



Manufacturers Data Report

ADSN000XXXXX



MDR



-XXXXXXXXX-

Manufacturers Data Report

Customer	Sample MDR
PO Number	XXXXXXXX
Aflex Job Number	XXXXXX
Aflex Batch Number	XX
Aflex Item Number	XX
Serial Number	ADSN000XXXX
Release ID	XXXX
Release Date	XX/XX/24
Item Description	01 - 1 x 250NB TUEB
Report Generated	XX/XX/24 02:50 PM



Photo is indicative only and may be of another item in the same batch



ABN\ 73 070 676 201
 Unit 14, 12-14 Beaumont Road
 Mount Kuring-gai, NSW 2080

Email\ sales@aflex.com.au
 Phone\ +61 02 9457 7530
 Fax\ +61 02 9457 7531





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ISO 9001 Certification



Certificate Number: 500-15633-Q

Certificate of Registration

This document certifies that the Management System at

Aflex Pty Ltd

Of

Unit 14, 12 - 14 Beaumont Road, Mt. Kuring-gai NSW 2080 Australia

has been evaluated by the auditors of Citation Certification Pty Ltd and found to be conforming to the requirements of:

ISO 9001:2015 Quality Management Systems

In respect of the following activities:

Design and manufacture of metal expansion bellows for use in pipework

This certificate is valid from 21/09/2022 to 21/09/2025

Original Certification Date: 21/09/2013

Current Issue date: 26/08/2024

Barry Fairman

Barry Fairman - Certification Manager

Citation Certification Pty Ltd



To verify the validity of this certificate please visit <https://register.jasanz.org/certified-organisations>
Citation Certification Pty Ltd trading as Citation Certification
Ground Floor, Suite 1, 352 Hunter Street, Newcastle, NSW 2300 Australia
1800 065 800 | <https://citationgroup.com.au/certification/>



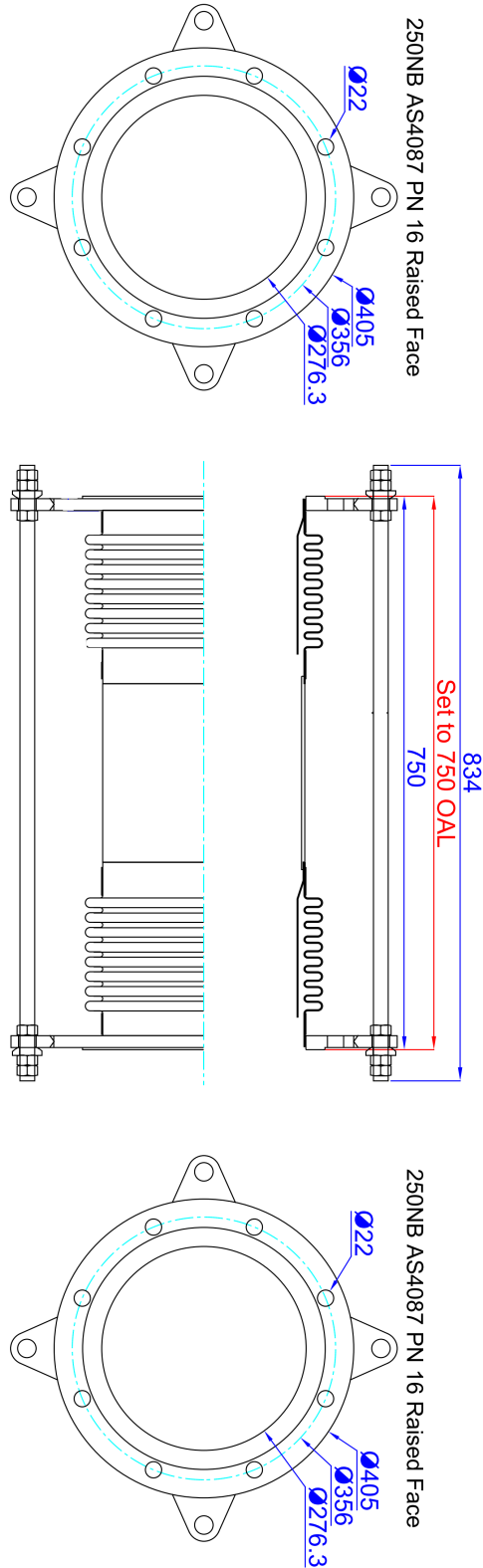
Assembly Data Sheet

The following table must be read in conjunction with the attached assembly drawing which comprises part of this data sheet

