



**MULTI-MASTER**  
INDEXABLE SOLID CARBIDE LINE

**Neu-Zugang bei MULTI-MASTER:  
Adaptionsgröße T04**

## **T04 - die kleinste MULTI-MASTER-Adaption !**

Neue Fräskopfgrößen und Schaftausführungen machen das **MULTI-MASTER**-System noch vielseitiger.

**Im ersten Schritt ergänzt die T04-Adaption folgende Fräskopf- und Schaftlinien:**

**MM EC-4** - auswechselbarer Vollhartmetall-Fräskopf mit 4 Schneiden, 45° Spiralwinkel und 0.5 mm Eckenradius.

**MM HBR** - auswechselbarer, hoch präziser Kugelkopffräser mit 2 Schneiden, 8 mm 240° Schneidenwinkel.

**MM TS-N** - auswechselbarer T-Nutenfräskopf, Durchmesser 10.5 mm und Breite 2 mm.

**MM S-A** - abgestufter, zylindrischer Schaft, Durchmesser 8 mm für auswechselbare Fräsköpfe mit T04-Schnittstelle.

### **Verfügbarkeit und Preise**

Siehe beigefügte Preisliste

Mit freundlichen Grüßen

ISCAR Germany GmbH

Erich Timons  
Manager Business Development  
Mitglied der Geschäftsleitung

Mit freundlichen Grüßen

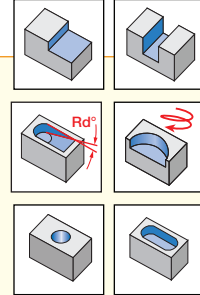
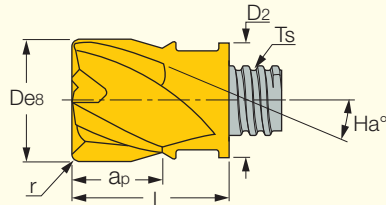
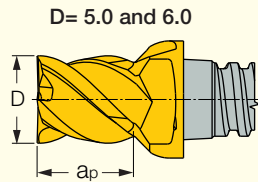
ISCAR Germany GmbH

Raimund Kühnau  
Produktspezialist

**MULTI-MASTER**  
INDEXABLE SOLID CARBIDE LINE

## MM EC-4

Auswechselbare Vollhartmetall-Fräsköpfe mit 4 Schneiden, 30° und 45° Spiralwinkel und verschiedenen Eckenradien



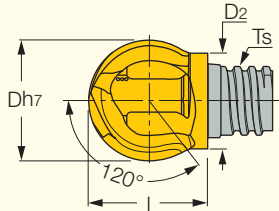
NEU

Bezeichnung	Abmessungen									IC908	Schnittwerte f <sub>z</sub> (mm)
	D	r	Ha°	Z	a <sub>p</sub>	T <sub>s</sub>	D <sub>2</sub>	l			
MM EC050B07R000-4T05	5.00	0.00	45.0	4	7.00	T05	8.00	15.00	•	0.02-0.06	
MM EC060B04R0.5-4T04	6.00	0.50	45.0	4	4.00	T04	5.80	8.50	•	0.02-0.04	
MM EC060B05R000-4T05	6.00	0.00	45.0	4	5.00	T05	8.00	10.00	•	0.03-0.07	
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	18.30	25.50	•	0.05-0.13	
MM EC200A15R0.5-4T12	20.00	0.50	30.0	4	15.00	T12	18.30	25.50	•	0.05-0.13	
MM EC200A15R1.0-4T12	20.00	1.00	30.0	4	15.00	T12	18.30	25.50	•	0.05-0.13	
MM EC200A15R2.0-4T12	20.00	2.00	30.0	4	15.00	T12	18.30	25.50	•	0.05-0.13	
MM EC200A15R3.0-4T12	20.00	3.00	30.0	4	15.00	T12	18.30	25.50	•	0.05-0.13	

• Das Gewinde ist von Schmiermitteln freizuhalten.

