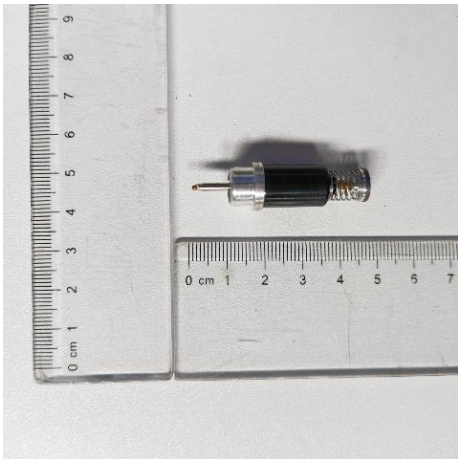
Test Report

·Flame supervision devices

PERFORMED IN ACCORDANCE WITH:

☒ EN 125: 2010+A1: 2015 Flame supervision devices for gas burning appliances – Thermoelectric flame supervision devices
☒ EN 13611: 2019/AC: 2021 Safety and control devices for gas burners and gas burning appliances - General requirements.

Test report No.:	R92000127 001	
Project No.:	P300103	
Date of issue:	Dec. 13th 2022	
Tested by (name + function + signature):	Young Yang, Testing Engineer	Youngyang
Approved by (name + function + signature):	Joy Wu, Project Manager	Joy Wu
Testing Laboratory:	Trust Right Testing and Certification Service (Zhongshan) Ltd.	
Address:	No.601,Block 8,Hongji E Valley Industry Center,Nantou Town,Zhongshan City,P.R.China	
Testing Location:	Trust Right Testing and Certification Service (Zhongshan) Ltd.	
Address:	No.601,Block 8,Hongji E Valley Industry Center,Nantou Town,Zhongshan City,P.R.China	
Applicant's name:	Quad Star Limited	
Address:	102 Sutton Court, Sutton Court Road, London, UK	
Manufacturer's name:	Quad Star Limited	
Address:	102 Sutton Court, Sutton Court Road, London, UK	
Test item description	DC Electromagnet for Flame supervision in Gas Valves Used in Domestic Gas Appliance	
Model/Type reference:	391, 394, 397 series	
Trademark:	QS SAFETY, dyras PROTECT	
Country of destination:	All EU member states	
Sample received on:	2022-10-20	
Reference samples No.:	S20070956 - S20070958	
Samples tested on:	2022-11-01 to 2022-11-21	
Result:	The test items PASSED the test specification(s)	
Remark:	/	

RELEASE CONTROL RECORD		
TEST REPORT NUMBER	**REASON OF CHANGE**	**DATE OF ISSUE**
R92000127 001	Initial	13th Dec. 2022

GENERAL DESCRIPTION OF THE APPLIANCE

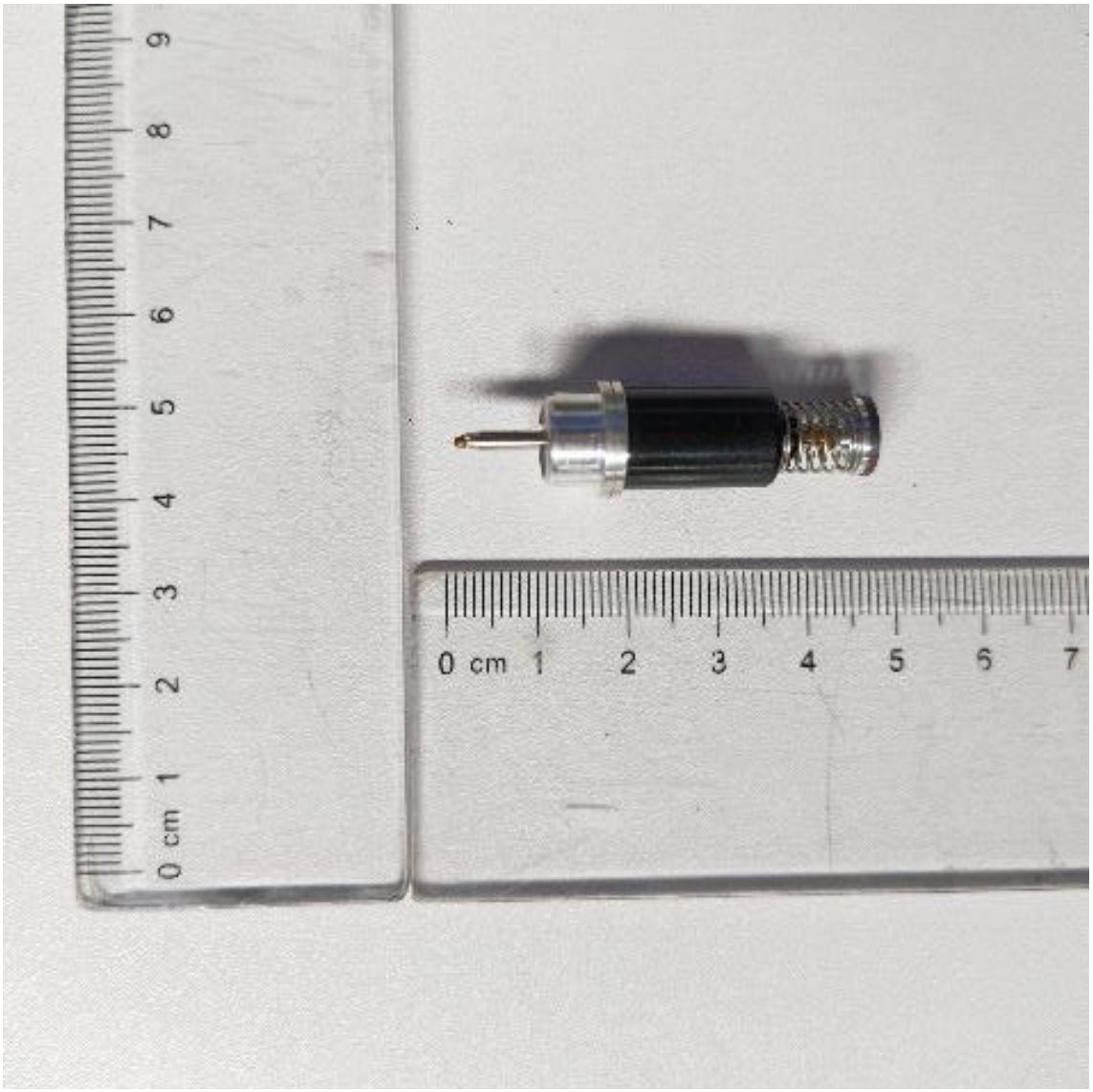
1. Technical data of tested valve

Model	391
Max. ambient temp (℃)	120
Min. ambient temp (℃)	-10
Test item	Multifunctional controls for gas burning appliances
Material of house	Plastic
Class of control (FSD)	A
Group of control	1
Maximum working pressure (mbar)	34.5
Gas families	1st, 2nd and 3rd gas families
Intended use	Flame supervision in Gas Valves Used in Domestic Gas Appliance

The magnet units have the designations QS SAFETY series 391, 394 and 397, the other characters within the model name define the batch, the serial number and the date of manufacture.

The magnet is identical in all 3 models, only the connection to the thermocouple, the seat, is different.

PICTURES



391

PRINCIPALS COMPONENTS			
COMPONENT	MANUFACTURER	MODEL	Certificate/report

Evaluation according to the test specification (standard)			
Abbreviations of the verdict: **P(ass) = passed** **F(ail) = failed** **N/A = not applicable** **N/T = not tested**			
EN 125:2010+A1:2015 Flame supervision devices for gas burning appliances –Thermoelectric flame supervision device			
Item	**Test requirement**	**Result / Comment**	**Verdict**
1	Scope		P
2	Normative references		
3	Terms and definitions		
4	Classification		
4.1	Classes of control	Class A	P
4.2	Groups of control	Group 1	P
4.3	Classes of control function		N/A
5	Test conditions and uncertainty of measurements		
6	Construction requirement		
6.1	General		P
6.2	Mechanical parts of the control		
6.2.1	Appearance	No sharp edges and corners	P
6.2.2	Holes	No holes	N/A
6.2.3	Breather holes	No breather holes	N/A
6.2.4	Test for leakage of breather holes		N/A
6.2.5	Screwed fastening		N/A
6.2.6	Jointing		N/A
6.2.7	Moving part		P
6.2.8	Sealing caps		N/A
6.2.9	Dismantling and reassembly		P
6.3	Material		
6.3.1	General material requirement		P
6.3.2	Housing		N/A
6.3.3	Test for leakage of housing after removal of non-metallic parts		P
6.3.4	Zinc alloys		N/A
6.3.5	Spring providing closing and/or sealing force		P
6.3.6	Resistance to corrosion and surface protection		P

Evaluation according to the test specification (standard)			
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EN 125:2010+A1:2015 Flame supervision devices for gas burning appliances –Thermoelectric flame supervision device			
6.3.7	Impregnation		N/A
6.3.8	Seals for glands for moving parts		N/A
6.4	Gas connection		N/A
6.5	Electronic parts of the control		N/A
6.6	Protection against internal faults for the purpose of functional safety		N/A
7	Performance		
7.1	General		P
7.2	Leak tightness		N/A
7.3	Test for leak-tightness		N/A
7.4	Torsion and bending		N/A
7.5	Torsion and bending tests		N/A
7.6	Rated flow rate		N/A
7.7	Test for rated flow rate		N/A
7.8	Durability		N/A
7.9	Performance for electronic control		N/A
7.101	Operating torque and force		N/A
7.102	Interlocks		N/A
7.103	Closing current		P
7.104	Sealing force		P
7.105	Endurance		P
8	EMC/Electrical requirement		N/A
9	Marking, Installation and operating instructions		
9.1	Marking		N/A
9.2	Installation and operating instructions		N/A
9.3	Warning notice		N/A

