MITSUBISHI

TOOLS NEWS

B041G

CDV coated grade for stainless steels turning

US7020・US735

Excellent toughness in relation to notch wear resistance.

Highly Efficient Machining of Difficult-to-cut Materials, Such as Stainless Steels and Super alloys.

■Minimizing welding of a mild steel or low carbon steel workpiece.

MITSUBISHI CARBIDE

CDV coated grade for stainless steel turning

US7020・US735

Features

Best for machining of stainless steel

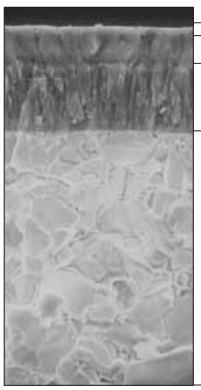
In stainless steel cutting, damages left at the boundary of cut often become a problem. CVD coated carbide grade US7020 and US735 displays stable cutting performance, maintaining damages at the boundary of cut minimum.

Best for machining of super alloys

CVD coated carbide grade US7020 and US735 are suitable not only for stainless steel but also for nickel (Ni) based super alloys, which are among the hardest of difficult-to-cut materials.

Combination with MS/MA breaker achieving low cutting resistance

MS and MA breakers display excellent cutting performance with their low cutting resistance. The combination of MS/ MA breaker and highly wear resistant US7020 or very strong and highly fracture resistant US735 further improves the cutting performance.

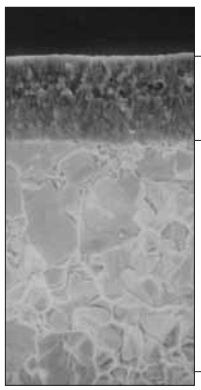


Micro-structure of **US7020**

- **Thin layer coating of fibrous TiCN + fine grained Al_2O_3**
  Employing thin layer coating with high adhesion strength to the substrate, US7020 is more spalling resistant than other grades designed for steel cutting.
- **Cemented carbide substrate with slanted**
  Structure (hard substrate with very tough surface) US7020 displays excellent plastic deformation resistance in high speed machining of stainless steel.
- **Small honing design**
  Due to the small honing design, US7020 achieves better cutting performance than other grades designed for steel cutting, displaying high welding resistance.

Solves problems in (low speed, interrupted) machining of steels

US7020 and US735 solves welding problems in low speed cutting of mild steel and abnormal wear problems such as fracturing of cutting edge in medium to low speed, interrupted machining.



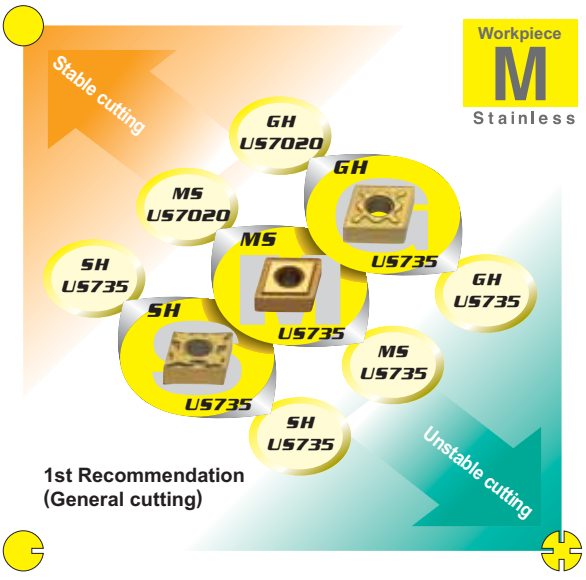
Micro-structure of **US735**

- **Thin layer coating of micrograined Ti compound (Thin multi-layer micrograin coating achieving highest adhesion strength to the substrate)**
  Highly welding and wear resistant coating prevents spalling during cutting operations.
- **Extremely tough special cemented carbide substrate**
  Specially designed carbide substrate with very high fracture resistance and thermal shock resistance hardly fracture.

Application range and recommended cutting conditions

●TOOL NAVI SYSTEM

NEGATIVE INSERTS FOR STAINLESS STEEL



Cutting conditions

Stable cutting	Continuous cutting Constant depth of cutting Pre-machined Securely clamped component cutting
General cutting	
Unstable cutting	Heavy interrupted cutting Irregular depth of cutting Low clamping rigidity cutting

Cutting area

S	Light cutting	(ap=0.5－1.5mm)
M	Medium cutting	(ap=1.5－4.0mm)
G	Semi-heavy cutting	(ap=4.0－7.0mm)

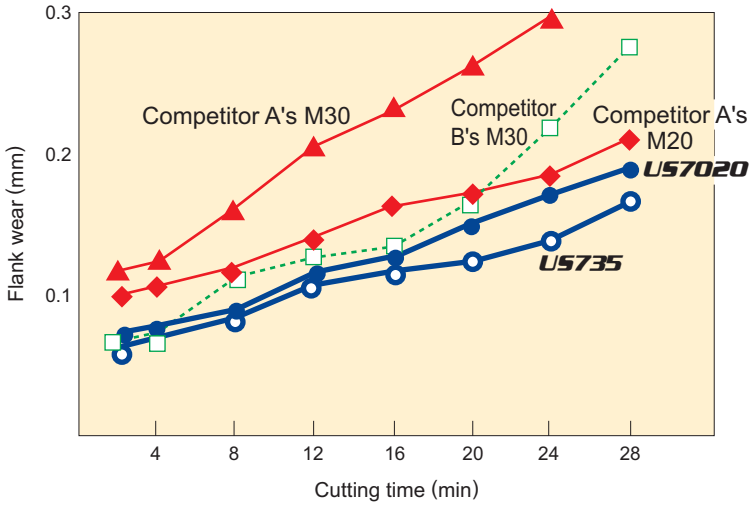
Cutting performance

●High efficiency machining of stainless steel

US7020 displays its best cutting performance in high speed cutting. For medium to low speed cutting, US735 is recommended.

Regular speed cutting (Cutting speed : 120m/min)

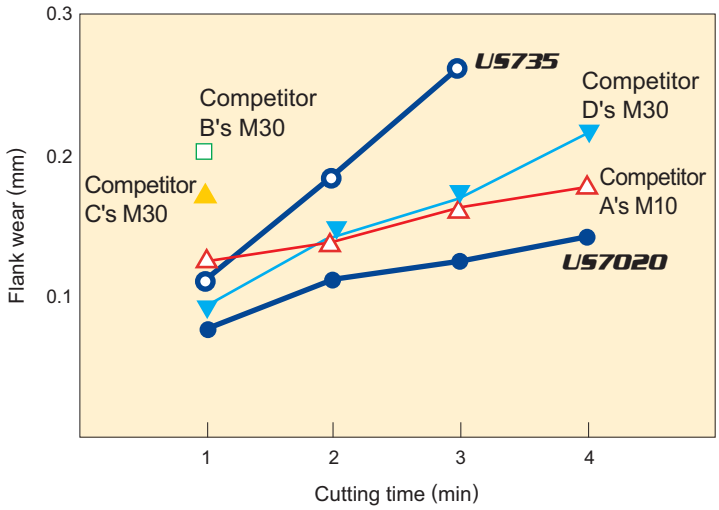
US735 is recommended for regular speed cutting as it achieves strong cutting edge and thus is suitable for general purposes.



