



GRAND-DUCHÉ DE LUXEMBOURG

Ministère du Développement durable  
et des Infrastructures  
Département des Transports

L-2938 Luxembourg

SOCIÉTÉ NATIONALE DE  
CERTIFICATION ET D'HOMOLOGATION  
s.à r.l.

Registre de Commerce: B 27180



L-5201 Sandweiler

Référence: E13\*110R00\*110R01\*0345\*01

Annexes: - Rapport technique  
- Fiche de renseignements du constructeur

Luxembourg, le 05 juillet 2016



Communication concernant: - **Délivrance d'homologation**  
Approval granted

- **Extension d'homologation**  
Approval extended

- **Refus d'homologation**  
Approval refused

- **Retrait d'homologation**  
Approval withdrawn


- **Arrêt définitif de la production**  
Production definitively discontinued

d'un type d'organe GNC/GNL en application du Règlement N° 110  
of a type of CNG/LNG component pursuant to Regulation N° 110

Homologation N°:  
Approval number:

E13\*110R00\*110R01\*0345\*01

Marque d'homologation:  
Approval mark:

 110R-010345 "C"

1. **Organe GNC/GNL (2):**  
CNG/LNG component considered (2):

**Réservoir(s) ou bouteille(s):**  
Container(s) or cylinder(s):

not applicable

**Réservoir(s) ou récipient(s):**  
Tank(s) or vessel(s):

not applicable

**Témoin de pression:**  
Pressure indicator:

not applicable

**Souape de surpression:**  
Pressure relief valve:

not applicable

<b>Vanne(s) automatique(s):</b> Automatic valve(s):	not applicable
<b>Limiteur de débit:</b> Excess flow valve:	not applicable
<b>Capot étanche:</b> Gas-tight housing:	not applicable
<b>Détendeur(s):</b> Pressure regulator(s):	not applicable
<b>Clapet(s) antiretour:</b> Non-return valve(s) or check valve(s):	not applicable
<b>Dispositif de surpression (à déclenchement thermique):</b> Pressure relief device (PRD) (temperature triggered):	not applicable
<b>Vanne manuelle:</b> Manual valve:	applicable
<b>Flexibles:</b> Flexible fuel lines:	not applicable
<b>Embout ou réceptacle de remplissage:</b> Filling unit or receptacle:	not applicable
<b>Injecteur(s) de gaz:</b> Gas injector(s):	not applicable
<b>Régulateur de débit de gaz:</b> Gas flow adjuster:	not applicable
<b>Mélangeur gaz / air:</b> Gas / air mixer:	not applicable
<b>Module électronique de commande:</b> Electronic control unit:	not applicable
<b>Capteur(s) de pression et de température:</b> Pressure and temperature sensor(s):	not applicable
<b>Filtre(s) à GNC:</b> CNG filter(s):	not applicable
<b>Dispositif de surpression (à déclenchement manométrique):</b> Pressure relief device (PRD) (pressure triggered):	not applicable
<b>Rampe d'alimentation:</b> Fuel rail:	not applicable
<b>Echangeur(s) thermique(s) / vaporisateur(s):</b> Heat exchanger(s) / vaporizer(s):	not applicable
<b>Détecteur(s) de gaz naturel:</b> Natural gas detector(s):	not applicable
<b>Réceptacle(s) de remplissage GNL:</b> LNG filling receptacle(s):	not applicable

