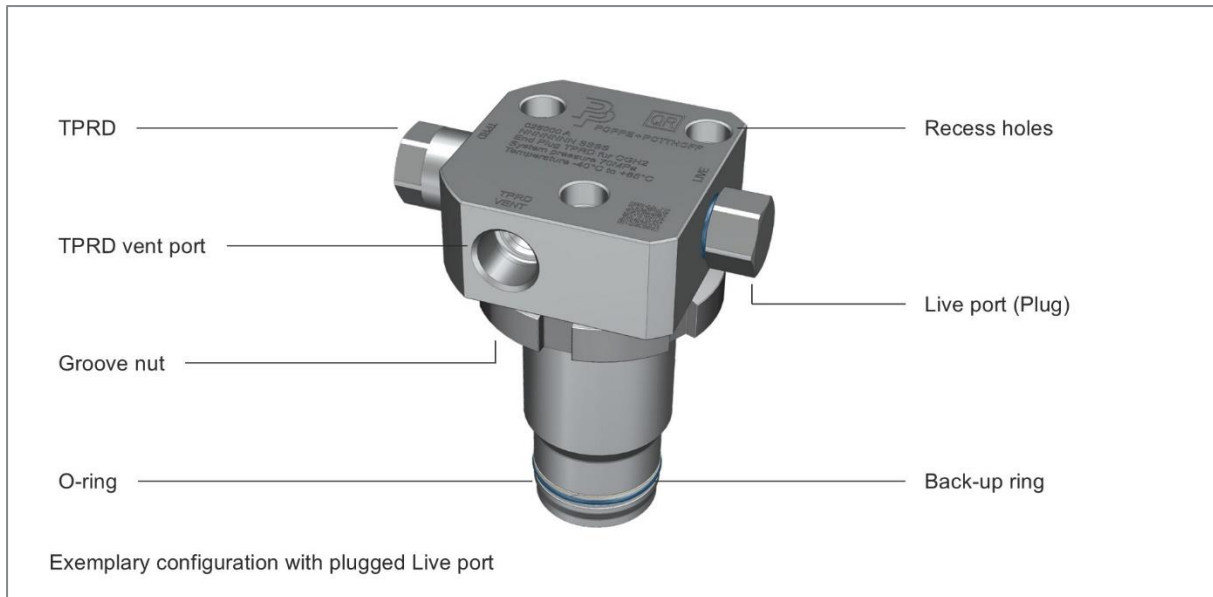




TOPAQ End Plug TPRD 2.0

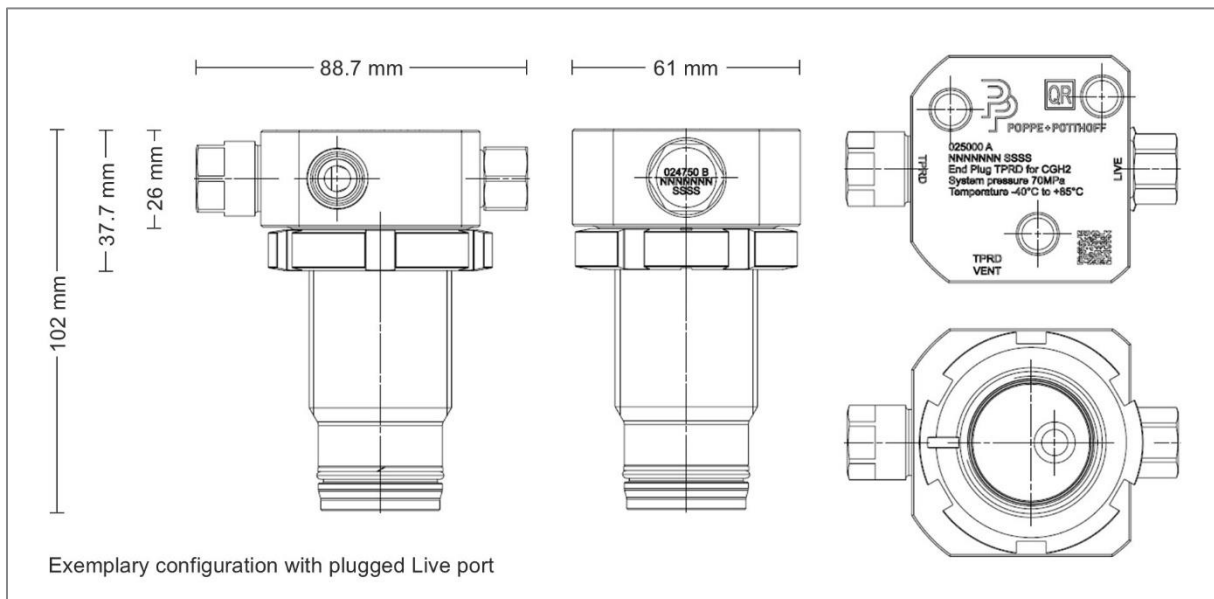
Product specification



The End Plug TPRD (Thermal Pressure Relief Device) is used to secure hydrogen gas storage tanks in the event of a fire by ensuring rapid and spatially targeted degassing at elevated temperatures whilst preventing the tanks from bursting.

With its optimized design, it enables the compliance of individual customer requirements while simultaneously addressing relevant legal standards (UN/ECE R134, CSA/ANSI HPRD 1:21).

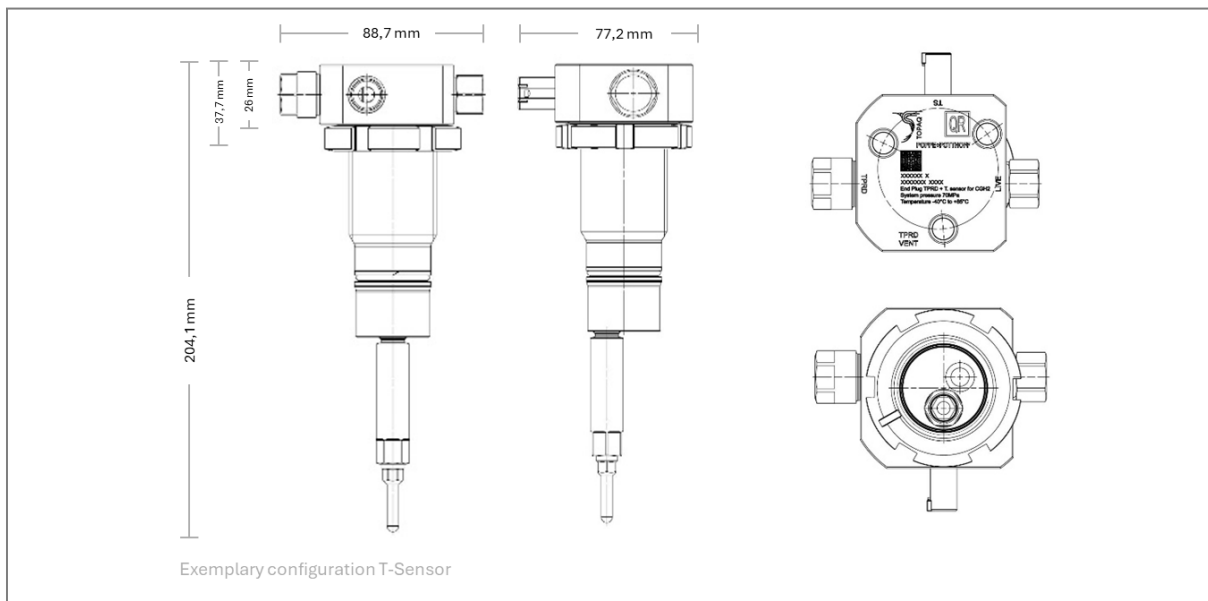
Technical features



End Plug TPRD	
Technical data	
Installation space (depends on config.)	Ø 100 – 175 mm
Height (screwed in)	37.7 – 39.9 mm
Height	102 mm
Weight (depends on config.)	approx. 620 – 690 g
Weight (Body)	approx. 414 g
Material	Aluminum, Stainless steel, Glass
Sealing type	O-ring, Metal-to-metal
Interfaces Thread definitions Ports	
Tank interface	1½"-12 UNF
TPRD	M20x1.5
Pipe connection (TPRD vent)	M16x1.5
Live port	M14x1
Sensors	
Pressure sensor	optional
Pressure range	0 to 900 bar