<Cutting conditions>
Workpiece : JIS SUS304
Holder : PCLNL2525M12
Insert : CNMG120408-◌◌
Feed : 0.3mm/rev
Depth of cut : 1.5mm
Continuous, wet cutting
◌◌indicates a chip breaker.

High speed cutting (Cutting speed : 300m/min)

US7020 is recommended for high speed, stable cutting as it is highly wear resistant and thus enables high efficiency machining.



<Cutting conditions>
Workpiece : JIS SUS304
Holder : PCLNL2525M12
Insert : CNMG120408-◌◌
Feed : 0.3mm/rev
Depth of cut : 1.5mm
Continuous, wet cutting
◌◌indicates a chip breaker.

Recommended cutting conditions

Recommended cutting conditions

Workpiece	Cutting speed (m/min)	
	US7020	US735
Stainless steel	170 (120－220)	100 (70－120)
Ni (nickel) based heat-resistant alloy	40 (30－50)	30 (20－40)
Mild steel (≤180HB)	200 (150－250)	150 (100－200)

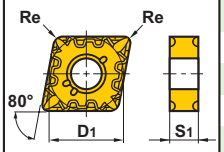
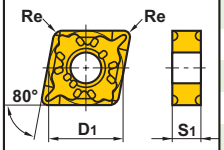
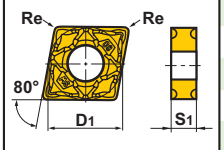
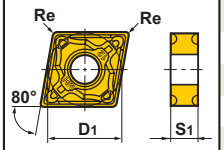
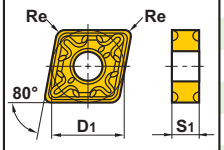
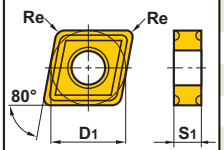
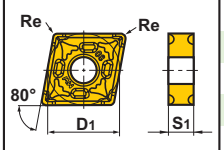
Application range

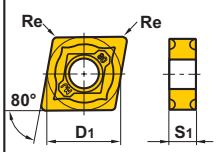
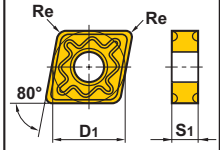
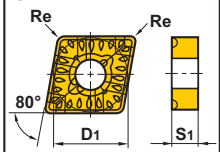
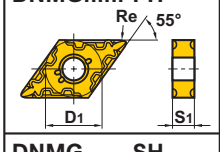
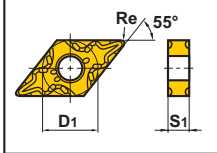
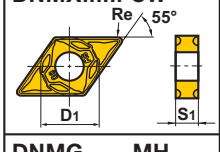
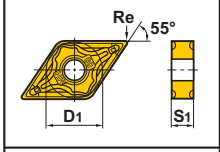
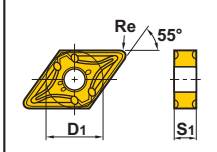
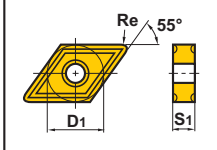
Workpiece material	Properties	Recommended grade
Austenitic materials (JIS SUS304, 316, etc.)	・Strong work hardening tendency. ・Low heat conductivity leading to raised temperature. ・Unstable cutting resistance leading to vibration. ・Generated chips tend to spread and lengthen.	US7020 for high speed, stable cutting US735 for medium to low speed, unstable cutting
Ferritic materials (JIS SUS405, 430, etc.)	・Lower work hardening tendency and lower cutting resistance when compared with austenitic materials. ・Fairly good chip disposability.	US7020
Martensitic materials (JIS SUS403, 410, etc.)	・Although work hardening tendency is low, cutting resistance is high due to their high hardness. ・Fairly good chip disposability.	US7020

US7020·US735

Standard inserts

● Negative inserts

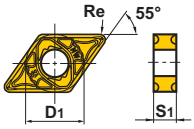
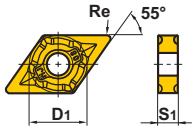
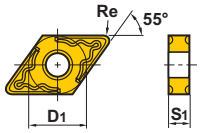
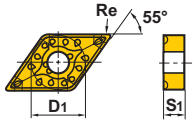
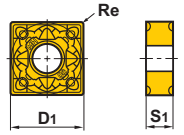
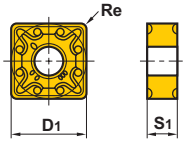
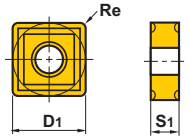
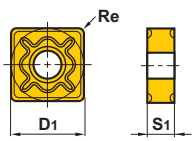
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
CNMG.....-FH	CNMG120404-FH		●	12.7	4.76	0.4
	120408-FH		●	12.7	4.76	0.8
CNMG.....-SH	CNMG090304-SH		□	9.525	3.18	0.4
	090308-SH		□	9.525	3.18	0.8
	09T304-SH		●	9.525	3.97	0.4
	09T308-SH		●	9.525	3.97	0.8
	120404-SH		●	12.7	4.76	0.4
	120408-SH		●	12.7	4.76	0.8
CNMG.....-SW	CNMG120404-SW	●		12.7	4.76	0.4
	120408-SW	●		12.7	4.76	0.8
CNMG.....-MH	CNMG120404-MH	●		12.7	4.76	0.4
	120408-MH	●		12.7	4.76	0.8
	120412-MH	●		12.7	4.76	1.2
	120416-MH	●		12.7	4.76	1.6
	160612-MH	●		15.875	6.35	1.2
	190612-MH	●		19.05	6.35	1.2
CNMG.....-MA	CNMG120404-MA	●	●	12.7	4.76	0.4
	120408-MA	●	●	12.7	4.76	0.8
	120412-MA	●	●	12.7	4.76	1.2
	120416-MA	□	●	12.7	4.76	1.6
	160608-MA	□	●	15.875	6.35	0.8
	160612-MA	□	●	15.875	6.35	1.2
	160616-MA	□	●	15.875	6.35	1.6
	190612-MA	□	●	19.05	6.35	1.2
	190616-MA	□	●	19.05	6.35	1.6
CNMG.....-MS	CNMG090304-MS	□	●	9.525	3.18	0.4
	090308-MS	□	●	9.525	3.18	0.8
	09T304-MS	□	●	9.525	3.97	0.4
	09T308-MS	□	●	9.525	3.97	0.8
	120404-MS	●	●	12.7	4.76	0.4
	120408-MS	●	●	12.7	4.76	0.8
	120412-MS	●	●	12.7	4.76	1.2
	120416-MS	□	□	12.7	4.76	1.6
	160604-MS	□	□	15.875	6.35	0.4
	160608-MS	□	□	15.875	6.35	0.8
	160612-MS	□	□	15.875	6.35	1.2
	190612-MS	□	●	19.05	6.35	1.2
	190616-MS	□	●	19.05	6.35	1.6
CNMG.....-MW	CNMG120404-MW	●		12.7	4.76	0.4
	120408-MW	●		12.7	4.76	0.8

