



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13165**

This is to certify that the  
**Test and Calibration Equipment**

with type designation(s)

**JF Instruments APM Mk II, ASC, CTC, ETC, MGC, MPC, MTC, IPI Mk II, mAcal, CSC100, CSC201, RTC-159, PTC-125**

Manufactured by

**Ametek Denmark A/S (Frode Pedersen & Co)**  
**ALLEROD, Denmark**

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application

**The instruments are only approved as portable test instruments.  
Traceable calibration certificate is available from the manufacturer.**

This Certificate is valid until **2017-06-30**.

Issued at **Høvik** on **2013-03-19**

DNV local station: **Copenhagen**

Approval Engineer: **Ståle Sneen**

for **Det Norske Veritas AS**

.....  
**Odd Magne Nesvåg**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.  
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

## Product description

Calibrators type: JF and JOFRA

Parameter	Type no JF	Type no. JOFRA	Lower cal. setpoint	Upper cal. setpoint
Temperature	JF MTC-140 A	JOFRA CTC-140 A	-30 – -2°C *	140 °C
Temperature	JF MTC-320 A	JOFRA CTC-320 A	10 – 50°C *	320 °C
Temperature	JF MTC-650 A	JOFRA CTC-650 A	10 – 50°C *	650 °C
Temperature		JOFRA CTC-320 B	10 – 50°C *	320 °C
Temperature		JOFRA CTC-650 B	10 – 50°C *	650 °C
Temperature		JOFRA ETC-125 A	-18 – 6°C *	125 °C
Temperature		JOFRA ETC-400A	5 – 45°C *	400 °C
Temperature		JOFRA ETC-400R	5 – 45°C *	400 °C
Temperature		JOFRA PTC-125 A/B/C	-90 – -73°C *	125 °C
Temperature		JOFRA RTC-159 A/B/C	-100 – -83°C *	155 °C
Pressure	JF MGC LOW		0 bar	300 bar
Pressure	JF MGC HIGH		0 bar	300 bar
Pressure		JOFRA APM Mk.II series	-0,960 bar	700 bar
Pressure		JOFRA IPI Mk.II series	-0,830 bar	700 bar
Electronic multisignal		JOFRA ASC301/321		
Signal Calibrator V/A		JOFRA CSC100		
Temperature Calibrator		JOFRA CSC201		
milliamp Calibrator		JOFRA mAcal		

\* Depending upon environmental temperature (see technical specification)

## Type Approval documentation

The approval is based on the following documentation:

Instruction sheet for APM Advanced Pressure Module Mk.II Series – 0200056 rev.1 dated April 2011

Specification sheets:

SS-CP-2330-US, SS-CP-2410-US,

SS-ASC301 issue 1110

SS-CSC201 issue 1206

SS-CTC issue 1201

SS-ETC issue 1109

SS-IPI Mk II issue 1210

SS-MACAL issue 1201

SS-MTC issue 1201

SS-PTC-125 issue 1207

SS-RTC-159 issue 1206

Technical Specifications:

MTC-140 A: 105394 00 dated 2001-10-01

MTC-320 A: 105395 00 dated 2001-10-01

MTC-650 A: 105396 00 dated 2001-10-01

CTC-140 A: 105385 02 dated 2002-08-12

CTC-320 A: 105386 02 dated 2002-08-12

CTC-320 B: 105388 02 dated 2002-08-12

CTC-650 A: 105387 02 dated 2002-08-12

CTC-650 B: 105389 02 dated 2002-08-12

ETC-125 A: 124034 01 dated 2003-02-13

ETC-400 A: 124035 01 dated 2003-02-13

ETC-400 R: 124501 00 dated 2003-11-19

mAcal: 103936 00 dated 1997-08-21

User Manuals:

mAcal:	103887 01	dated 2005	
MTC-140/320/650 A	105337 02	dated 2004-07-26	
CTC-140/320/650 A/B	123199 03	dated 2005-09-12	
ETC-125A/400A/400R:	123943 03	dated 2005-09-29	(User- and Reference Manual)
MGC-LOW/HIGH:	124945 01	dated 2007-10-02	
ASC301:	SPK-ASC-006 B	dated September 2011	
CSC201:	SPK-CSC-003 00	dated 2012-07-02	
IPI Mk II:	SPK-IPI-002 A	dated September 2012	

Service Manuals:

mAcal:	105321 00	dated 1999-02-12	
CTC-140/320/650 A/B:	123200 04	dated 2011-09-14	
MTC-140/320/650 A:	123200 04	dated 2011-09-14	
ETC-125A/400A/400R:	124151 00	dated 2003-03-18	

Reference manuals:

IPI	(no identification or date given).		
CSC100	SPK-CSC-001 D	dated April 2011	
CTC-140/320/650 A/B	123198 05	dated 2004-09-03	
RTC-159 A/B/C	127139 10	dated 2012-10-29	
PTC-125 A/B/C	127915 02	dated 2012-10-29	

Manual calibration procedure: P/N 0600001/2/5

Accept Test Report for Compact Calibrators dated 1999-01-29

DNV survey report dated 1999-05-11

Test procedure ASC 300 signed by DNV Copenhagen

Test report for drop test IPI and CSC200 dated 2005-04-01

Test report for pressure tests IPI dated 2005-02-04

Test report for accuracy mAcal dated 2005-03-23

Ametek pressure, drop and calibration test report for MGC-LOW dated 2007-11-28

Ametek test report IPI Mk II/APM/CSC/ASC 1m drop test according to IEC 61010-1 8.2.2 dated 2012-11-12

Ametek test report RTC-159-100C dated 2012-12-21

DNV Copenhagen Certificate retention survey report for A-12587, dated 2012-11-12

## Tests carried out

24 hr. endurance test of temp.calibrators at max. setpoint.

Pressure test of pressure calibrators to 1.5 times max. pressure

Drop test

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE