Honeywell

krom schroder

Control valve S11T
Pilot burners ZTA, ZT 40 and ZTI 55

TECHNICAL INFORMATION

- S11T: independent of mains power supply due to thermo-electric safeguarding
- S11T: available with contact switch for ignition with electrode
- S11T..R15: suitable for gas inlet pressures up to 1.5 bar

- ZT: flame control using a thermocouple, and in the case of ZTI 55 also using a flame rod
- ZT: atmospheric thermo pilot burners, optionally available with forced draught connection
- ZT: electrical ignition with an electrode
- ZT: save space due to their compact dimensions
- ZT: different lengths make them suitable for individual installation situations

EN
Edition 10.19
03250841

Contents

1 Application

1.1 Control valve S11T

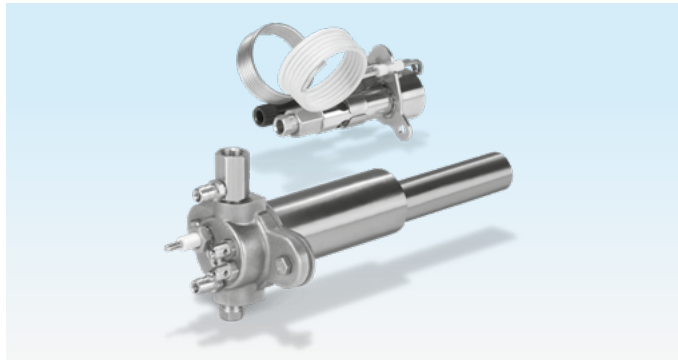
Control valve S11T..S with switch to control an ignition transformer

For thermo-electric safeguarding of gas-fired installations of any kind in conjunction with thermo pilot burners ZT.

Control valve S11T operates independently of mains power supply.

Control valve S11T..S is fitted with a switch to control an ignition transformer.

1.2 Pilot burners



Pilot burner ZTA with grounding cable and thermo-cable, pilot burner ZT 40 with protective tube and air nozzle

For safe ignition and thermo-electric safeguarding in conjunction with control valve S11T of atmospheric gas burners on furnaces in the metal, ceramics and non-ferrous metal industries, on heat treatment installations or in applications without voltage supply.

Suitable for operation with natural gas, town gas or LPG.

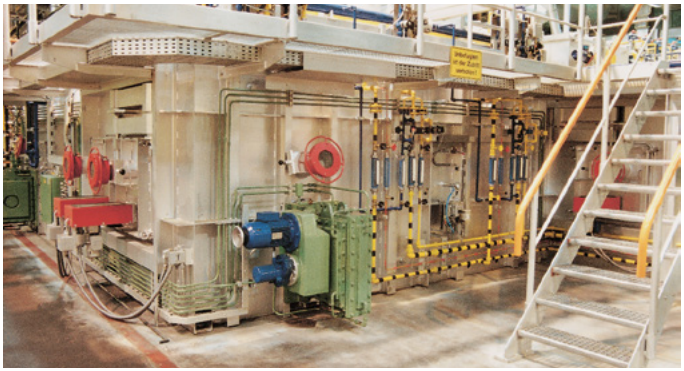
The pilot burners are ignited using a spark electrode.

In the case of pilot burner ZTI 5, the flame is monitored via a thermocouple. A flame rod is also fitted, whose signal current may be used to release an additional valve, for example.

