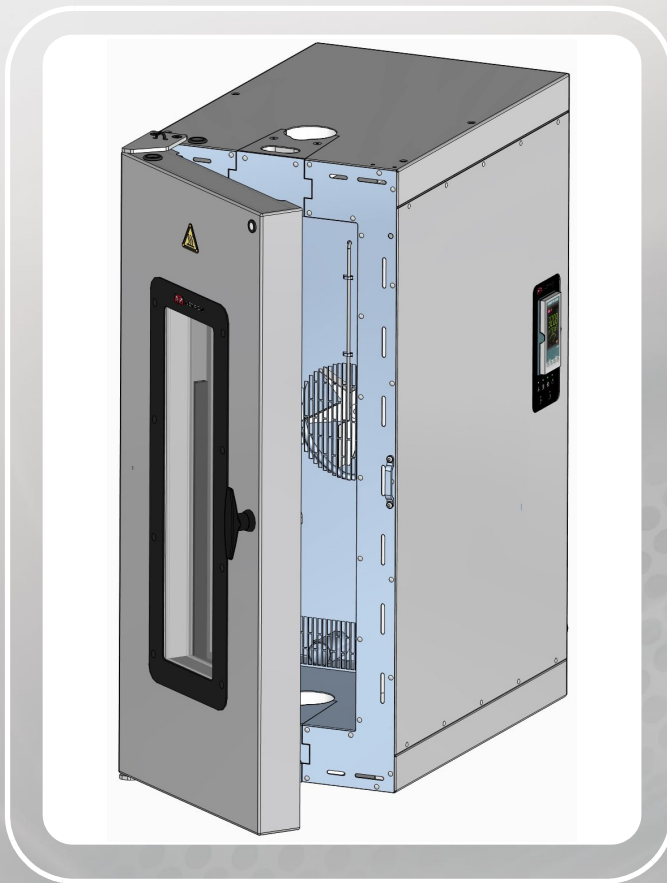


3119-600 Series Temperature Controlled Chambers



Electromagnetic Compatibility

Where applicable, this equipment is designed to comply with International Electromagnetic Compatibility (EMC) standards. To ensure reproduction of this EMC performance, connect this equipment to a low impedance ground connection. Typical suitable connections are a ground spike or the steel frame of a building.

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Original Instructions

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Chapter 1

Introduction

• Purpose of Manual	5
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Purpose of Manual

The purpose of this manual is to provide you with information that will assist you in creating the conditions for a trouble free installation of your Instron® 3119-600 series chamber. The chamber models covered and their options are discussed in the different sections of this manual.

Please study the manual and refer any queries to your local Instron representative.

Overview of Installation

Responsibilities

This manual is intended to be used where the installation and commissioning of the chamber is carried out by an Instron engineer. [Chapter 2](#) defines your responsibilities and the responsibilities of Instron for this type of installation. Instron recommends that you do not undertake your own installation, however, if you do, [Chapter 2](#) provides the basis for a checklist of activities needed to complete your installation process.

System Footprint

Depending on your test system you may have a roller mount for your chamber and/or a Dewar flask. [Chapter 3](#) provides outline drawings for you to allow sufficient floor space to accommodate your system.

Additional Chamber Documentation



For further important Health and Safety information specifically regarding handling, installation, operation, maintenance and decommissioning of Instron furnaces and environmental chambers, refer to the Supplement M55-17038-MU “Using Instron Furnaces and Environmental Chambers”.

If you do not have a copy of this supplement, contact your local Instron representative.

Operating instructions for the chamber are supplied with the chamber and contain safety information, a description of the controls, detailed procedures for operation, preventative maintenance requirements and tips on how to get the best from your chamber.

Refer to other documentation supplied with your testing system for load frame, pullrod, grips and software operating instructions.

Chapter 2

Preparing for Installation

• How to Use this Chapter	7
• Site Services	7
• Handling	8
• Installation	8

How to Use this Chapter

Use this chapter where the installation and commissioning of the chamber is carried out by an Instron engineer. This chapter defines your responsibilities and the responsibilities of Instron for this type of installation. Instron recommends that you do not undertake your own installation.

Site Services

Task	Responsibility
Provision of a suitable mounting system for the chamber.	As defined in contract
Provision of a single phase mains electrical connection, installed in accordance with local, national and international wiring standards by a qualified electrician (see page 28).	Customer
Cryogen Storage System and supply hoses * - see page 29 (unless otherwise defined in contract).	Customer
Provision of suitable environmental conditions i.e. temperature/ ventilation to maintain the system in a proper working order.	Customer

* System Option

Handling



See [Chapter 3](#) for handling methods and system footprint. See page [20](#) for equipment weights.

Task	Responsibility
Off-loading from delivery truck to site.	Customer
Unpacking.	Customer
Moving to final operating location.	Customer
Safety when handling and moving the system components.	Customer

Installation

Task	Responsibility
Mounting standalone chamber.	Customer
Mounting chamber to a new Instron test system, where Instron provide the brackets.	Instron
Making all electrical connections from mains to chamber.	Instron
Making cryogenic supply connections to chamber, where Instron provide Dewar flask/gas bottles/hose *.	Instron
Installation checks.	Instron
Calibration as defined in contract.	Instron
Selecting personnel for training and making them available in a timely manner.	Customer
Providing personal protective equipment for operators.	Customer
Customer training as defined in contract.	Instron
Further customer training.	Contact Instron

* System Option

Chapter 3

Unpacking and Transporting

• Important Handling Information	9
• Unpacking	10
• Transporting the Chamber	11
• Guidelines for Final Positioning of the Chamber Test System	13
• Commissioning	17
• Information for Customer Installation Only	18

Important Handling Information

Warnings



Crush Hazard - Ensure that cranes, hoists or fork-lift trucks used to move the equipment have adequate load capacity (1.5 x gross weight).

See “Physical Data” on page 20.



Crush Hazard - Ensure that slings are serviceable and are of the correct length and proof loading.



Crush Hazard - Employ suitably trained persons to operate lifting equipment.



Crush Hazard - Use good practice when lifting by crane, hoist or fork-lift truck.

Keep loads as low to the ground as possible. Any crane, hoist or fork-lift truck used to transport the equipment must have an adequate load capacity.

Unpacking

You are advised to transport the packed chamber as close to the final operating position as possible before unpacking.

The chamber is packed in a heavy duty corrugated cardboard carton. Depending on your location and the method of transport, the carton may be inside a plywood packing case with other parts of your delivery. Unpack the chamber carefully. Do not use sharp instruments to open the corrugated carton.

To protect the underside of the chamber, it is supplied mounted on four screws. Leave these screws in place. The Instron engineer will remove the screws at the point when the chamber is mounted on its load frame brackets or roller frame wheels.

The chamber is also supplied with a protective foam cover (fitted to the side of the chamber) to protect the controller during installation. Leave this foam in place until installation is complete.

Transporting the Chamber

Transport the chamber using a crane, hoist or forklift truck according to good working practice. If lifting the chamber from above, [Figure 1](#) (and [Table 1](#)) illustrates the lifting points.

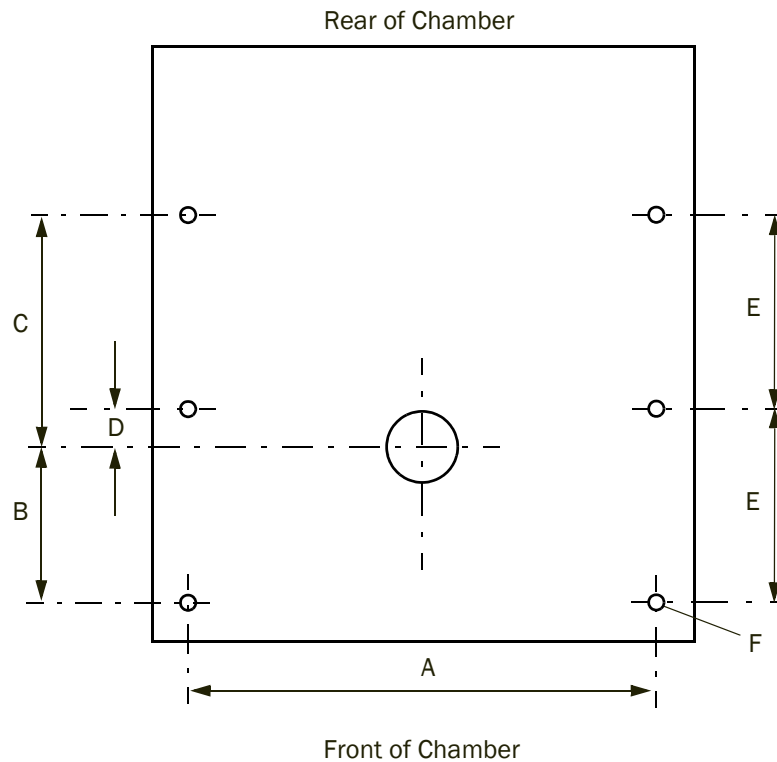


Figure 1. Chamber Fixing Holes/Lifting Points (viewed from above or below)

Table 1. Chamber Fixing Holes/Lifting Points

Chamber Number	Dimensions - mm (in)					
	A	B	C	D	E	F
3119-605	325 (12.8)	75 (2.9)	335 (13.2)	130 (5.1)	205 (8.1)	6 x M10
3119-606	325 (12.8)	75 (2.9)	335 (13.2)	130 (5.1)	205 (8.1)	6 x M10
3119-609	325 (12.8)	75 (2.9)	335 (13.2)	130 (5.1)	205 (8.1)	6 x M10
3119-615	325 (12.8)	75 (2.9)	335 (13.2)	130 (5.1)	205 (8.1)	6 x M10
3119-607	480 (8.9)	160 (6.3)	240 (9.3)	40 (1.6)	200 (7.9)	6 x M10
3119-608	480 (8.9)	160 (6.3)	240 (9.3)	40 (1.6)	200 (7.9)	6 x M10
3119-610	480 (8.9)	160 (6.3)	240 (9.3)	40 (1.6)	200 (7.9)	6 x M10
3119-616	480 (8.9)	160 (6.3)	240 (9.3)	40 (1.6)	200 (7.9)	6 x M10
3119-617	480 (8.9)	160 (6.3)	240 (9.3)	40 (1.6)	200 (7.9)	6 x M10
3119-618	480 (8.9)	160 (6.3)	240 (9.3)	40 (1.6)	200 (7.9)	6 x M10

See “Physical Data” on page 20 for chamber weights.