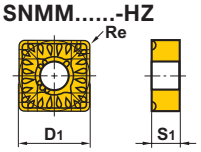
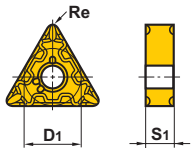
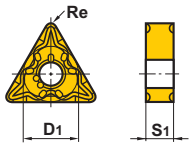
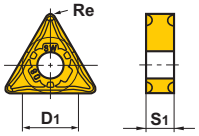
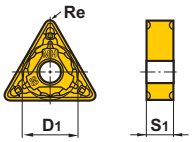
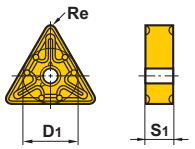
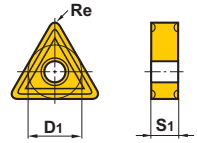
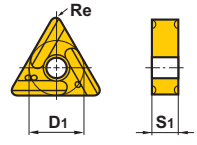
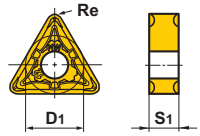
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
CNGG.....-MJ	CNGG120404-MJ			12.7	4.76	0.4
	120408-MJ			12.7	4.76	0.8
CNMG.....-GH	CNMG120408-GH	●	●	12.7	4.76	0.8
	120412-GH	●	●	12.7	4.76	1.2
	160612-GH	●	●	15.875	6.35	1.2
	190612-GH	●	●	19.05	6.35	1.2
	190616-GH	●	●	19.05	6.35	1.6
CNMM.....-HZ	CNMM120408-HZ	□	□	12.7	4.76	0.8
	120412-HZ	□	□	12.7	4.76	1.2
	160612-HZ	□	□	15.875	6.35	1.2
	160616-HZ	□	□	15.875	6.35	1.6
	190612-HZ	□	□	19.05	6.35	1.2
	190616-HZ	□	□	19.05	6.35	1.6
DNMG.....-FH	DNMG150404-FH		●	12.7	4.76	0.4
	150408-FH		●	12.7	4.76	0.8
DNMG.....-SH	DNMG110404-SH		●	9.525	4.76	0.4
	110408-SH		●	9.525	4.76	0.8
	150404-SH		●	12.7	4.76	0.4
	150408-SH		●	12.7	4.76	0.8
	150412-SH		●	12.7	4.76	1.2
DNMX.....-SW	DNMX150404-SW	●		12.7	4.76	0.4
	150408-SW	●		12.7	4.76	0.8
	150604-SW	●		12.7	6.35	0.4
	150608-SW	●		12.7	6.35	0.8
DNMG.....-MH	DNMG150404-MH	●		12.7	4.76	0.4
	150408-MH	●		12.7	4.76	0.8
	150412-MH	●		12.7	4.76	1.2
	150604-MH	●		12.7	6.35	0.4
	150608-MH	●		12.7	6.35	0.8
	150612-MH	●		12.7	6.35	1.2
DNMG.....-MA	DNMG150404-MA	●	●	12.7	4.76	0.4
	150408-MA	●	●	12.7	4.76	0.8
	150412-MA		●	12.7	4.76	1.2
	150604-MA		●	12.7	6.35	0.4
	150608-MA		●	12.7	6.35	0.8
	150612-MA		●	12.7	6.35	1.2
DNMG.....-MS	DNMG110408-MS		●	9.525	4.76	0.8
	150404-MS	●	●	12.7	4.76	0.4
	150408-MS	●	●	12.7	4.76	0.8
	150412-MS		●	12.7	4.76	1.2
	150604-MS		●	12.7	6.35	0.4
	150608-MS		●	12.7	6.35	0.8

● : Inventory maintained. □ : Non stock, produced to order only.

No mark : Not manufactured.

● Negative inserts

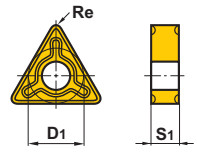
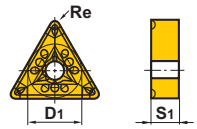
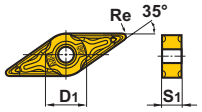
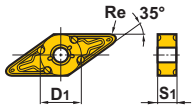
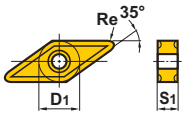
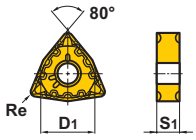
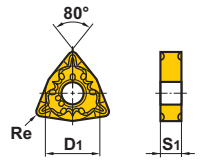
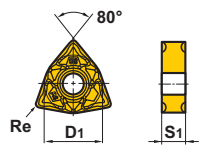
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
DNMX.....-MW 	DNMX150408-MW	□		12.7	4.76	0.8
	150412-MW	□		12.7	4.76	1.2
	150608-MW	□		12.7	6.35	0.8
	150612-MW	□		12.7	6.35	1.2
DNGM.....-MJ 	DNGM150404-MJ		□	12.7	4.76	0.4
	150408-MJ		□	12.7	4.76	0.8
DNMG.....-GH 	DNMG150408-GH	●	●	12.7	4.76	0.8
	150412-GH	●	●	12.7	4.76	1.2
	150608-GH	●	●	12.7	6.35	0.8
	150612-GH	●	●	12.7	6.35	1.2
DNMM.....-HZ 	DNMM150408-HZ	□	□	12.7	4.76	0.8
	150412-HZ	□	□	12.7	4.76	1.2
	150416-HZ	□	□	12.7	4.76	1.6
	150608-HZ	□	□	12.7	6.35	0.8
	150612-HZ	□	□	12.7	6.35	1.2
	150616-HZ	□	□	12.7	6.35	1.6
SNMG.....-MH 	SNMG120408-MH	●		12.7	4.76	0.8
	120412-MH	●		12.7	4.76	1.2
SNMG.....-MA 	SNMG120404-MA		●	12.7	4.76	0.4
	120408-MA	●	●	12.7	4.76	0.8
	120412-MA	●	●	12.7	4.76	1.2
	150608-MA		●	15.875	6.35	0.8
	150612-MA		●	15.875	6.35	1.2
	190616-MA		●	19.05	6.35	1.6
SNMG.....-MS 	SNMG090304-MS			9.525	3.18	0.4
	090308-MS		●	9.525	3.18	0.8
	120404-MS		●	12.7	4.76	0.4
	120408-MS	●	●	12.7	4.76	0.8
	120412-MS	●	●	12.7	4.76	1.2
	120416-MS		●	12.7	4.76	1.6
	150608-MS	□	□	15.875	6.35	0.8
	150612-MS	□	□	15.875	6.35	1.2
	190616-MS	□	□	19.05	6.35	1.6
SNMG.....-GH 	SNMG120408-GH	●	●	12.7	4.76	0.8
	120412-GH	●	●	12.7	4.76	1.2
	120416-GH	●	●	12.7	4.76	1.6
	150612-GH	●	●	15.875	6.35	1.2
	190612-GH	●	●	19.05	6.35	1.2
	190616-GH	●	●	19.05	6.35	1.6

