



**BÖHLER**



PLASTIC  
MOULD STEEL

**PLASTIC MOULD STEEL**

**BÖHLER M315**  
**EXTRA**

**M315 塑膠模具鋼**

voestalpine BÖHLER Edelstahl GmbH & Co KG  
[www.voestalpine.com/boehler-edelstahl](http://www.voestalpine.com/boehler-edelstahl)

**voestalpine**



ONE STEP AHEAD.  
梧濟五業股份有限公司  
**WUJII INDUSTRY CO., LTD.**

# 預硬之 抗腐蝕模座與承板

## HARDENED AND TEMPERED CORROSION RESISTANT MOULD FRAME / BOLSTER STEEL

Achieve higher productivity through more efficient machining in a shorter time. BÖHLER M315 EXTRA is a corrosion resistant mould frame / bolster steel with a significantly improved machinability compared to 1.2085 steels.

通過在更短的時間內進行更有效的加工來提高生產效率。BÖHLER M315 EXTRA是一種耐腐蝕的模座/承板，與1.2085的鋼材相比，M315的加工性有顯著的改善。

### 性能

- » 極佳之加工性
- » 優良之抗腐蝕性
- » 回火和硬化至抗拉強度 1000 N / mm<sup>2</sup>
- » 良好之尺寸穩定性
- » 極佳之焊接性
- » 良好之延展性

### Properties

- » Excellent machinability
- » Good corrosion resistance
- » Hardened and tempered to 1000 N/mm<sup>2</sup>
- » Dimensional stability
- » Excellent weldability
- » Good ductility

### Applications

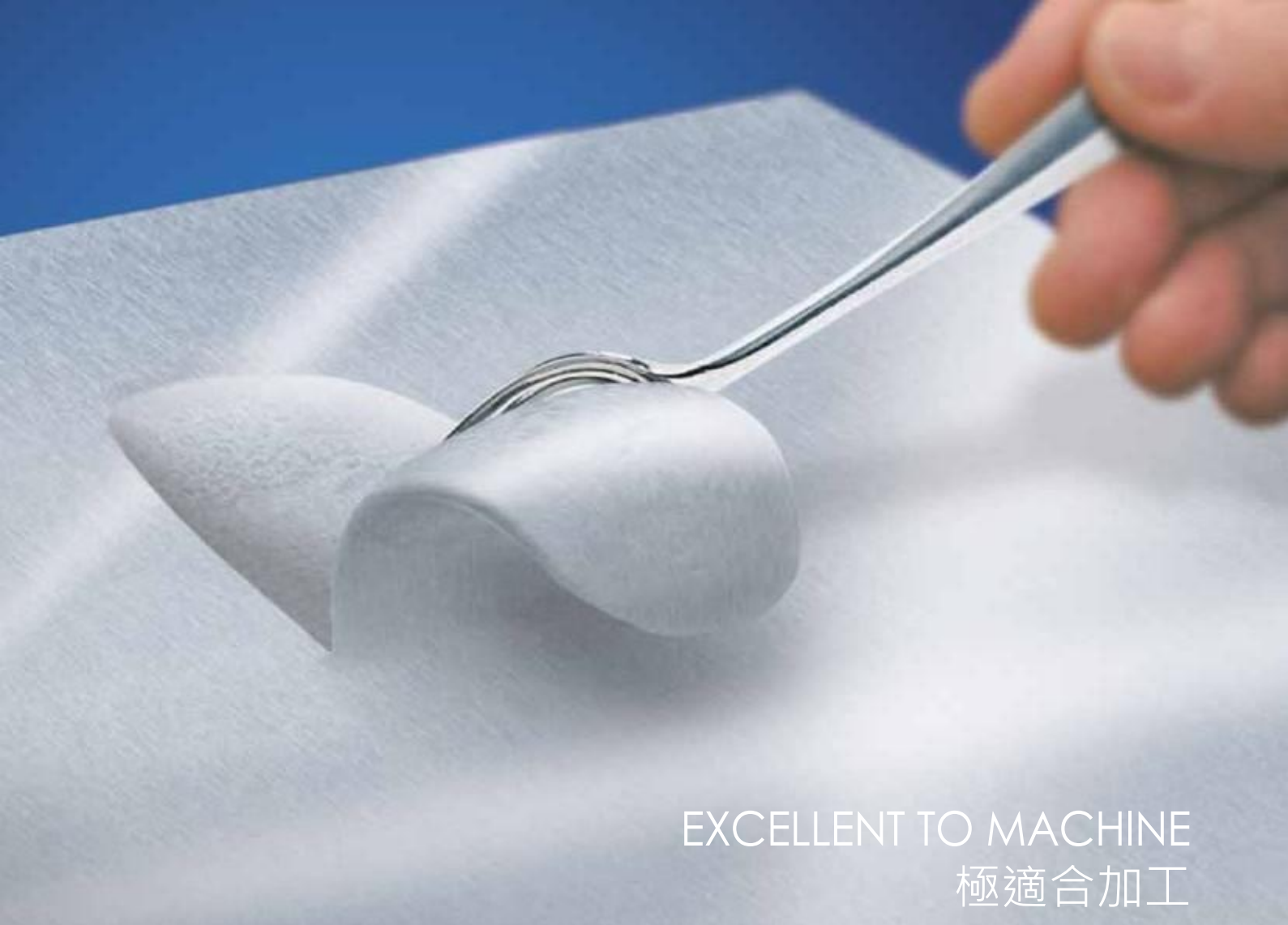
- » Mould frames and bolsters
- » Frame superstructures (e.g. cavity plates, ejector plates)
- » Moulds requiring corrosion resistance and needing extensive machining
- » Components

