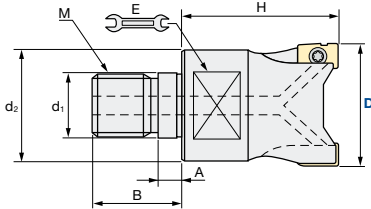
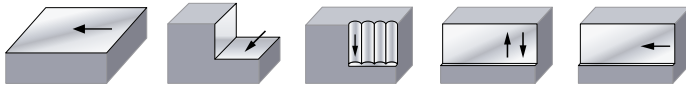

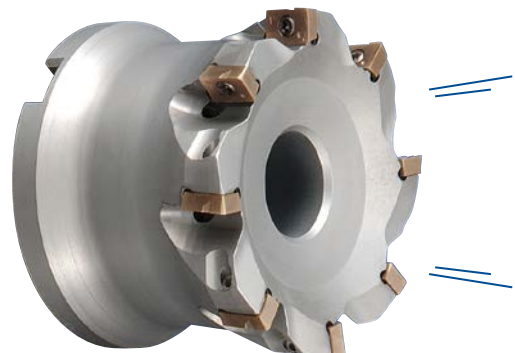
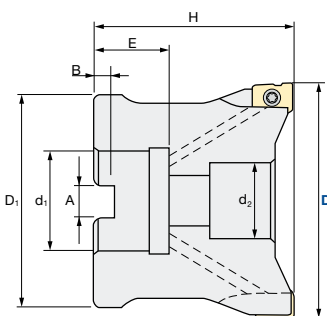
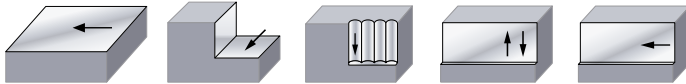


ASPVM | Polish Mill V-Type / Modular


| | |
|---------------------------|-----------------------|
| Diameter Holder only [mm] | Fastening Torque [Nm] |
| -0.03/-0.1 mm | 1.1 Nm |

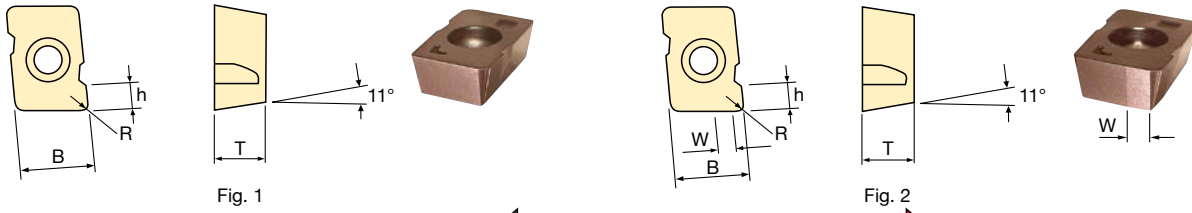
| Modular Type | | | | | | | | | | | | Inserts |
|--------------|--------------------------|--------|-----------|----|----------------|-----|----------------|-----|----|----|----|---|
| ID Code | Item Code | Flutes | D | H | d ₁ | M | d ₂ | A | B | C | E | |
| FH161 | ASPVM-2016R-2-M8 | 2 | 16 | 25 | 8.5 | M8 | 12.8 | 5.5 | 17 | 8 | 10 | MPHW06....  |
| FH162 | ASPVM-2020R-3-M10 | 3 | 20 | 30 | 10.5 | M10 | 17.8 | | 19 | 10 | 15 | |
| FH163 | ASPVM-2025R-4-M12 | 4 | 25 | 35 | 12.5 | M12 | 20.8 | | 22 | 10 | 17 | |
| FH164 | ASPVM-2032R-5-M16 | 5 | 32 | 40 | 17 | M16 | 28.8 | 6 | 23 | 12 | 22 | |
| FH165 | ASPVM-2035R-5-M16 | | 35 | | | | | | | | | |
| FH166 | ASPVM-2042R-6-M16 | 6 | 42 | | | | | | | | | |