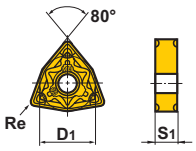
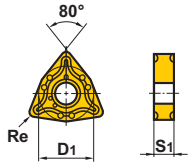
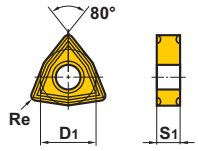
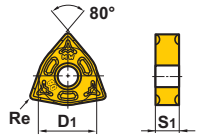
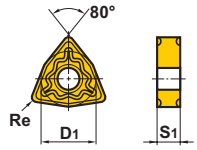
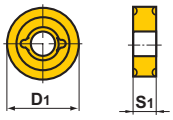
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
SNMM.....-HZ 	SNMM120408-HZ	□	□	12.7	4.76	0.8
	120412-HZ	□	□	12.7	4.76	1.2
	150612-HZ	□	□	15.875	6.35	1.2
	190612-HZ	□	□	19.05	6.35	1.2
	190616-HZ	□	□	19.05	6.35	1.6
TNMG.....-FH 	TNMG160404-FH		●	9.525	4.76	0.4
	160408-FH		●	9.525	4.76	0.8
TNMG.....-SH 	TNMG160404-SH		●	9.525	4.76	0.4
	160408-SH		●	9.525	4.76	0.8
	220408-SH		●	12.7	4.76	0.8
TNMX....-SW 	TNMX160404-SW	●		9.525	4.76	0.4
	160408-SW	●		9.525	4.76	0.8
TNMG....-MH 	TNMG160404-MH	●		9.525	4.76	0.4
	160408-MH	●		9.525	4.76	0.8
	160412-MH	●		9.525	4.76	1.2
	220408-MH	●		12.7	4.76	0.8
	220412-MH	●		12.7	4.76	1.2
TNMG.....-MA 	TNMG160404-MA	●	●	9.525	4.76	0.4
	160408-MA	●	●	9.525	4.76	0.8
	160412-MA	●	●	9.525	4.76	1.2
	220408-MA	●	●	12.7	4.76	0.8
	220412-MA	□	●	12.7	4.76	1.2
	270608-MA	□		15.875	4.76	0.8
	270612-MA	□	●	15.875	4.76	1.2
TNMG.....-MS 	TNMG160404-MS	●	●	9.525	4.76	0.4
	160408-MS	●	●	9.525	4.76	0.8
	160412-MS	●	●	9.525	4.76	1.2
	220408-MS	●	●	12.7	4.76	0.8
	220412-MS	□	●	12.7	4.76	1.2
TNMG.....-ES 	TNMG160404R-ES	●	●	9.525	4.76	0.4
	160404L-ES	●	●	9.525	4.76	0.4
	160408R-ES	●	●	9.525	4.76	0.8
	160408L-ES	●	●	9.525	4.76	0.8
	220408R-ES		●	12.7	4.76	0.8
	220408L-ES		●	12.7	4.76	0.8
TNMX.....-MW 	TNMX160408-MW	□		9.525	4.76	0.8
	160412-MW	□		9.525	4.76	1.2

US7020·US735

Standard inserts

● Negative inserts

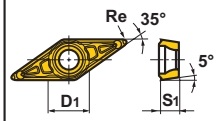
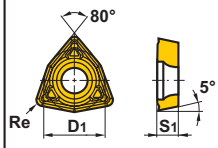
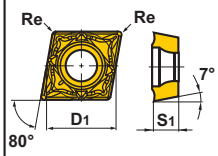
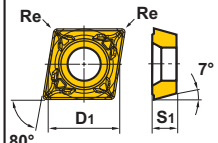
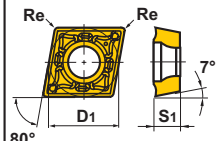
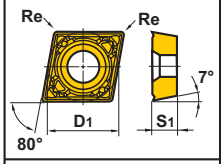
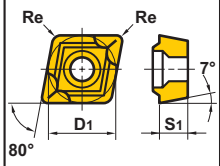
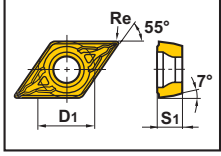
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
TNMG....-GH 	TNMG160408-GH	●	●	9.525	4.76	0.8
	160412-GH	●	●	9.525	4.76	1.2
	220408-GH	●	●	12.7	4.76	0.8
	220412-GH	●	●	12.7	4.76	1.2
	220416-GH	●	●	12.7	4.76	1.6
	270612-GH	●	●	19.05	6.35	1.2
TNMM....-HZ 	TNMM160408-HZ	□	□	9.525	4.76	0.8
	220408-HZ	□	□	12.7	4.76	0.8
	220412-HZ	□	□	12.7	4.76	1.2
	220416-HZ	□	□	12.7	4.76	1.6
VNMG.....-MH 	VNMG160404-MH	●		9.525	4.76	0.4
	160408-MH	●		9.525	4.76	0.8
VNMG.....-MA 	VNMG160404-MA	●	●	9.525	4.76	0.4
	160408-MA	●	●	9.525	4.76	0.8
VNMG.....-MS 	VNMG160404-MS	●	●	9.525	4.76	0.4
	160408-MS	●	●	9.525	4.76	0.8
WNMG.....-FH 	WNMG080404-FH		●	12.7	4.76	0.4
	080408-FH		●	12.7	4.76	0.8
WNMG.....-SH 	WNMG06T304-SH		●	9.525	3.97	0.4
	06T308-SH		●	9.525	3.97	0.8
	060404-SH		●	9.525	4.76	0.4
	060408-SH		●	9.525	4.76	0.8
	060412-SH			9.525	4.76	1.2
	080404-SH		●	12.7	4.76	0.4
	080408-SH		●	12.7	4.76	0.8
	080412-SH			12.7	4.76	1.2
WNMG.....-SW 	WNMG060404-SW	●		9.525	4.76	0.4
	060408-SW	●		9.525	4.76	0.8
	080404-SW	●		12.7	4.76	0.4
	080408-SW	●		12.7	4.76	0.8