Wheel rim hardening installation

Intermittent shuttle kiln in the ceramics industry

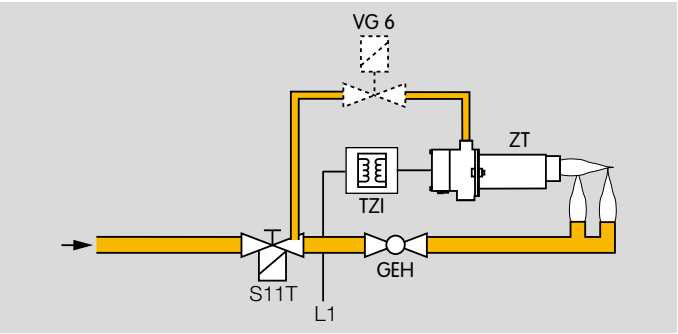
Annealing furnace



Pusher furnace

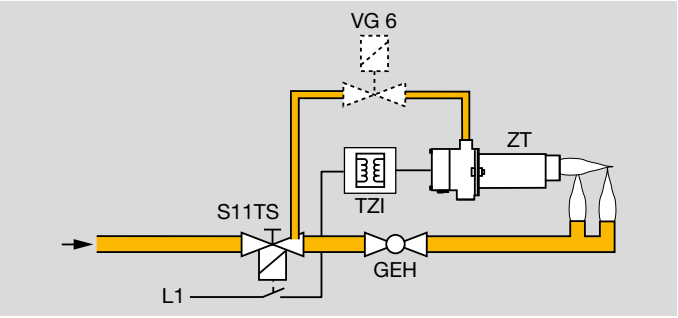
1.3 Application examples

1.3.1 Thermo-electric safeguarding



As soon as voltage is supplied to the ignition transformer, the pilot burner is ignited using an ignition spark. An additional gas solenoid valve VG 6 can be used as a safety valve, e.g. for overtemperature shut-down or power shortage cut-out.

1.3.2 Thermo-electric safeguarding with electrical ignition via control valve



A contact is closed via the switch on the control valve S11T..S so that voltage is supplied to the ignition transformer. The pilot burner is ignited using an ignition spark.

An additional gas solenoid valve VG 6 can be used as a safety valve, e.g. for overtemperature shut-down or power shortage cut-out.

2 Certification

Certificates – see www.docuthek.com

S11T: EU certified

CE

- (EU) 2016/426 (GAR), Gas Appliances Regulation
- 2014/35/EU (LVD), Low Voltage Directive
- EN 125:210+A1:2015

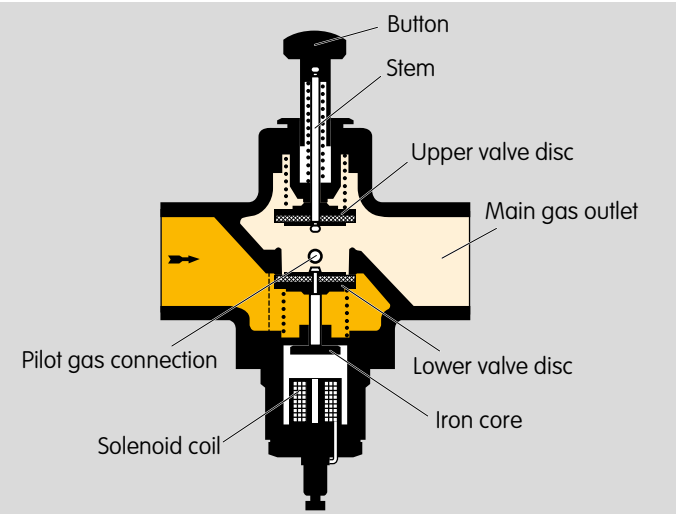
Eurasian Customs Union

EAC

The product S11T, ZTA, ZT 40, ZTI 55 meets the technical specifications of the Eurasian Customs Union.

3 Function

3.1 Control valve S11T



The upper valve plate closes off the gas outlet when the button is pressed all the way down. The stem pushes the lower valve plate down until the iron core rests on the solenoid coil. Gas can now flow to the pilot burner via the pilot gas connection.

After the burner is ignited, the button is held down until thermo-electric voltage is applied to the solenoid coil, which attracts the iron core and thus holds the lower valve plate open.

As soon as the button is released, the upper valve plate opens the main gas outlet. The main gas can ignite.

If the thermo-electric voltage drops out, e.g. in the event of a flame failure, the iron core is no longer attracted. The pilot gas outlet and main gas outlet are closed by the lower valve plate.

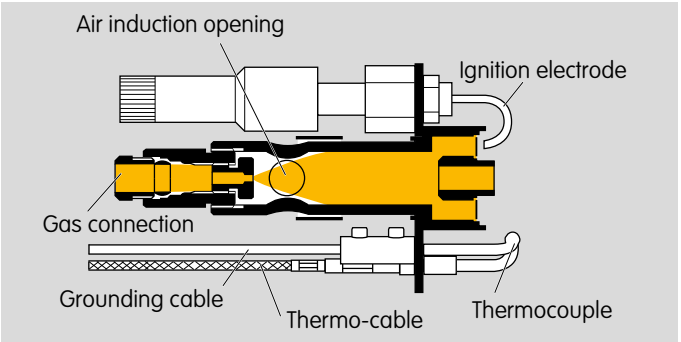
3.2 Pilot burners

Gas flows from the gas connection to the burner head. Air from the surrounding atmosphere is inducted and is mixed with the combustion gas.