## MM HBR

Auswechselbare, hoch präzise Vollhartmetall-Kugelpfhräser mit 2 Schneiden



**WIRTSCHAFTLICHKEIT**

NEU

Abmessungen							IC908
Bezeichnung	D	Z	T <sub>s</sub>	D <sub>2</sub>	l		
MM HBR080-2T04	8.00	2	T04	5.80	8.22	•	
MM HBR100-2T05	10.00	2	T05	7.60	10.00	•	
MM HBR120-2T06	12.00	2	T06	9.60	11.60	•	
MM HBR.500-2T06	12.70	2	T06	9.60	12.25	•	
MM HBR160-2T08	16.00	2	T08	11.50	15.40	•	
MM HBR200-2T10	20.00	2	T10	15.20	18.40	•	
MM HBR250-2T12	25.00	2	T12	18.30	23.20	•	
MM HBR1.00-2T12	25.40	2	T12	18.30	23.40	•	

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## Ersatzteile



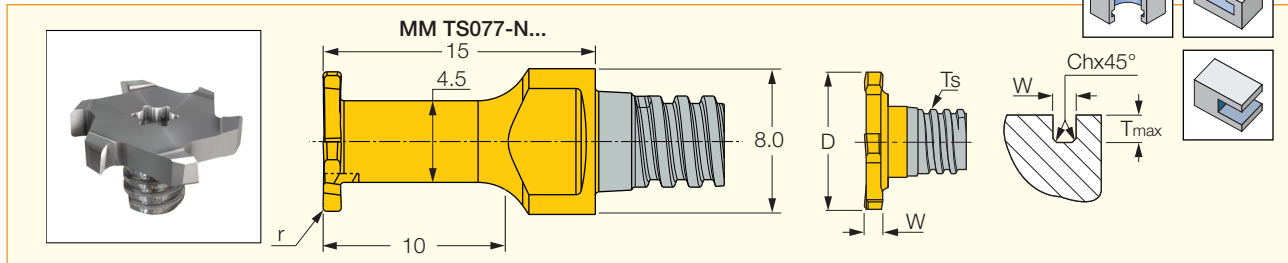
Bezeichnung	Schlüssel
MM HBR080-2T04	MM KEY 6X4*
MM HBR100-2T05	MM KEY 6X4*
MM HBR120-2T06	MM KEY 10X7*
MM HBR.500-2T06	MM KEY 10X7*
MM HBR160-2T08	MM KEY 13X8*
MM HBR200-2T10	MM KEY 13X8*
MM HBR250-2T12	MM KEY 16X9*
MM HBR1.00-2T12	MM KEY 16X9*

\* Optional, bitte separat bestellen.

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## MM TS-N

Auswechselbare Vollhartmetall-T-Nutenfräsköpfe






Bezeichnung	Abmessungen							Zäher ↔ Härter		
	D <sub>-0.05</sub>	W <sub>±0.02</sub>	T <sub>max</sub>	Z	r	Ch	T <sub>s</sub>	IC328	IC928	IC908
MM TS077-N07A-4T05	7.70	0.70	1.20	4	0.20	-	T05			•
MM TS077-N08A-4T05	7.70	0.80	1.20	4	0.20	-	T05			•
MM TS077-N09A-4T05	7.70	0.90	1.20	4	0.20	-	T05			•
MM TS077-N10A-4T05	7.70	1.00	1.20	4	0.20	-	T05			•
MM TS077-N15A-4T05	7.70	1.50	1.20	4	0.20	-	T05			•
MM TS077-N20A-4T05	7.70	2.00	1.20	4	0.20	-	T05			•
MM TS105-N20D-06T04	10.50	2.00	2.00	6	0.40	-	T04		•	
MM TS.500-N062P-06T05	12.70	1.58	2.25	6	-	0.15	T05	•		
MM TS.500-N078P-06T05	12.70	1.98	2.25	6	-	0.15	T05	•		
MM TS135-N20P-06T05	13.50	2.00	2.65	6	-	0.20	T05	•		
MM TS135-N25P-06T05	13.50	2.50	2.65	6	-	0.20	T05	•		

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## MM TS077-N...

