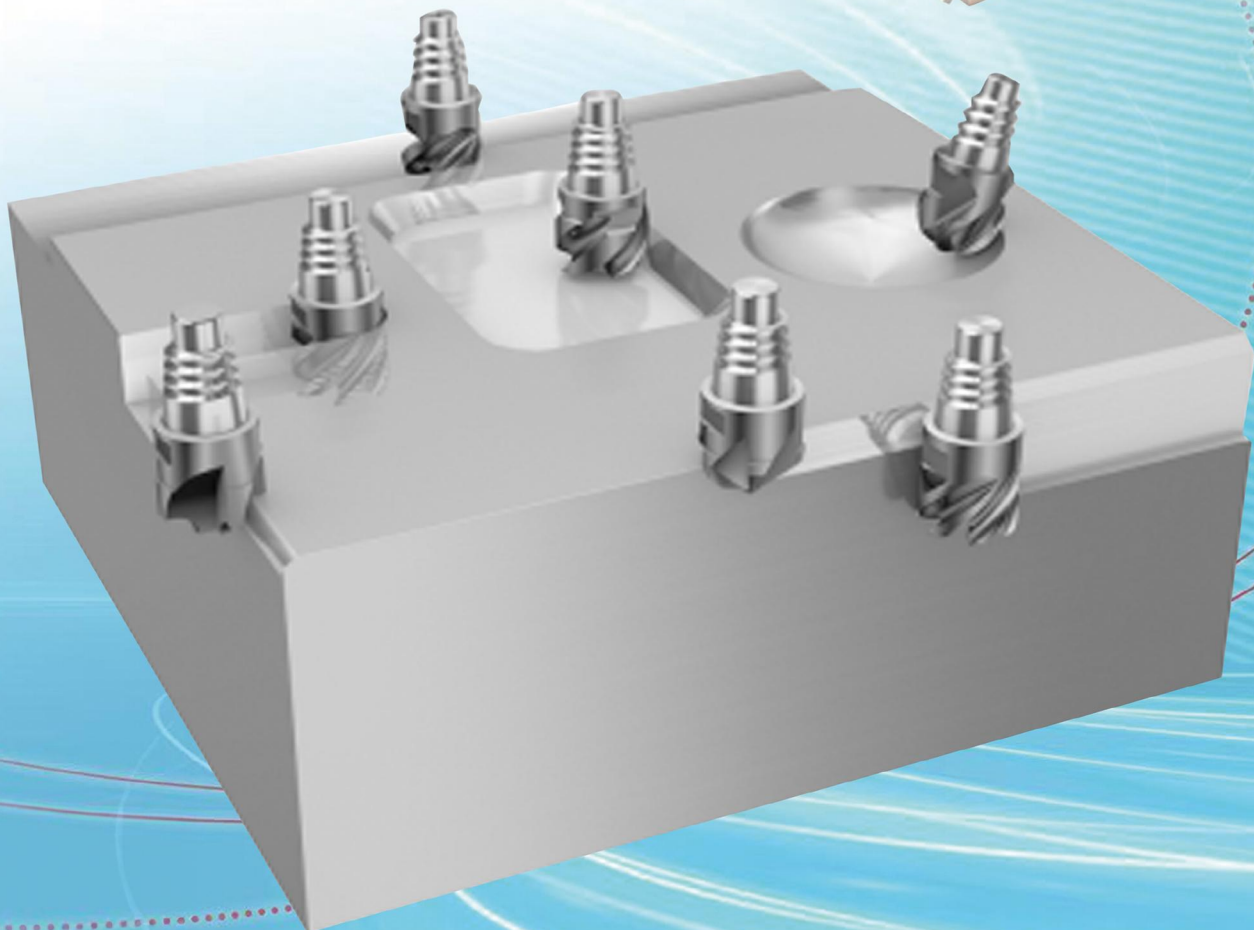


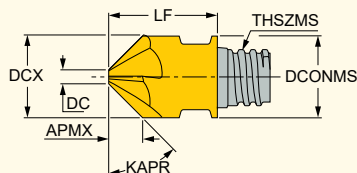


HYW PRECISION TOOLS MODULAR TOOLING SERIES



WWW.HYWPrecision.COM

MM ECF
Interchangeable Solid Carbide
Heads for Chamfering
and Countersinking

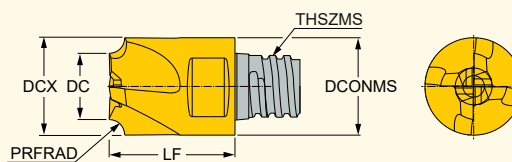


Designation	Dimensions								IC908
	KAPR ⁽¹⁾	DCX ⁽²⁾	NOF ⁽³⁾	DC	APMX	THSZMS	DCONMS	LF	
MM ECF120-02/100-4T06	30.0	10.00	4	2.00	2.30	T06	10.00	13.00	•
MM ECF120-02/120-4T08	30.0	12.00	4	2.00	2.90	T08	12.00	16.50	•
MM ECF120-03/160-6T10	30.0	16.00	6	3.00	3.70	T10	16.00	20.50	•
MM ECF120-05/200-6T12	30.0	20.00	6	5.00	4.30	T12	18.45	25.50	•
MM ECF120-06/250-6T15	30.0	25.00	6	6.00	5.40	T15	25.00	25.00	•
MM ECF45-080-4T05	45.0	8.00	4	1.95	3.00	T05	8.00	10.00	•
MM ECF45-100-4T06	45.0	10.00	4	1.95	4.00	T06	10.00	13.00	•
MM ECF45-120-4T08	45.0	12.00	4	1.95	5.00	T08	12.00	16.50	•
MM ECF45-150-4T08	45.0	12.70	4	1.95	5.00	T08	12.70	16.50	•
MM ECF45-160-6T10	45.0	16.00	6	3.00	6.50	T10	16.00	20.50	•
MM ECF45-200-6T12	45.0	20.00	6	5.00	7.50	T12	18.45	25.50	•
MM ECF45-250-6T15-M	45.0	25.00	6	5.00	10.00	T15	25.00	25.00	•
MM ECF60-100-4T06	60.0	10.00	4	1.60	7.30	T06	10.00	13.00	•
MM ECF60-02/100-4T06	60.0	10.00	4	2.00	6.90	T06	10.00	13.00	•
MM ECF60-03/120-4T08	60.0	12.00	4	3.00	7.80	T08	12.00	16.50	•
MM ECF60-04/160-6T10	60.0	16.00	6	4.00	10.00	T10	16.00	20.50	•
MM ECF60-05/200-6T12	60.0	20.00	6	5.00	13.00	T12	18.45	25.50	•
MM ECF60-08/250-6T15	60.0	25.00	6	8.00	14.00	T15	25.00	25.00	•

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

- (1) Tool cutting edge angle
(2) Cutting diameter maximum
(3) Number of flutes

MM ER
Interchangeable 4 Flute
Solid Carbide Corner
Rounding Milling Heads

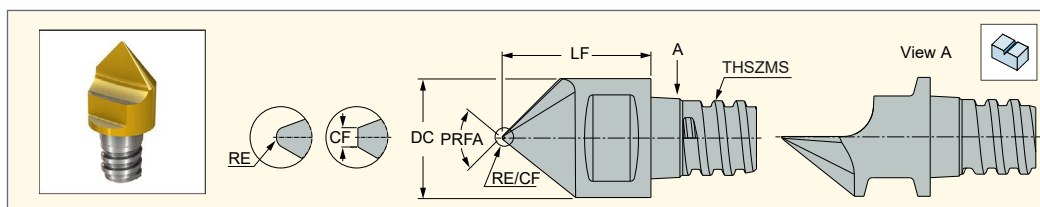


Designation	Dimensions								IC908
	PRFRAD	Tm ⁽¹⁾	DC	DCX ⁽²⁾	DCONMS	NOF ⁽³⁾	LF	THSZMS	
MM ER1.0/047-5.8-4T05	1.00	0.5-1.4	5.80	8.00	8.00	4	10.00	T05	•
MM ER1.6/063-6.8-4T06	1.60	0.5-2.5	6.80	10.00	10.00	4	13.00	T06	•
MM ER2.0/078-6.0-4T06	2.00	0.5-2.5	6.00	10.00	10.00	4	13.00	T06	•
MM ER2.5/094-5.1-4T06	2.50	0.5-2.5	5.10	10.00	10.00	4	13.00	T06	•
MM ER3.0/125-6.5-4T08	3.00	0.5-3.1	6.50	12.70	12.70	4	16.50	T08	•

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

- (1) Specially tailored radius range upon request.
(2) Cutting diameter maximum
(3) Number of flutes

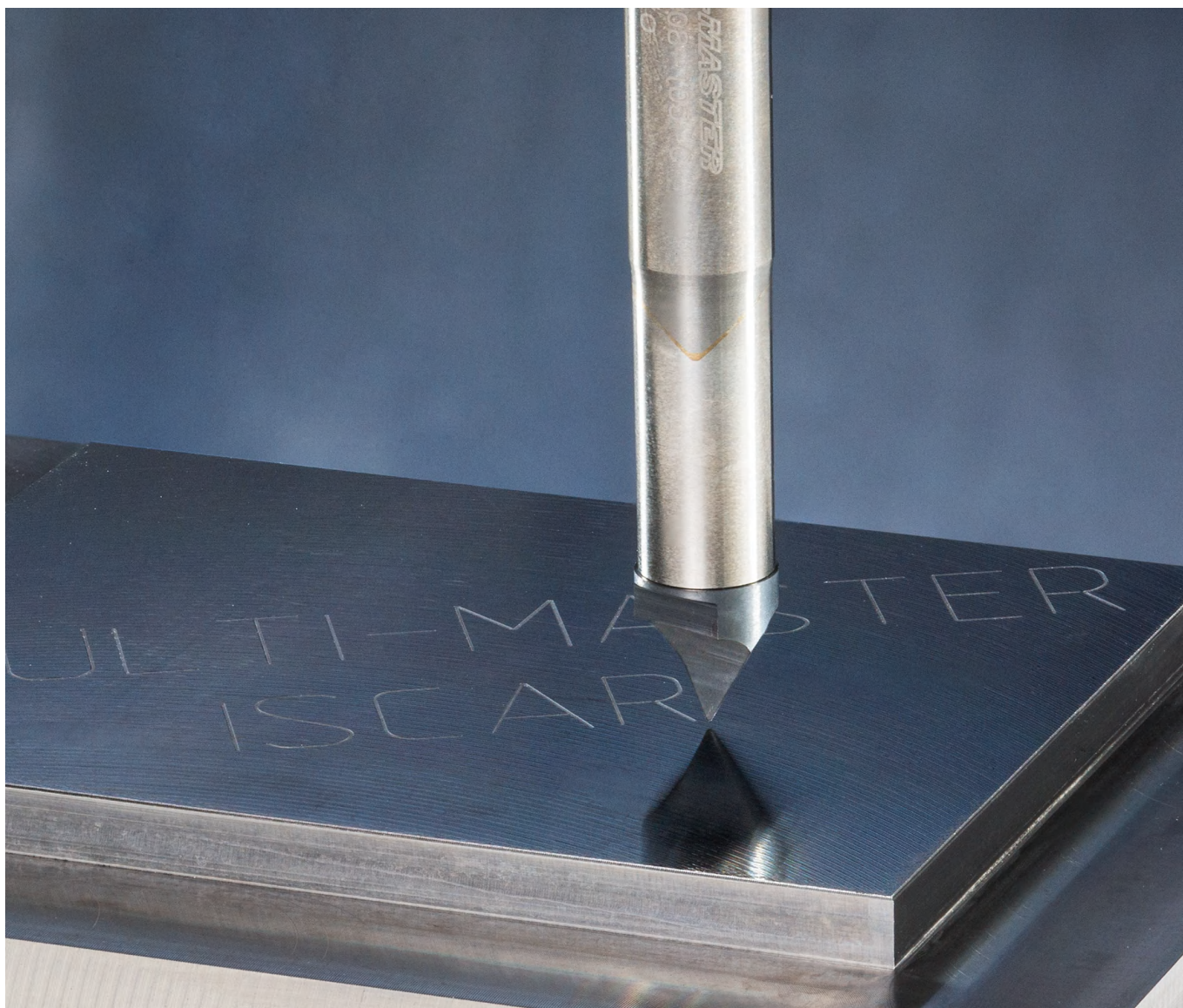
MM EPG
Single Flute MULTI-MASTER
Engraving Tool Head