Caution

Eyebolts are included with the chamber to enable initial positioning and installation of the chamber only.

After installation, certification and maintenance of the eyebolts as lifting equipment become the customer's responsibility. Refer to relevant local legislation.

Guidelines for Final Positioning of the Chamber Test System

This section assumes that the chamber is part of a new Instron test system. The chamber may have a fixed mount or a roller mount assembly. The chamber may also be fitted with a cooling pack option. You need to provide sufficient clearance around your system to accommodate your configuration. Ensure the working area is clean, tidy and hazard free. Leave a space on the right hand side of the test machine to access the chamber controls.

See “[Safety](#)” on page [7](#) when considering environmental conditions in the vicinity of the testing equipment. Attention should be given to siting the equipment in locations where air-borne dust and other contaminants can be kept to a minimum.

[Figure 2](#) and [Figure 3](#) illustrate different configurations based on an electromechanical load frame. The dimensions (see [Table 2](#)) are taken from the load string centre line and are therefore applicable to any Instron load frame.

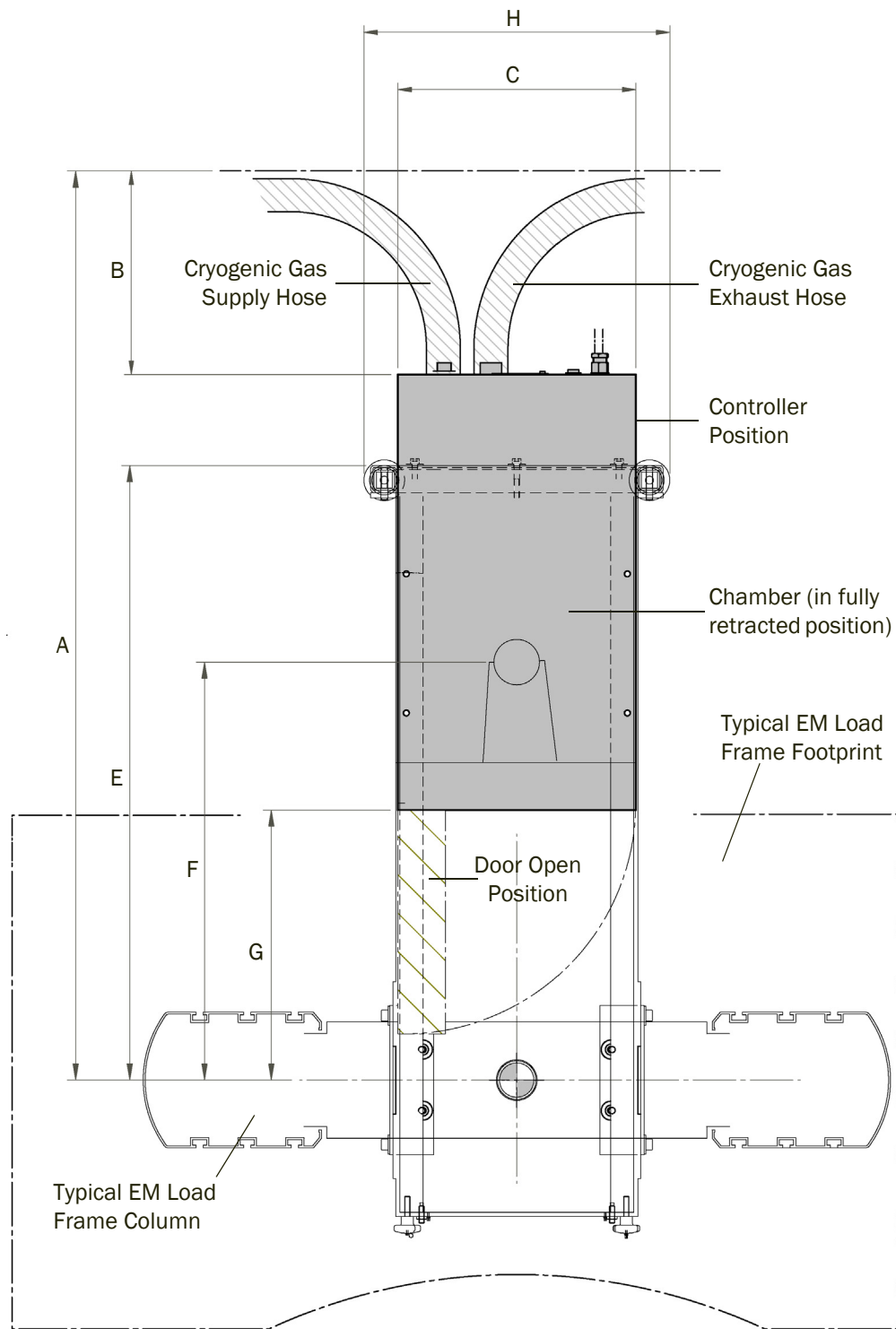


Figure 2. Plan View of Chamber with 3119-230 Roller Mount Assembly

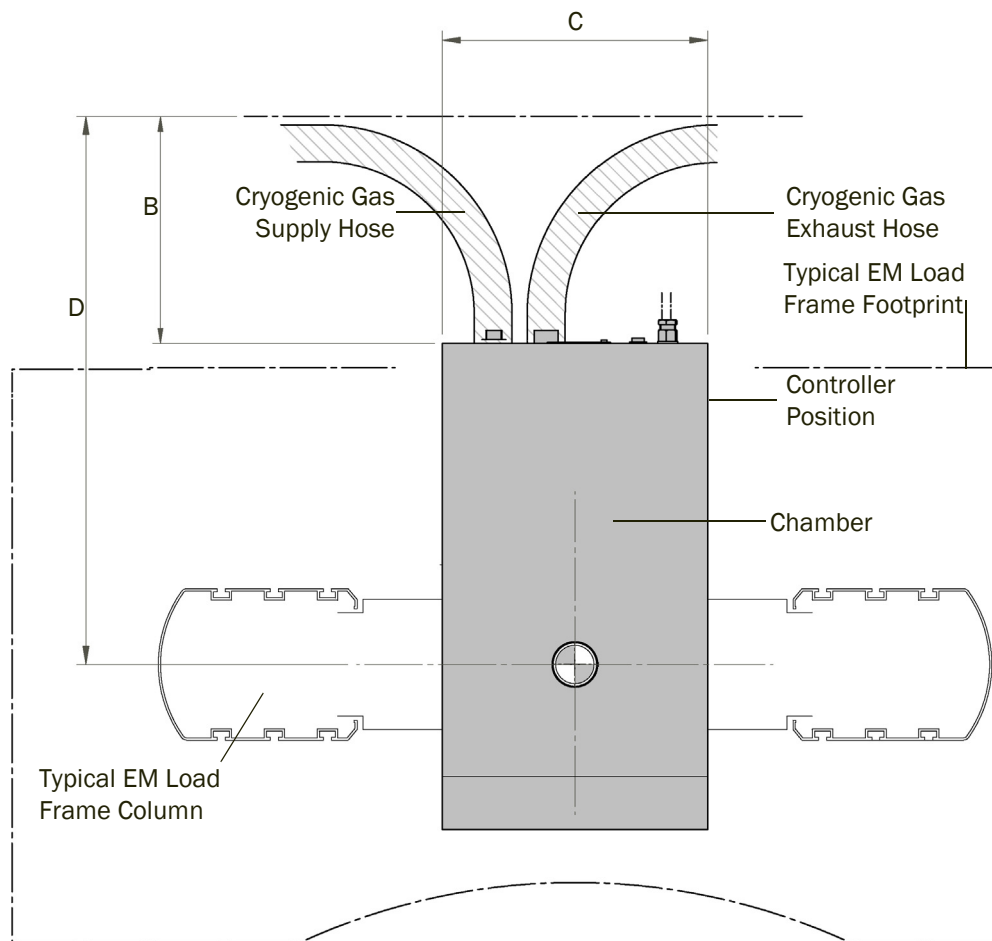


Figure 3. Plan View of Chamber with Fixed Mounting

Table 2. Chamber Footprint Dimensions