### Ersatzteile

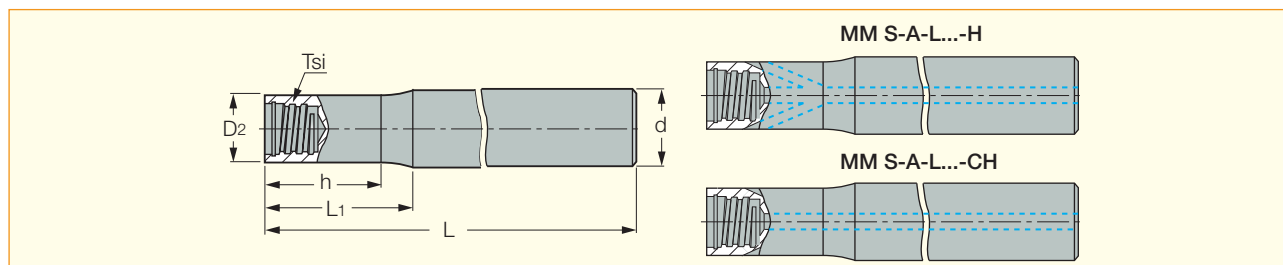
Bezeichnung	 Schlüssel	 Schlüssel 1	 Spanschlüssel
MM TS077-N07A-4T05			MM KEY 6X4*
MM TS077-N08A-4T05			MM KEY 6X4*
MM TS077-N09A-4T05			MM KEY 6X4*
MM TS077-N10A-4T05			MM KEY 6X4*
MM TS077-N15A-4T05			MM KEY 6X4*
MM TS077-N20A-4T05			MM KEY 6X4*
MM TS105-N20D-06T04		T-15/3*	
MM TS.500-N062P-06T05	T-20/3*		
MM TS.500-N078P-06T05	T-20/3*		
MM TS135-N20P-06T05	T-20/3*		
MM TS135-N25P-06T05	T-20/3*		

\* Optional, bitte separat bestellen.