End Plug TPRD	
Operating conditions	
Operating temperature	-40 to +85 °C
Nominal working pressure	700 bar
Maximum allowed working pressure	875 bar
Proof pressure	1050 bar
Medium	Hydrogen (CGH2)
Leak rate (acc. UN/ECE R134)	< 10 Ncm ³ /h
Trigger conditions	
Trigger temperature	110±5 °C
Trigger time @ 450 °C (validation pending)	
Trigger time @ 600 °C (validation pending)	
Cv (p ₁ = 700 bar, p ₂ = 1 bar)	0.80
Min. Flow diameter (TPRD vent in End Plug)	4.4 mm

Technical features



End Plug TPRD + Temperature sensor	
Technical data	
Installation space (depends on config.)	Ø 100 – 175 mm
Height (screwed in)	37.7 – 39.9 mm
Height	204.1 mm
Weight (depends on config.)	approx. 655 – 725 g
Weight (Body)	approx. 430 g
Material	Aluminum, Stainless steel, Glass
Sealing type	O-ring, Metal-to-metal
Interfaces Thread definitions Ports	
Tank interface	1½"-12 UNF
TPRD	M20x1.5
Pipe connection (TPRD vent)	M16x1.5
Live port	M14x1
Sensors	
Pressure sensor	optional
Pressure range	0 to 900 bar
Temperature sensor	
Temperature element	Discrete NTC Thermistor
Temperature range	-60 to +150 °C

End Plug TPRD + Temperature sensor	
Operating conditions	
Operating temperature	-40 to +85 °C
Nominal working pressure	700 bar
Maximum allowed working pressure	875 bar
Proof pressure	1050 bar
Medium	Hydrogen (CGH2)
Leak rate (acc. UN/ECE R134)	< 10 Ncm³/h
Trigger conditions	
Trigger temperature	110±5 °C
Trigger time @ 450 °C (validation pending)	
Trigger time @ 600 °C (validation pending)	
Cv (p ₁ = 700 bar, p ₂ = 1 bar)	0.80
Min. Flow diameter (TPRD vent in End Plug)	4.4 mm

Available configurations

Item No	Temperature sensor	TPRD Vent port		Variant	Live port	
		Pipe material	Pipe OD ¹⁾ [mm]		Pipe adapter / Plug material	Pipe OD ¹⁾ [mm]
033529-A	No	PPH2 ^{1,2)} Stainless steel	10	Plug	Stainless steel	-
033580-A	No	PPH2 Stainless steel	10	Remote TPRD connector	Stainless steel	10
033527-A ³⁾	No	PPH2 Stainless steel	10	Remote TPRD connector	PPH2	10
033531-A ³⁾	No	PPH2 Stainless steel	10	Pressure sensor	-	-
033553-A	Yes	PPH2 Stainless steel	10	Plug	Stainless steel	-
033586-A	Yes	PPH2 Stainless steel	10	Remote TPRD connector	Stainless steel	10
033551-A ³⁾	Yes	PPH2 Stainless steel	10	Remote TPRD connector	PPH2	10
033555-A ³⁾	Yes	PPH2 Stainless steel	10	Pressure sensor	-	-

1) OD = Outer diameter, for individual Vent or Live Port Connection; also available for 10x7 and 10x6 P+P interfaces

2) PPH2 is a protected designation of the Poppe + Potthoff Präzisionsstahlrohre GmbH.

3) UN/ECE R134.01 in progress.

Certification & safety information

The product may only be used after installation by qualified personnel according to the corresponding installation guide. Usage for production of commercial goods is only permitted in certified countries. Otherwise, the product may only be used for testing purposes.

Certificates

Europe

UN/ECE R134.01	Tests passed
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UN/ECE R134.02	Certification pending
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Greater China (China, Taiwan, Hong Kong, Macau)

GB/T 42536-2023	Certification pending
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North America (USA, Canada)

CSA/ANSI HPRD 1:21	Certification pending
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