

Protective Shield



*Engineering
GREAT Solutions*

**Protective shield for
temperature sensors**

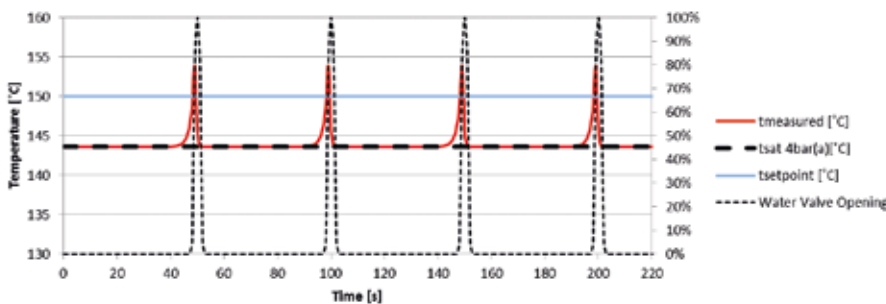
Protective Shield

The IMI CCI protective shield has been developed to improve temperature measurement stability by protecting temperature sensors installed in the steam pipe from being hit by spray water droplets.

A successful temperature control system depends on accurate and reliable measurements of steam temperature. In applications where the temperature sensor is installed close to a desuperheating arrangement, like that of a steam conditioning valve and/or in situations where there is a risk of water droplets that have yet to evaporate hitting the temperature sensor, IMI CCI recommends installing a protective shield.

When a temperature sensor is hit by free water droplets, it causes a misreading of the steam temperature. The misreading can be large enough to read at saturation temperature. This causes the temperature control loop to close the spray water valve. When the spray water valve closes, the temperature sensor reads uncooled steam temperature, which prompts the temperature control loop to once again open the valve. In worst case, this could cause major temperature oscillations, as shown in the graph below.

The IMI CCI protective shield minimises this effect and improves loop stability, though in some cases it might cause delays in temperature readings. Many variables are important to take into consideration when installing temperature sensors, such as the distance to any desuperheating arrangement, drainage, pipe bends, etc.



Temperature oscillations resulting from a temperature sensor being exposed to free water droplets.

Improves temperature control loop stability



Compatible with a wide range of temperature sensors

Key Features

- > Protects temperature sensors
- > ASME/ASTM or EN standards available
- > Welded, threaded or flanged connection

Benefits

- > Improves temperature control loop stability
- > Compatible with a wide range of temperature sensors
- > Easy installation and replacement of temperature sensor

Product specification

Material

Grade 12, 22, 91 or carbon steel forging.
ASME/ASTM or EN

Thermowell connection

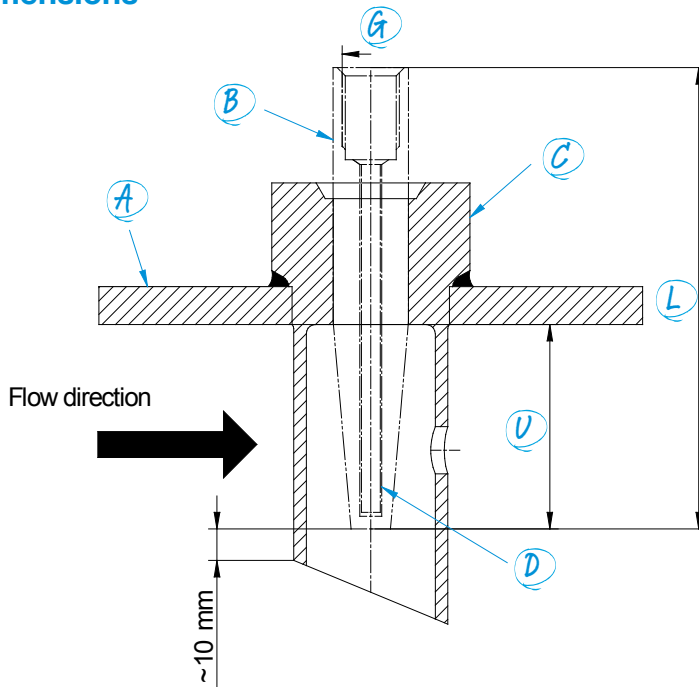
Welded, threaded or flanged

Thermowell types supported

Protective pocket sizes listed under the type code section are based on the Rossing & Jansson TM10 thermo-element. If other types are going to be installed, please inform IMI CCI of the following:

- Thermowell manufacturer and model
- Overall length of thermowell (L)
- Unsupported cone length (U)
- Thermowell diameter

Dimensions



- A. Steam pipe wall
- B. Customer connection
- C. Protective pocket
- D. Thermometer in thermowell
- G. Connection to thermometer
- L. Overall length
- U. Unsupported cone length*

