



est. 1878

USER-MANUAL

Tamson Cool Cube

Immersion Cooler



ISO 9001 : 2015
NL/PRO 238239125

van 't Hoffstraat 12
2665 JL Bleiswijk, The Netherlands
T. 31 (0) 10 522 43 73
tcc-ic-man.docx Rev 2.0 UK 1017

Tamson Instruments bv

www.tamson.com
info@tamson.com

VAT: NL 80 66 34 984 B01
Bank account no.:
NL28 INGB 0007 350 370
NL95 RABO 0160100046
Chamber of commerce 27 16 95 41
Page 1/14



est. 1878

1	SAFETY AND WARNINGS	3
2	WARRANTY	3
3	DISCLAIMER	3
4	PRECAUTIONS AND HAZARDS	4
5	INSTALLATION	4
5.1	IMPORTANT	4
6	USE	5
7	WHAT IS WHAT	6
7.1	START	7
7.2	AIR CIRCULATION	8
8	SPARE PARTS LIST AND PRODUCT CODE.....	9
9	WIRING	10
10	DIMENSIONS	11
11	TROUBLE SHOOTING	11
12	CE DECLARATION OF CONFORMITY	13



ISO 9001 : 2015
NL/PRO 238239125

van 't Hoffstraat 12
2665 JL Bleiswijk, The Netherlands
T. 31 (0) 10 522 43 73
tcc-ic-man.docx Rev 2.0 UK 1017

Tamson Instruments bv

www.tamson.com
info@tamson.com

VAT: NL 80 66 34 984 B01
Bank account no.:
NL28 INGB 0007 350 370
NL95 RABO 0160100046
Chamber of commerce 27 16 95 41
Page 2/14



est. 1878

1 SAFETY AND WARNINGS

Make sure before installing or operating the equipment to read and understand all instructions and safety precautions listed in this manual. If there are any questions concerning the operation of the equipment or about the information given in this manual, please contact your local dealer or our sales department first.

Performance of installation, operation, or maintenance other than those described in this manual may result in a hazardous situation and may void the manufacturer's warranty.

Never operate equipment that is not correctly installed. Unqualified personnel must not operate the equipment. Avoid damage to the equipment, or its accessories, caused by incorrect operation.

Important:

- When performing service, maintenance or moving the apparatus, always disconnect the apparatus at the main's socket,
- Proper skilled and trained personnel are only allowed to operate this equipment,
- Take notice of warning labels and never remove them,
- Refer service and repairs to qualified technician,
- If a problem persists, call your supplier or Tamson Instruments b.v.

2 WARRANTY

Tamson Instruments b.v. warrants that all their manufactured equipment is free from defects in material and workmanship, preventing the device from normal operation. Tamson Instruments b.v. does not warranty that the equipment is fit for any other use than stated in this manual. The manufacturer can only be held responsible for the security, reliability and performance of the equipment, when operated in accordance with the operating instructions, extensions, adjustments, changes and/or if repair is performed by Tamson Instruments b.v. or authorized persons only. This warranty is limited to one year from the date of invoicing. All equipment and materials are subject to standard production tolerances and variations.

3 DISCLAIMER

For relevant measurements always an independent reference measurement is needed. Tamson can not be held responsible for misinterpretation or consequences of an erroneous reading.



ISO 9001 : 2015
NL/PRO 238239125

van 't Hoffstraat 12
2665 JL Bleiswijk, The Netherlands
T. 31 (0) 10 522 43 73
tcc-ic-man.docx Rev 2.0 UK 1017

Tamson Instruments bv

www.tamson.com
info@tamson.com

VAT: NL 80 66 34 984 B01
Bank account no.:
NL28 INGB 0007 350 370
NL95 RABO 0160100046
Chamber of commerce 27 16 95 41
Page 3/14

4 PRECAUTIONS AND HAZARDS

Before attempting to operate the TCC - IC read all parts of this manual carefully to insure smooth operation and avoid damage to the equipment or its accessories.



READ CAREFULLY

If a malfunction occurs, consult section "Trouble shooting", page 11. If the problem persists email us at: service@tamson.com.

Never operate the equipment if not correctly installed. The equipment must be operated only by qualified personnel. Avoid damage to the equipment or its accessories through incorrect operation.