Customer / Distributor	
Aflex Part Number	N/A
Assembly Description	250NB TUEB-FF-1400-L 750 mm
Assembly Type	Tied Universal Expansion Bellows
Finish	Painted - Standard 1 Primer 2 Top Coat
Inlet Connection	Flange - Carbon Steel AS4087 PN 16 Raised Face
Nominal Bore	250NB
Outside Diameter	405
Thickness	19
No. Bolt Holes	8
Bolt Hole Dia.	22
Pitch Circle Diameter	356
Outlet Connection	Flange - Carbon Steel AS4087 PN 16 Raised Face
Nominal Bore	250NB
Outside Diameter	405
Thickness	19
No. Bolt Holes	8
Bolt Hole Dia.	22
Pitch Circle Diameter	356
Bellows	
Reference	2404
Material	316/316L
Material Thickness	1.5 mm
Design Code	EJMA 10th Edition
Liner	316/316L 1.2 mm thk
Overall Assembly Length (OAL)	750 mm
Working Pressure	1400 kPa
Design Pressure	2000 kPa
Bellows Plies	1
Design Temperature	200 Deg. C.
Rated Axial Compression	0 mm
Rated Axial Extension	0 mm
Rated Lateral Offset	60 mm
Rated Angular Deflection	0 Deg.



Afex Master Drawing 11610901 R0



Tolerances: ±3mm for OAL and external hardware dimensions, flange and pipe tolerances are to the relevant standards



Bellows Calculations

Aflex Bellows Calculations (EJMA 10th Ed.)

Reference: Sherriff Electrical Wholesalers 116109 - 01 - 1 x 250NB TUEB

Bellows Design Inputs

Bellows ID	db	270.5	mm
Working Pressure	p	1400	kPa
Design Pressure	pd	2000	kPa
Pitch	q	20.0	mm
Working Temperature (< 450 Deg. for EJMA)	temp	200	Deg C
Pressure Band Material Thickness	tc	3.00	mm
Bellows Material Thickness	t	1.50	mm
Convolution Height	w	23.6	mm
Axial Compression	xcomp	0	mm
Axial Extension	xext	0.0	mm
Lateral Movement	y	60.0	mm
Angular Movement	tod	0.0	Degrees
Youngs Modulus, Room Temp	eybrt	193.1	GPa
Youngs Modulus, Design Temp	eybdt	184.6	GPa
Yield Stress, Room Temp	sycrt	206	MPa
Yield Stress, Design Temp	sycdt	141.04	MPa
Yield Stress, Material Cert	sym	280	MPa
Element Length	el	750.0	mm
Cuff Length 1	lt_1	45.0	mm
Cuff Length 2	lt_2	45.0	mm
Mean Convolution Radius	rm	5.0	mm
Number of Convolutions	n	8	cons
Number of Plies	np	1	plies
Cp Factor	C_p	0.7	cp
Cf Factor	C_f	1.6	cf
Cd Factor	C_d	1.61	cd

