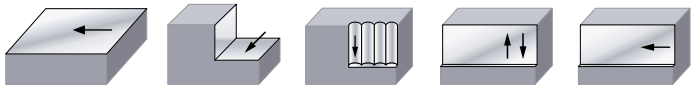
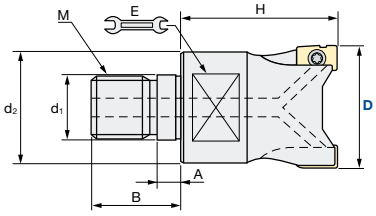
Indexable Milling Tools

ASPVM | Polish Mill V-Type / Modular

Jet			HRC	No. of Teeth		Mill-D tolerance for master insert
Air Hole	Roughing	Finishing	62	2 ~ 6	90°	0 -0.1



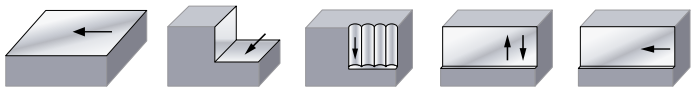


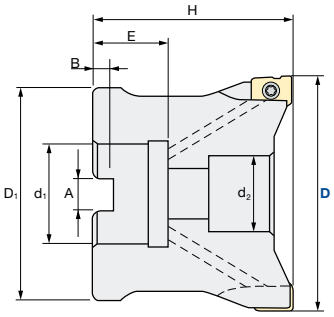
Tolerance D for master insert:	Torque on screw:
0/-0.1 mm	1.1 Nm

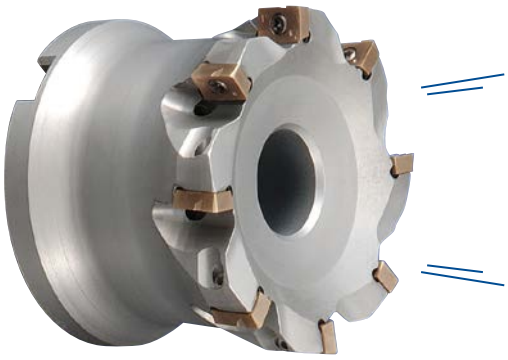
Modular Type												
ID Code	Item Code	Flutes	D	H	d_1	M	d_2	A	B	C	E	Inserts
FH161	**ASPVM-2016R-2-M8**	2	16	25	8.5	M8	12.8	5.5	17	8	10	MPHW06....
FH162	**ASPVM-2020R-3-M10**	3	20	30	10.5	M10	17.8		19	10	15	
FH163	**ASPVM-2025R-4-M12**	4	25	35	12.5	M12	20.8		22		17	
FH164	**ASPVM-2032R-5-M16**	5	32	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

Jet			HRC	No. of Teeth		Mill-D tolerance for master insert
Air Hole	Roughing	Finishing	62	6 ~ 8	90°	0 -0.1







Tolerance D for master insert:	Torque on screw:
0/-0.1 mm	1.1 Nm

Bore Type												
ID Code	Item Code	Flutes	D	H	d_1	d_2	M	D_1	A	B	E	Inserts
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					40				
FH159	**ASPVB-2052RM-7-27**				27	20	M12	45	12.4	7	22	
FH216	**ASPVB-2063RM-8**	8	63		22	17	M10	60	10.4	6.3	20	
FH160	**ASPVB-2066RM-8-27**		66		27	20	M12		12.4	7	22	

Note: Arbor screw is not included.

INSERTS ASPV | Polish Mill V-Type

MPHW0603..ZEL/ZFL

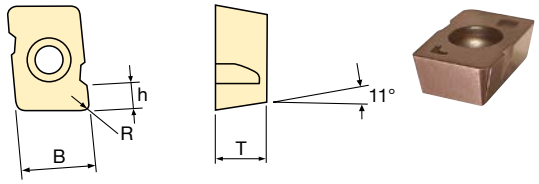


Fig. 1 Fig. 2

Soft — Target Hardness of Workpiece — Hard

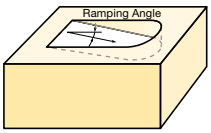
	Inserts	Tolerance Class	Grade SD5010	Grade JX1045	Grade JX1020	Grade ATH08M	Size (mm) B	W	T	h	R	Shape
	Item Code		ID Code									
R 0.4	MPHW060304ZEL ATH08M	H				WF188	6.35	-	3.18	3	0.4	Fig-1
	MPHW060304ZEL-0.5 ATH08M					WF189		0.5				Fig-2
	MPHW060304ZFL SD5010		WF190					-				Fig-1
R 0.8	MPHW060308ZEL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

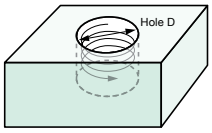
SD5010	PVD · For Aluminium
JX1045	× to be replaced by JS4045
JX1020	PVD · For pre-hardened steels 40–55HRC
ATH08M	PVD · General grade from soft to hard

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



Inserts	MPHW0603..ZEL/ZFL							
Tool diameter D (mm)	D16	D20	D25	D32	D35	D42	D52	D66
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 angulos 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-être 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-être réalisé au préalable.

