



BUREAU
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Mechanical Testing Laboratory Report

Customer: HOBSON ENGINEERING CO PTY LTD
Address: PO BOX 1554
CANNING VALE WA 970
Contact: Peter Hobson
Order #: 2567

Bureau Veritas Report #: **MT6292**
Bureau Veritas Contact: Brian Casson
Date: 25/02/2008

Description: Fastener testing on Fifteen(15) bolt nuts and washer assemblies to AS/NZS 1252 - 1996 & Hobson Specification TP2

Test Specimen Identification

1)	M16 x 40 HDG B/N/W Assembly Heat #	J-5575A
2)	M16 x 45 HDG B/N/W Assembly Heat #	J-5575A
3)	M16 x 50 HDG B/N/W Assembly Heat #	J-5575A
4)	M16 x 60 HDG B/N/W Assembly Heat #	J-5575A
5)	M16 x 65 HDG B/N/W Assembly Heat #	J-5575A
6)	M16 x 70 HDG B/N/W Assembly Heat #	J-5575A
7)	M16 x 75 HDG B/N/W Assembly Heat #	J-5575A
8)	M16 x 80 HDG B/N/W Assembly Heat #	J-5575A
9)	M16 x 90 HDG B/N/W Assembly Heat #	J-5575A
10)	M16 x 120 HDG B/N/W Assembly Heat #	J-5575A
11)	M20 x 45 HDG B/N/W Assembly Heat #	J-6692A
12)	M20 x 50 HDG B/N/W Assembly Heat #	J-6692A
13)	M20 x 55 HDG B/N/W Assembly Heat #	J-6692A
14)	M20 x 60 HDG B/N/W Assembly Heat #	J-6692A
15)	M20 x 65 HDG B/N/W Assembly Heat #	J-6692A

The results from the following tests comply with the requirements of
AS/NZS 1252 - 1996 & Hobson Specification TP2

Coating Thickness Test

Proof Load and Wedge Tensile Test bolts

Proof Load Testing Nut

Rockwell Hardness Test

Brian Casson

Manager – Mechanical Testing, Metallurgical investigations

Please note: All tests are NATA endorsed except coating thickness test





MECHANICAL TESTING LABORATORY REPORT

Bureau Veritas Report Number: **MT6292**

Date: 25/02/2008

Coating Thickness Test

Test method: AS 1214 - 1983
Test Machine: Elcometer 345 S/N RC2956-270
Test Date: 25/02/2008

ID	Coating thickness (μm)			C/DNC
	Bolt	Nut	Washer	
1	100	90	100	C
2	100	60	130	C
3	100	90	90	C
4	120	90	100	C
5	100	70	120	C
6	100	70	120	C
7	90	60	100	C
8	100	90	90	C
9	90	70	100	C
10	100	70	120	C
11	70	100	90	C
12	90	70	100	C
13	90	90	120	C
14	70	90	130	C
15	90	90	100	C

Coating thickness requirements: Minimum average – 52.5 μm , Minimum individual - 42 μm



MECHANICAL TESTING LABORATORY REPORT

Bureau Veritas Report Number: **MT6292**

Date: 25/02/2008

Nut Proof Load Test

Test Method: AS/NZS 1252 - 1996

Test Machine: 44604 (2000kN)

Machine Speed: 3mm / min

Test Date: 25/02/2008

ID	Size	Proof Load (kN)	Removable by fingers?	C/DNC
1	M16	182.9	Yes	C
2	M16	182.9	Yes	C
3	M16	182.9	Yes	C
4	M16	182.9	Yes	C
5	M16	182.9	Yes	C
6	M16	182.9	Yes	C
7	M16	182.9	Yes	C
8	M16	182.9	Yes	C
9	M16	182.9	Yes	C
10	M16	182.9	Yes	C
11	M20	285.4	Yes	C
12	M20	285.4	Yes	C
13	M20	285.4	Yes	C
14	M20	285.4	Yes	C
15	M20	285.4	Yes	C

MECHANICAL TESTING LABORATORY REPORT

Bureau Veritas Report Number: **MT6292**

Date: 25/02/2008

Bolt Proof Load Test

Test Method: AS/NZS 1252 - 1996

Test Machine: 44604 (2000kN)

