice, consentono di ottenere una buona finitura impiegando elevate velocità di taglio.

COPIDRILL: copying cutters in semi-finishing and finishing operation, permit to have a good finished surface using high cutting speed.

COPIDRILL: Kopierfräser für die Fein- und Feinstbearbeitung zum Erzielen von höchsten Oberflächengüten bei hohen Schnittgeschwindigkeiten.


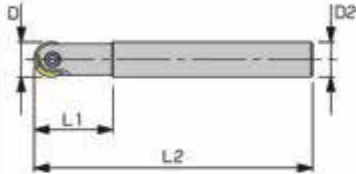
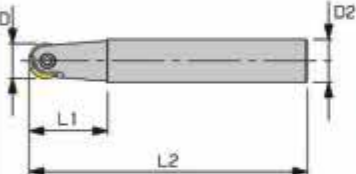
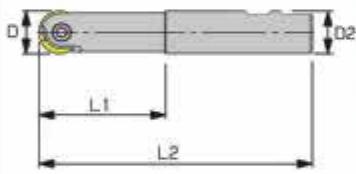
COPIBALL: frese di finitura e super-finitura, consentono di ottenere una superficie finita speculare impiegando un'elevata velocità di taglio.

COPIBALL: finishing and super-finishing cutters, permit to have the specular finished surface together with high cutting speed.



COPIBALL: Schlicht und Super-Schlichtfräser für höchste Oberflächengüten beim HSC-Fräsen und ökonomisches Arbeiten.

COPI DRILL CD





| | CODE N° | D | D2 | L1 | L2 |  |
|-------------------------------------------------------------------------------------|---------|----|----|------|-----|-------------------------------------------------------------------------------------|
|  | CD1233 | 12 | 12 | 32 | 130 | RCN12.. |
| | CD1234 | 12 | 12 | 46 | 150 | |
| | CD1633 | 16 | 16 | 36 | 140 | RCN16.. |
| | CD1634 | 16 | 16 | 53 | 160 | |
| | CD2033 | 20 | 20 | 45 | 160 | RCN20.. |
| | CD2034 | 20 | 20 | 61 | 175 | |
| | CD2533 | 25 | 25 | 45 | 160 | RCN25.. |
| CD2534 | 25 | 25 | 70 | 190 | | |
|  | CD0835 | 8 | 12 | 46 | 150 | RCN08.. |
| | CD1035 | 10 | 12 | 46 | 150 | RCN10.. |
| | CD1235 | 12 | 16 | 58,5 | 160 | RCN12.. |
| | CD1635 | 16 | 20 | 65 | 175 | RCN16.. |
| | CD2035 | 20 | 25 | 76 | 190 | RCN20.. |
| | CD2535 | 25 | 32 | 98 | 210 | RCN25.. |
|  | CD1231 | 12 | 12 | 35 | 80 | RCN12.. |
| | CD1232 | 12 | 12 | 46 | 100 | |
| | CD1631 | 16 | 16 | 35 | 83 | RCN16.. |
| | CD1632 | 16 | 16 | 53 | 110 | |
| | CD2031 | 20 | 20 | 45 | 95 | RCN20.. |
| | CD2032 | 20 | 20 | 61 | 125 | |
| | CD3232 | 32 | 32 | 80 | 140 | RCN32.. |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° |  |  |
|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| CD08.. | VS08 (torx8) | CV002 (torx8) |
| CD10.. | VS10 (torx8) | |
| CD12.. | VS12 (torx20) | CV005 (torx20) |
| CD16.. | VS16 (torx20) | |
| CD20.. | VS20 (torx20) | |
| CD25.. | VS25 (torx20) | |
| CD32.. | VS32 (torx20) | |

INSERTI • INSERTS • WENDEPLATTEN

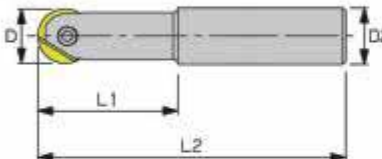

| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-----------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|-------|-------|------|-------|-------|-------|--------|------|
| | |  | RCN08 | | | ● | | | | ● |
| | RCN10 | | | ● | | | | ● | ● | |
| | RCN12 | | | ● | | | | ● | ● | |
| | RCN16 | | | ● | | | | ● | ● | |
| | RCN20 | | | ● | | | | ● | ● | |
| | RCN25 | | | ● | | | | ● | ● | |
| | RCN32 | | | ● | | | | ● | ● | |
|  | RCN08AL | | | ● | | | | ● | | |
| | RCN10AL | | | ● | | | | ● | | |
| | RCN12AL | | | ● | | | | ● | | |
| | RCN16AL | | | ● | | | | ● | | |
| | RCN20AL | | | ● | | | | ● | | |
| | RCN25AL | | | ● | | | | ● | | |
| | RCN32AL | | | ● | | | | ● | | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-----------------|------------|----------|---------|---------|
| | | N/mm2 | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,20 | 0,30 | 0,40 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK03E RK03CF | 250/180 | 220/160 | 200/150 | 180/135 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | | 220/150 | 200/140 | 180/125 | |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | | 160/125 | 140/105 | 120/90 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK03E RK03CF | 320/200 | 290/165 | 250/140 | 210/120 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 270/180 | 240/130 | 200/105 | 150/90 |
| | Leghe di Alluminio Aluminium alloys Aluminiumlegierungen | | 30-100 | ZK03M | 1100/900 | 1000/850 | 900/600 | 800/550 |

COPIBALL



|  | CODE N° | D | D2 | L1 | L2 |  |
|------------------------------------------------------------------------------------|---------|----|----|-----|-------|-------------------------------------------------------------------------------------|
| | CA0822 | 8 | 12 | 35 | 92 | RCA08 |
| CA0823 | 8 | 12 | 53 | 110 | | |
| CA1022 | 10 | 12 | 35 | 92 | RCA10 | |
| CA1023 | 10 | 12 | 53 | 110 | | |
| CA1222 | 12 | 12 | 32 | 100 | RCA12 | |
| CA1223 | 12 | 12 | 36 | 125 | | |
| CA1224 | 12 | 12 | 46 | 150 | | |
| CA1622 | 16 | 16 | 32 | 100 | RCA16 | |
| CA1623 | 16 | 16 | 38 | 125 | | |
| CA1624 | 16 | 16 | 50 | 160 | | |
| CA2022 | 20 | 20 | 40 | 115 | RCA20 | |
| CA2023 | 20 | 20 | 50 | 150 | | |
| CA2024 | 20 | 20 | 60 | 190 | | |
| CA2522 | 25 | 25 | 46 | 125 | RCA25 | |
| CA2523 | 25 | 25 | 50 | 150 | | |
| CA2524 | 25 | 25 | 64 | 200 | | |
| CA3222 | 32 | 32 | 50 | 130 | RCA32 | |
| CA3223 | 32 | 32 | 60 | 190 | | |
| CA3224 | 32 | 32 | 76 | 250 | | |






| | CODE N° | D | D2 | K | L1 | L2 | α° | |
|--|---------|--------|----|-----|-----|-----|----------------|-------|
| | | CA0825 | 8 | 12 | | 75 | 132 | 1°50' |
| | CA1025 | 10 | 12 | | 75 | 132 | 1°30' | RCA10 |
| | CA1225 | 12 | 16 | | 60 | 160 | 1°30' | RCA12 |
| | CA1625 | 16 | 20 | | 57 | 175 | 1°30' | RCA16 |
| | CA2025 | 20 | 25 | | 80 | 190 | 1°50' | RCA20 |
| | CA2026 | 20 | 25 | | 80 | 250 | 1°50' | |
| | CA2525 | 25 | 32 | | 100 | 215 | 1°30' | RCA25 |
| | CA2526 | 25 | 32 | | 100 | 315 | 1°30' | |
| | CA3225 | 32 | 40 | | 110 | 240 | 1°10' | RCA32 |
| | CA3226 | 32 | 40 | | 110 | 305 | 1°10' | |
| | CA1252 | 12 | | CM2 | 53 | 121 | | RCA12 |
| | CA1652 | 16 | | CM2 | 63 | 131 | | RCA16 |
| | CA2052 | 20 | | CM2 | 75 | 143 | | RCA20 |
| | CA2552 | 25 | | CM3 | 90 | 175 | | RCA25 |
| | CA3252 | 32 | | CM4 | 106 | 214 | | RCA32 |

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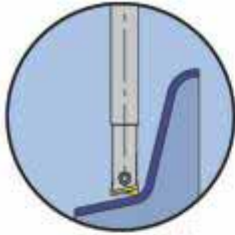
| CODE N° | | | |
|---------|----------------|----------------|----------|
| CA08.. | VSA08 (torx7) | CV015 (torx7) | |
| CA10.. | VSA10 (torx8) | CV002 (torx8) | |
| CA12.. | VSA12 (torx10) | CV003 (torx10) | |
| CA16.. | VSA16 (torx15) | CV004 (torx15) | |
| CA20.. | VSA20 (torx20) | CV005 (torx20) | |
| CA25.. | VSA25 (torx30) | | CC6 |
| CA32.. | VSA32 (torx30) | | (torx30) |

INSERTI • INSERTS • WENDEPLATTEN

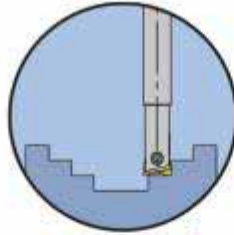
|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-----------------------------------------------------------------------------------|---------|-------|-----|-------|------|-------|-------|-------|--------|------|
| | | RCA08 | | | | ● | | | | ● |
| RCA10 | | | | ● | | | | ● | ● | |
| RCA12 | | | | ● | | | | ● | ● | |
| RCA16 | | | | ● | | | | ● | ● | |
| RCA20 | | | | ● | | | | ● | ● | |
| RCA25 | | | | ● | | | | ● | ● | |
| RCA32 | | | | ● | | | | ● | ● | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

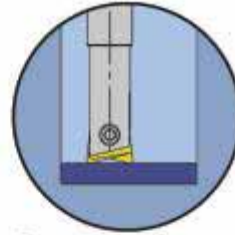
| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-----------------|------------|----------|---------|---------|
| | | N/mm ² | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,20 | 0,30 | 0,40 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK03E RK03CF | 250/180 | 220/160 | 200/150 | 180/135 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | | 200/150 | 180/130 | 160/110 | 140/90 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | | 160/120 | 140/105 | 110/80 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK03E RK03CF | 330/200 | 290/160 | 240/130 | 200/115 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 260/170 | 220/120 | 190/100 | 125/85 |
| | Leghe di Alluminio Aluminium alloys Aluminiumlegierungen | | 30-100 | ZK03M | 1100/900 | 1000/850 | 900/600 | 800/550 |
| | Grafite - Graphite - Graphit | | | RK03E | 400/200 | 300/150 | | |



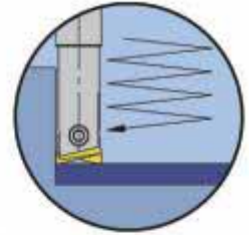
Copiatura di Superfinitura
Super-finishing for copy milling
Super-Schichten für die
Kopierbearbeitung



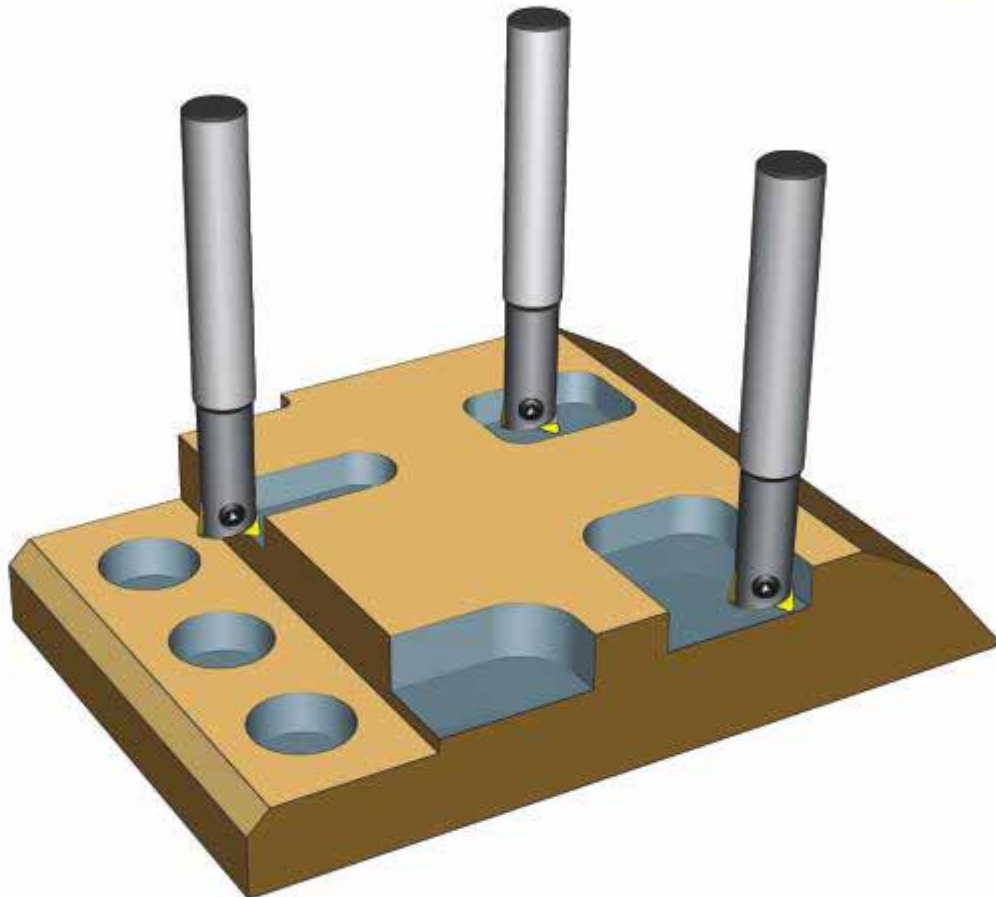
Copiatura per interpolazione
Interpolation copying
Zirkularkopierfräsen



Esecuzione di cave
Full slot milling
Vollnutenfräsen



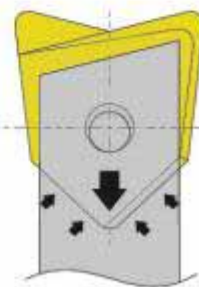
Avanzamento per piani
inclinati
Ramping
Eintauchen als rampe



JET BF Si utilizzano per operazioni di svuotamento e copiatura stampi, permettendo lavorazioni di foratura e fresatura. La particolare geometria di taglio permette forti avanzamenti anche nelle lavorazioni più difficili. Notevole la robustezza di questa fresa grazie alla chiusura perfetta garantita da una base prismatica.

JET BF Are designed for both emptying and mould copying operation, and allow milling and drilling machining. The cutting geometry permits high feed rates in even the most difficult materials to machine. This tool is very strenght, thanks to the perfect lock, guranteed by a prismatic seat.

