SENTRY GT / GT..KD40

THERMAL CUT-OFF DEVICES AND BALL VALVES

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CONTENT

DESCRIPTION

SENTRY GT Thermal Cut-off Devices (TCO) help prevent gas from flowing to downstream components that may not be resistant to high temperatures. These thermal cut-off devices automatically shut off the gas flow at temperatures between 92 °C and 100 °C. The SENTRY GT..KD40 ball valve may also be used as a main gas manual shut-off valve.

SENTRY GT THERMAL CUT-OFF DEVICE

The release mechanism (temperature sensor) retains the closing unit, which is mounted under spring pressure. At the release temperature, the release mechanism unblocks the closing unit, and the closing unit moves into the seat resulting in a gas-tight seal. The SENTRY GT remains closed after it cools (see figure 1).

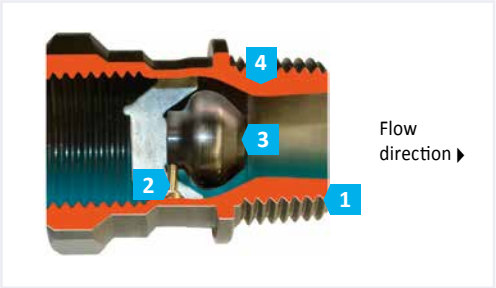


Figure 1
Cross-section of a SENTRY GT (GT15DIA) thermally activated cut-off device

1 Housing
2 Release Mechanism
3 Closing Unit
4 Seat

BALL VALVE SENTRY GT..KD

To close the ball valve, the lever must be turned clockwise ↻ 90°. To open the ball valve, turn the lever counterclockwise ↺ 90°. The ball valve is open when the lever is in the flow direction of the pipe (see figure 2). The ball valve should be opened slowly to avoid pressure surge.

Figure 2
SENTRY GT..KD40 ball valve

CERTIFICATIONS

SENTRY GT TCOs are certified in compliance with:

- Pressure Equipment Directive (2014/68/EU)
- DIN 3586

and meet the requirements of:

- German FeuVO
- IGEM/G/5 Edition 3, 2022 for Gas in multi-occupancy buildings
- DVGW-Code of Practice G600 (TRGI-2018)
- DVFG TRF 2021

German fire code draft recommendation 02/95, Edition 09/97, the legal basis for Germany's regional buildings and fire codes, mandates the use of a thermally activated cut-off device.

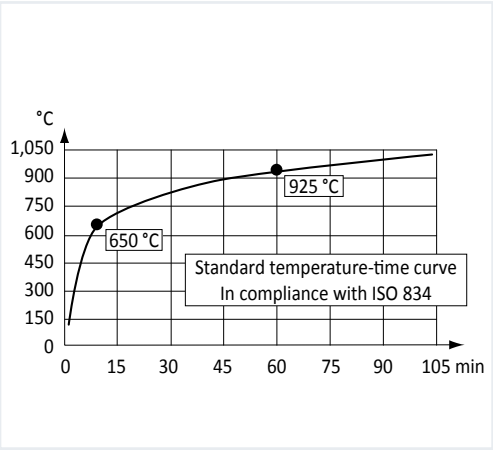
Gas pipes supplying gas appliances must be equipped with a device:

1. That automatically shuts off the gas flow when subjected to temperatures > 100 °C.
2. That allows no more than 30 l/h measured in air to pass through the device for a period of at least 30 minutes at temperatures up to 650 °C in compliance with DIN 3586 (Maxitrol tested up to 925 °C) when tripped.

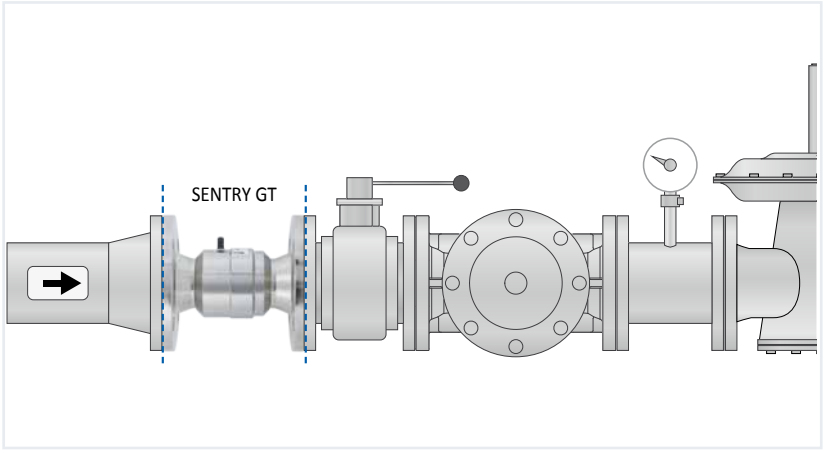
(Figure 3, page 2 shows that during a fire the temperature reaches 700 °C within 15 minutes.)