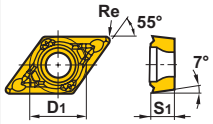
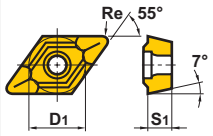
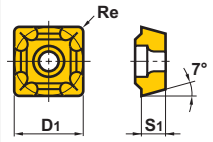
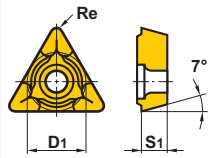
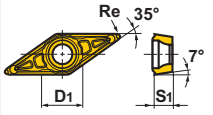
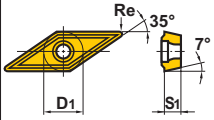
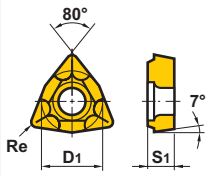
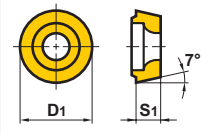
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
WNMG.....-MH 	WNMG080404-MH	●		12.7	4.76	0.4
	080408-MH	●		12.7	4.76	0.8
	080412-MH	●		12.7	4.76	1.2
WNMG.....-MA 	WNMG06T304-MA		●	9.525	3.97	0.4
	06T308-MA		●	9.525	3.97	0.8
	06T312-MA		●	9.525	3.97	1.2
	060404-MA		●	9.525	4.76	0.4
	060408-MA		●	9.525	4.76	0.8
	060412-MA		●	9.525	4.76	1.2
	080404-MA	●	●	12.7	4.76	0.4
	080408-MA	●	●	12.7	4.76	0.8
	080412-MA	●	●	12.7	4.76	1.2
	100612-MA	□		15.875	6.35	1.2
	100616-MA	□		15.875	6.35	1.6
WNMG.....-MS 	WNMG06T304-MS		●	9.525	3.97	0.4
	06T308-MS		●	9.525	3.97	0.8
	060404-MS		●	9.525	4.76	0.4
	060408-MS		●	9.525	4.76	0.8
	080404-MS	●	●	12.7	4.76	0.4
	080408-MS	●	●	12.7	4.76	0.8
	080412-MS	●	●	12.7	4.76	1.2
WNMG.....-MW 	WNMG060408-MW	□		9.525	4.76	0.8
	060412-MW	□		9.525	4.76	1.2
	080408-MW	●		12.7	4.76	0.8
	080412-MW	●		12.7	4.76	1.2
WNMG.....-GH 	WNMG080408-GH	●	●	12.7	4.76	0.8
	080412-GH	●	●	12.7	4.76	1.2
RNGJ..... 	RNGJ190600		●	19.05	6.35	–

● : Inventory maintained. □ : Non stock, produced to order only.

No mark : Not manufactured.

● Positive inserts

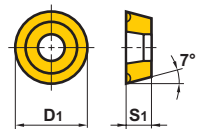
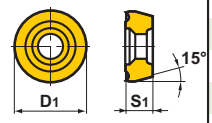
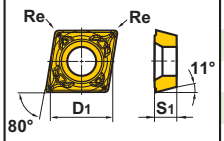
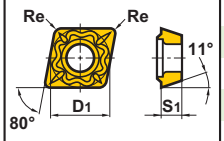
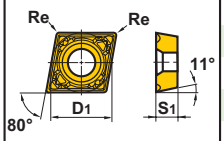
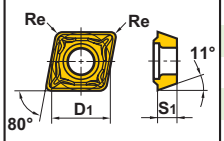
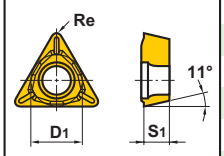
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
VBMT.....-MV	VBMT110304-MV	●	●	6.35	3.18	0.4
	110308-MV	●	●	6.35	3.18	0.8
	160404-MV	●	●	9.525	4.76	0.4
	160408-MV	●	●	9.525	4.76	0.8
WBMT.....-MV	WBMTL30202R-MV	●	●	4.76	2.38	0.2
	30202L-MV	●	●	4.76	2.38	0.2
	30204R-MV	●	●	4.76	2.38	0.4
	30204L-MV	●	●	4.76	2.38	0.4
CCMT.....-SW	CCMT060202-SW	●		6.35	2.38	0.2
	060204-SW	●		6.35	2.38	0.4
	09T302-SW	●		9.525	3.97	0.2
	09T304-SW	●		9.525	3.97	0.4
CCMH.....-SV	CCMH060202-SV	●	●	6.35	2.38	0.2
	060204-SV	●	●	6.35	2.38	0.4
CCMT.....-MW	CCMT060204-MW	●		6.35	2.38	0.4
	060208-MW	●		6.35	2.38	0.8
	09T304-MW	●		9.525	3.97	0.4
	09T308-MW	●		9.525	3.97	0.8
	120404-MW	●		12.7	4.76	0.4
	120408-MW	●		12.7	4.76	0.8
CCMH.....-MV	CCMH060202-MV	●	●	6.35	2.38	0.2
	060204-MV	●	●	6.35	2.38	0.4
CCMT.....	CCMT060202		●	6.35	2.38	0.2
	060204		●	6.35	2.38	0.4
	060208		●	6.35	2.38	0.8
	080304		●	7.94	3.18	0.4
	080308		●	7.94	3.18	0.8
	09T302		●	9.525	3.97	0.2
	09T304		●	9.525	3.97	0.4
	09T308		●	9.525	3.97	0.8
	120404		●	12.7	4.76	0.4
	120408		●	12.7	4.76	0.8
	120412		●	12.7	4.76	1.2
DCMT.....-SV	DCMT070202-SV	●	●	6.35	2.38	0.2
	070204-SV	●	●	6.35	2.38	0.4
	070208-SV	●	●	6.35	2.38	0.8
	11T302-SV	●	●	9.525	3.97	0.2
	11T304-SV	●	●	9.525	3.97	0.4
	11T308-SV	●	●	9.525	3.97	0.8

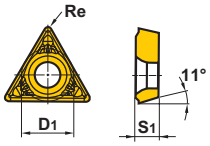
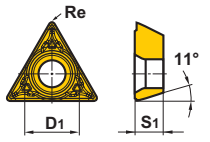
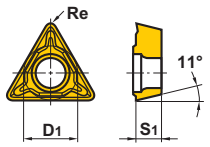
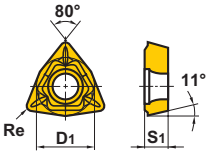
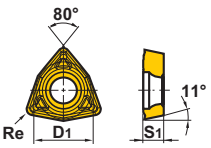
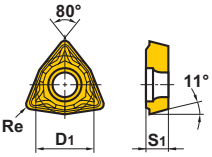
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
DCMT.....-MV	DCMT070202-MV	●	●	6.35	2.38	0.2
	070204-MV	●	●	6.35	2.38	0.4
	070208-MV	●	●	6.35	2.38	0.8
	11T302-MV	●	●	9.525	3.97	0.2
	11T304-MV	●	●	9.525	3.97	0.4
	11T308-MV	●	●	9.525	3.97	0.8
DCMT.....	DCMT070202		●	6.35	2.38	0.2
	070204		●	6.35	2.38	0.4
	070208			6.35	2.38	0.8
	11T302		●	9.525	3.97	0.2
	11T304		●	9.525	3.97	0.4
	11T308		●	9.525	3.97	0.8
	150404		●	12.7	4.76	0.4
	150408		●	12.7	4.76	0.8
	150412			12.7	4.76	1.2
SCMT.....	SCMT09T304		●	9.525	3.97	0.4
	09T308		●	9.525	3.97	0.8
	120404		●	12.7	4.76	0.4
	120408		●	12.7	4.76	0.8
TCMT.....	TCMT080204		□	4.76	2.38	0.4
	090204		□	5.56	2.38	0.4
	110202		●	6.35	2.38	0.2
	110204		●	6.35	2.38	0.4
	130302		□	7.94	3.18	0.2
	130304		●	7.94	3.18	0.4
	16T304		●	9.525	3.97	0.4
	16T308		●	9.525	3.97	0.8
VCMT.....-MV	VCMT080202-MV	●	●	4.76	2.38	0.2
	080204-MV	●	●	4.76	2.38	0.4
VCMT.....	VCMT110304		●	6.35	3.18	0.4
	160404		●	9.525	4.76	0.4
	160408		●	9.525	4.76	0.8
	160412		●	9.525	4.76	1.2
WCMT.....	WCMT020102		●	3.97	1.59	0.2
	020104		●	3.97	1.59	0.4
	L30202		●	4.76	2.38	0.2
	L30204		●	4.76	2.38	0.4
	040202		●	6.35	2.38	0.2
	040204		●	6.35	2.38	0.4
	040208			6.35	2.38	0.8
	06T304		●	9.525	4.76	0.4
	06T308		●	9.525	4.76	0.8
RCMT.....	RCMT0803M0		●	8	3.18	–
						

US7020·US735

Standard inserts

● Positive inserts

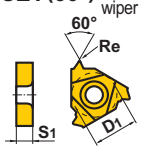
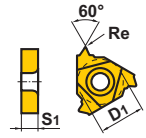
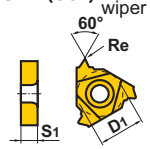
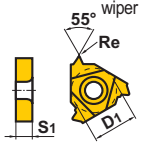
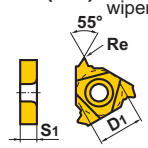
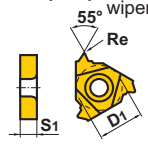
Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
RCMX..... 	RCMX1003M0		●	10	3.18	–
	1204M0		●	12	4.76	–
	1606M0		●	16	6.35	–
	2006M0		●	20	6.35	–
RDGH.....-M4 	RDGH120400-M4		●	12.7	4.76	–
CPMH.....-SV 	CPMH080202-SV	●	●	7.94	2.38	0.2
	080204-SV	●	●	7.94	2.38	0.4
	090302-SV	●	●	9.525	3.18	0.2
	090304-SV	●	●	9.525	3.18	0.4
	090308-SV	●	●	9.525	3.18	0.8
CPMT.....-SQ 	CPMT080204-SQ		●	7.94	2.38	0.4
	080208-SQ		●	7.94	2.38	0.8
	090304-SQ		●	9.525	3.18	0.4
	090308-SQ		●	9.525	3.18	0.8
CPMH.....-MV 	CPMH080204-MV	●	●	7.94	2.38	0.4
	080208-MV	●	●	7.94	2.38	0.8
	090304-MV	●	●	9.525	3.18	0.4
	090308-MV	●	●	9.525	3.18	0.8
CPMT.....-MQ 	CPMT080204-MQ		●	7.94	2.38	0.4
	080208-MQ		●	7.94	2.38	0.8
	090304-MQ		●	9.525	3.18	0.4
	090308-MQ		●	9.525	3.18	0.8
TPMV.....-SQ 	TPMV090204-SQ		●	5.56	2.38	0.4
	110304-SQ		●	6.35	3.18	0.4
	160304-SQ		●	9.525	3.18	0.4

Geometry	Order number	US7020	US735	Dimensions (mm) D1	S1	Re
TPMH.....-MV 	TPMH080202-MV	●	●	4.76	2.38	0.2
	080204-MV	●	●	4.76	2.38	0.4
	090202-MV	●	●	5.56	2.38	0.2
	090204-MV	●	●	5.56	2.38	0.4
	110302-MV	●	●	6.35	3.18	0.2
	110304-MV	●	●	6.35	3.18	0.4
	110308-MV	●	●	6.35	3.18	0.8
	160304-MV	●	●	9.525	3.18	0.4
	160308-MV	●	●	9.525	3.18	0.8
TPMH.....-SV 	TPMH080202-SV	●	●	4.76	2.38	0.2
	080204-SV	●	●	4.76	2.38	0.4
	090202-SV	●	●	5.56	2.38	0.2
	090204-SV	●	●	5.56	2.38	0.4
	110302-SV	●	●	6.35	3.18	0.2
	110304-SV	●	●	6.35	3.18	0.4
	110308-SV	●	●	6.35	3.18	0.8
	160302-SV	●	●	9.525	3.18	0.2
	160304-SV	●	●	9.525	3.18	0.4
	160308-SV	●	●	9.525	3.18	0.8
TPMV/T.....-MQ 	TPMV090204-MQ		●	5.56	2.38	0.4
	090208-MQ		●	5.56	2.38	0.8
	110304-MQ		●	6.35	3.18	0.4
	110308-MQ		●	6.35	3.18	0.8
	160304-MQ		●	9.525	3.18	0.4
	160308-MQ		●	9.525	3.18	0.8
WPMT.....-SQ 	WPMT040204-SQ		●	6.35	2.38	0.4
	060304-SQ		●	9.525	3.18	0.4
	060308-SQ		●	9.525	3.18	0.8
WPMT.....-MV 	WPMT040202-MV	●	●	6.35	2.38	0.2
	040204-MV	●	●	6.35	2.38	0.4
	060304-MV	●	●	9.525	3.18	0.4
	060308-MV	●	●	9.525	3.18	0.8
WPMT.....-MQ 	WPMT040204-MQ		●	6.35	2.38	0.4
	040208-MQ		●	6.35	2.38	0.8
	060304-MQ		●	9.525	3.18	0.4
	060308-MQ		●	9.525	3.18	0.8

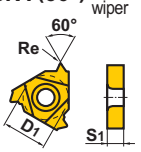
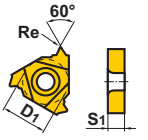
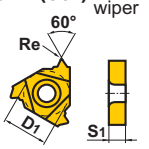
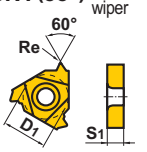
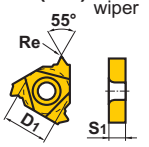
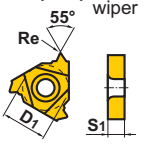
● : Inventory maintained. No mark : Not manufactured.