ASPVB | Polish Mill V-Type / Bore Type


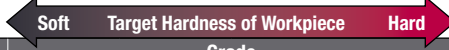
| | |
|---------------------------|-----------------------|
| Diameter Holder only [mm] | Fastening Torque [Nm] |
| -0.03/-0.1 mm | 1.1 Nm |

| Bore Type | | | | | | | | | | | | Inserts |
|-----------|--------------------------|--------|-----------|----|----------------|----------------|-----|----------------|------|-----|----|---|
| ID Code | Item Code | Flutes | D | H | d ₁ | d ₂ | M | D ₁ | A | B | E | |
| FH157 | ASPVB-2042RM-6-16 | 6 | 42 | 40 | 16 | 13.5 | M8 | 35 | 8.4 | 5.6 | 18 | MPHW06....  |
| FH215 | ASPVB-2050RM-7 | 7 | 50 | 50 | 22 | 17 | M10 | 47 | 10.4 | 6.3 | 20 | |
| FH158 | ASPVB-2052RM-7-22 | | 52 | | 27 | 20 | M12 | 45 | 12.4 | 7 | 22 | |
| FH159 | ASPVB-2052RM-7-27 | | | | | | | | | | | |
| FH216 | ASPVB-2063RM-8 | 8 | 63 | 50 | 22 | 17 | M10 | 60 | 10.4 | 6.3 | 20 | |
| FH160 | ASPVB-2066RM-8-27 | | 66 | | 27 | 20 | M12 | 60 | 12.4 | 7 | 22 | |

Note: Arbor screw is not included.

INSERTS ASPV | Polish Mill V-Type
MPHW0603..ZEL/ZFL


| Inserts | Tolerance Class | Grade | | | | Size (mm) | | | | | Shape |
|--------------------------|-----------------|----------------------|--------|--------|--------|-----------|-------|------|---|-----|-------|
| | | SD5010 | JX1045 | JX1020 | ATH08M | B | W | T | h | R | |
| Item Code | | ID Code | | | | | | | | | |
| R 0.4 | H | MPHW060304ZEL ATH08M | | | WF188 | 6.35 | - | 3.18 | 3 | 0.4 | Fig-1 |
| MPHW060304ZEL-0.5 ATH08M | | | | WF189 | 0.5 | | Fig-2 | | | | |
| MPHW060304ZFL SD5010 | | WF190 | | | - | | Fig-1 | | | | |
| R 0.8 | | MPHW060308ZEL ATH08M | | | WF191 | 6.35 | - | 3.18 | 3 | 0.8 | Fig-1 |
| MPHW060308ZEL JX1020 | | | | WF192 | | | | | | | |
| MPHW060308ZEL JX1045 | | WF193 | × | | | | | | | | |
| MPHW060308ZEL-1.5 ATH08M | | | | WF194 | 1.5 | | Fig-2 | | | | |
| MPHW060308ZEL-1.5 JX1020 | | | | WF195 | | | | | | | |
| MPHW060308ZEL-1.5 JX1045 | | WF196 | × | | | | | | | | |
| R 2 | | MPHW060308ZFL SD5010 | WF197 | | | | - | | | | 2 |
| MPHW060320ZEL ATH08M | | | WF198 | | | - | | | | 2 | Fig-1 |

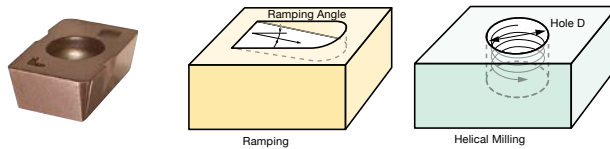


| | |
|---------------|--|
| SD5010 | PVD · For Aluminium |
| JX1045 | × to be replaced by JS4045 |
| JX1020 | PVD · For pre-hardened steels 40–55HRC |
| ATH08M | PVD · General grade from soft to hard |

| Parts | Clamp Screw | | Screw Driver | |
|-------------|-------------|-----------|--------------|-----------|
| Shape | | | | |
| Cutter body | ID Code | Item Code | ID Code | Item Code |
| ASPVM20..R- | ET175 | 250-141 | ET13 | 104-T8 |