Designation	Dimensions						IC908
	DC	RE	CF ⁽¹⁾	PRFA	LF	THSZMS	
MM EPG080/30-1T05	8.00	0.20	-	30.00	10.00	T05	•
MM EPG080/45-1T05	8.00	0.20	-	45.00	10.00	T05	•
MM EPG080/60-1T05	8.00	0.20	-	60.00	10.00	T05	•
MM EPG080/90-1T05	8.00	0.20	-	90.00	10.00	T05	•
MM EPG080/60-F50-1T05	8.00	-	0.50	60.00	10.00	T05	•
MM EPG080/60-F75-1T05	8.00	-	0.75	60.00	10.00	T05	•
MM EPG080/90-F32-1T05	8.00	-	0.32	90.00	10.00	T05	•
MM EPG080/90-F50-1T05	8.00	-	0.50	90.00	10.00	T05	•

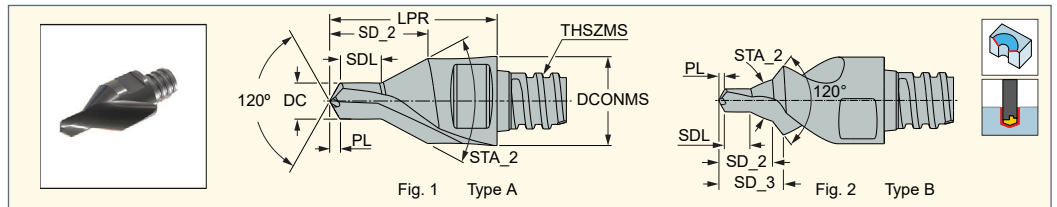
- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection

⁽¹⁾ Frontal corner flat



SOLIDDRILL MULTI-MASTER

MM ECS
Interchangeable Solid Carbide
Centering Drills (DIN 332)



Designation	Dimensions										IC908
	DC	DCONMS	THSZMS	LPR	SDL	SD_2	SD_3	STA_2	PL	Fig.	
MM ECS-A1.00X06-2T04	1.07	6.00	T04	10.00	1.32	4.14	-	60.0	0.280	1	•
MM ECS-A1.60X06-2T04	1.65	6.00	T04	10.00	1.97	4.45	-	60.0	0.430	1	•
MM ECS-A2.00X06-2T04	2.07	6.00	T04	10.00	2.36	6.37	-	60.0	0.540	1	•
MM ECS-A3.15X08-2T05	3.28	8.00	T05	15.00	3.75	8.76	-	60.0	0.850	1	•
MM ECS-A4.00X10-2T06	4.12	10.00	T06	19.00	4.83	11.05	-	60.0	1.070	1	•
MM ECS-A5.00X12-2T08	5.13	12.00	T08	23.00	5.88	13.23	-	60.0	1.320	1	•
MM ECS-A6.30X16-2T10	6.46	16.00	T10	28.00	7.25	17.18	-	60.0	1.650	1	•
MM ECS-B3.15X12-2T08	3.24	12.00	T08	23.00	3.55	7.40	8.94	60.0	0.830	2	•
MM ECS-B4.00X127-2T08	4.09	12.70	T08	23.00	4.53	9.50	10.71	60.0	1.070	2	•
MM ECS-B5.00X19-2T12	5.09	18.45	T12	25.50	5.56	11.70	14.17	60.0	1.330	2	•
MM ECS-B6.30X20-2T12	6.41	18.45	T12	25.50	6.95	14.50	16.58	60.0	1.680	2	•

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

IC908							
*V _{cz} [m/minxmm/tooth]							
	MM ECS-A1.00X06-2T04	MM ECS-A1.60X06-2T04	MM ECS-A2.00X06-2T04	MM ECS-A3.15X08-2T05	MM ECS-A4.00X10-2T06	MM ECS-A5.00X12-2T08	MM ECS-A6.30X16-2T10
	DCX=2.12, APMX=2.5	DCX=3.35, APMX=3.9	DCX=4.25, APMX=4.8	DCX=6.70, APMX=7.60	DCX=8.50, APMX=9.80	DCX=10.60, APMX=12.00	DCX=13.20, APMX=14.80
P	4340 24-29HRC	80x0.020	80x0.025	80x0.025	80x0.030	80x0.040	80x0.060
	4340 38-42HRC	65x0.020	65x0.025	65x0.025	65x0.030	65x0.040	65x0.060
M	316L MAX-215 HB	50x0.015	50x0.020	50x0.020	50x0.025	50x0.030	50x0.040
S	Inconel 718	15x0.010	15x0.010	15x0.015	15x0.015	15x0.020	15x0.025

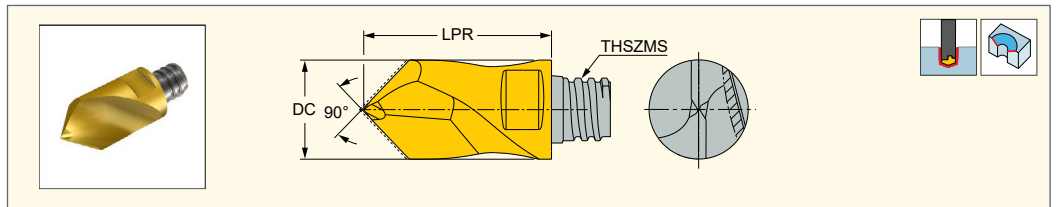
* V_c Calculated for ØDC

IC908				
*V _{cz} [m/minxmm/tooth]				
	MM ECS-A3.15X12-2T08	MM ECS-A4.00X127-2T08	MM ECS-A5.00X19-2T12	MM ECS-A6.30X20-2T12
	DCX=10.00, APMX=8.80	DCX=12.50, APMX=11.00	DCX=16.00, APMX=13.900	DCX=18.00, APMX=16.80
P	4340 24-29HRC	75x0.030	75x0.040	75x0.060
	4340 38-42HRC	60x0.030	60x0.040	60x0.060
M	316L MAX-215 HB	45x0.025	45x0.030	45x0.040
S	Inconel 718	12x0.015	12x0.020	12x0.025

* V_c Calculated for ØDC

SOLIDDRILL **MULTI-MASTER**

MM ECD
NC Spotting Drills for Accurately
Locating a Hole without
Using a Guide Bushing

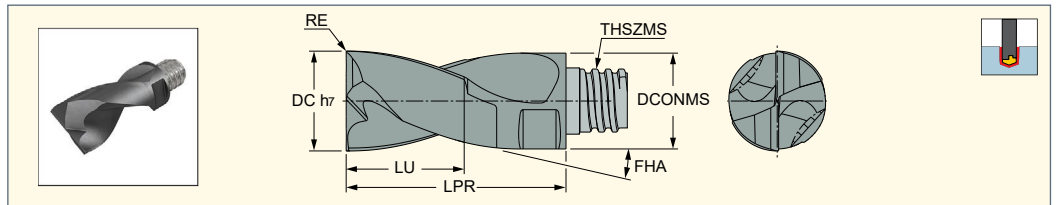


Dimensions					IC908
Designation	DC	LPR	THSZMS		
MM ECD-06X90-2T04	6.00	11.00	T04		•
MM ECD-08X90-2T05	8.00	15.00	T05		•
MM ECD-10X90-2T06	10.00	19.00	T06		•
MM ECD-12X90-2T08	12.00	23.00	T08		•
MM ECD-16X90-2T10	16.00	28.00	T10		•

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection

SOLIDDRILL **MULTI-MASTER**

MM ECDF
MULTI-MASTER
Exchangeable Solid Carbide
Flat Bottom Drill Heads

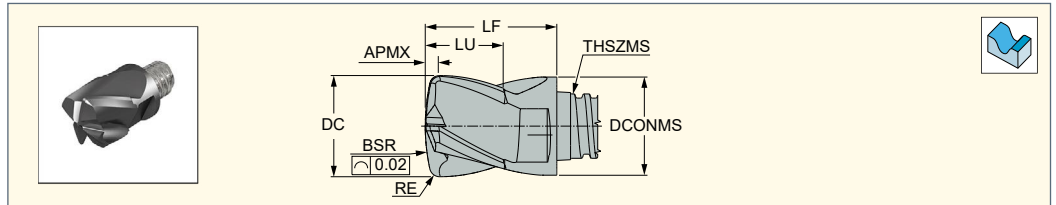


Dimensions									IC908
Designation	DC	DCONMS	NOF ⁽¹⁾	LU	LPR	RE	FHA	THSZMS	
MM ECDF080A100-2T05	8.00	7.70	2	12.00	22.00	0.00	30.0	T05	•
MM ECDF085A120-2T05	8.50	7.70	2	12.00	22.00	0.00	30.0	T05	•
MM ECDF090A120-2T05	9.00	7.70	2	12.00	22.00	0.00	30.0	T05	•
MM ECDF095A120-2T06	9.50	9.20	2	12.00	22.00	0.00	30.0	T06	•
MM ECDF100A120-2T06	10.00	9.60	2	12.00	22.00	0.00	30.0	T06	•
MM ECDF105A120-2T06	10.50	9.60	2	12.00	23.00	0.00	30.0	T06	•
MM ECDF110A120-2T06	11.00	9.60	2	12.00	23.00	0.00	30.0	T06	•
MM ECDF115A120-2T06	11.50	9.60	2	12.00	23.00	0.00	30.0	T06	•
MM ECDF120A150-2T08	12.00	11.70	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF125A150-2T08	12.50	12.10	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF130A150-2T08	13.00	12.20	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF135A150-2T08	13.50	12.20	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF140A150-2T08	14.00	12.20	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF145A150-2T08	14.50	12.20	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF150A150-2T08	15.00	12.20	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF155A150-2T08	15.50	12.20	2	15.00	27.00	0.00	30.0	T08	•
MM ECDF160A200-2T10	16.00	15.30	2	20.00	33.50	0.00	30.0	T10	•
MM ECDF165A200-2T10	16.50	15.30	2	20.00	33.50	0.00	30.0	T10	•
MM ECDF170A200-2T10	17.00	15.30	2	20.00	33.50	0.00	30.0	T10	•
MM ECDF175A200-2T10	17.50	15.30	2	20.00	33.50	0.00	30.0	T10	•
MM ECDF180A200-2T10	18.00	15.30	2	20.00	33.50	0.00	30.0	T10	•
MM ECDF185A200-2T12	18.50	18.20	2	25.00	41.00	0.00	30.0	T12	•
MM ECDF190A250-2T12	19.00	18.30	2	25.00	41.00	0.00	30.0	T12	•
MM ECDF195A250-2T12	19.50	18.30	2	25.00	41.00	0.00	30.0	T12	•
MM ECDF200A250-2T12	20.00	18.45	2	25.00	41.00	0.00	30.0	T12	•

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

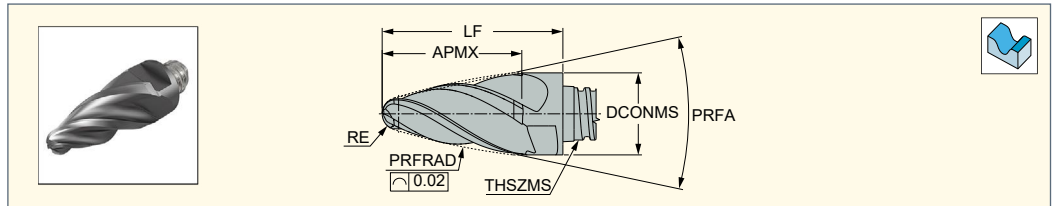
MM ELB
Interchangeable Lens-Shaped
(Barrel) Solid Carbide
Heads for 3D Profiling



Designation	Dimensions									IC908
	DC	BSR	RE	LU	APMX	THSZMS	DCONMS	NOF ⁽¹⁾	LF	
MM ELB08R16A05-4T05	8.00	16.00	0.50	5.50	0.90	T05	8.00	4	10.00	•
MM ELB10R20A07-4T06	10.00	20.00	1.00	7.50	1.42	T06	10.00	4	13.00	•
MM ELB12R24A09-4T08	12.00	24.00	1.00	9.00	1.55	T08	12.00	4	16.50	•
MM ELB16R32A12-4T10	16.00	32.00	1.00	12.00	1.80	T10	16.00	4	20.50	•