Evaluation according to the test specification (standard)			
Abbreviations of the verdict: **P(ass) = passed** **F(ail) = failed** **N/A = not applicable** **N/T = not tested**			
EN 13611: 2019/AC: 2021 Safety and control devices for gas burners and gas burning appliances - General requirements.			
Item	**Test requirement**	**Result / Comment**	**Verdict**
1	Scope		P
2	Normative references		
3	Terms and definitions		
4	Classification		
4.1	Classes of control		P
4.2	Groups of control	Group 1	P
4.3	Classes of control function		N/A
5	Test conditions and uncertainty of measurements		
6	Design and Construction		
6.1	General		P
6.2	Mechanical parts of the control		
6.2.1	Appearance	No sharp edges and corners	P
6.2.2	Holes	No holes	N/A
6.2.3	Breather holes	No breather holes	N/A
6.2.4	Screwed fastening		N/A
6.2.5	Jointing		P
6.2.6	Moving part		P
6.2.7	Sealing caps		N/A
6.2.8	Dismantling and reassembly		P
6.2.9	Auxiliary canals and orifices		N/A
6.2.10	Pre-setting device		N/A
6.3	Material		
6.3.1	General material requirement		P
6.3.2	Housing		N/A
6.3.3	Zinc alloys		N/A
6.3.4	Springs		P

Evaluation according to the test specification (standard)			
Abbreviations of the verdict: **P(ass) = passed** **F(ail) = failed** **N/A = not applicable** **N/T = not tested**			
EN 13611: 2019/AC: 2021 Safety and control devices for gas burners and gas burning appliances - General requirements.			
Item	**Test requirement**	**Result / Comment**	**Verdict**
6.3.5	Resistance to corrosion and surface protection		P
6.3.6	Impregnation		N/A
6.3.7	Seals for glands for moving parts		N/A
6.4	Gas connection		N/A
6.5	Electronic parts of the control		N/A
6.6	Protection against internal faults for the purpose of functional safety		N/A
7	Performance		
7.1	General		P
7.2	Leak tightness		N/A
7.3	Torsion and bending		N/A
7.4	Rated flow rate		N/A
7.5	Durability		N/A
7.6	Performance for electronic control		N/A
7.7	Long-term performance for electronic control		N/A
7.8	Data exchange		N/A
8	Electrical requirement		N/A
9	EMC requirement		N/A
10	Marking, Instructions		
10.1	Marking		N/A
10.2	Instructions		N/A
10.3	Warning notice		N/A

TEST DATA

Table 1 – Sealing force test, according to EN125:2015 clause 7.104.

Model	391
Energize and de-energize the control	After twice operation
Pressure (kPa)	1
Requirement leakage (cm^3/h)	<100
Result	P

Table 2 – Closing current test, according to EN125:2015 clause 7.103.

Model	391
Measured closing current(mA)	44
Test Voltage	DC 2V
Requirement closing current (mA)	Not exceed 200 mA and not less than 40 mA
Result	P

Table 3 – Endurance test, according to EN125:2015 clause 7.105 and EN 1106:2010 clause 7.102.

Model		391
Static endurance(h)	-10℃	48
	120℃	48
Dynamic endurance (cycles)	-10℃	5000
	20℃	25000
	120℃	20000
Operating force (N)		30%~50% greater than the manufacture's indication
Supply current (mA)		360
Operating frequency		15 cycles/min
Result		No obvious appearance defect

Table 4 Sealing force test after endurance test, according to EN125:2015 clause 7.104.

Model	391
Energize and de-energize the control	After twice operation
Pressure (kPa)	1
Requirement leakage (cm^3/h)	<100
Result	P

Table 5 – Closing current test after endurance test, according to EN125:2015 clause 7.103.

Model	391
Measured closing current(mA)	42
Test Voltage	DC 2V
Requirement closing current (mA)	Between 60% and 400% of the initial value
Result	P

Equipement

List of test equipment used:

Serial No	Description	Model/Trade Mark	Next Calibration Date
ZSTE-001	Ambient Barometer	DYM3	10th Apr. 2023
ZSTE-002	Ambient temperature and Humitiy recorder	Cos-03	14th Mar. 2023
ZSTE-004	Constant temperature and Humidity Chamber	HYJ-408DH	14th Mar. 2023
ZSTE-017	Two Row Stopwatch	PC2810	21st Mar. 2023
ZSTE-070	Pull-Push Force tester	NK-300	13th Mar.2023
ZSTE-077	Switching type DC supply	UTP1306S	13th Mar.2023
ZSTE-079	Steel Straight Ruler	SATA	15th Mar.2023
ZSTE-082	Digital Vernier Caliper	K19A141911	13th Mar.2023
ZSTE-283.04	Digital pressure gauge	YS-100	13th Mar.2023

END TEST REPORT