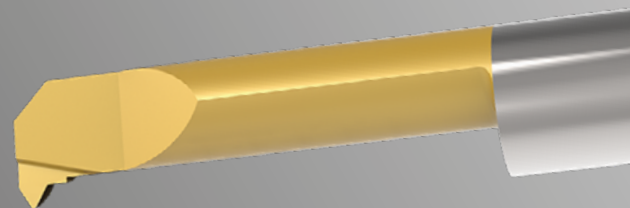
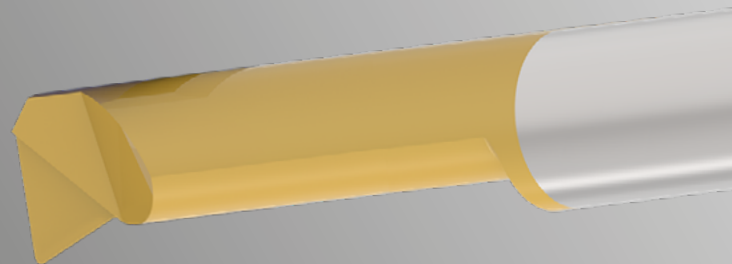
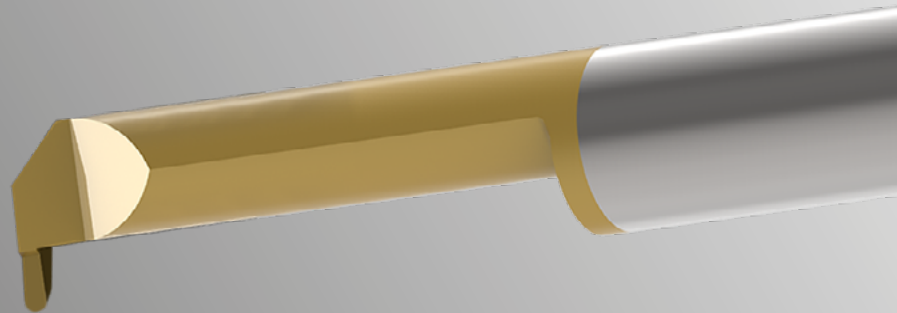
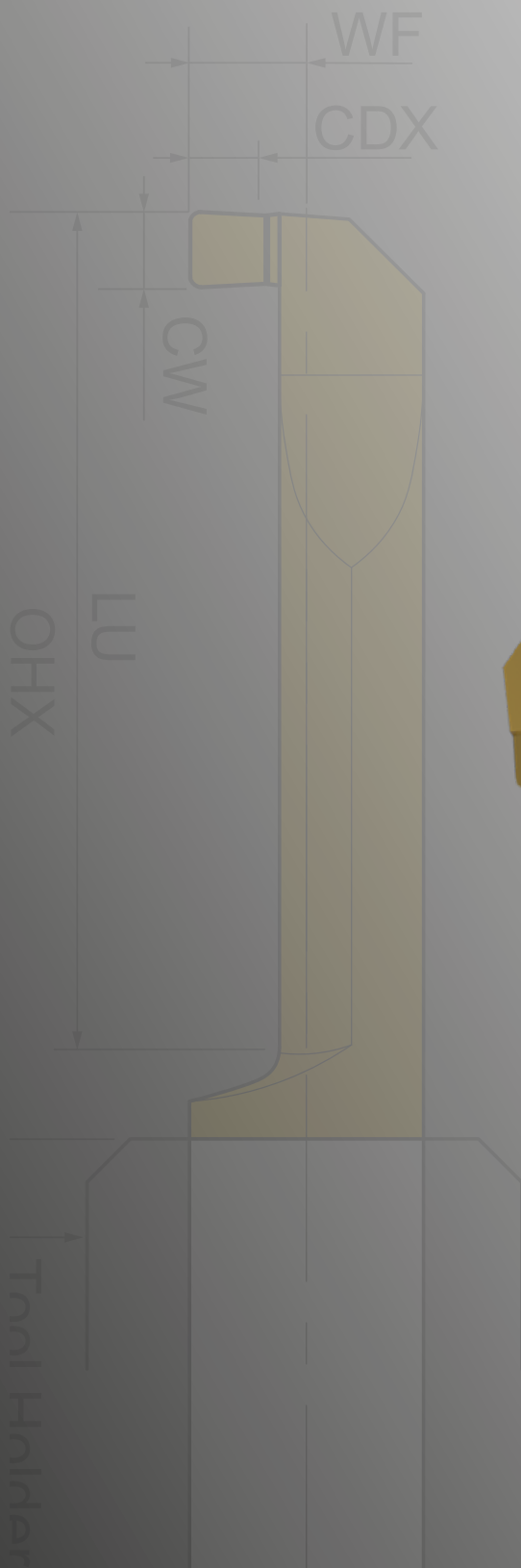


MINIATURE TOOLS

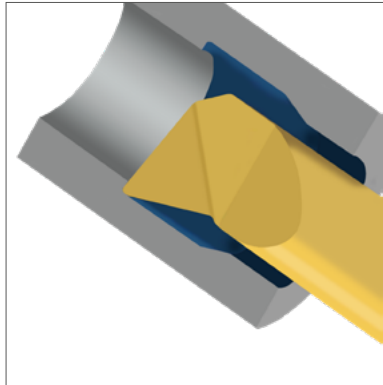


Grade guide	P.3
MGH Holder	P.4
MGR Round Grooving	P.5
MGS Square Grooving	P.6 - 11
MGF Face Grooving	P.12
MGC Chamfering	P.13
MGB Boring & Profiling	P.14 - 15
MGT Threading	P.16