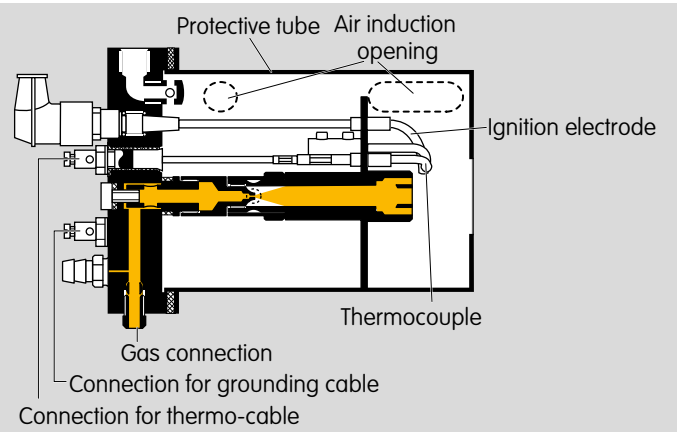
The gas/air mixture is ignited using a spark electrode at the burner head. The flame heats the thermocouple. This produces a thermo-electric voltage on the thermocouple. A current flows via the thermo-cable to control valve S11T in order to keep this open.

In the event of flame failure, the thermocouple is no longer heated and the thermo-electric voltage drops out. The control valve closes.