### MM S-A

Abgestufte, zylindrische Schäfte für auswechselbare Fräsköpfe



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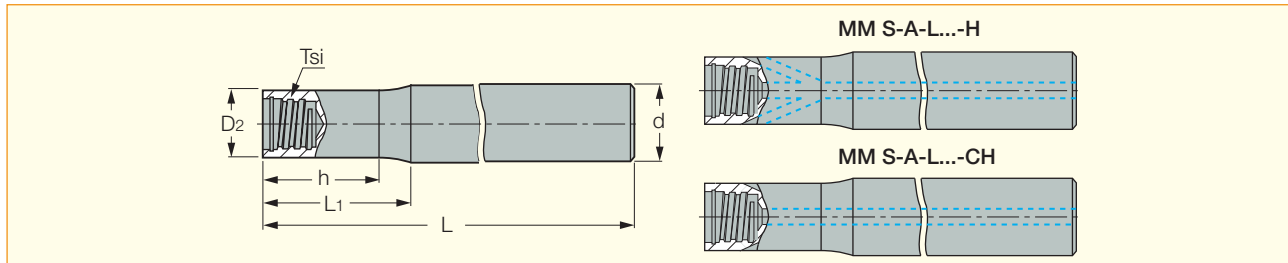
Bezeichnung	Tsi	d	D <sub>2</sub>	h	L <sub>1</sub>	L	Schafttyp <sup>(1)</sup>	Kühlung	U <sub>/min max</sub> <sup>(2)</sup>	Kg
MM S-A-L050-C08-T04	T04	8.00	5.80	9.90	14.0	50.00	S	N	60000	0.02
MM S-A-L060-C08-T05	T05	8.00	7.60	12.50	15.0	60.00	S	N	60000	0.02
MM S-A-L070-C08-T05-C	T05	8.00	7.60	18.60	20.0	70.00	C	N	60000	0.04
MM S-A-L070-C08-T05-W	T05	8.00	7.60	18.90	20.0	70.00	W	N	60000	0.06
MM S-A-L090-C08-T05-C	T05	8.00	7.60	38.60	40.0	90.00	C	N	50160	0.06
MM S-A-L090-C08-T05-W	T05	8.00	7.60	38.90	40.0	90.00	W	N	36090	0.07
MM S-A-L110-C08-T05-C	T05	8.00	7.60	57.90	60.0	110.00	C	N	30600	0.07
MM S-A-L110-C08-T05-W	T05	8.00	7.60	58.90	60.0	110.00	W	N	21060	0.09
MM S-A-L070-C10-T06-C	T06	10.00	9.60	18.50	20.0	70.00	C	N	54900	0.01
MM S-A-L070-C10-T06-W-H	T06	10.00	9.60	18.90	20.0	70.00	W	J	60000	0.08
MM S-A-L075-C10-T06	T06	10.00	9.55	17.40	20.0	75.00	S	N	60000	0.05
MM S-A-L075-C10-T06-H	T06	10.00	9.55	18.80	20.0	75.00	S	J	53940	0.04
MM S-A-L090-C10-T06-C	T06	10.00	9.60	38.50	40.0	90.00	C	N	55170	0.06
MM S-A-L090-C10-T06-W	T06	10.00	9.55	17.20	20.0	90.00	W	N	41670	0.12
MM S-A-L090-C10-T06-W-H	T06	10.00	9.60	39.00	40.0	90.00	W	J	40860	0.10
MM S-A-L110-C10-T06-C	T06	10.00	9.60	57.90	60.0	110.00	C	N	34530	0.11
MM S-A-L110-C10-T06-W-H	T06	10.00	9.60	59.00	60.0	110.00	W	J	24840	0.12
MM S-A-L150-C10-T06-C	T06	10.00	9.60	98.50	100.0	150.00	C	N	16620	0.15
MM S-A-L070-C12-T08-C	T08	12.00	11.50	17.90	20.0	70.00	C	N	60000	0.10
MM S-A-L070-C12-T08-W-H	T08	12.00	11.50	18.70	20.0	70.00	W	J	60000	0.11
MM S-A-L090-C12-T08	T08	12.00	11.50	13.30	16.0	90.00	S	N	43000	0.10
MM S-A-L090-C12-T08-C	T08	12.00	11.50	39.00	40.0	90.00	C	N	43050	0.12
MM S-A-L090-C12-T08-H	T08	12.00	11.50	38.70	40.0	90.00	S	J	41040	0.08
MM S-A-L090-C12-T08-W-H	T08	12.00	11.50	38.70	40.0	90.00	W	J	49800	0.15
MM S-A-L090/42-C12-T08-CH	T08	12.00	11.50	41.00	42.0	90.00	S	J	41010	0.07
MM S-A-L110-C12-T08-C	T08	12.00	11.50	57.00	60.0	110.00	C	N	41040	0.16
MM S-A-L110-C12-T08-W	T08	12.00	11.50	17.00	20.0	110.00	W	N	31350	0.09
MM S-A-L110-C12-T08-W-H	T08	12.00	11.50	58.70	60.0	110.00	W	J	30210	0.18
MM S-A-L130-C12-T08-C	T08	12.00	11.50	77.80	80.0	130.00	C	N	27960	0.19
MM S-A-L130-C12-T08-W-H	T08	12.00	11.50	78.70	80.0	130.00	W	J	20100	0.21
MM S-A-L070-C16-T10-W-H	T10	16.00	15.20	18.20	20.0	70.00	W	J	60000	0.21
MM S-A-L090-C16-T10-C	T10	16.00	15.20	38.00	40.0	90.00	C	N	60000	0.21
MM S-A-L090-C16-T10-W-H	T10	16.00	15.20	38.20	40.0	90.00	W	Y	57510	0.27
MM S-A-L100-C16-T10	T10	16.00	15.20	16.30	20.0	100.00	S	N	39000	0.16
MM S-A-L100-C16-T10-H	T10	16.00	15.20	48.00	50.0	100.00	S	J	37140	0.13
MM S-A-L100/42-C16-T10-CH	T10	16.00	15.20	40.20	42.0	100.00	S	J	38040	0.14
MM S-A-L110-C16-T10-C	T10	16.00	15.20	58.00	60.0	110.00	C	N	47010	0.27
MM S-A-L110-C16-T10-W-H	T10	16.00	15.20	58.20	60.0	110.00	W	J	36030	0.33
MM S-A-L130-C16-T10-C	T10	16.00	15.20	77.40	80.0	130.00	C	N	33510	0.32
MM S-A-L130-C16-T10-W-H	T10	16.00	15.20	78.20	80.0	130.00	W	Y	24450	0.39
MM S-A-L150-C16-T10-C	T10	16.00	15.20	97.40	100.0	150.00	C	N	24660	0.37
MM S-A-L150-C16-T10-W-H	T10	16.00	15.20	98.20	100.0	150.00	W	J	17610	0.45
MM S-A-L090-C20-T12-C	T12	20.00	18.30	37.00	40.0	90.00	C	N	60000	0.32
MM S-A-L090-C20-T12-W-H	T12	20.00	18.30	36.90	40.0	90.00	W	J	60000	0.41
MM S-A-L120-C20-T12	T12	20.00	18.30	20.30	25.0	120.00	S	N	36000	0.27
MM S-A-L120-C20-T12-H	T12	20.00	18.30	66.70	70.0	120.00	S	J	32160	0.25