• For user guide see pages 44, 177-184
(1) Number of flutes

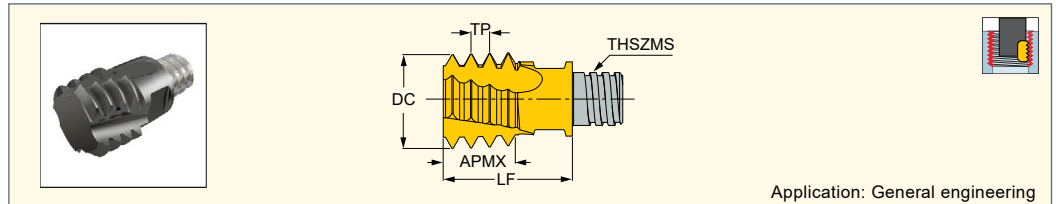
MM EOB
Interchangeable Oval-Shaped
(Barrel) Solid Carbide
Heads for 3D Profiling



Designation	Dimensions								IC908
	PRFRAD	RE	APMX	PRFA	THSZMS	NOF ⁽¹⁾	DCONMS	LF	
MM EOB08R1.5R80A13-4T05	80.00	1.50	14.20	24.00	T05	4	8.00	18.00	•
MM EOB12R2.0R75A21-4T08	75.00	2.00	21.30	24.00	T08	4	12.00	27.00	•
MM EOB10R2.0R85A16-4T06	85.00	2.00	16.50	24.00	T06	4	10.00	22.00	•
MM EOB16R3.0R75A26-4T10	75.00	3.00	27.00	24.00	T10	4	16.00	33.40	•

• For user guide see pages 44, 177-184
(1) Number of flutes

MT-UN-MM
Carbide Milling Heads with
a Threaded Connection for
Internal UN Thread Profile

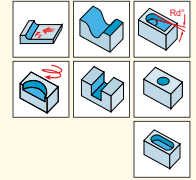
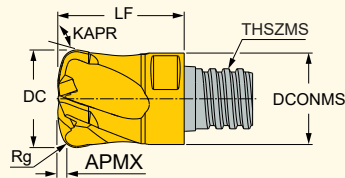


Application: General engineering

Designation	Dimensions										IC908
	TP ⁽¹⁾	UNC	UNF	UNEF	DC	NOF ⁽²⁾	APMX	LF	THSZMS	TP ⁽³⁾	
MT 10D7 32UN-MMT05	32.0	-	-	-	10.00	4	6.40	12.75	T05	0.794	•
MT 10D6 28UN-MMT05	28.0	-	1/2	-	10.00	4	5.50	12.75	T05	0.907	•
MT 10D6 24UN-MMT05	24.0	-	-	9/16-5/8	10.00	4	5.30	12.75	T05	1.058	•
MT 10D6 20UN-MMT05	20.0	-	1/2	-	10.00	4	5.10	12.75	T05	1.270	•
MT 10D5 18UN-MMT05	18.0	-	9/16-5/8	1 1/8-1 5/8	10.00	4	5.60	12.75	T05	1.411	•
MT 10D7 16UN-MMT05	16.0	-	3/4	-	10.00	4	6.40	12.75	T05	1.588	•
MT 12D8 24UN-MMT06	24.0	-	-	5/8-11/16	12.00	4	7.40	14.30	T06	1.058	•
MT 12D8 20UN-MMT06	20.0	-	-	3/4-1	12.00	4	7.70	14.30	T06	1.270	•
MT 12D8 18UN-MMT06	18.0	-	5/8	=>1 11/16	12.00	4	7.10	14.30	T06	1.411	•
MT 12D8 16UN-MMT06	16.0	-	3/4	-	12.00	4	8.00	14.30	T06	1.588	•
MT 12D8 14UN-MMT06	14.0	-	7/8	-	12.00	4	7.30	14.30	T06	1.814	•
MT 16E11 18UN-MMT08	18.0	-	5/8	=>1 11/16	16.00	5	11.30	20.00	T08	1.411	•
MT 16E13 14UN-MMT08	14.0	-	7/8	-	16.00	5	12.70	20.00	T08	1.814	•
MT 16E13 12UN-MMT08	12.0	-	1-1 1/2	-	16.00	5	12.70	20.00	T08	2.117	•
MT 15.3D13 10UN-MMT08	10.0	3/4	-	-	15.30	4	12.70	20.00	T08	2.540	•
MT 16C11 9UN-MMT08	9.0	7/8	-	-	16.00	3	11.30	20.00	T08	2.822	•
MT 16C13 8UN-MMT08	8.0	1.0	-	-	16.00	3	12.70	20.00	T08	3.175	•
MT20F13 12UN-MMTT10	12.0	-	=>1	-	20.00	6	12.70	21.00	T10	2.117	•
MT20D13 8UN-MMTT10	8.0	1	-	-	20.00	4	12.70	21.00	T10	3.175	•
MT20D15 7UN-MMTT10	7.0	-	1 1/8-1 1/4	-	20.00	4	10.90	21.00	T10	3.629	•

• Note: Description and dimensions relate to the new products with clamping flats.
There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted.
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection (1) Threads per inch (2) Number of flutes (3) Thread pitch

MM EFF
 4, 6 Flute Solid Carbide
 Heads for Milling at Very Fast
 Feeds and Small D.O.C.



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	NOF ⁽³⁾	APMX	THSZMS	DCONMS	LF	RMPX ⁽⁴⁾	KAPR ⁽⁵⁾	Rg ⁽⁶⁾	CSP ⁽⁷⁾	IC908	IC903	
MM EFF080T3R1.62-4T05	8.00	4	0.40	T05	7.50	10.00	5.0	97.0	1.62	0		•	0.12-0.48
MM EFF100T4R2.01-4T06	10.00	4	0.50	T06	9.50	13.00	5.0	97.0	2.01	0		•	0.16-0.57
MM EFF100T2R1.0-6T06H ⁽¹⁾	10.00	6	0.45	T06	9.50	10.00	3.0	97.0	1.00	1		•	0.16-0.47
MM EFF120T4R1.8-4T08H ⁽¹⁾	12.00	4	0.60	T08	11.50	16.50	5.0	97.0	1.80	1	•		0.16-0.67
MM EFF120T4R2.47-4T08	12.00	4	0.60	T08	11.50	16.50	5.0	97.0	2.47	0		•	0.16-0.67
MM EFF120T2R1.2-6T08H ⁽¹⁾	12.00	6	0.65	T08	11.50	12.50	3.0	97.0	1.20	1		•	0.16-0.54
MM EFF127T4R2.59-4T08	12.70	4	0.60	T08	12.20	16.50	5.0	97.0	2.59	0		•	0.16-0.67
MM EFF127T4R1.3-6T08H	12.70	6	0.70	T08	12.20	12.70	3.0	97.0	1.30	1		•	0.16-0.67
MM EFF160T5R2.2-4T10H ⁽¹⁾	16.00	4	0.80	T10	15.40	20.50	5.0	97.0	2.20	1	•		0.20-0.75
MM EFF160T5R3.25-4T10	16.00	4	0.80	T10	15.40	20.50	5.0	97.0	3.25	0		•	0.20-0.75
MM EFF160T4R2.0-6T10H ⁽¹⁾	16.00	6	1.05	T10	15.40	16.00	3.0	97.0	2.00	1		•	0.20-0.65
MM EFF200T6R4.02-4T12	20.00	4	1.00	T12	18.45	25.50	5.0	97.0	4.02	0		•	0.20-0.90
MM EFF200T5R2.2-6T12H ⁽¹⁾	20.00	6	1.25	T12	18.45	20.00	3.0	97.0	2.20	1		•	0.20-0.80
MM EFF250A7R3.1-6T15	25.00	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		•	0.25-1.00
MM EFF254A7R3.1-6T15 ⁽²⁾	25.40	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		•	0.25-1.00

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ With a central coolant hole

⁽²⁾ Cannot be used for plunging application

⁽³⁾ Number of flutes

⁽⁴⁾ Maximum ramping angle

⁽⁵⁾ Tool cutting edge angle

⁽⁶⁾ Radius for programming

⁽⁷⁾ 0 - Without coolant supply, 1 - With coolant supply

Machining Recommendations

VDI 3323	Material Group ⁽¹⁾	V _c (m/min)	F _z (mm/t) vs. Tool Diameter (mm)							
			a _p	AE	8	10	12	16	20	25
P	1	180	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	2	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	3	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	4	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	5	150	0.045xD	0.7xD	0.43	0.50	0.57	0.65	0.75	0.87
	6	150	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	7	140	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	8	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	9	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	10	130	0.04xD	0.6xD	0.28	0.33	0.38	0.48	0.57	0.67
	11	120	0.04xD	0.6xD	0.25	0.30	0.35	0.43	0.52	0.62
K	12, 13	120	0.04xD	0.6xD	0.30	0.35	0.43	0.52	0.60	0.70
	15-16	180	Apmax	0.7xD	0.45	0.52	0.60	0.70	0.80	0.90
H	17-18	160	Apmax	0.7xD	0.38	0.45	0.52	0.60	0.70	0.80
	38.1 ⁽²⁾	100	0.035xD	0.45xD	0.20	0.25	0.33	0.40	0.48	0.55
	38.2 ⁽³⁾	80	0.03xD	0.3xD	0.16	0.22	0.30	0.38	0.45	0.52
	39 ⁽⁴⁾	60	0.02xD	0.25xD	0.12	0.16	0.16	0.20	0.20	0.25

⁽¹⁾ ISCAR material group in accordance with VDI 3323 standard

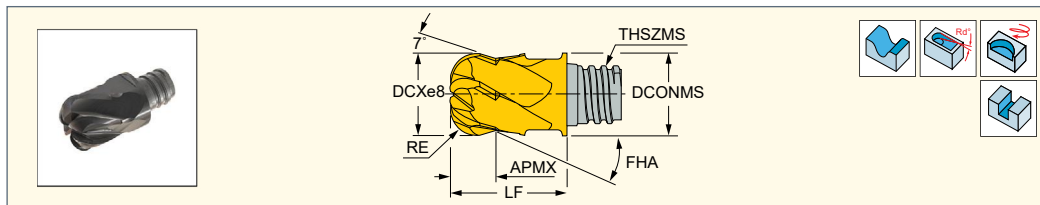
⁽²⁾ 45-49 HRC

⁽³⁾ 50-55 HRC

⁽⁴⁾ 56-63 HRC

a_p - Depth of cut
 AE - Width of cut

MM ETR
Torodial 2 Flute Interchangeable
Solid Carbide Milling Heads



Designation	Dimensions									Tough ↔ Hard	
	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX ⁽³⁾	IC908	IC903
MM ETR080A04R2.0-6T05	8.00	6	5.00	2.00	T05	7.70	10.00	30.0	9.0	•	
MM ETR080A4R05CF-6T05	8.00	6	4.00	0.50	T05	7.70	10.00	30.0	9.0		•
MM ETR080A4R10CF-6T05	8.00	6	4.00	1.00	T05	7.70	10.00	30.0	9.0		•
MM ETR100A05R3.0-6T06	10.00	6	7.00	3.00	T06	9.60	13.00	30.0	9.0	•	
MM ETR100A5R05CF-6T06	10.00	6	5.00	0.50	T06	9.60	13.00	30.0	9.0		•
MM ETR100A5R10CF-6T06	10.00	6	5.00	1.00	T06	9.60	13.00	30.0	9.0		•
MM ETR120A07R4.0-6T08	12.00	6	9.00	4.00	T08	11.70	16.50	30.0	9.0	•	
MM ETR120A7R05CF-6T08	12.00	6	7.00	0.50	T08	12.00	17.00	30.0	9.0		•
MM ETR120A7R10CF-6T08	12.00	6	7.00	1.00	T08	12.00	17.00	30.0	9.0		•
MM ETR160A09R5.0-6T10	16.00	6	12.00	5.00	T10	15.30	20.50	30.0	9.0	•	

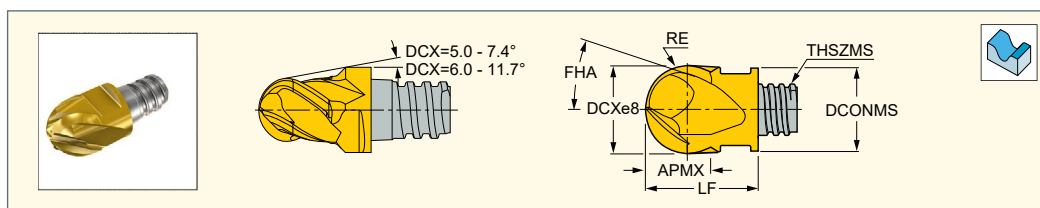
- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