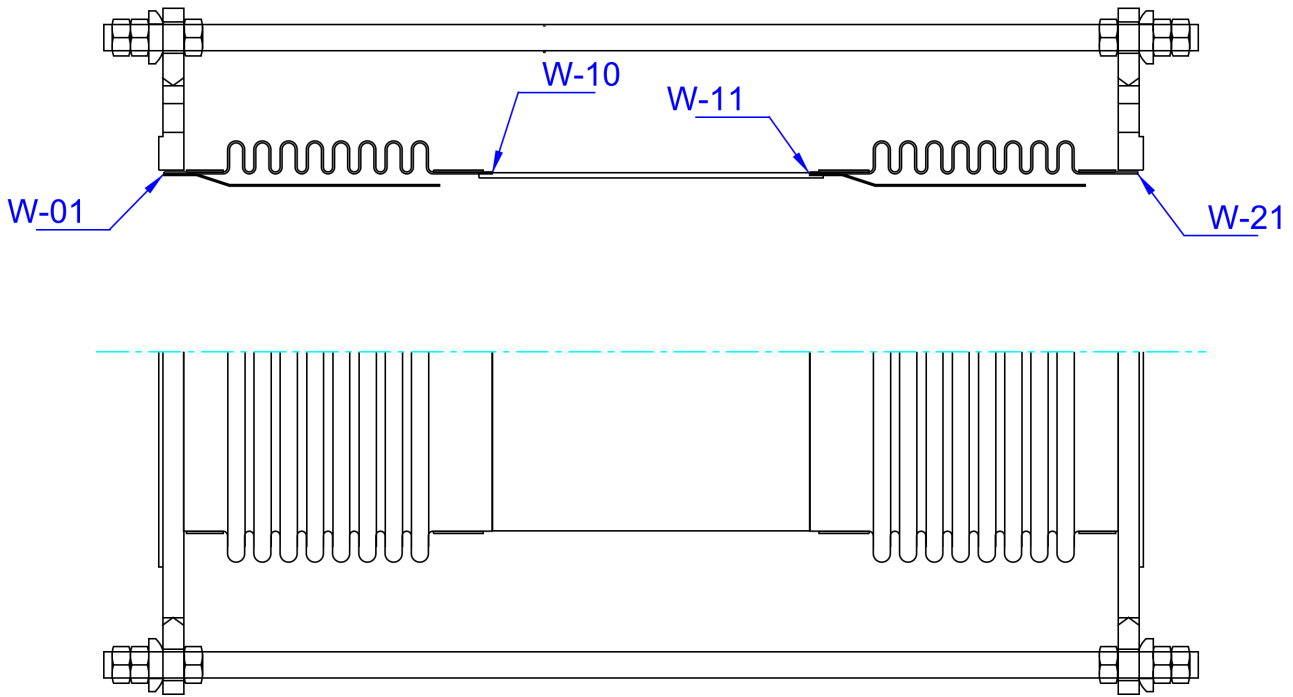
Bellows Design Results

Calculated Cycle Life	N_c	2,547	cycles
Bellows Cuff Circumferential Pressure Stress	S_1	60	MPa
Pressure Band Circumferential Pressure Stress	S_1c	62	MPa
Bellows Circumferential Pressure Stress	S_2	75	MPa
Meridional Membrane Pressure Stress	S_3	16	MPa
Meridional Bending Pressure Stress	S_4	190	MPa
Meridional Membrane Stress due to Deflection	S_5	27	MPa
Meridional Bending Stress due to Deflection	S_6	1,478	MPa
Total Stress due to Pressure and Deflection	S_t	1,650	MPa
Design Pressure Limit due to Column Instability	P_sc	2,725	kPa
Design Pressure Limit due to Inplane Instability	P_si	3,473	kPa
Axial Spring Rate	ksr	816	N/mm
Lateral Spring Rate	uml	95	N/mm
Angular Spring Rate	umt	0	Nm/Deg
Bellows Effective Area	A_e	68,628	mm^2
Bellows Pressure Thrust (Only applicable to unrestrained assemblies)	P_Thrust	137,255	N



Welding Information

Weld Map



Drawing not to Scale

Identifier	Weld Description	Procedure	Process
W-01	Bellows Inlet to Flange	Group A1/K Bellows Attachment	GTAW
W-10	Bellows To Centre Spool 1	TIG Group K / Group K (Bellows...	GTAW
W-11	Bellows to Centre Spool 2	TIG Group K / Group K (Bellows...	GTAW
W-21	Bellows Outlet to Flange	Group A1/K Bellows Attachment	GTAW



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Weld W-01

Weld ID	WPS Name	Operator	Welder	Date
549996	Group A1/K Bellows Attachment	MM	Kemppi TIG325...	13/09/24
Avg. Amps	Filler Material	Filler Size	Shielding Gas	Gas Flow
131.0	AWS ER309/309L	1.6	100% Argon	12.0



Note: Weld photo is indicative only and may be of another item in the same batch.

Links to Supporting Documents

[Weld Procedure Specification \(WPS\) / Weld Procedure Qualification Record](#)

NDT Results

Check ID	Description	Technician	Date Performed	Result
476146	Aflex 100% Through Dye Pen.	MM	13/09/24 12:24 PM	PASS



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Weld W-10

Weld ID	WPS Name	Operator	Welder	Date
549997	TIG Group K / Group K...	MM	Kemppi TIG325...	13/09/24
Avg. Amps	Filler Material	Filler Size	Shielding Gas	Gas Flow
131.0	316/316L	1.6	100% Argon	12.0



Note: Weld photo is indicative only and may be of another item in the same batch.