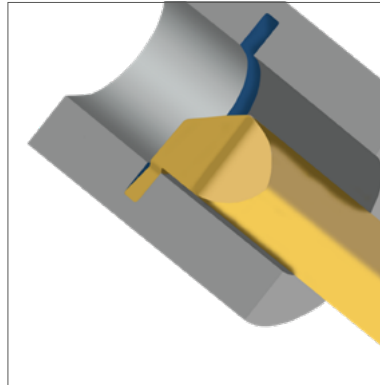




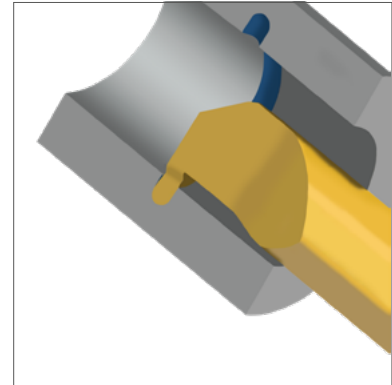
UNIMASTER MG



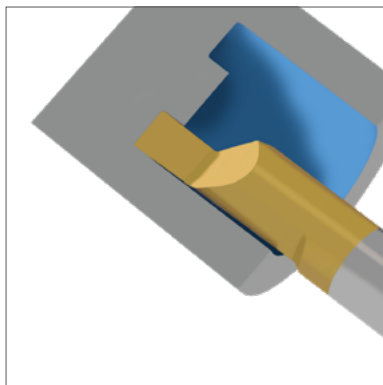
MGB - BORING & PROFILING



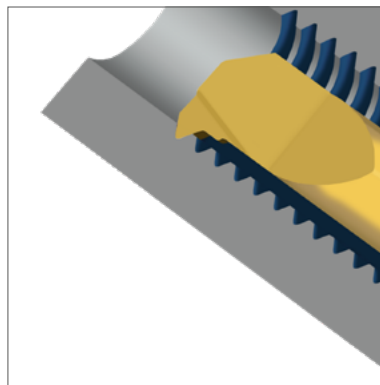
MGS - SQUARE GROOVING



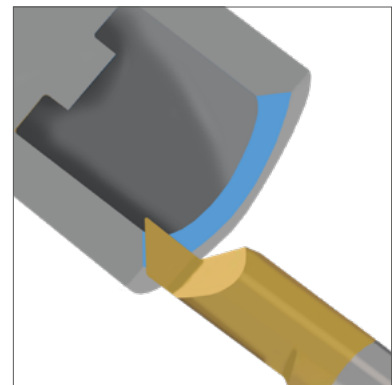
MGR - ROUND GROOVING



MGF - FACE GROOVING



MGT - THREADING



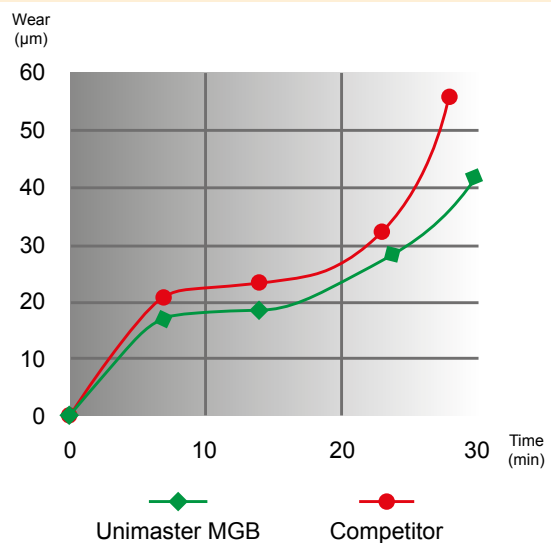
MGC - CHAMFERING

FIELD TEST

Test Condition

Tool: **MGBR.6215206 ET82P**
 Method: **Boring**
 Material: **SCM440 alloy steel (HRc20)**
 v_c : **100 m/min**
 n : **1820 rev/min**
 f_n : **0.1 mm/rev**
 a_p : **0.15 mm**
 Boring depth: **10.0mm**
 Coolant: **9% Emulsion**
 Machine: **Mill Turn Centre**

Result



Edge wear considerably less after 30 minutes machining time with Unimaster MGB compared to competitor



UNIMASTER MG GRADE GUIDE

		P STEEL				M STAINLESS STEEL				K CAST IRON			
		05	15	25	35	05	15	25	35	05	15	25	35
PVD	ET82P	82P				82P				82P			
	ET84P	84P				84P				84P			
		← HARDER → TOUGHER →				← HARDER → TOUGHER →				← HARDER → TOUGHER →			

		N NON-FERROUS				S HRSA				H HARDENED STEEL			
		05	15	25	35	05	15	25	35	05	15	25	35
PVD	ET82P					82P							
	ET84P												
		← HARDER → TOUGHER →				← HARDER → TOUGHER →				← HARDER → TOUGHER →			

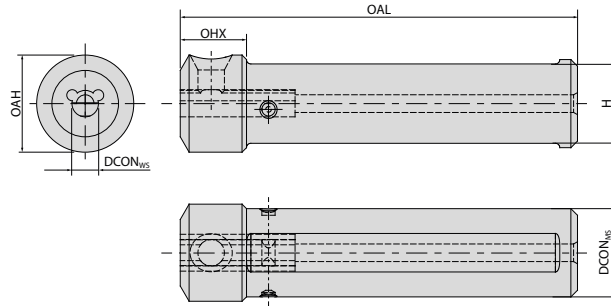
P20 - P35	ET82P First choice for general grooving. PVD multi-layer coating, suitable for most materials
M20 - M30	
K20 - K35	
S15 - S25	
PVD - TiN	

P30 - P40	ET84P PVD coating optimised for grooving applications in steel and cast iron AVAILABLE TO ORDER
K30 - K40	
PVD - AlTiN-TiN	



MINIATURE HOLDERS

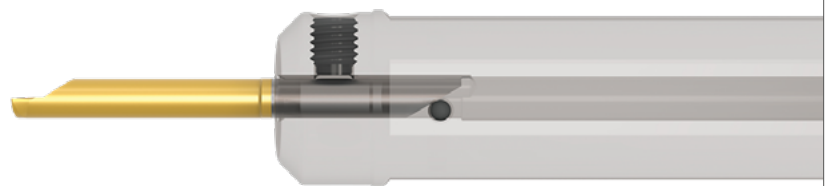
MGH



EDP Code	Description	⚡	DCON _{WS}	DCON _{MS}	H	OHX	OAL	Screw	Wrench
UMG0004	MGH.16110-4	💧	4	16	14	14	110	HXS0506	HA2.5
UMG0005	MGH.16110-5	💧	5	16	14	14	110		
UMG0007	MGH.16110-6	💧	6	16	14	14	110		
UMG0008	MGH.16110-7	💧	7	16	14	14	110		
UMG0010	MGH.20110-4	💧	4	20	18	14	110	HXS0675	HA3
UMG0011	MGH.20110-5	💧	5	20	18	14	110		
UMG0013	MGH.20110-6	💧	6	20	18	14	110		
UMG0014	MGH.20110-7	💧	7	20	18	14	110		
UMG0015	MGH.22110-4	💧	4	22	20	14	110	HXS0675	HA3
UMG0016	MGH.22110-5	💧	5	22	20	14	110		
UMG0017	MGH.22110-6	💧	6	22	20	14	110		
UMG0018	MGH.22110-7	💧	7	22	20	14	110		



