



Cert. No. LRQ 0963008

ISO 9001

spirax/sarco

USM21

Sealed Bimetallic Steam Trap for use with Pipeline Connectors

TI-P625-04

ST Issue 1

Description

The USM21 is a pre-set and maintenance free sealed bimetallic steam trap manufactured in stainless steel. It is designed for steam pressures up to 21 bar and applications such as steam tracing and mains drips. When installed in any position with a suitable pipeline connector the USM21 can easily and simply be removed without breaking into the pipeline, thus speeding up trap replacement with minimal system downtime. Pipeline connectors are available with screwed, socket weld and flanged connections.

Standards The body/cover weld joint complies with ASME Section IX and BS EN 288. This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required.

Certification These products are available with certification to EN 10204 3.1.B. **Note:** All certification/inspection requirements must be stated at the time of order placement.

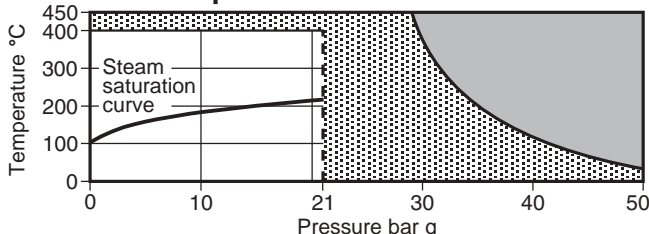
Sizes and pipe connections

The USM21 can be fitted to a variety of different pipeline connectors which include:

PC10	Straight connector	ANSI/ASME 300 (TI-P128-10)
PC10HP	Straight connector	ANSI/ASME 600 (TI-P128-10)
PC20	Straight connector with strainer	(TI-P128-15)
IPC20	Straight connector with strainer	(TI-P128-17)
IPC21	or Spiratec sensor	
PC3	Connector with 1 piston isolation valve	ANSI/ASME 600 (TI-P128-02)
PC4	Connector with 2 piston isolation valves	ANSI/ASME 600 (TI-P128-03)

Note: See the relevant Technical Information sheet as listed above for further details of connections available on pipeline connectors.

Pressure / temperature limits



The product **must not** be used in this region.

The product should not be used in this region or beyond its operating range as damage to the internals may occur.

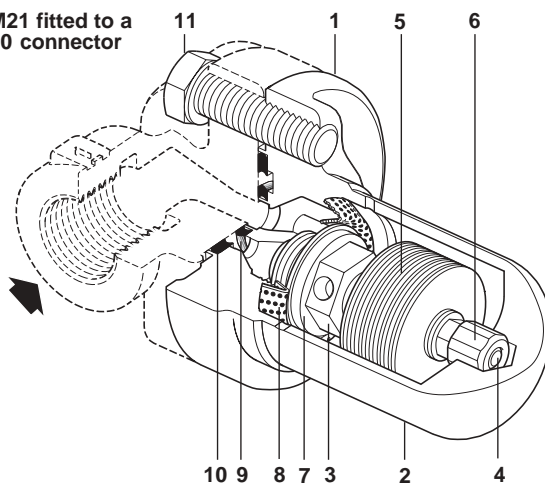
Note: The model of pipeline connector and connections selected will dictate the maximum operating pressure and temperature of the complete assembly. Consult the specified Technical Information sheet as listed in 'Sizes and pipe connections' for relevant data.

Body design conditions		ANSI/ASME 300
PMA	Maximum allowable pressure @ 40°C	50 bar g
TMA	Maximum allowable temperature @ 29 bar g	450°C
Minimum allowable temperature		-29°C
PMO	Maximum operating pressure for saturated steam service	21 bar g
TMO	Maximum operating temperature @ 21 bar g	400°C
* Minimum operating pressure		0°C
ΔPMX	Maximum differential pressure	21 bar g
Designed for a maximum cold hydraulic test pressure of 75 bar g		

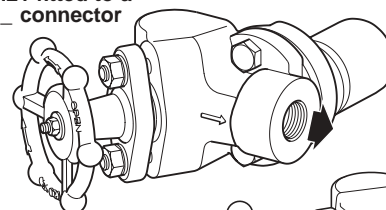
* Traps are available in a range of subcooled temperature settings. Except for start-up and shutdown, they must operate above the minimum differential pressure values shown in the table below:

Nominal subcooled temperature	External identification	Threshold differential pressure
-10°C	"-1"	5 bar g
-30°C	"-3"	2 bar g
-50°C	"-5"	0.5 bar g
-70°C	"-7"	0.1 bar g