Links to Supporting Documents

[Weld Procedure Specification \(WPS\) / Weld Procedure Qualification Record](#)

NDT Results

Check ID	Description	Technician	Date Performed	Result
476147	Aflex 100% Through Dye Pen.	MM	13/09/24 12:24 PM	PASS



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Weld W-11

Weld ID	WPS Name	Operator	Welder	Date
549998	TIG Group K / Group K...	MM	Kemppi TIG325...	13/09/24
Avg. Amps	Filler Material	Filler Size	Shielding Gas	Gas Flow
131.0	316/316L	2.4	100% Argon	12.0



Note: Weld photo is indicative only and may be of another item in the same batch.

Links to Supporting Documents

[Weld Procedure Specification \(WPS\) / Weld Procedure Qualification Record](#)

NDT Results

Check ID	Description	Technician	Date Performed	Result
476148	Aflex 100% Through Dye Pen.	MM	13/09/24 12:24 PM	PASS



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Weld W-21

Weld ID	WPS Name	Operator	Welder	Date
549999	Group A1/K Bellows Attachment	MM	Kemppi TIG325...	13/09/24
Avg. Amps	Filler Material	Filler Size	Shielding Gas	Gas Flow
131.0	AWS ER309/309L	1.6	100% Argon	12.0



Note: Weld photo is indicative only and may be of another item in the same batch.

Links to Supporting Documents

[Weld Procedure Specification \(WPS\) / Weld Procedure Qualification Record](#)

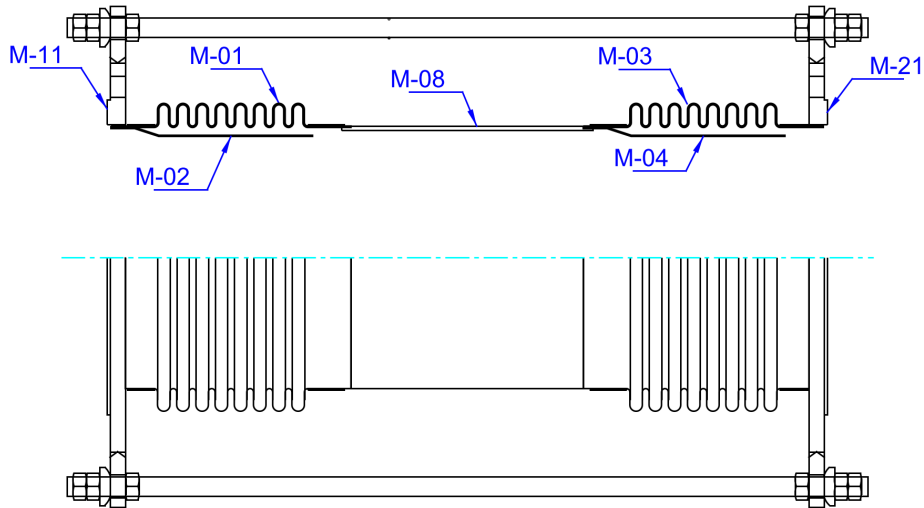
NDT Results

Check ID	Description	Technician	Date Performed	Result
476149	Aflex 100% Through Dye Pen.	MM	13/09/24 12:24 PM	PASS



Materials Information

Materials Map



- M-05 - 16mm MS Lugs
- M-06 - M20 MS Threaded Rod
- M-07 - M20 MS Nuts
- M-09 - MS Weld Washers
- M-10 - 1.5mm Pressure Bands 866 Circ

Drawing not to Scale

Materials Records

Identifier	Material Name	M-ID	Heat Number	Cert Doc ID
2	Sheet - 1220 x 2440 1.5mm 316/316L	116624	y231103B25-2	105788
4	Sheet - 1220 x 2440 1.5mm 316/316L	116624	y231103B25-2	105788
5	Plate - 16mm Carbon Steel (21)	116541	SQ41237	106554
6	Threaded Bar - M20 CS Grade 8.8	117286	G390004897	109601
7	Fastener - M20 Nut CS Grade 8.8	117289	0500230	109326
8	Pipe - 250NB 10" SCH 10S 316/316L 273.000	115308	PCD070884	102079
9	Uncontrolled Purchase Item	113033		
10	Sheet - 1220 x 2440 1.5mm 316/316L	116624	y231103B25-2	105788
11	Flange 137393 - 250NB AS4087 PN 16 Raised	117540	3K005201	109830
21	Flange 137393 - 250NB AS4087 PN 16 Raised	117540	3K005201	109830

Bellows Records



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Identifer	Material Name	M-ID	Heat Number	Cert Doc ID
1	Sheet - 1220 x 2440 1.5mm 316/316L	117529	C37AW2301719	109468
3	Sheet - 1220 x 2440 1.5mm 316/316L	117529	C37AW2301719	109468

Where applicable, Material Certificates can be found on the following pages...