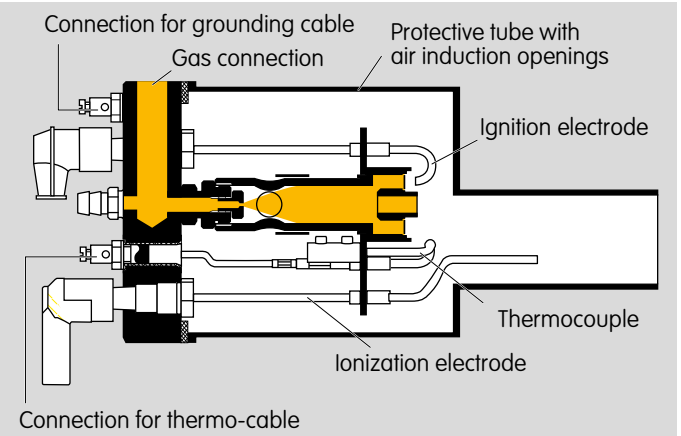
ZTA



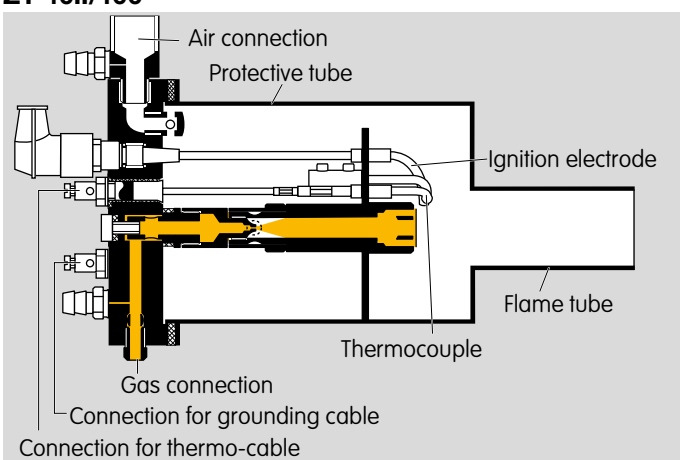
ZT 40..A



ZTI 55

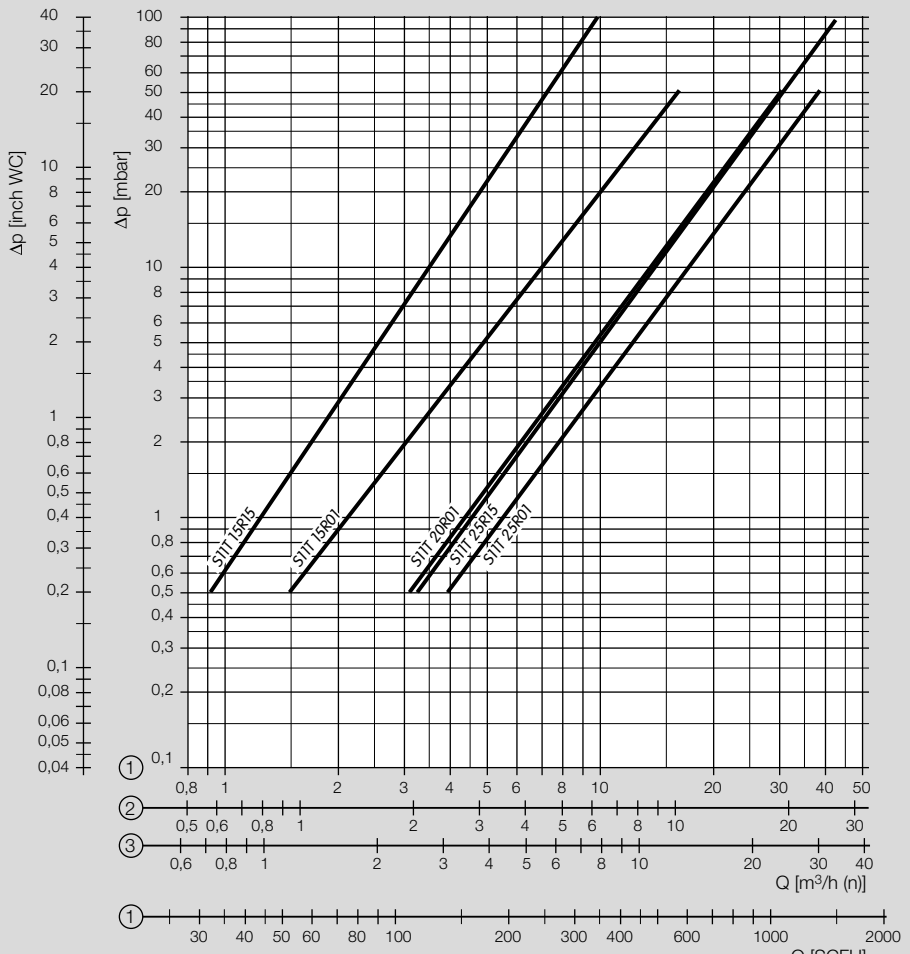


ZT 40../100



4 Flow rate

S11T



When determining the pressure loss, operating cubic metres must be entered. Then the pressure loss Δp read must be multiplied by the absolute pressure in bar (positive pressure + 1) to account for the change in the medium's density.

Example:
Inlet pressure p_u (positive pressure) = 1 bar,
gas type = natural gas,
operating flow rate Q = 2 m^3/h,
Δp from diagram = 3 mbar,
Δp = 3 mbar x (1 + 1) = 6 mbar on S11T R15.

5 Selection

5.1 ProFi

A web app selecting the correct product is available at www.adlatus.org.

5.2 Pilot burner capacity

Burner	Operation with	Gas pressure [mbar]	P_{rated} [kW]
ZTA	Natural gas	12–40*	1
ZTA	LPG	12–40*	1
ZTA	Town gas**	20–40*	1
ZT 40..A	Natural gas	20–35*	1
ZT 40..A	LPG	40–60*	1
ZT 40..A	Town gas	12–28*	1
ZT 40../100	Natural gas	20–40*	1
ZT 40../100	LPG	40–60*	1
ZT 40../100	Town gas	12–28*	1
ZTI 55	Natural gas	12–50	3.3
ZTI 55	LPG	12–50	2.5
ZTI 55	Town gas	20–60	2.3

** In the case of higher gas pressures, fit a gas restrictor orifice.*

*** Replace gas nozzle.*

For pilot burner ZTA, a gas nozzle is installed at the factory for operation with natural gas or LPG. When using town gas, a gas nozzle has to be ordered separately for ZTA B, see page 16 (Gas nozzle).

5.3 Control valve S11T selection table

Option	S11T
Nominal size	15, 20, 25
Rp internal thread	R
Inlet pressure p_u	01, 15
With switch	S[1)2)]

1) If "none", this specification is omitted.

2) S11T 20R15 and S11T 25R15 are not available with switch.

Order example

S11T 25R15

5.4 Type code for control valve S11T

S11T	Control valve
15-25	Nominal sizes
R	Rp internal thread
01	Inlet pressure p_u: max. 100 mbar
15	Inlet pressure p_u: max. 1500 mbar
S	With switch

5.5 ZTA selection table

Option	ZTA
Gas type	B, G

Order example

ZTA G

5.6 Type code for pilot burner ZTA

ZTA	Atmospheric thermo pilot burner
B	Natural gas
G	Propane/propane, butane/butane

5.7 ZT, ZTI selection table

Option	ZT 40	ZTI 55
Gas type	B, D, G	B, G
Length of protective tube	-200	-105
Length of flame tube	/100*	/120
Atmospheric	A*	A