Chamber Number	Dimensions - mm (in)							
	A Minimum	B Minimum	C	D Minimum	E	F	G	H
3119-605	1317 (51.9)	300 (11.8)	350 (13.8)	701 (27.6)	906 (35.7)	616 (24.3)	427 (16.8)	450 (17.7)
3119-606	1317 (51.9)	300 (11.8)	350 (13.8)	701 (27.6)	906 (35.7)	616 (24.3)	427 (16.8)	450 (17.7)
3119-609	1317 (51.9)	300 (11.8)	350 (13.8)	701 (27.6)	906 (35.7)	616 (24.3)	427 (16.8)	450 (17.7)
3119-615	1317 (51.9)	300 (11.8)	350 (13.8)	701 (27.6)	906 (35.7)	616 (24.3)	427 (16.8)	450 (17.7)
3119-607	1841 (72.5)	300 (11.8)	550 (21.7)	930 (36.6)	1336 (52.6)	986 (38.8)	686 (27.0)	450 (17.7)
3119-608	1841 (72.5)	300 (11.8)	550 (21.7)	930 (36.6)	1336 (52.6)	986 (38.8)	686 (27.0)	450 (17.7)
3119-610	1841 (72.5)	300 (11.8)	550 (21.7)	930 (36.6)	1336 (52.6)	986 (38.8)	686 (27.0)	450 (17.7)
3119-616	1841 (72.5)	300 (11.8)	550 (21.7)	930 (36.6)	1336 (52.6)	986 (38.8)	686 (27.0)	450 (17.7)
3119-617	1841 (72.5)	300 (11.8)	550 (21.7)	930 (36.6)	1336 (52.6)	986 (38.8)	686 (27.0)	450 (17.7)
3119-618	1841 (72.5)	300 (11.8)	550 (21.7)	930 (36.6)	1336 (52.6)	986 (38.8)	686 (27.0)	450 (17.7)

Chamber Mounting Kit Compatibility

Table 3. Chamber Mounting Kit Compatibility

Mounting Number	Mounting Type	Chamber (3119-)	Load Frame
3119-201	Rigid	605, 606 and 609	3300, 5500, 5800 and 8870
3119-203	Rigid	605, 606 and 609	8801, 8802, 8803 and 8862
3119-204	Rigid	607, 608 and 610	5500 and 5800
3119-205	Rigid	607, 608 and 610	8801, 8802, 8803 and 8862
3119-230	Roller	All	All

Load Frame Test Space

Warning



Crush Hazard - Moving components can cause injury.