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Material Certificate 109468 (Page 1 of 1)



No.270,Sec.4,Jungshan Rd.,Shijou Shiang,
Chang-Hwa,Taiwan,R.O.C
http://www.ycinox.com
TEL +886-4-8899666 FAX +886-4-8899770

INSPECTION CERTIFICATE
EN 10204-3.1:2004



Customer	VULCAN STEEL (AUSTRALIA) PTY LTD		Customer No.	FAU050	Certificate No.	230905C0016																
Product	PRIME COLD ROLLED STAINLESS STEEL SHEET		Commercial Invoice No.	J23090020	Date of Issue	2023/09/05																
Specification	ASTM A240M-23/A 480M-23		PO No.	71489	Order No.	EC23070081-2																
Steel Grade	316/316L	Finish	2B	Protect	PI	Weight No.	C23090055															
Item No.	Heat No.	Product Description	Chemical Composition(%)										Tension Test	*O1 HR	*O2 HT	C.No.						
			C	Si	Mn	P	S	Ni	Cr	Mb	N	Y.S.					T.S.	E.L.	HRB	%		
		Dimension	Quantity Pcs	Weight kgs	Specification																	
1	C:37AW2301719	1.5mm x1.219.0mm x2.438.0mm	25	888	30	75	200	45	30	141	29	41	1001	1669	203	27	329	651	46	83	1050	C.23
2	C:37AW2301719	1.5mm x1.219.0mm x2.438.0mm	25	890	16	34	141	29	41	1001	1669	203	27	329	651	46	83	1050	46	83	1050	C.24
3	C:37AW2301754	2mm x1.219.0mm x3.048.0mm	20	1,176	21	32	133	34	11	1002	1672	205	35	350	658	45	86	1050	45	86	1050	C.30
4	C:37AW2301754	2mm x1.219.0mm x3.048.0mm	20	1,181	21	32	133	34	11	1002	1672	205	35	350	658	45	86	1050	45	86	1050	C.31
5	C:37AW2301754	2mm x1.219.0mm x3.048.0mm	20	1,179	21	32	133	34	11	1002	1672	205	35	350	658	45	86	1050	45	86	1050	C.32
TOTAL:			110	5,314																		
Standards: ASME SA240SA480																	Note					
Intergranular Corrosion Test (according to ASTM A262 Practice F) OK																						
Hardness according to NACE MR0175 /ISO 15156-3:2015 : Satisfactory.																						
Visual Inspection(Surface) and Dimension Check OK																						
1MPa=1N/mm ² 10bar=145psi=10.2kgf/cm ²																						
Surveyor By	We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. The material described above has been found free of radiation by raw material supplier.																					
N/A	1.ISO 9001:2015 (No.01 100 0562599) 2.PED /AD2000 (No.01 202 TWWQ-05 0105) 3.ISO 14001:2015 (No.01 104 822 036385) 4.ISO 45001:2018 (No.01 113 822 036385) 5.ISO 50001:2018 (No.01 407 096385)																					
 Manager of Quality Assurance Department YC-20007-01D																						

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Material Certificate 105788 (Page 1 of 1)



INSPECTION TEST CERTIFICATE

SHIPPER: MIKAS STAINLESS STEELS PTE LTD
 CUSTOMER: MIDWAY METALS PTY LTD
 ORDER NO: M-SA-12352
 INVOICE: M-SINV-18805

228973-80

PRODUCT NAME: COLD ROLLED STAINLESS STEEL COIL
 STEEL GRADE: 316/316L
 SURFACE FINISH: 2B
 SPECIFICATION: ASTM A240/A240M

