

Validation Products

- Thermocouple Entry Gland
- Validation Thermocouples
- Tri-clover clamps/gaskets/blanks
- Reducers / adaptors
- Bottle Cap Mounts for Temperature Probes and Validation Thermocouples
- Validation Clamps
- Kapton Tape
- Thermocouple Wire on Reels

please use the enquiry form at the end to indicate requirements, send form to

sales@thermal-detection.com



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Product Code:
TCEG/1
TCEG/2

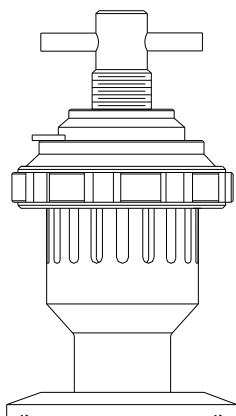
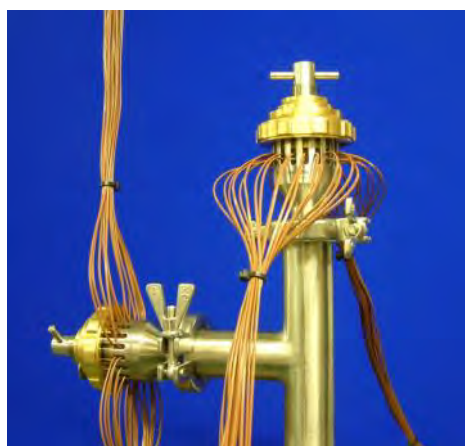
Description:

Conventional methods of chamber entry for validation thermocouples allow only limited numbers of thermocouples to be used. They are relatively time consuming in their application and frequently prone to unacceptable leakage.

The TCEG/1 addresses both of these problems by providing individual slots allowing for 18 separate thermocouples to be sealed with a rapid locking and securing mechanism.

The TCEG/2 uses a three part sealant arrangement which allows up to 36 individual thermocouples to be sealed.

By using two TCEG's and a Tee or Y tube extension with tri-clover clamps, up to 72 thermocouples can be sealed. In addition, tri-clover reducers (TCR) or adaptors (PTA) can be used to connect the TCEG to a range of different autoclave process connections.



Specification:

MATERIAL	BODY: machined from 316L stainless steel, round bar stock with bore finished to 0.5 Ra (25µ inch).
	GLAND BONNET: cap in CZ112 marine brass and compression nose in CZ121 brass, both machined from round bar stock, with spring loaded quick release locking mechanism in 316L stainless steel.
	SEALANTS: medical grade silicone and in accordance with FDA 21 CFR 177-2600. To USP Class VI on application.
PROCESS CONNECTION	from 1" through to 3" Tri-clover flange as standard or with 1" screwed BSPT or NPT connection.
CAPACITY	TCEG/1: 18 thermocouples TCEG/2: 36 thermocouples
THERMOCOUPLE SLOT	4.0mm wide slots

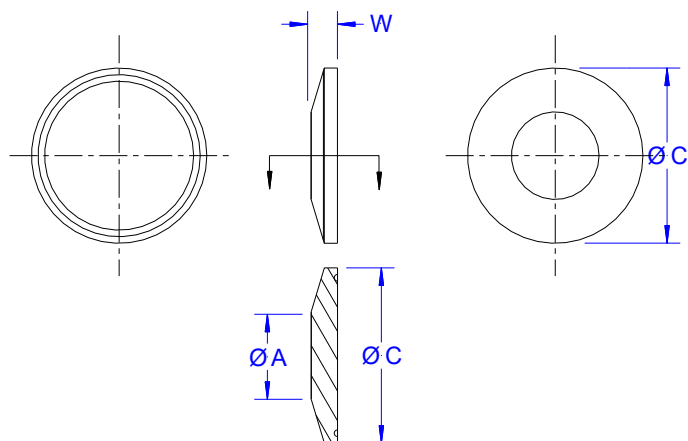
Datasheet : 022

Mounting Options for TCEG:

The standard TCEG entry gland is supplied with a Tri-clover flange in 316 grade stainless steel and there are four optional flange sizes available, from 1" up to 3".