After the chamber, push/pullrods and grips/fixtures etc. have been installed, it is important to prevent any accidental crushing by the moving components.

When setting up, use the system features to:

- Prevent the grips coming together.
- Prevent the crosshead coming into contact with the chamber.
- Prevent the moving grip driving into the chamber.
- Provide a minimum clearance of 30 mm to prevent fingers from becoming trapped between moving components.

Commissioning

After installation, the Instron engineer will check the performance of the chamber and provide the contractually agreed training.

Information for Customer Installation Only

Instron recommend that customers do not undertake chamber installation and accept no responsibility for such an installation. In the event that you decide to undertake your own installation, the following watch points are offered without prejudice:

- Pay attention to the handling information provided (see [page 9](#)).
- Ensure that you provide an electrical power supply socket that meets the requirements of the chamber (see [page 28](#)) and local regulations.
- Ensure that the working environment is clean, tidy and free from trip hazards.
- Leave a space on the right hand side of the test machine to access the chamber controller.
- Ensure that the chamber is level.
- Ensure that the power cable is routed to avoid damage during chamber and test system use. Always clip or tie cables to avoid a trip hazard.
- Use the data in this manual to design mounting brackets to suit your test system. See [Table 1](#) and “Physical Data” on [page 20](#). Note that the underside and top of the chamber have identical fixing points. Ensure that your design does not cause a conflict between the chamber dimensions and your test system operation.
- Read and understand the operating instructions of the chamber and your test system.
- Route cables and hoses from other accessories to avoid contact with parts of the chamber which may become hot.

Warning

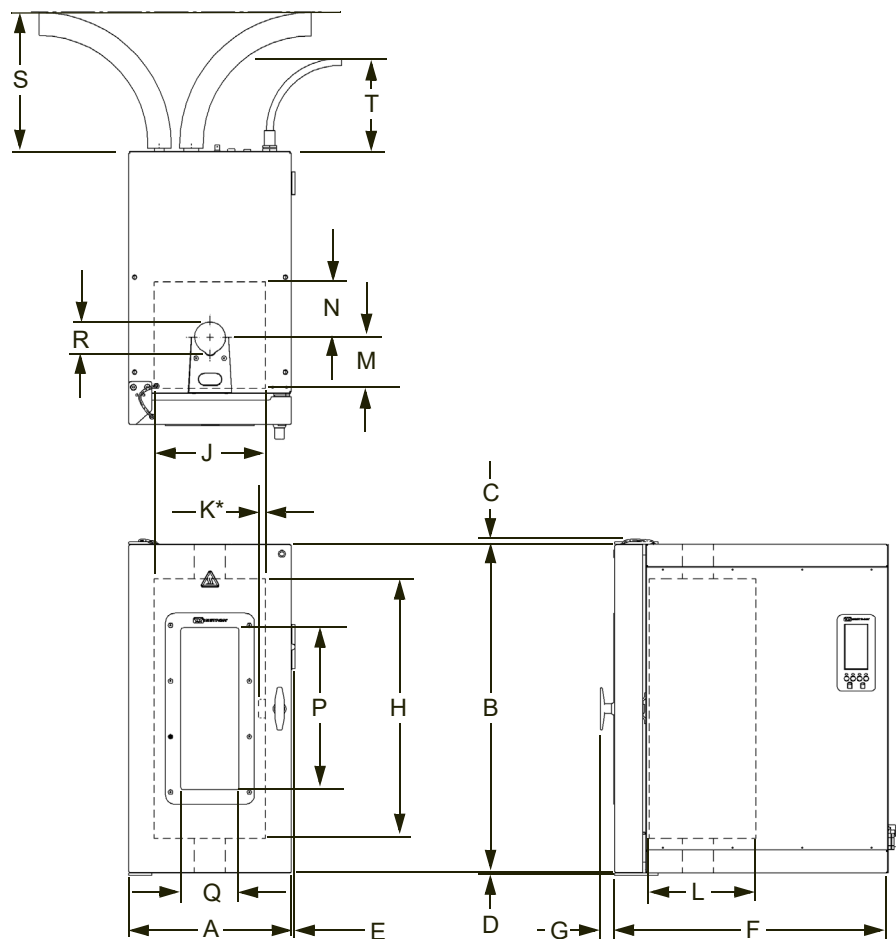


Hazard - Chambers have inherent critical risks. You are strongly advised to carry out your own safety risk assessment taking into account all the information provided in this manual before attempting to install the chamber.

Chapter 4

Specifications

• Physical Data	20
• Operating Performance	25
• Electrical Supply	28
• Port Plugs	29
• Cryogenic Storage and Supply (Option)	29
• Material Safety Data Sheets	32



K* = Light as shown (right hand side) is for models 3119-605, 606 and 609 only.
For models 3119-607, 608 and 610 light is on left hand side

Figure 4. Chamber Dimensions

Physical Data

Referring to [Figure 4](#):