Environment	
Panel sealing	Confirms EN60529: IP65
Environment Temperature	0 tot 35°C. Supply enough ventilation
Humidity	5 tot 95 %, non condensating
Atmosphere	Not suited for altitudes above 2000m or explosive/corrosive environment
Pollution cat. 2	Conducting pollution must be prevented

REMOVE ALL PACKAGE MATERIAL

5 INSTALLATION

5.1 Important

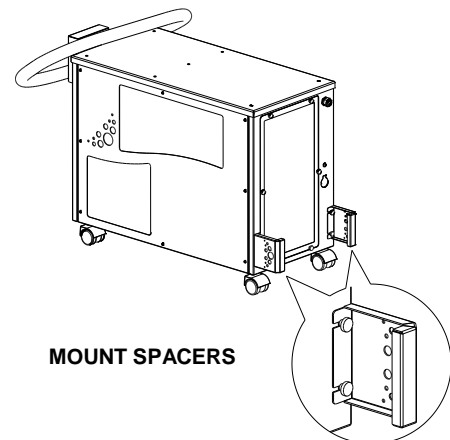
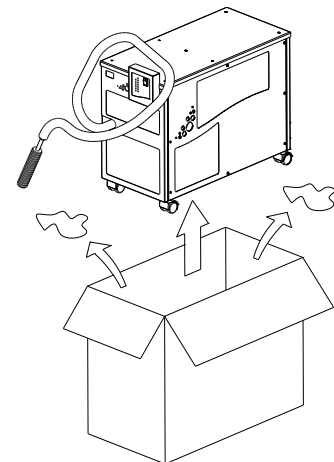
Tamson Instruments bv is not responsible for any consequential damage or harm caused by using this TCC - IC. Repairs on the electrical system of the TCC - IC may only be carried out by well trained and authorized persons.

Unpacking

Before leaving the factory Tamson products are adequately packed to prevent damage during normal transportation. Check the packing for external damage and make a note on the shipping documents if any damage is found. Always retain the cartons and packing material until the product has been tested and found in good condition. (Transport companies generally will not honor a claim for damage if the respective packing material is not available for examination).

Mount spacers

Mount the two spacers at the backside of the TCC-IC apparatus.



MOUNT SPACERS



ISO 9001 : 2015
NL/PRO 238239125

6 Use

Put the unit in its proper place. Leave enough room around the cryostat for sufficient air circulation. Place the unit in a clean working environment and keep away from dust. When air can not circulate well the cryostat will overheat itself resulting in irreversible and severe mechanical damage. Dust will block the condenser and might also cause overheating of the system. Overheating will cause severe damage to the compressor.

The cold finger can be placed in the TLV25 holder, next to the three opening lids for the viscometer holders. When the TLV25 is fully filled with methanol the cryostat can be switched-on. In all cases water is not recommended to use in combination with a cryostat. Water will freeze very quick around the cooling coil preventing proper energy exchange between the cold finger and the bath fluid.

It is possible to cool down other processes with the cold finger i.e. rapidly lower temperature in hot fluids. It is not recommended to permanently cool fluids with a temperature above 80°C. Pressure inside the evaporator circuit will be extremely high and can cause severe thermal damage to the compressor.

Regularly check:

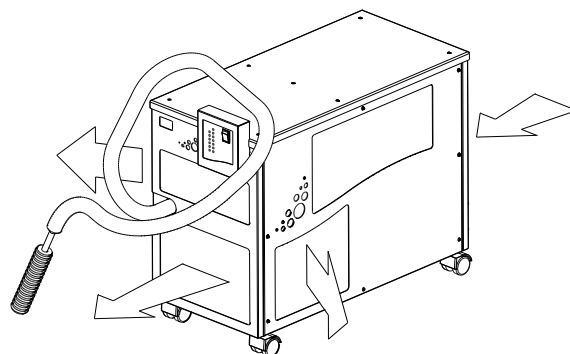
The apparatus to see if airflow is not blocked around apparatus,