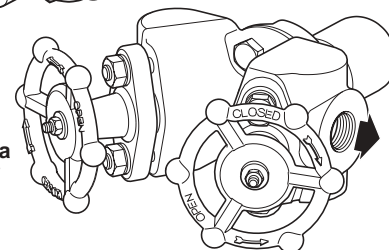
USM21 fitted to a PC10 connector



USM21 fitted to a PC3 connector



USM21 fitted to a PC4 connector



Materials

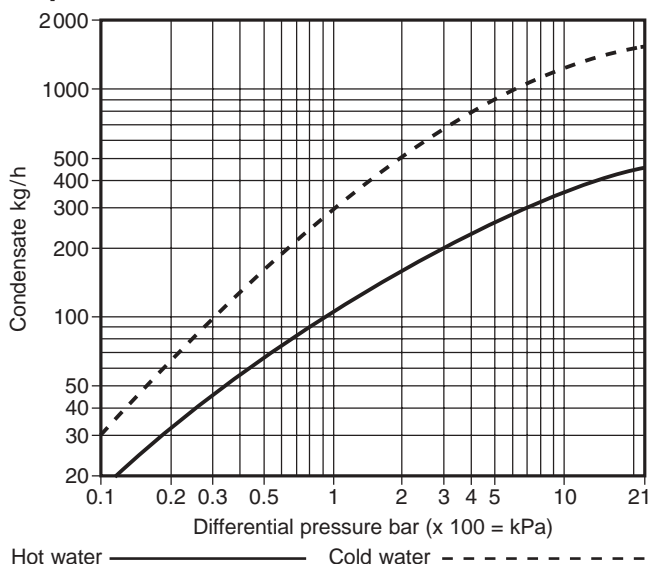
No.	Part	Material
1	Body	Stainless steel ASTM A351 CF8
2	Cover	Stainless steel AISI 316L
3	Seat	Stainless steel AISI 316L
4	Stem	Stainless steel AISI 410
5	Bimetal	Nickel alloy G. Rau H46
6	Lock-nuts	Stainless steel AISI 304L
7	Body/seat gasket	Stainless steel AISI 316L
8	Screen	Stainless steel AISI 304L
9	Inner gasket	Stainless steel / Graphite filler Spirally wound AISI 304 strip
10	Outer gasket	Stainless steel / Graphite filler Spirally wound AISI 304 strip
11	Connector screws	Carbon steel ASTM A193 B7

Local regulations may restrict the use of this product to below the conditions quoted.

In the interests of development and improvement of the product, we reserve the right to change the specification.

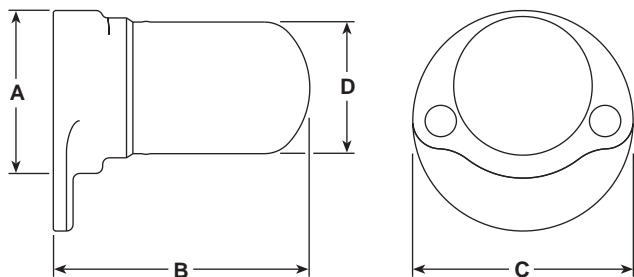
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Capacities (in accordance with ISO 7842)



Dimensions/weights (approximate) in mm and kg

Model	A	B	C	D	Weight (Trap only)
USM21	35	78	68	40	0.6



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P625-03) supplied with the product. The USM21 can be installed on any Spirax Sarco pipeline connector. See separate Installation and Maintenance Instructions for Spirax Sarco pipeline connectors (IM-P128-06, IM-P128-11 and IM-P128-13).

Disposal

The USM21 trap unit is manufactured from stainless steel and is therefore totally recyclable. No ecological hazard is anticipated with the disposal of this product provided due care is taken.

How to specify

Steam traps shall be of the sealed bimetal thermostatic USM21 type manufactured in stainless steel and be suitable for operating pressures up to 21 bar. Traps to be zero maintenance and to be connected to separate pipeline connectors by two screws for quick and simple installation/replacement. The thermostatic element is to nominally operate at 10°C, 30°C, 50°C or 70°C below steam temperature. Traps can be installed in any plane.

How to order

Please order a USM21 and a connector individually as they are supplied as separate components to ease installation. Each USM21 is supplied in a protective box complete with inner and outer gaskets securely crimped in place) and two connector screws.

Example: 1 off Spirax Sarco USM21 sealed bimetallic steam trap for use with a PC10 pipeline connector, set to operate nominally at 30°C below steam temperature.

Spare parts

The USM21 is a sealed non-maintainable trap unit. No internal spares are available. The spares which are available are shown in heavy outline. Parts shown in a broken line are not available as spares.

Available spares

Connector screws (2 off) **11**

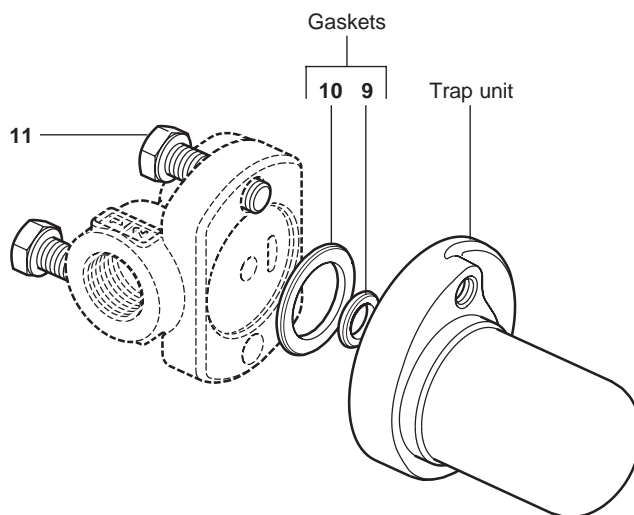
Complete USM21 trap unit inclusive of gaskets (9 and 10) and connector screws (11)

Note: The gaskets contain sharp metal reinforcement, please handle with care.



How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state if ordering a complete trap the nominal operating temperature of the steam trap.

Example: 2 - Connector screws for a USM21 sealed bimetallic steam trap.



Recommended tightening torques

Item No.	Part	 or 	N m
11	Connector screws	9/16"	30 - 35