Table 4. External dimensions

	A	B	C	D	E	F	G
	External Width - mm (in)	External Height - mm (in)	Top Hinge Height - mm (in)	Bottom Hinge Height - mm (in)	Control Panel Depth - mm (in)	External Depth - mm (in)	Handle Depth - mm (in)
3119-605	350 (13.8)	635 (25.0)	15 (0.6)	5 (0.2)	10 (0.4)	590 (23.2)	31 (1.2)
3119-606	350 (13.8)	710(27.9)	15 (0.6)	5 (0.2)	10 (0.4)	590 (23.2)	31 (1.2)
3119-609	350 (13.8)	810 (31.9)	15 (0.6)	5 (0.2)	10 (0.4)	590 (23.2)	31 (1.2)
3119-615	350 (13.8)	1010 (39.8)	15 (0.6)	5 (0.2)	10 (0.4)	590 (23.2)	31 (1.2)
3119-607	550 (21.6)	710(27.9)	15 (0.6)	5 (0.2)	N/A	855 (33.7)	31 (1.2)
3119-608	550 (21.6)	710(27.9)	15 (0.6)	5 (0.2)	N/A	855 (33.7)	31 (1.2)
3119-610	550 (21.6)	810 (31.9)	15 (0.6)	5 (0.2)	N/A	855 (33.7)	31 (1.2)
3119-616	550 (21.6)	1050 (41.3)	15 (0.6)	5 (0.2)	N/A	855 (33.7)	31 (1.2)
3119-617	550 (21.6)	910 (35.8)	15 (0.6)	5 (0.2)	N/A	855 (33.7)	31 (1.2)
3119-618	550 (21.6)	1150 (45.3)	15 (0.6)	5 (0.2)	N/A	855 (33.7)	31 (1.2)

Table 5. Internal dimensions

	H Internal Height mm (in)	J Internal Width mm (in)	K Internal Light Width mm (in)	L Internal Depth mm (in)
3119-605	485 (19.1)	240 (9.4)	20 (0.8) ^a	230 (9.0)
3119-606	560 (22.0)	240 (9.4)	20 (0.8) ^a	230 (9.0)
3119-609	660 (26.0)	240 (9.4)	20 (0.8) ^a	230 (9.0)
3119-615	860 (33.9)	240 (9.4)	20 (0.8) ^b	230 (9.0)
3119-607	560 (22.0)	400 (15.7)	20 (0.8) ^b	400 (15.7)
3119-608	560 (22.0)	400 (15.7)	20 (0.8) ^b	400 (15.7)
3119-610	660 (26.0)	400 (15.7)	20 (0.8) ^b	400 (15.7)
3119-616	900 (35.4)	400 (15.7)	20 (0.8) ^b	400 (15.7)
3119-617	760 (29.9)	400 (15.7)	20 (0.8) ^b	400 (15.7)
3119-618	1000 (39.3)	400 (15.7)	20 (0.8) ^b	400 (15.7)

a. As shown in Figure 4, light is on right hand side of chamber

b. Light is on left hand side of chamber. Not shown in Figure 4

Table 6. Pullrod dimensions

	M Centre of Pullrod Port to Front of Chamber Space mm (in)	N Centre of Pullrod Port to Rear of Chamber Space mm (in)	R Pullrod Port Diameter mm (in)
3119-605	110 (4.3)	120 (4.7)	67 (2.6)
3119-606	110 (4.3)	120 (4.7)	67 (2.6)
3119-609	110 (4.3)	120 (4.7)	67 (2.6)
3119-615	110 (4.3)	120 (4.7)	67 (2.6)
3119-607	200 (7.8)	200 (7.8)	90 (3.5)
3119-608	200 (7.8)	200 (7.8)	90 (3.5)
3119-610	200 (7.8)	200 (7.8)	90 (3.5)
3119-616	200 (7.8)	200 (7.8)	90 (3.5)
3119-617	200 (7.8)	200 (7.8)	135 (5.3)
3119-618	200 (7.8)	200 (7.8)	135 (5.3)

Table 7. Window dimensions

	P Window Height mm (in)	Q Window Width mm (in)
3119-605	350 (13.8)	125 (4.9)
3119-606	350 (13.8)	125 (4.9)
3119-609	460 (18.1)	125 (4.9)
3119-615	640 (25.2)	125 (4.9)
3119-607	350 (13.8)	125 (4.9)
3119-608	350 (13.8)	125 (4.9)
3119-610	460 (18.1)	125 (4.9)
3119-616	460 (18.1)	125 (4.9)
3119-617	460 (18.1)	125 (4.9)
3119-618	460 (18.1)	125 (4.9)

Table 8. Cable and hose clearances

	S Cable Clearance mm (in)	T Hose Clearance mm (in)
All variants	Minimum 200 (7.9)	Minimum 300 (11.8)

Table 9. Weight

	Weight kg (lb)
3119-605	65 (143)
3119-606	65 (143)
3119-609	75 (165)
3119-615	85 (187)
3119-607	135 (297)
3119-608	165 (363)
3119-610	165 (363)
3119-616	165 (320)
3119-617	150 (309)
3119-618	173 (382)