	<b>Détendeur(s) GNL:</b> LNG pressure control regulator(s):	not applicable
	<b>Capteur(s) de pression et/ou de température GNL:</b> LNG pressure and/or temperature sensor(s):	not applicable
	<b>Vanne(s) manuelle(s) GNL:</b> LNG manual valve(s):	not applicable
	<b>Vanne(s) automatique(s) GNL:</b> LNG automatic valve(s):	not applicable
	<b>Clapet(s) antiretour GNL:</b> LNG non-return valve(s):	not applicable
	<b>Soupape(s) de surpression GNL:</b> LNG pressure relief valve(s):	not applicable
	<b>Limiteur(s) de débit GNL:</b> LNG excess flow valve(s):	not applicable
	<b>Pompe(s) à GNL:</b> LNG fuel pump(s):	not applicable
2.	<b>Marque de fabrique ou de commerce:</b> Trade name or mark:	HSME
3.	<b>Nom et adresse du constructeur:</b> Manufacturer's name and address:	HSME Corporation 8, Hwajeonsandan 5-Ro, Gangseo-gu 618-280 Busan Korea
4.	<b>S'il y a lieu, nom et adresse du représentant du constructeur:</b> If applicable, name and address of manufacturer's representative:	not applicable
5.	<b>Présenté à l'homologation le:</b> Submitted for approval on:	01.06.2016 – 28.06.2016
6.	<b>Autorité déléguée:</b> <i>Assigned authority:</i>	<i>Société Nationale de Certification et d'Homologation L-5201 Sandweiler</i>
	<b>Service technique chargé des essais d'homologation:</b> Technical Service responsible for conducting approval tests:	TÜV Rheinland Luxemburg GmbH 2a, Kalchesbruck L-1852 Luxembourg
7.	<b>Date du procès-verbal délivré par ce service:</b> Date of report issued by that Service:	28.06.2016
8.	<b>Numéro du procès-verbal:</b> Number of report issued by that Service:	TS-110R-009/16
9.	<b>L'homologation est <sup>(2)</sup>:</b> Approval <sup>(2)</sup> :	<del>granted</del> / <del>refused</del> / <del>extended</del> / <del>withdrawn</del>
10.	<b>Raison(s) de l'extension (s'il y a lieu):</b> Reason(s) of extension (if applicable):	- New variant VBC6B-A16M-PM-SS-NY added.

11. **Lieu:**  
Place: Luxembourg
12. **Date:**  
Date: 05 juillet 2016
13. **Signature:**  
Signature:

Pour le Ministre du Développement durable  
et des Infrastructures

Pour la SNCH



A handwritten signature in black ink, appearing to read "M. Feltes".

Marco FELTES  
Inspecteur Principal 1<sup>er</sup> en rang



A handwritten signature in black ink, appearing to read "C. Liesch".

Claude LIESCH  
Directeur



14. **Les documents soumis dans le dossier d'homologation ou d'extension d'homologation peuvent être obtenues sur demande:**  
The documents filed with the application or extension of approval can be obtained upon request:

see: INDEX to TYPE-APPROVAL REPORT

**ADDITIF**  
ADDENDUM

- 1. Renseignements complémentaires concernant l'homologation d'un type d'organe GNC/GNL en application du Règlement N° 110 <sup>(1)</sup>:**  
Additional information concerning the type-approval of a type of CNG/LNG components pursuant to Regulation N° 110 <sup>(1)</sup>:
- 1.1. Système de stockage du gaz naturel**  
Natural Gas Storage System
- 1.1.1. Réservoir(s) ou bouteille(s) (système GNC):**  
Container(s) or cylinder(s) (for CNG system): not applicable
- 1.1.1.1. Dimensions:**  
Dimensions: not applicable
- 1.1.1.2. Matériau:**  
Material: not applicable
- 1.1.2. Réservoir(s) ou récipient(s) (système GNL):**  
Tank(s) or vessel(s) (for LNG system): not applicable
- 1.1.2.1. Capacité:**  
Capacity: not applicable
- 1.1.2.2. Matériau:**  
Material: not applicable
- 1.2. Témoin de pression:**  
Pressure indicator: not applicable
- 1.2.1. Pression(s) maximale(s) de fonctionnement:**  
Working pressure(s): not applicable
- 1.2.2. Matériau:**  
Material: not applicable
- 1.3. Soupape de surpression (soupape de décompression):**  
Pressure relief valve (discharge valve): not applicable
- 1.3.1. Pression(s) maximale(s) de fonctionnement:**  
Working pressure(s): not applicable
- 1.3.2. Matériau:**  
Material: not applicable
- 1.4. Vanne(s) automatique(s):**  
Automatic valve(s): not applicable
- 1.4.1. Pression(s) maximale(s) de fonctionnement:**  
Working pressure(s): not applicable
- 1.4.2. Matériau:**  
Material: not applicable
- 1.5. Limiteur de débit:**  
Excess flow valve: not applicable
- 1.5.1. Pression(s) maximale(s) de fonctionnement:**  
Working pressure(s): not applicable
- 1.5.2. Matériau:**  
Material: not applicable
- 1.6. Capot étanche:**  
Gas-tight housing: not applicable
- 1.6.1. Pression(s) maximale(s) de fonctionnement:**  
Working pressure(s): not applicable
- 1.6.2. Matériau:**  
Material: not applicable
- 1.7. Détendeur(s):**  
Pressure regulator(s): not applicable
- 1.7.1. Pression(s) maximale(s) de fonctionnement:**  
Working pressure(s): not applicable
- 1.7.2. Matériau:**  
Material: not applicable

1.8.	<b>Clapet(s) antiretour:</b> Non-return valve(s) or check valve(s):	not applicable
1.8.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.8.2.	<b>Matériau:</b> Material:	not applicable
1.9.	<b>Dispositif de surpression (à déclenchement thermique):</b> Pressure relief device (temperature triggered):	not applicable
1.9.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.9.2.	<b>Matériau:</b> Material:	not applicable
1.10.	<b>Vanne manuelle:</b> Manual valve:	Type: <b>VBC6 series</b>
1.10.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	26,0 MPa
1.10.2.	<b>Matériau:</b> Material:	see information folder
1.11.	<b>Flexibles:</b> Flexible fuel lines:	not applicable
1.11.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.11.2.	<b>Matériau:</b> Material:	not applicable
1.12.	<b>Embout ou réceptacle de remplissage:</b> Filling unit or receptacle:	not applicable
1.12.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.12.2.	<b>Matériau:</b> Material:	not applicable
1.13.	<b>Injecteur(s):</b> Gas injector(s):	not applicable
1.13.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.13.2.	<b>Matériau:</b> Material:	not applicable
1.14.	<b>Régulateur de débit:</b> Gas flow adjuster:	not applicable
1.14.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.14.2.	<b>Matériau:</b> Material:	not applicable
1.15.	<b>Mélangeur gaz / air:</b> Gas / air mixer:	not applicable
1.15.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.15.2.	<b>Matériau:</b> Material:	not applicable
1.16.	<b>Module électronique de commande:</b> Electronic control unit:	not applicable
1.16.1.	<b>Principes de base du logiciel:</b> Basic software principles:	not applicable
1.17.	<b>Capteur(s) de pression et de température:</b> Pressure and temperature sensor(s):	not applicable
1.17.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.17.2.	<b>Matériau:</b> Material:	not applicable

1.18.	<b>Filtre(s) à GNC:</b> CNG filter(s):	not applicable
1.18.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.18.2.	<b>Matériau:</b> Material:	not applicable
1.19.	<b>Dispositif de surpression (à déclenchement manométrique):</b> Pressure relief device (pressure triggered):	not applicable
1.19.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.19.2.	<b>Matériau:</b> Material:	not applicable
1.20.	<b>Rampe(s) d'alimentation:</b> Fuel rail(s):	not applicable
1.20.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.20.2.	<b>Matériau:</b> Material:	not applicable
1.21.	<b>Echangeur(s) thermique(s) / vaporisateur(s):</b> Heat exchanger(s) / vaporizer(s):	not applicable
1.21.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.21.2.	<b>Matériau:</b> Material:	not applicable
1.22.	<b>Détecteur(s) de gaz naturel:</b> Natural gas detector(s):	not applicable
1.22.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.22.2.	<b>Matériau:</b> Material:	not applicable
1.23.	<b>Réceptacle(s) de remplissage GNL:</b> LNG filling receptacle(s):	not applicable
1.23.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.23.2.	<b>Matériau:</b> Material:	not applicable
1.24.	<b>Détendeur(s) GNL:</b> LNG pressure control regulator(s):	not applicable
1.24.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.24.2.	<b>Matériau:</b> Material:	not applicable
1.25.	<b>Capteur(s) de pression et/ou de température GNL:</b> LNG pressure and/or temperature sensor(s):	not applicable
1.25.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.25.2.	<b>Matériau:</b> Material:	not applicable
1.26.	<b>Vanne(s) manuelle(s) GNL:</b> LNG manual valve(s):	not applicable
1.26.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.26.2.	<b>Matériau:</b> Material:	not applicable