** Available either with flame tube and air line connection (ZT 40../100) or as an atmospheric burner (ZT 40..A).*

Order example

ZT 40B-200A

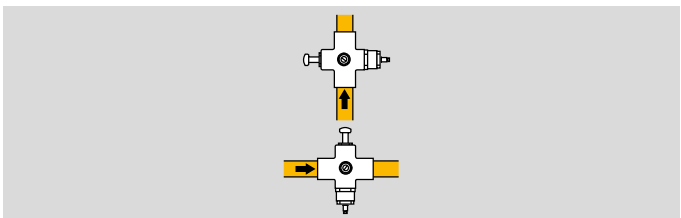
5.8 Type code for pilot burners ZT 40, ZTI 55

ZT	Thermo pilot burner for control valve S11T
ZTI	With additional flame rod
40, 55	Protective tube diameter in mm
B	Natural gas
G	LPG
D	Coke oven gas, town gas
-XXX	Protective tube length in mm
/100, /120	Flame tube length in mm
A	Atmospheric

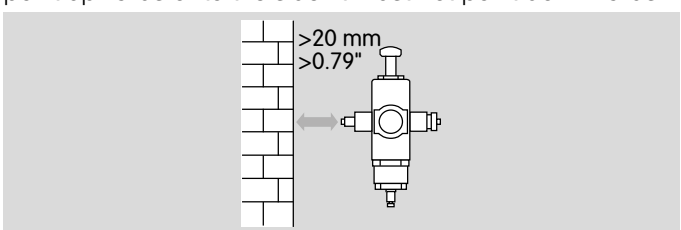
6 Project planning information

6.1 Installation

6.1.1 Control valve S11T



Installation position: the button for activating the valve must point upwards or to the side. It must not point downwards.



The control valve must not be in contact with masonry. Minimum clearance 20 mm.

6.1.2 Pilot burners

ZT 40, ZTI 55 installation position: horizontal or vertical, when installing in the vertical position, the burner head must be facing upwards.

ZTA installation position: vertical or horizontal, when installing in the horizontal position, the thermocouple must be facing upwards; when installing in the vertical position, the burner head must be facing upwards.

Ensure that the pilot burner is not thermally overheated and that air flow to the atmospheric burners ZTA, ZT 40..A and ZTI 55 via the air induction openings is sufficient.

For ZT 40../100, we recommend installing an adjusting cock GEH 8 in the air line upstream of the burner for adjusting the required air pressure.

For higher gas and air pressures and an optimal gas and air pressure ratio, gas and air restrictor orifices are available, see page 15 (Accessories).

Install the pilot burner so that the thermocouple is not in contact with the main burner flame.

Pilot burner ZTA is fitted with thermo-cables to transfer the thermo-electric voltage to the control valve.

6.2 Connection to the gas train and thermo-cable

Use an 8 × 1 tube as pilot gas supply line from the control valve to the pilot burner. A solenoid valve VG 6 can be used as an additional safety valve, e.g. for overtemperature shut-down or power shortage cut-out.

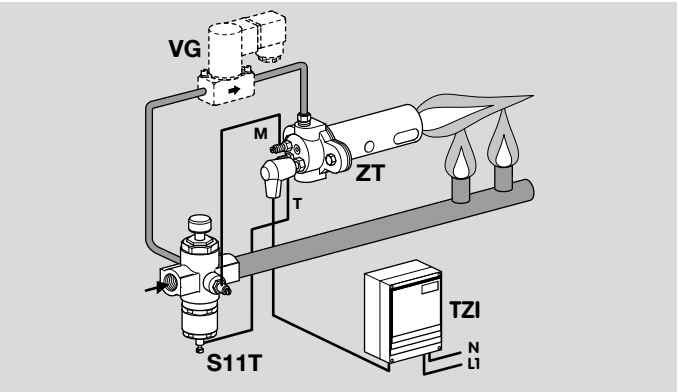
Use copper cable with a suitable cross-section for transferring the thermo-electric voltage and for grounding, see page 15 (Thermo-cable and grounding cable).