ASPV | Polish Mill V-Type | Recommended Cutting Conditions

- Ramping / Helical Milling
- Rampen-/ Helikalfräsen
- Rampa / Fresatura elicoidale
- Rampas / fresado helicoidal
- Rampe / Fraisage Hélicoïdal
- Rampa / Fresagem Helicoidal



| | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|--------|---------|
| Maximum ramp angle ° | 2.5° | 2.5° | 2.1° | 1.6° | 1.4° | 1.2° | 1° | 0.5° |
| Helical Milling / Hole Dia. (mm) | 22~30 | 30~38 | 40~48 | 54~62 | 60~68 | 74~82 | 94~102 | 122~130 |

- 1. The ramp angle should be set within the ranges listed above. Use at ramp angles of 0.5° is recommended.
- 2. For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.
- 1. Der Rampenfräswinkel sollte innerhalb der oben aufgelisteten Bereiche sein. Empfohlen wird ein Winkel von 0,5°.
- 2. Für Bohrungen mit einem größeren Durchmesser als oben aufgeführt sollte vor dem Helikalfräsen eine Startbohrung durchgeführt werden.
- 1. L'angolo di rampa dovrebbe essere compreso tra i valori sopra esposti. E' comunque raccomandabile l'utilizzo di un angolo di 0.5°.
- 2. Per i fori di diametro non compreso tra i valori sopra riportati è necessaria una pre-foratura da effettuare prima della fresatura elicoidale.

- 1. El ángulo de rampa debe establecerse dentro de los rangos indicados en el cuadro. Es recomendable utilizar ángulos de rampa de 0,5°.
- 2. Para agujeros distintos a los rangos indicados en el cuadro, es necesario realizar un orificio previo antes del fresado.
- 1. L'angle de rampe utilise doit-êre tel que précisé dans la liste ci-dessous. L'utilisation d'un angle de rampe de 0.5° est recommandée.
- 2. Pour la réalisation de perçage par fraisage, voir la liste ci-dessous. Un avant trou doit-êre réalisé au préalable.
- 1. O ângulo da rampa deve ser definido dentro dos intervalos listados acima. Use em ângulos de rampa de 0,5° é recomendado.
- 2. Para diâmetros de furos fora dos intervalos listados acima, um furo piloto deve ser perfurado antes de maquinação.

| Cutting Conditions Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe Valores de corte: |
|-----------------------------------|----------------------|---|---|
| Bottom finishing | Page 6–7: | Modular D16 – D42 Page 8: Bore Types D42 – D66 | |
| Wall finishing Z constant | Page 9–10: | Modular D16 – D42 Page 11: Bore Types D42 – D66 | |
| Vertical wall roughing | Page 12: | Modular D16 – D42, Bore Types D42 – D66 | |
| Vertical wall finishing | Page 13: | Modular D16 – D42, Bore Types D42 – D66 | |
| Contouring Z constant | Page 14–15: | Modular D16 – D42, Bore Types D42 – D66 | |



Flute tip has 3 cutting edges:

1 Cutting edge for reciprocating machining
Used as the cutting edge when performing reciprocating finishing vertical machining.

2 Peripheral cutting edge
Used as the peripheral cutting edge when performing side machining.

3 Face cutting edge: Used when bottom finishing. Used as the reciprocating cutting edge when performing vertical machining.

4. Insert with supplementary cutting edge:
For increased feed rates

5. Insert without supplementary cutting edge:
For bottom machining, suitable for long overhang (L/Dc = 5 or more) machining or for handling low rigidity in main axis direction.
For vertical machining, inserts without supplementary cutting edge are recommended.

