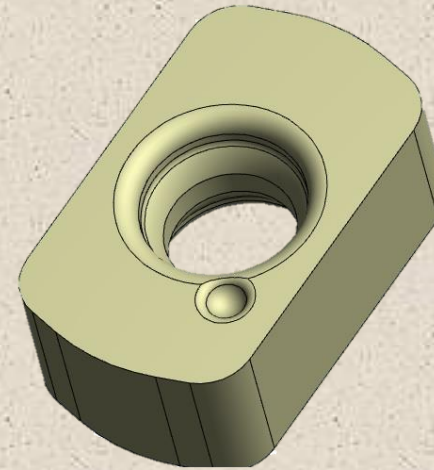
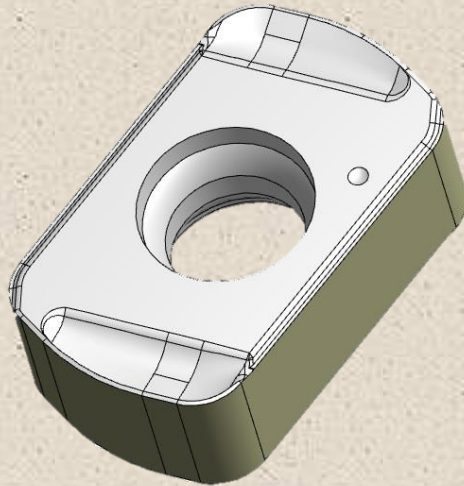
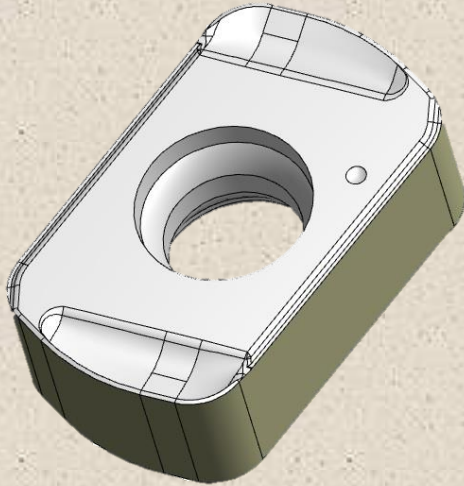


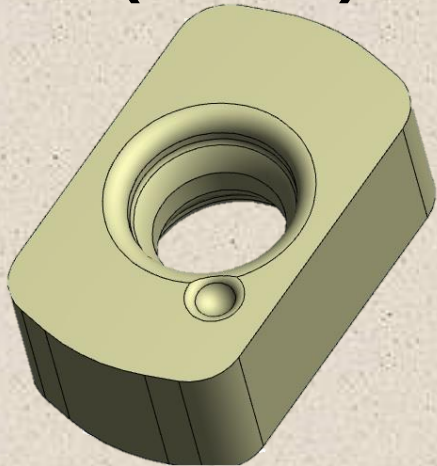
QMMax G II inserts for Hardened materials