Threading inserts

● Inserts for SET type holders

Application	Geometry	Pitch mm (threads/inch)	Order number	SET/SNT	Dimensions (mm) D1	S1	Re
General 60°	SET(60°) Without wiper 	0.5-1.5 (48-16)	SET6006R3XMM	●	9.525	3.65	0.06
		1.75-3.0 (14-8)	6022R3XMM	●	9.525	3.65	0.22
Metric screw thread ISO	SET(60°) With wiper 	1.0	SET100R3XMM	●	9.525	3.65	0.13
		1.25	125R3XMM	●	9.525	3.65	0.16
		1.5	150R3XMM	●	9.525	3.65	0.20
		1.75	175R3XMM	●	9.525	3.65	0.22
		2.0	200R3XMM	●	9.525	3.65	0.25
		2.5	250R3XMM	●	9.525	3.65	0.31
		3.0	300R3XMM	●	9.525	3.65	0.38
Unified coarse screw thread UN	SET(60°) With wiper 	(24)	SET240R3XMUN	●	9.525	3.65	0.13
		(20)	200R3XMUN	●	9.525	3.65	0.16
		(16)	160R3XMUN	●	9.525	3.65	0.20
		(14)	140R3XMUN	●	9.525	3.65	0.23
		(12)	120R3XMUN	●	9.525	3.65	0.27
General 55°	SET(55°) Without wiper 	(48-16)	SET5507R3XMP	●	9.525	3.65	0.07
		(14-8)	5525R3XMP	●	9.525	3.65	0.25
Witworth coarse screw thread, Parallel pope thread W	SET(55°) With wiper 	(19)	SET190R3XMP	●	9.525	3.65	0.17
		(14)	140R3XMP	●	9.525	3.65	0.25
		(12)	120R3XMP	●	9.525	3.65	0.29
		(11)	110R3XMP	●	9.525	3.65	0.30
Taper pipe thread	SET(55°) With wiper 	(19)	SET190R3XMPT	●	9.525	3.65	0.16
		(14)	140R3XMPT	●	9.525	3.65	0.25
		(11)	110R3XMPT	●	9.525	3.65	0.32

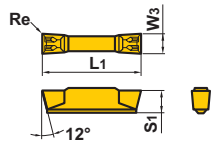
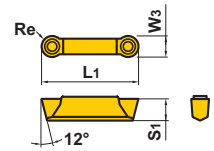
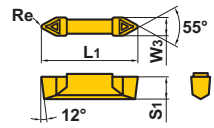
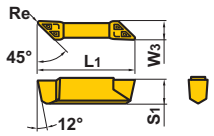
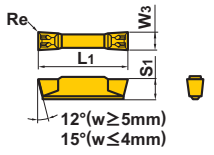
● Inserts for SNT type boring bars

Application	Geometry	Pitch mm (threads/inch)	Order number	SET/SNT	Dimensions (mm) D1	S1	Re
General 60°	SNT(60°) Without wiper 	0.5-1.5 (48-16)	SNT6004R22MM	●	6.35	3.18	0.04
		0.5-1.5 (48-16)	6004R3XMM	●	9.525	3.65	0.04
		1.75-3.0 (14-8)	6012R3XMM	●	9.525	3.65	0.12
Metric screw thread ISO	SNT(60°) With wiper 	1.0	SNT100R3XMM	●	9.525	3.65	0.07
		1.25	125R3XMM	●	9.525	3.65	0.09
		1.5	150R3XMM	●	9.525	3.65	0.12
		1.75	175R3XMM	●	9.525	3.65	0.12
		2.0	200R3XMM	●	9.525	3.65	0.14
		2.5	250R3XMM	●	9.525	3.65	0.18
		3.0	300R3XMM	●	9.525	3.65	0.21
Unified coarse screw thread UN	SNT(60°) With wiper 	(24)	SNT240R3XMUN	●	9.525	3.65	0.07
		(20)	200R3XMUN	●	9.525	3.65	0.09
		(16)	160R3XMUN	●	9.525	3.65	0.11
		(14)	140R3XMUN	●	9.525	3.65	0.13
		(12)	120R3XMUN	●	9.525	3.65	0.15
General 55°	SNT(55°) Without wiper 	(48-16)	SNT5507R22MP	●	6.35	3.18	0.07
		(48-16)	5507R3XMP	●	9.525	3.65	0.07
		(14-8)	5525R3XMP	●	9.525	3.65	0.25
Witworth coarse screw thread, Parallel pope thread W	SNT(55°) With wiper 	(19)	SNT190R3XMP	●	9.525	3.65	0.17
		(14)	140R3XMP	●	9.525	3.65	0.25
		(12)	120R3XMP	●	9.525	3.65	0.29
		(11)	110R3XMP	●	9.525	3.65	0.30
Taper pipe thread	SNT(55°) With wiper 	(19)	SNT190R3XMPT	●	9.525	3.65	0.18
		(14)	140R3XMPT	●	9.525	3.65	0.25
		(11)	110R3XMPT	●	9.525	3.65	0.32

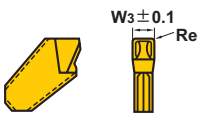
US7020·US735

Threading inserts

●Inserts for DG type holder

Geometry	Order number	US735	Insert width W3	Dimensions (mm) L1	S1	Re
DGM.....CT 	DGM30CT	●	3	20	5	0.4
	40CT	●	4	20	5	0.4
	50CT	●	5	25	6	0.4
DGM.....CTB 	DGM40CTB	●	4	20	5	2
	50CTB	●	5	25	6	2.5
	60CTB	●	6	25	6	3
DGM.....CTD 	DGM50CTD04	●	5	25	6	0.4
	50CTD08	●	5	25	6	0.8
DGM.....CTR/L 	DGM50CTR04	●	5	25	6	0.4
	50CTL04	●	5	25	6	0.4
DGM.....CTF 	DGM30CTF	●	3	20	3	0.4
	40CTF	●	4	20	3	0.4
	50CTF	●	5	25	5	0.4
	60CTF	●	6	25	5	0.4

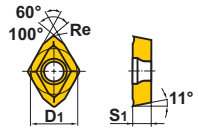
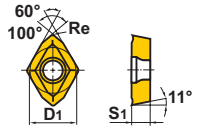
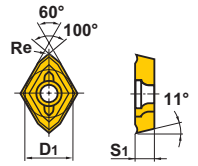
●Inserts for UG type holder

Geometry	Order number	US735	Insert width W3	Dimensions (mm) L1	S1	Re
KGT.N 	KGT3N	●	3.1	—	—	0.2
	4N	●	4.1	—	—	0.2
	5N	●	5.1	—	—	0.2

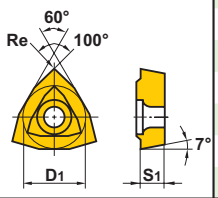
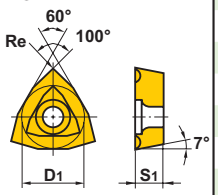
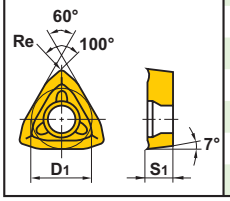
● : Inventory maintained.