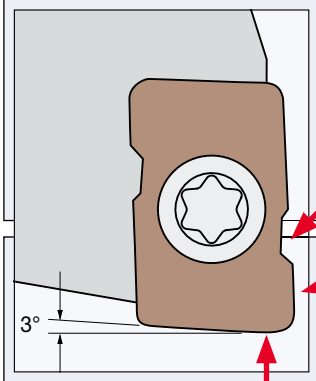
1. O ângulo da rampa deve ser definido dentro dos intervalos listados acima. Use em ângulos de rampa de 0,5° é recomendado.
2. Para diâmetros de furos fora dos intervalos listados acima, um furo piloto deve ser perfurado antes de maquinação.

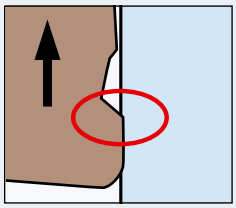
Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:			
Bottom finishing	Finishing	Page 6–7:	Modular D16 – D42 | Page 8: Bore Types D42 – D66
Wall finishing Z constant	Finishing	Page 9–10:	Modular D16 – D42 | Page 11: Bore Types D42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

Indexable Milling Tools

Flute tip has 3 cutting edges:

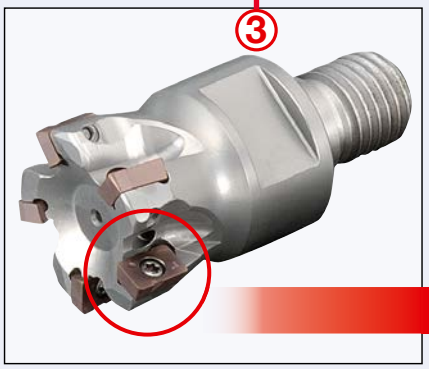
Feed direction:





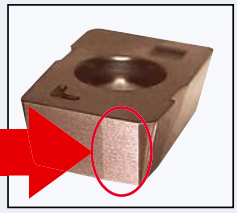
1 Cutting edge for reciprocating machining
Used as the cutting edge when performing reciprocating finishing vertical machining.

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



MPHW0603..ZEL 0.5
MPHW0603..ZEL 1.5

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.

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 periférico** 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. Plaquita con un filo de corte suplementario: Permite aumentar el avance
5. **Plaquita 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 plaquitas sin filo de corte suplementario

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

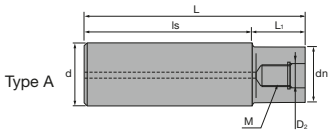
1. **Arrête de coupe pour Usinage en tirant** Utilisée en alternance comme arête de coupe lors d'usinage de finition vertical en bidirectionnel (en montant)
2. **Arrête de coupe périphérique** Utilisée lors d'opérations de contournage.
3. **Arrête de coupe inférieure** Utilisée en surfaçage. Utilisée 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: | Direcção Maquinação:

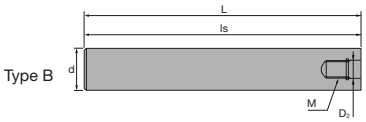
1. **Chanfre para maquinação vertical:** Usado para realizar maquinação de acabamento vertical.(Plunging)
2. **Zona periférica** Usado para realizar maquinação acabamento lateral.
3. **Chanfre inferior:** Usado no acabamento de topo e usado também na maquinação vertical.
4. **Plaquete com chanfre inferior 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 direcção do eixo principal. Para maquinação vertical, plaquetes sem chanfre suplementar de corte são recomendadas.

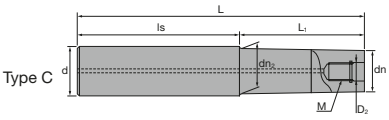
Indexable Milling Tools

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	ls	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**				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	105				
	FH140	**ASC12-6.5-129-64**				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	130				
	FH259	**ASC16-8.5-160-95**				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**				120	100	18.5	19.5		C
	FH263	**ASC20-10.5-270-150Z**			270	150	120				
	FH264	**ASC20-10.5-270-50Z**				50	220				
	FH145	**ASC25-12.5-145-65**	12.5	M12	145	65	80	23	–	25	A
	FH146	**ASC25-12.5-265-65**			265		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**				195	120				
	FH147	**ASC32-17-160-80**	17	M16	160	80	80	28		32	
	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	ls	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. 328.2*
Weitere Informationen über modulare Werkzeugaufnahmen finden Sie in unserem Prospekt: *Indexable Modular Series No. 328.2*
Para obtener más información sobre conos modulares consulte nuestro folleto *Indexable Modular Series No. 328.2*
Per maggiori informazioni riguardanti la gamma dei mandrini avvitabili consultate il catalogo *Indexable Modular Series No. 328.2*
Pour de plus amples informations concernant les attachements modulaires, voyez SVP notre brochure *Indexable Modular Series No. 328.2*
Para mais informações sobre Cones Modulares consulte o nosso folheto *Indexable Modular Series No. 328.2*