### 應用

- » 模座/承板
- » 模座之結構件（例如公母模板·頂出板）
- » 需抗腐蝕且需要大量加工之模具
- » 模具零組件

### Chemical composition (average %) 合金成分(平均值%)

C	Si	Mn	Cr	S	Ni
0.05	0.40	0.90	12.50	0.12	+

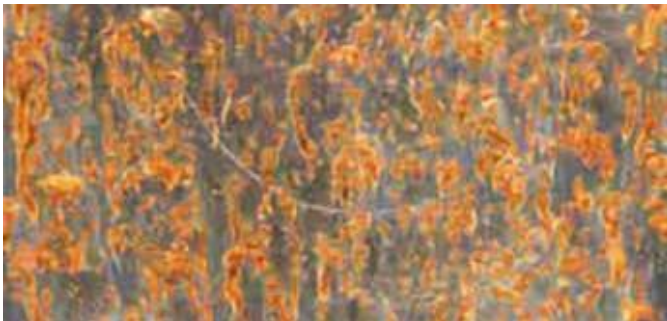


EXCELLENT TO MACHINE  
極適合加工

## CORROSION RESISTANCE

Because of its optimised composition, BÖHLER M315 EXTRA is similarly corrosion resistant to 1.2085 grades.

Salt spray test according to DIN 50021:

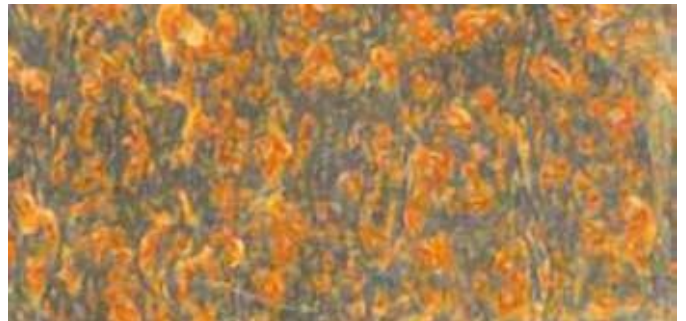


BÖHLER M315 EXTRA

## 抗腐蝕性

由於我們改良了BÖHLERM315 EXTRA的成分，它同樣具有1.2085等級的耐腐蝕性能。

按照DIN 50021: 規範所執行的鹽霧測試



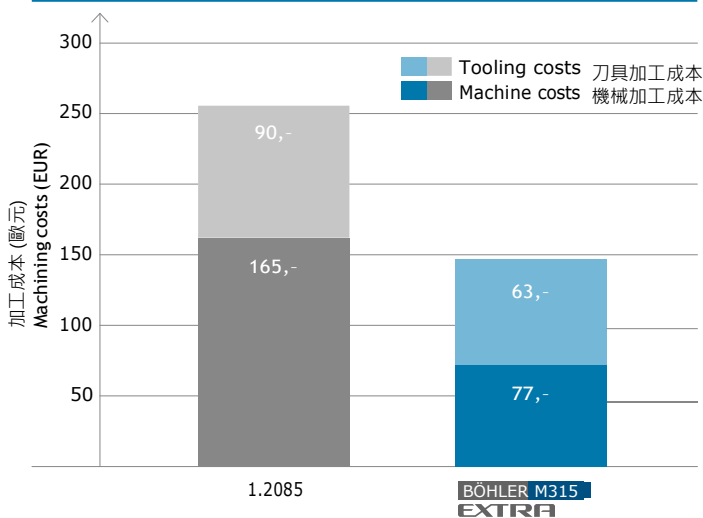
1.2085

# 提高銑削的加工性

## ENHANCED MACHINABILITY IN MILLING

鑽2500個孔的加工成本

Machining costs to drill 2500 holes



Source: PROFACTOR

### 加工性測試

#### TESTING THE MACHINABILITY

Test results prove the outstanding machinability.

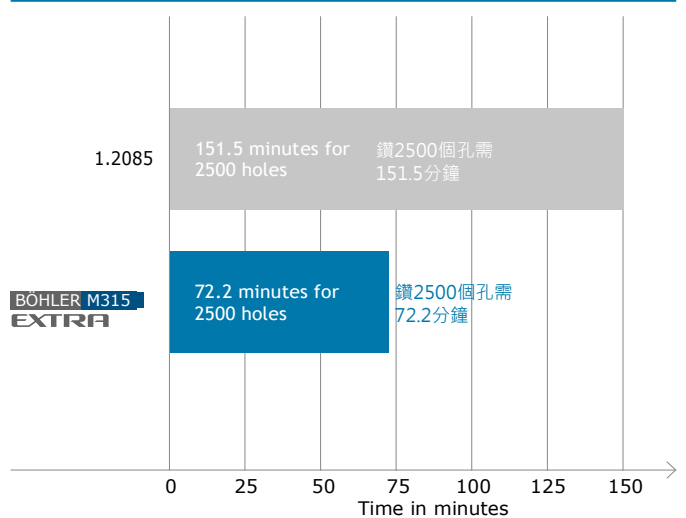
Wear surface of the indexable insert used for 90 minutes.

