

SENTRY GT / SENTRY GT..KD40

Thermally Activated Shut-Off Devices and Ball Valves

CE 0085



Complies with the German FeuVo, General Gas Guidance 97/23/EG and 97/23/EC



DESCRIPTION

SENTRY GT thermally activated shut-off devices automatically shut off the gas flow at temperatures between 92 °C and 100 °C. They remain closed up to 925 °C. These shut-off devices help prevent gas from flowing to downstream components that may not be resistant to high temperatures. The SENTRY GT..KD40 ball valve may also be used as a main gas manual shut-off valve.

USAGE

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 shut-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 above 100 °C.
 2. That allows no more than 30 l/h measured in air to pass through or escape from the device for a period of at least 30 minutes at temperatures up to 650 °C.

This requirement does not apply to gas appliances already equipped with a thermally activated shut-off device.

Figure 1 shows that during a fire the temperature reaches 700 °C within 15 minutes.

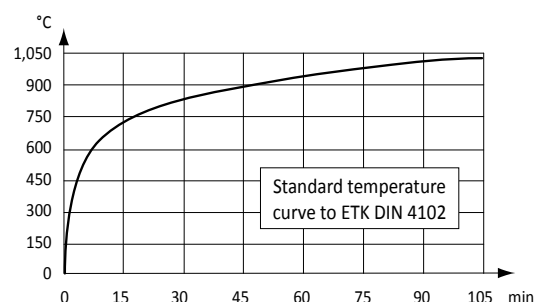


Figure 1: Temperature rise in a test room fire simulation

FUNCTION

Regardless of construction variations, the following operating principles apply to the various types of SENTRY GTs (see figure 2, page 2):

Thermally Activated Shut-Off Device SENTRY GT

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 valve seat resulting in a gas-tight seal. The SENTRY GT closes at 100 °C – 8 K and will remain closed up to 925 °C. The SENTRY GT remains closed after it cools.

Ball Valve SENTRY GT..KD

To close the ball valve, the lever must be turned clockwise 90°. To open, turn the lever counterclockwise 90°. The ball valve is open when the lever is in the flow direction of the pipe (see figure 3, page 2). The ball valve should be opened slowly to avoid pressure surge.

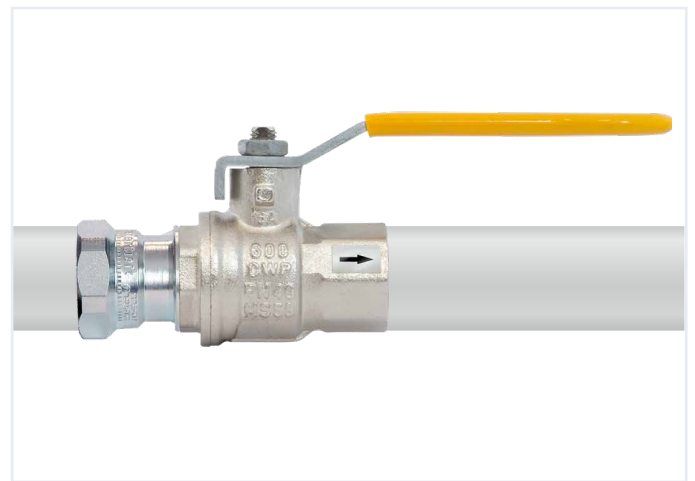
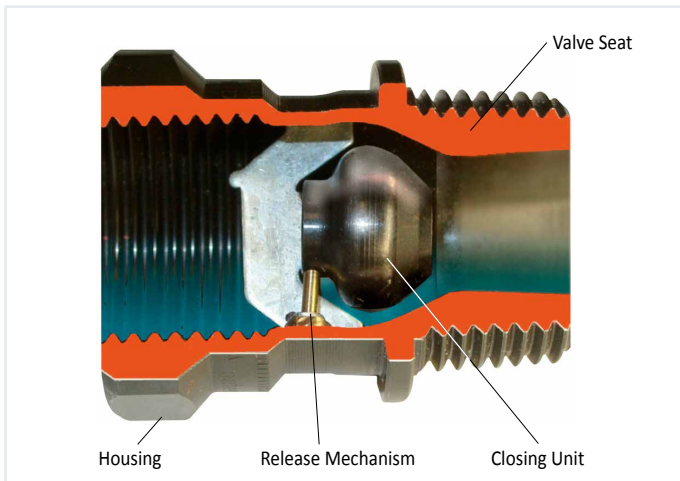