⁽³⁾ Maximum ramping angle

MM EB
Interchangeable Solid Carbide
Ball Nose Milling Heads



Designation	Dimensions								IC908
	DCX ⁽²⁾	NOF ⁽³⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	
MM EB050E07-4T05	5.00	4	7.00	2.49	T05	8.00	15.00	38.0	•
MM EB060E04-4T04	6.00	4	4.00	2.99	T04	5.80	7.60	37.0	•
MM EB060E05-4T05	6.00	4	5.00	2.99	T05	8.00	10.00	38.0	•
MM EB080A05-2T05	8.00	2	5.00	3.98	T05	7.70	10.00	30.0	•
MM EB080A05-4T05	8.00	4	5.00	3.98	T05	7.70	10.00	30.0	•
MM EB100A07-2T06	10.00	2	7.00	4.98	T06	9.60	13.00	30.0	•
MM EB100A07-4T06	10.00	4	7.00	4.98	T06	9.60	13.00	30.0	•
MM EB120A09-2T08	12.00	2	9.00	5.98	T08	11.70	16.50	30.0	•
MM EB120H09CF-3T08 ⁽¹⁾	12.00	3	9.00	5.98	T08	11.70	16.50	38.0	•
MM EB120A09-4T08	12.00	4	9.00	5.98	T08	11.70	16.50	30.0	•
MM EB160A09-2T10	16.00	2	9.00	7.98	T10	15.30	20.50	30.0	•
MM EB160A12-4T10	16.00	4	12.00	7.98	T10	15.30	20.50	30.0	•
MM EB200A15-4T12	20.00	4	15.00	9.97	T12	18.45	25.50	30.0	•
MM EB250A22-4T15	25.00	4	22.00	12.47	T15	23.90	37.00	30.0	•

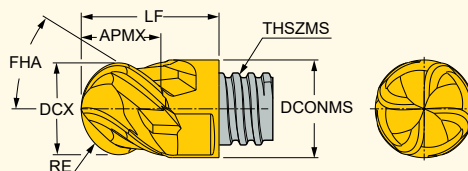
- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ With coolant holes directed to each flute

⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of flutes

MM EBC
Interchangeable Solid Carbide
Ball Nose Milling Heads for High
Productivity on Hard Materials



Dimensions									IC903
Designation	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	
MM EBC080B05-4T05CF	8.00	4	5.40	3.98	T05	7.70	10.00	45.0	•
MM EBC100B07-4T06CF	10.00	4	7.40	4.98	T06	9.60	13.00	45.0	•
MM EBC120B09-4T08CF	12.00	4	9.30	5.98	T08	11.70	16.50	45.0	•
MM EBC160B12-4T10CF	16.00	4	12.40	7.98	T10	15.30	20.50	45.0	•
MM EBC200B15-4T12CF	20.00	4	16.00	9.97	T12	18.45	25.50	45.0	•

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

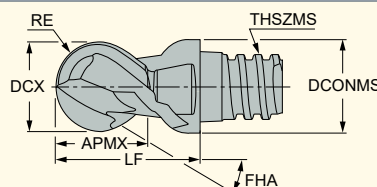
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

* Optional, should be ordered separately

MM EBA
Interchangeable 2 Flute High
Precision Solid Carbide Ball Nose
Heads for Machining Aluminum



ALUMINUM

Dimensions									IC08
Designation	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	RE	RETOL ⁽³⁾	THSZMS	DCONMS	LF	FHA
MM EBA080B05-2T05	8.00	2	5.00	3.98	0.010	T05	7.70	10.00	45.0
MM EBA100B07-2T06	10.00	2	7.00	4.98	0.010	T06	9.60	13.00	45.0
MM EBA120B09-2T08	12.00	2	9.00	5.98	0.012	T08	11.50	16.50	45.0
MM EBA160B12-2T10	16.00	2	12.00	7.98	0.012	T10	15.30	20.50	45.0
MM EBA200B15-2T12	20.00	2	15.00	9.97	0.012	T12	18.45	25.50	45.0
MM EBA250B22-2T15	25.00	2	22.00	12.50	0.012	T15	23.90	37.00	45.0

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

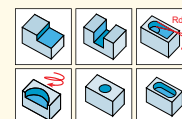
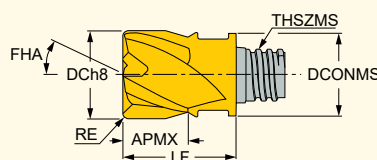
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

⁽³⁾ Corner radius tolerance (+/-)

MM ECU
Interchangeable 3 Flute
Undersized Solid Carbide Heads
for Keyways (DIN 6885)



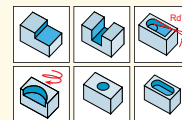
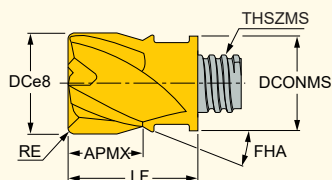
Dimensions									Recommended Machining Data	
Designation	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	IC908	f _z (mm/t)
MM ECU077E04R020-3T05	7.70	3	4.00	0.20	T05	7.70	10.00	38.0	•	0.03-0.08
MM ECU097E05R030-3T06	9.70	3	5.00	0.30	T06	9.60	13.00	38.0	•	0.03-0.09
MM ECU117E07R030-3T08	11.70	3	7.00	0.30	T08	11.50	16.50	38.0	•	0.03-0.10
MM ECU157E08R030-3T10	15.70	3	8.00	0.30	T10	15.30	20.50	38.0	•	0.04-0.12
MM ECU197E12R040-3T12	19.70	3	12.00	0.40	T12	18.45	25.50	38.0	•	0.05-0.13

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

MM EC-3
Interchangeable 3 Flute
Solid Carbide Endmill
Heads with 45° Helix



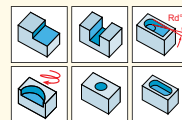
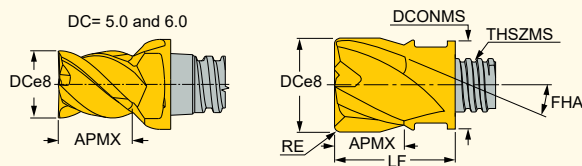
Designation	Dimensions								IC908	Recommended Machining Data f_z (mm/t)
	DC	NOF ⁽²⁾	APMX	RE	THSZMS	LF	FHA	DCONMS		
MM EC080B05R000-3T05	8.00	3	5.00	0.00	T05	10.00	45.0	7.70	•	0.03-0.09
MM EC100B07R000-3T06	10.00	3	7.00	0.00	T06	13.00	45.0	9.60	•	0.03-0.10
MM EC100B12R000-3T06	10.00	3	12.00	0.00	T06	19.00	45.0	9.60	•	0.03-0.10
MM EC120B09R000-3T08 ⁽¹⁾	12.00	3	9.00	0.00	T08	16.50	45.0	11.70	•	0.04-0.11
MM EC120B09R000-3T08	12.00	3	9.00	0.00	T08	16.50	45.0	11.70	•	0.04-0.11

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ With coolant holes directed to each flute ⁽²⁾ Number of flutes

MM EC-4
Interchangeable 4 Flute
Solid Carbide Endmill Heads
with 30° and 45° Helix and
Various Corner Radii

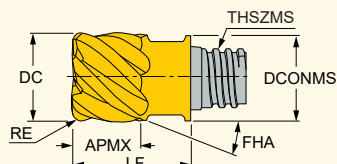


Designation	Dimensions								IC908	Recommended Machining Data f_z (mm/t)
	DC	RE	FHA	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF		
MM EC050B07R000-4T05	5.00	0.00	45.0	4	7.00	T05	8.00	15.00	•	0.02-0.06
MM EC060B05R000-4T05	6.00	0.00	45.0	4	5.00	T05	8.00	10.00	•	0.03-0.07
MM EC060B04R0.5-4T04	6.00	0.50	45.0	4	4.00	T04	5.80	8.50	•	0.02-0.04
MM EC080B05R000-4T05	8.00	0.00	45.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC080B09R000-4T05	8.00	0.00	45.0	4	9.00	T05	7.70	15.00	•	0.03-0.09
MM EC080A05R0.5-4T05	8.00	0.50	30.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC080A09R0.5-4T05	8.00	0.50	30.0	4	9.00	T05	7.70	15.00	•	0.03-0.09
MM EC080B05R0.5-4T05	8.00	0.50	45.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC080A05R1.0-4T05	8.00	1.00	30.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC080B05R1.0-4T05	8.00	1.00	45.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC080A05R1.5-4T05	8.00	1.50	30.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC080B05R1.5-4T05	8.00	1.50	45.0	4	5.00	T05	7.70	10.00	•	0.03-0.09
MM EC100B07R000-4T06	10.00	0.00	45.0	4	7.00	T06	9.60	13.00	•	0.03-0.10
MM EC100B12R000-4T06	10.00	0.00	45.0	4	12.00	T06	9.60	19.00	•	0.03-0.10
MM EC100A07R0.5-4T06	10.00	0.50	30.0	4	7.00	T06	9.60	13.00	•	0.03-0.10
MM EC100B07R0.5-4T06	10.00	0.50	45.0	4	7.00	T06	9.60	13.00	•	0.03-0.10
MM EC100A07R1.0-4T06	10.00	1.00	30.0	4	7.00	T06	9.60	13.00	•	0.03-0.10
MM EC100B07R1.0-4T06	10.00	1.00	45.0	4	7.00	T06	9.60	13.00	•	0.03-0.10
MM EC120B09R000-4T08	12.00	0.00	45.0	4	9.00	T08	11.70	16.50	•	0.04-0.11
MM EC120B14R000-4T08	12.00	0.00	45.0	4	14.00	T08	11.70	23.00	•	0.04-0.11
MM EC120A09R0.5-4T08	12.00	0.50	30.0	4	9.00	T08	11.70	16.50	•	0.04-0.11
MM EC120B09R0.5-4T08	12.00	0.50	45.0	4	9.00	T08	11.70	16.50	•	0.04-0.11
MM EC120A09R1.0-4T08	12.00	1.00	30.0	4	9.00	T08	11.70	16.50	•	0.04-0.11
MM EC120B09R1.0-4T08	12.00	1.00	45.0	4	9.00	T08	11.70	16.50	•	0.04-0.11
MM EC160B12R000-4T10	16.00	0.00	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160A12R0.5-4T10	16.00	0.50	30.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160B12R0.5-4T10	16.00	0.50	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160A12R1.0-4T10	16.00	1.00	30.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160B12R1.0-4T10	16.00	1.00	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160A12R1.5-4T10	16.00	1.50	30.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160B12R1.5-4T10	16.00	1.50	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160A12R2.0-4T10	16.00	2.00	30.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160B12R2.0-4T10	16.00	2.00	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160A12R3.0-4T10	16.00	3.00	30.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160B12R3.0-4T10	16.00	3.00	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160A12R4.0-4T10	16.00	4.00	30.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC160B12R4.0-4T10	16.00	4.00	45.0	4	12.00	T10	15.30	20.50	•	0.05-0.13
MM EC200B15R000-4T12	20.00	0.00	45.0	4	15.00	T12	18.45	25.50	•	0.05-0.13
MM EC200A15R0.5-4T12	20.00	0.50	30.0	4	15.00	T12	18.45	25.50	•	0.05-0.13
MM EC200A15R1.0-4T12	20.00	1.00	30.0	4	15.00	T12	18.45	25.50	•	0.05-0.13
MM EC200A15R2.0-4T12	20.00	2.00	30.0	4	15.00	T12	18.45	25.50	•	0.05-0.13
MM EC200A15R3.0-4T12	20.00	3.00	30.0	4	15.00	T12	18.45	25.50	•	0.05-0.13

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

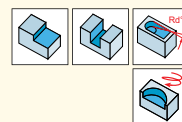
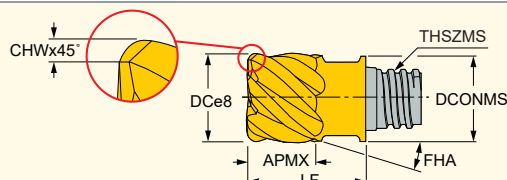
MM EC-6
Interchangeable 6 Flute
Solid Carbide Endmill Heads
with 30° and 45° Helix and
Various Corner Radii