測試結果證明了M315的優異加工性

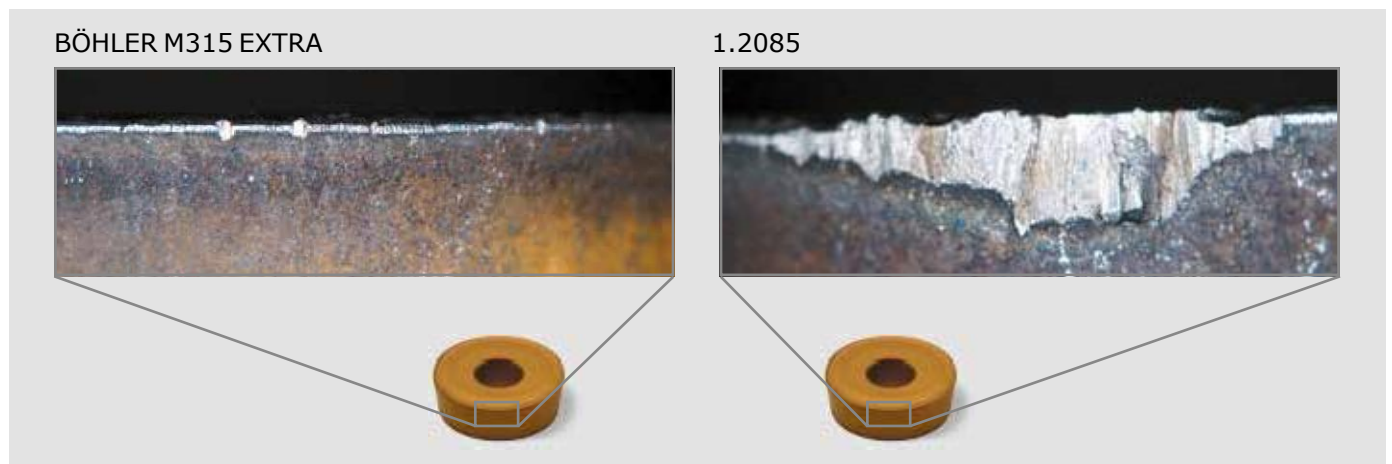
以下為捨棄式刀片使用90分鐘後的磨耗表面

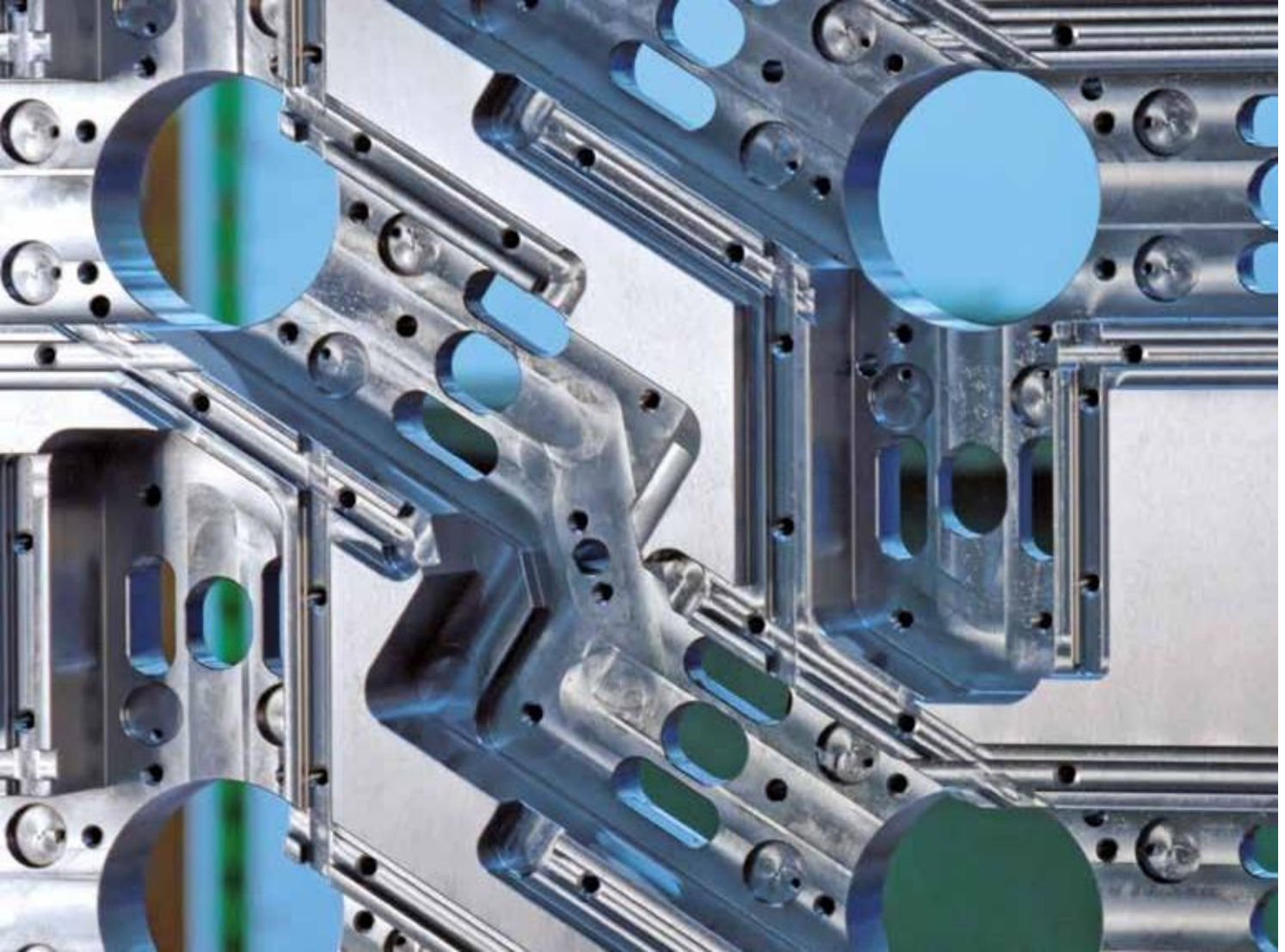
鑽2500個孔所需的時間

Time required to drill 2500 holes



Drill diameter: 8 mm 鑽孔直徑: 8 mm  