1.27.	<b>Vanne(s) automatique(s) GNL:</b> LNG automatic valve(s):	not applicable
1.27.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.27.2.	<b>Matériau:</b> Material:	not applicable
1.28.	<b>Clapet(s) antiretour GNL:</b> LNG non-return valve(s):	not applicable
1.28.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.28.2.	<b>Matériau:</b> Material:	not applicable
1.29.	<b>Soupape(s) de surpression GNL:</b> LNG pressure relief valve:	not applicable
1.29.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.29.2.	<b>Matériau:</b> Material:	not applicable
1.30.	<b>Limiteur de débit GNL:</b> LNG excess flow valve:	not applicable
1.30.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.30.2.	<b>Matériau:</b> Material:	not applicable
1.31.	<b>Pompe(s) à GNL:</b> LNG fuel pump(s):	not applicable
1.31.1.	<b>Pression(s) maximale(s) de fonctionnement:</b> Working pressure(s):	not applicable
1.31.2.	<b>Matériau:</b> Material:	not applicable

<sup>(1)</sup> **Indiquer la tolérance.**  
Specify the tolerance.

<sup>(2)</sup> **Biffer les mentions inutiles.**  
Strike out what does not apply.





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Registre de Commerce: B 27180

L-5201 Sandweiler



**Référence:** E13\*110R00\*110R01\*0345\*01

**Annexes:** - Rapport technique  
- Fiche de renseignements du constructeur

Luxembourg, le 05 juillet 2016

## INDEX DU DOSSIER D'HOMOLOGATION INDEX TO TYPE-APPROVAL REPORT

	<b>Numéro d'homologation:</b> Approval number:	E13*110R00*110R01*0345*01
	<b>Révision:</b> Revision:	00
	<b>Marque de fabrique ou de commerce:</b> Trade name or mark:	HSME
	<b>Type:</b> Type:	VBC6 series
1.	<b>Procès-verbal d'essai:</b> Test report:	N° TS-110R-009/16
	- Technical report:	Page(s) 1 to 6;
	- List of modifications:	Appendix 0 - Page(s) 7;
	- Essential characteristics of the CNG-component:	Appendix 1 - Page(s) 1.
2.	<b>Dossier du constructeur:</b> Report of the manufacturer:	Appendix 2
	- Manufacturer's information document:	<u>18</u> page(s).
3.	<b>Autres documents annexés:</b> Other documents annexed:	not applicable
4.	<b>Date de délivrance de l'homologation initiale:</b> Date of issue of initial type approval:	30.05.2016
5.	<b>Date de la dernière délivrance de pages révisées:</b> Date of last issue of revised pages:	not applicable
6.	<b>Date de la dernière délivrance d'une homologation révisée:</b> Date of last extension:	05.07.2016

Technical Report No. TS-110R-009/16  
Applicant: HSME Corporation  
Type: VBC6 series



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**TECHNICAL REPORT**  
**No. TS-110R-009/16**

**CONCERNING THE 1<sup>ST</sup> EXTENSION OF THE APPROVAL OF SPECIFIC COMPONENTS OF  
MOTOR VEHICLES USING COMPRESSED NATURAL GAS (CNG) AND/OR LIQUEFIED NATURAL  
GAS (LNG) IN THEIR PROPULSION SYSTEM ACCORDING TO THE**