Feed direction:

MPHW0603..ZEL 0.5

MPHW0603..ZEL 1.5

MPHW0603..ZEL

Fräser mit 3 Schneidkanten | Vorschubrichtung:

- 1. Schneidkante für oszillierende Bearbeitung:** Für vertikale Schlichtoperationen mit wechselnder Richtung.
- 2. Äußere Schneidkante:** Für die Seitenbearbeitung.
- 3. Stirnschneidkante:** Zum Schlichten der Bodenflächen. Schneidkante für vertikales Schlichten mit wechselnder Richtung.
- 4. Schneidplatte mit zusätzlicher Schneidkante:**
Für erhöhte Vorschubraten
- 5. Schneidplatte ohne zusätzliche Schneidkante:** Für die Bearbeitung der Bodenflächen, geeignet für große Auskraglängen (L/Dc = 5 und mehr) oder bei geringer Stabilität in der Hauptachse. Für Vertikalbearbeitung sind diese Schneidplatten besonders geeignet.

La punta dell'inserto ha 3 parti taglienti | Direzione avanzamento:

- 1. Tagliente per lavorazioni di finitura alternata.**
Utilizzo del bordo tagliente per lavorazioni di finitura assiale con direzione alternata.
- 2. Tagliente periferico**
Utilizzato come tagliente periferico durante lavorazioni di contornatura.
- 3. Inserto per lavorazione dei piani**
Utilizzato per finitura di piani. Utilizzato come tagliente alternato per finitura verticale.
- 4. Inserto con affilatura supplementare:**
Per aumentare l'avanzamento
- 5. Inserto senza affilatura supplementare:**
Per lavorazioni di piani, adatto per lavorazioni con lunghe sporgenze (L/D = 5 volte o superiore) o in situazioni di bassa rigidità nella direzione dell'asse principale. Per le lavorazioni di finitura in verticale sono raccomandati gli inserti senza affilatura supplementare.

Placas con 3 filos de corte | Sentido del avance:

- 1. Filo de corte para mecanizado bidireccional.**
Para las operaciones de acabado verticales con procesos ascendentes y descendentes.
- 2. Filo de corte periferico**
Para el mecanizado lateral en procesos de contorneado.

3. Filo de corte frontal

Se utiliza en acabado de fondo. Se utiliza como filo de corte cuando se realiza un mecanizado vertical descendente

- 4. Plaqueta con un filo de corte suplementario:**
Permite aumentar el avance

5. Plaqueta sin filo de corte suplementario:

Para el mecanizado de fondos. Ideal para mecanizados con grandes voladizos (L / Dc = 5 o más) y para maquinas poco rígidas. Para el mecanizado vertical, se recomienda plaquetas sin filo de corte suplementario

La plaquette a 3 arrêtes de coupe | Sens de l'avance:

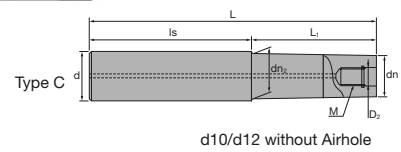
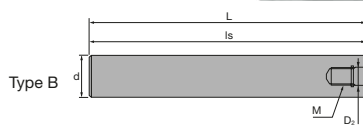
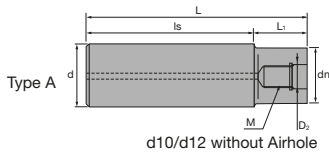
- 1. Arrête de coupe pour Usinage en tirant**
Utilisée en alternance comme arête de coupe lors d'usinage de finition vertical en bidirectionnel (en montant)
- 2. Arrête de coupe périphérique**
Utilisée lors d'opérations de contournage.
- 3. Arrête de coupe inférieure**
Utilisée en surfaçage. Utilisée en alternance comme arête de coupe lors d'usinage de finition vertical en bidirectionnel (en descendant)
- 4. Plaquette avec Wiper:** Pour des avances supérieures
- 5. Plaquette sans Wiper:** En surfaçage, adaptée aux usinages avec de longs portes à faux (L/Dc = 5 ou plus) ou pour pallier à un manque de rigidité dans l'axe de broche. Pour l'usinage vertical, nous recommandons les plaquettes sans Wiper

