



## **CERTIFICATION OF MANUFACTURE OF SPECIAL MATERIALS**

# **DOCUMENT CMSM/1: SCHEME DESCRIPTION AND BENEFITS**

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Issued under the authority of the Governing Board for Certification  
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The use of the UKAS Accreditation Mark indicates accreditation in respect of those activities covered by  
Accreditation Certificate No 25

# 1 GENERAL BACKGROUND

This scheme document describes the TWI Certification Ltd process for independent third-party assessment and certification of manufacturers in accordance with the requirements of ISO 17782, Petroleum, petrochemical and natural gas industries – Scheme for conformity assessment of manufacturers of special materials, and Norsok M-650 Qualification of manufacturers of special materials.

This scheme document describes the application process, assessment requirements and certification benefits available to manufacturers able to demonstrate conformity with the Scheme requirements.

Certification in accordance with this scheme document is third-party assurance of a manufacturer's competence and experience to manufacture the relevant material grades and product forms stated in the Certification of Manufacture of Special Materials (CMSM) and Manufacturing Procedure Conformity Record (MPCR) schedule. The intention is that a MPCR accepted by one customer should also be acceptable for other customers, within the scope of essential variables certified.

Welding for production or repair is required to comply with the requirements of ISO 3834-2. Assessment of welded production and repair of products will be undertaken in accordance with the requirements of the Welding Fabricator Certification Scheme (WFCS).

The standards ISO 17782, Norsok M-650 and ISO 3834 may be referenced by application standards or contractual specifications. Equally, they provide a basis for independent assessment of a manufacturer's competence and capability in advance of a formal contract or product order.

The certification of manufacturing companies that demonstrate compliance with recognised quality management systems such as ISO 9001 is well established, and evidence of compliance with relevant quality management requirements will be taken into consideration in assessment of conformity with the requirements of this scheme document. However, ISO 9001 provides little indication of the capability of a manufacturer in terms of competence to produce a type of product, operate manufacturing processes or work with various materials. Independent certification of compliance with ISO 17782, Norsok M-650 and ISO 3834 provides manufacturers and their customers with an authoritative third-party reference of commercial value. For the main contractor or purchasers, certification identifies manufacturers whose competence for particular types of work had been independently assessed, providing greater confidence in their ability to deliver specific products of the required quality.

The CMSM provides such a facility for all companies in which special materials are a feature of manufacture whether they have ISO 9001 certification or not. CMSM provides third-party assessment of the control of manufacturing, competence and capability leading to entry on the Register of Certified Companies held by TWI CL. It is an expert scheme in that the Assessors authorised under the scheme are required to satisfy stringent criteria and are formally Registered.

The CMSM is operated in accordance with the requirements of ISO/IEC 17065, Conformity assessment – Requirements for bodies certifying products, processes and services.

## 2. OUTLINE OF THE CERTIFICATION OF MANUFACTURE OF SPECIAL MATERIALS (CMSM)

This scheme document establishes the procedure for verifying that the manufacturer of special materials for the petroleum, petrochemical and natural gas industries has sufficient competence and experience of the relevant material grades of metal, and the necessary facilities and equipment, to manufacture these materials in the required shapes and sizes with acceptable properties according to the applicable standard, material specification and/or material data sheet specified by the Purchaser.

### 2.1 The requirements of this scheme document are applicable to manufacturers of the following materials, product forms and manufacturing processes:

#### 2.1.1 Materials:

- a) duplex stainless steel;
- b) high alloyed austenitic stainless steel;
- c) nickel-based alloys;
- d) titanium and its alloys

### 2.1.2 Product forms

- a) Strip, plate, pipe, tube, wrought fittings, seamless fittings including dished heads, cold bent bends and spools
- b) Castings, forgings, bars and HIP
- c) Induction bent bends and spools
- d) Investment castings
- e) Fasteners in solution annealed condition
- f) Strain-hardened products including fasteners
- g) Seamless pipes and tubes
- h) Welded fittings, including dished heads
- i) Welded pipes

### 2.1.3 Manufacturing processes

- a) Casting
- b) Forging
- c) Pressing
- d) Rolling
- e) Induction bending
- f) Machining
- g) Heat treatment
- h) Blasting
- i) Pickling
- j) Welding
- k) NDE/inspection
- l) Strain hardening
- m) Extrusion
- n) Cold-worked pipemaking
- o) Pilgering

## 2.2 Manufacturers of welded products

Manufacturers of welded products or applying welding for repair of cast products shall conform with ISO 3834-2. Quality control of fusion welding for manufacture and repair of special materials shall satisfy the requirements of WFCS to gain CMSM certification.