Coolant slots for accurate delivery of coolant

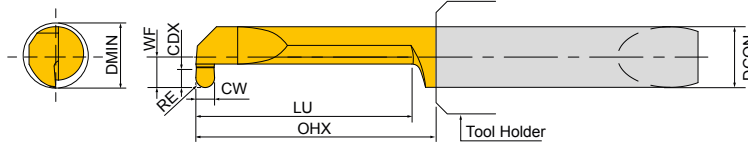
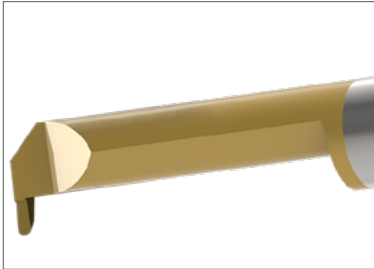


Location pin for correct orientation of tool and accurate positioning

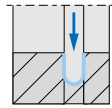


ROUND GROOVING

MGR



f_n
(mm/rev) 0.015 - 0.025



P	●
M	●
K	●
N	●
S	●
H	●

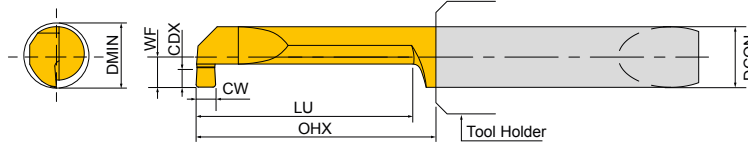
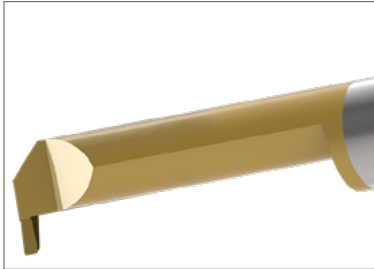
EDP Code	Description	CW	CDX	DMIN	RE	LU	OHX	WF	DCON
UMG0021	MGRR.4215104 ET82P	1.0	0.8	4.2	0.5	15.2	18	1.95	4
UMG0022	MGRR.4215114 ET82P	1.17	0.8	4.2	0.585	15.2	18	1.95	4
UMG0023	MGRR.5225105 ET82P	1.0	1.8	5.2	0.5	20.3	23	2.45	5
UMG0024	MGRR.5225115 ET82P	1.17	1.8	5.2	0.585	20.3	23	2.45	5
UMG0025	MGRR.5225155 ET82P	1.5	1.8	5.2	0.75	20.3	23	2.45	5
UMG0026	MGRR.5225175 ET82P	1.574	1.8	5.2	0.787	20.3	23	2.45	5
UMG0027	MGRR.5225165 ET82P	1.626	1.8	5.2	0.813	20.3	23	2.45	5
UMG0028	MGRR.5225195 ET82P	1.98	1.8	5.2	0.99	20.3	23	2.45	5
UMG0029	MGRR.5220205 ET82P	2.0	1.8	5.2	1.0	20.3	23	2.45	5
UMG0030	MGRR.6225106 ET82P	1.0	1.8	6.2	0.5	25.4	28	2.95	6
UMG0031	MGRR.6225116 ET82P	1.17	1.8	6.2	0.585	25.4	28	2.95	6
UMG0032	MGRR.6225156 ET82P	1.5	1.8	6.2	0.75	25.4	28	2.95	6
UMG0033	MGRR.6225176 ET82P	1.574	1.8	6.2	0.787	25.4	28	2.95	6
UMG0034	MGRR.6225166 ET82P	1.626	1.8	6.2	0.813	25.4	28	2.95	6
UMG0035	MGRR.6225196 ET82P	1.98	1.8	6.2	0.99	25.4	28	2.95	6
UMG0036	MGRR.6220206 ET82P	2.0	1.8	6.2	1.0	20.3	28	2.95	6
UMG0037	MGRR.6225206 ET82P	2.0	1.8	6.2	1.0	25.4	28	2.95	6
UMG0038	MGRR.7225107 ET82P	1.0	1.8	7.2	0.5	30.5	33	3.45	7
UMG0039	MGRR.7225117 ET82P	1.17	1.8	7.2	0.585	30.5	33	3.45	7
UMG0040	MGRR.7225157 ET82P	1.5	1.8	7.2	0.75	30.5	33	3.45	7
UMG0041	MGRR.7225177 ET82P	1.574	1.8	7.2	0.787	30.5	33	3.45	7
UMG0042	MGRR.7225167 ET82P	1.626	1.8	7.2	0.813	30.5	33	3.45	7
UMG0043	MGRR.7225197 ET82P	1.98	1.8	7.2	0.99	30.5	33	3.45	7
UMG0044	MGRR.7220207 ET82P	2.0	1.8	7.2	1.0	30.5	33	3.45	7

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
V_c (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-

