



Certificate for Welding Consumable CM-A106

Project: **Supplementary List of Certified Welding Consumables**

Client: **Kobe Steel, Ltd.
Saijo Plant**

Office: **Yokohama**

Clients Order Number: -

Date: **17 October 2023**

Order Status: **Completed**

Inspection Dates

First: **23 August 2023**

Final: **29 September 2023**

This certificate is issued to the above Client to certify that the undersigned Surveyor to this Society did at their request attend their Saijo Plant and Fujisawa Plant on and between the dates shown above for the purpose of examining and testing below noted welding consumable.

Trade Name: **CM-A106**
Welding Process: Manual Electrode
Welding Position: DVuO
Joint Type: BF
Specification: CM-A106 [M – Manufacturer's specification]

A weld metal assembly was prepared using the welding consumable of lot number D002/ D001/ D002, and specimens machined from the assembly according to the specification were tested using calibrated measuring and testing equipment in the presence of the undersigned with results satisfying the requirements of the specification as follows.

Butt Weld Test

Mechanical Properties of Butt Weld in Downhand Position

	Dia. [mm]	Rp0.2 [N/mm ²]	Rm [N/mm ²]	A [%]	CVN Impact [J]	Test Temp.	Stress Relief
Spec.	3.2-5.0	-	≥ 621	-	-	-	690°C x1hr
Obtained	4.0/ 5.0	-	645	-	-	-	690°C x1hr

Mechanical Properties of Butt Weld in Vertical-upward Position

	Dia. [mm]	Rp0.2 [N/mm ²]	Rm [N/mm ²]	A [%]	CVN Impact [J]	Test Temp.	Stress Relief
Spec.	3.2-5.0	-	≥ 621	-	-	-	690°C x1hr
Obtained	3.2/ 4.0	-	643	-	-	-	690°C x1hr

Mechanical Properties of Butt Weld in Overhead Position

	Dia. [mm]	Rp0.2 [N/mm ²]	Rm [N/mm ²]	A [%]	CVN Impact [J]	Test Temp.	Stress Relief
Spec.	3.2-5.0	-	≥ 621	-	-	-	690°C x1hr
Obtained	3.2/ 4.0	-	647	-	-	-	690°C x1hr

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Deposited Metal Test (in Downhand Position)

Mechanical Properties of Deposited Metal

	Dia. [mm]	Rp0.2 [N/mm ²]	Rm [N/mm ²]	A [%]	CVN Impact [J]	Test Temp.	Stress Relief
Spec.	3.2-5.0	≥ 531	≥ 621	≥ 17	-	-	690°C x1hr
Obtained	4.0/ 5.0	661/ 668	689/ 695	22/ 21	-	-	690°C x1hr

Chemical Analysis of Deposit Metal [WT %]

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu
Spec.	0.05-0.12	0.60 max	0.90 max	0.030 max	0.030 max	-	2.00-2.50	0.90-1.20	-
Obtained	0.08/ 0.08	0.40/ 0.41	0.71/ 0.72	0.01/ 0.01	<0.01/ <0.01	-	2.28/ 2.27	1.00/1.01	-

The works of the manufacturer was inspected and found in satisfactory order. The process of manufacture, including supervision, quality control and record keeping were of adequate standard and storage condition and facilities were found to be satisfactory as well.



M. Wakamori
 Surveyor to Lloyd's Register Group Limited

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