ISO 3834 defines management quality requirements for fusion welding. They incorporate the following parts:

ISO 3834	Quality Requirements for Fusion Welding of Metallic Materials
Part 1:	Criteria for the Selection of the Appropriate Level of Quality Requirements
Part 2:	Comprehensive Quality Requirements
Part 3:	Standard Quality Requirements
Part 4:	Elementary Quality Requirements
Part 5:	Documents with which it is necessary to confirm to claim conformity to the quality requirements of 3834-2, 3834-3, 3834-4.
Part 6:	Guidelines on implementing ISO 3834.

Parts 2 and 3 of these documents also refer to ISO 14731 Welding Co-ordination, Tasks and Responsibilities.

## 3. BENEFITS FOR REGISTERED COMPANIES

- Clear, high profile independent verification of its compliance with ISO 17782 and NORSOK M-650 requirements.
- Independent confirmation of competence for its manufacturing capabilities and staff in a defined scope of activity.
- Conformity assessments carried out by specialist assessors registered by TWI Certification Ltd.

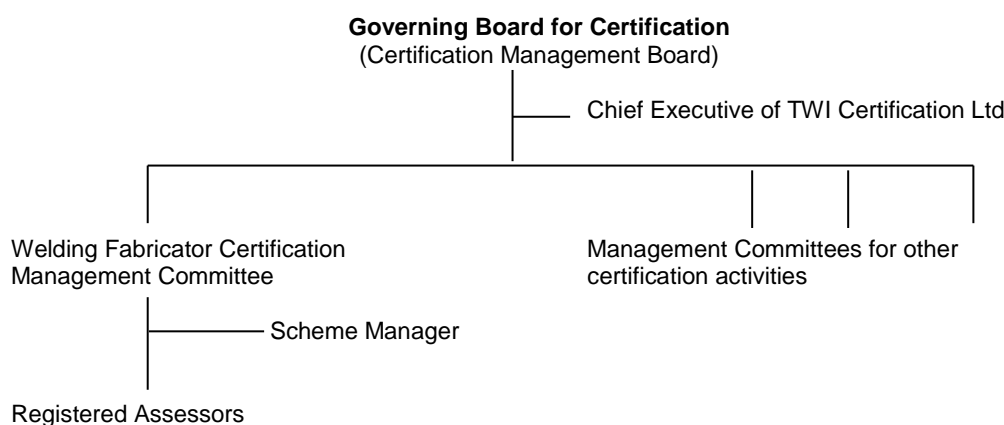
- Increased national and international business potential through registered compliance with an independent, third-party certification scheme in full compliance with ISO/IEC 17065 requirements.
- Certified companies who manufacture welded products will receive supporting WFCS and EWF/IIW MCS certification of conformity with ISO 3834-2 requirements for the relevant scope of production.

#### 4. BENEFITS FOR CLIENTS OF REGISTERED COMPANIES

- Expertly led, independent, vendor assessment.
- In-depth, authoritative evaluation of manufacturer's capability and competence.
- Consistent and reliable assessment.
- Uniform presentation of information and data.

#### 5. ORGANISATIONAL STRUCTURE

The certification management structure of TWI Certification Ltd is as follows:



#### 6. SCHEME OPERATION

TWI CL will provide independent, third-party conformity assessment in accordance with CMSM requirements either :

1. On behalf of the main contractor or purchaser for a contracted product manufacture or product order.
- or,
2. For a manufacturer without a specific order.

Applicant companies are audited by assessment teams specifically approved by the Scheme Manager. Assessors have proven manufacturing knowledge and experience, and this ensures that assessment is expertly directed and that the results are authoritative.

