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THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

E11

COMMUNICATION CONCERNING THE APPROVAL GRANTED OF A TYPE OF CNG COMPONENT, PURSUANT TO REGULATION NO 110

Approval No: 110R-000003

1. CNG component considered: Pressure relief device

2. Trade name or mark: Circle Seal

3. Manufacturer's name and address:

   Circle Seal Controls, Inc.
   2301 Wardlow Circle
   Corona, CA 91720
   USA

4. If applicable, name and address of manufacturer's representative: Not applicable

5. Submitted for approval on: 13 May 2002

6. Technical service responsible for conducting approval tests: TUV Rheinland of North America, Inc.

7. Date of report issued by that service: 30 December 2002

8. Number of report issued by that service: 674-3026381

9. Approval GRANTED

10. Reason(s) of extension (if applicable): Not applicable

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11. Place: BRISTOL

12. Date: 9 JANUARY 2003

13. Signature: A KUBINSKI

14. The documents filed with the application or extension of approval can be obtained upon request.

US-03/0821

ANNEX 2B – ADDENDUM

1. Additional information concerning the type approval of a type of CNG components pursuant to Regulation No: 110:

1.1. Container(s) or cylinder(s)

1.1.1. Dimensions:

1.1.2. Material:

1.2. Pressure indicator

1.2.1 Working pressure(s): (2)

1.2.2. Material:

1.3. Pressure relief valve (discharge valve)

1.3.1 Working pressure(s): (2)

1.3.2. Material:

1.4. Automatic valve(s)

1.4.1 Working pressure(s): (2)

1.4.2. Material:

1.5. Excess flow valve

1.5.1. Working pressure(s): (2)

1.5.2. Material:

1.6. Gas-tight housing

1.6.1. Working pressure(s): (2)

1.6.2. Material:

1.7. Pressure regulator(s)

1.7.1. Working pressure(s): (2)

1.7.2. Material:

1.8. Check valve(s) or non-return valve(s)

1.8.1. Working pressure(s): (2)

1.8.2. Material:

1.9. Pressure relief device (temperature triggered)

1.9.1. Working pressure(s): 3 TO 260 bar

1.9.2. Material: ASTM B16-B brass, Alloy C360, half-hard, Nickel plated

1.10. Manual valve

1.10.1. Working pressure(s): (2)

1.10.2. Material:

1.11. Flexible fuel lines

1.11.1. Working pressure(s): (2)

1.11.2. Material:

1.12. Filling unit or receptacle

1.12.1. Working pressure(s): (2)

1.12.2. Material:

1.13. Gas/air mixer (injector(s))

1.13.1. Working pressure(s): (2)

1.13.2. Material:

1.14. Gas flow adjuster

1.14.1. Working pressure(s): (2)

1.14.2. Material:

1.15. Gas/air mixer (carburettor)

1.15.1. Working pressure(s): (2)

1.15.2. Material:

1.16. Electronic control unit (CNG-fuelling)

1.16.1. Basic software principles:

1.17. Pressure and temperature sensor(s)

1.17.1. Working pressure(s): (2)

1.17.2. Material:

1.18. CNG filter(s)

1.18.1. Working pressure(s): (2)

1.18.2. Material:

Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

TECHNICAL REPORT

about the test
according to ECE-Regulation about

Specific components of motor vehicles using compressed natural gas (CNG) in their propulsion system

ECE-R 110

including all amendments until

supplement 1

Previously granted	
ECE - certificate	: --

Structure of report

1. Test object(s) and general test information
2. Test minutes
3. Remarks concerning test object(s)
4. Enclosures
5. Statement of conformity

Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

1. Test object(s) and general test information

1.1. Test object(s)

classification	: Class 0	
operating pressure range	: 3 to 260 bar	
specific component	: pressure relief device	
material	: ASTM B16-B brass, Alloy C360, half-hard, Nickel plated	
type	: CNG 8100-44-BB	
1.1.1. Identification number	: Serial numbers	1 - leakage, vibration 2 - life cycle, overpressure 3 - life cycle, overpressure 4 - overpressure 5 - leakage, vibration, corrosion
Part number	: 8100-44-BB	

1.2. General test information

1.2.1. Order issued by	: Circle Seal Controls, INC.
1.2.2. Test object / test vehicle received on	: not applicable
1.2.3. Test date	: May 13 ~ 31, 2002
1.2.4. Test site	: Corona, CA, USA
1.2.5. Remark	: The test results refer exclusively to the object(s) mentioned in item 1.1 of this report.

Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

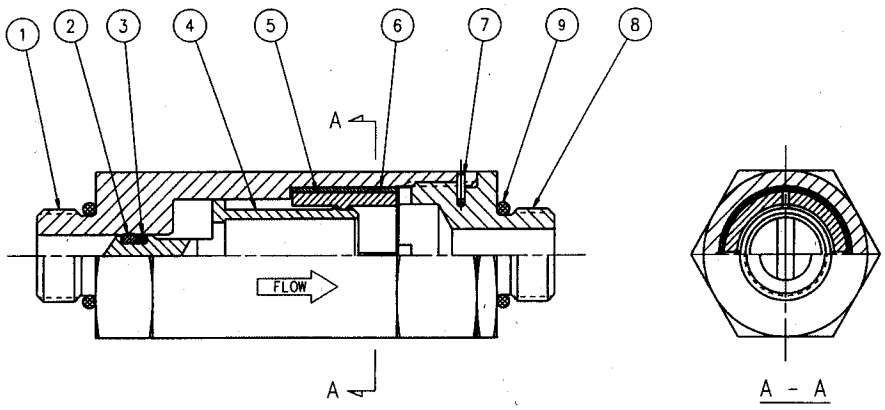
2. Test minutes

2.1. Test facilities : The test facilities are in compliance with the requirements of the standard.

2.2. Test results

DESCRIPTION OF TEST UNIT

The 8100 Series valves, are designed to meet basic requirements for temperature triggered pressure relief devices for Natural Gas Vehicles (NGV), with a 104°C Thermal Relief temperature. Item numbers enclosed in balloons below, correspond with item numbers in the 8100 Series O.D. drawing, (see Appendix A).



Description	Parameters
Operating Pressure	26 MPa (3770 psig)
Proof Pressure	39 MPa (5660 psig)
Operating Temperatures	- 40°C to 85°C (RATED)
Operating Temperatures (Eutectic Ring)	Eutectic Ring melts at 104°C (Nominal)
Internal Leakage	Zero at Operating Temperatures < 94°C
External Leakage	Zero
Thermal Relief	104°C (Nominal)
Flow	2.55 m^3/min of Air at 6.9 bar d
Fluid Compatibility	Natural Gas, Air, CO, Helium, Hydrogen

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Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

2.2.1. General requirements :

SEQUENCE OF TESTING

Para. No.	Test	Test procedures	Data Sheet Page(s)	Figure No.	Test Unit S/N#
2.3	External Leakage Test	Annex 5B	B-1, B-4	1	1, 5
2.4	Internal Leakage Test	Annex 5C	B-1, B-4	2	1, 5
2.5	Durability Test	Annex 5L	B-1, B-4	3	2, 3
2.6	Overpressure (Strength) Test	Annex 5A	B-2, B-5	-	2, 3, 4
2.7	CNG Compatibility Test	Annex 5D	B-2, B-5	-	O-ring only
7.6	Corrosion Resistance Test	Annex 5E	B-2	-	5
7.7	Vibration Resistance Test	Annex 5N	B-2	-	1, 5

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2.2.2. TEST CONDITIONS

2.2.2.1 Test Media, Condition & Tolerance

Unless otherwise specified, the following test and laboratory conditions applied to all tests.

DESCRIPTION	CONDITION	TOLERANCES
Test Media	Air, N-Pentane	-
Operating Pressure Range	0 to 517 bar	-0 psi, +3.5 bar
Temperature	-40°C to +85°C (-40 °F to +185 °F)	-0 °C, +3 °C

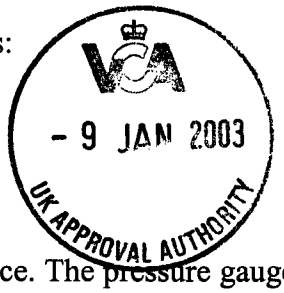
2.2.2.2 Accuracy of Test Apparatus

All measurements were made with instruments of laboratory precision type whose accuracy had been certified in accordance with MIL-STD-45662. Accuracy is traceable to ANSI/NCSL Z540-1.

2.3 External Leakage test

External leakage testing has been performed at three temperature levels:

(i) Room temperature (18 °C)
(ii) The maximum operating temperature (+85 °C)
(iii) The minimum operating temperature (–40 °C)



During the test the equipment was connected to a compressed air source. The pressure gauge was installed between an automatic valve and the sample under test. The pressure drop method was used to detect leakage. At room temperature the sample was submerged into water.

2.3.i	External Leakage Test (room temp)	Install the test unit as shown in Figure 1. Apply 345 bar to the inlet and measure leakage.	No Leakage
2.3.ii	External Leakage Test (max. temp.)	Stabilize the test unit at 185°F for 8 hours. Install the test unit in the setup as shown in Figure 1. Apply 345 bar to the inlet and measure leakage.	No Leakage
2.3.iii	External Leakage Test (min. temp.)	Stabilize the test unit at -40°F for 8 hours. Install the test unit in the setup as shown in Figure 1. Apply 345 bar to the inlet and measure leakage.	No Leakage

2.4 Internal leak test.

The internal leakage tests were conducted with the inlet of the valve connected to a source of pressurized air.
Observations for leakage were made with the open outlet submerged in water.

Internal Leakage Test	Install the test unit as shown in Figure 2. Apply air to the inlet port and slowly increase pressure from 0 – 345 bar	No Leakage

2.5 Durability Test

2.5.1. The component was operated through 96 % of the total cycles at room temperature and at the rated pressure.
After that the component was subject to the external leakage test.

Durability Test (Room Temp)	Install the test unit as shown in Figure 3. Subject the test unit to a total of 86,400 pressure cycles from 170 bar to a max of 345 bar and returning to 170 bar After this test, conduct the External Leakage Test according to 2.3.i	Cycle Rate: 4cpm on Steel Valves & 5cpm on Brass Valves. No Internal or External Leakage.

2.5.2. Additional 2 % of the total cycles were operated at the maximum operating temperature.
After that the component was subject to the external leakage test.

Durability Test (Low Temp)	Install the test unit as shown in Figure 3. Subject the test unit to a total of 1800 pressure cycles from 170 bar to a max of 345 bar and returning to 170 bar At a temperature of –40 °C After this test, conduct the External Leakage Test according to 2.3.ii and the Internal Leakage Test of 2.4	Cycle Rate: 4cpm on Steel Valves & 5cpm on Brass Valves. No Internal or External Leakage.

2.5.3. Additional 2 % of the total cycles were operated at the minimum operating temperature.
After that the component was subject to the external leakage test.

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Durability Test (High Temp)	Install the test unit as shown in Figure 3. Subject the test unit to a total of 1800 pressure cycles from 170 bar to a max of 345 bar and returning to 170 bar At a temperature of +85 °C After this test, conduct the External Leakage Test according to 2.3.ii and the Internal Leakage Test of 2.4	Cycle Rate: 4cpm on Steel Valves & 5cpm on Brass Valves. No Internal or External Leakage.

2.6 Overpressure (strength) Test

The samples previously subjected to the durability test were connected to a source of hydrostatic pressure. (required pressure at least 1.5 x 260 = 390 bar)

Over Pressure Test	Apply hydrostatic fluid to the inlet at **517** bar and hold for min. one (1) minute.	No rupture or Distortion

After the overpressure test the samples did not show permanent deformation or any other visible damage.

2.7 CNG Compatibility Test

The O-ring as the only synthetic part of the valve was subject to the CNG compatibility test according to Annex 5D of ECE R 110.

2.7.1	CNG Compatibility Test (n-pentane)	Subject the synthetic o-ring materials to an atmosphere of n-pentane at 23°C for a period of 72 hours.	Volume changed by less than 20%.
2.7.2	CNG Compatibility Test (air)	Subject the synthetic o-ring materials to an atmosphere of air at 40°C for a period of 48 hours.	Mass changed by less than 5%

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2.8 Corrosion Resistance Test

The stainless steel valves have been subjected to the corrosion resistance test according to Annex 5E of ECE R110. The test components have been cleaned and than subject to the salt spry test sequences. After completing the salt spray sequences the test units have been conditioned and subsequently subjected to external and internal leakage testing.

Corrosion Test	The salt spray test per ISO CD 15500-2, shall be performed for a period of 144 hours with all connections closed. Upon completion of the Corrosion Test, conduct the External Leakage Test of paragraph 2.3 and Internal Leakage Test of paragraph 2.4.	No Internal or External Leakage.	B-2

The test units did not exhibit visible corrosion attack and did not show external or internal leakage after completion of the corrosion tests.

2.9 Vibration Resistance Test

The test units were vibrated for 2 hours at 17 Hz with an amplitude of 1.5 mm in each of the orientation axes. After completion of in all 6 hours vibration testing the test units were subject to an internal leakage test.

No visible damage and no internal leakage were detectable after completion of the test.

Vibration Test	Expose the test unit to a vibration of 17 Hz with an amplitude of 1.5 mm for 2 hours in each of the three perpendicular axes. Upon completion of the Vibration Test, conduct the Internal Leakage Test of paragraph 7.2.	No visible damage or Internal Leakage.