Designation	Dimensions									IC908	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾		f _z (mm/t)
MM EC080A05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	30.0	6.0	•	0.03-0.09
MM EC080A05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	30.0	6.0	•	0.03-0.09
MM EC080A05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	30.0	6.0	•	0.03-0.09
MM EC080B05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	45.0	3.0	•	0.03-0.10
MM EC080B05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	45.0	3.0	•	0.03-0.09
MM EC080B05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	45.0	3.0	•	0.03-0.09
MM EC100A07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	30.0	6.0	•	0.03-0.10
MM EC100A07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	30.0	6.0	•	0.03-0.10
MM EC100A07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	30.0	6.0	•	0.03-0.10
MM EC100B07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	45.0	3.0	•	0.04-0.10
MM EC100B07R000-6T06	10.00	6	7.00	0.00	T06	9.60	13.00	45.0	3.0	•	0.03-0.10
MM EC100B07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	45.0	3.0	•	0.04-0.10
MM EC100B07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	45.0	3.0	•	0.03-0.10
MM EC100B12R1.5-6T06	10.00	6	12.00	1.50	T06	9.60	19.00	45.0	3.0	•	0.04-0.10
MM EC120A09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	30.0	6.0	•	0.04-0.11
MM EC120A09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	30.0	6.0	•	0.04-0.11
MM EC120B09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	45.0	3.0	•	0.04-0.10
MM EC120B09R000-6T08	12.00	6	9.00	0.00	T08	11.70	16.50	45.0	3.0	•	0.04-0.11
MM EC120B09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	45.0	3.0	•	0.04-0.10
MM EC120B09R1.5-6T08	12.00	6	9.00	1.50	T08	11.70	16.50	45.0	3.0	•	0.04-0.11

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

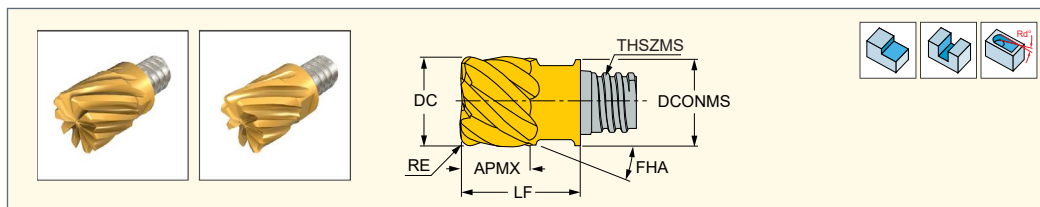
MM EC-D
Interchangeable 6, 8, 10
Flute Solid Carbide Endmill
Heads with 50° Helix for
Machining Hardened Steel


Designation	Dimensions										IC903	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾		
MM EC080D05C01-6T05	8.00	6	5.00	0.10	45.0	T05	7.70	10.00	50.0	2.0	•	0.03-0.10
MM EC100D07C01-6T06	10.00	6	7.00	0.10	45.0	T06	9.60	13.00	50.0	2.0	•	0.03-0.10
MM EC120D09C01-6T08	12.00	6	9.00	0.10	45.0	T08	11.70	16.50	50.0	3.0	•	0.04-0.11
MM EC160D12C02-8T10	16.00	8	12.00	0.20	45.0	T10	15.30	20.50	50.0	3.0	•	0.05-0.13
MM EC200D15C02-10T12	20.00	10	15.00	0.20	45.0	T12	18.45	25.50	50.0	3.0	•	0.05-0.13

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM EC-8/10
 Interchangeable 8, 10 Flute
 Solid Carbide Endmill Heads
 with 30° and 45° Helix and
 Various Corner Radii


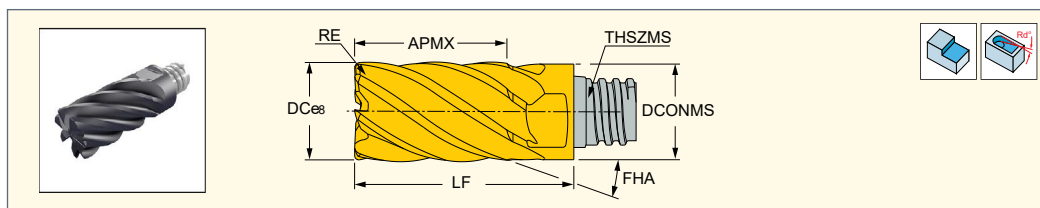
Designation	Dimensions									IC908	Recommended Machining Data
	DC	NOF ⁽²⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX ^{o(3)}		f _z (mm/t)
MM EC160A12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	•	0.05-0.13
MM EC160A12R0.5-8T10H ⁽¹⁾	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	•	0.05-0.13
MM EC160A12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	30.0	5.0	•	0.05-0.13
MM EC160A12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	30.0	5.0	•	0.05-0.13
MM EC160A12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	30.0	5.0	•	0.05-0.13
MM EC160B12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	45.0	5.0	•	0.05-0.13
MM EC160B12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	45.0	5.0	•	0.05-0.13
MM EC160B12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	45.0	5.0	•	0.05-0.13
MM EC160B12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	45.0	5.0	•	0.05-0.13
MM EC200A15R1.0-10T12	20.00	10	15.00	1.00	T12	18.45	25.50	30.0	3.0	•	0.05-0.13
MM EC200A15R2.0-10T12	20.00	10	15.00	2.00	T12	18.45	25.50	30.0	3.0	•	0.05-0.13
MM EC250A22R0.8-10T15	25.00	10	22.00	0.80	T15	23.90	37.00	30.0	3.0	•	0.05-0.13

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ With a central coolant hole

⁽²⁾ Number of flutes

⁽³⁾ Maximum ramping angle

MM EC-CF-Z7/9-1.5xD
 Interchangeable 7, 9 Flute Solid
 Carbide Endmill Heads with 36°
 Helix and 1.5xD Flute Lengths


Designation	Dimensions									80631	Recommended Machining Data
	DC	APMX	RE	NOF ⁽¹⁾	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾		f _z (mm/t)
MM EC080H12R05CF-7T05	8.00	12.00	0.50	7	T05	7.70	18.00	36.0	3.0	•	0.03-0.10
MM EC100H15R05CF-7T06	10.00	15.00	0.50	7	T06	9.60	22.00	36.0	3.0	•	0.04-0.10
MM EC120H18R05CF-7T08	12.00	18.00	0.50	7	T08	11.70	27.00	36.0	3.0	•	0.04-0.10
MM EC160H24R08CF-9T10	16.00	24.00	0.80	9	T10	15.30	33.50	36.0	1.0	•	0.05-0.10
MM EC200H30R10CF-9T12	20.00	30.00	1.00	9	T12	18.45	41.00	36.0	1.0	•	0.05-0.10
MM EC250H37R10CF-9T15	25.00	37.00	1.00	9	T15	23.90	52.50	36.0	1.0	•	0.05-0.10

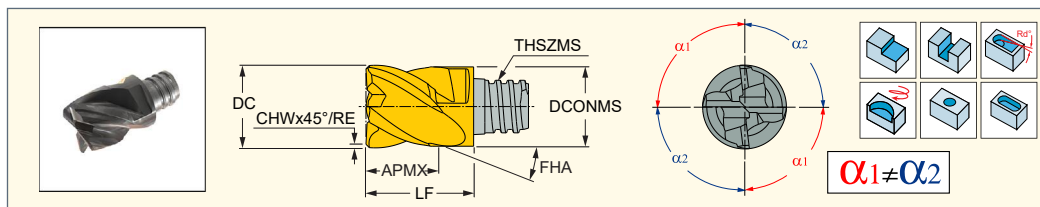
- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM EC-CF

Interchangeable Solid Carbide Endmill Heads for CHATTERFREE Roughing and Finishing Operations



Designation	Dimensions										IC908	Recommended Machining Data f_z (mm/t)
	DC	RE	NOF ⁽²⁾	APMX	THSZMS	DCONMS	LF	FHA	CHW	KCH		
MM EC080E05C3CF-4T05	8.00	-	4	5.00	T05	7.70	10.00	38.0	0.30	45.0	•	0.03-0.09
MM EC080E05R0CF-4T05	8.00	-	4	5.00	T05	7.70	10.00	38.0	-	-	•	0.03-0.09
MM EC080E05R05CF-4T05	8.00	0.50	4	5.00	T05	7.70	10.00	38.0	-	-	•	0.03-0.09
MM EC100E07C4CF-4T06	10.00	-	4	7.00	T06	9.60	13.00	38.0	0.40	45.0	•	0.03-0.10
MM EC100E07R00CF-4T06	10.00	-	4	7.00	T06	9.60	13.00	38.0	-	-	•	0.03-0.10
MM EC100E07R02CF-4T06	10.00	0.20	4	7.00	T06	9.60	13.00	38.0	-	-	•	0.03-0.10
MM EC100E07R04CF-4T06	10.00	0.40	4	7.00	T06	9.60	13.00	38.0	-	-	•	0.03-0.10
MM EC100E07R05CF-4T06	10.00	0.50	4	7.00	T06	9.60	13.00	38.0	-	-	•	0.03-0.10
MM EC100E07R25CF-4T06	10.00	2.50	4	7.00	T06	9.60	13.00	38.0	-	-	•	0.03-0.10
MM EC120E09C5CF-4T08	12.00	-	4	9.00	T08	11.70	16.50	38.0	0.50	45.0	•	0.04-0.11
MM EC120E09C5CF-4T08I ⁽¹⁾	12.00	-	4	9.00	T08	11.70	16.50	38.0	0.50	45.0	•	0.04-0.11
MM EC120E09R00CF-4T08	12.00	-	4	9.00	T08	11.70	16.50	38.0	-	-	•	0.04-0.11
MM EC120E09R02CF-4T08	12.00	0.20	4	9.00	T08	11.70	16.50	38.0	-	-	•	0.04-0.11
MM EC120E09R04CF-4T08	12.00	0.40	4	9.00	T08	11.70	16.50	38.0	-	-	•	0.04-0.11
MM EC120E09R05CF-4T08	12.00	0.50	4	9.00	T08	11.70	16.50	38.0	-	-	•	0.04-0.11
MM EC120E09R15CF-4T08	12.00	1.50	4	9.00	T08	11.70	16.50	38.0	-	-	•	0.04-0.11
MM EC160E12C6CF-4T10	16.00	-	4	12.00	T10	15.30	20.50	38.0	0.60	45.0	•	0.05-0.13
MM EC160E12R05CF-4T10	16.00	0.50	4	12.00	T10	15.30	20.50	38.0	-	-	•	0.05-0.13
MM EC200E15C6CF-4T12	20.00	-	4	15.00	T12	18.45	25.50	38.0	0.60	45.0	•	0.05-0.17
MM EC200E15R05CF-4T12	20.00	0.50	4	15.00	T12	18.45	25.50	38.0	-	-	•	0.05-0.17
MM EC250E28C6CF-12T15	25.00	-	12	28.00	T15	23.90	43.00	38.0	0.60	45.0	•	0.06-0.13
MM EC250E28C6CF-4T15	25.00	-	4	28.00	T15	23.90	43.00	38.0	0.60	45.0	•	0.06-0.17
MM EC250E22C6CF-4T15	25.00	-	4	22.00	T15	23.90	37.00	38.0	0.60	45.0	•	0.06-0.17
MM EC250E22R05CF-4T15	25.00	0.50	4	22.00	T15	23.90	37.00	38.0	-	-	•	0.06-0.17
MM EC250F22R10CF-4T15	25.00	1.00	4	22.00	T15	23.90	37.00	38.0	-	-	•	0.06-0.17
MM EC250E22R20CF-4T15	25.00	2.00	4	22.00	T15	23.90	37.00	38.0	-	-	•	0.06-0.17
MM EC250E22R30CF-4T15	25.00	3.00	4	22.00	T15	23.90	37.00	38.0	-	-	•	0.06-0.17
MM EC320H38C06-4T21	32.00	-	4	38.00	T21	30.00	55.00	38.0	0.60	45.0	•	0.06-0.18