A zona corte tem 3 arestas: | Direção Maquinação:

- 1. Chanfre para maquinação vertical:**
Usado para realizar maquinação de acabamento vertical. (Plunging)
- 2. Zona periférica**
Usado para realizar maquinação acabamento lateral.
- 3. Chanfre inferior:**
Usado no acabamento de topo e usado também na maquinação vertical.
- 4. Plaquete com chanfre inferior corte suplementar:**
Para o aumento dos avanços.
- 5. Plaquete sem chanfre inferior de corte suplementar:**
Para maquinação de topos e adequado para zonas Altas (> = 5 vezes D) de maquinação ou para resolução da rigidez na direção do eixo principal. Para maquinação vertical, plaquetes sem chanfre suplementar de corte são recomendadas.



ASC | Carbide Shanks for Modular Mills



d10/d12 without Airhole

d10/d12 without Airhole

| Carbide Shank | | | | | | | | | | | | | | | |
|-----------------|-------------------------|----------------------------|----------------|-----|-----|----------------|-----|------|-----------------|----|------|----|------|----|---|
| | ID Code | Item Code | D ₂ | M | L | L ₁ | Is | dn | dn ₂ | d | Type | | | | |
| Without Airhole | FH137 | ASC10-6.5-74-24 | 6.5 | M6 | 74 | 24 | 50 | 9.3 | - | 10 | A | | | | |
| | FH254 | ASC10-6.5-84-34 | | | 84 | 34 | | | | | | | | | |
| | FH255 | ASC10-6.5-114-24 | | | 114 | 24 | | | | | | 90 | | | |
| | FH138 | ASC10-6.5-114-49 | | | 114 | 49 | 65 | | | | | | | | |
| | FH139 | ASC12-6.5-74-24 | | | 74 | 24 | 50 | | | | | 11 | 11.5 | 12 | C |
| | FH256 | ASC12-6.5-94-44 | | | 94 | 44 | | | | | | | | | |
| | FH257 | ASC12-6.5-129-24 | | | 129 | 24 | | | | | | | | | |
| | FH140 | ASC12-6.5-129-64 | | | 129 | 64 | 65 | | | | | | | | |
| With Airhole | FH141 | ASC16-8.5-95-30 | 8.5 | M8 | 95 | 30 | 65 | 14.5 | 15.5 | 16 | C | | | | |
| | FH258 | ASC16-8.5-120-55 | | | 120 | 55 | | | | | | | | | |
| | FH142 | ASC16-8.5-140-75 | | | 140 | 75 | | | | | | | | | |
| | FH260 | ASC16-8.5-160-30 | | | 160 | 30 | | | | | | | | | |
| | FH259 | ASC16-8.5-160-95 | 160 | 95 | 65 | | | | | | | | | | |
| | FH143 | ASC20-10.5-120-50 | 10.5 | M10 | 120 | 50 | 70 | 18 | - | 20 | A | | | | |
| | FH261 | ASC20-10.5-170-90Z | | | 170 | 90 | 80 | 18.5 | 19.5 | | C | | | | |
| | FH144 | ASC20-10.5-220-50 | | | 220 | 50 | 170 | 18 | - | | A | | | | |
| | FH262 | ASC20-10.5-220-120Z | | | 220 | 120 | 100 | 18.5 | 19.5 | | 20 | C | | | |
| | FH263 | ASC20-10.5-270-150Z | | | 270 | 150 | 120 | | | | | | | | |
| | FH264 | ASC20-10.5-270-50Z | 270 | 50 | 220 | | | | | | | | | | |
| | FH145 | ASC25-12.5-145-65 | 12.5 | M12 | 145 | 65 | 80 | 23 | - | 25 | A | | | | |
| | FH146 | ASC25-12.5-265-65 | | | 265 | 65 | 200 | | | | | | | | |
| | FH265 | ASC25-12.5-215-115 | | | 215 | 115 | 100 | | | | | | | | |
| | FH266 | ASC25-12.5-265-145 | | | 265 | 145 | 120 | | | | | | | | |
| | FH268 | ASC25-12.5-315-65 | | | 315 | 65 | 250 | | | | | | | | |
| | FH267 | ASC25-12.5-315-195 | | | 315 | 195 | 120 | | | | | | | | |
| | FH147 | ASC32-17-160-80 | | | 17 | M16 | 160 | | | | | 80 | 80 | 28 | - |
| | FH269 | ASC32-17-260-140 | 260 | 140 | | | 120 | | | | | | | | |
| | FH148 | ASC32-17-310-80 | 310 | 80 | | | 230 | | | | | | | | |
| FH270 | ASC32-17-360-240 | 360 | 240 | 120 | | | | | | | | | | | |

