



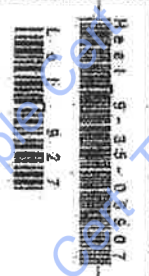
VSMPO-AVISMA Corporation



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INSPECTION
CERTIFICATE

EN 12045-1 AS PRACTICE ISO 9001 CERT. No. 01 117 042/12



CERTIFICATE: 22614Y14

Purchaser: TMS International SA, Switzerland

Quality/lot: T1-6A1-4V

Condition of delivery: Hot Rolled, Annealed, Machined, Ground, Pickled.

Terms of delivery: AMS 4928U, AMS-T-9047A, AMS 6931C, ASTM B 348-13, ASTM B 381-13, ASTM F 1472-08

Bars # Units Weight, (kg)

378 1094

Object Bar

Dimensions (mm) or Drawing #

dia 15,875 x 3048-3658

Heat #

6-35-06907

Lot #

927

Residuals, %

in the Part, %

as-pickled

H

AMS 4928U, AMS-T-9047A, AMS 6931C, ASTM B 381-13, ASTM F 1472-08, ASTM B 348-13

Al V Fe O C N Y

5.50- 3.50- max max max max max max

6.75 4.50 0.30 0.20 0.08 0.05 0.005

6.85 4.13 0.18 0.180 0.023 0.004 <0.801

6.12 4.11 0.15 0.177 0.023 0.004 <0.001

Requirement: 0.20% proof stress

10% elongation

Reduction of area

Heat Treatment conditions

1000°C

1 h

Top

Bottom

AMS 4928U, AMS-T-9047A, AMS 6931C, ASTM B 381-13, ASTM F 1472-08

ASTM E 29-13, ASTM F 1472-08

1-1 959 1034 19.2 51.8 730°

3-1 978 1057 17.9 50.6 air cooling

5-1 955 1032 20.0 52.0

7-1 945 1033 18.8 51.5

9-1 967 1031 18.8 50.4

10-2 966 1043 18.5 50.2

12-1 952 1039 20.0 52.7

14-2 988 1038 20.0 52.1

Longitudinal

1000°C

1 h

Top

Bottom

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12-1 952 1039 20.0 52.7

14-2 988 1038 20.0 52.1

Melting date: 23.10.2014

Ingot melted by VSMPO, Verkhnyaya Saida, Russia

Production start-up date: 25.04.2014

AMS 4928U, AMS-T-9047A, AMS 6931C, ASTM B 381-13, ASTM F 1472-08

ASTM E 29-13, ASTM F 1472-08

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14-2 988 1038 20.0 52.1

Ultrasonic inspection: As per AMS 6931C per 3.5.1.4, AMS 4928U per 3.6, AMS-T-9047A per 3.9, Mifcostructure testing: As per AMS 6931C, AMS 4928U per 3.5.1.2.2, 3.5.1.3, AMS-T-9047A per 3.6, 3.9, ASTM F 1472-08 par 9.1.9.3

Free from alpha-case.

AMS 2631D Cl. A, Longitudinal wave, Immersion method.

Focused transducer.

See article 9.1.2, article 10.1.2.2, article 10.1.2.3, article 10.1.2.4, article 10.1.2.5, article 10.1.2.6, article 10.1.2.7, article 10.1.2.8, article 10.1.2.9, article 10.1.2.10, article 10.1.2.11, article 10.1.2.12, article 10.1.2.13, article 10.1.2.14, article 10.1.2.15, article 10.1.2.16, article 10.1.2.17, article 10.1.2.18, article 10.1.2.19, article 10.1.2.20, article 10.1.2.21, article 10.1.2.22, article 10.1.2.23, article 10.1.2.24, article 10.1.2.25, article 10.1.2.26, article 10.1.2.27, article 10.1.2.28, article 10.1.2.29, article 10.1.2.30, article 10.1.2.31, article 10.1.2.32, article 10.1.2.33, article 10.1.2.34, article 10.1.2.35, article 10.1.2.36, article 10.1.2.37, article 10.1.2.38, article 10.1.2.39, article 10.1.2.40, article 10.1.2.41, article 10.1.2.42, article 10.1.2.43, article 10.1.2.44, article 10.1.2.45, article 10.1.2.46, article 10.1.2.47, article 10.1.2.48, article 10.1.2.49, article 10.1.2.50, article 10.1.2.51, article 10.1.2.52, article 10.1.2.53, article 10.1.2.54, article 10.1.2.55, article 10.1.2.56, article 10.1.2.57, article 10.1.2.58, article 10.1.2.59, article 10.1.2.60, article 10.1.2.61, article 10.1.2.62, article 10.1.2.63, article 10.1.2.64, article 10.1.2.65, article 10.1.2.66, article 10.1.2.67, article 10.1.2.68, article 10.1.2.69, article 10.1.2.70, article 10.1.2.71, article 10.1.2.72, article 10.1.2.73, article 10.1.2.74, article 10.1.2.75, article 10.1.2.76, article 10.1.2.77, article 10.1.2.78, article 10.1.2.79, article 10.1.2.80, article 10.1.2.81, article 10.1.2.82, article 10.1.2.83, article 10.1.2.84, article 10.1.2.85, article 10.1.2.86, article 10.1.2.87, article 10.1.2.88, article 10.1.2.89, article 10.1.2.90, article 10.1.2.91, article 10.1.2.92, article 10.1.2.93, article 10.1.2.94, article 10.1.2.95, article 10.1.2.96, article 10.1.2.97, article 10.1.2.98, article 10.1.2.99, article 10.1.2.100