It should be remembered that when selecting the flange size, the nominal flange size is not the same as the distance across the flange diameter, as shown under dimension 'C'.

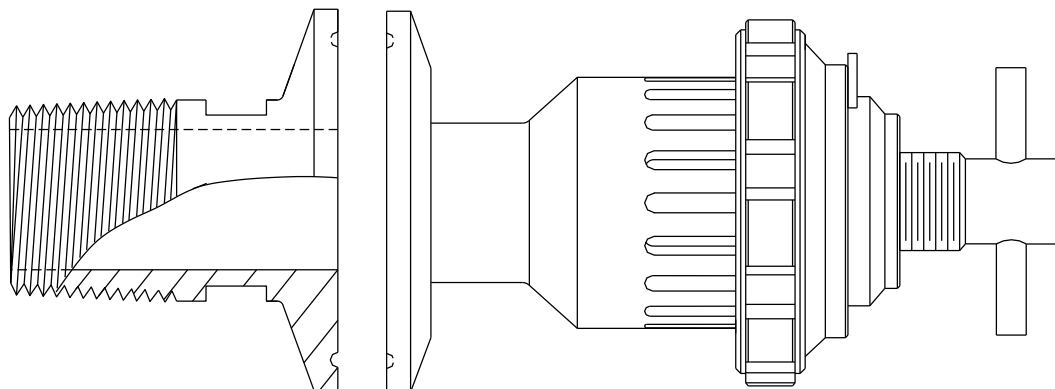
When needing to connect to an existing Tri-clover flange that is larger than 3", a reducing adapter can be supplied.



Nominal Size		Dimensions (mm)			Mass (Kg)
Imperial	Metric	Face Ø A	Flange Ø C	Width W	
1" - 1½"	25	24.5	50.5	7.0	0.08
2"	50	39.0	64.0	7.0	0.14
2½"	n/a	53.5	77.5	7.0	0.21
3"	65	66.5	91.0	7.0	0.30

Where there is only the provision of a screwed connection entry point on an autoclave chamber, then the alternative TCEG mounting arrangement shown below can be supplied.

The adaptor has either a 1" NPT or 1" BSPT thread form and a 1"-1½" Tri-clover flange all in 316 grade stainless steel. A blank Tri-clover flange, Teflon© seal and safety clamp can be supplied for sealing off the adaptor when not in use.



Datasheet : 022

Pre-cut Validation Thermocouples

Product Code:
VTFP
VTFP-LOOM

Description:

Pre-cut validation thermocouples are prepared to the customers specifications in terms of overall length, wire format, hot junction and other features.

Thermal Detection validation thermocouples:

- **ALWAYS** manufactured from type T thermocouple material conforming to IEC 60584-1:2013 class 1. This gives a tolerance of +/- 0.5°C across the range -40°C to 125°C
- **ALWAYS** incorporate a hot junction which is welded under Argon for a longer lasting thermocouple.

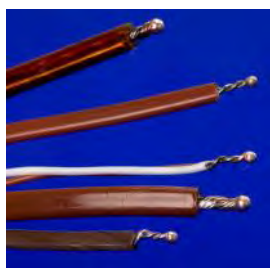
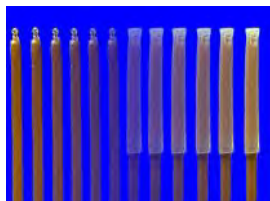
Available wire insulation types:

- PFA Extruded : Smooth, easy to clean.
- PTFE Lapped: Tightly wrapped insulation minimises capillary action.
- PFA Twisted: Low cost solution
- Kapton®: For high temperature applications such as depyrogenation.

Optional Features:

- Weep holes : To allow any condensate travelling up the inner jacket of the thermocouple to drain away.
- Hot junction Teflon encapsulation : To reduce condensate penetration and reduce the rate of hot junction oxidation.
- Stainless Steel Tips : For added hot junction protection.
- Loom: Any number of pre-cut thermocouples can be bundled and secured together in a loom, for easy installation.

Please use the enquiry form to request a quotation.



Available Optional Extras

Insulation Material	Conductor Format	Max Temp °C	Bare Hot Junction	Teflon Encapsulated Hot Junction	316 St St Tip over Hot Junction	Identification Both Ends of TC	Weep hole	Mini Plug	Loom
PFA Extruded	1/0.3mm	250°C	✓	✓	✓	heat shrink	✓	✓	✓
	1/0.5mm	250°C	✓	✓	✓	heat shrink	✓	✓	✓
	3/0.2mm	250°C	✓	✓	✓	heat shrink	✓	✓	✓
	7/0.2mm	250°C	✓	✓	✓	heat shrink	✓	✓	✓
	13/0.2mm	250°C	✓	✓	✓	heat shrink	✓	✓	✓
PTFE Lapped	1/0.3mm	250°C	✓	✓	✓	heat shrink	✗	✓	✓
	1/0.5mm	250°C	✓	✓	✓	heat shrink	✗	✓	✓
PFA Twisted	1/0.3mm	250°C	✓	✗	✗	heat shrink	✗	✓	✓
	1/0.5mm	250°C	✓	✗	✗	heat shrink	✗	✓	✓
Kapton®	1/0.3mm	300°C*	✓	✗	✓	heat shrink or st st. tag	✗	✓	✓
	7/0.2mm	300°C*	✓	✗	✓	heat shrink or st st. tag	✗	✓	✓

* Kapton® can go to 350°C for short periods

Datasheet : 029

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**Product Code:
PTC****Description:**

This double-hinged clamp is made from 316 stainless steel and has a highly polished finish. The clamp is suitable for the majority of all applications, with a maximum working pressure of 50bar dependant on clamp size, certified by TUV Germany.

Material: 316 stainless steel
Application: Normal / Heavy Duty
Hinge Lay-Out: Double Rivet Hinge Plate

For Imperial and Metric sizes see following pages

**Datasheet : 400**

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Product Code: PTG

Description:

A range of gaskets are available:

Elastomer gaskets are designed and manufactured to give a smooth transition throughout the bore when fully assembled. Elastomer gaskets are produced to have a shore hardness of 75/85 IRHD and conform to FDA 177.2660.

PTFE solid gaskets are machining from virgin PTFE with a hardness of 60/65 shore D and conform to FDA 177.1550.

For sizes see following pages.



Specification:

ELASTOMER MATERIAL	EPDM VITON SILICONE
PTFE SOLID MATERIAL	Solid virgin PTFE
COLOUR	EPDM = Black or Blue VITON = Green SILICONE = White or Clear PTFE = White
SIZE	BS4825-3 DIN 32676
PROFILE	Lipped as standard for ease of fitting Unlipped also available

Datasheet : 401

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Product Code:

TCR

TSR

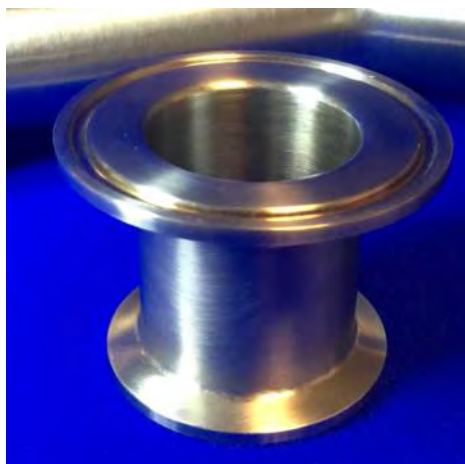
Description:

For use where different size tri-clovers need to be connected.

Reducers are available with concentric (TCR) and straight profile (TSR).

Concentric reducers are available in ASME BPE SF1 finish, in a range of standard sizes as shown on page 2. Also available in custom sizes in a highly polished finish.

Straight reducers are custom made and available in a highly polished finish.