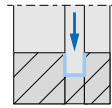


SQUARE GROOVING

MGS



f_n
(mm/rev) 0.015 - 0.025



P	●
M	●
K	●
N	●
S	●
H	●

EDP Code	Description	CW	CDX	DMIN	LU	OHX	WF	DCON
UMG0045	MGSR.4210084 ET82P	0.8	0.8	4.2	10.2	13	1.95	4
UMG0046	MGSR.4215084 ET82P	0.8	0.8	4.2	15.2	18	1.95	4
UMG0047	MGSR.4220084 ET82P	0.8	0.8	4.2	20.3	23	1.95	4
UMG0048	MGSR.4225084 ET82P	0.8	0.8	4.2	25.4	28	1.95	4
UMG0049	MGSR.4210104 ET82P	1.0	1.0	4.2	10.2	13	1.95	4
UMG0050	MGSR.4215104 ET82P	1.0	1.0	4.2	15.2	18	1.95	4
UMG0051	MGSR.4220104 ET82P	1.0	1.0	4.2	20.3	23	1.95	4
UMG0052	MGSR.5210075 ET82P	0.79	1.0	5.2	10.2	13	2.45	5
UMG0053	MGSR.5215075 ET82P	0.79	1.0	5.2	15.2	18	2.45	5
UMG0054	MGSR.5220075 ET82P	0.79	1.0	5.2	20.3	23	2.45	5
UMG0055	MGSR.5225075 ET82P	0.79	1.0	5.2	25.4	28	2.45	5
UMG0056	MGSR.5230075 ET82P	0.79	1.0	5.2	30.5	33	2.45	5
UMG0057	MGSR.5235075 ET82P	0.79	1.0	5.2	35.6	38	2.45	5
UMG0058	MGSR.5210105 ET82P	1.0	1.0	5.2	10.2	13	2.45	5
UMG0059	MGSR.5215105 ET82P	1.0	1.0	5.2	15.2	18	2.45	5
UMG0060	MGSR.5220105 ET82P	1.0	1.0	5.2	20.3	23	2.45	5
UMG0061	MGSR.5225105 ET82P	1.0	1.0	5.2	25.4	28	2.45	5
UMG0062	MGSR.5230105 ET82P	1.0	1.0	5.2	30.5	33	2.45	5
UMG0063	MGSR.5235105 ET82P	1.0	1.0	5.2	35.6	38	2.45	5
UMG0064	MGSR.5210115 ET82P	1.17	1.0	5.2	10.2	13	2.45	5
UMG0065	MGSR.5215115 ET82P	1.17	1.0	5.2	15.2	18	2.45	5
UMG0066	MGSR.5220115 ET82P	1.17	1.0	5.2	20.3	23	2.45	5
UMG0067	MGSR.5225115 ET82P	1.17	1.0	5.2	25.4	28	2.45	5
UMG0068	MGSR.5230115 ET82P	1.17	1.0	5.2	30.5	33	2.45	5
UMG0069	MGSR.5235115 ET82P	1.17	1.0	5.2	35.6	38	2.45	5

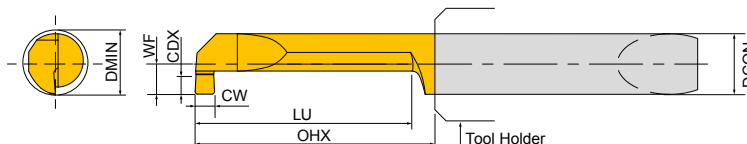
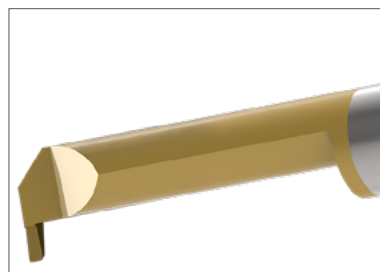
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



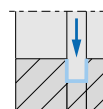
SQUARE GROOVING

UNIMASTER MG

MGS



f_n
(mm/rev) 0.015 - 0.025



P	●
M	●
K	●
N	●
S	●
H	●

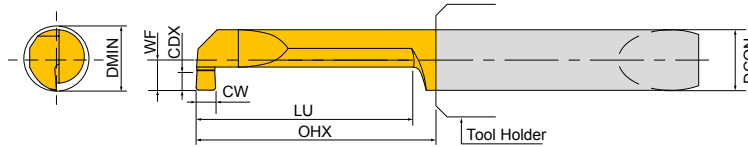
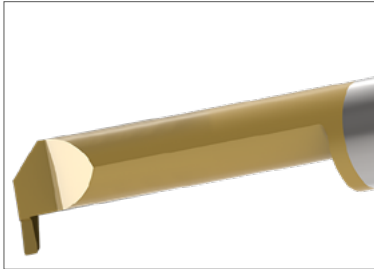
EDP Code	Description	CW	CDX	DMIN	LU	OHX	WF	DCON
UMG0070	MGSR.5210155 ET82P	1.5	1.0	5.2	10.2	13	2.45	5
UMG0071	MGSR.5215155 ET82P	1.5	1.0	5.2	15.2	18	2.45	5
UMG0072	MGSR.5220155 ET82P	1.5	1.0	5.2	20.3	23	2.45	5
UMG0073	MGSR.5225155 ET82P	1.5	1.0	5.2	25.4	28	2.45	5
UMG0074	MGSR.5230155 ET82P	1.5	1.0	5.2	30.5	33	2.45	5
UMG0075	MGSR.5235155 ET82P	1.5	1.0	5.2	35.6	38	2.45	5
UMG0076	MGSR.5210175 ET82P	1.57	1.0	5.2	10.2	13	2.45	5
UMG0077	MGSR.5215175 ET82P	1.57	1.0	5.2	15.2	18	2.45	5
UMG0078	MGSR.5220175 ET82P	1.57	1.0	5.2	20.3	23	2.45	5
UMG0079	MGSR.5225175 ET82P	1.57	1.0	5.2	25.4	28	2.45	5
UMG0080	MGSR.5230175 ET82P	1.57	1.0	5.2	30.5	33	2.45	5
UMG0081	MGSR.5210195 ET82P	1.98	1.0	5.2	10.2	13	2.45	5
UMG0082	MGSR.5215195 ET82P	1.98	1.0	5.2	15.2	18	2.45	5
UMG0083	MGSR.5220195 ET82P	1.98	1.0	5.2	20.3	23	2.45	5
UMG0084	MGSR.5225195 ET82P	1.98	1.0	5.2	25.4	28	2.45	5
UMG0085	MGSR.5230195 ET82P	1.98	1.0	5.2	30.5	33	2.45	5
UMG0086	MGSR.5210205 ET82P	2.0	1.0	5.2	10.2	13	2.45	5
UMG0087	MGSR.5215205 ET82P	2.0	1.0	5.2	15.2	18	2.45	5
UMG0088	MGSR.5220205 ET82P	2.0	1.0	5.2	20.3	23	2.45	5
UMG0089	MGSR.5225205 ET82P	2.0	1.0	5.2	25.4	28	2.45	5
UMG0090	MGSR.5235205 ET82P	2.0	1.0	5.2	30.5	33	2.45	5