Certifications (Range of use)	SENTRY GT	SENTRY GT..KD
Pressure Equipment Directive	2014/68/EU	2014/68/EU
DVGW	DN 10 -150: DIN 3586 DN 32 -150: DIN 3586 (EN 1775, DVFG TRF 2021, DVGW TRGI 2018)	DIN EN 331; DIN 3586 (EN 1775, DIN 3537-1, DVFG TRF 2021, DVGW TRGI 2018)

TECHNICAL DATA



▲ Figure 3: Temperature rise in a test room fire simulation



▲ Figure 4: Example of a SENTRY GT installed upstream of a burner

Technical data	SENTRY GT	SENTRY GT..KD
Threaded connection	DIN EN 10226-1 / ISO 7-1	DIN EN 10226-1 / ISO 7-1
Flanged connection	DIN EN 1092-1:2018-12 (PN 16) / ISO 7005-1	-
Gas types	DIN EN 437; DVGW G 262	DIN EN 437
Release temperature	100 °C – 8 K	100 °C – 8 K
Nominal pressure	MOP 5 (PN 5, DIN 3586)	MOP 5 (PN 5, DIN 3586)
Allowable leakage	< 30 l/h air at 650 °C	< 30 l/h air at 650 °C
Ambient temperature	-20 °C to 80 °C	-20 °C to 60 °C
Thermal rating	30 min 650 °C in compliance with DIN 3586; (Maxitrol tested up to 925 °C)	30 min 650 °C in compliance with DIN 3586
Material	Steel	Brass, Steel

INSTALLATION KITS

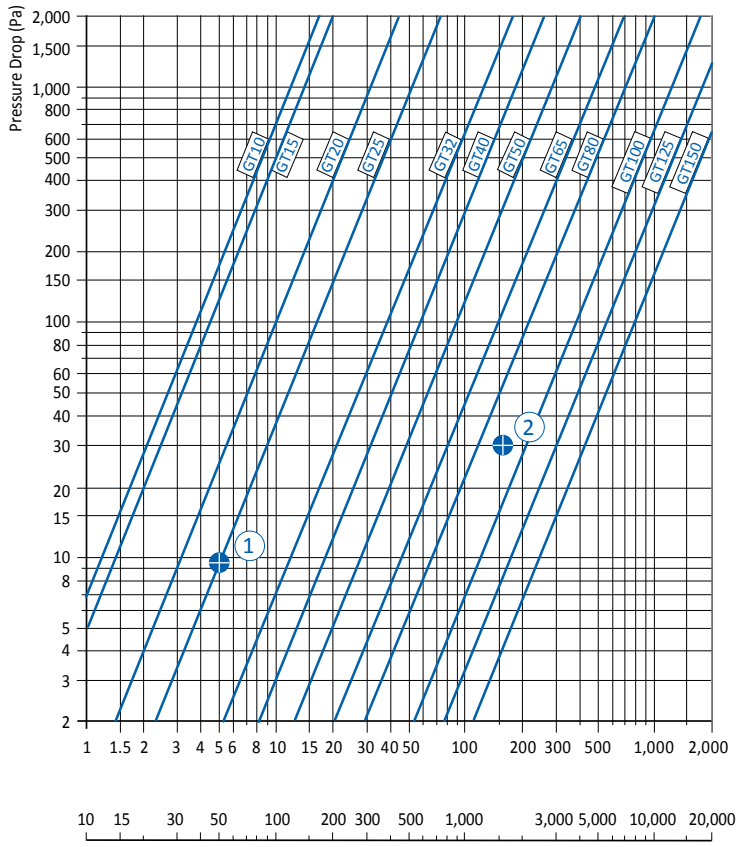
Installation Kit for SENTRY GT

In compliance with applicable industry standards, an installation kit is required for the installation of flanged versions of thermal cut-off devices. This kit consists of high temperature resistant flange gaskets, hexagonal screws and hexagonal nuts. All flanged units must use high temperature resistant gaskets in compliance with Standard DIN EN 1092-1:2018-12 (PN 16) / ISO 7005-1.