Apparatus and condensor are free from dust,

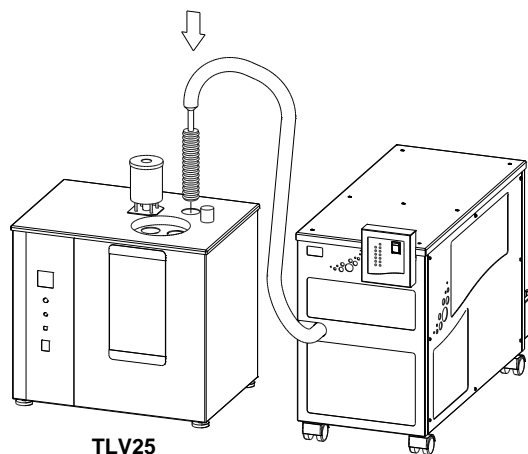
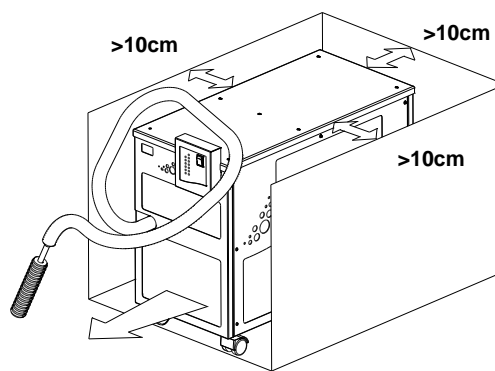
Hose is not mechanically damaged.

It is advised not to move the refrigeration hose at low temperatures. Only move the apparatus and hose when switched-off and cold finger at room temperature.

KEEP AIR FLOW FREE

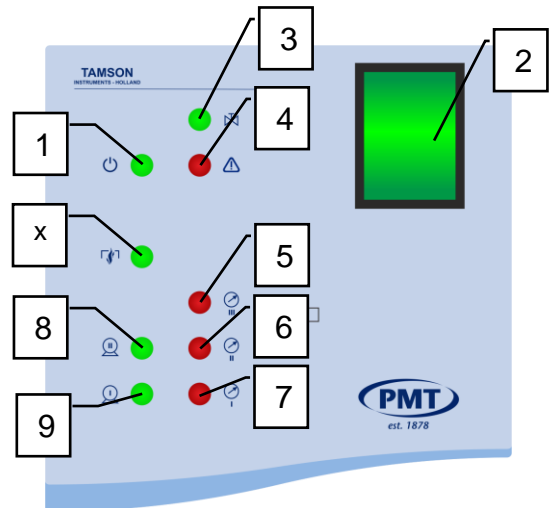


ROOM FOR AIR CIRCULATION



7 What is what

- 1 Indicator on / off
- 2 On / off switch
- 3 Pressure valve open
- 4 System error
- 5 High pressure
- 6 Pressostat stage 2
- 7 Pressostat stage 1
- 8 Compressor stage 2 running
- 9 Compressor stage 1 running
- X Not used



7.1 Start

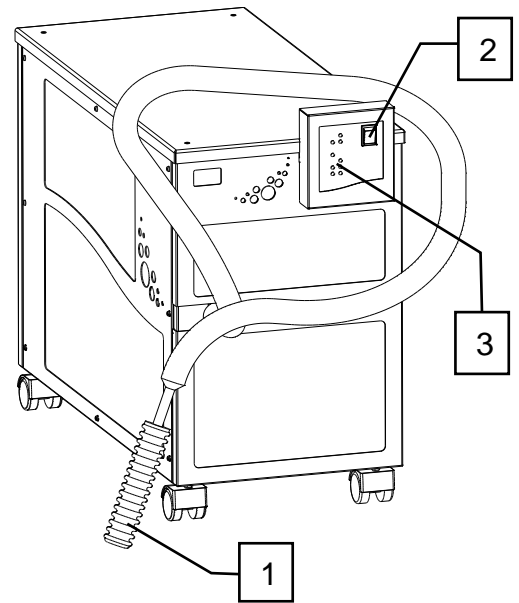
Place the probe [1] in the viscometer bath TLV25

Switch on the apparatus [2]

After approximately 30 seconds the compressor starts indicated by the green LED [3]

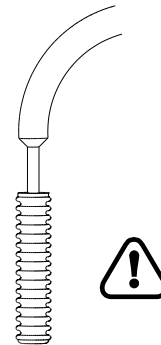
After approximately 300 seconds the compressor of the second stage starts indicated by the green LED [3]

After a few seconds the probe starts to cool.