Figure 2: Cross-section of a SENTRY GT (GT15DIA) thermally activated shut-off device

Figure 3: Example of a SENTRY GT..KD40 installed

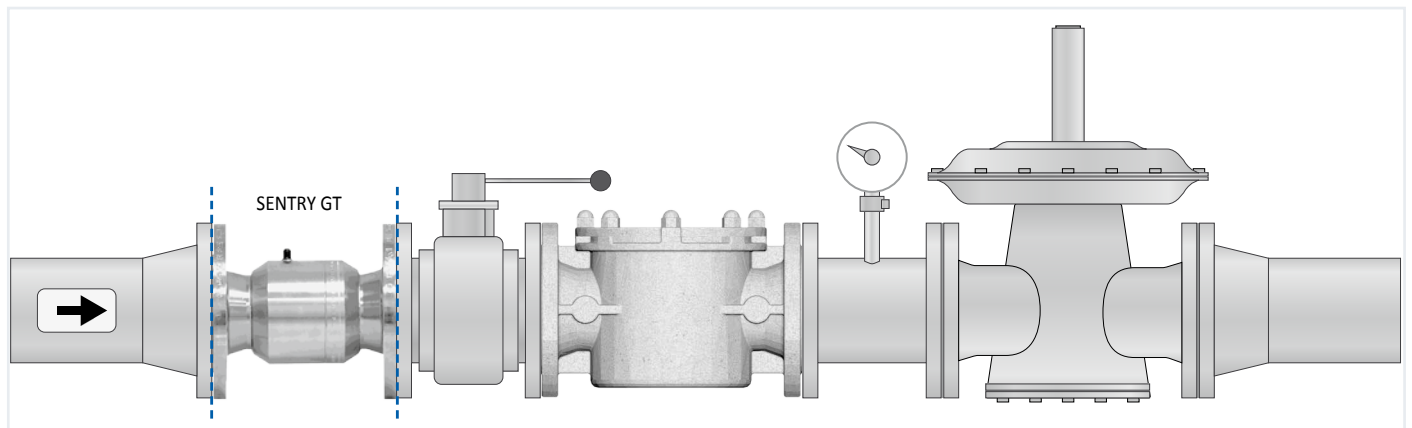


Figure 4: Example of a SENTRY GT installed upstream of a burner

TECHNICAL DATA

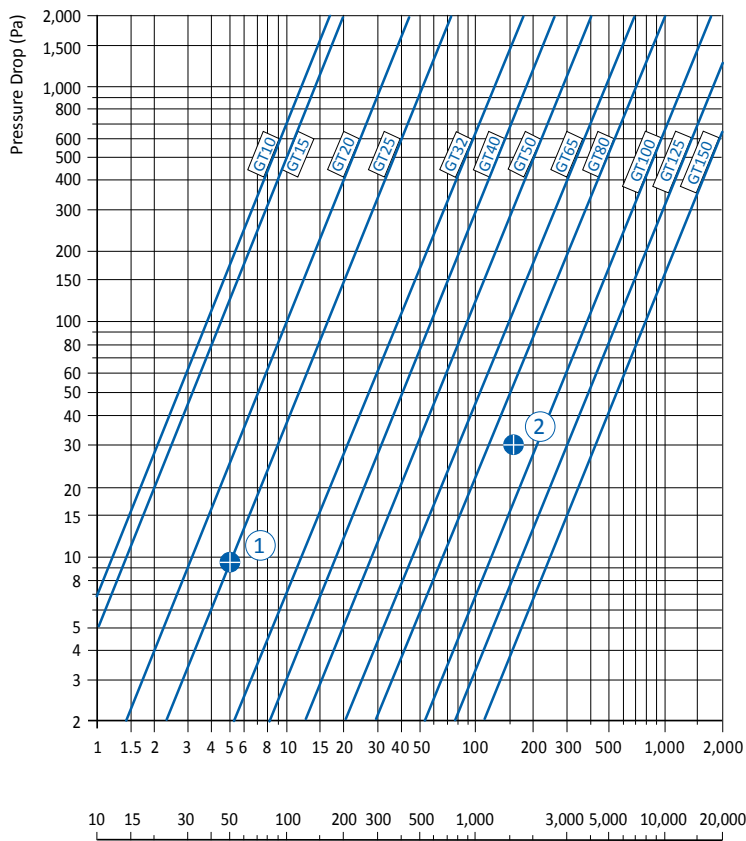
Technical data	SENTRY GT	SENTRY GT..KD40
Threaded connection	DIN EN 10226-1 / ISO 7-1	DIN EN 10226-1 / ISO 7-1
Flanged connection	DIN EN 1092-1 (PN16) / ISO7005 -2	-
Gas types	DIN EN 437; DVGW G 262; DVGW VP 303 (Bio- & fermentation gas)	DIN EN 437
Release temperature	100 °C – 8 K	100 °C – 8 K
Nominal 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
Max. ambient temperature	80 °C	60 °C
Thermal rating	30 min 650 °C per DIN 3586; max. 925 °C (according to ETK max. 1 hour)	30 min 650 °C per DIN 3586; max. 925 °C
Material	Steel	Brass, Steel