Specification:

TUBE MATERIAL	316L stainless steel
TUBE SIZE	3/4", 1", 1 1/2", 2", 2 1/2" or 3" tube
TRI-CLOVER SIZES	See below

Nominal Size		Dimensions (mm)			Mass (Kg)
Imperial	Metric	Face Ø A	Flange Ø C	Width W	
1/2" - 3/4"	n/a	12.5	25.4	5.6	0.02
1" - 1 1/2"	25	24.5	50.5	7.0	0.08
2"	50	39.0	64.0	7.0	0.14
2 1/2"	n/a	53.5	77.5	7.0	0.21
3"	65	66.5	91.0	7.0	0.30

Datasheet : 405

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**Product Code:
PTA**



Description:

Thermal Detection offers a range of sanitary / hygienic tri-clover adaptors manufactured for use in the Pharmaceutical, Food & Dairy industries.

Manufactured from 316 stainless steel.

Available in highly polished finish.

Material certificates available on request.

Specification:

MATERIAL	316 Stainless steel
IMPERIAL FLANGE	Flange: 0.5-0.75", 1-1.5", 2" Male thread 1/8", 1/4", 3/8", 1/2", 3/4" & 1"BSPT
METRIC FLANGE	Flange: DN10, DN15 & DN20 Male thread: 1/4", 3/8", 1/2" & 3/4" BSPT
OPTIONS	Female thread sizes also available as above NPT versions for certain sizes Custom made also available

Datasheet : 403

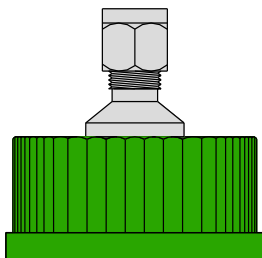
Product Code: GL45

Description:

When using liquid containers in a steriliser it is often difficult to ensure that the temperature probe is maintained centrally within the container and at the desired depth during the full sterilising cycle.

The GL45 simplifies this by allowing the operator to precisely position the probe with the full confidence that it will remain in the selected position until manually removed.

The probe clamp is permanently fitted to the cap and the cap can be supplied as standard or with a vent hole if required.



Specification:

BOTTLE CAP MATERIAL	Moulded polypropylene
THREAD	DIN thread GL45
TEMPERATURE LIMITS	-40 to +140°C steam.
BOTTLE TYPES	Round glass Duran® bottles of 100ml, 250ml, 500ml and 1000ml sizes. Square Duran® bottles of 250ml, 500ml and 1000ml. Square polycarbonate* Corning® bottles of 150ml, 250ml, 500ml and 1000ml.
PROBE CLAMP MATERIAL	316/316L stainless steel
SOFT SEALANT	In Teflon®.

Duran® is a registered trade mark of Schott Duran Produktions GmbH & Co. KG.
Corning® is a registered trade mark of Corning Inc.
Teflon® is a registered trade mark of the Dupont Corporation.

Datasheet : 023

Product Code: BC

Description:

When using liquid containers in a steriliser it is often difficult to ensure that the temperature probe is maintained centrally within the container and at the desired depth during the full sterilising cycle.

The Bottle Cap Mount simplifies this by allowing the operator to precisely position the probe and ensure it remains in place during a sterilisation cycle.

The BC version is designed for glass or plastic bottles without a thread, which are usually sealed with a rubber bung and aluminium seal.

The mounts can be designed to fit any bottle.

For bottles with threaded lips see GL45 style datasheet.

Other threads / caps available and customer can free issue caps.



Specification:

BOTTLE CAP AND GLAND MATERIAL	316L stainless steel
CONNECTION	3 x screws to allow cap to fit securely to bottle
TEMPERATURE LIMITS	-40 to +140°C steam.
BOTTLE TYPES	Bottles with rubber bungs Bottles with Aluminium seals
SOFT SEALANT	Teflon®.

Datasheet : 026

Bottle Cap with Integral Probe Clamp and Cannular for Validation Thermocouples

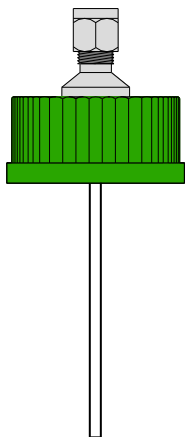
Product Code:
GL45-1

Description:

When using liquid containers fitted with a validation thermocouple in a steriliser, it is often difficult to ensure that the thermocouple hot junction is maintained centrally and at the desired depth within the container during the full sterilising cycle.

The GL45-1 makes this a simple operation by having a permanently fitted integral cannular. The cannular is made to the required length and allows the thermocouple hot junction to be held just below the cannular opening.

A clamp is permanently fitted to the cap which can be supplied as standard or with a vent hole if required.



Specification:

BOTTLE CAP MATERIAL	Moulded polypropylene
THREAD	DIN thread GL45
TEMPERATURE LIMITS	-40 to +140°C steam.
BOTTLE TYPES	Round glass Duran® bottles of 100ml, 250ml, 500ml and 1000ml sizes. Square Duran® bottles of 250ml, 500ml and 1000ml. Square polycarbonate* Corning® bottles of 150ml, 250ml, 500ml and 1000ml.
PROBE CLAMP MATERIAL	316/316L stainless steel
SOFT SEALANT	In Teflon®.
CANNULAR	In Teflon® tube, 6.0mm OD x 3.8mm ID, length cut to requirement. Stainless steel cannulars also available.

Duran® is a registered trade mark of Schott Duran Produktions GmbH & Co. KG.
Corning® is a registered trade mark of Corning Inc.
Teflon® is a registered trade mark of the Dupont Corporation.

Datasheet : 027

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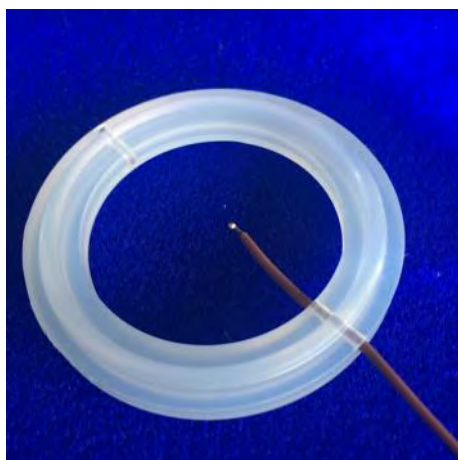
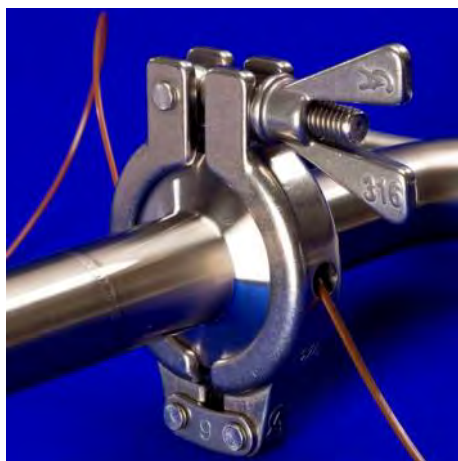
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Product Code: VC

Description:

The validation clamp and gasket allows validation thermocouples or small diameter probes to be placed inside a tri-clover joint.

The validation clamp come in three sizes with various ports (1-4 ports) for validation wire and small probes/tubes.



Specification:

CLAMP MATERIAL	316 stainless steel
CLAMP SIZE	1", 1.5" & 2"
PORTS	1, 2, 3 and 4 ports
GASKETS	Platinum cured silicone gaskets to suit Can be sold separately
TO FIT	1/0.5mm & 7/0.2mm wire

Datasheet : 406

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Product Code: KTAPE

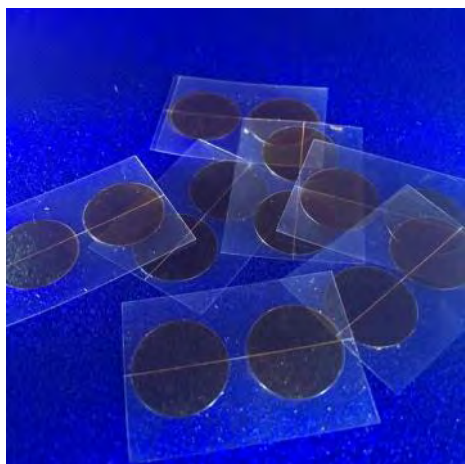
Description:

Kapton® tape provides a simple and effective means of attaching validation thermocouples to the autoclave chamber wall and is suitable up to 250°C

It is available either as tape on a reel, in a range of standard widths, or as die cut dots to any diameter.