Always keep the probe [1] in an vertical position

ALWAYS USE PROBE VERTICAL

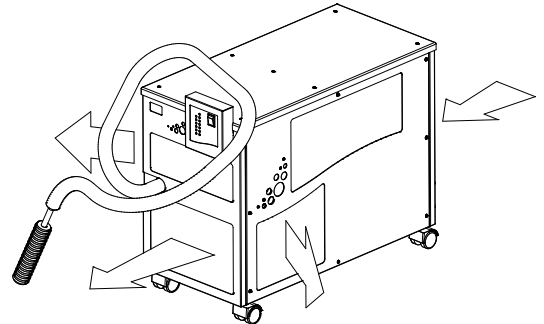


7.2 Air circulation

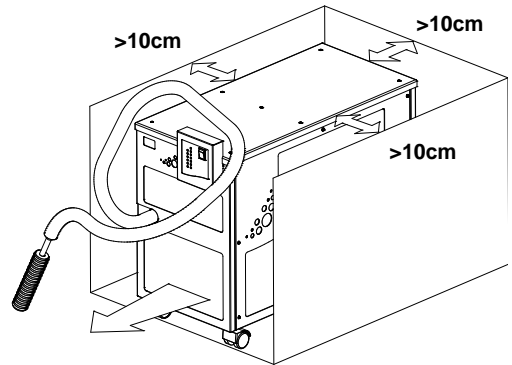
The system transfers heat from the probe to the ambient. It therefore uses airflow. In order to work properly free airflow should be available. The system must be kept free 10 cm from all sides.

Keep backside and sidepanels free for air circulation

KEEP AIR FLOW FREE



ROOM FOR AIR CIRCULATION





est. 1878

8 Spare parts list and product code

Product code	
Ordering code	Description
00T0300	Tamson Cool Cube – Immersion Cooler 230V / 50Hz
00T0301	Tamson Cool Cube – Immersion Cooler 230V / 60Hz
00T0302	Tamson Cool Cube – Immersion Cooler 115V / 60Hz

Sparepart - list		
Ordering code	Image	Description
24T7085		Swing Wheel
24T7086		Swing Wheel with break/lock
24T7091		Mounting Pin Wheel
24T8544		Mains Switch
28T4355		Front Foil With Status Indicators
28T4354		Type Foil
06T0462		PCB, Mains Circuit Board
06T0464		Display Board
24T0029		Power Supply 24V/1,1A Wide Range Input
28T8006		Fan Motor
28T1209		Adjustment Key - Pressostat P20EA Johnson Control



ISO 9001 : 2015
NL/PRO 238239125

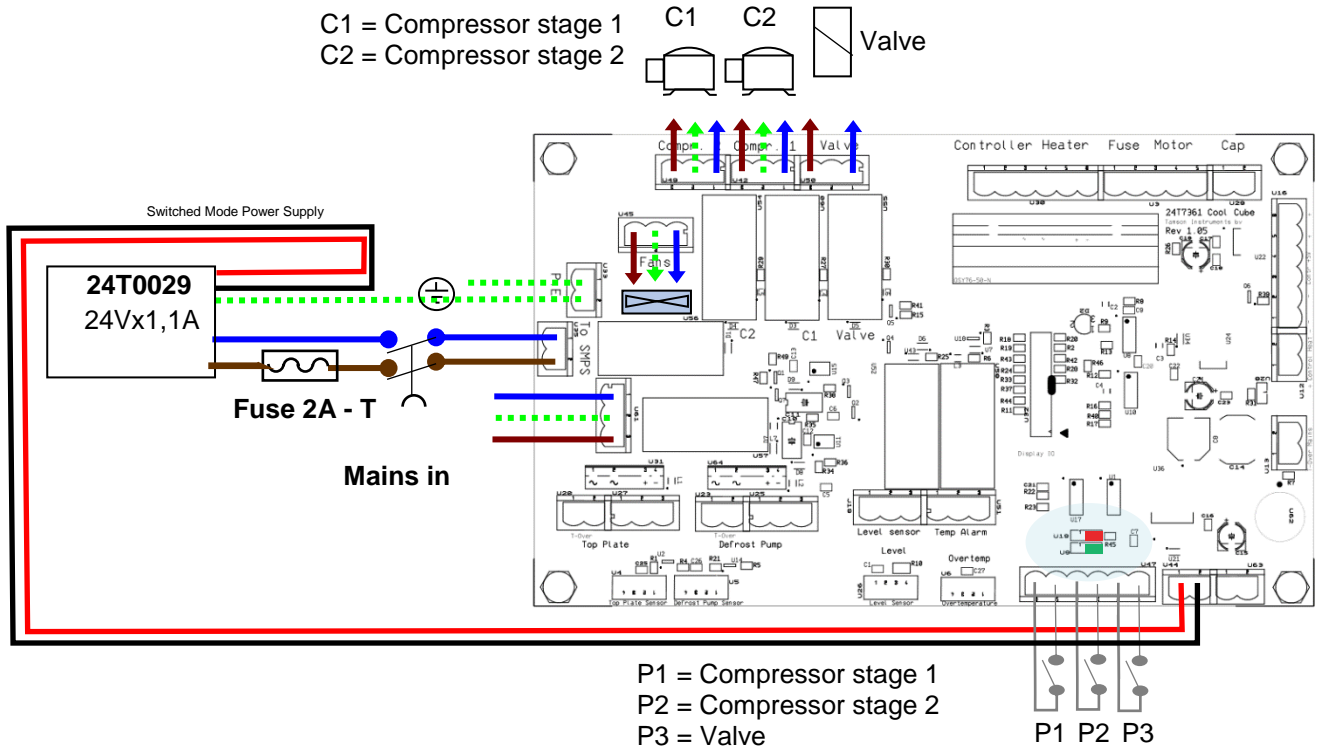
van 't Hoffstraat 12
2665 JL Bleiswijk, The Netherlands
T. 31 (0) 10 522 43 73
tcc-ic-man.docx Rev 2.0 UK 1017

