



**CARPENTER  
TITANIUM**  
by Dynamet®

195 Museum Road  
Washington, PA 15301  
Phone 724.228.1000  
Fax 724.229.4195

## PRODUCT CERTIFICATION

WORK ORDER  
**543485**

SALES ORDER / RLS  
**082181 / 003**

SHIP TO

Carpenter Technology - RDG/Asia  
P.O.Box 14662  
Reading, PA 19612  
USA

CUSTOMER P.O. <b>4500078272/2373</b>	CUSTOMER PART <b>69853-10/JOINSMED</b>	QUANTITY LADING NO <b>1,173 lbs 00119951</b>	SHIPMENT DATE <b>06/28/2023</b>
<b>PART INFORMATION 041DD2AXY01976</b> <b>TI CP4 Standard Grade CG Bar - 0.1976" Dia.</b> <b>Specifications: ASTM F 67 Gr4 Rev: 13 (2017); ISO 5832-2 Gr4A Rev: 2018</b> <b>Size: 0.1976" Dia. +/- 0.0005"</b> <b>Length: 95.98" +/- 3.00"</b>			
<b>Chemical Report (Wt.%)</b>			
Heat H37845	C T .051	C B .052	Fe T .13
			Fe B .14
			O T .32
			O B .36
			N T .002
			N B .003
			Y T <.0004
			Y B <.0004
Ot E <.05	TOE <.20	Ti BAL	
<b>Hydrogen (As Shipped)</b>			
Hydrogen (%) 0.0027			
<b>As Shipped Properties</b>			
UTS #1 (Mpa) 781	YS 0.2% #1 (Mpa) 661	EL #1 (%) 22	RA #1 (%) 50
Hardness (HRC) 26			
<b>Metallography Results</b>			
Grain Size (ASTM) 8.0			
<b>Material Data</b>			
Melt Origin USA	Melt Source Timet- Henderson, Nv.		
<b>Certification Information</b>			
As Shipped Condition <b>Annealed 1300°F 1 Hour A/C</b>			





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CUSTOMER P.O.	CUSTOMER PART	QUANTITY LADING NO	SHIPMENT DATE
4500078272/2373	69853-10/JOINSMED	1,173 lbs 00119951	06/28/2023

### CERTIFICATION REQUIREMENTS

Hydrogen Analysis From Final Product.  
Material Free of Alpha Case or Other Surface Contamination.  
Material Tested in 5D Gage Length.  
Material Free of Mercury and Radioactive Contamination.

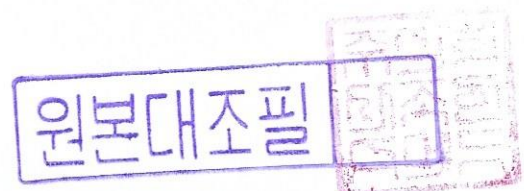
Ken Pike

Authorized Quality Release Agent

End of Certification

This is to certify that the above test results are correct as contained in the records of the company

Certification shall not be reproduced except in full without the approval of Dynamet Inc. The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal Law.





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## PRODUCT CERTIFICATION

WORK ORDER  
543451

SALES ORDER / RLS  
082127 / 001

### SHIP TO

Carpenter Technology - RDG/Asia  
P.O.Box 14662  
Reading, PA 19612  
USA

CUSTOMER P.O. 4500077132/2341	CUSTOMER PART 69189-230/JOINSMED	QUANTITY LADING NO 247 lbs 00119951	SHIPMENT DATE 06/28/2023
PART INFORMATION 041DD2AXY02370 TI CP4 Standard Grade CG Bar - 0.2370" Dia. Specifications: ASTM F 67 Gr4 Rev: 13 (2017); ISO 5832-2 Gr4A Rev: 2018 Size: 0.2370" Dia. +/- 0.0005" Length: 95.98" +/- 3.00"			
Chemical Report (Wt.%)			
Heat H37549	C T .048	C B .046	Fe T .14
			Fe B .13
			O T .37
			O B .39
			N T .005
			N B .005
			Y T <.0004
			Y B <.0004
Ot E <.05	TOE <.20	Ti BAL	
Hydrogen (As Shipped)			
Hydrogen (%) 0.0032			
As Shipped Properties			
UTS #1 (Mpa) 786	YS 0.2% #1 (Mpa) 675	EL #1 (%) 18	RA #1 (%) 48
Hardness (HRC) 24			
Metallography Results			
Grain Size (ASTM) 8.5			
Material Data			
Melt Origin USA	Melt Source Timet- Henderson, Nv.		
Certification Information			
As Shipped Condition Annealed 704°C 1 Hour A/C			





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SALES ORDER / RLS  
**082127 / 001**

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CUSTOMER P.O.	CUSTOMER PART	QUANTITY LADING NO	SHIPMENT DATE
4500077132/2341	69189-230/JOINSMED	247 lbs 00119951	06/28/2023

### CERTIFICATION REQUIREMENTS

Hydrogen Analysis From Final Product.  
Material Free of Alpha Case or Other Surface Contamination.  
Material Tested in 5D Gage Length.  
Material Free of Mercury and Radioactive Contamination.

Ken Pike

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원본대조필