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-

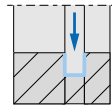


SQUARE GROOVING

MGS



f_n
(mm/rev) 0.015 - 0.025



P	●
M	●
K	●
N	●
S	●
H	●

EDP Code	Description	CW	CDX	DMIN	LU	OHX	WF	DCON
UMG0091	MGSR.6210076 ET82P	0.79	1.8	6.2	10.2	13	2.95	6
UMG0092	MGSR.6215076 ET82P	0.79	1.8	6.2	15.2	18	2.95	6
UMG0093	MGSR.6220076 ET82P	0.79	1.8	6.2	20.3	23	2.95	6
UMG0094	MGSR.6225076 ET82P	0.79	1.8	6.2	25.4	28	2.95	6
UMG0095	MGSR.6230076 ET82P	0.79	1.8	6.2	30.5	33	2.95	6
UMG0096	MGSR.6235076 ET82P	0.79	1.8	6.2	35.6	38	2.95	6
UMG0097	MGSR.6210106 ET82P	1.0	1.8	6.2	10.2	13	2.95	6
UMG0098	MGSR.6215106 ET82P	1.0	1.8	6.2	15.2	18	2.95	6
UMG0099	MGSR.6220106 ET82P	1.0	1.8	6.2	20.3	23	2.95	6
UMG0100	MGSR.6225106 ET82P	1.0	1.8	6.2	25.4	28	2.95	6
UMG0101	MGSR.6230106 ET82P	1.0	1.8	6.2	30.5	33	2.95	6
UMG0102	MGSR.6235106 ET82P	1.0	1.8	6.2	35.6	38	2.95	6
UMG0103	MGSR.6240106 ET82P	1.0	1.8	6.2	40.6	43	2.95	6
UMG0104	MGSR.6210116 ET82P	1.17	1.8	6.2	10.2	13	2.95	6
UMG0105	MGSR.6215116 ET82P	1.17	1.8	6.2	15.2	18	2.95	6
UMG0106	MGSR.6220116 ET82P	1.17	1.8	6.2	20.3	23	2.95	6
UMG0107	MGSR.6225116 ET82P	1.17	1.8	6.2	25.4	28	2.95	6
UMG0108	MGSR.6230116 ET82P	1.17	1.8	6.2	30.5	33	2.95	6
UMG0109	MGSR.6235116 ET82P	1.17	1.8	6.2	35.6	38	2.95	6
UMG0110	MGSR.6240116 ET82P	1.17	1.8	6.2	40.6	43	2.95	6

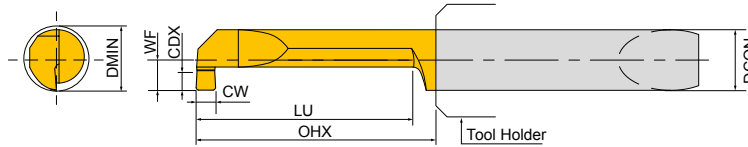
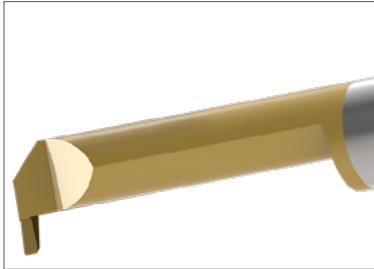
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



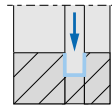
SQUARE GROOVING

UNIMASTER MG

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(mm/rev) 0.015 - 0.025



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EDP Code	Description	CW	CDX	DMIN	LU	OHX	WF	DCON
UMG0111	MGSR.6210156 ET82P	1.5	1.8	6.2	10.2	13	2.95	6
UMG0112	MGSR.6215156 ET82P	1.5	1.8	6.2	15.2	18	2.95	6
UMG0113	MGSR.6220156 ET82P	1.5	1.8	6.2	20.3	23	2.95	6
UMG0114	MGSR.6225156 ET82P	1.5	1.8	6.2	25.4	28	2.95	6
UMG0115	MGSR.6230156 ET82P	1.5	1.8	6.2	30.5	33	2.95	6
UMG0116	MGSR.6235156 ET82P	1.5	1.8	6.2	35.6	38	2.95	6
UMG0117	MGSR.6210176 ET82P	1.57	1.8	6.2	10.2	13	2.95	6
UMG0118	MGSR.6215176 ET82P	1.57	1.8	6.2	15.2	18	2.95	6
UMG0119	MGSR.6220176 ET82P	1.57	1.8	6.2	20.3	23	2.95	6
UMG0120	MGSR.6225176 ET82P	1.57	1.8	6.2	25.4	28	2.95	6
UMG0121	MGSR.6230176 ET82P	1.57	1.8	6.2	30.5	33	2.95	6
UMG0122	MGSR.6235176 ET82P	1.57	1.8	6.2	35.6	38	2.95	6
UMG0123	MGSR.6240176 ET82P	1.57	1.8	6.2	40.6	43	2.95	6
UMG0124	MGSR.6210196 ET82P	1.98	1.8	6.2	10.2	13	2.95	6
UMG0125	MGSR.6215196 ET82P	1.98	1.8	6.2	15.2	18	2.95	6
UMG0126	MGSR.6220196 ET82P	1.98	1.8	6.2	20.3	23	2.95	6
UMG0127	MGSR.6225196 ET82P	1.98	1.8	6.2	25.4	28	2.95	6
UMG0128	MGSR.6230196 ET82P	1.98	1.8	6.2	30.5	33	2.95	6
UMG0129	MGSR.6235196 ET82P	1.98	1.8	6.2	35.6	38	2.95	6
UMG0130	MGSR.6240196 ET82P	1.98	1.8	6.2	40.6	43	2.95	6
UMG0131	MGSR.6210206 ET82P	2.0	1.8	6.2	10.2	13	2.95	6
UMG0132	MGSR.6215206 ET82P	2.0	1.8	6.2	15.2	18	2.95	6
UMG0133	MGSR.6220206 ET82P	2.0	1.8	6.2	20.3	23	2.95	6
UMG0134	MGSR.6225206 ET82P	2.0	1.8	6.2	25.4	28	2.95	6
UMG0135	MGSR.6230206 ET82P	2.0	1.8	6.2	30.5	33	2.95	6
UMG0136	MGSR.6235206 ET82P	2.0	1.8	6.2	35.6	38	2.95	6