*Acc. to ASME PTC 19.3 TW-2010

Type code

Type code	Options	Description	Ordering example	
1	Thermowell model	D1	P100 thermowell size D1	D1
		D2	P100 thermowell size D2	
		D3	P100 thermowell size D3	
		D4	P100 thermowell size D4	
		D5	P100 thermowell size D5	
		D6	P100 thermowell size D6	
2	Protective pocket material	CSA	(S)A-105 (max steam temperature = 425°C)	F22
		F12	(S)A-182 F12Cl.2	
		F22	(S)A-182 F22Cl.3	
		F91	(S)A-182 F91	
		CSE	EN 10222-2 P250GH (max steam temperature = 425°C)	
		13Cr	EN 10222-2 13CrMo4-5	
		11Cr	EN 10222-2 11CrMo9-10	
3	Connection type	W	Welded	T
		F150	Flanged, #150 RF ASME B16.5	
		T	Threaded	
4	Design temperature	#C	°C	500C

Example: Protective shield D1-F22-T-500C

IMI CCI Australia

33 South Corporate Avenue
Rowville
Melbourne 3178
Australia

Tel: +61 3 9213 0800

IMI CCI China

B3, 303 Xinke Road
Qingpu
Shanghai
201707
PR China

Tel: +86 21 3973 8000
Fax: +86 21 6495 0620

IMI CCI Korea

14 Dangdong 2-ro
Munsan-eup
Paju-si
Gyeonggi-do
Korea 10816

Tel: +82 31 980 9800
Fax: +82 31 985 0552

IMI CCI SriCity

No 900 North R-1 Sri City SEZ
Sathyavedu Mandal
Chittoor District
Andhra Pradesh 517588
India

Tel: +91 85 7639 8000
Fax: +91 85 7639 8035

IMI CCI Austria

Lemböckgasse 63/1
1230 Wien
Austria

Tel: +43 1 869 27 40
Fax: +43 1 865 36 03

IMI CCI Dubai

P.O. Box 17827
Light Industrial Unit
BJ04 South Zone 1
Jebel Ali – Dubai
United Arab Emirates

Tel: +971 4 886 1477
Fax: +971 4 886 1476

IMI CCI Malaysia

K-7-5 & K-7-6
Solaris Mont Kiara, SOHO
Jalan Solaris, Mont Kiara
50480 Kuala Lumpur
Malaysia

Tel: +60 3 6412 3500
Fax: +60 3 6412 3588

IMI CCI Sweden

Industrigatan 3
661 29 Säffle
Sweden

Tel: +46 533 689 600
Fax: +46 533 689 601

IMI CCI Bangalore

6th floor Warp tower SJR i park
Plot #13 14 & 15 EPIP Zone
Phase 1
Whitefield Road
Bangalore 560066
India

Tel: +91 80 4030 3500
Fax: +91 80 4030 3531

IMI CCI Houston

4525 Kennedy Commerce Drive
Houston
Texas 77032
USA

Tel: +1 832 467 7200
Fax: +1 713 849 2948

IMI CCI RSM

22591 Avenida Empresa
Rancho Santa Margarita
California, 92688
USA

Tel: +1 949 858 1877
Fax: +1 949 858 1878

IMI CCI Switzerland

Itaslenstrasse 9
CH-8362 Balterswil
Switzerland

Tel: +41 52 264 9500
Fax: +41 52 264 9501

IMI CCI Brazil

Rua Itapeva 286
cj 95 to 98
Sao Paulo
CEP 01332-000
Brasil

Tel: +55 11 2691 3361
Fax: +55 11 2539 0287

IMI CCI Italy

Via Giacomo Leopardi 26
20123
Milano
Italy

Tel: +39 02 4345 8611
Fax: +39 02 4345 8624

IMI CCI Singapore

29 International Business Park
ACER Building Tower A
#04-01

Singapore 609923
Tel: +65 6653 7000
Fax: +65 6822 7001

IMI CCI UK

Unit A3
Brookside Business Park
Middleton
Manchester
M24 1GS

Tel: +44 (0)161 655 1680
Fax: +44 (0)161 655 1689

IMI CCI Brno

K letišti 1804/3
Štapanice 627 00
Brno 27
Czech Republic

Tel: +420 511 188 288
Fax: +420 511 188 245

IMI CCI Japan

6-2-2 Takatsukadai
Nishi-ku, Kobe
Hyogo 651-2271
Japan

Tel: +81 78 322 1220
Fax: +81 78 322 1221

IMI CCI South Africa

18 Van Rensburg Avenue
Klipfontein
Witbank
1035
South Africa

Tel: +27 13 697 3305
Fax: +27 13 697 3303

imicci.sales@imi-critical.com

IMI Critical Engineering

Lakeside, Solihull Parkway
Birmingham Business Park
Birmingham B37 7XZ
United Kingdom

Tel: +44 (0)121 717 3700
Fax: +44 (0)121 717 3701

www.imi-critical.com