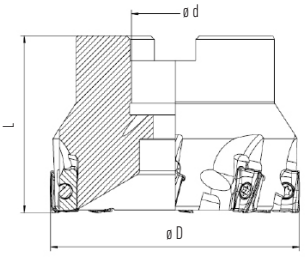
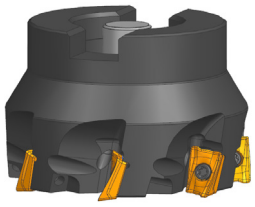
Shoulder mill F1650

- positive milling, 2 edge
- unequal tooth spacing
- high feeds per tooth possible thanks to stable and robust insert
- internal cooling

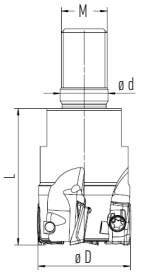




Arbour mounting

Order Code	Dimensions (mm)				Insert screw	Key	Torque value (Nm)	Stock
	D	d	L	z				
F1650.40.N16.40.10.Z6.C	40	16	40	6	BFTX0306IP	8IP	2	●
F1650.50.N22.40.10.Z7.C	50	22	40	7				●
F1650.63.N22.45.10.Z8.C	63	22	45	8				●
F1650.80.N27.50.10.Z10.C	80	27	50	10				●
F1650.100.N32.55.10.Z12.C	100	32	55	12				○

● = stock item ○ = available under request

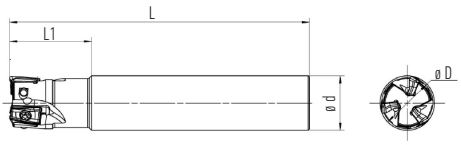


Threaded coupling

Order Code	Dimensions (mm)					Insert screw	Key	Torque value (Nm)	Stock
	D	d	M	L	z				
F1650.16.M8.25.10.Z2.C	16	8.5	M8	25	2	BFTX0305IP	8IP	2	○
F1650.18.M8.25.10.Z2.C	18	8.5	M8	25	2				○
F1650.20.M10.30.10.Z3.C	20	10.5	M10	30	3	BFTX0306IP			●
F1650.25.M12.35.10.Z4.C	25	12.5	M12	35	4				●
F1650.28.M12.35.10.Z4.C	28	12.5	M12	35	4				○
F1650.32.M16.40.10.Z5.C	32	17.0	M16	40	5				●
F1650.40.M16.40.10.Z6.C	40	17.0	M16	40	6				○

● = stock item ○ = available under request

Cylindrical shank



Order Code	Dimensions (mm)					Insert screw	Key	Torque value (Nm)	Stock
	D	d	L1	L	z				
F1650.14.V16.80.25.Z1.C	14	16	25	80	1	BFTX0305IP	8IP	2	●
F1650.16.V16.100.30.Z2.C	16	16	30	100	2				●
F1650.20.V20.110.30.Z3.C*	20	20	30	110	3	BFTX0306IP			●
F1650.25.V25.120.35.Z4.C	25	25	35	120	4				●
F1650.32.V32.130.45.Z5.C	32	32	45	130	5				●

● = stock item

Shoulder mill F1650

Precision insert with strong cutting edge and low cutting forcu

- wave shaped cutting edge reduces cutting force improves edge strenght
- very good surface quality thanks to the narrow tolerance of the cutting edge
- fine machining even with deep slotting (grooving)
- also suitable for less stable machines or machining conditions

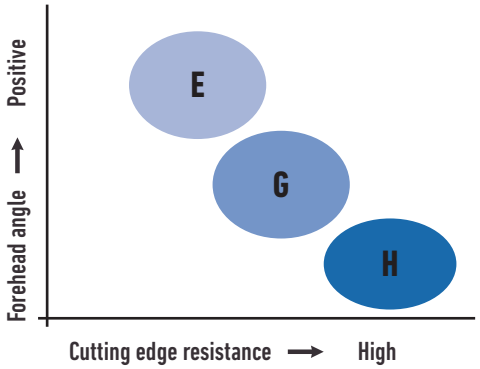
Overview of suitable inserts

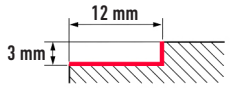
Application	Coated carbid							Carbid	DLC
High speed/light machining	P			K		MS		KN	N
Common use		P		K		MS	MS		N
Roughing		P	P		K		MS		

Order code	P100	P200	P300	K200	K300	M200	M300	NH1	L1000	Radius
APMT 120404 G	○	●	○	○	○					0,4
APMT 120408 G	○	●	○	○	○					0,8
APMT 120412 G	○	○	○	○	○					1,2
APMT 120404 H	○	○	○	○	○					0,4
APMT 120408 H	○	●	○	○	○					0,8
APMT 120412 H	○	○	○	○	○					1,2
APMT 120404 E						●	●			0,4
APMT 120408 E			○			●	●			0,8
APMT 120412 E						○	○			1,2
APMT 120408 EH			○			○	○			0,8
APET 120402 S								○	○	0,2
APET 120404 S								○	○	0,4
APET 120408 S								○	○	0,8

● = stock item ○ = available under request

E – light machining to general machining
G – general, intermittent machining
H – roughing, heavy intermittent machining





typical application

Recommended cutting conditions

		HB	Geometry	Coated type: P100			P200			P300			K200			K300			M200			M300		
				Feed fz (mm/t): 0.08	0.15	0.2	0.08	0.15	0.2	0.08	0.15	0.2	0.08	0.15	0.2	0.08	0.15	0.2	0.08	0.15	0.2	0.08	0.15	0.2
				Cutting Speed Vc (m/min)																				
P	Unalloyed steel < 0,15%C, annealed	125	G	375	345	325	345	325	310	325	310	290												
P	Unalloyed steel < 0,45%C, annealed	190	G	280	250	230	250	230	215	230	215	215												
P	Unalloyed steel < 0,45%C, tempered	250	G	230	205	185	205	185	165	185	165	145												
P	Unalloyed steel < 0,75%C, annealed	270	G	185	160	140	170	150	130	150	130	113												
P	Unalloyed steel < 0,75%C, tempered	300	G	140	110	90	110	90	70	90	70	50												
P	Low-alloyed steel, annealed	180	G	260	230	215	230	215	195	215	195	175												
P	Low-alloyed steel, tempered	275	G	165	140	120	145	125	110	125	110	90												
P	Low-alloyed steel, tempered	300	G	145	123	103	132	112	93	112	93	73												
P	Low-alloyed steel, tempered	350	G	123	93	73	103	83	63	83	63	43												
P	High-alloyed steel, annealed	200	G	230	215	185	205	185	165	185	165	145												
P	High-alloyed steel, tempered	325	G	123	93	73	93	73	53	73	53	33												
M	Stainless steel, ferritic/martensitic, annealed	200	E																170	150	123	150	135	103
M	SS austenitic, kalená ponorem	180	E																185	165	145	165	145	123
K	Grey cast iron		G										180	250	230	250	230	215						
K	Malleable cast iron		G										185	155	135	155	135	120						
S	Heat resistant super alloys, Fe, annealed	300	E																48	39		43	34	
S	Heat resistant super alloys, Fe, hardened	330	E																34	24		29	19	