Drill depth: 32 mm 鑽孔深度: 32 mm

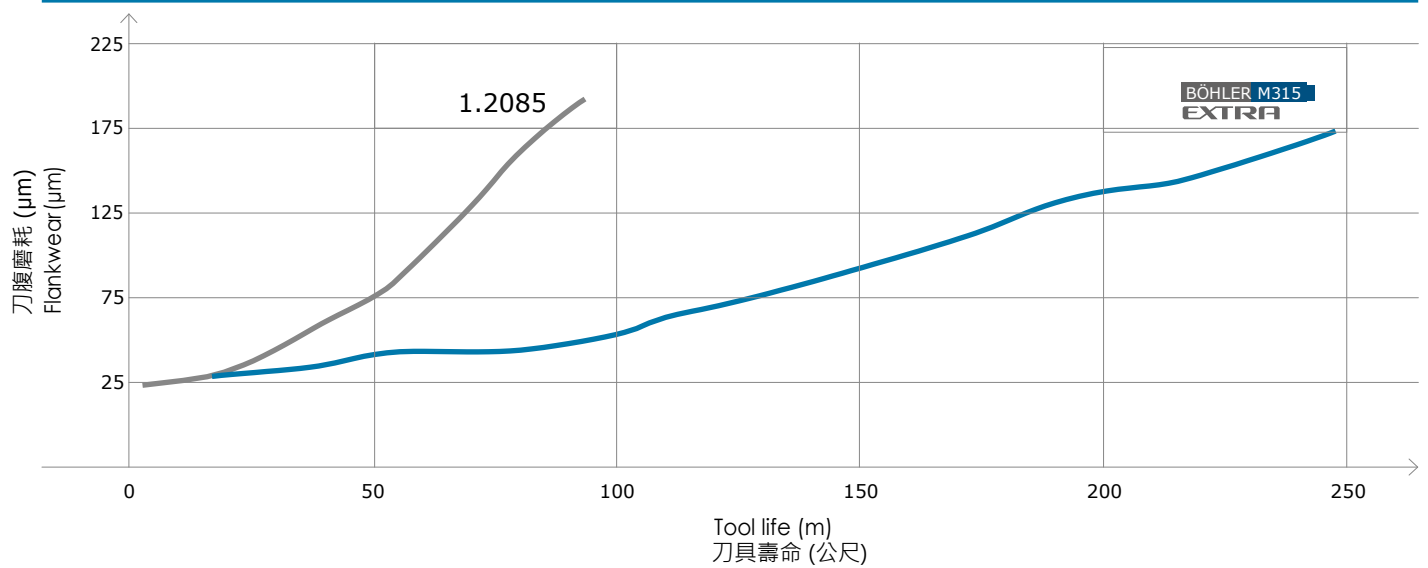




The good machinability was confirmed in milling tests. The flank wear of the milling cutter was measured over the tool life.