Inserts for drills

●Inserts for TAF type drill

Geometry	Order number	US735	Dimensions (mm)		
			D1	S1	Re
U1 breaker GPMT 	**GPMT060204-U1**	●	5.56	2.38	0.4
	070204-U1	●	6.35	2.38	0.4
	090304-U1	●	7.94	3.18	0.4
	11T308-U1	●	9.525	3.97	0.8
	140408-U1	●	12.7	4.76	0.8
U2 breaker GPMT 	**GPMT060204-U2**	●	5.56	2.38	0.4
	070204-U2	●	6.35	2.38	0.4
	090304-U2	●	7.94	3.18	0.4
	11T308-U2	●	9.525	3.97	0.8
	140408-U2	●	12.7	4.76	0.8
U3 breaker GPMT 	**GPMT060204-U3**	●	5.56	2.38	0.4
	070204-U3	●	6.35	2.38	0.4
	090304-U3	●	7.94	3.18	0.4
	11T308-U3	●	9.525	3.97	0.8
	140408-U3	●	12.7	4.76	0.8

●Inserts for TAG · TAS type drill

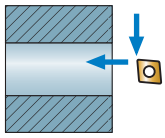
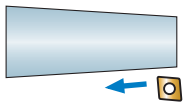
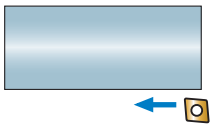
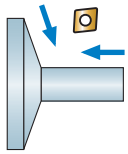
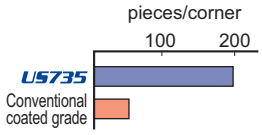
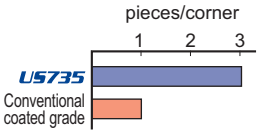
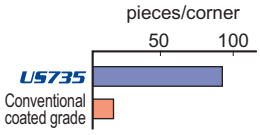
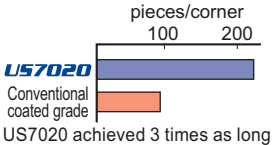
Geometry	Order number	US735	Dimensions (mm)		
			D1	S1	Re
U1 breaker NCMT 	**NCMT080204-U1**	●	4.76	2.38	0.4
	090204-U1	●	5.56	2.38	0.4
	110208-U1	●	6.35	2.38	0.8
	130308-U1	●	7.94	3.18	0.8
	16T308-U1	●	9.525	3.97	0.8
	220412-U1	●	12.7	4.76	1.2
U2 breaker NCMT 	**NCMT080204-U2**	●	4.76	2.38	0.4
	090204-U2	●	5.56	2.38	0.4
	110208-U2	●	6.35	2.38	0.8
	130308-U2	●	7.94	3.18	0.8
	16T308-U2	●	9.525	3.97	0.8
	220412-U2	●	12.7	4.76	1.2
U3 breaker NCMT 	**NCMT080204-U3**	●	4.76	2.38	0.4
	090204-U3	●	5.56	2.38	0.4
	110208-U3	●	6.35	2.38	0.8
	130308-U3	●	7.94	3.18	0.8
	16T308-U3	●	9.525	3.97	0.8
	220412-U3	●	12.7	4.76	1.2

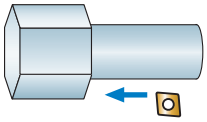
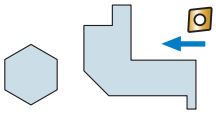
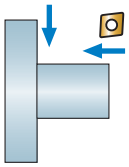
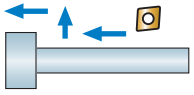
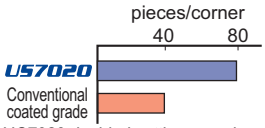
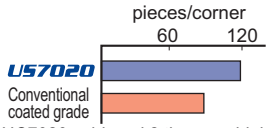
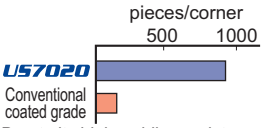
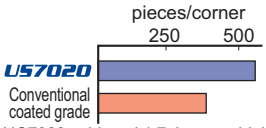
CDV coated grade for stainless steel turning

MITSUBISHI

US7020·US735

Application examples

Insert (Grade)	CNMG120408-MA(US735)	CNMG120408-MS(US735)	CNMG120408-MS(US735)	CNMG120408-GH(US7020)
Workpiece	Stainless steel (JIS SUS304) 	Stainless steel (JIS SUS420) 	Stainless steel (JIS SUS304) 	Stainless steel (JIS SUS303) 
Cutting conditions: Cutting speed (m/min)	120	100	70	300
Cutting conditions: Feed (mm/rev)	0.3	0.3	0.15	0.25
Cutting conditions: Depth of cut (mm)	2	2.5	1	1.5
Coolant	Wet cutting	Dry cutting	Wet cutting	Wet cutting
Result				 US7020 achieved 3 times as long tool life as the conventional grade in high speed cutting.

Insert (Grade)	CNMG120408-MS(US7020)	CNMG120408-MS(US7020)	CNMG120408-MA(US7020)	CNMG120408-MA(US7020)
Workpiece	Stainless steel (JIS SUS316) 	Stainless steel (JIS SUS304) 	Alloy steel (JIS SCM420) 	Bearing steel (JIS SUJ2) 
Cutting conditions: Cutting speed (m/min)	Conventional coated grade =100, US7020=200	Conventional coated grade =100, US7020=200	180	Conventional coated grade =120, US7020=150
Cutting conditions: Feed (mm/rev)	0.15－0.2	0.22	0.33	Conventional coated grade =0.3, US7020=0.4
Cutting conditions: Depth of cut (mm)	2	1.5－2	2.5	2
Coolant	Wet cutting	Wet cutting	Wet cutting	Wet cutting
Result	 UC7020 doubled cutting speed and achieved 2 times as long tool life as the conventional grade.	 UC7020 achieved 2 times as high cutting speed and 1.5 times as long tool life as the conventional grade.	 Due to its high welding resistance, UC7020 achieved 10 times as long tool life as the conventional grade.	 UC7020 achieved 1.7 times as high cutting speed and 1.5 times as long tool life as the conventional grade.

For your safety
●Do not touch cutting or chips without wearing gloves. ●Use tools under recommended cutting conditions, and exchange tools before excessive wear occurs. ●Chips become extremely hot, scattered over and may be stretched. Ensure safety guards and goggles are used. ●In case of using non-water soluble oil, make sure to have a fire prevention countermeasure. ●Use the provided wrench spanner, and ensure the inserts and spare parts are damped securely.

MITSUBISHI MATERIALS CORPORATION

Tsukuba Plant ISO 9001:2000 Registration No. JSAQ 080 Gifu Plant ISO 9001:2000 Registration No. JSAQ 094

Tsukuba Plant ISO 14001:1996 Registration No. JSAE 036

Overseas Operations Center :
Cutting Tools
KFC bldg., 7F, 1-6-1, Yokoami, Sumida-ku, Tokyo 130-0015, Japan
TEL 81-3-5819-8771 FAX 81-3-5819-8774

MMC HARTMETALL GmbH
Comeniusstr.2, 40670, Meerbusch GERMANY
TEL 49-2159-9189-0 FAX 49-2159-50462

MITSUBISHI MATERIALS U.S.A. CORPORATION
Headquarters
17401, Eastman Street, Irvine, California, 92614, USA
TEL 1-949-862-5100 FAX 1-949-862-5180

MMC METAL SINGAPORE PTE LTD.
10, Arumugam Road, #04-00 Lion Industrial Bldg.,409957, SINGAPORE
TEL 65-6743-9370 FAX 65-6749-1469

Mitsubishi Carbides Home page : http://www.mitsubishicarbide.com
(Tools specifications subject to change without notice.)

2003.6.E(-)