For Applications



**ENMU100312ZER-HL
(DH102)**

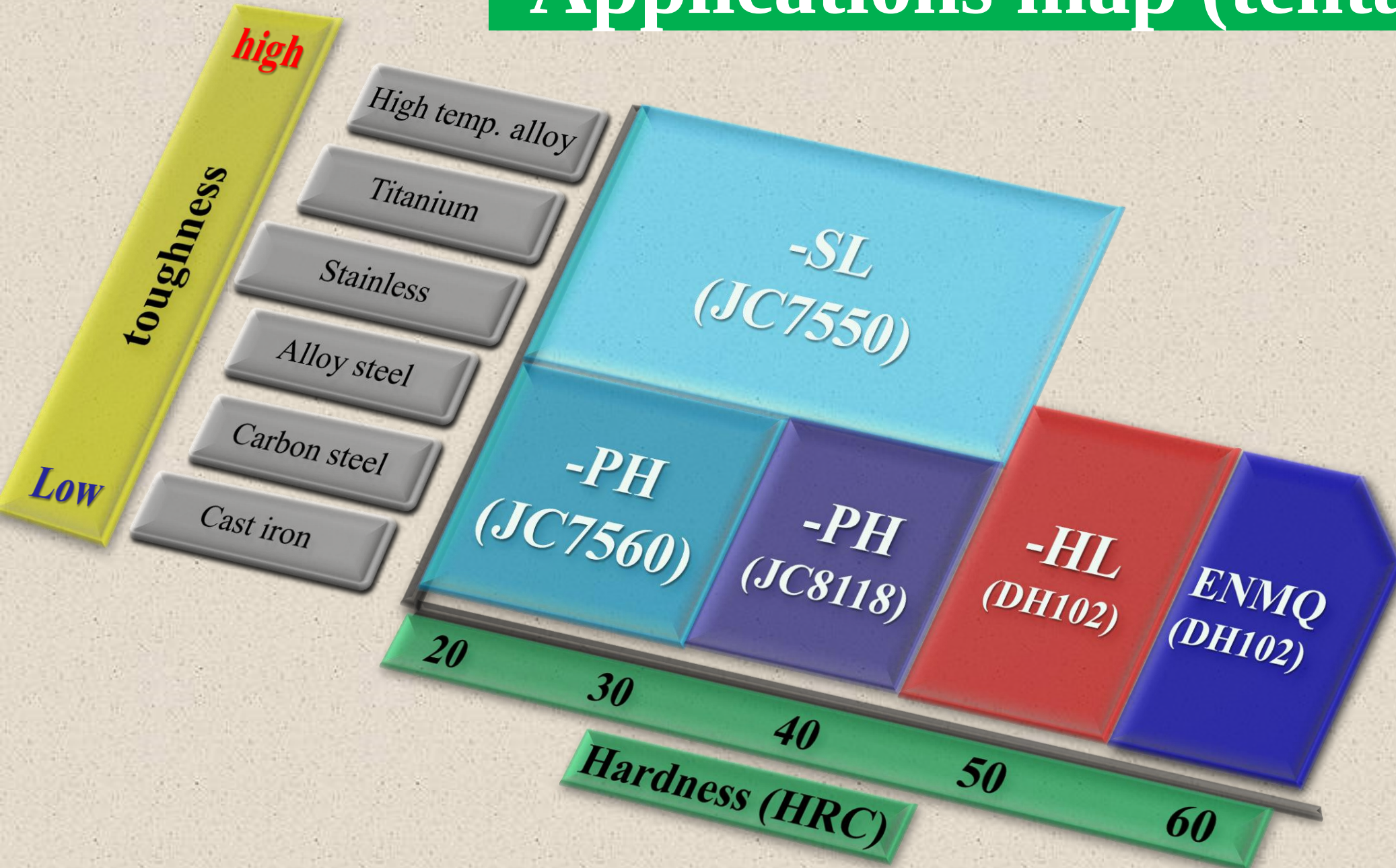


**ENMQ100312ZER
(DH102)**

For Hardened hot work die steel
(1.2344, H13, DH31-S, Dievar, etc)

