



10 August 2011

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Doc. No 4941-0292/2

PRODUCT EVALUATION REPORT

Client: SGA ENGINEERING (AUSTRALIA) PTY LTD
Address: 1-67 HIGH STREET MELTON 3337
Subject: STATIC PROOF LOADING OF BOLT ASSEMBLIES
Client Reference: MR DAREK SYGIDUS
Client's Order No: TBC
Identification: M24 AND M30 BOLT ASSEMBLIES
Specification: CLEINTS OWN
Correlation/Report No.: 4941-0292/2
Testing personnel: CHRIS VINES
Test Location: 45 STEEL STREET NORTH MELBOURNE

1.0 INTRODUCTION.

It was requested that ALS perform a series of static proof loading tests on M24 and M30 bolt assemblies using a series spherical washers and plates.

2.0 PROOF LOAD TESTING

Each of the bolts was loaded in tension with the head of the bolt being supported on a spherical washer set with a steel plate with holes cut to size (12mm thick for the M24 and 16mm thick for the M30) and supported on 2 x 20mm thick plates with a 65mm diameter hole cut centrally (refer to figure 1 for the typical assembly). Each set was then loaded to its nominated proof load and the deflection in assembly measured. The following results were obtained;

Chris Vines
Senior Metallurgist
Victoria, AUSTRALIA



Bolt	M24-1	M24-2	M30-1	M30-2
Load (kN)	Deflection (mm)			
0	0.0	0.0	0.0	0.0
20	0.07	0.09	0.08	0.12
40	0.13	0.14	0.11	0.17
60	0.17	0.19	0.14	0.20
80	0.22	0.22	0.17	0.24
100	0.28	0.28	0.19	0.27
120	0.34	0.32	0.21	0.30
140	-	-	0.23	0.33
160	-	-	0.26	0.36
180	-	-	0.28	0.39
190	-	-	0.29	0.40
0	0.00	-0.02	+0.02	+0.04

The their nominated proof loads the bolt assemblies showed little movement (0.34mm max for M24 and 0.40mm max of M30) and only very slight amounts permanent deflection.



Figure: 1

Subject: Typical bolt assembly showing the spherical washers (blue) on the plates.



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