DATE OF ISSUE: 8 MARCH 2024
 CERTIFICATE NO: 2024-MK-090-2



No.	Heat No.	Product No.	Dimension (mm)	Weight (Kg)	Chemical Composition (%)										Tensile Test			Hardness HV
					C	S	P	Ma	Si	Cr	Ni	N	MO	T.S (Mpa)	Y.S (Mpa)	Elongation (%)		
1	Y231103B25-2	QJ231G00768A	1.50MM X 1219MM	7.048	0.026	0.002	0.030	1.320	0.490	16.72	10.04	0.040	2.02	634	290	55.5	161 / 162	
2	Y231103B25-2	QJ231G00768B	1.50MM X 1219MM	6.840	0.026	0.002	0.030	1.320	0.490	16.72	10.04	0.040	2.02	634	290	55.5	161 / 162	
3	Y231103B25-2	QJ231G00768C	1.50MM X 1219MM	6.847	0.026	0.002	0.030	1.320	0.480	16.72	10.04	0.040	2.02	634	290	55.5	161 / 162	
4	Y231103B20-4	QJ231G00767A	2.00MM X 1219MM	6.949	0.024	0.002	0.026	1.330	0.480	16.60	10.04	0.040	2.02	658	279	54.5	153 / 152	
5	Y231103B20-4	QJ231G00767B	2.00MM X 1219MM	6.805	0.024	0.002	0.026	1.330	0.480	16.60	10.04	0.040	2.02	658	279	54.5	153 / 152	
6	Y231103B20-4	QJ231G00767C	2.00MM X 1219MM	6.959	0.024	0.002	0.026	1.330	0.480	16.60	10.04	0.040	2.02	658	279	54.5	153 / 152	
7	Y231102B20-5	QJ231G00774B	3.00MM X 1219MM	5.021	0.023	0.002	0.028	1.350	0.480	16.55	10.05	0.039	2.04	608	283	54.0	162 / 165	
8	Y231102B20-5	QJ231G00774C	3.00MM X 1219MM	5.038	0.023	0.002	0.028	1.350	0.480	16.55	10.05	0.039	2.04	608	283	54.0	162 / 165	
TOTAL				51.507														

Remarks
 1. Intergranular corrosion test as per ASTM A262 PRACTICE E: PASS
 2. Milling Process: BAKE--AOD--F--CCM 3. Quench: AIR/SPRAY 4. Certification based on mill's certificate complies to EN 10204 3.1
 1. We certify that the analysis and material on this certification is correct and meets the specifications stated
 2. The radiation level exhibited by this material is not greater than the normal background level
 3. This material is free from mercury contamination
 4. Visual and dimensional control: no exceptions. The delivery is in accordance with the order.
 5. Test to verify batch and quality have been made
 6. Material not weld required

MANAGER OF QA DEPARTMENT / WORK INSPECTOR
 QUALITY AND TECHNIQUE DEPARTMENT

 MIKAS Authorized Signatory For Mikas stainless steel

MIKAS STAINLESS STEELS PTE LTD
 FULLY OWNED COIL/PLATE PROCESSING CENTRE

9 TUDAS SOUTH STREET 8, SINGAPORE 636931
 EXCEL METAL INDUSTRIES SDN BHD, JOHOR BAHRU, MALAYSIA



MDR



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Material Certificate 106554 (Page 1 of 1)

Certificate No. : 231226-FH01KS-0456A1-0001
Date of Issue : Jan., 05, 2024

Mill Test Certificate

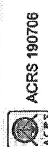
PO No. : '2311-PO003735 (60193)
Commodity : HOT ROLLED SHEET
Spec & Type : AS/NZS 1594 HAZ50