JET BF ist ausgelegt für die Bearbeitungen: Ausräumen und Kopierfräsen und es erlaubt die Fräs- und Bohrbearbeitung. Die Schneidengeometrie ermöglicht hohe Vorschübe in der Bearbeitung von schwerzerspanbaren Werkstoffen. Das Werkzeug hat eine hohe Festigkeit, dank der perfekten Klemmung, garantiert durch den prismatischen Sitz.






| | CODE N° | D | D2 | L1 | L2 | |
|--------|---------|----|----|-----|---------|--|
| | BF1221 | 12 | 12 | 36 | 125 | |
| BF1222 | 12 | 12 | 46 | 190 | RBF1613 | |
| BF1621 | 16 | 16 | 50 | 160 | | |
| BF1622 | 16 | 20 | 57 | 190 | RBF2016 | |
| BF2021 | 20 | 20 | 50 | 150 | | |
| BF2022 | 20 | 20 | 61 | 200 | RBF2520 | |
| BF2521 | 25 | 25 | 50 | 150 | | |
| BF2522 | 25 | 25 | 64 | 200 | | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | | |
|-------------|----------|-------------------|-----------------|
| BF122.VSB12 | (Torx15) | CV004 (Torx15) | |
| BF162.VS16 | (Torx20) | CV005 (Torx20) | |
| BF202.VS20 | (Torx20) | CV005 (Torx20) | |
| BF252.VSB25 | (Torx30) | | CC6 (Torx30) |

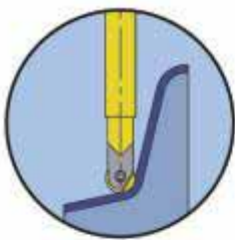
INSERTI • INSERTS • WENDEPLATTEN

| | | | | | | | | | | |
|-----------------------------------------------------------------------------------|---------|-----|-----|-------|------|-------|-------|-------|--------|------|
|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | RBF1210 | | | ● | | | | ● | ● | |
| | RBF1613 | | | ● | | | | ● | ● | |
| | RBF2016 | | | ● | | | | ● | ● | |
| | RBF2520 | | | ● | | | | ● | ● | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-----------------|------------|---------|---------|---------|
| | | N/mm2 | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,20 | 0,30 | 0,40 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK03E | 200/170 | 180/150 | 160/135 | 140/120 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | RK03E | 170/130 | 145/120 | 130/110 | 115/95 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | RK03CF | 140/110 | 125/100 | 110/90 | 100/80 |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK03E | 230/180 | 210/160 | 180/140 | 150/120 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | RK03E RK03CF | 190/120 | 160/100 | 140/90 | 120/85 |
| | Grafite - Graphite - Graphit | | | RK03CF | 300/200 | 250/150 | | |

CARBIDE SHANK



COPIBALL CARBIDE CC:

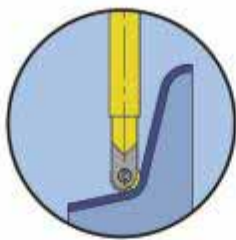
copiatura di superfinitura con alta velocità di taglio per macchine HSC.

COPIBALL CARBIDE CC:

copying superfiniting operation with high speed cut and for HSC machine.

COPIBALL CARBIDE CC:

Feinstbearbeitung mit hohen Schnittgeschwindigkeiten und HSC Bearbeitung



COPIDRILL CARBIDE CCD:

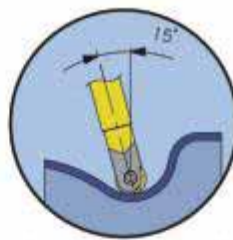
copiatura di finitura con alta velocità di taglio per macchine HSC.

COPIDRILL CARBIDE CCD:

copying finishing operation with high speed cut and for HSC machine.

COPIDRILL CARBIDE CCD:

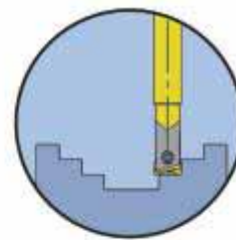
Kopierfräsen mit hohen Schnittgeschwindigkeiten und HSC Bearbeitung.



Inclinare l'asse fresa di 10°-15° elimina la Vc.0, e aumenta la durata dell'inserto.

Tilt the cutter axis of 10°-15° decrease the Vc.0 and increase the insert's life.

Den Fräser 10°-15° anstellen, um vC=0 zu vermeiden und die Lebensdauer der Wendschneidplatte zu erhöhen.



JET CARBIDE CCBF

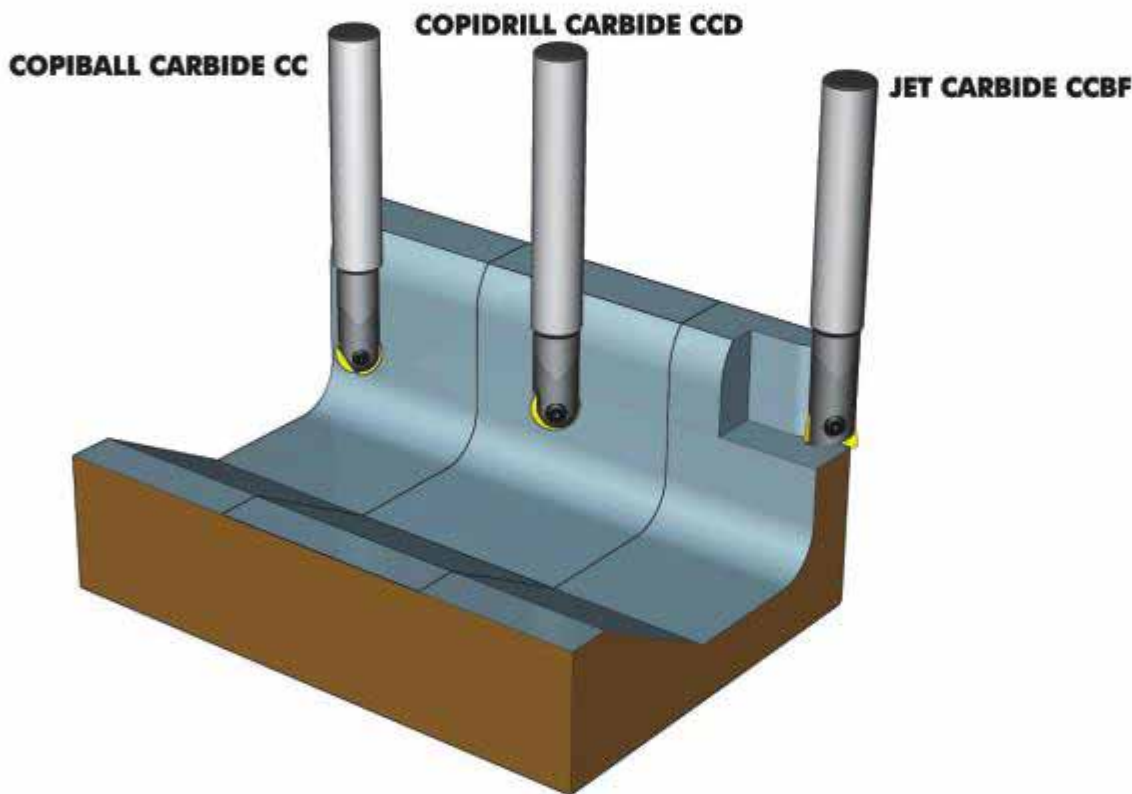
Copiatura per interpolazione.

JET CARBIDE CCBF

Interpolation copying.

JET CARBIDE CCBF

Jet Hartmetall zum Zirkularkopierfräsen.



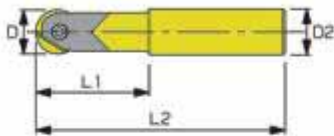

Il corpo in metallo duro riduce al minimo la vibrazioni aumentando notevolmente la vita dell'inserto e permettendo una lavorazione in maggiore profondità.

The Carbide body minimizes the vibrations, with a great increase of the insert's life and allowing a deeper machining.

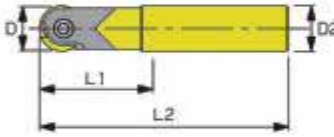


Dieser Hartmetallkörper reduziert Vibrationen, steigert die Standzeit der Wendschneidplatten und erlaubt eine höhere Bearbeitung.

COPIBALL CARBIDE CC • COPIDRILL CARBIDE CCD





| COPIBALL CC  | CODE N° | D | D2 | L1 | L2 |  |
|---------------------------------------------------------------------------------------------------------|---------|----|----|-----|-----|-------------------------------------------------------------------------------------|
| | CC1223 | 12 | 12 | 35 | 120 | RCA12 |
| | CC1224 | 12 | 12 | 50 | 145 | |
| | CC1623 | 16 | 16 | 40 | 140 | RCA16 |
| | CC1624 | 16 | 16 | 89 | 195 | |
| | CC2023 | 20 | 20 | 50 | 140 | RCA20 |
| | CC2024 | 20 | 20 | 125 | 240 | |







| COPIDRILL CCD  | CODE N° | D | D2 | L1 | L2 |  |  |
|-------------------------------------------------------------------------------------------------------------|---------|----|----|-----|-----|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| | CCD1232 | 12 | 12 | 35 | 120 | RCN12 | RCN12AL |
| | CCD1231 | 12 | 12 | 50 | 145 | | |
| | CCD1632 | 16 | 16 | 40 | 140 | RCN16 | RCN16AL |
| | CCD1631 | 16 | 16 | 89 | 195 | | |
| | CCD2032 | 20 | 20 | 50 | 140 | RCN20 | RCN20AL |
| | CCD2031 | 20 | 20 | 125 | 240 | | |

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| CODE N° |  |  |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| CC1223 CC1224 | VSA12 (torx10) | CV003 (torx10) |
| CC1623 CC1624 | VSA16 (torx15) | CV004 (torx15) |
| CC2023 CC2024 | VSA20 (torx20) | CV005 (torx20) |
| CCD1231 CCD1232 CCD1631 CCD1632 CCD2031 CCD2032 | VS12 VS16 (torx20) VS20 | CV005 (torx20) |

INSERTI • INSERTS • WENDEPLATTEN

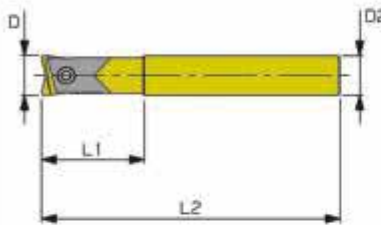

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|-------------------------|-------|------|-------|-------|-------|--------|------|
| | |  | RCA12 RCA16 RCA20 | | | • | | | | • |
|  | RCN12 RCN16 RCN20 | | | • | | | | • | • | |
|  | RCN12AL RCN16AL RCN20AL | | | • | | | | • | • | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER



| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-----------------|------------|----------|----------|---------|
| | | N/mm2 | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,20 | 0,30 | 0,40 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK03E RK03CF | 400/300 | 370/280 | 320/210 | 280/180 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | | 320/260 | 290/220 | 260/190 | 200/140 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | | 290/190 | 230/145 | 180/110 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK03E RK03CF | 420/330 | 370/290 | 310/200 | 270/170 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | | 340/260 | 280/200 | 240/180 | 190/130 |
| | Leghe di Alluminio Aluminium alloys Aluminiumlegierungen | | 30-100 | ZK03M | 1250/1200 | 1100/900 | 1000/700 | 900/650 |
| | Grafite - Graphite - Graphit | | | RK03E RK03CF | 450/300 | 420/280 | | |

JET CARBIDE CCBF




|  | CODE N° | D | D2 | L1 | L2 |  |
|-----------------------------------------------------------------------------------|----------|----|-----|-----|---------|-------------------------------------------------------------------------------------|
| | CCBF1221 | 12 | 12 | 35 | 120 | |
| CCBF1222 | 12 | 12 | 50 | 145 | | |
| CCBF1621 | 16 | 16 | 40 | 140 | RBF1613 | |
| CCBF1622 | 16 | 16 | 89 | 195 | | |
| CCBF2021 | 20 | 20 | 50 | 140 | RBF2016 | |
| CCBF2022 | 20 | 20 | 125 | 240 | | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° |  |  |
|----------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| BF122.VSB12 (torx15) | | CV004 (torx15) |
| BF162.VS16 (torx20) | | CV005 (torx20) |
| BF202.VS20 (torx20) | | |

JET CARBIDE CCBF

INSERTI • INSERTS • WENDEPLATTEN

| | | | | | | | | | | |
|-----------------------------------------------------------------------------------|---------|-----|-----|-------|------|-------|-------|-------|--------|------|
|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | RBF1210 | | | • | | | | • | • | |
| | RBF1613 | | | • | | | | • | • | |
| | RBF2016 | | | • | | | | • | • | |

PARAMETRI DI TAGLIO • CUTTING PARAMETERS • SCHNITTPARAMETER

| | | Durezza Hardness Härte | | | Vc = m/min | | | |
|--------------------------|---------------------------------------------------------------------|------------------------------|---------|-----------------|------------|---------|---------|---------|
| | | N/mm ² | HB | | fz = mm | | | |
| | | | | | 0,10 | 0,20 | 0,30 | 0,40 |
| Acciaio - Steel - Stähle | Acciai poco legati Low alloy steel Unlegierter Werkzeugstähle | 400-900 | | RK03E | 360/270 | 330/250 | 290/190 | 250/150 |
| | Acciai legati Alloy steel Vergütete Formstähle | 900-1200 | | RK03E | 300/240 | 280/215 | 240/170 | 180/125 |
| | Acciai per stampi Mould steel Durchgehärtete Werkzeugstähle | >1200 | | RK03E RK03CF | 260/165 | 215/130 | 165/105 | |
| Ghisa - Cast iron - Guß | Ghisa grigia Gray cast iron Grauguß | | 190-220 | RK03E | 400/305 | 345/265 | 295/180 | 255/160 |
| | Ghisa nodulare Nodular cast iron Kugelgraphitguß | | 230-290 | RK03E RK03CF | 310/245 | 250/185 | 210/160 | 165/110 |
| | Grafite - Graphite - Graphit | | | RK03CF | 450/300 | 410/280 | | |



CONTUR

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| | CODE N° | D | D2 | H | ap | L1 | L2 | Z | |
|--------|-----------|----|----|----|----|----|-----|-----|------------|
| | CR1022 | 10 | 10 | | | 4 | 60 | 160 | |
| CR1222 | 12 | 10 | | | 4 | 30 | 160 | 2 | |
| CR1622 | 16 | 12 | | | 6 | 30 | 200 | 2 | XDHW060210 |
| CR2023 | 20 | 16 | | | 6 | 30 | 200 | 3 | |
| CR2523 | 25 | 20 | | | 6 | 30 | 200 | 3 | |
| CR3223 | 32 | 25 | | | 10 | 30 | 250 | 3 | XDHW10T310 |
| | CR5005-52 | 52 | 22 | 50 | 10 | | | 5 | XDHW10T310 |
| | CR6506-66 | 66 | 27 | 50 | 10 | | | 6 | |
| | CR8007 | 80 | 27 | 50 | 10 | | | 7 | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | | |
|-----------|-------------------|------|-------------------|
| CR1022 | VS1 (torx6) | | CV001 (torx6) |
| CR1222 | | | |
| CR1622 | VS2 (torx8) | | CV002 (torx8) |
| CR2023 | | | |
| CR2523 | | | |
| CR3223 | VS35L (torx15) | ST40 | CV004 (torx15) |
| CR5005-52 | | | |
| CR6506-66 | | | |
| CR8007 | | | |

INSERTI • INSERTS • WENDEPLATTEN

| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|--|------------|------------|-----|-------|------|-------|-------|-------|--------|------|
| | | XDHW040110 | ● | | | ● | ● | | | |
| | XDHW060210 | ● | | | ● | ● | | | | ● |
| | XDHW10T310 | ● | | | ● | ● | | | | ● |