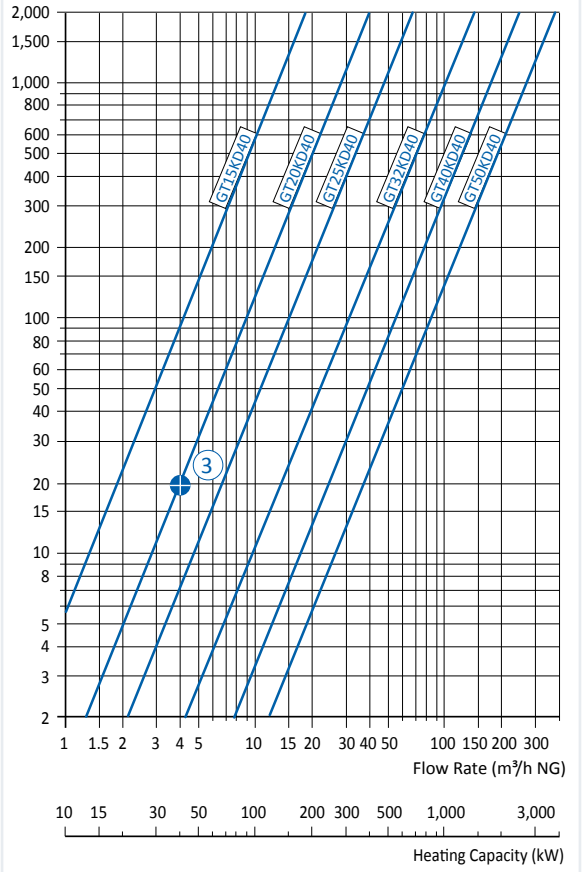
Only use high temperature resistant flange gaskets in compliance with DIN 30653 (HTR) up to 5 bar (Marked by: 3 red marks staggered 120°). For a list of high temperature resistant gasket kits see Maxitrol literature GT-DS-DE.EN… .

SENTRY GT	Installation Kit	Nominal diameter
GT32FF	SENTRY GT 32 M2(3)	DN 32
GT40FF	SENTRY GT 40 M2(3)	DN 40
GT50FF	SENTRY GT 50 M2(3)	DN 50
GT65FF	SENTRY GT 65 M2(3)	DN 65
GT80FF	SENTRY GT 80 M2(3)	DN 80
GT100FF	SENTRY GT 100 M2(3)	DN 100
GT125FF	SENTRY GT 125 M2(3)	DN 125
GT150FF	SENTRY GT 150 M2(3)	DN 150

FLOW RATE CHARTS (Natural Gas d = 0.6; pi = 2.5 kPa)



▲ Figure 5: SENTRY GT



▲ Figure 6: SENTRY GT..KD40

EXAMPLES (see figure 5 and 6)

(1) For a 50 kW boiler with a flow rate of ca. 5 m³/h natural gas, the pressure drop for a GT25 would be 9.5 Pa.

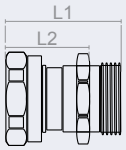
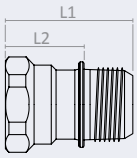
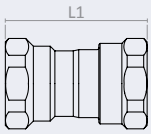
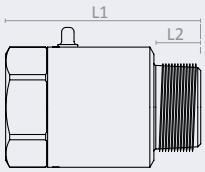
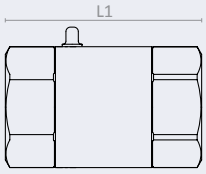
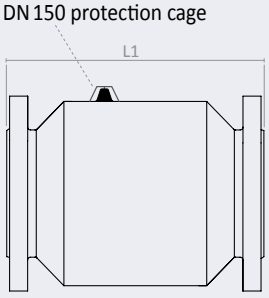
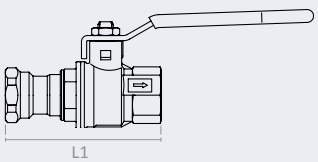
(2) The pressure drop of a GT for a 1500 kW boiler may not exceed 30 Pa. Choose the next characteristic line below plot point (2) (GT100).

(3) The pressure drop of a GT20KD40 with a flow rate of 4 m³/h natural gas would be 20 Pa.