Machine Speed: 3mm / min

Test Date: 25/02/2008

ID	Size	Test	Proof Load (kN)	Initial Length (mm)	Final Length (mm)	Change (mm)	C/DNC
1	M16	Initial	94.5	3.755	3.764	0.0009	C
		Retest	N/A	-	-	-	-
2	M16	Initial	94.5	3.935	3.944	0.009	C
		Retest	N/A	-	-	-	-
3	M16	Initial	94.5	4.196	4.215	0.019	Retest
		Retest	97.3	4.215	4.226	0.011	C
4	M16	Initial	94.5	4.002	4.003	0.001	C
		Retest	N/A	-	-	-	-
5	M16	Initial	94.5	4.085	4.095	0.010	C
		Retest	N/A	-	-	-	-
6	M16	Initial	94.5	4.174	4.177	0.003	C
		Retest	N/A	-	-	-	-
7	M16	Initial	94.5	4.233	4.234	0.001	C
		Retest	N/A	-	-	-	-
8	M16	Initial	94.5	3.426	3.429	0.003	C
		Retest	N/A	-	-	-	-
9	M16	Initial	94.5	3.365	3.366	0.001	C
		Retest	N/A	-	-	-	-
10	M16	Initial	94.5	4.009	4.012	0.003	C
		Retest	N/A	-	-	-	-
11	M20	Initial	147.0	3.870	3.870	0.000	C
		Retest	N/A	-	-	-	-
12	M20	Initial	147.0	3.535	3.535	0.000	C
		Retest	N/A	-	-	-	-
13	M20	Initial	147.0	4.535	4.537	0.002	C
		Retest	N/A	-	-	-	-
14	M20	Initial	147.0	4.270	4.272	0.004	C
		Retest	N/A	-	-	-	-
15	M20	Initial	147.0	3.822	3.823	0.001	C
		Retest	N/A	-	-	-	-



MECHANICAL TESTING LABORATORY REPORT

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Date: 25/02/2008

Wedge Tensile Test

Test Method: AS/NZS 1252 - 1996

Test Machine: 44604 (2000kN)

Machine Speed: 3mm / min

Test Date: 25/02/2008

ID	Size	Shank Length (mm)	Wedge Angle (°)	Minimum Failure Load (kN)	Actual Failure Load (kN)	Failure Location	C/DNC
1	M16	10	6	130.0	140.0	First Thread	C
2	M16	11	6	130.0	136.0	Thread	C
3	M16	12	6	130.0	131.0	Thread	C
4	M16	20	6	130.0	131.5	Thread	C
5	M16	25	6	130.0	141.5	Thread	C
6	M16	29	6	130.0	153.0	Thread	C
7	M16	32	10	130.0	152.0	Thread	C
8	M16	40	10	130.0	151.8	Thread	C
9	M16	49	10	130.0	152.0	Thread	C
10	M16	80	10	130.0	154.0	Thread	C
11	M20	14	6	203.0	253.0	Thread	C
12	M20	14	6	203.0	240.0	First Thread	C
13	M20	14	6	203.0	243.0	Thread	C
14	M20	14	6	203.0	238.0	Thread	C
15	M20	15	6	203.0	251.0	First Thread	C



MECHANICAL TESTING LABORATORY REPORT

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Date: 25/02/2008

Rockwell Hardness Test

Bureau Veritas procedure: TP4MT05

Test method: AS 1815.1 - 2002

Test Machine: Avery-Denison 6407 Serial Number 30786

Indenter: ACS 36997

Test Date: 25/01/2008

ID	Location	Hardness (HRC)
1	Washer	34 35 34
2	Washer	35 36 36
3	Washer	37 37 35
4	Washer	36 37 35
5	Washer	37 36 36
6	Washer	36 37 35
7	Washer	40 38 37
8	Washer	35 37 36
9	Washer	37 36 37
10	Washer	35 37 38
11	Washer	34 35 35
12	Washer	38 38 37
13	Washer	35 34 35
14	Washer	36 37 36
15	Washer	35 35 36

Minimum Requirements: 26 - 45 HRC