INDEX TR • FRESE A T-T-SLOT CUTTERS•T-NUTENFRÄSER

pag. 47



PRISMADEX • FRESE PRISMATICHE•PRISMATIC CUTTERS•PRISMENFRÄSER

pag. 49



GIDEX • FRESE A SMUSSARE E BISELLARE•COUNTERSINK AND CHAMFERING CUTTERS•ZENTRIER- UND FRÄSENFRÄSER

pag. 50





INDEX TR









| | CODE N° | D | D2 | K | L1 | L2 | L | D1 | Z | |
|---------|---------|----|----|-----|----|----|-------|----|----|-------------|
| | TR2511C | 25 | 20 | | | 11 | 20 | 88 | 12 | |
| TR3012C | 30 | 20 | | | 12 | 25 | 93 | 13 | 4 | |
| TR3214C | 32 | 25 | | | 14 | 26 | 104,5 | 15 | 4 | CCM. 09T308 |
| TR3716C | 37 | 25 | | | 16 | 30 | 109 | 17 | 4 | |
| | TR2511 | 25 | | CM2 | 11 | 20 | 105 | 12 | 4 | CCM. 060208 |
| | TR3012 | 30 | | CM2 | 12 | 25 | 110 | 13 | 4 | |
| | TR3214 | 32 | | CM3 | 14 | 26 | 133 | 15 | 4 | CCM. 09T308 |
| | TR3716 | 37 | | CM3 | 16 | 30 | 138 | 17 | 4 | |
| | TR4018 | 40 | | CM3 | 18 | 31 | 140 | 19 | 4 | CCM. 120408 |
| | TR4620 | 46 | | CM4 | 20 | 35 | 170 | 24 | 4 | |
| | TR4922 | 49 | | CM4 | 22 | 38 | 175 | 25 | 4 | |



RICAMBI • SPARES • ERSATZTEILE

| CODE N° |  |  |
|----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| TR2511C TR3012C TR2511 TR3012 | VS2 (torx8) | CV002 (torx8) |
| TR3214C TR3716C TR3214 TR3716 | VS4 (torx15) | CV004 (torx15) |
| TR4018 TR4620 TR4922 | VS5N (torx20) | CV005 (torx20) |

INSERTI • INSERTS • WENDEPLATTEN

|   | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|-------|------|-------|-------|-------|--------|------|
| |   | CCMW060208 | | • | | | | • | | |
| CCMW09T308 | | | • | | | | • | | | |
| CCMW120408 | | | • | | | | • | | | |
|   | CCMT060208 | | • | | • | | • | | | • |
| | CCMT09T308 | | • | | | | • | | | |
| | CCMT120408 | | • | | • | | • | | | • |

PRISMADEX



| | CODE N° | D | D2 | L1 | L2 | α° | Z | |
|---------|---------|----|----|----|-----|----------------|---------|---------|
| | AR08060 | 80 | 16 | 25 | 36 | 60° | 8 | ARG2560 |
| AR10060 | 100 | 22 | 33 | 45 | 60° | 8 | ARG3360 | |

RICAMBI • SPARES • ERSATZTEILE

| CODE N° | | | |
|---------|----------|-----------|------------|
| AR08060 | TAR60/80 | M6 (ch 3) | HV3 (ch 3) |
| AR10060 | TAR60 | | |

INSERTI • INSERTS • WENDEPLATTEN

| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|--|---------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | ARG2560 | | • | | • | | | | | |
| | ARG3360 | | • | | • | | | | | |



| | | | | | | | | |
|--|---------|----|----|-----|------|-----|---|---------|
| | CODE N° | D | D1 | K | L1 | L2 | Z | |
| | G1932 | 19 | 8 | CM2 | 20,5 | 90 | 2 | TPM0511 |
| | G3232 | 32 | 11 | CM3 | 30,5 | 117 | 2 | TPM0911 |

RICAMBI • SPARES • ERSATZTEILE

| | | |
|-------------------|----------------|--|
| CODE N° | | |
| G1932VS2 (torx8) | CV002 (torx8) | |
| G3232VS4 (torx15) | CV004 (torx15) | |

INSERTI • INSERTS • WENDEPLATTEN

| | | | | | | | | | | |
|--|---------|-----|-----|-------|------|-------|-------|-------|--------|------|
| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
| | TPM0511 | ● | | | ● | | | | | |
| | TPM0911 | ● | | | ● | | | | | |

EXTENSION SYSTEM



| | | |
|-------------------------|---------|---------------------------------------------------------------------------------------|
| EXTENSION SYSTEM | pag. 52 |  |
| CONTUR | pag. 54 |  |
| JET 90 | pag. 54 |  |
| MINIDRILL | pag. 54 |  |
| HELIDEX | pag. 54 |  |
| JETMILL | pag. 54 |  |
| TORIDEX | pag. 56 |  |
| MILLCOP MG | pag. 56 |  |
| COPIDRILL CD | pag. 56 |  |
| COPIBALL CA | pag. 56 |  |
| JET BF | pag. 56 |  |

EXTENSION SYSTEM



| | CODE N° | L | K | D | D1 | D2 | M |
|---------|---------|-----|-----|------|-----|-----|----|
| | CK2380D | 80 | CM3 | 13 | 8,5 | 23 | M8 |
| CK3380D | 80 | CM3 | 18 | 10,5 | 23 | M10 | |
| CK365D | 30 | CM3 | 21 | 12,5 | 23 | M12 | |
| CK395D | 60 | CM3 | 21 | 12,5 | 23 | M12 | |
| CK3120D | 85 | CM3 | 21 | 12,5 | 23 | M12 | |
| CK3130D | 95 | CM3 | 21 | 12,5 | 23 | M12 | |
| CK4155D | 120 | CM4 | 21 | 12,5 | 30 | M12 | |
| CK480D | 35 | CM4 | 29 | 17 | 30 | M16 | |
| CK4110D | 65 | CM4 | 29 | 17 | 30 | M16 | |
| CK4140D | 95 | CM4 | 29 | 17 | 30 | M16 | |
| CK5165D | 120 | CM5 | 29 | 17 | 43 | M16 | |
| CK5195D | 150 | CM5 | 29 | 17 | 43 | M16 | |
| CK5225D | 180 | CM5 | 29 | 17 | 43 | M16 | |



| | CODE N° | L | L1 | K | D | D1 | D2 | M | α° |
|--------------|--------------|-----|----------------|---------------|------|------|-----|-------|----------------|
| | CI40152D | 130 | 150 | ISO40/DIN2080 | 21 | 12,5 | 35 | M12 | 2°30' |
| CV40152D | 130 | 160 | ISO40/DIN69871 | 21 | 12,5 | 35 | M12 | 2°30' | |
| CI40156D | 150 | 170 | ISO40/DIN2080 | 29 | 17 | 43 | M16 | 2°30' | |
| CV40156D | 150 | 180 | ISO40/DIN69871 | 29 | 17 | 43 | M16 | 2°30' | |
| CI50152D | 130 | 150 | ISO50/DIN2080 | 21 | 12,5 | 35 | M12 | 2°30' | |
| CV50152D | 130 | 160 | ISO50/DIN69871 | 21 | 12,5 | 35 | M12 | 2°30' | |
| CI50156D | 150 | 170 | ISO50/DIN2080 | 29 | 17 | 43 | M16 | 2°30' | |
| CV50156D | 150 | 180 | ISO50/DIN69871 | 29 | 17 | 43 | M16 | 2°30' | |
| | CHA315.50.06 | 49 | 75 | HSK - A50 | 10 | 6,5 | 26 | M6 | |
| | CHA315.50.08 | 49 | 75 | HSK - A50 | 13 | 8,5 | 25 | M8 | |
| | CHA315.50.10 | 49 | 75 | HSK - A50 | 18 | 10,5 | 25 | M10 | |
| | CHA315.50.12 | 74 | 100 | HSK - A50 | 21 | 12,5 | 38 | M12 | |
| | CHA315.63.06 | 49 | 75 | HSK - A63 | 10 | 6,5 | 26 | M6 | |
| | CHA315.63.08 | 49 | 75 | HSK - A63 | 13 | 8,5 | 25 | M8 | |
| | CHA315.63.10 | 49 | 75 | HSK - A63 | 18 | 10,5 | 30 | M10 | |
| CHA315.63.12 | 74 | 100 | HSK - A63 | 21 | 12,5 | 38 | M12 | | |
| CHA315.63.16 | 74 | 100 | HSK - A63 | 29 | 17 | 40 | M16 | | |


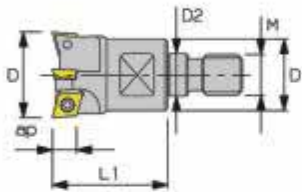

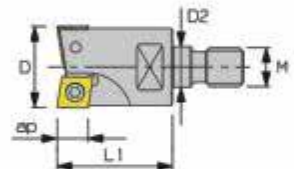

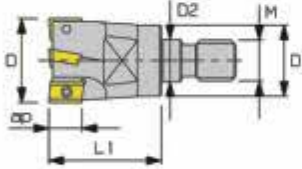

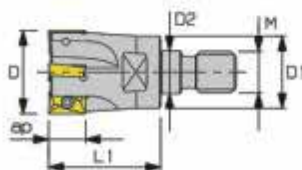

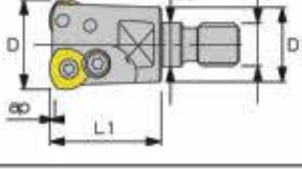
EXTENSION SYSTEM HEAVY METAL



| | CODE N° | L | L1 | D2 | D | D1 | M |
|-----------|----------|-----------|-------|-----|-----|------|-----|
| | PD12125D | 80 | 12512 | 9,7 | 6,5 | M6 | |
| | PD16090D | 40 | 90 | 16 | 13 | 8,5 | M8 |
| | PD16110D | 60 | 110 | 16 | 13 | 8,5 | M8 |
| | PD16130D | 80 | 130 | 16 | 13 | 8,5 | M8 |
| | PD16170D | 120 | 170 | 16 | 13 | 8,5 | M8 |
| | PD20090D | 40 | 90 | 20 | 18 | 10,5 | M10 |
| | PD20110D | 60 | 110 | 20 | 18 | 10,5 | M10 |
| | PD20130D | 80 | 130 | 20 | 18 | 10,5 | M10 |
| | PD20170D | 120 | 170 | 20 | 18 | 10,5 | M10 |
| | | PDC10080D | 40 | 80 | 10 | 9,7 | 6,5 |
| PDC10100D | | 60 | 100 | 10 | 9,7 | 6,5 | M6 |
| PDC10120D | | 80 | 120 | 10 | 9,7 | 6,5 | M6 |






EXTENSION SYSTEM







| CONTUR | | CODE N° | D | D1 | D2 | ap | L1 | M | Z | INSERTI INSERTS WENDEPLATTEN |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|-----|------|-----|----|-----|---|------------------------------|------------------------------------|
|   | MSCR10D | 10 | 9,7 | 6,5 | 4 | 18 | M6 | 2 | XDHW040110 | |
| | MSCR12D | 12 | 9,7 | 6,5 | 4 | 18 | M6 | 2 | | |
| | MSCR16D | 16 | 13 | 8,5 | 6 | 23 | M8 | 2 | XDHW060210 | |
| | MSCR20D | 20 | 19 | 10,5 | 6 | 30 | M10 | 3 | | |
| | MSCR25D | 25 | 21 | 12,5 | 6 | 35 | M12 | 3 | | |
| | MSCR35D | 35 | 29 | 17 | 10 | 43 | M16 | 3 | XDHW10T310 | |
| | MSCR42D | 42 | 29 | 17 | 10 | 43 | M16 | 4 | | |
|   | MSMN25D | 25 | 24 | 12,5 | 9 | 35 | M12 | 2 | 1 ADGW130308 1 CCMW09T308 | |
| | MSMN32D | 32 | 30 | 17 | 12 | 40 | M16 | 2 | 1 APGW160408 1 CCMW120408 | |
| | MSMN36D | 36 | 34 | 17 | 12 | 40 | M16 | 2 | 1 APGW190408 1 CCMW120408 | |
|   | MSJE16D | 16 | 13 | 8,5 | 10 | 23 | M8 | 2 | ADHT1003PER | |
| | MSJE20D | 20 | 18 | 10,5 | 10 | 26 | M10 | 3 | | |
| | MSJE25D | 25 | 21 | 12,5 | 10 | 33 | M12 | 3 | | |
| | MSJE32D | 32 | 29 | 17 | 10 | 43 | M16 | 4 | | |
|   | MSMH20D | 20 | 18 | 10,5 | 10 | 26 | M10 | 3 | APKT1003PDR | |
| | MSMH25D | 25 | 21 | 12,5 | 10 | 33 | M12 | 4 | | |
| | MSMH32D | 32 | 29 | 17 | 10 | 43 | M16 | 5 | | |
|   | MSJM25D | 25 | 21 | 12,5 | 1,5 | 32 | M12 | 2 | JDHW10T310 | |
| | MSJM323D | 32 | 29 | 17 | 1,5 | 40 | M16 | 3 | | |

EXTENSION SYSTEM

RICAMBI • SPARES • ERSATZTEILE

| CODE N° |  |  |  |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| MSCR10D MSCR12D | VS1 (torx6) | | CV001 (torx6) |
| MSCR16D MSCR20D MSCR25D MSJE16D MSJE20D MSJE25D MSJE32D MSMH20D MSMH25D MSMH32D | | | CV002 (torx8) |
| MSCR35D MSCR42D MSJM25D MSJM323D | VS35L(torx15) | ST40 | CV004 (torx15) |
| MSMN25D | VS4-VS4T(torx15) | | CV005 (torx20) |
| MSMN32D MSMN36D | VS5N(torx20) | | |

INSERTI • INSERTS • WENDEPLATTEN

| | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-------------------------------------------------------------------------------------|----------------------------------------|-----|-----|-------|------|-------|-------|-------|--------|------|
|  | XDHW040110 XDHW060210 XDHW10T310 | • | | | • | • | | | | • |
|  | ADGW130308 APGW160408 APGW190408 | | • | | • | | • | | | • |
|  | CCMW060208 CCMW09T308 CCMW120408 | | • | | | | • | | | |
|  | ADHT1003PER | | • | | | | • | | | |
|  | APKT1003PDR | | • | | | | • | | | |
|  | JDHW10T310 | | • | | • | | • | | | • |