The die cut dots are useful where tracking of the Kapton® in and out of the process is important.

The tape is produced from electrical grade polyimide with a pre-cured pressure sensitive silicone adhesive film and it is designed to operate at elevated temperatures. This heat-stabilized film surpasses the dimensional stability of polyester, and will thermoset to increase adhesion values.



Specification:

MATERIAL	Kapton®, electrical grade polyimide
ADHESIVE	Silicone
THICKNESS	Kapton®, 25µ
TOTAL THICKNESS	63.5µ
STANDARD TAPE WIDTHS	10, 12, 15, 20, 25mm. Other widths on request.
TEMPERATURE RESISTANCE	250°C
DIELECTRIC STRENGTH	7500 Volts
BREAKING STRENGTH	5.4 Kg/cm
ELONGATION AT BREAK	60%

Datasheet : 037

The preferred method of temperature measurement for pharmaceutical validation purposes is the Copper/Constantan type 'T' thermocouple.

- ALWAYS manufactured from type T thermocouple material conforming to IEC 60584-1:2013 class 1. This gives a tolerance of +/- 0.5°C across the range -40°C to 125°C
- PFA Extruded : Smooth, easy to clean.
- PFA Twisted: Easy thermocouple preparation.
- PTFE Lapped: Tightly wrapped insulation minimises capillary action.
- Kapton®: For high temperature applications such as depyrogenation.

Wire is supplied in 100m lengths, and is Class 1 material and IEC colours.



Insulation Material	Conductor Format	Max Temp °C
PFA Extruded	1/0.3mm	250°C
	1/0.5mm	250°C
	3/0.2mm	250°C
	7/0.2mm	250°C
	13/0.2mm	250°C
PFA Twisted	1/0.3mm	250°C
	1/0.5mm	250°C
PTFE Lapped	1/0.3mm	250°C
	1/0.5mm	250°C
Kapton®	1/0.3mm	300°C*
	7/0.2mm	300°C*

* Kapton® can go to 350°C for short periods

Datasheet : 030

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Product Code: PTB

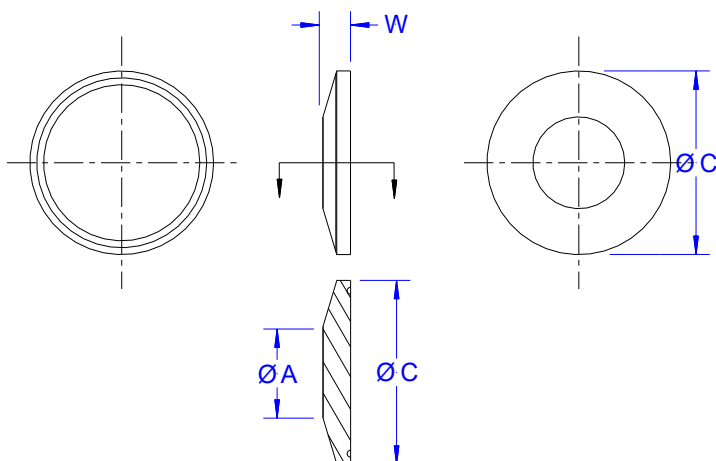
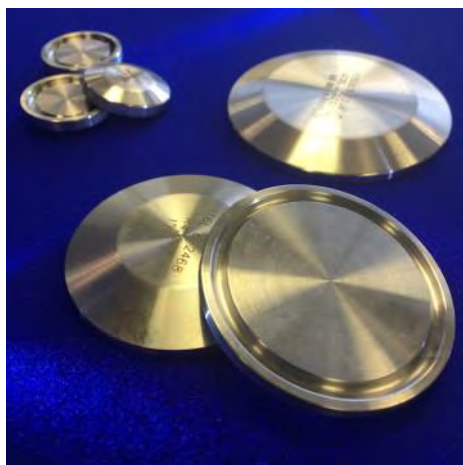
Description:

Tri-clover flanges provide smooth, crevice free interiors with secure and self aligning joints, and when combined with Pharmaceutical Clamps (PTC) and Gaskets (PTG) create a safe and easy to use connection system.