- 🇬🇧 SUPER Lock milling chucks or shrink-fit holders can be used.
- 🇩🇪 SUPER Lock Aufnahmen oder Schrumpffutter können verwendet werden.
- 🇮🇹 Possono essere utilizzati mandrini a forte serraggio SUPER Lock.

- 🇪🇸 Aptos para amarrar en portapinzas SUPER Lock.
- 🇫🇷 Les attachements SUPER Lock peuvent être utilisés.
- 🇵🇹 Cones hidráulicos de grande aperto e aperto térmico podem ser usados.

AS | Steel Shanks for Modular Mills



| Steel Shank | | | | | | | | | | | |
|-----------------|---------|-------------------------|----------------|-----|-----|----------------|----|------|-----------------|----|------|
| | ID Code | Item Code | D ₂ | M | L | L ₁ | Is | dn | dn ₂ | d | Type |
| Without Airhole | FH131 | AS10-6.5-74-0 | 6.5 | M6 | 74 | - | 74 | - | - | 10 | B |
| | FH132 | AS12-6.5-84-4 | | | 84 | 4 | 80 | 11 | - | 12 | A |
| With Airhole | FH133 | AS16-8.5-95-15 | 8.5 | M8 | 95 | 15 | 80 | 14.5 | 15.5 | 16 | C |
| | FH134 | AS20-10.5-100-20 | 10.5 | M10 | 100 | 20 | | 18 | - | 20 | A |
| | FH271 | AS25-12.5-115-35 | 12.5 | M12 | 115 | 35 | | 23 | 23 | 25 | |
| | FH272 | AS32-17-110-30 | 17 | M16 | 110 | 30 | | 28 | 28 | 32 | |

- 🇬🇧 SUPER Lock milling chucks can be used.
- 🇩🇪 SUPER Lock Aufnahmen können verwendet werden.
- 🇮🇹 Possono essere utilizzati mandrini a forte serraggio SUPER Lock.

- 🇪🇸 Aptos para amarrar en portapinzas SUPER Lock.
- 🇫🇷 Les attachements SUPER Lock peuvent être utilisés.
- 🇵🇹 Cones hidráulicos de grande aperto e aperto térmico podem ser usados.

🇬🇧 For further information about modular chucks please see our brochure *Indexable Modular Series No. 328*

🇩🇪 Weitere Informationen über modulare Werkzeugaufnahmen finden Sie in unserem Prospekt: *Indexable Modular Series No. 328*

🇪🇸 Para obtener más información sobre conos modulares consulte nuestro folleto *Indexable Modular Series No. 328*

🇮🇹 Per maggiori informazioni riguardanti la gamma dei mandrini avvitabili consultate il catalogo *Indexable Modular Series No. 328*

🇫🇷 Pour de plus amples informations concernant les attachements modulaires, voyez SVP notre brochure *Indexable Modular Series No. 328*

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