EXTENSION SYSTEM







| TORIDEX | CODE N° | D | D1 | D2 | r | L1 | M | Z | INSERTI INSERTS WENDEPLATTEN |
|-------------------|-----------|----|------|------|------|----|-----|---|------------------------------------|
| | MSCX15D | 15 | 13 | 8,5 | 3,5 | 23 | M8 | 2 | RDHX0702MOT |
| | MSCX20D | 20 | 19 | 10,5 | 5 | 30 | M10 | 2 | RD..1003MOT |
| | MSCX24D | 24 | 21 | 12,5 | 6 | 35 | M12 | 2 | RD..12T3MOT |
| | MSCX253D | 25 | 21 | 12,5 | 5 | 35 | M12 | 3 | RD..1003MOT |
| | MSCX255D | 25 | 21 | 12,5 | 5 | 35 | M12 | 2 | RD..1003MOT |
| | MSCX32D | 32 | 29 | 17 | 6 | 43 | M16 | 3 | RD..12T3MOT |
| | MSCX328D | 32 | 29 | 17 | 8 | 43 | M16 | 2 | RD..1604MOT |
| | MSCX35D | 35 | 29 | 17 | 6 | 43 | M16 | 3 | RD..12T3MOT |
| | MSCX42D | 42 | 29 | 17 | 6 | 43 | M16 | 4 | RD..12T3MOT |
| MILLCOP MG | | | | | | | | | |
| | MSMG25D | 25 | 23 | 12,5 | 12,5 | 35 | M12 | 2 | RCCW190412 |
| | MSMG32D | 32 | 29 | 17 | 16 | 40 | M16 | 2 | RCCW230516 |
| COPIBALL | | | | | | | | | |
| | MSCA08D | 8 | 9,7 | 6,5 | 4 | 23 | M6 | 2 | RCA08 |
| | MSCA10D | 10 | 9,7 | 6,5 | 5 | 23 | M6 | 2 | RCA10 |
| | MSCA12D | 12 | 9,7 | 6,5 | 6 | 23 | M6 | 2 | RCA12 |
| | MSCA16D | 16 | 13 | 8,5 | 8 | 28 | M8 | 2 | RCA16 |
| | MSCA20D | 20 | 18 | 10,5 | 10 | 28 | M10 | 2 | RCA20 |
| COPIDRILL | | | | | | | | | |
| | MSCD12D6 | 12 | 9,7 | 6,5 | 6 | 23 | M6 | 2 | RCN12.. |
| | MSCD16D8 | 16 | 13 | 8,5 | 8 | 28 | M8 | 2 | RCN16.. |
| | MSCD20D10 | 20 | 18 | 10,5 | 10 | 28 | M10 | 2 | RCN20.. |
| | MSCD25D12 | 25 | 23,7 | 12,5 | 12,5 | 83 | M12 | 2 | RCN25.. |
| JET BF | | | | | | | | | |
| | MSBF12D | 12 | 9,7 | 6,5 | 1,0 | 27 | M6 | 2 | RBF1210 |
| | MSBF16D | 16 | 13 | 8,5 | 1,3 | 31 | M8 | 2 | RBF1613 |
| | MSBF20D | 20 | 18 | 10,5 | 1,6 | 36 | M10 | 2 | RBF2016 |










EXTENSION SYSTEM

RICAMBI • SPARES • ERSATZTEILE

| CODE N° |  |  |  |  |  |
|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| MSCX15D | VS2 (torx8) | | | | CV002(torx8) |
| MSCX20D | VS35L(torx15) | ST40 | | | CV004(torx15) |
| MSCX253D | | | | | |
| MSCX255D | | | | | |
| MSCX24D | | | | | |
| MSCX32D | | | | | |
| MSCX35D | | | | | |
| MSCX42D | | | | | |
| MSCX328D | VS5N(torx20) | ST30 | | | CV005(torx20) |
| MMSG25D | | | VS40C(torx15) | | CV004(torx15) |
| MMSG32D | | | VS50C(torx20) | | CV005(torx20) |
| MSCA08D | | | | VSA08(torx7) | CV015(torx7) |
| MSCA10D | | | | VSA10(torx8) | CV002(torx8) |
| MSCA12D | | | | VSA12(torx10) | CV003(torx10) |
| MSCA16D | | | | VSA16(torx15) | CV004(torx15) |
| MSCA20D | | | | VSA20(torx20) | |
| MSCD12D6 | | | | VS12 VS16 VS20 VS25 (torx20) | CV005 (torx20) |
| MSCD16D8 | | | | | |
| MSCD20D10 | | | | | |
| MSCD25D12 | | | | | |
| MSBF12D | | | | VSB12(torx15) | CV004 (torx15) |
| MSBF16D | | | | VS16 VS20 (torx20) | CV005 (torx20) |
| MSBF20D | | | | | |

INSERTI • INSERTS • WENDEPLATTEN

|  | CODE N° | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 |
|-------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------|------|-------|-------|-------|--------|------|
| | |  | RDHX0702MOT RDHX1003MOT RDMX1003MOT RDHX12T3MOT RDMX12T3MOT RDHX1604MOT RDMX1604MOT | • | • | • | • | • | • | • |
|  | RDHT1003MOT RDHT12T3MOT RDHT1604MOT | | • | • | | | • | • | | |
|  | RCCW190412 RCCW230516 | | • | | | | • | | | |
|  | RCA08 RCA10 RCA12 RCA16 RCA20 | | | • | | | | • | • | • |
|  | RCN12 RCN16 RCN20 RCN25 | | | • | | | | • | • | • |
|  | RCN12AL RCN16AL RCN20AL RCN25AL | | | • | | | | • | • | • |
| | RBF1210 RBF1613 RBF2016 | | | • | | | | • | • | • |

PIN 69871 AD



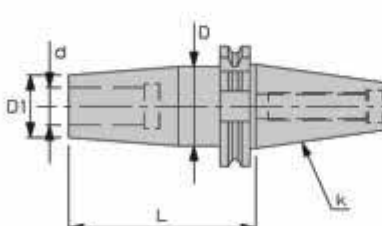
G 2,5

C ISO.40 = 18.000
ISO.50 = 12.000

MANDRINI PER CALETTAMENTO TERMICO
per utensili con attacco cilindrico.

SHRINK FIT CHUCK for cutters
with cylindrical shank.

SCHRUMPFUTTER für fräser
mit zylinderschaft.

| | CODE N° | K | d | D | D1 | L |
|-------------------------------------------------------------------------------------|-------------|-------|----|----|----|-----|
|  | DM403.25.06 | ISO40 | 6 | 27 | 21 | 80 |
| | DM403.25.08 | ISO40 | 8 | 27 | 21 | 80 |
| | DM403.25.10 | ISO40 | 10 | 32 | 24 | 80 |
| | DM403.25.12 | ISO40 | 12 | 32 | 24 | 80 |
| | DM403.25.14 | ISO40 | 14 | 34 | 27 | 80 |
| | DM403.25.16 | ISO40 | 16 | 34 | 27 | 80 |
| | DM403.25.18 | ISO40 | 18 | 42 | 33 | 80 |
| | DM403.25.20 | ISO40 | 20 | 42 | 33 | 80 |
| | DM403.25.25 | ISO40 | 25 | 53 | 44 | 100 |
| | DM503.25.06 | ISO50 | 6 | 27 | 21 | 80 |
| | DM503.25.08 | ISO50 | 8 | 27 | 21 | 80 |
| | DM503.25.10 | ISO50 | 10 | 32 | 24 | 80 |
| | DM503.25.12 | ISO50 | 12 | 32 | 24 | 80 |
| | DM503.25.14 | ISO50 | 14 | 34 | 27 | 80 |
| | DM503.25.16 | ISO50 | 16 | 34 | 27 | 80 |
| | DM503.25.18 | ISO50 | 18 | 42 | 33 | 80 |
| | DM503.25.20 | ISO50 | 20 | 42 | 33 | 80 |
| | DM503.25.25 | ISO50 | 25 | 53 | 44 | 100 |
| | DM503.25.32 | ISO50 | 32 | 53 | 44 | 100 |

DIN 69871 AP



MANDRINI PORTAFRESE TIPO WELDON

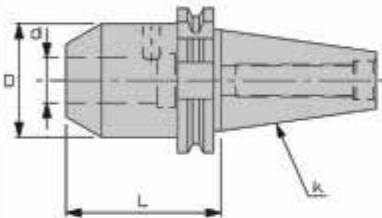
per utensili con attacco cilindrico e piano di trascinamento DIN 1835-B.

END MILL ADAPTORS

for cutters with cylindrical shank and weldon flat DIN 1835-B.

FRÄSERAUFNAHMEN

für fräser mit zylinderschaft und mitnahmefläche DIN 1835-B.



| CODE N° | K | d | D | L |
|---------------|-------|----|----|-----|
| DM402.04.20.0 | ISO40 | 20 | 45 | 35 |
| DM402.04.25.0 | ISO40 | 25 | 50 | 35 |
| DM402.04.32.0 | ISO40 | 32 | 50 | 65 |
| DM502.04.20 | ISO50 | 20 | 52 | 63 |
| DM502.04.25 | ISO50 | 25 | 65 | 80 |
| DM502.04.32 | ISO50 | 32 | 72 | 100 |
| DM502.04.40 | ISO50 | 40 | 80 | 100 |



DIN 69871 AD

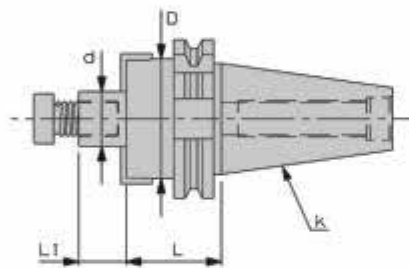


MANDRINI PORTAFRESE
per frese con trascinatore frontale.

SHELL MILL ADAPTORS
for cutters with driving slot.

AUFSTECKFRÄSDORN
für fräser mit quernut.

| CODE N° | K | d | D | L | L1 |
|-------------|-------|----|----|----|----|
| DM402.11.16 | ISO40 | 16 | 38 | 35 | 17 |
| DM402.11.22 | ISO40 | 22 | 48 | 35 | 19 |
| DM402.11.27 | ISO40 | 27 | 58 | 40 | 21 |
| DM402.11.32 | ISO40 | 32 | 78 | 50 | 24 |
| DM502.11.22 | ISO50 | 22 | 48 | 35 | 19 |
| DM502.11.27 | ISO50 | 27 | 58 | 40 | 21 |
| DM502.11.32 | ISO50 | 32 | 78 | 50 | 24 |
| DM502.11.40 | ISO50 | 40 | 88 | 50 | 27 |



DIN 69871

G 6,3

ISO 40 = 15.000
ISO 50 = 10.000



MANDRINI ANTIVIBRANTI
per frese filettate.

THREADED CUTTERS
adaptors anti vibration.

EINSCHRAUBFRÄSDORN
anti vibration.

| | CODE N° | L | L1 | K | D | d1 | d2 | M | d3 |
|--|------------------|-----|-----|-------|----|------|----|-----|----|
| | MA1.315.40.12/30 | 300 | 266 | ISO40 | 50 | 12,5 | 21 | M12 | 49 |
| | MA1.315.40.16/30 | 300 | 266 | ISO40 | 50 | 17 | 29 | M16 | 50 |
| | MA1.315.50.12/30 | 300 | 266 | ISO50 | 80 | 12,5 | 21 | M12 | 49 |
| | MA1.315.50.16/30 | 300 | 266 | ISO50 | 80 | 17 | 29 | M16 | 57 |
| | MA1.315.50.16/50 | 500 | 466 | ISO50 | 80 | 17 | 29 | M16 | 78 |

MANDRINI PORTA FRESE
ANTIVIBRANTI fissi per frese con
trascinatore frontale DIN 138.

SHELL MILL ADAPTORS
ANTI VIBRATION
for cutters with driving slot Din 138.

EINSCHRAUBFRÄSDORN
für fräser mit quernut din 138.



| | CODE N° | L | L1 | K | L2 | D | d1 | d2 | d3 |
|--|-----------------|-----|----|-------|-----|----|----|----|----|
| | A1.160.40.16/20 | 200 | 17 | ISO40 | 166 | 50 | 16 | 36 | 47 |
| | A1.160.40.16/30 | 300 | 17 | ISO40 | 266 | 50 | 16 | 36 | 47 |
| | A1.160.40.22/15 | 150 | 19 | ISO40 | 116 | 50 | 22 | 44 | 47 |
| | A1.160.40.22/30 | 300 | 19 | ISO40 | 266 | 50 | 22 | 44 | 47 |
| | A1.160.40.27/15 | 150 | 21 | ISO40 | 116 | 50 | 27 | 54 | 54 |
| | A1.160.40.27/30 | 300 | 21 | ISO40 | 266 | 50 | 27 | 54 | 54 |
| | A1.160.50.22/25 | 250 | 19 | ISO50 | 216 | 80 | 22 | 44 | 78 |
| | A1.160.50.22/50 | 500 | 19 | ISO50 | 466 | 80 | 22 | 44 | 78 |
| | A1.160.50.27/25 | 250 | 21 | ISO50 | 216 | 80 | 27 | 54 | 78 |
| | A1.160.50.27/50 | 500 | 21 | ISO50 | 466 | 80 | 27 | 54 | 78 |
| | A1.160.50.32/25 | 250 | 24 | ISO50 | 216 | 80 | 32 | 64 | 78 |
| | A1.160.50.32/50 | 500 | 24 | ISO50 | 466 | 80 | 32 | 64 | 78 |

DIN 69893-A

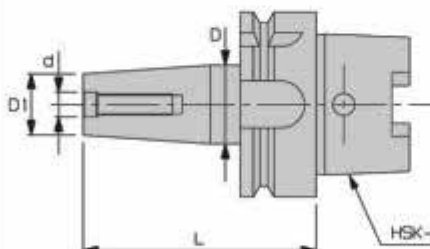


G 2,5
C 22.000

MANDRINI PER CALETTAMENTO TERMICO per utensili con attacco cilindrico.

SHRINK FIT CHUCK for cutters with cylindrical shank.

SCHRUMPFUTTER für fräser mit zylinderschaft.

| | CODE N° | HSK | d | D | D1 | L |
|-------------------------------------------------------------------------------------|---------------|---------|----|----|----|-----|
|  | DMA50.25.06 | HSK-A50 | 6 | 27 | 21 | 80 |
| | DMA50.25.08 | HSK-A50 | 8 | 27 | 21 | 80 |
| | DMA50.25.10 | HSK-A50 | 10 | 32 | 24 | 85 |
| | DMA50.25.12 | HSK-A50 | 12 | 32 | 24 | 90 |
| | DMA50.25.14 | HSK-A50 | 14 | 34 | 27 | 90 |
| | DMA50.25.16 | HSK-A50 | 16 | 34 | 27 | 95 |
| | DMA50.25.18 | HSK-A50 | 18 | 42 | 33 | 95 |
| | DMA50.25.20 | HSK-A50 | 20 | 42 | 33 | 100 |
| | DMA63.25.03 | HSK-A63 | 3 | 18 | 10 | 80 |
| | DMA63.25.031b | HSK-A63 | 3 | 31 | 10 | 160 |
| | DMA63.25.04 | HSK-A63 | 4 | 18 | 10 | 80 |
| | DMA63.25.0416 | HSK-A63 | 4 | 31 | 10 | 160 |
| | DMA63.25.05 | HSK-A63 | 5 | 18 | 10 | 80 |
| | DMA63.25.0516 | HSK-A63 | 5 | 31 | 10 | 160 |
| | DMA63.25.06 | HSK-A63 | 6 | 27 | 21 | 80 |
| | DMA63.25.08 | HSK-A63 | 8 | 27 | 21 | 80 |
| | DMA63.25.10 | HSK-A63 | 10 | 32 | 24 | 85 |
| | DMA63.25.12 | HSK-A63 | 12 | 32 | 24 | 90 |
| | DMA63.25.14 | HSK-A63 | 14 | 34 | 27 | 90 |
| | DMA63.25.16 | HSK-A63 | 16 | 34 | 27 | 95 |
| | DMA63.25.18 | HSK-A63 | 18 | 42 | 33 | 95 |
| | DMA63.25.20 | HSK-A63 | 20 | 42 | 33 | 100 |
| | DMA63.25.25 | HSK-A63 | 25 | 53 | 44 | 115 |
| | DMA63.25.32 | HSK-A63 | 32 | 53 | 44 | 120 |

DIN 69893-E

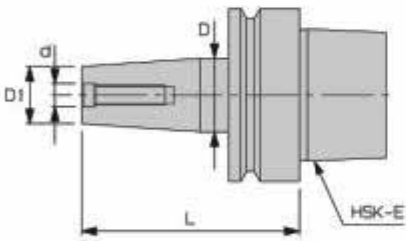


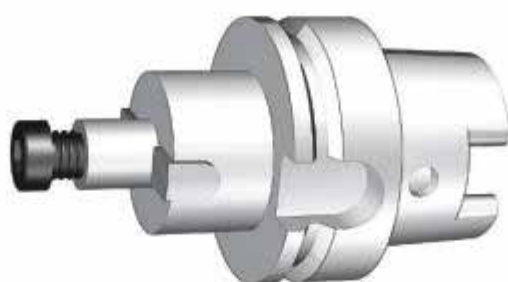
G 2,5
C 22.000

MANDRINI PER CALETTAMENTO TERMICO
per utensili con attacco cilindrico.