銑削測試中證實了M315良好的加工性。在整個刀具使用期間裡，測量刀具不同時間點的刀刃側面磨損。

### Machinability 加工性

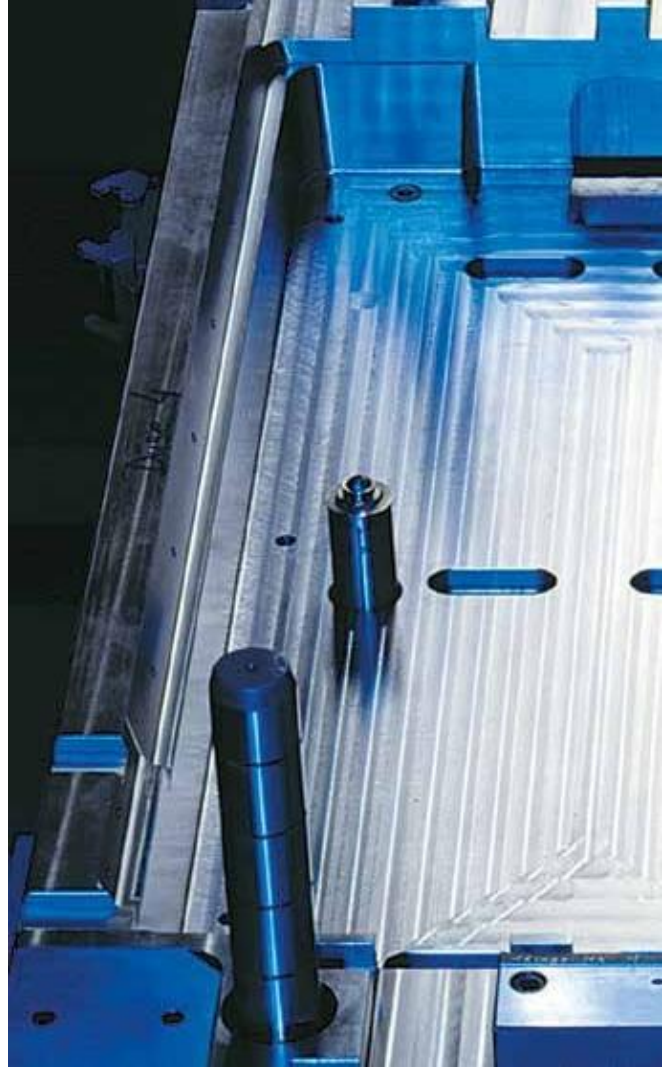


Tests using solid carbide indexable inserts:  
Cutting speed: 350 m/min.  
Feed/tooth: 0.3mm Width  
of cut: 3mm

使用捨棄式鎢鋼刀片進行測試  
切削速度: 350 m/min  
進給: 0.3 mm 寬度  
進刀寬度 3mm

# 熱處理建議

## HEAT TREATMENT RECOMMENDATIONS



### 熱處理

BÖHLER M315 EXTRA 出貨狀態為預硬至硬度 (290 – 330 HB)，因此通常不需要熱處理。如有必要，可以提供最高350 HB ( ~Rm = 1200 N/mm<sup>2</sup>) 硬度的鋼料，必要時可消除應力：最少兩小時，最高持溫 480°C ( 896°F )。

### 焊接

使用TIG ( GTAW ) 和MMA ( SMAW ) 焊接工藝，BÖHLERM315 EXTRA 易於與幾種標準的不銹鋼和焊條焊接。若須進行大範圍焊縫修復，建議進行應力消除，以減少殘餘應力，最高應力消除溫度為 480°C ( 896°F )。若需要更多的資訊，請與我們索取“模具鋼之焊接”型錄。

### HEAT TREATMENT

Since BÖHLER M315 EXTRA is supplied in the hardened and tempered condition (290 – 330 HB), no heat treatment is generally required. If necessary the steel can be supplied with a hardness of up to 350 HB (~ Rm = 1200 N/mm<sup>2</sup>). Stress relieving as necessary: at least 2 hours following temperature equalisation at max. 480 °C (896°F).

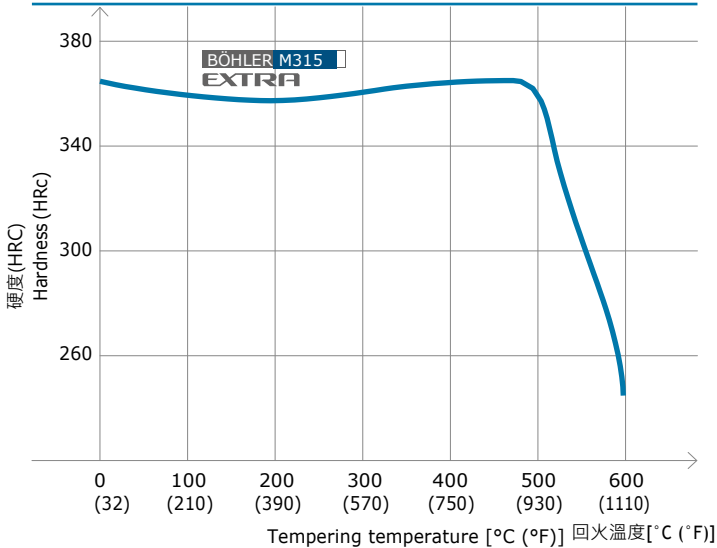
### WELDING

BÖHLER M315 EXTRA is readily weldable with several standard stainless filler metals, using TIG (GTAW) and MMA (SMAW) processes. Stress relieving is recommended for large weld repairs to reduce residual stresses. Maximal stress relieving temperature is 480 °C (896 °F). For further information please ask for our "Welding in Tool Making" leaflet.