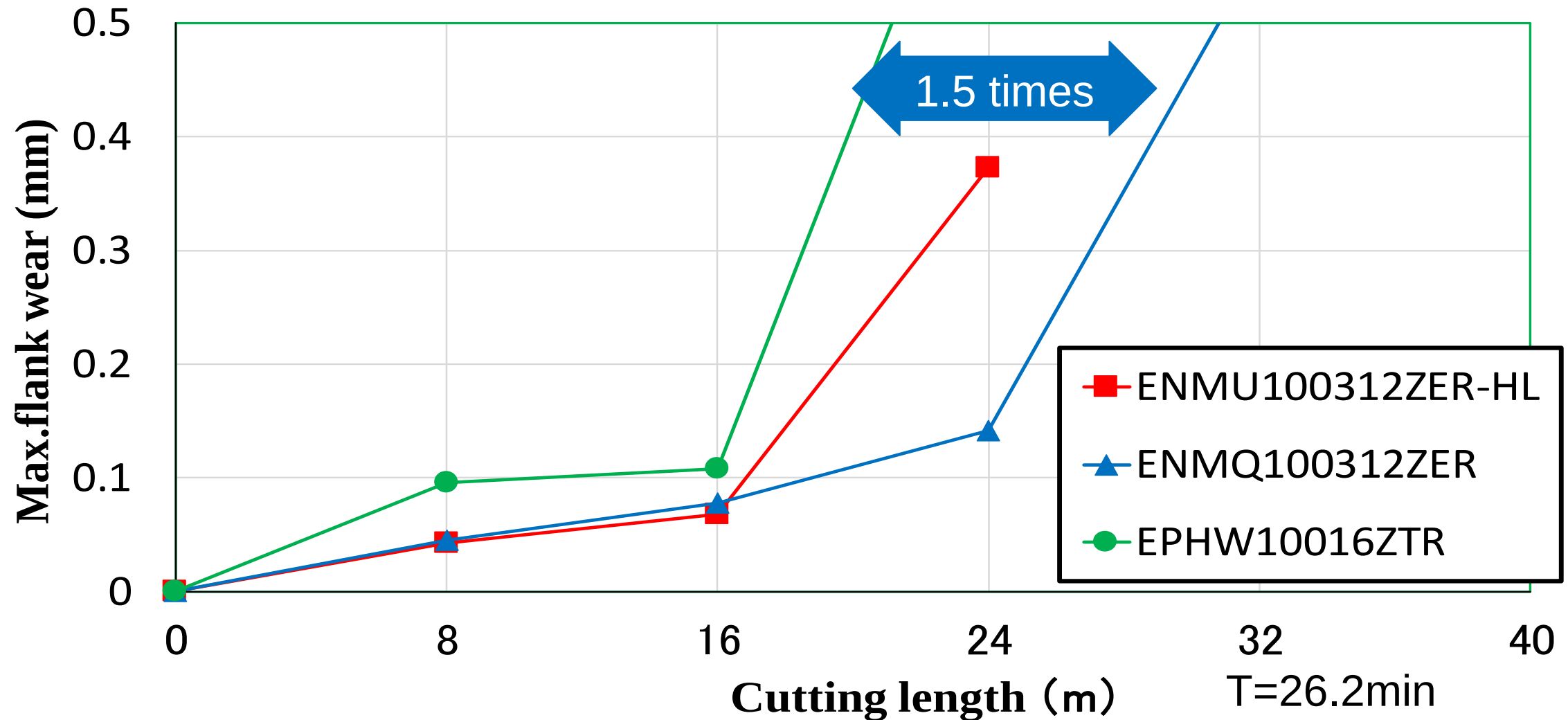
For Hardened cold work die steel
(1.2379, D2, DC11, SLD, etc)

Applications map (tentative)



Tool life comparison (1.2379,60HRC)

$V_c=80\text{m/min}$, $f_z=0.3\text{mm/t}$, $A_p=0.2\text{mm}$, $A_e=15\text{mm}$, $\phi 25\text{mm-4N}$, Down cut, Air blow