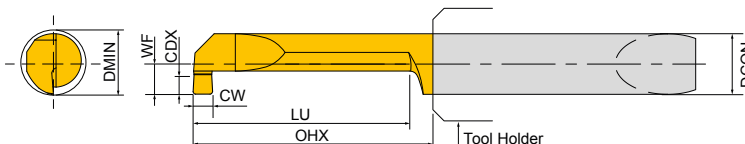
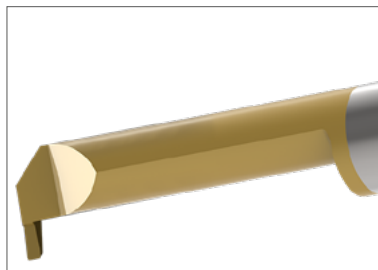
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



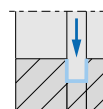
SQUARE GROOVING

UNIMASTER MG

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(mm/rev) 0.015 - 0.025



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EDP Code	Description	CW	CDX	DMIN	LU	OHX	WF	DCON
UMG0137	MGSR.7210077 ET82P	0.79	2.5	7.2	10.2	13	3.45	7
UMG0138	MGSR.7215077 ET82P	0.79	2.5	7.2	15.2	18	3.45	7
UMG0139	MGSR.7220077 ET82P	0.79	2.5	7.2	20.3	23	3.45	7
UMG0140	MGSR.7225077 ET82P	0.79	2.5	7.2	25.4	28	3.45	7
UMG0141	MGSR.7230077 ET82P	0.79	2.5	7.2	30.5	33	3.45	7
UMG0142	MGSR.7235077 ET82P	0.79	2.5	7.2	35.6	38	3.45	7
UMG0143	MGSR.7240077 ET82P	0.79	2.5	7.2	40.6	43	3.45	7
UMG0144	MGSR.7210107 ET82P	1.0	2.5	7.2	10.2	13	3.45	7
UMG0145	MGSR.7215107 ET82P	1.0	2.5	7.2	15.2	18	3.45	7
UMG0146	MGSR.7220107 ET82P	1.0	2.5	7.2	20.3	23	3.45	7
UMG0147	MGSR.7225107 ET82P	1.0	2.5	7.2	25.4	28	3.45	7
UMG0148	MGSR.7230107 ET82P	1.0	2.5	7.2	30.5	33	3.45	7
UMG0149	MGSR.7235107 ET82P	1.0	2.5	7.2	35.6	38	3.45	7
UMG0150	MGSR.7240107 ET82P	1.0	2.5	7.2	40.6	43	3.45	7
UMG0151	MGSR.7210117 ET82P	1.17	2.5	7.2	10.2	13	3.45	7
UMG0152	MGSR.7215117 ET82P	1.17	2.5	7.2	15.2	18	3.45	7
UMG0153	MGSR.7220117 ET82P	1.17	2.5	7.2	20.3	23	3.45	7
UMG0154	MGSR.7225117 ET82P	1.17	2.5	7.2	25.4	28	3.45	7
UMG0155	MGSR.7230117 ET82P	1.17	2.5	7.2	30.5	33	3.45	7
UMG0156	MGSR.7235117 ET82P	1.17	2.5	7.2	35.6	38	3.45	7
UMG0157	MGSR.7240117 ET82P	1.17	2.5	7.2	40.6	43	3.45	7

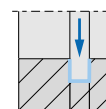
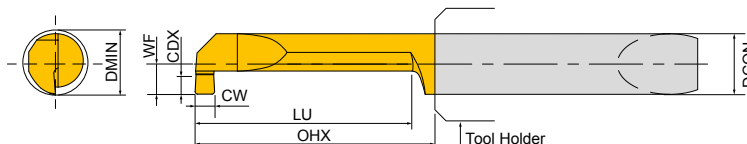
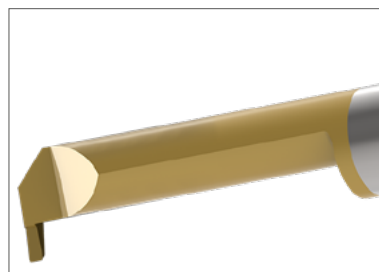
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



SQUARE GROOVING

UNIMASTER MG

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(mm/rev) 0.015 - 0.025

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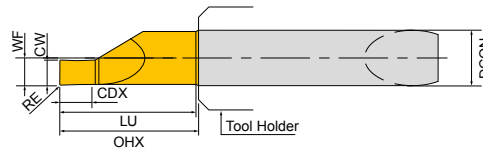
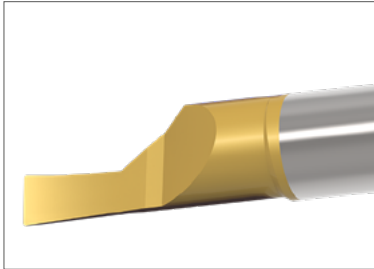
EDP Code	Description	CW	CDX	DMIN	LU	OHX	WF	DCON
UMG0158	MGSR.7210157 ET82P	1.5	2.5	7.2	10.2	13	3.45	7
UMG0159	MGSR.7215157 ET82P	1.5	2.5	7.2	15.2	18	3.45	7
UMG0160	MGSR.7220157 ET82P	1.5	2.5	7.2	20.3	23	3.45	7
UMG0161	MGSR.7225157 ET82P	1.5	2.5	7.2	25.4	28	3.45	7
UMG0162	MGSR.7230157 ET82P	1.5	2.5	7.2	30.5	33	3.45	7
UMG0163	MGSR.7235157 ET82P	1.5	2.5	7.2	35.6	38	3.45	7
UMG0164	MGSR.7240157 ET82P	1.5	2.5	7.2	40.6	43	3.45	7
UMG0165	MGSR.7210177 ET82P	1.57	2.5	7.2	10.2	13	3.45	7
UMG0166	MGSR.7215177 ET82P	1.57	2.5	7.2	15.2	18	3.45	7
UMG0167	MGSR.7220177 ET82P	1.57	2.5	7.2	20.3	23	3.45	7
UMG0168	MGSR.7225177 ET82P	1.57	2.5	7.2	25.4	28	3.45	7
UMG0169	MGSR.7230177 ET82P	1.57	2.5	7.2	30.5	33	3.45	7
UMG0170	MGSR.7235177 ET82P	1.57	2.5	7.2	35.6	38	3.45	7
UMG0171	MGSR.7240177 ET82P	1.57	2.5	7.2	40.6	43	3.45	7
UMG0172	MGSR.7210197 ET82P	1.98	2.5	7.2	10.2	13	3.45	7
UMG0173	MGSR.7215197 ET82P	1.98	2.5	7.2	15.2	18	3.45	7
UMG0174	MGSR.7220197 ET82P	1.98	2.5	7.2	20.3	23	3.45	7
UMG0175	MGSR.7225197 ET82P	1.98	2.5	7.2	25.4	28	3.45	7
UMG0176	MGSR.7230197 ET82P	1.98	2.5	7.2	30.5	33	3.45	7
UMG0177	MGSR.7235197 ET82P	1.98	2.5	7.2	35.6	38	3.45	7
UMG0178	MGSR.7210207 ET82P	2.0	2.5	7.2	10.2	13	3.45	7
UMG0179	MGSR.7215207 ET82P	2.0	2.5	7.2	15.2	18	3.45	7
UMG0180	MGSR.7220207 ET82P	2.0	2.5	7.2	20.3	23	3.45	7
UMG0181	MGSR.7225207 ET82P	2.0	2.5	7.2	25.4	28	3.45	7
UMG0182	MGSR.7230207 ET82P	2.0	2.5	7.2	30.5	33	3.45	7
UMG0183	MGSR.7235207 ET82P	2.0	2.5	7.2	35.6	38	3.45	7