Cable length	Cable cross-section	Cable diameter
2–3 m	6 mm^2	2.9 mm

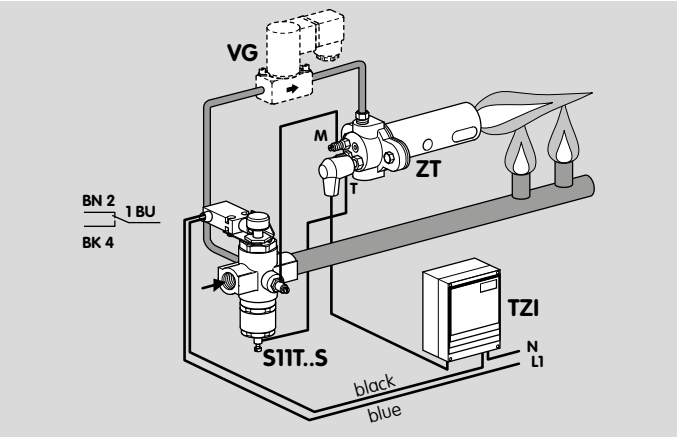
The ZTA is supplied with a fitted thermo-cable and grounding cable.

M = grounding cable connection,
T = thermo-cable connection.

S11T



S11T..S



7 Accessories

7.1 Gas restrictor orifice, air restrictor orifice

For adjusting the gas or air volume to increased supply pressures, a gas or air restrictor orifice is to be installed upstream of the burner.

7.1.1 Gas restrictor orifice

For ZTA

With internal thread: M12 x 1 (for 8 x 1 tube).

Drilling	For gas pressures for operation with			Order No.
[mm]	natural gas [mbar]	propane [mbar]	town gas [mbar]	
1.1	–	–	40–60	74451461
0.8	–	–	60–100	74451462
0.65	4–120	–	100–300	74451466
0.47	120–300	40–120	300–900	74451469
0.36	300–700	120–300	900–1500	74451471
0.31	700–1500	–	–	74451472
0.27	–	300–700	–	74451474
0.24	–	700–1500	–	74451475

For ZT 40

With internal thread: M12 x 1 (for 8 x 1 tube).

Drilling	For gas pressures for operation with			Order No.
[mm]	natural gas [mbar]	propane [mbar]	town gas [mbar]	
1.1	–	–	28–70	74451461
0.8	–	–	70–160	74451462
0.65	40–120	60–80	160–420	74451466
0.47	120–350	80–160	420–1500	74451469
0.36	350–1000	160–300	–	74451471
0.31	1000–1500	300–500	–	74451472
0.27	–	500–800	–	74451474
0.24	–	800–1200	–	74451475
0.21	–	1200–1500	–	74451476

7.1.2 Air restrictor orifice

For ZT 40../100

We recommend installing an adjusting cock GEH 8 for adjusting the required air pressure. For air supply pressures > 800 mbar, we also recommend installing an air restrictor orifice upstream of the adjusting cock.

With Rp 1/4" connecting thread, 1.5 mm hole.

The pressure loss of the orifice is 700 mbar at 1.5 m^3/h of air.

Order No. 74452742.

7.2 High-voltage cable

For ignition cable.

FZLSi 1/7 -50 to +180°C (-58 to +356°F),
Order No. 04250410, or

FZLK 1/7 -5 to +80°C (23 to 176°F),
Order No. 04250409.

7.3 Thermo-cable and grounding cable

For transferring the thermo-electric voltage from the thermocouple of burners ZT 40 and ZTI 55 to the thermo-cable connection of the control valve S11T and for grounding.

Cable cross-section: 6 mm^2,
Order No. 04250404

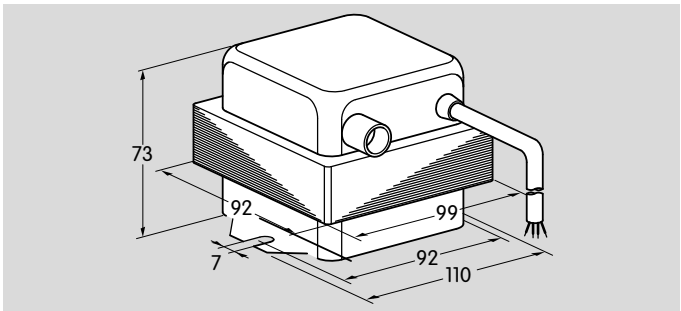
7.4 Gas nozzle

For ZTA B for operation with town gas, diameter = 1.1 mm.

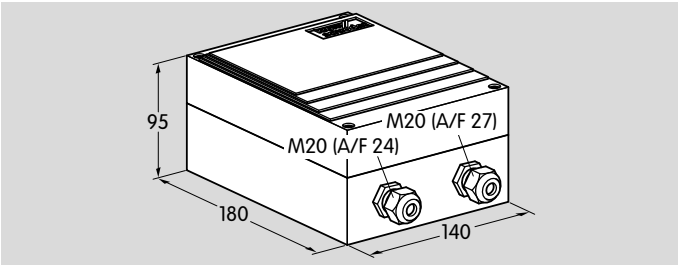
Order No. 75457938

7.5 Ignition transformer

When using the control valve S11T..S for electrical ignition.