SHRINK FIT CHUCK for cutters
with cylindrical shank.

SCHRUMPFUTTER für fräser
mit zylinderschaft.

| | CODE N° | HSK | d | D | D1 | L |
|-------------------------------------------------------------------------------------|-------------|---------|----|------|----|-----|
|  | DME50.25.03 | HSK-E50 | 3 | 18,4 | 9 | 80 |
| | DME50.25.04 | HSK-E50 | 4 | 18,4 | 9 | 80 |
| | DME50.25.05 | HSK-E50 | 5 | 18,4 | 9 | 80 |
| | DME50.25.06 | HSK-E50 | 6 | 27 | 21 | 80 |
| | DME50.25.08 | HSK-E50 | 8 | 27 | 21 | 80 |
| | DME50.25.10 | HSK-E50 | 10 | 32 | 24 | 85 |
| | DME50.25.12 | HSK-E50 | 12 | 32 | 24 | 90 |
| | DME50.25.14 | HSK-E50 | 14 | 34 | 27 | 90 |
| | DME50.25.16 | HSK-E50 | 16 | 34 | 27 | 95 |
| | DME50.25.18 | HSK-E50 | 18 | 42 | 33 | 95 |
| | DME50.25.20 | HSK-E50 | 20 | 42 | 33 | 100 |
| | DME63.25.06 | HSK-E63 | 6 | 27 | 21 | 80 |
| | DME63.25.08 | HSK-E63 | 8 | 27 | 21 | 80 |
| | DME63.25.10 | HSK-E63 | 10 | 32 | 24 | 85 |
| | DME63.25.12 | HSK-E63 | 12 | 32 | 24 | 90 |
| | DME63.25.14 | HSK-E63 | 14 | 34 | 27 | 90 |
| | DME63.25.16 | HSK-E63 | 16 | 34 | 27 | 95 |
| | DME63.25.18 | HSK-E63 | 18 | 42 | 33 | 95 |
| | DME63.25.20 | HSK-E63 | 20 | 42 | 33 | 100 |
| | DME63.25.25 | HSK-E63 | 25 | 53 | 44 | 115 |
| | DME63.25.32 | HSK-E63 | 32 | 53 | 44 | 120 |



G 2,5
C 20.000

MANDRINI PORTAFRESE FISSI per frese con trascinatore frontale.

SHELL MILL ADAPTORS for cutters with driving slot.

AUFSTECKFRÄSDORN für fräser mit quernut.

| | CODE N° | HSK | d | D | L | L1 |
|--|-------------|---------|----|----|----|----|
| | DMA50.11.16 | HSK-A50 | 16 | 38 | 50 | 17 |
| | DMA50.11.22 | HSK-A50 | 22 | 48 | 60 | 19 |
| | DMA50.11.27 | HSK-A50 | 27 | 58 | 60 | 21 |
| | DMA50.11.32 | HSK-A50 | 32 | 78 | 60 | 24 |
| | DMA63.11.16 | HSK-A63 | 16 | 38 | 50 | 17 |
| | DMA63.11.22 | HSK-A63 | 22 | 48 | 50 | 19 |
| | DMA63.11.27 | HSK-A63 | 27 | 58 | 60 | 21 |
| | DMA63.11.32 | HSK-A63 | 32 | 78 | 60 | 24 |
| | DMA63.11.40 | HSK-A63 | 40 | 88 | 60 | 27 |
| | DME50.11.16 | HSK-E50 | 16 | 38 | 50 | 17 |
| | DME50.11.22 | HSK-E50 | 22 | 48 | 60 | 19 |
| | DME63.11.16 | HSK-E63 | 16 | 38 | 50 | 17 |
| | DME63.11.22 | HSK-E63 | 22 | 48 | 50 | 19 |



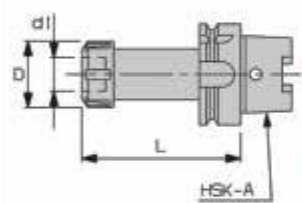
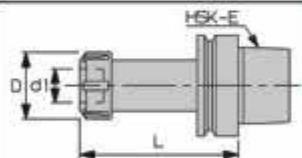
G 2,5

C 20.000

**MANDRINI PORTAFRESE PER PINZE
DIN 6499 (ER)** per utensili con gambo
cilindrico.

COLLET CHUCKS FOR COLLETS DIN 6499 (ER)
for tools with cylindrical shank.

**FRÄSERSPANNFUTTER FÜR DIN 6499 (ER)
SPANNZANGEN** für werkzeuge mit zylinderschaft.

|  | CODE N° | HSK | d1 | D | L |
|-------------------------------------------------------------------------------------|-------------|---------|-----------|----|-----|
| | MDA50.02.16 | HSK-A50 | ER25 2-16 | 42 | 100 |
| | MDA63.02.20 | HSK-A63 | ER32 2-20 | 50 | 100 |
|  | MDE50.02.16 | HSK-E50 | ER25 2-16 | 42 | 70 |
| | MDE63.02.20 | HSK-E63 | ER32 2-20 | 50 | 75 |





SPEEDCUT FRESE SFERICHE • BALL NOSE CUTTERS • RADIUSFRÄSER

pag. 67



SPEEDCUT FRESE TORICHE • RADIUSCUTTERS • TORISCHERFRÄSER

pag. 69



SPEEDCUT FRESE PIATTE • SOLID CARBIDE MULTI FLUTE
VOLLHARTMETALL MEHRSCHEIDER

pag. 70

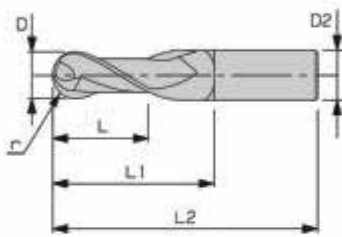
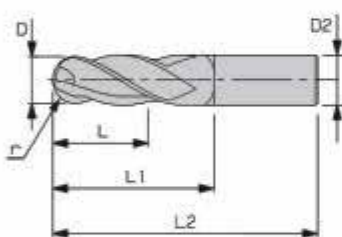




| BH | | CODE N° | D ^{a8} | D2 ^{h6} | d | L | L1 | L2 | L3 | r | Z |
|-----------|--|----------|-----------------|------------------|------|-----|----|-----|-----|------|---|
| | | BH0380 | 3 | 6 | 2,8 | 3,5 | 12 | 40 | 80 | 1,5 | 2 |
| | | BH0480 | 4 | 6 | 3,8 | 4 | 15 | 40 | 80 | 2,0 | 2 |
| | | BH0580 | 5 | 6 | 4,7 | 5 | 18 | 40 | 80 | 2,5 | 2 |
| | | BH06100 | 6 | 8 | 5,6 | 6 | 20 | 60 | 100 | 3,0 | 2 |
| | | BH08120 | 8 | 10 | 7,6 | 7 | 25 | 75 | 120 | 4,0 | 2 |
| | | BH10122 | 10 | 12 | 9,6 | 8 | 30 | 70 | 120 | 5,0 | 2 |
| | | BH12150 | 12 | 16 | 11,5 | 10 | 35 | 90 | 150 | 6,0 | 2 |
| | | BHL0150 | 1 | 4 | | 4 | 9 | 50 | | 0,5 | 2 |
| | | BHL01550 | 1,5 | 4 | | 4 | 9 | 50 | | 0,75 | 2 |
| | | BHL0250 | 2 | 6 | | 5 | 9 | 50 | | 1 | 2 |
| | | BHL0380 | 3 | 6 | | 6 | 9 | 80 | | 1,5 | 2 |
| | | BHL0480 | 4 | 6 | | 8 | 11 | 80 | | 2 | 2 |
| | | BHL0590 | 5 | 6 | | 10 | 13 | 90 | | 2,5 | 2 |
| | | BHL0690 | 6 | 6 | | 12 | | 90 | | 3 | 2 |
| | | BHL08100 | 8 | 8 | | 14 | | 100 | | 4 | 2 |
| | | BHL10100 | 10 | 10 | | 18 | | 100 | | 5 | 2 |
| | | BHL12110 | 12 | 12 | | 22 | | 110 | | 6 | 2 |
| | | BHL16140 | 16 | 16 | | 30 | | 140 | | 8 | 2 |
| | | BHL20160 | 20 | 20 | | 38 | | 160 | | 10 | 2 |

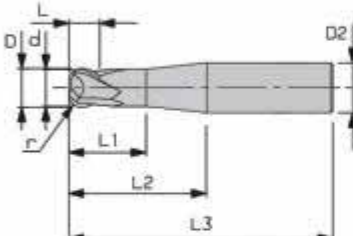




| BHXL | | CODE N° | D ^{e8} | D ₂ ^{h6} | L | L1 | L2 | r | Z |
|-------------------------------------------------------------------------------------|--|-----------|-----------------|------------------------------|----|----|-----|-----|---|
|  | | BHXL0280 | 2 | 3 | 6 | 8 | 80 | 1 | 2 |
| | | BHXL03100 | 3 | 3 | 8 | | 100 | 1,5 | 2 |
| | | BHXL04100 | 4 | 4 | 8 | | 100 | 2 | 2 |
| | | BHXL05120 | 5 | 6 | 10 | 11 | 120 | 2,5 | 2 |
| | | BHXL06120 | 6 | 6 | 10 | | 120 | 3 | 2 |
| | | BHXL08140 | 8 | 8 | 14 | | 140 | 4 | 2 |
| | | BHXL10180 | 10 | 10 | 18 | | 180 | 5 | 2 |
|  | | BHL40360 | 3 | 6 | 8 | 13 | 60 | 1,5 | 4 |
| | | BHL40470 | 4 | 6 | 8 | 13 | 70 | 2 | 4 |
| | | BHL40580 | 5 | 6 | 10 | 13 | 80 | 2,5 | 4 |
| | | BHL40690 | 6 | 6 | 12 | | 90 | 3 | 4 |
| | | BHL408100 | 8 | 8 | 14 | | 100 | 4 | 4 |
| | | BHL410100 | 10 | 10 | 18 | | 100 | 5 | 4 |
| | | BHL412110 | 12 | 12 | 22 | | 110 | 6 | 4 |
| | | BHL416140 | 16 | 16 | 30 | | 140 | 8 | 4 |
| | | BHL420160 | 20 | 20 | 38 | | 160 | 10 | 4 |

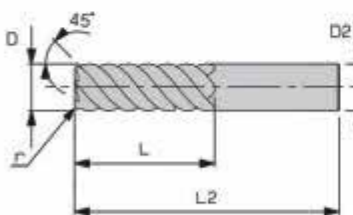


RH



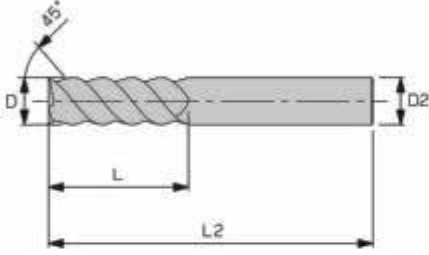
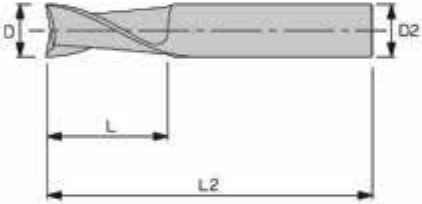
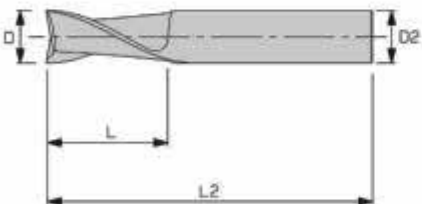
| CODE N° | D ^{e8} | D2 ^{h6} | d | L | L1 | L2 | L3 | r | Z |
|---------|-----------------|------------------|------|-----|----|-----|-----|-----|---|
| RH0380 | 3 | 6 | 2,8 | 3,5 | 12 | 40 | 80 | 0,5 | 2 |
| RH0480 | 4 | 6 | 3,8 | 4 | 15 | 40 | 80 | 1,0 | 2 |
| RH0680 | 6 | 6 | 5,6 | 6 | 18 | 40 | 80 | 2,0 | 2 |
| RH06100 | 6 | 8 | 5,6 | 6 | 40 | 60 | 100 | 2,0 | 2 |
| RH08100 | 8 | 8 | 7,6 | 7 | 50 | 60 | 100 | 2,0 | 2 |
| RH08120 | 8 | 10 | 7,6 | 7 | 30 | 75 | 120 | 2,0 | 2 |
| RH10120 | 10 | 10 | 9,6 | 8 | 60 | 75 | 120 | 3,0 | 2 |
| RH10122 | 10 | 12 | 9,6 | 8 | 30 | 70 | 120 | 3,0 | 2 |
| RH12120 | 12 | 12 | 11,5 | 10 | 70 | 70 | 120 | 4,0 | 2 |
| RH12150 | 12 | 16 | 11,5 | 10 | 35 | 100 | 150 | 4,0 | 2 |

HMUR



| CODE N° | D ^{e8} | D2 ^{h6} | L | L1 | L2 | r | Z |
|------------|-----------------|------------------|----|----|-----|-----|---|
| HMUR406005 | 6 | 6 | 15 | | 60 | 0,5 | 4 |
| HMUR406010 | 6 | 6 | 15 | | 60 | 1,0 | 4 |
| HMUR408005 | 8 | 8 | 20 | | 75 | 0,5 | 4 |
| HMUR408010 | 8 | 8 | 20 | | 75 | 1,0 | 4 |
| HMUR401005 | 10 | 10 | 25 | | 80 | 0,5 | 4 |
| HMUR401010 | 10 | 10 | 25 | | 80 | 1,0 | 4 |
| HMUR401210 | 12 | 12 | 30 | | 100 | 1,0 | 4 |
| HMUR401215 | 12 | 12 | 30 | | 100 | 1,5 | 4 |
| HMUR401610 | 16 | 16 | 40 | | 110 | 1,0 | 4 |
| HMUR401615 | 16 | 16 | 40 | | 110 | 1,5 | 4 |