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

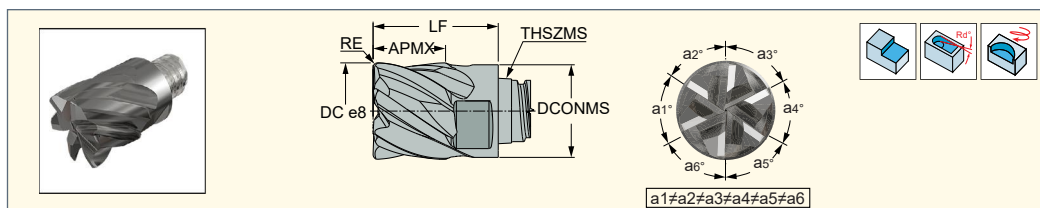
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ With coolant holes directed to each flute

⁽²⁾ Number of flutes

MM ECK-CF

5, 6 Flute Solid Carbide Heads with 35°/38° Helix Featuring Different Corner Radii For Machining Titanium Alloys



Designation	Dimensions								IC908	Recommended Machining Data
	DC	RE	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	RMPX ^o (2)		f _z (mm/t)
MM ECK080H05R04-6T05CF	8.00	0.40	6	5.00	T05	7.70	10.00	5.0	•	0.04-0.08
MM ECK100H07R05-6T06CF	10.00	0.50	6	7.00	T06	9.60	13.00	5.0	•	0.04-0.08
MM ECK120H09R05-6T08CF	12.00	0.50	6	9.00	T08	11.70	16.50	5.0	•	0.04-0.08
MM ECK160H12R08-6T10CF	16.00	0.80	6	12.00	T10	15.30	20.50	5.0	•	0.07-0.12
MM ECK200H15R10-6T12CF	20.00	1.00	6	15.00	T12	18.45	25.50	5.0	•	0.07-0.12
MM ECK250H22R10-6T15CF	25.00	1.00	6	22.00	T15	23.90	37.00	5.0	•	0.07-0.12
MM ECK320H38R4-5T21	32.00	4.00	5	38.00	T21	30.00	55.00	1.0	•	0.06-0.18
MM ECK320H38R5-5T21	32.00	5.00	5	38.00	T21	30.00	55.00	1.0	•	0.06-0.18

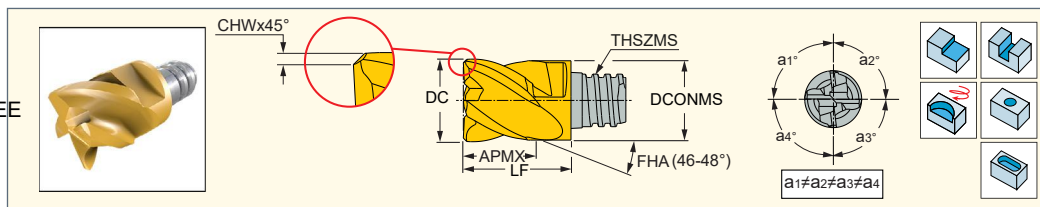
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM EC-H-4-CF
Interchangeable Solid Carbide
Endmill Heads for CHATTERFREE
Milling of Alloyed Steel



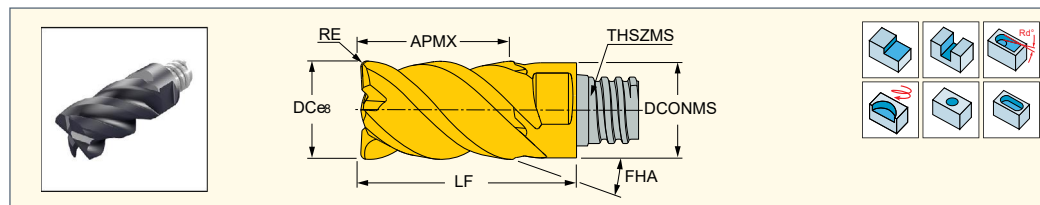
Designation	Dimensions									IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	CHW	KCH			
MM EC080H05C3-4T05CF	8.00	4	5.00	T05	7.70	10.00	0.30	45.0		•	0.03-0.09
MM EC100H07C4-4T06CF	10.00	4	7.00	T06	9.60	13.00	0.40	45.0		•	0.03-0.10
MM EC120H09C5-4T08CF	12.00	4	9.00	T08	11.70	16.50	0.50	45.0		•	0.04-0.11
MM EC160H12C6-4T10CF	16.00	4	12.00	T10	15.30	20.50	0.60	45.0		•	0.05-0.13
MM EC200H15C6-4T12CF	20.00	4	15.00	T12	18.45	25.50	0.60	45.0		•	0.05-0.17

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

CHATTERFREE
MULTI-MASTER LINE

MM EC-CF-Z4-1.5xD
Interchangeable Solid Carbide
Endmill Heads with 1.5xD Flute
Lengths for CHATTERFREE
Roughing and Finishing

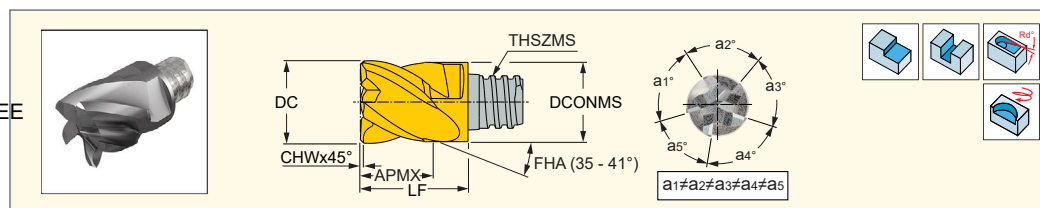


Designation	Dimensions									IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA			
MM EC080H12R05CF-4T05	8.00	4	12.00	0.50	T05	7.70	18.00	46.5		•	0.03-0.09
MM EC100H15R05CF-4T06	10.00	4	15.00	0.50	T06	9.60	22.00	46.5		•	0.03-0.10
MM EC120H18R05CF-4T08	12.00	4	18.00	0.50	T08	11.70	27.00	46.5		•	0.04-0.11
MM EC160H24R05CF-4T10	16.00	4	24.00	0.50	T10	15.30	33.50	46.5		•	0.05-0.13
MM EC200H30R05CF-4T12	20.00	4	30.00	0.50	T12	18.45	41.00	46.5		•	0.05-0.17
MM EC250H37R05CF-4T15	25.00	4	37.00	0.50	T15	23.90	52.50	46.5		•	0.06-0.17

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

MM EC-H-5-CF
Interchangeable Solid Carbide
Endmill Heads for CHATTERFREE
Milling of High Temperature
Alloys like Titanium and Inconel



Designation	Dimensions									IC308	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	RMPX ⁽²⁾	CHW	KCH		
MM EC080H05C3-5T05CF	8.00	5	5.00	T05	7.70	10.00	5.0	0.30	45.0	•	0.03-0.09
MM EC100H07C4-5T06CF	10.00	5	7.00	T06	9.60	13.00	5.0	0.40	45.0	•	0.03-0.10
MM EC120H09C5-5T08CF	12.00	5	9.00	T08	11.70	16.50	4.0	0.50	45.0	•	0.04-0.11
MM EC160H12C6-5T10CF	16.00	5	12.00	T10	15.30	20.50	4.0	0.60	45.0	•	0.05-0.13
MM EC200H15C6-5T12CF	20.00	5	15.00	T12	18.45	25.50	3.0	0.60	45.0	•	0.05-0.17
MM EC250H22C6-5T15CF	25.00	5	22.00	T15	23.90	37.00	3.0	0.60	45.0	•	0.06-0.17

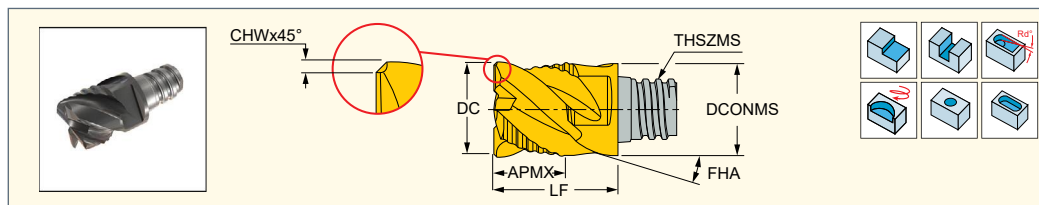
- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM EFS

Combination of Interchangeable
Solid Carbide Endmill Heads
for Roughing and Finishing



Designation	Dimensions									IC908	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	FHA	CHW	KCH		f _z (mm/t)
MM EFS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	45.0	0.30	45.0	•	0.03-0.08
MM EFS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	45.0	0.30	45.0	•	0.03-0.09
MM EFS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	45.0	0.40	45.0	•	0.04-0.10
MM EFS160B12-4T10	16.00	4	12.00	T10	15.30	20.50	45.0	0.60	45.0	•	0.05-0.11
MM EFS200B15-4T12	20.00	4	15.00	T12	18.45	25.50	45.0	0.60	45.0	•	0.05-0.11
MM EFS250B22-4T15	25.00	4	22.00	T15	23.90	37.00	45.0	0.60	45.0	•	0.06-0.11

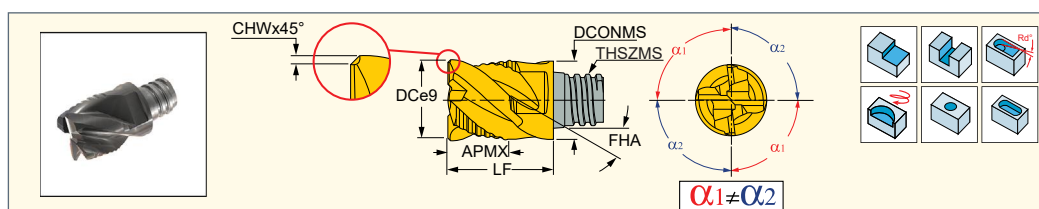
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

MM EFS-CF

4 Flute Solid Carbide Heads
with 38° Helix and Variable Pitch
for CHATTERFREE Roughing
and Finishing Applications

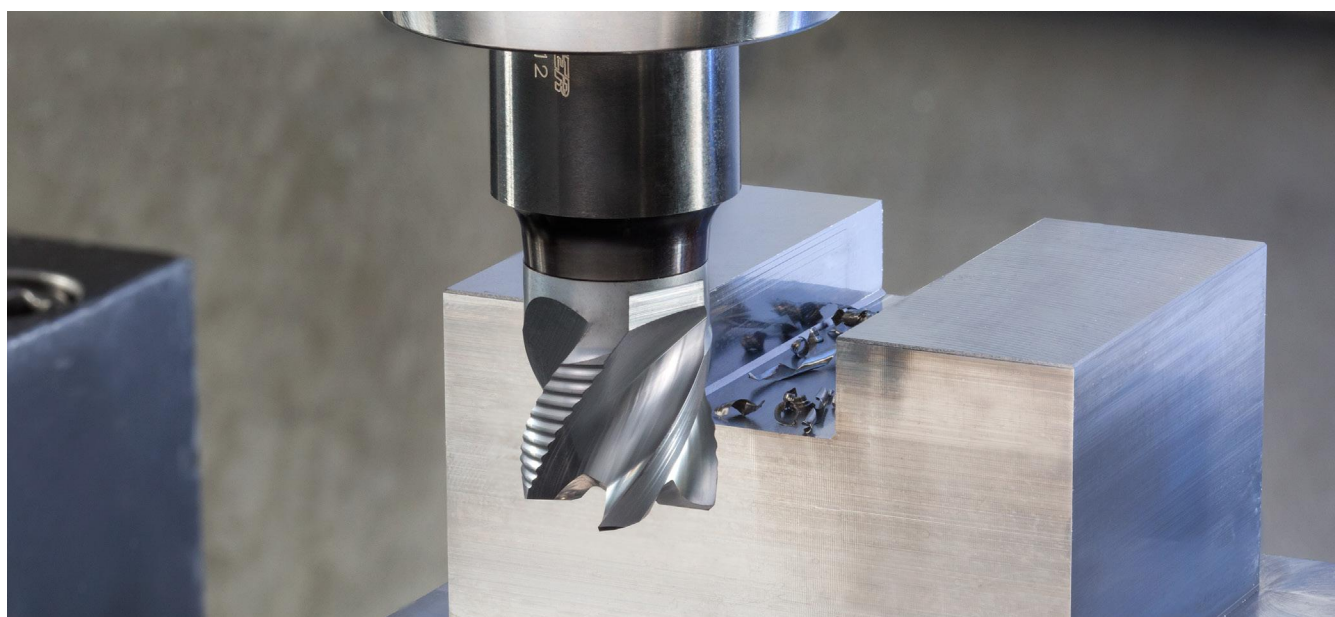


Designation	Dimensions									IC908	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA		f _z (mm/t)
MM EFS060E05-4T05 CF	6.00	4	5.00	0.25	45.0	T05	7.70	10.00	38.0	•	0.03-0.08
MM EFS080E05-4T05 CF	8.00	4	5.00	0.30	45.0	T05	7.70	10.00	38.0	•	0.03-0.08
MM EFS100E07-4T06 CF	10.00	4	7.00	0.40	45.0	T06	9.60	13.00	38.0	•	0.03-0.09
MM EFS120E09-4T08 CF	12.00	4	9.00	0.50	45.0	T08	11.70	16.50	38.0	•	0.04-0.10
MM EFS160E12-4T10 CF	16.00	4	12.00	0.60	45.0	T10	15.30	20.50	38.0	•	0.05-0.11
MM EFS200E15-4T12 CF	20.00	4	16.00	0.60	45.0	T12	18.45	25.50	38.0	•	0.05-0.11
MM EFS250E22-4T15 CF	25.00	4	22.00	0.60	45.0	T15	23.90	37.00	38.0	•	0.06-0.11