Tamson Instruments bv

www.tamson.com
info@tamson.com

VAT: NL 80 66 34 984 B01
Bank account no.:
NL28 INGB 0007 350 370
NL95 RABO 0160100046
Chamber of commerce 27 16 95 41
Page 9/14

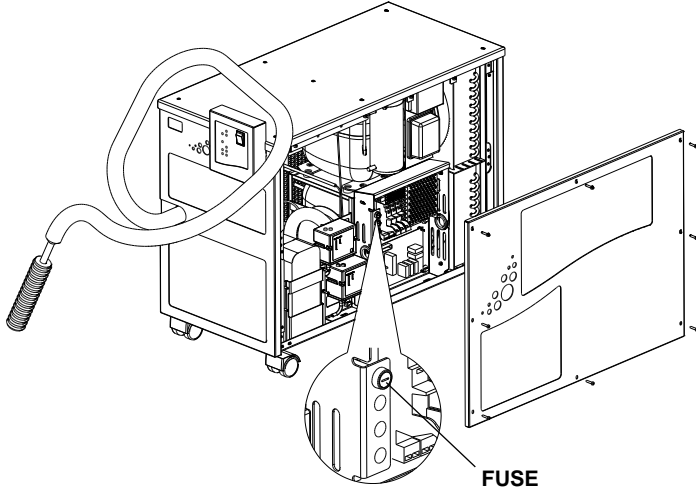
9 Wiring



10 Dimensions

Dimensions Probe			Remark
Diameter	46	[mm]	
Length probe	200	[mm]	
Length hose + probe	2200	[mm]	
Dimensions Casing			
Height + display	660	[mm]	
Height casing (without display)	610	[mm]	
Width	380	[mm]	
Depth (casing)	830	[mm]	Do not operate backside directly to the wall
Depth with distance spacers	920	[mm]	Enabling airflow at backside
Weight	76	[kg]	
Power consumption			
Initial start (first 15 min. max)	2600W		During first starting minutes
Working load	1500W max		During normal operation
Working conditions (ambient)			
Temperature	15..26	[°C]	
Humidity	10..90	[%]	relative humidity

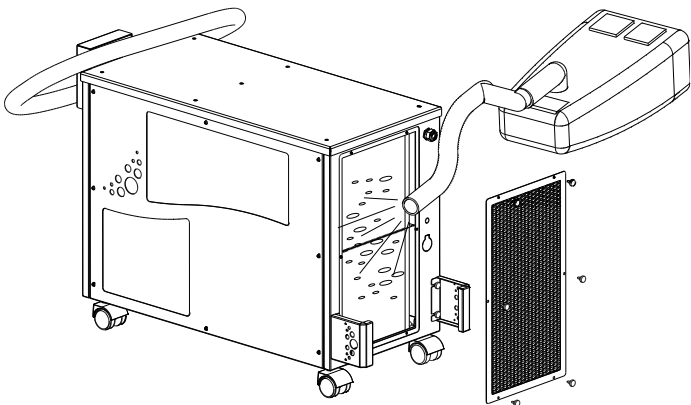
11 Trouble shooting



☹️: **Electronics seem to be "dead"**

☹️: **Check fuse**

☺️: **Replace fuse by 2A-T. So 2 ampère, slow. Fuse can be accessed by removing right side panel.**