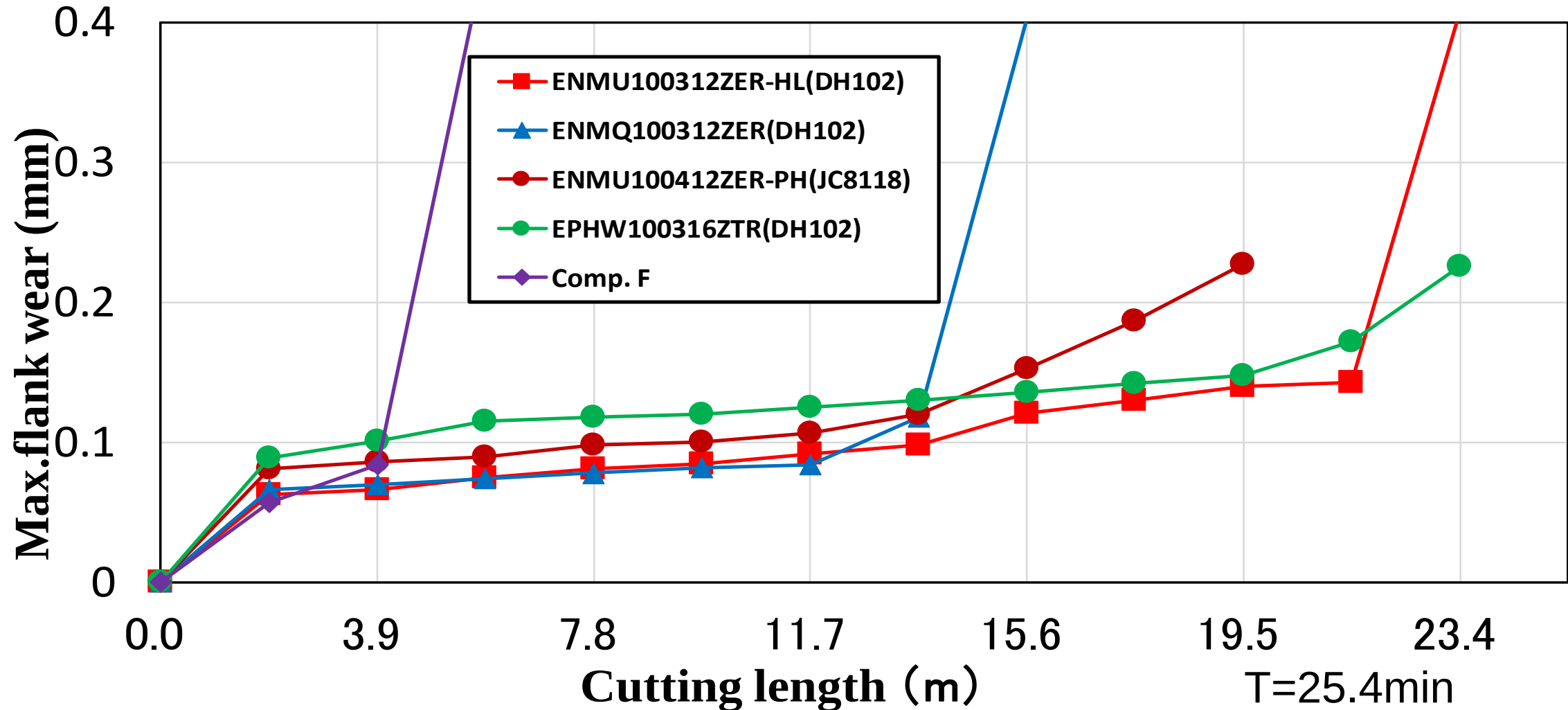


Damaged inserts (1.2379, 60HRC)

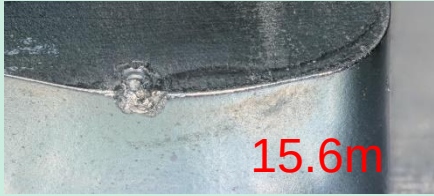
Cutting length	8m	16m	24m	32m
ENMU100312 ZER-HL				
ENMQ100312 ZER				
EPHW100316 ZTR				

Tool life comparison(DH31-S:52HRC)

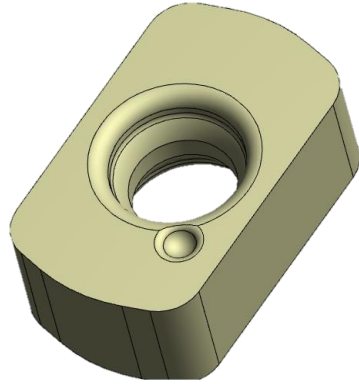
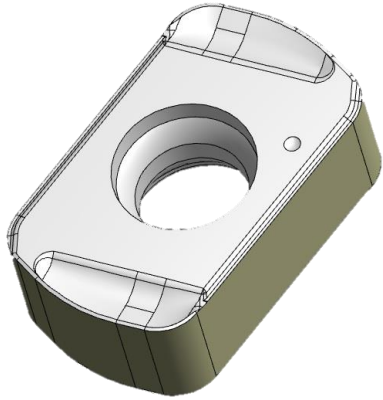
$V_c=90\text{m/min}$, $f_z=0.8\text{mm/t}$, $A_p=0.4\text{mm} \times 5$ step down , $A_e=15\text{mm}$
 $\Phi 25\text{mm-1N}$, Down cut , Air blow