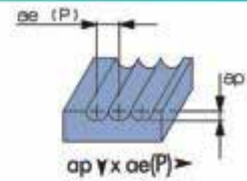


| HMU  | CODE N° | D^{e8} | $D2^{h6}$ | L | L1 | L2 | r | Z |
|-----------------------------------------------------------------------------------------------------|----------|----------|-----------|----|----|-----|---|---|
| | HMU4040 | 4 | 6 | 12 | 15 | 60 | | 4 |
| | HMU4060 | 6 | 6 | 15 | | 60 | | 4 |
| | HMU4080 | 8 | 8 | 20 | | 75 | | 4 |
| | HMU4100 | 10 | 10 | 25 | | 80 | | 4 |
| | HMU4120 | 12 | 12 | 30 | | 100 | | 4 |
| | HMU4160 | 16 | 16 | 40 | | 110 | | 4 |
| HMH2  | HMH2020 | 2 | 4 | 8 | | 40 | | 2 |
| | HMH2030 | 3 | 6 | 12 | | 50 | | 2 |
| | HMH2040 | 4 | 6 | 15 | | 50 | | 2 |
| | HMH2050 | 5 | 6 | 20 | | 60 | | 2 |
| | HMH2060 | 6 | 6 | 20 | | 60 | | 2 |
| | HMH2080 | 8 | 8 | 25 | | 70 | | 2 |
| | HMH2100 | 10 | 10 | 30 | | 90 | | 2 |
| | HMH2120 | 12 | 12 | 30 | | 90 | | 2 |
| | HMH2160 | 16 | 16 | 50 | | 110 | | 2 |
| | HMH2200 | 20 | 20 | 55 | | 110 | | 2 |
| HMHC2  | HMHC2020 | 2 | 4 | 6 | | 40 | | 2 |
| | HMHC2030 | 3 | 6 | 8 | | 45 | | 2 |
| | HMHC2040 | 4 | 6 | 10 | | 50 | | 2 |
| | HMHC2050 | 5 | 6 | 12 | | 50 | | 2 |
| | HMHC2060 | 6 | 6 | 12 | | 50 | | 2 |
| | HMHC2080 | 8 | 8 | 20 | | 60 | | 2 |
| | HMHC2100 | 10 | 10 | 22 | | 70 | | 2 |
| | HMHC2120 | 12 | 12 | 25 | | 75 | | 2 |
| | HMHC2160 | 16 | 16 | 30 | | 85 | | 2 |
| | HMHC2200 | 20 | 20 | 38 | | 100 | | 2 |



| HMH | | CODE N° | D ^{e8} | D2 ^{h6} | L | L1 | Z |
|-------------|--|----------|-----------------|------------------|----|-----|---|
| | | HMH4030 | 3 | 6 | 7 | 55 | 4 |
| | | HMH4040 | 4 | 6 | 10 | 60 | 4 |
| | | HMH4050 | 5 | 6 | 13 | 60 | 4 |
| | | HMH6060 | 6 | 6 | 15 | 60 | 6 |
| | | HMH6080 | 8 | 8 | 19 | 75 | 6 |
| | | HMH6100 | 10 | 10 | 24 | 80 | 6 |
| | | HMH6120 | 12 | 12 | 29 | 100 | 6 |
| | | HMH6160 | 16 | 16 | 32 | 110 | 6 |
| | | HMH6200 | 20 | 20 | 40 | 125 | 6 |
| HMHL | | HMHL6060 | 6 | 6 | 26 | 70 | 6 |
| | | HMHL6080 | 8 | 8 | 36 | 90 | 6 |
| | | HMHL6100 | 10 | 10 | 46 | 100 | 6 |
| | | HMHL6120 | 12 | 12 | 56 | 110 | 6 |
| | | HMHL6160 | 16 | 16 | 66 | 130 | 6 |
| | | HMHL6200 | 20 | 20 | 76 | 140 | 6 |

PARAMETRI TAGLIO • CUTTING DATA • SCHNITTPARAMETER



BH



BHL

BHXL

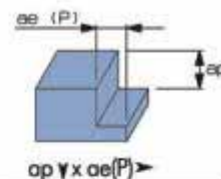


BHL4

| Materiali Materialien | Acciaio al carbonio Ghisa (GG) | | | Acciaio legato Acciaio da costruzione Ghisa malleabile (GGG) Alloy steel Construction steel Ductile cast iron (GGG) Legierte stähle Baustähle | | | Acciaio legato Alloy steel Legierte stähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | |
|---------------------------------------------------|-----------------------------------|------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|--------------------------------------------------|------|-------|------------------------------------------------------|------|-------|------------------------------------------------------|------|-------|
| | Carbon steel Cast iron (GG) | | | Schmiedbares Gußeisen (GGG) | | | | | | | | | | | |
| Durezza Hardness Härte | 150 ÷ 200 HB | | | 200 ÷ 300 HB | | | 30 ÷ 45 HRC | | | 45 ÷ 55 HRC | | | 55 ÷ 70 HRC | | |
| Finitura • Finishing • Schlichten | | | | | | | | | | | | | | | |
| Vc | 240 | | | 200 | | | 180 | | | 150 | | | 120 | | |
| ap x ae | 0,05D x P 0,05D | | | | | | | | | | | | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz |
| 1 | 76400 | 3820 | 0,025 | 63700 | 3185 | 0,025 | 57300 | 2870 | 0,025 | 47800 | 2390 | 0,025 | 38200 | 1910 | 0,025 |
| 1,5 | 51000 | 3060 | 0,030 | 42500 | 2550 | 0,030 | 38200 | 2290 | 0,030 | 31900 | 1910 | 0,030 | 25500 | 1530 | 0,030 |
| 2 | 38200 | 3050 | 0,040 | 31900 | 2550 | 0,040 | 28700 | 2290 | 0,040 | 23900 | 1910 | 0,040 | 19100 | 1530 | 0,040 |
| 3 | 25500 | 2800 | 0,055 | 21200 | 2340 | 0,055 | 19100 | 2100 | 0,055 | 15900 | 1750 | 0,055 | 12700 | 1400 | 0,055 |
| 4 | 19100 | 2670 | 0,070 | 15900 | 2230 | 0,070 | 14300 | 2010 | 0,070 | 11900 | 1670 | 0,070 | 9550 | 1340 | 0,070 |
| 5 | 15300 | 2450 | 0,080 | 12700 | 2040 | 0,080 | 11500 | 1830 | 0,080 | 9550 | 1530 | 0,080 | 7640 | 1220 | 0,080 |
| 6 | 12700 | 2290 | 0,090 | 10600 | 1910 | 0,090 | 9550 | 1720 | 0,090 | 7960 | 1430 | 0,090 | 6370 | 1150 | 0,090 |
| 8 | 9550 | 2100 | 0,110 | 7960 | 1750 | 0,110 | 7170 | 1580 | 0,110 | 5970 | 1310 | 0,110 | 4780 | 1050 | 0,110 |
| 10 | 7640 | 1990 | 0,130 | 6370 | 1660 | 0,130 | 5730 | 1490 | 0,130 | 4780 | 1240 | 0,130 | 3820 | 990 | 0,130 |
| 12 | 6370 | 1910 | 0,150 | 5300 | 1590 | 0,150 | 4780 | 1430 | 0,150 | 3980 | 1190 | 0,150 | 3180 | 960 | 0,150 |
| 16 | 4780 | 1620 | 0,170 | 3980 | 1350 | 0,170 | 3580 | 1220 | 0,170 | 2990 | 1020 | 0,170 | 2390 | 810 | 0,170 |
| 20 | 3820 | 1300 | 0,170 | 3180 | 1080 | 0,170 | 2870 | 970 | 0,170 | 2390 | 810 | 0,170 | 1910 | 650 | 0,170 |
| Superfinitura • Superfinishing • Super-schlichten | | | | | | | | | | | | | | | |
| Vc | 400 | | | 350 | | | 300 | | | 250 | | | 200 | | |
| ap x ae | 0,05D x P 0,05D | | | | | | | | | | | | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz |
| 1 | 127400 | 6370 | 0,025 | 111500 | 5575 | 0,025 | 95500 | 3980 | 0,025 | 79600 | 3980 | 0,025 | 63700 | 3180 | 0,025 |
| 1,5 | 85000 | 5100 | 0,030 | 74300 | 4450 | 0,030 | 63700 | 3820 | 0,030 | 53000 | 3180 | 0,030 | 42500 | 2550 | 0,030 |
| 2 | 63700 | 5090 | 0,040 | 55700 | 4450 | 0,040 | 47700 | 3820 | 0,040 | 39800 | 3180 | 0,040 | 31900 | 2550 | 0,040 |
| 3 | 42400 | 4660 | 0,055 | 37100 | 4080 | 0,055 | 31800 | 3500 | 0,055 | 26500 | 2920 | 0,055 | 21200 | 2330 | 0,055 |
| 4 | 31800 | 4450 | 0,070 | 27900 | 3910 | 0,070 | 23900 | 3350 | 0,070 | 19900 | 2790 | 0,070 | 15900 | 2330 | 0,070 |
| 5 | 25500 | 4080 | 0,080 | 22300 | 3570 | 0,080 | 19100 | 3060 | 0,080 | 15900 | 2540 | 0,080 | 12700 | 2030 | 0,080 |
| 6 | 21200 | 3820 | 0,090 | 18600 | 3350 | 0,090 | 15900 | 2860 | 0,090 | 13300 | 2390 | 0,090 | 10600 | 1910 | 0,090 |
| 8 | 15900 | 3500 | 0,110 | 13900 | 3060 | 0,110 | 11900 | 2620 | 0,110 | 9950 | 2190 | 0,110 | 7960 | 1750 | 0,110 |
| 10 | 12700 | 3300 | 0,130 | 11100 | 2890 | 0,130 | 9550 | 2480 | 0,130 | 7960 | 2070 | 0,130 | 6370 | 1660 | 0,130 |
| 12 | 10600 | 3180 | 0,150 | 9280 | 2780 | 0,150 | 7960 | 2390 | 0,150 | 6630 | 1990 | 0,150 | 5310 | 1590 | 0,150 |
| 16 | 7960 | 2710 | 0,170 | 6960 | 2370 | 0,170 | 5970 | 2030 | 0,170 | 4970 | 1690 | 0,170 | 3980 | 1350 | 0,170 |
| 20 | 6370 | 2170 | 0,170 | 5570 | 1890 | 0,170 | 4780 | 1625 | 0,170 | 3980 | 1350 | 0,170 | 3180 | 1080 | 0,170 |

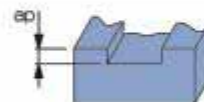
PARAMETRI TAGLIO METALLO DURO INTEGRALE • SOLID CARBIDE CUTTING DATA • VOLLHARTMETALL SCHNITTPARAMETER

RH



| Materiali Materials Materialien | Acciaio al carbonio Ghisa (GG) | | Acciaio legato Acciaio da costruzione Ghisa malleabile (GGG) Alloy steel Construction steel Ductile cast iron (GGG) Legierte stähle Baustähle Schmiedbares Gußeisen (GGG) | | | Acciaio legato Alloy steel Legierte stähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | | |
|---------------------------------------|-----------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|--------------------------------------------------|-------|-----|------------------------------------------------------|-------|-----|------------------------------------------------------|------|-----|-----------|--|
| | Carbon steel Cast iron (GG) | | Kohlenstoffstähle Gußeisen (GG) | | | 200 +300 HB | | | 30 +45 HRC | | | 45+55 HRC | | | 55+70 HRC | |
| Durezza Hardness Härte | 150 +200 HB | | 200 +300 HB | | | 30 +45 HRC | | | 45+55 HRC | | | 55+70 HRC | | | | |
| Finitura • Finishing • Schlichten | | | | | | | | | | | | | | | | |
| Vc | 150 | | 120 | | | 100 | | | 100 | | | 80 | | | | |
| ap x ae | 1D x 0,1D | | 1D x 0,1D | | | 1D x 0,1D | | | 1D x 0,05D | | | 1D x 0,05D | | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | |
| 3 | 15900 | 950 | 0,030 | 12700 | 760 | 0,030 | 10600 | 430 | 0,020 | 10600 | 320 | 0,015 | 8490 | 255 | 0,015 | |
| 4 | 11900 | 1190 | 0,050 | 9550 | 955 | 0,050 | 7960 | 400 | 0,025 | 7960 | 320 | 0,020 | 6370 | 255 | 0,020 | |
| 6 | 7960 | 1270 | 0,080 | 6370 | 1020 | 0,080 | 5310 | 425 | 0,040 | 5310 | 320 | 0,030 | 4240 | 255 | 0,030 | |
| 8 | 5970 | 1250 | 0,105 | 4770 | 1000 | 0,105 | 3980 | 400 | 0,050 | 3980 | 320 | 0,040 | 3180 | 255 | 0,040 | |
| 10 | 4770 | 1150 | 0,120 | 3820 | 920 | 0,120 | 3180 | 380 | 0,060 | 3180 | 320 | 0,050 | 2550 | 255 | 0,050 | |
| 12 | 3980 | 1040 | 0,130 | 3180 | 830 | 0,130 | 2650 | 370 | 0,070 | 2650 | 320 | 0,060 | 2120 | 255 | 0,060 | |

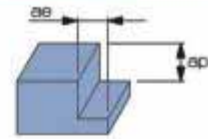
**HMHC2
HMH2**



| Materiali Materials Materialien | Acciaio al carbonio Ghisa (GG) | | Acciaio legato Acciaio da costruzione Ghisa malleabile (GGG) Alloy steel Construction steel Ductile cast iron (GGG) Legierte stähle Baustähle Schmiedbares Gußeisen (GGG) | | | Acciaio legato Alloy steel Legierte stähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | | |
|---------------------------------------|-----------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--------------------------------------------------|------|-----|------------------------------------------------------|------|-------|------------------------------------------------------|------|----|-----------|--|
| | Carbon steel Cast iron (GG) | | Kohlenstoffstähle Gußeisen (GG) | | | 200 +300 HB | | | 30 +45 HRC | | | 45+55 HRC | | | 55+70 HRC | |
| Durezza Hardness Härte | 150 +200 HB | | 200 +300 HB | | | 30 +45 HRC | | | 45+55 HRC | | | 55+70 HRC | | | | |
| Finitura • Finishing • Schlichten | | | | | | | | | | | | | | | | |
| Vc | 80 | | 70 | | | 50 | | | 30 | | | 20 | | | | |
| ap | 0,5D | | 0,5D | | | 0,5D | | | 0,5D | | | 0,5D | | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | |
| 2 | 12740 | 255 | 0,010 | 11150 | 220 | 0,010 | 7960 | 130 | 0,008 | 4780 | 0,006 | 57 | 3180 | 38 | 0,006 | |
| 3 | 8490 | 340 | 0,020 | 7430 | 300 | 0,020 | 5310 | 160 | 0,015 | 3180 | 0,010 | 64 | 2120 | 42 | 0,010 | |
| 4 | 6370 | 380 | 0,030 | 5570 | 330 | 0,030 | 3980 | 200 | 0,025 | 2390 | 0,020 | 100 | 1590 | 64 | 0,020 | |
| 5 | 5090 | 410 | 0,040 | 4460 | 360 | 0,040 | 3180 | 220 | 0,035 | 1910 | 0,030 | 110 | 1270 | 80 | 0,030 | |
| 6 | 4240 | 420 | 0,050 | 3710 | 370 | 0,050 | 2650 | 210 | 0,040 | 1590 | 0,035 | 110 | 1060 | 70 | 0,035 | |
| 8 | 3180 | 450 | 0,070 | 2790 | 390 | 0,070 | 1990 | 200 | 0,050 | 1190 | 0,045 | 110 | 800 | 70 | 0,045 | |
| 10 | 2550 | 410 | 0,080 | 2230 | 360 | 0,080 | 1590 | 190 | 0,060 | 950 | 0,055 | 100 | 640 | 70 | 0,055 | |
| 12 | 2120 | 380 | 0,090 | 1860 | 330 | 0,090 | 1330 | 190 | 0,070 | 800 | 0,060 | 100 | 530 | 64 | 0,060 | |
| 16 | 1590 | 320 | 0,100 | 1390 | 280 | 0,100 | 990 | 170 | 0,085 | 600 | 0,070 | 80 | 400 | 56 | 0,070 | |
| 20 | 1270 | 300 | 0,120 | 1110 | 270 | 0,120 | 800 | 160 | 0,100 | 480 | 0,080 | 80 | 320 | 51 | 0,080 | |