Order No. : 01S6407625
Supplier : GS GLOBAL CORP.
Customer : APEX STEEL PTY LTD

Size	Product No.	Quantity	Weight (kg)	Heat No.	Country of Melt & Pour	Position	Tensile Test		Bend Test	Division	Chemical Composition													
							YP (%)	TS (%)			EL (%)	C (%)	Si (%)	Mn (%)	P (%)	S (%)	Cr (%)	Ni (%)	Cu (%)	Mo (%)	Ti (%)	Se+Al (%)	CEQ (%)	
15.95x1499x3000	HRX083700001	7	3,941	SQ4123*	KOR	B	289	477	27	Good	L	0.1880	0.008	0.532	0.0098	0.0035	0.014	0.004	0.009	0.006	0.006	0.0004	0.024	0.342
15.95x1499x3000	HRX083700002	7	3,941	SQ4123*	KOR	B	289	477	27	Good	L	0.1880	0.005	0.532	0.0098	0.0035	0.014	0.004	0.009	0.006	0.006	0.0004	0.024	0.342
15.95x1499x3000	HRX083700003	7	3,941	SQ4123*	KOR	B	289	477	27	Good	L	0.1880	0.008	0.532	0.0098	0.0035	0.014	0.004	0.009	0.006	0.006	0.0004	0.024	0.342
15.95x1499x3000	HRX083700004	7	3,941	SQ4123*	KOR	B	289	477	27	Good	L	0.1880	0.008	0.532	0.0098	0.0035	0.014	0.004	0.009	0.006	0.006	0.0004	0.024	0.342
15.95x1499x3000	HRX083700005	6	3,378	SQ4123*	KOR	B	289	477	27	Good	L	0.1880	0.008	0.532	0.0098	0.0035	0.014	0.004	0.009	0.006	0.006	0.0004	0.024	0.342
15.95x1499x3000	HRX083700006	5	2,915	SQ4123*	KOR	B	289	477	27	Good	L	0.1880	0.008	0.532	0.0098	0.0035	0.014	0.004	0.009	0.006	0.006	0.0004	0.024	0.342
*** Sub Total (010) ***		45	25,335 (kg)																					
*** Grade Total ***		45	25,335 (kg)																					
*** Grand Total ***		45	25,335 (kg)																					

CEQ (%) = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5



* Position - T : Top, M : Middle, B : Bottom
* Tensile Test Direction : Longitudinal, Gauge Length : 200 mm (Rectangular),
* YP Method : Upper Point
* Bend Test - Direction : Longitudinal, Angle : 180°
* Division - L : Ladle Analysis

We certify that the material has been made in accordance with the order and is in compliance.
Test Certificate is issued according to ISO 10746EN 10204 3.1
We, POSCO, hereby certify that the products specified in the present MTC have been fully processed in South Korea. (Facility and address information is stated below)



Surveyor To : Park, Junyoung

Chief of material testing section

POSCO
Gwangyang Works, 20-26, Pokposarang-gil, Gwangyang-si, Jeollanam-do, 57807, Korea

POSCO



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Material Certificate 109601 (Page 1 of 1)

INSPECTION CERTIFICATE									
Certificate No. 024303 DIN EN 10204 Inspection Certificate: Type 3.1 AS88GCM203000_G390004897									
Part No.: AS88GCM203000 Description: M20 PC8.8 HDG Threaded Rod Property Class: 8.8 Size: M20			Customer: Hobson Engineering PTY LTD Surface Condition: Hot Dip Galvanised [AS/NZS 1214] Product Standard: DIN 976			Certificate No.: 024303 Issue Date: 2023/10/12 P/O No.(s): 102618NS2			
Item: 001 Desc: Thread Rod Trace: G390004897									
Chemical Composition (%)									
		C%		P%		S%		B%	
		min	max	min	max	min	max	min	max
Spec	Carbon Steel w/ Additives	0.20	0.55	-	0.025	-	0.025	-	0.003
Item	001	0.350		0.0120		0.0040		/	
Mechanical Properties									
		Proof		Tensile		Hardness			
		Stress	Elong.	Yield	Tensile	Core			
		MPa	µm	MPa	MPa	HRC			
		min	min / max	min	min	min	max		
Spec	D≤M16	580	±12.5	640	800	22	32		
	D>M16	600	±12.5	660	830	23	34		
Item	001	Conforms	Conforms	-	935	29	30		
Notes									
This is to certify that the above results are true and correct in every detail This product supplied comply with the relevant standards and/or specifications					Authorised Signatory Enter Name				
					Signature:				
ISO 9001 BUREAU VERITAS Certification Registration No. 9000117 (Hobson)					hobson.com.au Head Office: 10 Clay Place, Eastern Creek NSW 2766 Australia ISO9001: 2015 P (02) 8818 0288 F (02) 9620 1850				



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Material Certificate 109326 (Page 1 of 1)

Test Certificate

10 Clay Place Eastern Creek
NSW 2766
Australia
Phone: (02) 8818 0222
Fax: (02)9620 1850

HOBSON ENGINEERING PTY LTD
www.hobson.com.au

Order No: 83386QT1 Coating: HDG Certificate No: IC2011218

Product Details Date Certificate issued: 2020/1 1/2

Item 001 Heat No 0500230 Description HDG AS1112 CL 8 HEX NUT: M20 Hobson Part No. NH08GCM20 Spec/Grade DIMENSIONAL STANDARD AS1112.1
MECHANICAL STANDARD AS4291.2 NUTS CLASS 8