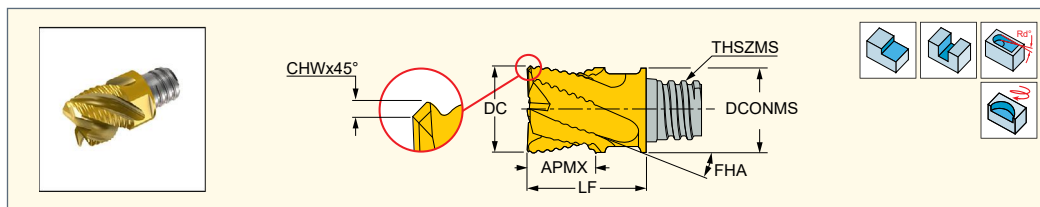
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes



MM ERS
Interchangeable Solid Carbide
Rough Milling Heads for High
Metal Removal Rates



Designation	Dimensions										IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽³⁾	APMX	THSZMS	DCONMS	LF	FHA	RMPX ^{o(4)}	CHW	KCH		
MM ERS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	45.0	5.0	0.25	45.0	•	0.03-0.08
MM ERS080B09-4T05	8.00	4	9.00	T05	7.70	15.00	45.0	5.0	0.25	45.0	•	0.03-0.08
MM ERS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	45.0	5.0	0.30	45.0	•	0.03-0.09
MM ERS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	•	0.04-0.10
MM ERS120B09-4T08H ⁽¹⁾	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	•	0.04-0.10
MM ERS120B09-4T08I ⁽²⁾	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	•	0.04-0.11
MM ERS120B14-4T08	12.00	4	14.00	T08	11.70	23.00	45.0	5.0	0.35	45.0	•	0.04-0.10
MM ERS160B12-5T10	16.00	5	12.00	T10	15.30	20.50	45.0	5.0	0.40	45.0	•	0.04-0.10
MM ERS160B12-5T10H ⁽¹⁾	16.00	5	12.00	T10	15.30	20.50	45.0	5.0	0.40	45.0	•	0.04-0.10
MM ERS200B15-6T12	20.00	6	15.00	T12	18.45	25.50	45.0	3.0	0.40	45.0	•	0.05-0.11
MM ERS250B22-6T15	25.00	6	22.00	T15	23.90	37.00	45.0	3.0	0.50	45.0	•	0.05-0.11

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

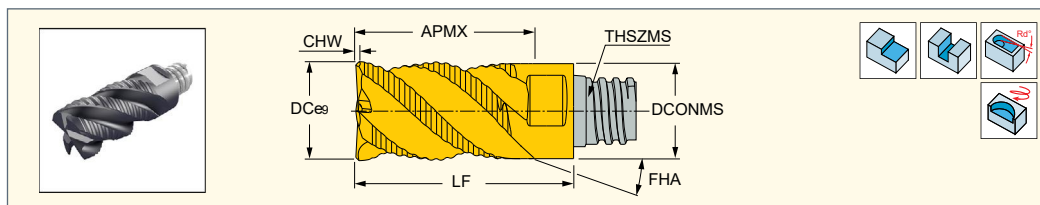
⁽¹⁾ With a central coolant hole

⁽²⁾ With coolant holes directed to each flute

⁽³⁾ Number of flutes

⁽⁴⁾ Maximum ramping angle

MM ERS-1.5xD
Interchangeable Solid Carbide
Rough Milling Heads with
1.5xD Flute Lengths for High
Metal Removal Rates



Designation	Dimensions										IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	RMPX ^{o(2)}		
MM ERS080B12-4T05	8.00	4	12.00	0.25	45.0	T05	7.70	18.00	46.0	5.0	•	0.03-0.08
MM ERS100B15-4T06	10.00	4	15.00	0.30	45.0	T06	9.60	22.00	46.0	5.0	•	0.03-0.09
MM ERS120B18-4T08	12.00	4	18.00	0.35	45.0	T08	11.70	27.00	46.0	5.0	•	0.04-0.10
MM ERS160B24-5T10	16.00	5	24.00	0.40	45.0	T10	15.30	33.50	40.0	5.0	•	0.04-0.10
MM ERS200B30-6T12	20.00	6	30.00	0.40	45.0	T12	18.45	41.00	47.0	3.0	•	0.05-0.11
MM ERS250B37-6T15	25.00	6	37.00	0.50	45.0	T15	23.90	52.50	47.0	3.0	•	0.05-0.11

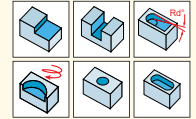
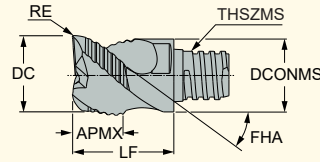
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM ERA
Interchangeable Solid Carbide
Rough Milling Heads for
Machining Aluminum at High
Metal Removal Rates



ALUMINUM

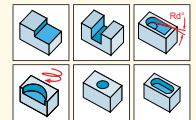
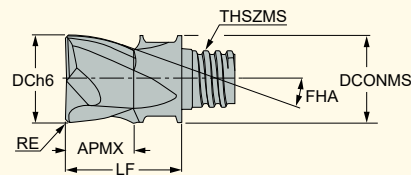
Designation	Dimensions								IC08	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM ERA080B05R0.2-3T05	8.00	3	5.00	0.20	T05	7.70	10.00	45.0	•	0.03-0.15
MM ERA100B06R0.2-3T06	10.00	3	6.00	0.20	T06	9.60	13.00	45.0	•	0.05-0.20
MM ERA120B08R0.2-3T08	12.00	3	8.00	0.20	T08	11.70	16.50	45.0	•	0.07-0.22
MM ERA160B10R0.2-3T10	16.00	3	10.00	0.20	T10	15.30	20.50	45.0	•	0.07-0.25
MM ERA200B12R0.2-3T12	20.00	3	12.00	0.20	T12	18.45	25.50	45.0	•	0.07-0.25
MM ERA250B19R0.2-3T15	25.00	3	19.00	0.20	T15	23.90	37.00	45.0	•	0.07-0.25

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

⁽¹⁾ Number of flutes

MM EA
Interchangeable Solid Carbide
Slot Drill Milling Heads for
Machining Aluminum



ALUMINUM

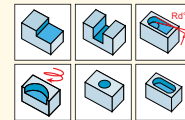
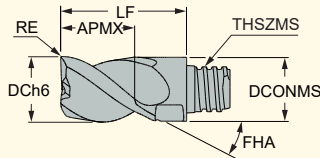
Designation	Dimensions								IC08	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM EA080B05R0.5-2T05	8.00	2	5.00	0.50	T05	7.70	10.00	45.0	•	0.03-0.09
MM EA080B05R0.5-3T05	8.00	3	5.00	0.50	T05	7.70	10.00	45.0	•	0.03-0.09
MM EA100B07R0.5-2T06	10.00	2	7.00	0.50	T06	9.60	13.00	45.0	•	0.03-0.10
MM EA100B07R1.0-2T06	10.00	2	7.00	1.00	T06	9.60	13.00	45.0	•	0.03-0.10
MM EA100B06R0.5-3T06	10.00	3	6.00	0.50	T06	9.60	13.00	45.0	•	0.03-0.10
MM EA100B06R1.0-3T06	10.00	3	6.00	1.00	T06	9.60	13.00	45.0	•	0.03-0.10
MM EA120B09R0.5-2T08	12.00	2	9.00	0.50	T08	11.70	16.50	45.0	•	0.04-0.11
MM EA120B09R1.0-2T08	12.00	2	9.00	1.00	T08	11.70	16.50	45.0	•	0.04-0.11
MM EA120B08R0.5-3T08	12.00	3	8.00	0.50	T08	11.70	16.50	45.0	•	0.04-0.11
MM EA120B08R1.0-3T08	12.00	3	8.00	1.00	T08	11.70	16.50	45.0	•	0.04-0.11
MM EA120B08R3.0-3T08	12.00	3	8.00	3.00	T08	11.70	16.50	45.0	•	0.04-0.11
MM EA160B10R000-3T10	16.00	3	10.00	0.00	T10	15.30	20.50	45.0	•	0.05-0.13
MM EA160B10R1.0-3T10	16.00	3	10.00	1.00	T10	15.30	20.50	45.0	•	0.05-0.13
MM EA160B10R2.0-3T10	16.00	3	10.00	2.00	T10	15.30	20.50	45.0	•	0.05-0.13
MM EA160B10R3.0-3T10	16.00	3	10.00	3.00	T10	15.30	20.50	45.0	•	0.05-0.13
MM EA160B10R4.0-3T10	16.00	3	10.00	4.00	T10	15.30	20.50	45.0	•	0.05-0.13
MM EA200B12R0.5-3T12	20.00	3	12.00	0.50	T12	18.45	25.50	45.0	•	0.05-0.13
MM EA200B12R1.0-3T12	20.00	3	12.00	1.00	T12	18.45	25.50	45.0	•	0.05-0.13
MM EA200B12R2.0-3T12	20.00	3	12.00	2.00	T12	18.45	25.50	45.0	•	0.05-0.13
MM EA200B12R3.0-3T12	20.00	3	12.00	3.00	T12	18.45	25.50	45.0	•	0.05-0.13
MM EA200B12R4.0-3T12	20.00	3	12.00	4.00	T12	18.45	25.50	45.0	•	0.05-0.13

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection.