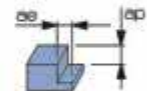
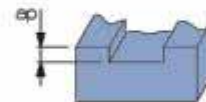
PARAMETRI TAGLIO METALLO DURO INTEGRALE • SOLID CARBIDE CUTTING DATA • VOLLHARTMETALL SCHNITTPARAMETER

HMH • HMHL

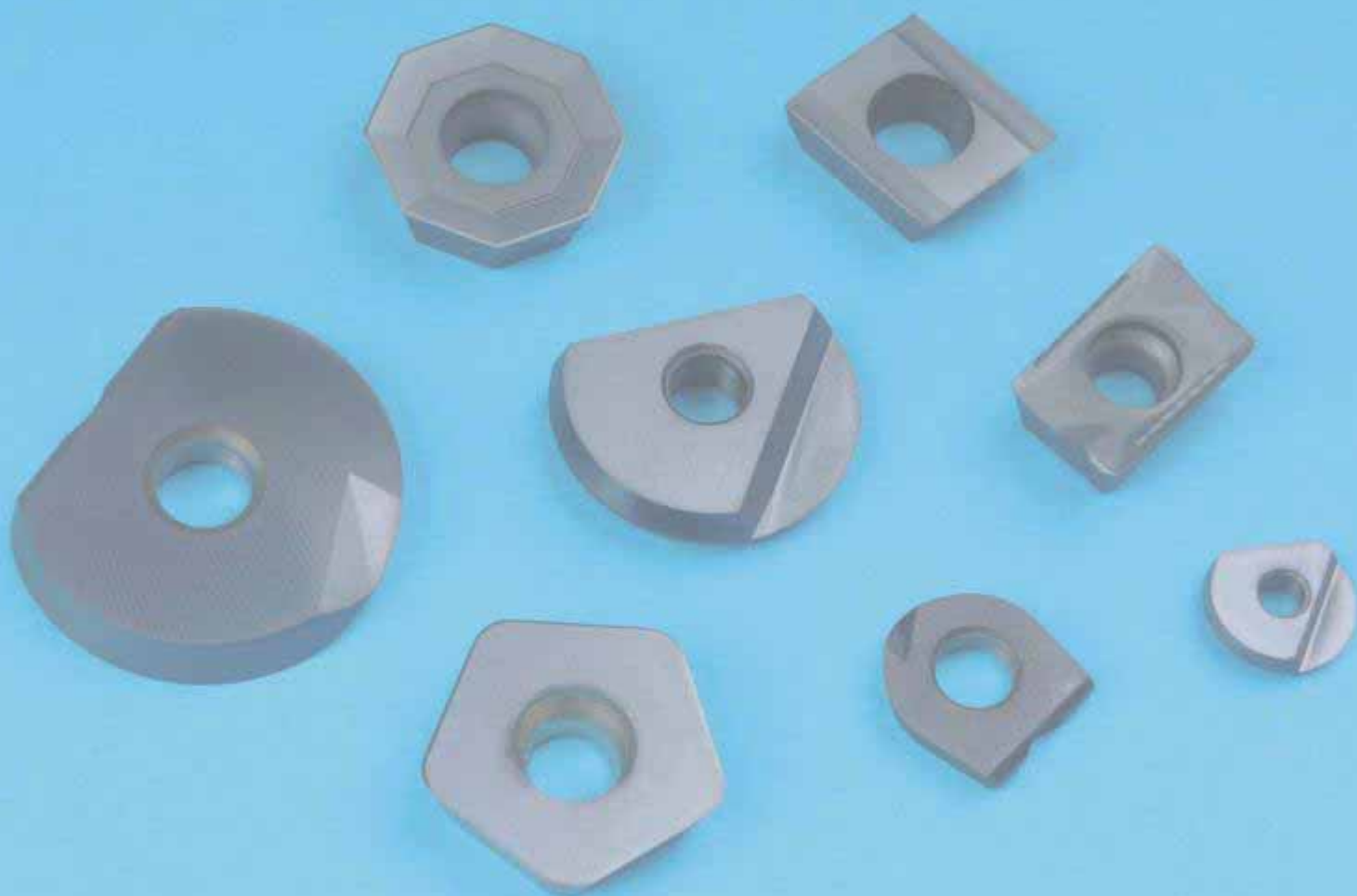


| Materiali Materials Materialien | Acciaio al carbonio Ghisa (GG) | | Acciaio legato Acciaio da costruzione Ghisa malleabile (GGG) Alloy steel Construction steel Ductile cast iron (GGG) Legierte stähle Baustähle Schmiedbares Gußeisen (GGG) | | | Acciaio legato Alloy steel Legierte stähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | Acciaio per utensili Tool steel Werkzeugstähle | | | |
|---------------------------------------|-----------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|--------------------------------------------------|-------|------|------------------------------------------------------|-------|-----|------------------------------------------------------|------|-----|-------|
| | Carbon steel Cast iron (GG) | | Kohlenstoffstähle Gußeisen (GG) | | | 30+45 HRC | | | 45+55 HRC | | | 55+70 HRC | | | |
| Durezza Hardness Härte | 150+200 HB | | 200+300 HB | | | 30+45 HRC | | | 45+55 HRC | | | 55+70 HRC | | | |
| Finitura • Finishing • Schlichten | | | | | | | | | | | | | | | |
| Vc | 150 | | 120 | | | 100 | | | 100 | | | 80 | | | |
| ap x ae | 1D x 0,1D | | 1D x 0,1D | | | 1D x 0,1D | | | 1D x 0,05D | | | 1D x 0,05D | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz |
| 3 | 15900 | 1910 | 0,030 | 12700 | 1520 | 0,030 | 10600 | 850 | 0,020 | 10600 | 640 | 0,015 | 8490 | 510 | 0,015 |
| 4 | 11900 | 2380 | 0,050 | 9550 | 1910 | 0,050 | 7960 | 800 | 0,025 | 7960 | 640 | 0,020 | 6370 | 510 | 0,020 |
| 5 | 9550 | 2480 | 0,065 | 7640 | 1990 | 0,065 | 6370 | 760 | 0,030 | 6370 | 640 | 0,025 | 5090 | 510 | 0,025 |
| 6 | 7960 | 3820 | 0,080 | 6370 | 3060 | 0,080 | 5310 | 1270 | 0,040 | 5310 | 960 | 0,030 | 4240 | 760 | 0,030 |
| 8 | 5670 | 3760 | 0,105 | 4770 | 3010 | 0,105 | 3980 | 1190 | 0,050 | 3980 | 960 | 0,040 | 3180 | 760 | 0,040 |
| 10 | 4770 | 3430 | 0,120 | 3820 | 2750 | 0,120 | 3180 | 1140 | 0,060 | 3180 | 950 | 0,050 | 2550 | 770 | 0,050 |
| 12 | 3980 | 3100 | 0,130 | 3180 | 2480 | 0,130 | 2650 | 1110 | 0,070 | 2650 | 950 | 0,060 | 2120 | 760 | 0,060 |
| 16 | 2980 | 2590 | 0,145 | 2390 | 2080 | 0,145 | 1990 | 960 | 0,080 | 1990 | 840 | 0,070 | 1590 | 670 | 0,070 |
| 20 | 2390 | 2290 | 0,160 | 1910 | 1830 | 0,160 | 1590 | 860 | 0,090 | 1590 | 760 | 0,080 | 1270 | 610 | 0,080 |

HMU • HMUR



| Durezza Hardness Härte | 150+200 HB | | 200+300 HB | | | 30+45 HRC | | | 45+55 HRC | | | 55+70 HRC | | | |
|------------------------------|--------------|------|--------------|------|------|--------------|------|-----|---------------|------|-----|---------------|------|-----|-------|
| Vc | 150 | | 120 | | | 100 | | | 100 | | | 80 | | | |
| ap x ae | 1,5 D x 0,1D | | 1,5 D x 0,1D | | | 1,5 D x 0,1D | | | 1,5 D x 0,05D | | | 1,5 D x 0,05D | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz |
| 4 | 11900 | 2380 | 0,050 | 9550 | 1910 | 0,050 | 7960 | 800 | 0,025 | 7960 | 640 | 0,020 | 6370 | 510 | 0,020 |
| 6 | 7960 | 2550 | 0,080 | 6370 | 2040 | 0,080 | 5310 | 800 | 0,040 | 5310 | 640 | 0,030 | 4240 | 510 | 0,030 |
| 8 | 5970 | 2510 | 0,105 | 4770 | 2000 | 0,105 | 3980 | 800 | 0,050 | 3980 | 640 | 0,040 | 3180 | 510 | 0,040 |
| 10 | 4770 | 2290 | 0,120 | 3820 | 1830 | 0,120 | 3180 | 760 | 0,060 | 3180 | 640 | 0,050 | 2550 | 510 | 0,050 |
| 12 | 3980 | 2070 | 0,130 | 3180 | 1650 | 0,130 | 2650 | 740 | 0,070 | 2650 | 640 | 0,060 | 2120 | 510 | 0,060 |
| 16 | 2980 | 1730 | 0,145 | 2390 | 1390 | 0,145 | 1990 | 640 | 0,080 | 1990 | 560 | 0,070 | 1590 | 450 | 0,070 |
| Durezza Hardness Härte | 150+200 HB | | 200+300 HB | | | 30+45 HRC | | | 45+55 HRC | | | 55+70 HRC | | | |
| Vc | 120 | | 100 | | | 50 | | | | | | | | | |
| ap | 1D | | 1D | | | 0,5D | | | | | | | | | |
| D | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz | rpm | vf | fz |
| 4 | 9550 | 1530 | 0,040 | 7960 | 960 | 0,030 | 3980 | 400 | 0,025 | | | | | | |
| 6 | 6370 | 1530 | 0,060 | 5310 | 1060 | 0,050 | 2650 | 420 | 0,040 | | | | | | |
| 8 | 4770 | 1530 | 0,080 | 3980 | 1030 | 0,065 | 1990 | 400 | 0,050 | | | | | | |
| 10 | 3820 | 1530 | 0,100 | 3180 | 1020 | 0,080 | 1590 | 380 | 0,060 | | | | | | |
| 12 | 3180 | 1400 | 0,110 | 2650 | 950 | 0,090 | 1330 | 350 | 0,065 | | | | | | |
| 16 | 2390 | 1150 | 0,120 | 1990 | 800 | 0,100 | 990 | 320 | 0,080 | | | | | | |



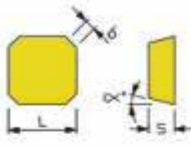
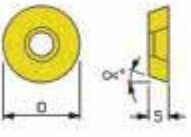
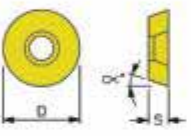
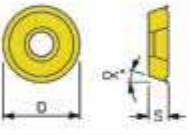
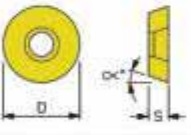
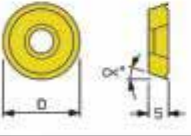

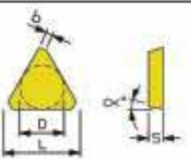
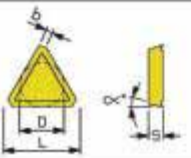
INSERTI • INSERTS • WENDEPLATTEN

| | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 | L1 mm | L2 mm | S mm | r mm | b mm | B mm | α° |
|--|-----|-----|-------|------|-------|-------|-------|--------|------|----------------------|-------------------------|----------------------|------------|---------------------|------------|-------------------|
| | • | • | | | • | • | | | | 15 | 9,52 | 3,18 | 0,8 | | | 15° |
| | | • | | • | • | • | | | • | 10,6 13,5 | | 3,18 3,18 | 0,8 0,8 | | | 15° 15° |
| | | • | | | • | • | | | | 16,6 19,6 | | 4,76 4,76 | 0,8 0,8 | | | 11° 11° |
| | | • | | • | • | • | | | | 15,88 15,88 20 | 12,70 12,70 12,70 | 4,76 4,76 4,76 | | 1,94 1,94 1,1 | | 11° 11° 11° |
| | • | • | | | • | • | | | | 15 | 9,52 | 3,18 | 0,8 | | | 15° |
| | • | • | | | • | • | | | | 15,88 | 12,70 | 4,76 | | 1,94 | | 11° |
| | | • | | | • | • | | | | 10,4 14 | 6,60 11,80 | 3,18 4,76 | 0,5 0,6 | | 1,2 1,4 | 15° 15° |
| | | • | | | • | • | | | | 15 | 9,52 | 5 | 0,8 | | 1,6 | 15° |
| | | • | | | • | • | | | | 10,5 16,3 | 6,70 9,45 | 3,5 5,3 | 0,5 0,8 | | 1,2 1,8 | 11° 11° |
| | | • | | • | | | | | | 25 33 | 12,70 12,70 | 4,76 4,76 | | 1,4 1,4 | | 11° 11° |