Chemical Analysis

Item	C%	Min%	P%	S%
001	0.36	0.72	0.012	0.004

Required Chemical Analysis

Item	C%	Min%	Max	P%	Max	S%	Max
001	0.58	0.25	0.06	0.150			

Mechanical Properties

Item	Stress Under Proof Load N/mm ²
001	920

Required Mechanical Properties

Item	Stress Under Proof Load N/mm ² (M4 to M7)	Stress Under Proof Load N/mm ² (M7 to M10)
001	855	870

Required Mechanical Properties

Item	Stress Under Proof Load N/mm ² (M10 to M16)	Stress Under Proof Load N/mm ² (M16 to M39)
001	880	920

Final Hardness

Item	Scale	Min	Max
001	HV	272	297

Required Final Hardness ≤ M16

Item	Scale	Min	Max
001	HV	200	302

Required Final Hardness > M16

Item	Scale	Min	Max
001	HV	233	353

Marking, Grade & Trade Mark
 Decarburization & Head Soundness
 Visual/Dimensional Examination
 Coating Thickness
 Product verified by Independent Batch Testing in Australia (NATA-Approved)

This is to certify that the above results are true and correct in every detail.
 The products supplied comply with the relevant standards and/or specifications.

Signature *Changhua*
 Print Name of Signature CHANG HUA
 Quality Control Manager QC MANAGER

Issue 3.0 Issue date: 30 Aug 2019 End of Certificate



MDR



-XXXXXXXXXX-

Material Certificate 102079 (Page 1 of 1)



No.270,Sec.4,Jungshan Rd.,S.hijou S.hiang, Chang-Hwa,Taiwan,R.O.C http://www.ycinox.com TEL : +886-4-8899666 FAX : +886-4-8899770

INSPECTION CERTIFICATE EN 10204-3.1:2004



Table with columns: Item No., Heat No., Product Description, Chemical Composition (%), Tension Test, and various mechanical properties (HR, HT, HY, ET, F1). Includes customer info, inspection details, and a list of 18 items with their specifications.

Note

- *01= Hardness Test
*02= Heat Treatment(W.Q.)
*03= Hydrostatic Test
*04= Eddy-Current Test
*05= Flattening Test
*Gauge Length: 50mm

1MP a=1N/mm²=10bar=145psi=10.2kgf/cm²
Manager of Quality Assurance Department
Pippen Chiu

Y.C.-2Q007-01D

3/3



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Material Certificate 109830 (Page 1 of 1)



Caman Engineering International Pty Ltd

4 Clerke Place, Kurnell NSW 2231
Telephone: (02) 9540 2355 Facsimile: (02) 9540 2499

A.C.N 002 732 229 A.B.N 84 002 732 229

Inspection Certificate to DIN 50049-3.1B / EN 10204 - 3.1 / ISO 10474-3.1B



Heat Number: 3K005201

Folio No.: 123-1808

Items
100 DN 10-16 EN1092-1 FF BLIND
250 PN 16 AS4087 RF SOW PIPE

Material Specification

Grade 250

Material Origin

CHINA

Original Certificate Number(s)

23A4307523

CHEMICAL COMPOSITION (%)

Min.	C	Si	Mn	P	S
Max.	0.22	0.55	1.70	0.040	0.030
Result	0.16	0.17	0.28	0.027	0.010

CE

0.207

MECHANICAL PROPERTIES

Units	Tensile Strength		Yield Point	Elongation	Hardness	Reduction Of Area
	MPa	MPa				
Min.	410	250	22			
Max.						
Result	414	275	33.5			

Heat Treatment

PLATE AS ROLLED.

Surface and Appearance Inspection

PASSED

Dimension Inspection

PASSED

Note: Yield strength greater than 250 Mpa.

CE ≈ C + (Mn/6) where Cr, Mo, V, Ni & Cu values are not available.

We hereby certify that the above data is true copy of data furnished to Caman Engineering International Pty Ltd by the producing foundry, mill or supplier or is the result of tests performed by approved laboratories.

Caman Engineering International Pty Ltd

Signed: QUALITY ASSURANCE DEPARTMENT

Date: 9/10/2023



MDR



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End of Report - This page intentionally left blank.