⁽¹⁾ Number of flutes

MM EA-CF

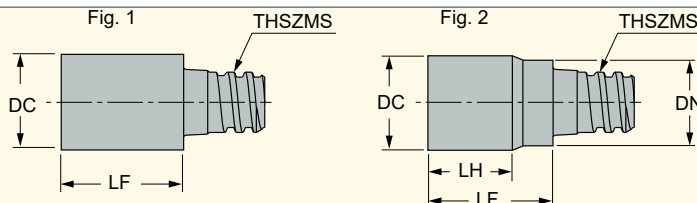
 Interchangeable Solid Carbide
 Endmill Heads with Different
 Helix for Machining Aluminum

ALUMINUM

Designation	Dimensions								IC08	Recommended Machining Data	
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		f _z (mm/t)	
MM EA080H08R0CF-4T05	8.00	4	8.00	0.00	T05	7.70	15.00	40.0	•	0.03-0.09	
MM EA100H10R0CF-4T06	10.00	4	10.00	0.00	T06	9.60	19.00	40.0	•	0.03-0.10	
MM EA120H12R0.2CF-3T08	12.00	3	12.00	0.20	T08	11.70	23.00	40.0	•	0.04-0.11	
MM EA120H12R0CF-4T08	12.00	4	12.00	0.00	T08	11.70	23.00	40.0	•	0.04-0.11	
MM EA160H16R0.0CF-3T10	16.00	3	16.00	0.00	T10	15.30	28.00	40.0	•	0.05-0.13	
MM EA160H16R0.2CF-3T10	16.00	3	16.00	0.20	T10	15.30	28.00	40.0	•	0.05-0.13	
MM EA160H16R0.5CF-3T10	16.00	3	16.00	0.50	T10	15.30	28.00	40.0	•	0.05-0.13	
MM EA160H16R2.5CF-3T10	16.00	3	16.00	2.50	T10	15.30	28.00	40.0	•	0.05-0.13	
MM EA160H16R0CF-4T10	16.00	4	16.00	0.00	T10	15.30	26.00	40.0	•	0.05-0.12	
MM EA200H20R0.0CF-3T12	20.00	3	20.00	0.00	T12	18.45	34.00	40.0	•	0.05-0.13	
MM EA200H20R0.2CF-3T12	20.00	3	20.00	0.20	T12	18.45	34.00	40.0	•	0.05-0.13	
MM EA200H20R0.5CF-3T12	20.00	3	20.00	0.50	T12	18.45	34.00	40.0	•	0.05-0.13	
MM EA200H20R2.5CF-3T12	20.00	3	20.00	2.50	T12	18.45	34.00	40.0	•	0.05-0.13	
MM EA250H19R0.5-3T15	25.00	3	19.00	0.50	T15	23.90	37.00	40.0	•	0.06-0.16	
MM EA250H19R1.0-3T15	25.00	3	19.00	1.00	T15	23.90	37.00	40.0	•	0.06-0.16	
MM EA250H19R3.0-3T15	25.00	3	19.00	3.00	T15	23.90	37.00	40.0	•	0.06-0.16	

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

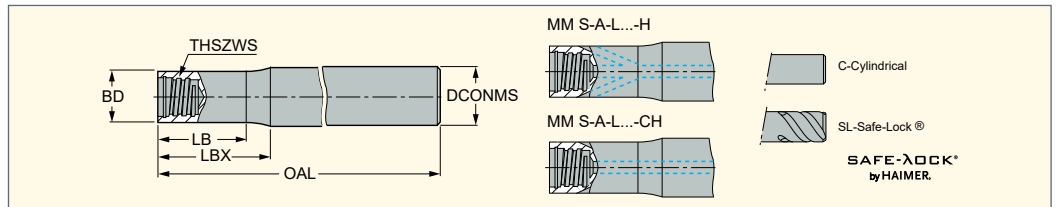
(1) Number of flutes

MM ESR BLANKS
 Interchangeable Solid
 Carbide Blank Heads


Designation	Dimensions						Tough ↔ Hard	
	DC	LF	THSZMS	LH	DN	Fig.	IC08	IC03
MM ESR-G 080-10 T05	8.00	10.35	T05	-	-	1	•	•
MM ESR-G 080-15 T05	8.00	15.40	T05	-	-	1	•	
MM ESR-G 100-13 T05	10.00	13.35	T05	-	-	1	•	
MM ESR-G 100-13 T06	10.00	13.35	T06	-	-	1	•	•
MM ESR-G 100-19 T06	10.00	19.45	T06	-	-	1	•	
MM ESR-G 120-17 T06	12.00	17.05	T06	-	-	1	•	
MM ESR-G 120-17 T08	12.00	17.05	T08	-	-	1	•	
MM ESR-G 120-23 T08	12.00	23.40	T08	-	-	1	•	
MM ESR-G 160-21 T08	16.00	20.90	T08	-	-	1	•	
MM ESR-G 160-21 T10	16.00	20.90	T10	-	-	1	•	•
MM ESR-G 160-28 T08	16.00	28.45	T08	-	-	1	•	
MM ESR-G 160-28 T10	16.00	28.45	T10	-	-	1	•	
MM ESR-G 200-26 T12	20.00	28.10	T12	16.6	18.45	2	•	•
MM ESR-G 200-34 T12	20.00	34.50	T12	-	-	1	•	
MM ESR-G 250-25 T15	25.00	25.60	T15	-	-	1	•	•
MM ESR-G 250-37 T12	25.00	37.60	T12	-	-	1	•	
MM ESR-G 250-37 T15	25.00	37.60	T15	-	-	1	•	
MM ESR-G 320-55-T21 NECK	32.00	55.80	T21	39.5	30.00	2	•	

MULTI-MASTER

MM S-A (stepped shanks) Stepped Cylindrical Shanks Carrying Interchangeable Milling Heads



Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank ⁽³⁾	Shank m. ⁽⁴⁾	CSP ⁽⁵⁾	RPMX ⁽⁶⁾	Kg
MM S-A-L050-C08-T04	T04	8.00	5.80	9.90	14.0	50.00	C	S	0	60000	0.02
MM S-A-L060/20-C08-T04-C	T04	8.00	5.80	16.90	20.0	60.00	C	C	0	60000	0.00
MM S-A-L060-C08-T05	T05	8.00	7.60	12.50	15.0	60.00	C	S	0	60000	0.02
MM S-A-L065/24-SL08T05C ⁽¹⁾	T05	8.00	7.60	24.00	25.6	65.00	SL	C	0	60000	0.04
MM S-A-L070-C08-T05-C	T05	8.00	7.60	18.60	20.0	70.00	C	C	0	60000	0.04
MM S-A-L070-C08-T05-W	T05	8.00	7.60	18.90	20.0	70.00	C	W	0	60000	0.06
MM S-A-L090-C08-T05-C	T05	8.00	7.60	38.60	40.0	90.00	C	C	0	50160	0.06
MM S-A-L090-C08-T05-W	T05	8.00	7.60	38.60	40.0	90.00	C	W	0	36090	0.07
MM S-A-L110-C08-T05-C	T05	8.00	7.60	57.90	60.0	110.00	C	C	0	30600	0.07
MM S-A-L110-C08-T05-W	T05	8.00	7.60	58.90	60.0	110.00	C	W	0	21060	0.09
MM S-A-L070-C10-T06-C	T06	10.00	9.60	18.50	20.0	70.00	C	C	0	54900	0.08
MM S-A-L070-C10-T06-W-H	T06	10.00	9.60	18.90	20.0	70.00	C	W	1	60000	0.08
MM S-A-L075-C10-T06	T06	10.00	9.60	17.40	20.0	75.00	C	S	0	60000	0.05
MM S-A-L075-C10-T06-H	T06	10.00	9.60	19.40	20.0	75.00	C	S	1	53940	0.04
MM S-A-L075/12-C10-T06-CH	T06	10.00	9.60	10.60	12.0	75.00	C	S	1	53940	0.04
MM S-A-L075/30-SL10T06C ⁽¹⁾	T06	10.00	9.60	30.00	31.7	75.00	SL	C	0	53940	0.08
MM S-A-L090-C10-T06-C	T06	10.00	9.60	38.50	40.0	90.00	C	C	0	55170	0.06
MM S-A-L090/040C10T06C-H	T06	10.00	9.60	38.60	40.0	90.00	C	C	1	60000	0.08
MM S-A-L090-C10-T06-W	T06	10.00	9.60	17.20	20.0	90.00	C	W	0	41670	0.12
MM S-A-L090-C10-T06-W-H	T06	10.00	9.60	39.00	40.0	90.00	C	W	1	40860	0.10
MM S-A-L110-C10-T06-C	T06	10.00	9.60	57.90	60.0	110.00	C	C	0	34530	0.11
MM S-A-L110-C10-T06-W-H	T06	10.00	9.60	59.00	60.0	110.00	C	W	1	24840	0.12
MM S-A-L150-C10-T06-C	T06	10.00	9.60	98.50	100.0	150.00	C	C	0	16620	0.00
MM S-A-L070-C12-T08-C	T08	12.00	11.60	17.90	20.0	70.00	C	C	0	60000	0.10
MM S-A-L070-C12-T08-W-H	T08	12.00	11.60	18.70	20.0	70.00	C	W	1	60000	0.11
MM S-A-L085/36-C12T08C ⁽²⁾	T08	12.00	11.60	36.00	37.7	85.00	C	C	0	60000	0.13
MM S-A-L090/14-C12-T08-CH	T08	12.00	11.60	13.00	14.0	90.00	C	S	1	43000	0.08
MM S-A-L090-C12-T08	T08	12.00	11.60	13.30	16.0	90.00	C	S	0	43000	0.08
MM S-A-L070/020C12T08C-CH	T08	12.00	11.60	18.00	20.0	70.00	C	C	1	43050	0.08
MM S-A-L090-C12-T08-C	T08	12.00	11.60	39.00	40.0	90.00	C	C	0	43050	0.12
MM S-A-L090-C12-T08-H	T08	12.00	11.60	38.70	40.0	90.00	C	S	1	41040	0.08
MM S-A-L090-C12-T08-W-H	T08	12.00	11.60	38.70	40.0	90.00	C	W	1	49800	0.15
MM S-A-L090/040C12T08C-CH	T08	12.00	11.50	38.00	40.0	90.00	C	C	1	49800	0.11
MM S-A-L090/42-C12-T08-CH	T08	12.00	11.60	41.00	42.0	90.00	C	S	1	41010	0.08
MM S-A-L110-C12-T08-W	T08	12.00	11.60	17.00	20.0	110.00	C	W	0	31350	0.20
MM S-A-L110-C12-T08-C	T08	12.00	11.60	57.00	60.0	110.00	C	C	0	41040	0.16
MM S-A-L110-C12-T08-W-H	T08	12.00	11.60	58.70	60.0	110.00	C	W	1	30210	0.18
MM S-A-L110/060C12T08C-CH	T08	12.00	11.50	58.00	60.0	110.00	C	C	1	30210	0.12
MM S-A-L130-C12-T08-C	T08	12.00	11.60	78.60	80.0	130.00	C	C	0	27960	0.19
MM S-A-L130-C12-T08-W-H	T08	12.00	11.60	78.70	80.0	130.00	C	W	1	20100	0.21
MM S-A-L130/080C12T08C-CH	T08	12.00	11.50	78.00	80.0	130.00	C	C	1	20100	0.17
MM S-A-L070-C16-T10-W-H	T10	16.00	15.30	18.20	20.0	70.00	C	W	1	60000	0.21
MM S-A-L090-C16-T10-C	T10	16.00	15.30	38.00	40.0	90.00	C	C	0	60000	0.21
MM S-A-L090-C16-T10-W-H	T10	16.00	15.30	38.20	40.0	90.00	C	W	1	57510	0.27
MM S-A-L090/040C16T10C-CH	T10	16.00	15.30	38.00	40.0	90.00	C	C	1	57510	0.17
MM S-A-L100-C16-T10	T10	16.00	15.30	16.30	20.0	100.00	C	S	0	39000	0.15
MM S-A-L100-C16-T10-H	T10	16.00	15.30	48.00	50.0	100.00	C	S	1	37140	0.13
MM S-A-L100/20-C16-T10-CH	T10	16.00	15.30	18.00	20.0	100.00	C	S	1	37140	0.12
MM S-A-L100/42-C16-T10-CH	T10	16.00	15.30	40.20	42.0	100.00	C	S	1	38040	0.14
MM S-A-L100/48-C16T10C ⁽²⁾	T10	16.00	15.30	48.00	50.3	100.00	C	C	0	38040	0.06
MM S-A-L110-C16-T10-C	T10	16.00	15.30	58.00	60.0	110.00	C	C	0	47010	0.27
MM S-A-L110-C16-T10-W-H	T10	16.00	15.30	58.20	60.0	110.00	C	W	1	36030	0.33
MM S-A-L110/060C16T10C-H	T10	16.00	15.00	58.10	60.0	110.00	C	C	1	60000	0.00
MM S-A-L110/060C16T10C-CH	T10	16.00	15.30	58.00	60.0	110.00	C	C	1	36030	0.17
MM S-A-L130-C16-T10-C	T10	16.00	15.30	77.40	80.0	130.00	C	C	0	33510	0.32
MM S-A-L130-C16-T10-W-H	T10	16.00	15.30	78.20	80.0	130.00	C	W	1	24450	0.41
MM S-A-L130/080C16T10C-CH	T10	16.00	15.30	78.00	80.0	130.00	C	C	1	24450	0.32
MM S-A-L150-C16-T10-C	T10	16.00	15.30	97.40	100.0	150.00	C	C	0	24660	0.37

• Do not apply lubricant to the threaded connection.

⁽¹⁾ SL-Safe-Lock® (by Haimer) helical grooves that prevent pull-out(available upon request).

⁽²⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽³⁾ C-Cylindrical, SL-Safe-Lock® (by Haimer)

⁽⁴⁾ S-steel, C-carbide, W-tungsten

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁶⁾ The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.