2.10 Fusible Material Yield Temperature

The pressure relief device shall be so designed to open the fuse at a temperature of 110 °C +/- 10 °C. Two samples of fusible material (A39090 Eutectic ring) were immersed in a glycerin bath. The temperature was raised in increments of 5°C to 95 °C, and then in increments of 0.5 °C to the yield temperature. The yield temperature was measured to 104 °C (Annex A1)

2.2. Remarks : none

Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

3. Remark concerning test object(s)

: All versions of the type as stated in the information document are covered with the test samples.

4. Enclosures

L Technical information about a CNG component pursuant to Regulation No. 110

0 List of modifications

Model Information Document no. : 8100-2

5. Statement of conformity

The information folder and type referred to comply with the requirements mentioned on page 1.

The technical report comprises pages 1 to 14 - including enclosure 0 - and shall not be reproduced except in full without the written approval of the testing laboratory.

SR/JW/UR
December 30, 2002

Dipl. Ing. Juergen Walther

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Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

Enclosure L

Technical information about a CNG component pursuant to Regulation No. 110

1.	CNG component considered	: ~~Container(s) or cylinder(s)~~ ~~Pressure indicator~~ ~~Pressure relief valve~~ ~~Automatic valve(s)~~ ~~Excess flow valve~~ ~~Gas-tight housing~~ ~~Pressure regulator(s)~~ ~~Check valve(s)~~ Pressure relief device ~~Manual valve~~ ~~Flexible fuel lines~~ ~~Filling unit or receptacle~~ ~~Gas/air mixer (injector(s))~~ ~~Gas flow adjuster~~ ~~Gas/air mixer (carburetor)~~ ~~Electronic control unit~~ ~~Pressure and temperature sensor(s)~~ ~~CNG filter(s)~~
2.	Trade name or mark	: Circle Seal
3.	Manufacturer's name and address	: Circle Seal Controls, INC. 2301 Wardlow Circle Corona, CA 91720, USA
4.	If applicable, name and address of the manufacturer's representative	: not applicable
5.	Submitted for approval on	: May 13 ~ 31, 2002
6.	Technical service responsible for conducting the tests	: TUV Rheinland of North America, Inc.

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Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

Enclosure L

7.	Date of report issued by that service	: December 30, 2002
9.	Number of report issued by that service	: 674-3026381
12.	Remarks	: not applicable

Addendum

1. Additional information concerning the type approval of a type of CNG components pursuant to Regulation No. 110

1.1.	Container(s) or cylinder(s)	
1.1.1.	Dimensions	: ---
1.1.2.	Material	: ---
1.2.	Pressure indicator	
1.2.1.	Working pressure(s)	: ---
1.2.2.	Material	: ---
1.3.	Pressure relief valve (discharge valve)	
1.3.1.	Working pressure(s)	: ---
1.3.2.	Material	: ---
1.4.	Automatic valve(s)	
1.4.1.	Working pressure(s)	: ---
1.4.2.	Material	: ---
1.5.	Excess flow valve	
1.5.1.	Working pressure(s)	: ---
1.5.2.	Material	: ---
1.6.	Gas-tight housing	
1.6.1.	Working pressure(s)	: ---
1.6.2.	Material	: ---

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Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

Enclosure L

1.7.	Pressure regulator(s)	
1.7.1.	Working pressure(s)	: ---
1.7.2.	Material	: ---
1.8.	Check valve(s) or non-return valve(s)	
1.8.2.	Working pressure(s)	: ---
1.8.2.	Material	: ---
1.9.	Pressure relief device (temperature triggered)	
1.9.1.	Working pressure(s)	: 26 MPa, 260 bar
1.9.2.	Material	: ASTM B16-B brass, Alloy C360, half-hard, Nickel plated
1.10.	Manual valve	
1.10.1.	Working pressure(s)	: ---
1.10.2.	Material	: ---
1.11.	Flexible fuel lines	
1.11.1.	Working pressure(s)	: ---
1.11.2.	Material	: ---
1.12.	Filling unit or receptacle	
1.12.1.	Working pressure(s)	: ---
1.12.2.	Material	: ---
1.13.	Gas/air mixer (injector(s))	
1.13.1.	Working pressure(s)	: ---
1.13.2.	Material	: ---
1.14.	Gas flow adjuster	
1.14.1.	Working pressure(s)	: ---
1.14.2.	Material	: ---

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Type : CNG 8100-44-BB
Manufacturer : Circle Seal Controls, INC.