TGI



TZI

Example: TGI 7,5-12/100 or TZI 7,5-12/100.

High voltage: ≥ 7.5 kV, output current: 12 mA at 50 Hz (9 mA at 60 Hz).

8 Technical data

8.1 Control valve S11T

Gas types: natural gas, town gas or LPG.

Pilot gas connection: for 8 x 1 tube.

Opening time: 10–15 s.

Closing time (decrease of thermo-electric voltage + valve closing time):
< 30 s.

Ambient temperature: -20 to +60°C.

Thermo-electric voltage:
Extinction voltage: 8 mV.

Max. inlet pressure p_u:
S11T..01 = 100 mbar,
S11T..15 = 1.5 bar.

8.2 Pilot burners

Burner	Operation with	Gas pressure [mbar]	P_{rated} [kW]
ZTA B	Natural gas	12–40*	1
ZTA G	LPG	12–40*	1
ZTA B	Town gas**	20–40*	1
ZT 40B..A	Natural gas	20–35*	1
ZT 40G..A	LPG	40–60*	1
ZT 40D..A	Town gas	12–28*	1
ZT 40B../100	Natural gas	20–40*	1
ZT 40G../100	LPG	40–60*	1
ZT 40D../100	Town gas	12–28*	1
ZTI 55B	Natural gas	12–50	3.3
ZTI 55G	LPG	12–50	2.5
ZTI 55D	Town gas	20–60	2.3

** In the case of higher gas pressures, fit a gas restrictor orifice, see page 15 (Gas restrictor orifice).*

*** For this, the gas nozzle must be replaced, see page 16 (Gas nozzle).*

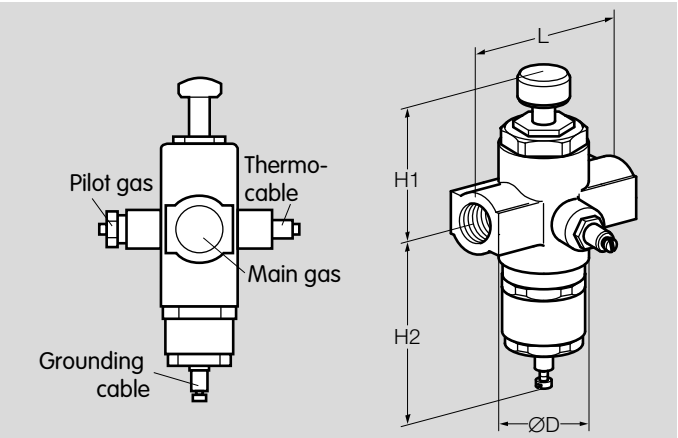
Gas connection: compression fitting for tube d = 8 mm.

Thermo-electric voltage:
under load: 10–15 mV,
in idle state: 20–25 mV.

Extinction voltage: < 8 mV.