### 回火曲線

Tempering chart



### Austenitising parameters:

- » Austenitising temperature: 1050 °C (1922 °F)
- » Holding time: 30 minutes following temperature equalisation
- » Quenching medium: oil
- » Tempering time: at least 2 x 2 hours

### 沃斯田鐵化係數

- » 沃斯田鐵化溫度: 1050 °C (1922 °F)

- » 持溫時間: 溫度內外均勻後30分鐘
- » 淬火介質: 油
- » 回火時間: 至少兩次各 2小時

## PHYSICAL DATA 物理特性

在20°C (68°F) 至...°C (°F) 之間的熱膨脹係數

Thermal expansion between 20 °C (68 °F) and ... °C (°F)

100 °C	200 °C	300 °C	400 °C	500 °C	
11.0	11.6	11.9	12.2	12.4	10 <sup>-6</sup> m/(m.K)
212 °F	392 °F	572 °F	752 °F	932 °F	
6.11	6.44	6.61	6.77	6.88	10 <sup>-6</sup> in/in°F

### Thermal conductivity 熱傳導係數

100 °C	200 °C	300 °C	400 °C	500 °C	
24.7	25.7	26.3	26.5	26.6	W/(m.K)
212 °F	392 °F	572 °F	752 °F	932 °F	
14.27	14.85	15.20	15.31	15.37	Btu/ft h °F

Source: ÖGI, Leoben

### Specific heat capacity 比熱容

100 °C	200 °C	300 °C	400 °C	500 °C	
487	526	559	603	679	J/(kg.K)
212 °F	392 °F	572 °F	752 °F	932 °F	
0.116	0.126	0.134	0.144	0.162	Btu/lb °F

Source: ÖGI, Leoben

# 梧濟工業股份有限公司

<http://www.wujii.com.tw/>



## 台中總公司

台中市南屯區工業區20路1號

TEL : +886-4-23593510

FAX : +886-4-23593529

E-mail : wuji2297@ms24.hinet.net

## 泰山廠

新北市泰山區文程路56號

TEL : +886-2-85311121

FAX : +886-2-85311125

E-mail : wujiitaishan@wujii.com.tw

## 台南廠

台南市永康區鹽行里中正北路318巷16弄36號

TEL : +886-6-2544168

FAX : +886-6-2544178

E-mail : wujitainan@wujii.com.tw

## 本洲廠

高雄市岡山區本工五路50號

TEL : +886-7-6226110

FAX : +886-7-6226635

E-mail : sin.wu0496@msa.hinet.net

## 冷作鋼

台中市南屯區工業區20路42號

TEL : +886-4-23597381

FAX : +886-04-23597382

E-mail : cnc@wujii.com.tw

## 華晟特殊鋼鐵

新北市新莊區新樹路302巷23號

TEL : +886-2-22048125

FAX : +886-2-22035597

E-mail : hc23@wujii.com.tw

## 高雄廠

高雄市鳥松區美山路6號

TEL : +886-7-7336940

FAX : +886-7-7336934

E-mail : kaowujii@wujii.com.tw

## 熱處理廠

台中市南屯區工業區19路9號

TEL : +886-4-23590345

FAX : +886-4-23591102

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.



voestalpine BÖHLER Edelstahl GmbH & Co KG

Mariazeller Straße 25

8605 Kapfenberg, Austria

T. +43/50304/20-6046

F. +43/50304/60-7563

E. info@bohler-edelstahl.at

[www.voestalpine.com/bohler-edelstahl](http://www.voestalpine.com/bohler-edelstahl)

voestalpine

ONE STEP AHEAD.