



Certificate for Welding Consumable CM-9Cb

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

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

Office: **Yokohama**

Clients Order Number: -

Date: **19 June 2020**

Order Status: **Completed**

Inspection Dates

First: **21 February 2020**

Final: **15 May 2020**

This certificate is issued to the above Client to certify that the undersigned Surveyor to this Society did at their request attend their Ibaraki 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-9Cb**
Welding Process: **Manual Electrode**
Welding Position: **DXVuO**
Joint Type: **BF**
Specification: **CM-9Cb [M – Manufacturer's specification]**

A weld metal assembly was prepared using the welding consumable of lot number A032987/A034987, 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.

Stress Relief Condition 1

Mechanical Properties of Deposit Metal

	Dia. [mm]	Re [N/mm ²]	Rm [N/mm ²]	A [%]	CVN Impact [J]	Test Temp.	Stress Relief
Spec.	2.6-5.0	≥ 531	≥ 621	≥ 17	-	-	730°C x 4hrs
Obtained	4.0/5.0	674/680	813/816	21/22	-	-	730°C x 4hrs

Chemical Analysis of Deposit Metal [WT %]

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu
Spec.	0.12 max	0.60 max	2.00 max	0.025 max	0.025 max	-	8.00-10.5	0.90-1.20	-
Obtained	0.06/0.07	0.37/0.36	1.54/1.52	0.006/0.005	0.002/0.002	-	8.75/8.59	1.07/1.03	-

Stress Relief Condition 2

Mechanical Properties of Deposit Metal

	Dia. [mm]	Re [N/mm ²]	Rm [N/mm ²]	A [%]	CVN Impact [J]	Test Temp.	Stress Relief
Spec.	2.6-5.0	≥ 450	≥ 550	≥ 17	-	-	750°C x 1hr
Obtained	4.0 / 5.0	685 / 675	835 / 825	21 / 21	-	-	750°C x 1hr

Chemical Analysis of Deposit Metal [WT %]

	C	Si	Mn	P	S	Ni	Cr	Mo	Cu
Spec.	0.12 max	0.60 max	2.00 max	0.025 max	0.025 max	-	8.00-10.50	0.90-1.20	-
Obtained	0.06/0.07	0.37/0.36	1.54/1.52	0.006/0.005	0.002/0.002	-	8.75/8.59	1.07/1.03	-

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

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.



S. Kato
Surveyor to Lloyd's Register Group Limited



A subsidiary of Lloyd's Register Group Limited