Operating Performance

Table 10. Temperature specifications

	Maximum Temperature - °C (°F)	Minimum Temperature CO2 - °C (°F)	Minimum Temperature LN2 - °C (°F)	Temperature Stability - °C (°F) ^a	Temperature Gradient ^b	Maximum Temperature Overshoot - °C (°F) ^a
3119-605	350 (660)	-70 (-95)	-100 (-150)	±2 (±3.6)	±1% of set point after 10 minutes stability time, or ±2 °C (±3.6 °F), whichever is greater	2 (3.6)
3119-606	350 (660)	-70 (-95)	-100 (-150)	±2 (±3.6)		2 (3.6)
3119-609	350 (660)	-70 (-95)	-100 (-150)	±2 (±3.6)		2 (3.6)
3119-615	350 (660)	N/A	-100 (-150)	±2 (±3.6)		2 (3.6)
3119-607	350 (660)	-70 (-95)	-150 (-238)	±2 (±3.6)		2 (3.6)
3119-608	600 (1112)	-70 (-95)	-150 (-238)	±2 (±3.6)		2 (3.6)
3119-610	350 (660)	-70 (-95)	-150 (-238)	±2 (±3.6)		2 (3.6)
3119-616	350 (660)	N/A	-80 (-112)	±2 (±3.6)		2 (3.6)
3119-617	350 (660)	N/A	-80 (-112)	±2 (±3.6)		2 (3.6)
3119-618	350 (660)	N/A	-80 (-112)	±2 (±3.6)		2 (3.6)

a. The specified performance of the chamber is not applicable within 15 °C of ambient.

b. Figures for temperature measured at the specimen (metal) over a 50 mm (2 in) gauge length. Figures are not applicable within 15 °C of ambient.

Table 11. Heating and cooling specifications

	Heat-up Time 100V a (minutes) ^a	Heat-up Time 120V a (minutes) ^a	Heat-up Time 200V a (minutes) ^a	Heat-up Time 240V a (minutes) ^a	Cool-Down Time a (minutes)	Heating Method
3119-605	100	50	100	50	20	Forced Convection
3119-606	100	50	100	50	20	
3119-609	100	50	100	50	20	
3119-615	100	50	100	50	20	
3119-607	N/A	N/A	35	25	40	
3119-608	N/A	N/A	N/A	60	40	
3119-610	N/A	N/A	35	25	40	
3119-616	N/A	N/A	35	25	40	
3119-617	N/A	N/A	35	25	40	
3119-618	N/A	N/A	35	25	40	

a. To maximum or minimum temperature from ambient including typical load string.

Table 12. Temperature Accuracy

Temperature - °C (°F)	Accuracy - °C (°F)
-150 (-240)	±5.5 (±10.0)
-100 (-150)	±5.0 (±9.0)
-40 (-40)	±4.5 (±8.1)
0 (32)	±3.5 (±6.5)
+100 (210)	±3.5 (±6.5)
+200 (390)	±3.5 (±6.5)
+300 (570)	±4.5 (±8.1)
+400 (750)	±4.5 (±8.1)
+500 (930)	±5.0 (±9.0)
+600 (1110)	±5.5 (±10.0)

Table 13. Typical LN₂ Consumption

	3119-605, 3119-606 and 3119-609 ^a		3119-607, 3119-608 and 3119-610 ^b	
Temperature °C(°F)	To Achieve Temperature (from ambient)	To Maintain Temperature	To Achieve Temperature (from ambient)	To Maintain Temperature
-30 (-22)	3 Litres	7 Litres/Hr	7 Litres	10 Litres/Hr
-70 (-150)	6 Litres	10 Litres/Hr	12 Litres	14 Litres/Hr
-100 (-150)	7 Litres	12 Litres/Hr	18 Litres	16 Litres/Hr
-150 (-238)	N/A	N/A	25 Litres	20 Litres/Hr

- a. Based on a 3119-609 chamber containing typical 12 kg grips and pull rods such as 2732-008. Total gas consumption will be affected by the duration and frequency of door opening. It will also vary according to the size of the load string and specimen.
- b. Based on a 3119-610 chamber containing typical 25 kg grips and pull rods such as 2716-002. Total gas consumption will be affected by the duration and frequency of door opening. It will also vary according to the size of the load string and specimen.

Electrical Supply

Single phase 50/60 Hz ac supply (see [Table 14](#)) terminating in a socket (see [Table 15](#)), protected by a circuit breaker or fused isolator of an appropriate rating.

Earth impedance = 1 Ω (tested prior to installation).

Table 14. Electrical Supply

Chamber Number	Operating Voltage V	Max Current A	Power Consumption kW	Mains Plug Type see Table 15
3119-605	100 - 120	20	2.4	C
	200 - 240	10	2.4	A/B
3119-606	100 - 120	20	2.4	C
	200 - 240	10	2.4	A/B
3119-609	100 - 120	20	2.4	C
	200 - 240	10	2.4	A/B
3119-615 ^a	200 - 240	10	4.4	A/B
3119-607	200	22.4	4.5	D/E
	240	26.7	6.4	D/E
3119-608	240	26.7	6.4	D/E
3119-610	200	22.4	4.5	D/E
	240	26.7	6.4	D/E
3119-616 ^a	240	26.7	6	D/E
3119-617 ^a	240	26.7	6	D/E
3119-618 ^a	240	26.7	6	D/E

a. B1 (Ambient) and B2 (LN2)

Table 15. Mains Plug

Mains Plug	Description/Rating	Destination Country
A	240 V 16 A IEC 60309 (BS4343)	Non-U.S.A.
B	240 V 20 A NEMA (HUBBELL) L6-20P	U.S.A.
C	120 V 30 A NEMA (HUBBELL) L5-30P	U.S.A.
D	240 V 32 A IEC 60309 (BS4343)	Non-U.S.A.
E	240 V 30 A NEMA (HUBBELL) L6-30P	U.S.A.