• Das Gewinde ist von Schmiermitteln freizuhalten.

<sup>(1)</sup> S-Stahl, C-Hartmetall, W-Wolfram <sup>(2)</sup> Die max. U/min muss berechnet werden. Dividieren Sie die angegebene U/min durch die Anzahl der Zähne des eingesetzten Fräskopfs.

### MM S-A (Fortsetzung)

Abgestufte, zylindrische Schäfte für auswechselbare Fräsköpfe



Bezeichnung	Tsi	d	D <sub>2</sub>	h	L <sub>1</sub>	L	Schafttyp <sup>(1)</sup>	Kühlung	U/min max <sup>(2)</sup>	Kg
MM S-A-L130-C20-T12-C	T12	20.00	18.30	77.20	80.0	130.00	C	N	42360	0.47
MM S-A-L130-C20-T12-W-H	T12	20.00	18.30	76.90	80.0	130.00	W	J	31650	0.59
MM S-A-L170-C20-T12-C	T12	20.00	18.30	97.20	100.0	170.00	C	N	25170	0.63
MM S-A-L200-C20-T12-C	T12	20.00	18.30	116.50	120.0	200.00	C	N	17790	0.76
MM S-A-L200-C20-T12-W-H	T12	20.00	18.30	116.90	120.0	200.00	W	J	12540	0.92
MM S-A-L120-C25-T15-C	T15	25.00	23.90	57.50	60.0	120.00	C	N	49400	0.64
MM S-A-L120-C25-T15-W-H	T15	25.00	23.90	58.00	60.0	120.00	W	J	41700	0.89
MM S-A-L135-C25-T15	T15	25.00	23.90	33.00	35.0	135.00	S	N	28290	0.47
MM S-A-L135/35-C25-T15-CH	T15	25.00	23.90	33.00	35.0	135.00	S	J	28230	0.42
MM S-A-L170-C25-T15-C	T15	25.00	23.90	98.00	100.0	170.00	C	N	27360	0.96
MM S-A-L175-C25-T15	T15	25.00	23.90	62.70	65.0	175.00	S	N	16890	0.10
MM S-A-L250-C25-T15-C	T15	25.00	23.90	148.00	150.0	250.00	C	N	12690	1.45

• Das Gewinde ist von Schmiermitteln freizuhalten.

<sup>(1)</sup> S-Stahl, C-Hartmetall, W-Wolfram <sup>(2)</sup> Die maximale U/min muss berechnet werden. Dividieren Sie die angegebene U/min durch die Anzahl der Zähne des eingesetzten Fräskopfs.

Gewindegröße	Schlüssel <sup>(1)</sup>	Anzugs-Drehmoment (Nm)
T04	MM KEY 6x4	4
T05	MM KEY 6x4	7
T06	MM KEY 8x5	10
T08	MM KEY 10x7	15
T10	MM KEY 13x8	28
T12	MM KEY 16x9	28
T15	MM KEY 20	40

<sup>(1)</sup> Bitte separat bestellen.

## Preisliste

Artikel-Nr.	Bezeichnung	Preise	Verfügbarkeit
5667940	MM EC060B04R0.5-4T04 908	39,60 €	Lager
5622638	MM HBR080-2T04 IC908	54,00 €	Lager
5606315	MM TS105-N20D-06T04 928	49,95 €	Lager
3105473	MM S-A-L050-C08-T04	77,50 €	Lager

**Rabattgruppe**

Fräsköpfe:

G7 MULTI MASTER FK

Schäfte:

G8 MULTI MASTER AN