INSERTI • INSERTS • WENDEPLATTEN

| | | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 | L mm | D mm | S mm | r mm | b mm | m mm | α° |
|--|-------------|-----|-----|-------|------|-------|-------|-------|--------|------|---------|---------|---------|---------|---------|---------|----------------|
| | CCMW060208 | • | | | | | • | | | | 6,40 | 6,35 | 2,38 | 0,8 | | 1,319 | 7° |
| | CCMW09T308 | • | | | | | • | | | | 9,70 | 9,52 | 3,97 | 0,8 | | 2,206 | 7° |
| | CCMW120408 | • | | | | | • | | | | 12,90 | 12,70 | 4,76 | 0,8 | | 3,080 | 7° |
| | CCMT060208 | • | | | • | | • | | | • | 6,40 | 6,35 | 2,38 | 0,8 | | 1,319 | 7° |
| | CCMT080308 | • | | | • | | • | | | • | 8,05 | 7,97 | 3,18 | 0,8 | | 1,765 | 7° |
| | CCMT09T308 | • | | | • | | • | | | • | 9,70 | 9,52 | 3,97 | 0,8 | | 2,206 | 7° |
| | CCMT120408 | • | | | • | | • | | | • | 12,90 | 12,70 | 4,76 | 0,8 | | 3,080 | 7° |
| | XDHW040110 | • | | | • | • | | | | • | 4 | | 1,59 | 1,0 | | | 15° |
| | XDHW060210 | • | | | • | • | | | | • | 6,50 | | 2,38 | 1,0 | | | 15° |
| | XDHW10T310 | • | | | • | • | | | | • | 10 | | 3,97 | 1,0 | | | 15° |
| | SPLW1204AD | | • | | • | | • | | | • | 12,70 | 12,70 | 4,76 | | 0,5 | | 11° |
| | SPEW1204AD | | | | | | | ○ | | | 12,70 | 12,70 | 4,76 | | 0,5 | | 11° |
| | SPLT1204AD | | • | | | | • | | | | 12,70 | 12,70 | 4,76 | | 0,5 | | 11° |
| | SEHW1204AF | • | • | | • | • | • | | | • | 12,70 | | 4,76 | | 2,75 | 1,25 | 20° |
| | SEHW1504AF | • | • | | • | • | • | | | • | 15,88 | | 4,76 | | 2,85 | 1,86 | 20° |
| | SEHT1204AF | • | • | | | • | • | | | | 12,70 | | 4,76 | | 2,75 | 1,25 | 20° |
| | SDLW090308 | • | • | | | • | • | | | | 9,52 | | 3,18 | 0,8 | | 1,644 | 15° |
| | SDLT090308 | | | | | | • | | | | 9,52 | | 3,18 | 0,8 | | 1,644 | 15° |
| | SEAN1203AFN | • | • | | ○ | • | • | | | • | 12,70 | | 3,18 | | 1,6 | | 20° |
| | SEKN1203AFN | • | • | | ○ | • | • | | | • | 12,70 | | 3,18 | | 1,6 | | 20° |
| | SEKN1504AFN | • | • | | • | • | • | | | • | 15,88 | | 4,76 | | 1,6 | | 20° |
| | PDHW120420 | | • | | • | | • | | | • | 12 | 16,54 | 4,76 | 2 | 1,4 | | 15° |










INSERTI • INSERTS • WENDEPLATTEN

| | | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 | L mm | D mm | S mm | r mm | b mm | α° |
|-------------------------------------------------------------------------------------|-------------|-----|-----|-------|------|-------|-------|-------|--------|-------|---------|---------|---------|---------|---------|----------------|
|  | SFAN1203EFR | ● | | | | | | | | | 12,70 | | 3,18 | | 1,4~ | 26° |
| | SFAN1203EFL | | | | ● | | | | | | 12,70 | | 3,18 | | 1,4~ | 26° |
| | SPKN1203EDR | ● | ● | | | ● | ● | | | | 12,70 | | 3,18 | | 1,4~ | 11° |
| | SPKN1203EDL | ● | ● | | | ● | ● | | ● | | 12,70 | | 3,18 | | 1,4~ | 11° |
| | SPKN1504EDR | ○ | ○ | | ● | | ○ | ● | | | 15,88 | | 4,76 | | 1,4~ | 11° |
| | SPKN1504EDL | ● | ● | | ● | | ● | ● | | | 15,88 | | 4,76 | | 1,4~ | 11° |
|  | RDHX0701MOT | | ● | | | | | | | ● | | 7 | 1,99 | | | 15° |
| | RDHX0702MOT | | ● | | | | | | | ● | | 7 | 2,38 | | | 15° |
| | RDHX0802MOT | | ● | | | | | | | ● | | 8 | 2,38 | | | 15° |
| | RDHX1003MOT | ● | ● | ● | | ● | ● | ● | | | | 10 | 3,18 | | | 15° |
| | RDHX12T3MOT | ● | ● | | | ● | ● | ● | | | | 12 | 3,97 | | | 15° |
| | RDHX1604MOT | | ● | | | | ● | ● | | ● | | 16 | 4,76 | | | 15° |
| | | | | | | | | | | | | | | | | |
|  | RDMX1003MOT | | ● | | | | ● | | | | 10 | 3,18 | | | | 15° |
| | RDMX12T3MOT | | ● | | | | ● | | | | 12 | 3,97 | | | | 15° |
| | RDMX1604MOT | ● | ● | | ○ | | ● | | ○ | | 16 | 4,76 | | | | 15° |
|  | RDHT1003MOT | | | ● | | | | ● | | | 10 | 3,18 | | | | 15° |
| | RDHT12T3MOT | | ● | ● | | | ● | ● | | | 12 | 3,97 | | | | 15° |
| | RDHT1604MOT | | ● | | | | ● | ● | | | 16 | 4,76 | | | | 15° |
|  | RDEW10T3MO | | ● | | | | ● | | | | 10 | 3,97 | | | | 15° |
| | RPEW1204MO | | ● | | | | ● | | | | 12 | 4,76 | | | | 11° |
|  | RDMT10T3MO | | ● | | | | ● | | | | 10 | 3,97 | | | | 15° |
| | RPMT1204MO | | ● | | | | ● | | | | 12 | 4,76 | | | | 11° |
|  | TPM0511 | ● | | | ● | | | | | | 9,60 | 5,55 | 2,50 | 0,8 | | 8° |
| | TPM0911 | ● | | | ● | | | | | | 16,50 | 9,52 | 3,18 | 0,8 | | 11° |
|  | TPKN1603PDR | ● | ● | | ● | ● | ● | | ● | 16,50 | 9,52 | 3,18 | | 1,0~ | 11° | |
| | TPKN1603PDL | | | | | ● | ● | | | ● | 16,50 | 9,52 | 3,18 | | 1,0~ | 11° |
| | TPKN2204PDR | ● | ● | | ● | ● | ● | | ● | 22 | 12,70 | 4,76 | | 1,5~ | 11° | |
| | TPKN2204PDL | | ○ | | | | | | | ● | 22 | 12,70 | 4,76 | | 1,5~ | 11° |
|  | TPKR2204PDR | ● | | | ● | | | | | 22 | 12,70 | 4,76 | | 1,5~ | 11° | |

INSERTI • INSERTS • WENDEPLATTEN

| | | ZSM | ZS6 | ZK03M | ZH20 | RK25G | RK40G | RK03E | RK03CF | RB10 | L1 mm | L2 mm | S mm | r mm | d1 mm | D mm | α° |
|--|----------------------------------------------------------------------------------|-----|--------|---------------------------------|------|-------|---------------------------------|---------------------------------|--------|--------|----------|----------------------|-------------------------------------|-------------------------------------|---------------------------------------|-----------------------------------------------|--------------------------|
| | RCCW190412 RCCW230516 | | • • | | | | • • | | | | 12 25 | 7,5 10,5 | 4,5 5,5 | 12,5 16,0 | | | 7° 9° |
| | RDCW250620 RDCW250625 | | • • | | | | • • | | | | 19 19 | 12,4 13,4 | 6,0 6,0 | 20 25 | | | 15° 15° |
| | RDEW220620 RDEW290625 | | • • | | | | • • | | | | 22 29 | 13,6 15 | 6,0 6,0 | 20 25 | | | 15° 15° |
| | JDHW10T310 JDHW14M520 | | • • | • • | | | • • | | | • • | | 10,4 14,4 | 3,97 5,00 | 1,0 2,0 | | | 15° 15° |
| | ODEW150508 | • | • | • | • | • | • | | | • | 6,0 | 15,88 | 5,50 | 0,8 | | | 15° |
| | ODET150508 | • | • | | • | • | | | | | 6,0 | 15,88 | 5,50 | 0,8 | | | 15° |
| | RCN08 RCN10 RCN12 RCN16 RCN20 RCN25 RCN32 | | | • • • • • • • | | | • • • • • • • | • • • • • • • | | | | | 2 2,4 2,5 3 3 4 5 | 2,5 3 5 5 5 6 8 | 8 10 12 16 20 25 32 | 12° 12° 12° 12° 12° 12° 12° | |
| | RCN08 AL RCN10 AL RCN12 AL RCN16 AL RCN20 AL RCN25 AL RCN32 AL | | | • • • • • • • | | | • • • • • • • | | | | | | 2 2,4 2,5 3 3 4 5 | 2,5 3 5 5 5 6 8 | 8 10 12 16 20 25 32 | 12° 12° 12° 12° 12° 12° 12° | |
| | RCA08 RCA10 RCA12 RCA16 RCA20 RCA25 RCA32 | | | • • • • • • • | | | • • • • • • • | • • • • • • • | | | | | 2,4 2,6 3 4 5 6 7 | 2,5 3 3,5 4 5 6 8 | 8 10 12 16 20 25 32 | | |
| | RBF1210 RBF1613 RBF2016 RBF2520 | | | • • • • | | | • • • • | • • • • | | | | 2,5 4,2 5 5 | | 1,0 1,3 1,6 2,0 | 3,7 5,3 5,3 9 | 12 16 20 25 | 11° 11° 11° 11° |

METALLO DURO PER FRESATURA • MILLING CARBIDE GRADE SELECTION • HARTMETALL FRÄSSORTEN

| | | |
|--------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ZSM |  | <p>Qualità in metallo duro non rivestita. ZSM è particolarmente adatto per lavorazioni di fresatura leggere e medie d'acciaio.</p> <p>Uncoated carbide grade. ZSM is an universal grade for use in light and medium machining of steel.</p> <p>ZSM unbeschichtetes Hartmetall ist besonders geeignet für die leichte und mittlere Bearbeitung von Stahl.</p> |
| ZS6 |  | <p>Qualità in metallo duro non rivestita. ZS6 è una qualità universale per le lavorazioni medie e pesanti d'acciaio.</p> <p>Uncoated carbide grade. ZS6 is an universal grade for use in medium and heavy machining of steel.</p> <p>ZS6 unbeschichtetes Hartmetall ist ein universal einsetzbares Hartmetall für die mittlere bis schwere Zerspaltung von Stahl.</p> |
| ZK03M |  | <p>Qualità in metallo duro non rivestita. ZK03M è particolarmente adatto per lavorazioni di copiatura leggere e medie dei materiali non ferrosi.</p> <p>Uncoated carbide grade. ZK03M is particularly suitable for use in light and medium copying operation of non-ferrous metals.</p> <p>ZK03M unbeschichtetes Hartmetall ist besonders geeignet bei leichten und mittleren Kopierfräsen von NE - Metallen.</p> |
| ZH20 |  | <p>Qualità in metallo duro non rivestita. ZH20 è una qualità universale per le lavorazioni pesanti e medie dei materiali non ferrosi.</p> <p>Uncoated carbide grade. ZH20 is an universal grade for use in medium and heavy machining of non-ferrous metals.</p> <p>ZH20 unbeschichtetes Hartmetall ist ein universal einsetzbares Hartmetall für die mittlere bis schwere Zerspaltung von NE - Metallen.</p> |
| RK25G |  TiAIN | <p>RK25G è una nuova qualità rivestita ideale per le lavorazioni a secco. Il substrato è estremamente resistente all'usura. Particolarmente indicata nelle lavorazioni leggere e medie di acciaio.</p> <p>RK25G is a new coated grade ideal for dry operation. The substrate resists built-up edge. Particularly suitable in light and medium machining of steel.</p> <p>RK25G ist mit neuer Beschichtung ideal für die Trockenbearbeitung. Das Substrat ist resistent gegen Aufbauschneiden - Bildung. Einsetzbar für die leichte und mittlere Bearbeitung von Stahl.</p> |
| RK40G |  TiAIN | <p>Qualità in metallo duro TiAIN (PVD) spessore 4 µm. RK40G è una nuova qualità ad alto rendimento sia per la fresatura di acciaio, acciaio stampi, acciaio inossidabile e ghisa.</p> <p>Coated carbide grade TiAIN (PVD) thickness 4 µm. RK40G is a grade with high performance ideal for milling steel, mould steel, stainless steel and cast iron.</p> <p>Hartmetall mit einer 4 µm dicken TiAIN (PVD) Beschichtung. RK40G ist eine Sorte mit hoher Eigenschaft, ideal zum Fräsen von Stahl, Gesenkschmiedestahl, rostfreiem Stahl und Guß.</p> |
| RK03E |  TiAIN | <p>Qualità in metallo duro rivestito (PVD) in TiAIN spessore 3 µm. Particolarmente indicato nelle lavorazioni di copiatura in finitura e superfinitura.</p> <p>Coated carbide grade TiAIN (PVD) thickness 3 µm. Particularly suitable for finishing and superfinishing copying operation.</p> <p>Hartmetall mit einer 3 µm dicken TiAIN (PVD) Beschichtung. Besonders geeignet für die Fein- und Feinstbearbeitung beim Kopierfräsen.</p> |
| RK03CF |  TiAIN Monolayer | <p>Qualità in metallo duro rivestito in TiAIN (PVD) spessore 3 µm. Particolarmente indicato in copiatura in lavorazioni di finitura e superfinitura ed HSC.</p> <p>Coated carbide grade TiAIN (PVD) thickness 3 µm. Particularly suitable for copying operation in finishing, superfinishing and HSC.</p> <p>Einlagiges TiAIN beschichtetes Hartmetall mit einer 3 µm dicken TiAIN (PVD) Beschichtung. Besonders geeignet zum Kopierfräsen bei der Fein, Feinstbearbeitung und bei der HSC - Bearbeitung.</p> |
| RB10 |  TiAIN | <p>Qualità in metallo duro rivestito in (PVD) in TiAIN spessore 4 µm. Grado appositamente studiato per le lavorazioni medie della ghisa.</p> <p>Coated carbide grade TiAIN (PVD) thickness 4 µm. Grade suitable for medium machining of cast iron.</p> <p>Hartmetall mit einer 4 µm dicken TiAIN (PVD) Beschichtung Geeignet für die mittlere Bearbeitung von Grauguß.</p> |

Resistenza all'usura
Increase in wear resistance
Verschleißfestigkeit



Tenacità • Increase in toughness • Zähigkeit

05 10 15 20 25 30 35 40 45 50

| | | | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | Acciaio Steel Stähle | Acciaio inossidabile Stainless Steel Rostfreie Stähle | Ghisa Cast iron Guß | Leghe di Alluminio Aluminium Alloy Aluminium Legierungen |
|--------|---|-----|----|----|----|----|----|----|----|----|----|----|----------------------------|-------------------------------------------------------------|---------------------------|----------------------------------------------------------------|
| ZSM | P | P25 | | | | | | | | | | | • | | | |
| | M | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | |
| ZS6 | P | P35 | | | | | | | | | | | • | | | |
| | M | M30 | | | | | | | | | | | | • | | |
| | K | | | | | | | | | | | | | | | |
| ZK03M | P | P10 | | | | | | | | | | | • | | | |
| | M | | | | | | | | | | | | | | | |
| | K | K05 | | | | | | | | | | | | | • | • |
| ZH20 | P | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | |
| | K | K15 | | | | | | | | | | | | | • | • |
| RK25G | P | P25 | | | | | | | | | | | • | | | |
| | M | | | | | | | | | | | | | | | |
| | K | | | | | | | | | | | | | | | |
| RK40G | P | P35 | | | | | | | | | | | • | | | |
| | M | M30 | | | | | | | | | | | | • | | |
| | K | K20 | | | | | | | | | | | | | • | |
| RK03E | P | P05 | | | | | | | | | | | • | | | |
| | M | | | | | | | | | | | | | | | |
| | K | K05 | | | | | | | | | | | | | • | • |
| RK03CF | P | P05 | | | | | | | | | | | • | | | |
| | M | | | | | | | | | | | | | | | |
| | K | K05 | | | | | | | | | | | | | • | • |
| RB10 | P | | | | | | | | | | | | • | | | |
| | M | | | | | | | | | | | | | | | |
| | K | K15 | | | | | | | | | | | | | • | • |