Port Plugs

Port plugs reduce, but do not eliminate, heat loss and escape of cryogenic gas by reducing the annular gap between the pullrods and the chamber port. It is not possible to completely seal the annular gap as this would introduce friction and affect the load reading.

If Instron is supplying the load string, port plugs may also be supplied. Check your order to see if port plugs are included.

If you are supplying your own port plugs, you need to ensure that the material used is suitable for the full temperature range in use and that friction is not introduced.

Cryogenic Storage and Supply (Option)

The pressure required for optimum performance is:

- CO₂: 50 bar (725 psi)
- LN₂: 1.5bar (22 psi)



Below the specified pressure, there will be a significant reduction in performance.

Table 16. Cryogen Connectors

Coolant	Chamber Fitting	Typical Dewar Fitting		Recommended Hose	Recommended Dewar Flask
LN ₂	1/2" BSP Male	EU	1/2" BSP Male/Female	3119-104	3119-102
		USA	CGA 295 Male (0.75-16 UNF -2A RH)	3119-106	-
CO ₂	3/8" BSP Male	EU	0.860" x 1/14" Whitworth RH Male	3119-103	-
		USA	CGA 320 Male (0.825-14 NGO - RH)	3119-105	-

Table 17. Cryogen Hoses

Cat No	Description	Adapter (Chamber End)	Hose Fitting (Chamber End)	Length m (ft)	Hose Fitting (Bottle End)	Adapter (Bottle End)
3119-103	EU CO ₂ Hose	-	3/8" BSP Female	2 (6.6)	1/4" BSP Female	1/4" BSP Male to 0.860" x 1/14" Whitworth RH Female
3119-104	EU LN ₂ Hose	-	1/2" BSP Female	2 (6.6)	1/2" BSP Female	-
3119-105	USA CO ₂ Hose	3/8" BSP Female to 9/16"-18 37 DEG JIC Male	9/16"-18 37 DEG JIC Female	1.8 (6)	CGA 320 Female (0.825-14 NGO - RH)	-
3119-106	USA LN ₂ Hose	1/2" BSP Female to CGA 295 Male (0.75-16 UNF - 2A RH)	CGA 295 Female (0.75-16 UNF -2A RH)	1.8 (6)	CGA 295 Female (0.75-16 UNF -2A RH)	-

Table 18. LN₂ exhaust specifications

Exhaust port	outside diameter (mm (in))	31.75 (1.25)
	inside diameter (mm (in))	25.4 (1)
Exhaust tubing (supplied)	outside diameter (mm (in))	39 (1.54)
	inside diameter (mm (in))	30 (1.18)
	length (mm (in))	3000 (118.11)
	material	white silicon rubber

Material Safety Data Sheets

This section contains information to allow you to obtain current Material Safety Data Sheets (MSDS) directly from the manufacturers. Instron is not responsible for the content or accuracy of these MSDSs.

Material	Location	Manufacturer MSDS information
Microtherm Standard Panel (Microtherm G).	<p>Microtherm G block is used in the chamber's removable wedges on the 3119-607, 3119-608 and 3119-610 models only.</p> <p>Microtherm G block is contained between the 3119-608 chamber's outer panels and inner case.</p>	<p>Belgium</p> <p>MICROTHERM N V</p> <p>INDUSTRIEPARK-NOORD 1,</p> <p>B-9100 SINT-NIKLAAS</p> <p>Phone : + 32 (0)3 760 19 80</p> <p>Fax : + 32 (0) 3 760 19 99</p> <p>Panel MSDS No: msds_G_SG_UK</p> <p>For the most up to date MSDS for the product visit the web page [www.microthermgroup.com].</p>
Sindanyo H91	Sindanyo H91 is used in the chamber's removable wedges on the 3119-605, 3119-606 and 3119-609 models only.	<p>Tenmat Limited</p> <p>Ashburton Road West</p> <p>Trafford Park, Manchester</p> <p>M17 1RU</p> <p>United Kingdom</p> <p>Phone: +44 (0)161 872 2181</p> <p>Fax: +44 (0)161 872 7596</p> <p>e-mail: info@tenmat.com</p> <p>For the most up to date MSDS Information for the product visit the web page [www.tenmat.com].</p>

Material	Location	Manufacturer MSDS information
SUPERWOOL 607 Blanket	SUPERWOOL 607 Blanket is contained between all chamber outer panels and inner case.	<p>THERMAL CERAMICS LIMITED Tebay Road, Bromborough Wirral, Merseyside CH62 3PH United Kingdom Phone: +44 (0) 151 334 4030 Fax: +44 (0) 151 334 1684</p> <p>THERMAL CERAMICS HSE Department Route de Lauterbourg - BP 148 67163 WISSEMBOURG Cedex France Phone: +33 (0)3 88 54 95 50 Fax: +33 (0)3 88 54 29 20</p> <p>Blanket MSDS No: 105 Paper MSDS No: 357</p> <p>To confirm this is the most up to date MSDS for the product, visit the web page www.thermalceramics.com]</p>
SUPERWOOL Paper 332-E	SUPERWOOL Paper 332-E is contained within all the chambers doors.	
CO ₂ /LN ₂	Where option is fitted to your chamber.	Contact your local supplier for information on material safety.



Product Support: www.instron.com