CERTIFICATIONS

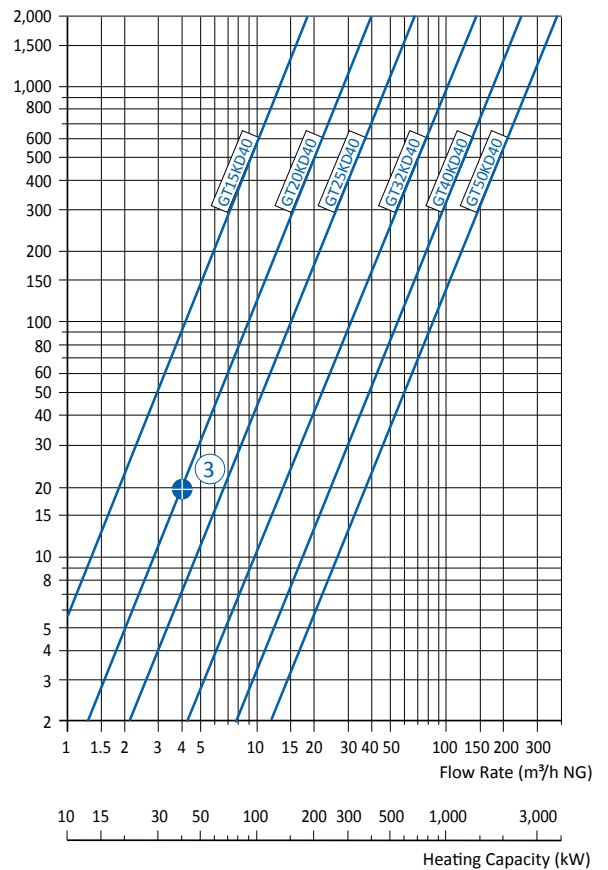
Certifications	SENTRY GT	SENTRY GT..KD40
Pressure Equipment Directive	97/23/EG; 97/23/EC	97/23/EG; 97/23/EC
DVGW	DN 10 -150: DIN 3586 DN 32 -150: DIN 3586, DVGW VP 303 DVFG TRF 2012 DVGW TRGI 2008	DIN EN 331; DIN 3586

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

Flow Rate Chart SENTRY GT



Flow Rate Chart SENTRY GT..KD40



FLOW RESISTANCE FACTOR

Flow resistance factor ζ (zeta) for SENTRY GT

DN10	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
1.5	4.5	3.0				1.5					1.8

EXAMPLES (see figure 5 and 6)

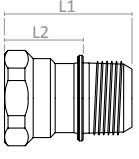
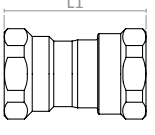
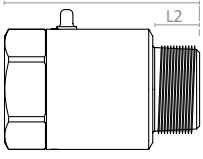
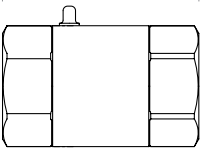
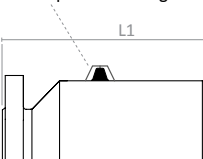