These are used where the maintenance of hygienic standards in pharmaceutical, biotech and food production is essential.

Manufactured in Grade 316L stainless steel from solid round bar stock and with a polished finish better than that required by the relevant International Standards.

Material certificates available on request.



BS4825 Imperial	Face A Ø	Flange C Ø	Width 'W'	Mass (Kg)
1/2" - 3/4"	12.5mm	25.4mm	5.6mm	0.02
1" to 1 1/2"	24.5mm	55.5mm	7.0mm	0.08
2"	39.0mm	64.0mm	7.0mm	0.14
2 1/2"	53.5mm	77.5mm	7.0mm	0.21
3"	66.5mm	91.0mm	7.0mm	0.30

DN 32676 Metric	Face A Ø	Flange C Ø	Width 'W'	Mass (Kg)
DN10/15/20	15.5mm	34.0mm	6.0mm	0.03
DN25	24.5mm	50.5mm	7.0mm	0.08
DN50	39.0mm	64.0mm	7.0mm	0.14
DN65	66.5mm	91.0mm	7.0mm	0.30
DN80	81.0mm	106.0mm	7.0mm	0.42

Datasheet : 402

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Name:

Email:

Organisation:

Tel:

Country

Thermocouple Entry Gland (TCEG)

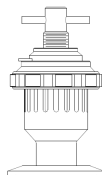
TCEG/1 (18t/c) qty?

Select Process Connection

Spare Sealant Sets RS-TGEG/1 qty?

TCEG/2 (36t/c) qty?

Spare Sealant Sets RS-TCEG/2 qty?



Validation Thermocouples (VTFP) - select options below

PFA Extruded Wire (smooth, easy to clean)

Qty

Select Wire Type

Length mm

Loom?

Bare

-----Hot Junction-----

Encap
sulated

Steel
Tip

Weep
hole?

Termination

X

X

PTFE Lapped Wire (tightly wrapped insulation for minimum capillary action)

X

X

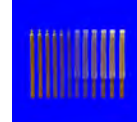
Kapton® Wire (high temperature)

X

X



Loom format



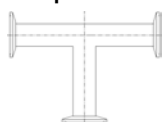
HJ encapsulation

Extension Tubes (TPE/YPE)

Tee piece

Select Size / Qty:

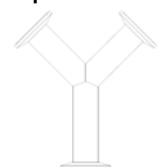
1" tube
1.5" tube
2" tube
2.5" tube
3" tube



Y piece

Select Size / Qty:

1" tube
1.5" tube
2" tube
2.5" tube
3" tube



Clamps and Accessories

Double Hinge Clamp in 316L

Select Size/Qty:



Gaskets

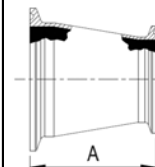
Select Size/Type/Qty

Tri-clover Blanks

Select Size/Qty

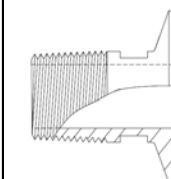
Tri-Clover Reducers

Select Size / Qty



Triclover Adaptors

Select Size / Thread / Qty



Validation Kit IP67 Carry Case
with foam inserts customised
for your selected products

Additional information



Please download PDF and fill in the boxes. Use 'Additional Information' for non standard requests.
Return form to sales@thermal-detection.com or fax to +44 1642 618307

Bottle Cap Mounts for Temperature Probes and Thermocouple Wire

(for autoclave probe enquiries please use SL150, SL160 or SL100 Steriprobe forms)



GL45 cap style for temperature probe

Quantity

Probe Dia (mm)



BC style*, custom metal cap for temperature probe

Quantity

Probe Dia (mm)

* Please provide details of bottle design in additional info below

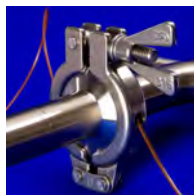


GL45 cap style for validation thermocouples

Quantity

Wire size

Validation Clamps



Select Size / Ports / Qty:

Validation Gaskets

Select Size / Material / Ports / Qty:

Kapton® Tape and Dots



Select Size / Qty:

Type T Thermocouple Wire on Reels



Select Size / No 100M reels

Additional information