AMS 2631D Cl. A, Longitudinal wave, Immersion method.

Focused transducer.

See article 9.1.2, article 10.1.2.2, article 10.1.2.3, article 10.1.2.4, article 10.1.2.5, article 10.1.2.6, article 10.1.2.7, article 10.1.2.8, article 10.1.2.9, article 10.1.2.10, article 10.1.2.11, article 10.1.2.12, article 10.1.2.13, article 10.1.2.14, article 10.1.2.15, article 10.1.2.16, article 10.1.2.17, article 10.1.2.18, article 10.1.2.19, article 10.1.2.20, article 10.1.2.21, article 10.1.2.22, article 10.1.2.23, article 10.1.2.24, article 10.1.2.25, article 10.1.2.26, article 10.1.2.27, article 10.1.2.28, article 10.1.2.29, article 10.1.2.30, article 10.1.2.31, article 10.1.2.32, article 10.1.2.33, article 10.1.2.34, article 10.1.2.35, article 10.1.2.36, article 10.1.2.37, article 10.1.2.38, article 10.1.2.39, article 10.1.2.40, article 10.1.2.41, article 10.1.2.42, article 10.1.2.43, article 10.1.2.44, article 10.1.2.45, article 10.1.2.46, article 10.1.2.47, article 10.1.2.48, article 10.1.2.49, article 10.1.2.50, article 10.1.2.51, article 10.1.2.52, article 10.1.2.53, article 10.1.2.54, article 10.1.2.55, article 10.1.2.56, article 10.1.2.57, article 10.1.2.58, article 10.1.2.59, article 10.1.2.60, article 10.1.2.61, article 10.1.2.62, article 10.1.2.63, article 10.1.2.64, article 10.1.2.65, article 10.1.2.66, article 10.1.2.67, article 10.1.2.68, article 10.1.2.69, article 10.1.2.70, article 10.1.2.71, article 10.1.2.72, article 10.1.2.73, article 10.1.2.74, article 10.1.2.75, article 10.1.2.76, article 10.1.2.77, article 10.1.2.78, article 10.1.2.79, article 10.1.2.80, article 10.1.2.81, article 10.1.2.82, article 10.1.2.83, article 10.1.2.84, article 10.1.2.85, article 10.1.2.86, article 10.1.2.87, article 10.1.2.88, article 10.1.2.89, article 10.1.2.90, article 10.1.2.91, article 10.1.2.92, article 10.1.2.93, article 10.1.2.94, article 10.1.2.95, article 10.1.2.96, article 10.1.2.97, article 10.1.2.98, article 10.1.2.99, article 10.1.2.100

AMS 2631D Cl. A, Longitudinal wave, Immersion method.