Following assessment of the applicant company, the Lead Assessor reports the data and the recommendation to the Scheme Manager for review and decision. The data for compliant manufacturers will be entered on the Register, and published on the TWI CL CMSM website. Registered companies are issued with a Certificate of Registration from TWI Certification Ltd.

#### 7. STEPS TO CERTIFICATION

The process for applicant companies involves the following stages:

- a) Manufacturer submits the Manufacturing Procedure Summary (MPS) to TWI CL, together with evidence of any existing certification.
- b) TWI CL performs a review of documents to establish quality system status and the scope of manufacturing to be assessed for conformity.

- c) Appointment/approval of Assessment Team by TWI CL Scheme Manager.
- d) TWI CL provides applicant manufacturer with quotation and assessment documentation for completion.
- e) Applicant manufacturer returns completed assessment documentation, signed contract, and a purchase order.
- f) Documentary assessment of the MPS and planning of the on-site assessment by the Assessment Team.
- g) On-site assessment by the Assessment Team of production facilities, equipment, personnel and qualification test records; at this stage, findings may be raised as observations or non-conformities.
- h) Applicant manufacturer addresses findings and submits demonstrable evidence to the Assessment Team for closure.
- i) Assessment Team presents the assessment report and recommendation to the Scheme Manager for review and certification decision.
- j) Applicant manufacturer is required to settle the assessment invoice before the certification decision is released.

## **8. CERTIFICATION AND REGISTRATION OF MANUFACTURERS**

### **8.1 Registration**

The Lead Assessor will submit all relevant information to the Scheme Manager for inclusion on the Register. This may include the following information:

- a) Product type(s)
- b) Manufacturing processes
- c) Materials and thickness ranges
- d) Forming, machining and cutting facilities
- e) NDT facilities
- f) Heat treatment facilities
- g) Maximum handling size and weight
- h) Transportation limitations
- i) Personnel
- j) Welding co-ordination personnel
- k) Sub-contracting (relevant to manufacture)
- l) Major use and control of sub-contractors
- m) Special equipment/techniques available.

This information will be publicly available.

The assessment report and recommendation for certification will include the MPS, heat treatment procedures, qualification test results, WPQRs and WPSs

### **8.2 Certification**

Applicant manufacturers achieving conformity with scheme requirements will be entered on to the register and issued with a certificate and MPCR schedule.

Registered manufacturers will be able to present the CMSM certificate and schedule to have the MPCR stamped and signed by the Purchaser in recognition of satisfaction of customer requirements.

### **8.3 Certificate Validity**

CMSM certificates are valid only for the scope of production described in the certificate and MPCR.

For manufacturers with less than 2 years of demonstrable production experience in the scope of manufacturing applied for the initial certification will be restricted to a two-year period of validity before reassessment is required. This restriction will be stated on the certificate.

Manufacturers with more than 2 years of demonstrable production experience in the scope of manufacturing applied for will receive certification valid for a maximum of 5 years from the date of the certification decision.

Signing and stamping of the MPCR front page by Purchasers signifies acceptance of the MPCR only and does not alter the validity of the certificate.

#### **8.4 Surveillance of Registered Manufacturers**

Annual returns will be required each year to verify continued compliance with the scope of certification. Where the annual return does not provide sufficient confidence of continued compliance, an on-site surveillance assessment may be required.

#### **8.5 Recertification**

Recertification will be achieved through a full initial assessment of conformity with the requirements of this scheme document.

### **9. NOTIFICATION OF CHANGE OF CAPABILITY**

The Registered Manufacturer shall notify the Scheme Manager immediately when there is any reduction in the facilities or capabilities assessed, and when there are changes in any of the essential variables of the MPS or process qualification test records. The implications of the changes will be reviewed and the registered manufacturer will be informed of the assessment and/or qualification testing necessary to demonstrate conformity with requirements.

An increase in the manufacturing capability may be notified between assessments or surveillance visits, and will be considered as an application for scope extension. Supporting documentation for scope extension will be reviewed and the registered manufacturer will be informed of any additional assessment and/or qualification testing necessary to verify the extension in scope of certification.

### **10. SCHEME DOCUMENTATION**

CMSM/1            Scheme Description and Benefits

### **11. FURTHER INFORMATION**

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