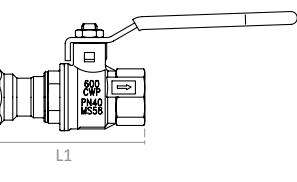
- ① For a 50 kW boiler with a flow rate of ca. 5 m³/h natural gas, the pressure drop for a GT25 would be 9.5 Pa.
- ② The pressure drop of a GT for a 1500 kW boiler may not exceed 30 Pa. Choose the next characteristic line below plot point ② (GT100).
- ③ The pressure drop of a GT20KD40 with a flow rate of 4 m³/h natural gas would be 20 Pa.

ASSEMBLY KIT FOR SENTRY GT

According to applicable industry standards, an assembly kit is required for the installation of thermally released shut-off valves in flange versions. This kit consists of high temperature resistant flange gaskets, hexagonal screws and hexagonal nuts.

Nominal diameter	Order reference
DN32	GT32M2
DN40	GT40M2
DN50	GT50M2
DN65	GT65M2
DN80	GT80M2
DN100	GT100M2
DN125	GT125M2
DN150	GT150M2

MODELS / DIMENSIONS

Illustration	Type (Order Code)	Connection		Surface	Dimensions [mm]			Weight [kg]	Cert. No.	
		Inlet	Outlet		L1	L2	SW Wrench size			
	GT10DIA0 GT15DIA0 GT20DIA0	Internal thread	External thread	blue galvanized	40.0	28.4	22	0.05	DG-4340AQ1236 CE-0085BN0394	
		Rp ¾	R ¾							0.07
		Rp ½	R ½							
	GT25DIA2	Rp 1	R 1	black galvanized	53.8	34.6	41	0.21		
	GT15DII0 GT20DII0	Internal thread	Internal thread	blue galvanized	45.5	-	27	0.10		
		Rp ½	Rp ½							0.15
	Rp ¾	Rp ¾								
GT25DII2	Rp 1	Rp 1	black galvanized	61.5	-	41	0.30			
	GT32IA4 GT40IA4 GT50IA4	Internal thread	External thread	nickel plated	100.0	21.4	55	0.76		
		Rp 1 ¼	R 1 ¼							1.46
		Rp 1 ½	R 1 ½							
	GT32II4 GT40II4 GT50II4		Internal thread	nickel plated	100.0	-	55	1.14		
		Rp 1 ¼	Rp 1 ¼						1.76	
		Rp 1 ½	Rp 1 ½							
	GT32II4 GT40II4 GT50II4		Internal thread	nickel plated	112.0	-	65	1.76		
		Rp 1 ½	Rp 1 ½						2.60	
		Rp 2	Rp 2							
DN150 protection cage 	GT32FF4 GT40FF4 GT50FF4 GT65FF4 GT80FF4 GT100FF4* GT125FF* GT150FF*	Flange connection	Flange connection	nickel plated	138.0	-	-	2.50	DG-4340AQ1260 CE-0085BN0395	
		DN32	DN32							3.70
		DN40	DN40							
		DN50	DN50							6.10
		DN65	DN65							
		DN80	DN80							11.00
		DN100	DN100							
		DN125	DN125							26.00
		DN150	DN150							
		* Despatch only by forwarder								
	GT15KD40 GT20KD40	Internal thread	Internal thread	nickel plated / blue galvanized	75.5	-	27	0.25	DG-4341AT0052	
		Rp ½	Rp ½							0.40
	Rp ¾	Rp ¾								
	GT25KD40	Rp 1	Rp 1	nickel plated / black galvanized	121.0	-	41	0.75		
	GT32KD40 GT40KD40 GT50KD40	Rp 1 ¼	Rp 1 ¼	nickel plated	185.0	-	55	1.62		
		Rp 1 ½	Rp 1 ½							2.54
		Rp 2	Rp 2							
					207.0	-	65	2.54		
					246.0	-	80	3.86		

OPTIONS

A biogas resistant version is available for DN 32 up to DN 150 diameters. To order, replace the "4" by a "9" to the end of the order code (e. g. GT32FF9).

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