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-

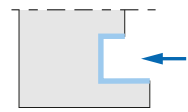


FACE GROOVING

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(mm/rev) 0.015 - 0.025



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EDP Code	Description	CW	CDX	RE	LU	OHX	WF	DCON
UMG0244	MGFR.62150076 ET82P	0.787	1.8	0.05	15.2	18	2.95	6
UMG0245	MGFR.62150106 ET82P	1.0	2.0	0.05	15.2	18	2.95	6
UMG0246	MGFR.62150156 ET82P	1.5	3.0	0.05	15.2	18	2.95	6
UMG0247	MGFR.6215106 ET82P	1.0	2.0	0.15	15.2	18	2.95	6
UMG0248	MGFR.6215116 ET82P	1.168	2.34	0.15	15.2	18	2.95	6
UMG0249	MGFR.6215156 ET82P	1.5	3.0	0.15	15.2	18	2.95	6
UMG0250	MGFR.6215176 ET82P	1.575	3.15	0.15	15.2	18	2.95	6
UMG0251	MGFR.6215196 ET82P	1.981	3.95	0.15	15.2	18	2.95	6
UMG0252	MGFR.6215206 ET82P	2.0	4.0	0.15	15.2	18	2.95	6
UMG0253	MGFR.6215236 ET82P	2.388	5.0	0.15	15.2	18	2.95	6
UMG0254	MGFR.6215256 ET82P	2.5	5.0	0.15	15.2	18	2.95	6
UMG0255	MGFR.6215306 ET82P	3.0	6.0	0.15	15.2	18	2.95	6
UMG0256	MGFR.6215316 ET82P	3.175	6.0	0.15	15.2	18	2.95	6

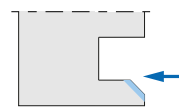
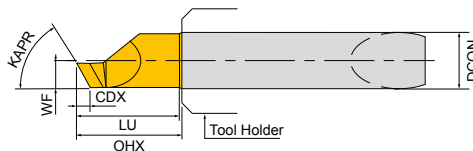
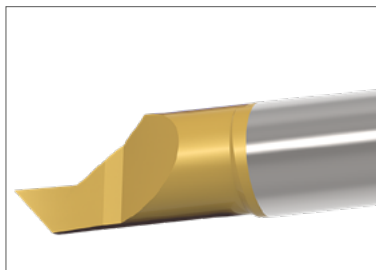
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



CHAMFERING



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f_n (mm/rev) 0.015 - 0.025

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EDP Code	Description	RMPX	DMIN	LU	CDX	RE	OHX	WF	DCON
UMG0242	MGCR.620320456 ET82P	45°	1.0	10.2	3.5	0.2	13	1.1	6
UMG0243	MGCR.620450606 ET82P	60°	1.0	10.2	4.0	0.2	13	0.5	6

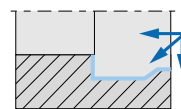
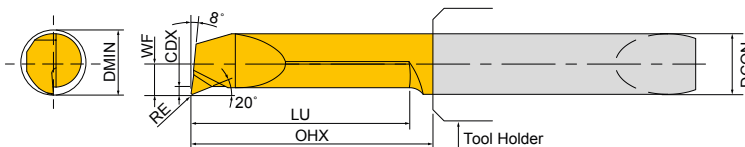
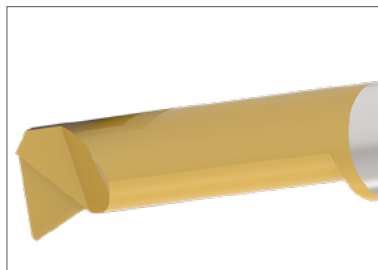
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