FLOW RESISTANCE FACTOR

Flow resistance factor ζ (zeta) for SENTRY GT											
DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150
1.5	4.5	3.0		1.5						1.8	

CONNECTIONS AND DIMENSIONS

Illustration	Type (Order Code)	Connection (others on request)		Surface	Dimensions [mm]			Weight [kg]	Cert. No.
		Inlet	Outlet		L1	L2	SW Wrench size		
	GT20BLC0	Internal thread 3/4" BS746	External thread 3/4" BS746	blue galvanized	45.0	33.0	36	0.136	CE-0085BN0394
	GT10DIA0 GT15DIA0 GT20DIA0	Internal thread Rp ⅜ Rp ½ Rp ¾	External thread R ⅜ R ½ R ¾	blue galvanized	40.0 40.0 50.3	28.4 24.7 34.0	22 27 32	0.05 0.07 0.10	CE-0085BN0394
	GT25DIA2	Rp 1	R 1	black galvanized	53.8	34.6	41	0.21	
	GT15DII0 GT20DII0	Internal thread Rp ½ Rp ¾	Internal thread Rp ½ Rp ¾	blue galvanized	45.5 54.5	- -	27 32	0.10 0.15	
	GT25DII2	Rp 1	Rp 1	black galvanized	61.5	-	41	0.30	
	GT32IA4 GT40IA4 GT50IA4	Internal thread Rp 1 ¼ Rp 1 ½ Rp 2	External thread R 1 ¼ R 1 ½ R 2	nickel plated	100.0 112.0 135.0	21.4 21.4 25.7	55 65 80	0.76 1.46 2.52	CE-0085BN0395
	GT32II4 GT40II4 GT50II4	 Rp 1 ¼ Rp 1 ½ Rp 2	Internal thread Rp 1 ¼ Rp 1 ½ Rp 2		100.0 112.0 135.0	- - -	55 65 80	1.14 1.76 2.60	
DN 150 protection cage 	GT32FF4 GT40FF4 GT50FF4 GT65FF4 GT80FF4 GT100FF4 * GT125FF * GT150FF * * Dispatch only by forwarder	Flange connection DN 32 DN 40 DN 50 DN 65 DN 80 DN 100 DN 125 DN 150	Flange connection DN 32 DN 40 DN 50 DN 65 DN 80 DN 100 DN 125 DN 150	nickel plated	138.0 155.0 175.0 197.0 229.0 267.0 224.0 268.0	- - - - - - - -	- - - - - - - -	2.50 3.70 6.10 7.80 11.00 15.30 26.00 32.00	
	GT15KD40 GT20KD40	Rp ½ Rp ¾	Rp ½ Rp ¾	nickel plated / blue galvanized	75.5 90.0	- -	27 32	0.25 0.40	CE-0085AQ1219 CE-0085BN0394 / CE-0085BN0395
	GT25KD40	Rp 1	Rp 1	nickel plated / black galvanized	121.0	-	41	0.75	
	GT32KD40 GT40KD40 GT50KD40	Rp 1 ¼ Rp 1 ½ Rp 2	Rp 1 ¼ Rp 1 ½ Rp 2	nickel plated	185.0 207.0 246.0	- - -	55 65 80	1.62 2.54 3.86	

OPTIONS

To order a biogas resistant version of the DN 32 through DN 150, replace the “4” with a “9” at the end of the order code (e.g. GT32FF9). To order a biogas resistant version of the DN 125 and DN 150 add a “9” to the end of the order code (e.g. GT150FF9).

In addition to the standard versions listed in the table above, Custom inlet and outlet connections are available.

Figure 7
SENTRY GT Model Range

MORE PRODUCTS

SENTRY LEGACY GT™

The SENTRY Legacy GT™ is the first thermal cut-off device (TCO) that can be screwed directly onto the outlet of a gas meter emergency control valve (ECV with BS 746 connection). This product is specifically designed for legacy installations in the UK and can be installed without disrupting the gas supply to neighbouring properties. It provides additional protection to a meter installation with < 0.35 mbar (35 Pa) pressure drop.

Figure 8
SENTRY GT TCO

SENTRY GS EXCESS FLOW VALVE

Excess flow valves (EFVs) close, shutting off the gas flow, when a predefined flow rate is reached. Maxitrol’s factory adjustment (100 %) provides a precise and reliable closing flow rate. In the nominal flow range, the EFV remains in a stable, open position.

Figure 9
SENTRY GS combined with a thermally activated shut-off device; PLUG1 gas outlet (from left to right)

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