Enclosure L

1.15.	Gas / air mixer (carburetor)	
1.15.1.	Working pressure(s)	: ---
1.15.2.	Material	: ---
1.16.	Electronic control unit	
1.16.1.	Basic software principles	: ---
1.17.	Pressure and temperature sensor(s)	
1.17.1.	Working pressure(s)	: ---
1.17.2.	Material	: ---
1.18.	CNG filter(s)	
1.18.1.	Working pressure(s)	: ---
1.18.2.	Material	: ---

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Type : **CNG 8100-44-BB**
Manufacturer : **Circle Seal Controls, INC.**

List of modifications

Enclosure 0

Correction of : --

Modification of : --

Addition of : --

Deletion of : --

Circle Seal Controls, INC. 2301 Wardlow Circle Corona, CA 91720, USA	Information document no. 8100-2 ESA-Type: CNG 8100-44-BB	Page: 1 issue: 30-Dec-2002

Information as prescribed in Annex 1A of ECE-R110:

"ESSENTIAL CHARACTERISTICS OF THE CNG COMPONENT"

1. (Not allocated)

1. 2. 4. 5. 1.	System description	:
1. 2. 4. 5. 2.	Pressure regulator(s)	: yes/ no 1/
1. 2. 4. 5. 2. 1.	Make (s)	:
1. 2. 4. 5. 2. 2.	Type (s):	:
1. 2. 4. 5. 2. 5.	Drawings	:
1. 2. 4. 5. 2. 6.	Number of main adjustment points	:
1. 2. 4. 5. 2. 7.	Description of principle of adjustment through main adjustment points	:
1. 2. 4. 5. 2. 8.	Number of idle adjustment points	:
1. 2. 4. 5. 2. 9.	Description of principles of adjustment through idle adjustment points	:
1. 2. 4. 5. 2. 10.	Other adjustment possibilities if so and which (description and drawings)	:
1. 2. 4. 5. 2. 11.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 2. 12.	Material	:
1. 2. 4. 5. 3.	Gas/ air mixer (carburettor)	: yes/ no 1/
1. 2. 4. 5. 3. 1.	Number	:
1. 2. 4. 5. 3. 2.	Make(s)	:
1. 2. 4. 5. 3. 3.	Type(s)	:
1. 2. 4. 5. 3. 4.	Drawings	:
1. 2. 4. 5. 3. 5.	Adjustment possibilities	:
1. 2. 4. 5. 3. 6.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 3. 7.	Material	:

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1. 2. 4. 5. 4.	Gas flow adjuster	: yes/ no 1/
1. 2. 4. 5. 4. 1.	Number	:
1. 2. 4. 5. 4. 2.	Make(s)	:
1. 2. 4. 5. 4. 3.	Type(s)	:
1. 2. 4. 5. 4. 4.	Drawings	:
1. 2. 4. 5. 4. 5.	Adjustment possibilities (description)	:
1. 2. 4. 5. 4. 6.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 4. 7.	Material	:
1. 2. 4. 5. 5.	Gas/ air mixer (injector)(s)	: yes/ no 1/
1. 2. 4. 5. 5. 1.	Make(s)	:
1. 2. 4. 5. 5. 2.	Type(s)	:
1. 2. 4. 5. 5. 3.	Identification	:
1. 2. 4. 5. 5. 4.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 5. 5.	Drawings of installation	:
1. 2. 4. 5. 5. 6.	Material	:
1. 2. 4. 5. 6.	Electronic Control Unit (CNG-fuelling)	: yes/ no 1/
1. 2. 4. 5. 6. 1.	Make(s)	:
1. 2. 4. 5. 6. 2.	Type(s)	:
1. 2. 4. 5. 6. 3.	Adjustment possibilities	:
1. 2. 4. 5. 6. 4.	Basic software principles	:
1. 2. 4. 5. 7.	CNG container(s) or cylinder(s)	: yes/ no 1/
1. 2. 4. 5. 7. 1.	Make(s)	:
1. 2. 4. 5. 7. 2.	Type(s) (include drawings)	:
1. 2. 4. 5. 7. 3.	Capacity	: litres
1. 2. 4. 5. 7. 4.	Drawings of the installation of the container	:
1. 2. 4. 5. 7. 5.	Dimensions	:
1. 2. 4. 5. 7. 6.	Material	:
1. 2. 4. 5. 8.	CNG container accessories	
1. 2. 4. 5. 8. 1.	Pressure indicator	: yes/ no 1/
1. 2. 4. 5. 8. 1. 1.	Make(s)	:
1. 2. 4. 5. 8. 1. 2.	Type(s)	:
1. 2. 4. 5. 8. 1. 3.	Operating principle	: float/ other 1/ (include description or drawings)
1. 2. 4. 5. 8. 1. 4.	Working pressure(s)	: 2/ MPa
1. 2. 4. 5. 8. 1. 5.	Material	:
1. 2. 4. 5. 8. 2.	Pressure relief valve (discharge valve)	: yes/ no 1/
1. 2. 4. 5. 8. 2. 1.	Make(s)	:

1. 2. 4. 5. 8. 2. 2.	Type(s)	:
1. 2. 4. 5. 8. 2. 3.	Working pressure(s) 2/	: MPa
1. 2. 8. 5. 8. 2. 4.	Material	:
1. 2. 4. 5. 8. 3.	Automatic cylinder valve	: yes/ no 1/
1. 2. 4. 5. 8. 3. 1.	Make(s)	:
1. 2. 4. 5. 8. 3. 2.	Type(s)	:
1. 2. 4. 5. 8. 3. 3.	Working pressure(s) 2/	: MPa 1
1. 2. 4. 5. 8. 3. 4.	Material	:
1. 2. 4. 5. 8. 4.	Excess flow valve	: yes/ no 1/
1. 2. 4. 5. 8. 4. 1	Make(s)	:
1. 2. 4. 5. 8. 4. 2	Type(s)	:
1. 2. 4. 5. 8. 4. 3	Working pressure(s) 2/	: MPa
1. 2. 4. 5. 8. 4. 4.	Material	:
1. 2. 4. 5. 8. 5.	Gas-tight housing	: yes/ no 1/
1. 2. 4. 5. 8. 5. 1	Make(s)	:
1. 2. 4. 5. 8. 5. 2	Type(s)	:
1. 2. 4. 5. 8. 5. 3	Working pressure(s) 2/	: MPa
1. 2. 4. 5. 8. 5. 4.	Material	:
1. 2. 4. 5. 8. 6.	Manual valve	: yes/ no 1/
1. 2. 4. 5. 8. 6. 1	Make(s)	:
1. 2. 4. 5. 8. 6. 2	Type(s)	:
1. 2. 4. 5. 8. 6. 3	Drawings	:
1. 2. 4. 5. 8. 6. 4	Working pressure(s) 2/	: MPa
1. 2. 4. 5. 8. 6. 4.	Material	:
1. 2. 4. 5. 9.	Pressure relief device (temperature triggered)	: yes ~~/ no 1/~~
1. 2. 4. 5. 9. 1.	Make(s)	: Circle Seal Controls, INC.
1. 2. 4. 5. 9. 2.	Type(s)	: CNG 8100-44-BB
1. 2. 4. 5. 9. 3.	Description and drawings	: Drawing number D 91816, Rev A, see annex A
1. 2. 4. 5. 9. 4.	Operating temperature	: - 40°C to 85 °C
1. 2. 4. 5. 9. 5.	Material	: ASTM B16-B brass, Alloy C360, half-hard, Nickel plated