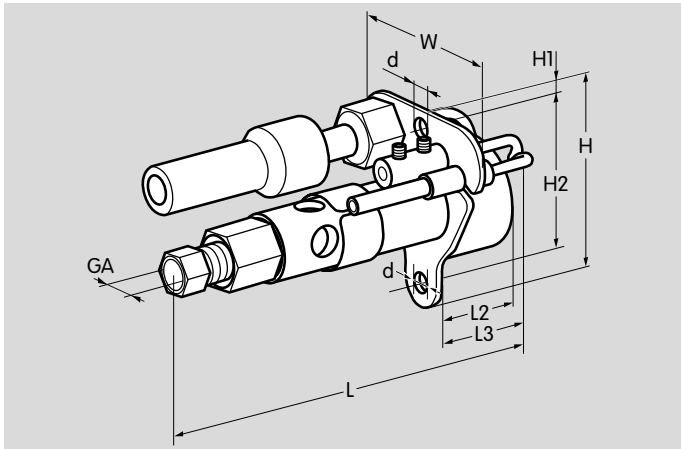
8.3 Dimensions

8.3.1 S11T



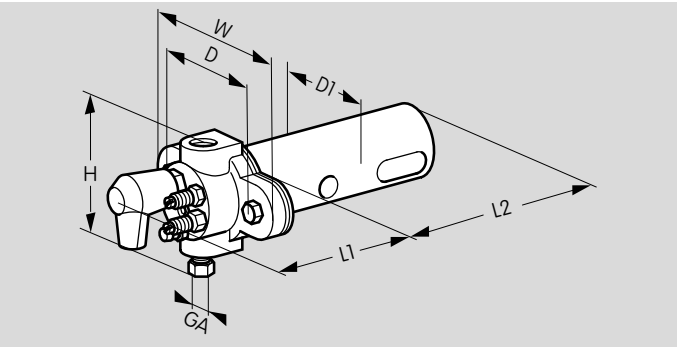
Dimensions								Weight
Connection			L	D	H1	H2	p_u max.	
Main gas		Pilot gas						
DN	Rp		mm	mm	mm	mm	mbar	kg
15	1/2	8x1	75	42	55	75	100	0.9
15	1/2	8x1	75	42	55	75	1500	1.1
20	3/4	8x1	90	50	60	80	100	1.1
25	1	8x1	110	56	70	85	100	1.3
25	1	8x1	110	56	110	88	1500	1.7

8.3.2 ZTA



Dimensions									Weight
Con-nec-tion	L	L2	L3	d	W	H	H1	H2	
GA	mm	mm	mm	mm	mm	mm	mm	mm	kg
8 x 1	116	20	27	6.1	54	58	7	46	0.33

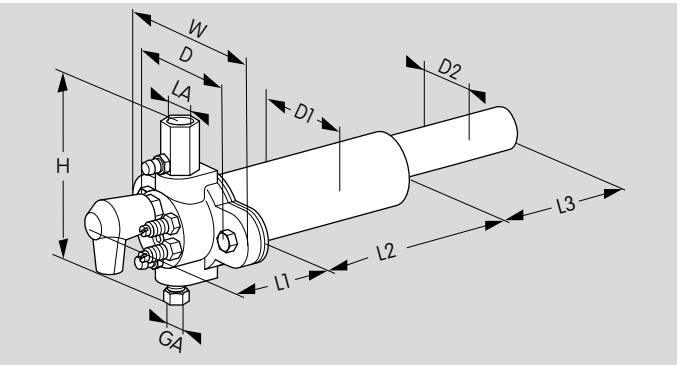
8.3.3 ZT 40..A



Connections		Dimensions [mm]								Weight
Gas GA		L1	L2	L3	D1	D2	D	W	H	kg
8 x 1		70	100	–	40	–	72	95	60	0.5
8 x 1		70	150	–	40	–	72	95	60	0.6
8 x 1		70	200	–	40	–	72	95	60	0.7
8 x 1		70	300	–	40	–	72	95	60	0.8
8 x 1		70	400	–	40	–	72	95	60	1.0
8 x 1		70	500	–	40	–	72	95	60	1.1

Other burner lengths on request.

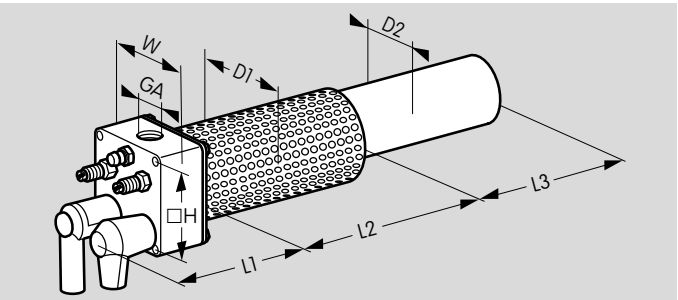
8.3.4 ZT 40../100



Connections		Dimensions [mm]								Weight
Gas GA	Air LA	L1	L2	L3	D1	D2	D	W	H	kg
8 x 1	Rp 1/4	70	100	100	40	24	72	95	60	0.6
8 x 1	Rp 1/4	70	150	100	40	24	72	95	60	0.7
8 x 1	Rp 1/4	70	200	100	40	24	72	95	60	0.8
8 x 1	Rp 1/4	70	300	100	40	24	72	95	60	0.9
8 x 1	Rp 1/4	70	400	100	40	24	72	95	60	1.1
8 x 1	Rp 1/4	70	500	100	40	24	72	95	60	1.2

Other burner lengths on request.

8.3.5 ZTI 55



Connec-tions	Dimensions [mm]							Weight
Gas GA	L1	L2	L3	D1	D2	W	□H	kg
Rp 1/4	70	105	120	55	37	59	45	0.82

9 Maintenance cycles

The system requires little servicing. Check the safety time of S11T/S11T..S once a year.

Fore more information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschröder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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