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See article 9.1.2, article 10.1.2.2, article 10.1.2.3, article 10.1.2.4, article 10.1.2.5, article 10.1.2.6, article 10.1.2.7, article 10.1.2.8, article 10.1.2.9, article 10.1.2.10, article 10.1.2.11, article 10.1.2.12, article 10.1.2.13, article 10.1.2.14, article 10.1.2.15, article 10.1.2.16, article 10.1.2.17, article 10.1.2.18, article 10.1.2.19, article 10.1.2.20, article 10.1.2.21, article 10.1.2.22, article 10.1.2.23, article 10.1.2.24, article 10.1.2.25, article 10.1.2.26, article 10.1.2.27, article 10.1.2.28, article 10.1.2.29, article 10.1.2.30, article 10.1.2.31, article 10.1.2.32, article 10.1.2.33, article 10.1.2.34, article 10.1.2.35, article 10.1.2.36, article 10.1.2.37, article 10.1.2.38, article 10.1.2.39, article 10.1.2.40, article 10.1.2.41, article 10.1.2.42, article 10.1.2.43, article 10.1.2.44, article 10.1.2.45, article 10.1.2.46, article 10.1.2.47, article 10.1.2.48, article 10.1.2.49, article 10.1.2.50, article 10.1.2.51, article 10.1.2.52, article 10.1.2.53, article 10.1.2.54, article 10.1.2.55, article 10.1.2.56, article 10.1.2.57, article 10.1.2.58, article 10.1.2.59, article 10.1.2.60, article 10.1.2.61, article 10.1.2.62, article 10.1.2.63, article 10.1.2.64, article 10.1.2.65, article 10.1.2.66, article 10.1.2.67, article 10.1.2.68, article 10.1.2.69, article 10.1.2.70, article 10.1.2.71, article 10.1.2.72, article 10.1.2.73, article 10.1.2.74, article 10.1.2.75, article 10.1.2.76, article 10.1.2.77, article 10.1.2.78, article 10.1.2.79, article 10.1.2.80, article 10.1.2.81, article 10.1.2.82, article 10.1.2.83, article 10.1.2.84, article 10.1.2.85, article 10.1.2.86, article 10.1.2.87, article 10.1.2.88, article 10.1.2.89, article 10.1.2.90, article 10.1.2.91, article 10.1.2.92, article 10.1.2.93, article 10.1.2.94, article 10.1.2.95, article 10.1.2.96, article 10.1.2.97, article 10.1.2.98, article 10.1.2.99, article 10.1.2.100

AMS 2631D Cl. A, Longitudinal wave, Immersion method.

Focused transducer.

6264.3



VSMPO, Trus, US
Pittsburgh, PA

INSPECTION REPORT

Form# V036
Rev. 1
3 Jan 2011

Alloy:	6-4	VSMPO P.O.#:	30287-RM	Inspected By:		Date:	8-31-15
Form:	Bar	Length Tol:		QA Approval:	AK	Date:	9/23/15
Size:	0.625"	Width / 2 Tol:	+ .005" / -.003"	Thickness (A Tol):	AK	Invoice #:	756 1527

Package#	Heat#	Qty	ID #	Test ID	1/0-1	1/0-2	Width	Length	A/R
308552	9-35-06907	189		3	.027	.027		123 1/2	A
				3	.027	.027		128 3/8	A
				4	.028	.027		129 1/4	A
				5	.026	.026		142 1/8	A
				11	.027	.027		120	A
				14	.028	.028		137 1/8	A
				9	.028	.028		123	A
				12	.027	.026		139 1/4	A
				1	.028	.027		132 1/8	A
				13	.028	.028		123	A

Stencil Markings:
AMS 4928 VAMS 0931 t AMS-T-9047 AASTM B 348-13 ASTM B
Visual Inspection:
381-13 ASTM F1472-08 e1 HTF TFL6AL4VI VSMPO

Tool ID: 0m: e-7
Tool ID: Tm: 20

OK



VSMPO-Titus, US
Pittsburgh, PA

INSPECTION REPORT

Form# V086
Rev. 1
3 Jan 2011

Alloy:	6-4	VSMPO P.O.#:	30287-RM	Inspected By:	AMM	Date:	8-31-15
Form:	Bar	Length Tol:		QA Approval:		Date:	9/3/15
Size:	0.625"	Width / Ø Tol:	+ .005" / -.003"	Thickness / Ø Tol:		Invoice #:	756 1527

Packages#	Heat #	ID #	Test ID	1/Ø 1	1/Ø 2	Width	Length	AR
308553	9-35-06907	189	7	.627	.627		12946	A
			8	.628	.628		12838	A
			13	.627	.627		12476	A
			11	.627	.627		12558	A
			8	.628	.628		12316	A
			8	.626	.626		143	A
			4	.628	.628		12778	A
			7	.628	.627		12576	A
			13	.628	.627		12512	A
				.628	.627		12358	A

Stencill Markings:
 AMS 4928 UAMS 6931C AMS-T-9047 A ASTM B 348-13 ASTM B 3813
 Visual Inspection:
 ASTM F1472-08 01 HT# TP6AL4VT VSMPO

OK

Tool ID: Dm: c-7
Tool ID: TM-20