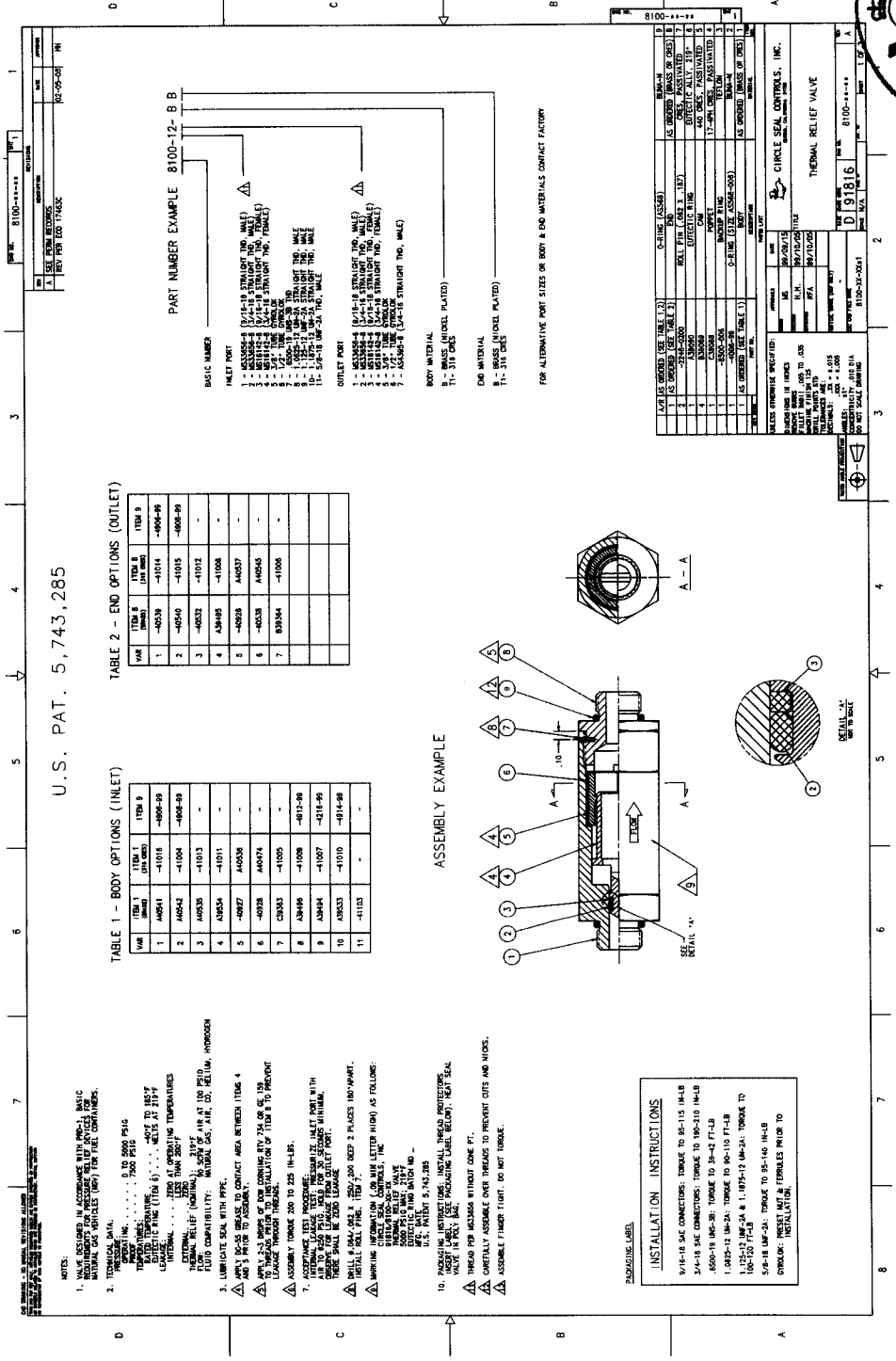
1. 2. 4. 5. 10.	Filling unit or receptacle	: yes/ no 1/
1. 2. 4. 5. 10. 1.	Make(s)	:
1. 2. 4. 5. 10. 2.	Type(s)	:
1. 2. 4. 5. 10. 3.	Working pressure(s) 2/	: MPa
1. 2. 4. 5. 10. 4.	Description and drawings	:
1. 2. 4. 5. 10. 5.	Material	:
1. 2. 4. 5. 11.	Flexible fuel lines	: yes/ no 1/
1. 2. 4. 5. 11. 1.	Make(s)	:
1. 2. 4. 5. 11. 2.	Type(s)	:
1. 2. 4. 5. 11. 3.	Description	:
1. 2. 4. 5. 11. 4.	Working pressure(s)2/	: kPa
1. 2. 4. 5. 11. 5.	Material	:
1. 2. 4. 5. 12.	Pressure and Temperature sensor(s)	: yes/ no 1/
1. 2. 4. 5. 12. 1.	Make(s)	:
1. 2. 4. 5. 12. 2.	Type(s)	:
1. 2. 4. 5. 12. 3.	Description	:
1. 2. 4. 5. 12. 4.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 12. 5.	Material	:
1. 2. 4. 5. 13.	CNG filter(s)	: yes/ no 1/
1. 2. 4. 5. 13. 1.	Make(s)	:
1. 2. 4. 5. 13. 2.	Type(s)	:
1. 2. 4. 5. 13. 3.	Description	:
1. 2. 4. 5. 13. 4.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 13. 5.	Material	:
1. 2. 4. 5. 14.	Check valve(s) or non-return valve(s)	: yes/ no 1/
1. 2. 4. 5. 14. 1.	Make(s)	:
1. 2. 4. 5. 14. 2.	Type(s)	:
1. 2. 4. 5. 14. 3.	Description	:
1. 2. 4. 5. 14. 4.	Working pressure(s)	: 2/ kPa
1. 2. 4. 5. 14. 5.	Material	:

1. 2. 4. 5. 15.	Connection to CNG system for heating system	: yes/ no 1/
1. 2. 4. 5. 15. 1.	Make(s)	:
1. 2. 4. 5. 15. 2.	Type(s)	:
1. 2. 4. 5. 15. 3.	Description and drawings of installation	:
1. 2. 5.	Cooling system	: (liquid/ air) 1/
1. 2. 5. 1.	System description/ drawings with regard to the CNG system	:

List of Annexes

Corona /BE
30-Dec-2002

Annex A – Drawing of the component



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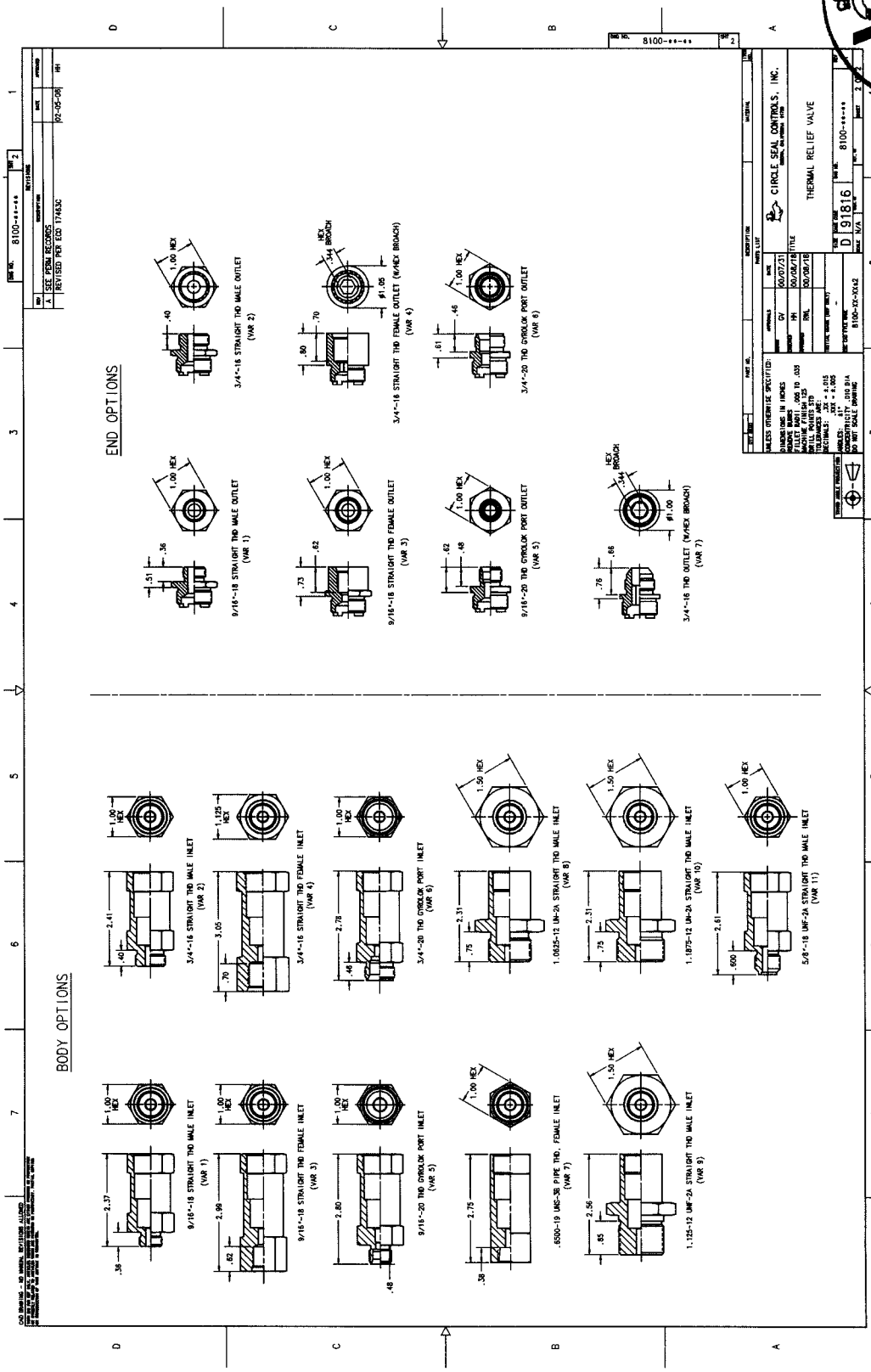
Annex B – Drawing of variations



Annex C – Drawing showing the location of the approval mark

E11 **110R-00 0003**