	<p>☹️: Compressor (C1 or C2) do not run</p> <p>☺️: Check apparatus for dust.</p> <p>☺️: Remove all dust using a vacuum cleaner. Do not use pressurised air.</p>
	<p>☹️: Fan makes noise</p> <p>☺️: Check fans inside for blocking</p> <p>☺️: Remove dust or litter sucked in.</p>
	<p>☹️: Ice forming on probe</p> <p>☺️: Water vapour in the air condensates on the top of the cold finger. In time this ice will grow, forming a block of ice.</p> <p>☺️: Turn off the cryostat and let the ice melt. Prevent air from forming condensate by insulating the cold finger.</p>
	<p>☹️: System does not cool down</p> <p>☺️: Ice forming (crystals) on the probe.</p> <p>☺️: Use new methanol Do not use ethanol</p>

12 CE DECLARATION OF CONFORMITY



Following equipment is in compliance with EMC Directive 2014/30/EU:

Product: Thermostatic bath and circulator
 Model: TCC - IC
 TCC - B
 Serial code: Effective from 17Txxx
 Manufacturer: Tamson Instruments bv
 van 't Hoffstraat 12
 2665 JL Bleiswijk
 The Netherlands

The products are in conformity with the following specifications:

Item	Reference	Description	Test result
a	RoHS Directive	2011/65EU	p
b	EN61010-2-010	Safety requirements for electrical equipment for measurement, control, and laboratory use. Particular requirements for laboratory equipment for the heating of material	
c	Machine Directive 2006/42/EC	Machinery Directive, of the European Parliament and of the Council of 17 May 2006/42/EC 2nd Edition June 2010	p
d	EN 60204	Machinery Directive and Safety requirements	p, pi
e	EN60950-1	Low Voltage Directive	p
f	EN61000-3-2:2014	Harmonics	p
g	EN61000-3-3	Flicker	p
h	EN61000-4-2 +A1+A2	ESD	p
j	EN61000-4-3 +A1+A2	Radiated immunity	p (anechoic room)
k	EN61000-4-4	Electrical Fast Transients	Minimum requirements pass
l	EN61000-4-5+A1	Surges	Minimum requirements pass
m	EN61000-4-6+A1	Conducted immunity	p
n	EN61000-4-11 +A1	Voltage dips and Voltage variations	p
o	EN55016-2-1	Conducted emission	p
p	EN55016-2-3	Radiated emission	p (anechoic room)
q	Pr EN 378	Refrigerating systems and heat pumps - Safety and environmental requirements	
r	EN 13445-5	PED Inspection and Testing	Maximum working pressure level of 30 Bar is confirmed. On each apparatus following pressure and leak tests have been carried out with positive result - Low pressure side 20 Bar - High pressure side 30 Bar

p = Pass
 pi = Individually tested



ISO 9001 : 2015
 NL/PRO 238239125

Tamson Instruments bv

van 't Hoffstraat 12
 2665 JL Bleiswijk, The Netherlands
 T. 31 (0) 10 522 43 73
 tcc-ic-man.docx Rev 2.0 UK 1017

www.tamson.com
 info@tamson.com

VAT: NL 80 66 34 984 B01
 Bank account no.:
 NL28 INGB 0007 350 370
 NL95 RABO 0160100046
 Chamber of commerce 27 16 95 41
 Page 13/14



est. 1878

not applicable were:

Conducted discontinuous emissions (Clicks)

Radiated emission (OATS)

Magnetic field immunity

The equipment conforms with all the specifications and norms in this regard.

The equipment conforms without any further notice.

Entity responsible for marking this declaration :

Manufacturer, Tamson Instruments bv, van 't Hoffstraat 12, Bleiswijk The Netherlands,

Name	:		R.C. van Hall
Function	:		Director
Date	:		January, 2018
Version	:		1.04



ISO 9001 : 2015
NL/PRO 238239125

Tamson Instruments bv

van 't Hoffstraat 12
2665 JL Bleiswijk, The Netherlands
T. 31 (0) 10 522 43 73
tcc-ic-man.docx Rev 2.0 UK 1017

www.tamson.com
info@tamson.com

VAT: NL 80 66 34 984 B01
Bank account no.:
NL28 INGB 0007 350 370
NL95 RABO 0160100046
Chamber of commerce 27 16 95 41
Page 14/14