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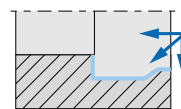
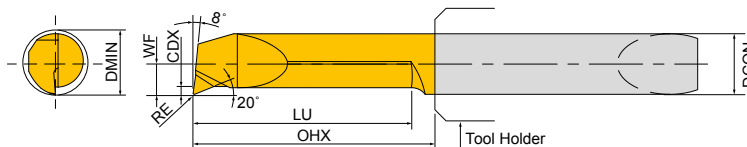
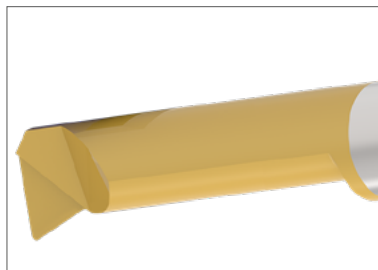
EDP Code	Description	DMIN	LU	CDX	RE	OHX	WF	DCON
UMG0208	MGBR.1706054 ET82P	1.7	6.0	0.2	0.05	13	0.70	4
UMG0209	MGBR.1709054 ET82P	1.7	9.0	0.2	0.05	13	0.70	4
UMG0210	MGBR.2206054 ET82P	2.2	6.0	0.2	0.05	13	0.95	4
UMG0211	MGBR.2209054 ET82P	2.2	9.0	0.2	0.05	13	0.95	4
UMG0212	MGBR.2710054 ET82P	2.7	10.2	0.2	0.05	13	1.20	4
UMG0213	MGBR.2715054 ET82P	2.7	15.2	0.2	0.05	18	1.20	4
UMG0214	MGBR.3220054 ET82P	3.2	20.3	0.2	0.05	23	1.45	4
UMG0215	MGBR.4210154 ET82P	4.2	10.2	0.3	0.15	13	1.95	4
UMG0216	MGBR.4215154 ET82P	4.2	15.2	0.3	0.15	18	1.95	4
UMG0217	MGBR.4220154 ET82P	4.2	20.3	0.3	0.15	23	1.95	4
UMG0218	MGBR.4225154 ET82P	4.2	25.4	0.3	0.15	28	1.95	4
UMG0219	MGBR.4230154 ET82P	4.2	30.5	0.3	0.15	33	1.95	4
UMG0220	MGBR.4235154 ET82P	4.2	35.6	0.3	0.15	38	1.95	4
UMG0221	MGBR.5210205 ET82P	5.2	10.2	0.5	0.2	13	2.45	5
UMG0222	MGBR.5215205 ET82P	5.2	15.2	0.5	0.2	18	2.45	5
UMG0223	MGBR.5220205 ET82P	5.2	20.3	0.5	0.2	23	2.45	5
UMG0224	MGBR.5225205 ET82P	5.2	25.4	0.5	0.2	28	2.45	5
UMG0225	MGBR.5230205 ET82P	5.2	30.5	0.5	0.2	33	2.45	5
UMG0226	MGBR.5235205 ET82P	5.2	35.6	0.5	0.2	38	2.45	5
UMG0227	MGBR.5240205 ET82P	5.2	40.6	0.5	0.2	43	2.45	5

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



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EDP Code	Description	DMIN	LU	CDX	RE	OHX	WF	DCON
UMG0228	MGBR.6210206 ET82P	6.2	10.2	0.5	0.2	13	2.95	6
UMG0229	MGBR.6215206 ET82P	6.2	15.2	0.5	0.2	18	2.95	6
UMG0230	MGBR.6220206 ET82P	6.2	20.3	0.5	0.2	23	2.95	6
UMG0231	MGBR.6225206 ET82P	6.2	25.4	0.5	0.2	28	2.95	6
UMG0232	MGBR.6230206 ET82P	6.2	30.5	0.5	0.2	33	2.95	6
UMG0233	MGBR.6235206 ET82P	6.2	35.6	0.5	0.2	38	2.95	6
UMG0234	MGBR.6240206 ET82P	6.2	40.6	0.5	0.2	43	2.95	6
UMG0235	MGBR.6250206 ET82P	6.2	50.8	0.5	0.2	53	2.95	6
UMG0236	MGBR.7225207 ET82P	7.2	25.4	0.5	0.2	28	3.45	7
UMG0237	MGBR.7230207 ET82P	7.2	30.5	0.5	0.2	33	3.45	7
UMG0238	MGBR.7235207 ET82P	7.2	35.6	0.5	0.2	38	3.45	7
UMG0239	MGBR.7240207 ET82P	7.2	40.6	0.5	0.2	43	3.45	7
UMG0240	MGBR.7250207 ET82P	7.2	50.8	0.5	0.2	53	3.45	7
UMG0241	MGBR.7260207 ET82P	7.2	60.8	0.5	0.2	63	3.45	7

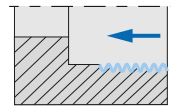
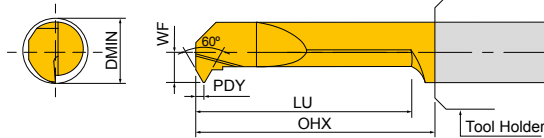
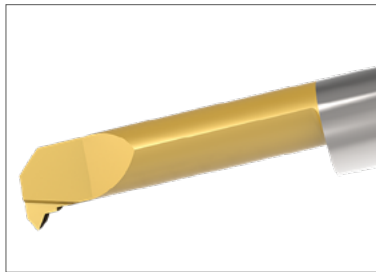
ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-



THREADING 60°

UNIMASTER MG

MGT



P	●
M	●
K	●
N	●
S	●
H	●

EDP Code	Description	TP	DMIN	LU	OHX	WF	PDY	DCON
UMG0194	MGTR.391508104 ET82P	0.8 - 1.0	3.9	15.2	18	1.95	0.45	4
UMG0195	MGTR.421505074 ET82P	0.5 - 0.7	4.2	15.2	18	1.95	0.35	4
UMG0196	MGTR.4815101255 ET82P	1.0 - 1.25	4.8	15.2	18	2.25	0.55	5
UMG0197	MGTR.4820101255 ET82P	1.0 - 1.25	4.8	20.3	23	2.25	0.55	5
UMG0198	MGTR.4825101255 ET82P	1.0 - 1.25	4.8	25.4	28	2.25	0.55	5
UMG0199	MGTR.5115075105 ET82P	0.75 - 1.0	5.1	15.2	18	2.40	0.45	5
UMG0200	MGTR.5215050755 ET82P	0.5 - 0.75	5.2	15.2	18	2.45	0.35	5
UMG0201	MGTR.6215101256 ET82P	1.0 - 1.25	6.2	15.2	18	2.95	0.55	6
UMG0202	MGTR.6215125156 ET82P	1.25 - 1.5	6.2	15.2	18	2.95	0.75	6
UMG0203	MGTR.6220125156 ET82P	1.25 - 1.5	6.2	20.3	23	2.95	0.75	6
UMG0204	MGTR.6225125156 ET82P	1.25 - 1.5	6.2	25.4	28	2.95	0.75	6
UMG0205	MGTR.6215151756 ET82P	1.5-1.75	6.2	15.2	18	2.95	0.8	6
UMG0206	MGTR.6220151756 ET82P	1.5-1.75	6.2	20.3	23	2.95	0.8	6
UMG0207	MGTR.6225151756 ET82P	1.5-1.75	6.2	25.4	28	2.95	0.8	6

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super-Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET82P	170 - 200	95 - 160	85 - 95	105 - 140	95 - 160	140 - 190	140 - 190	-	10-75	-