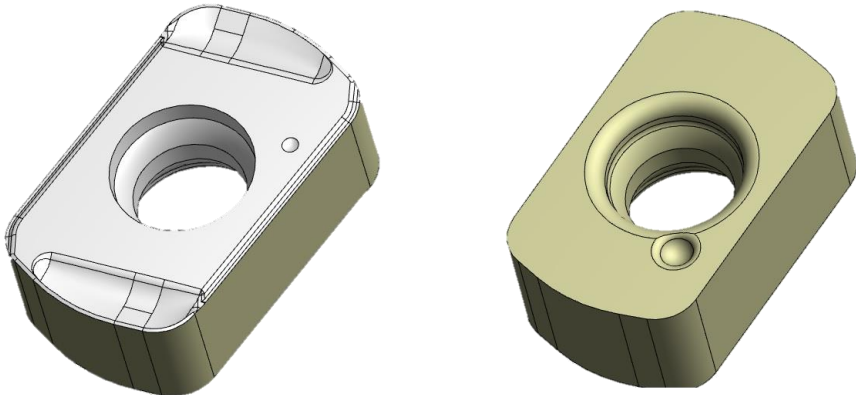
Damaged inserts (DH31-S : 52HRC)

Cutting length	5.85m	11.7m	17.55m	23.4m
ENMQ100312 (DH102)				
ENMU100312-HL (DH102)				
ENMU100412-PH (JC8118)				
EPHW100316ZER (DH102)				
Comp. F				

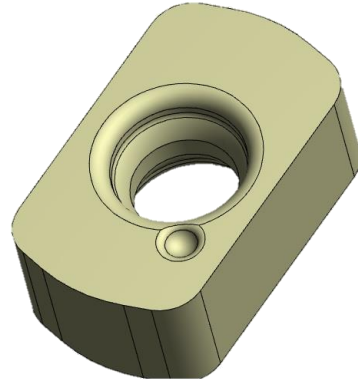
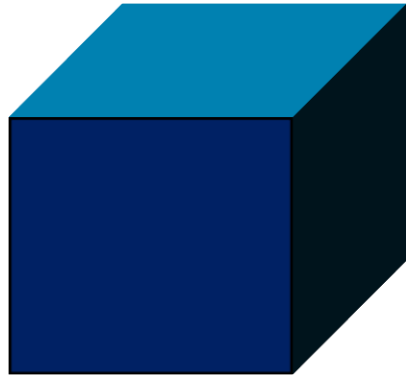
Cutting data①(H13,1.2344:50HRC)



Total cutting length
ENMQ : 20 m
ENMU-HL : 240 m

 Total cutting length ENMQ : 20 m ENMU-HL : 240 m		Work	Part name	Insert die
			Material	H13,1.2344
			Hardness	50-53 HRC
		Tool	Tool	5N-Φ32mm
		Cutting conditions	Spindle speed Cutting speed	900 min ⁻¹ 90 m/min
Feed speed Chip load	4,500 mm/min 1.0 mm/t			
Ap	0.5 mm			
Ae	25 mm			
Coolant	Air blow(External)			
Tool No. Inserts No.	MXG-5032-M16 ENMU100312ZER-HL DH102			
Competitor	MXG-5032-M16 ENMQ100312ZER DH102			
Wear or chipping	Normal Wear			
Evaluation	ENMU-HL has 4% less load meter than ENMQ and achieves long tool life. However, at 60HRC, ENMQ had a longer tool life than ENMU-HL.			

Cutting data②(H.S.S. , YXR33 : 60HRC)



Total machining dies
ENMU-HL : 1 dies
ENMQ : 3 dies

Tool No. Inserts No. Competitor Wear or chipping Evaluation	GMX-4025-60-S25 ENMQ100312ZER DH102 ASM0712S12R-3 Normal Wear Achieved 3 times longer tool life with 2.5 times higher machining efficiency than Comp. A.	Work	Part name	Coining die
			Material	High speed steel , YXR33
			Hardness	60 HRC
		Tool	Tool	4N-Φ25mm
		Cutting conditions	Spindle speed	1,000 min ⁻¹
			Cutting speed	78.5 m/min
			Feed speed	1,200 mm/min
			Chip load	0.3 mm/t
			Ap	0.1 mm
			Ae	17.5 mm
			Coolant	Dry