**ECE-R 110-01**

**Manufacturer/Applicant:** HSME Corporation  
8, Hwajeonsandan 5-Ro, Gangseo-gu  
618-280 Busan  
Korea

**Trade name or mark:** HSME

**Type:** VBC6 series

**Variants:** VBC6B-  
VBC6C-

**Specific component:** manual valve

**Approval number:** E13\*110R00\*110R01\*0345\*00

**Applicable regulation(s):** ECE R110, revision 1, incl. supplement 3 of 2015-10-08

**Class:** 0

**Subject of the extension:** Addition of a new variant: [VBC6B-A16M-PM-SS-NY](#)

E13\*110R00\*110R01\*0345\*01  
Société Nationale de Certification et d'Homologation  
L-5201 SANDWEILER (Luxembourg)  
Organisme accrédité OLAS ISO/IEC 17065  
Accréditation N° 5/001 (Portée communiquée sur demande)

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Technical Report No. TS-110R-009/16  
Applicant: HSME Corporation  
Type: VBC6 series



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Technical Report No. TS-110R-009/16  
Applicant: HSME Corporation  
Type: VBC6 series

## Appendices

Appendix no.	according to ECE R110	Description
0	--	List of changes
1	Annex 1A	Essential Characteristics of the CNG component
2	Part 1, 5.2.3	Drawings of VBC6 series

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Société Nationale de Certification et d'Homologation  
L-5201 SANDWEILER (Luxembourg)  
Organisme accrédité OLAS ISO/IEC 17065  
Accréditation N° 5/001 (Portée communiquée sur demande)

## 1. Subject

With its request of 2016-06-28, the company HSME Corporation, Korea, applies for the extension of the existing approval of the specific component "manual valve", type VBC6 series, according to the ECE Regulation No. 110.

The responsible Technical Service is the TÜV Rheinland Luxemburg GmbH.

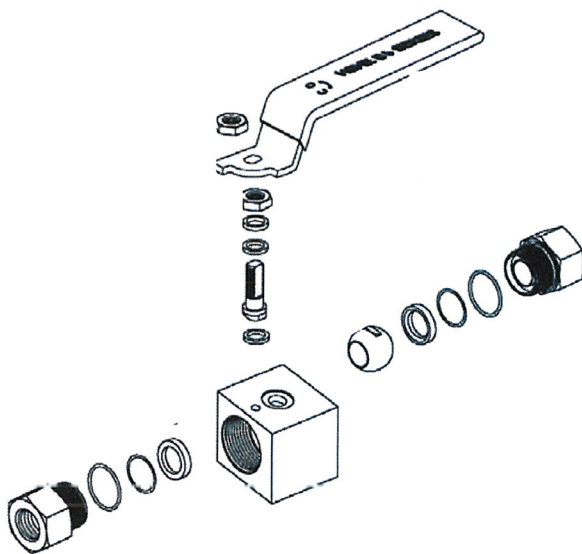
## 2. Technical Data

### 2.1 Intended Use

The presented manual valve is a manually operated two-way valve that allows the natural gas flow to be cut off.

Technical Data:		
Service pressure:		20.0 MPa
working pressure:		26.0 MPa
Operating temperatures [°C]:		-40°C ↔ +120°C
Class:		0
Materials:	body:	SS316
	seal:	PTFE, HNBR

### 2.2 Design and Manufacture



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The materials to be used including material data and the manufacturing/production parameters are specified in the manufacturer's documentation and, if adequate, the technical drawings respectively.

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 Applicant: HSME Corporation  
 Type: VBC6 series

## 2.2 Variants

Part Number		End Connections
VBC6B-	A8T-SS	1/2 in. OD M Tube Fitting
	A10T-SS	5/8 in. OD M Tube Fitting
	A12T-SS	3/4 in. OD M Tube Fitting
	F8N-SS	1/2 in. Female NPT
	F12N-SS	3/4 in. Female NPT
	A12M-SS	12 mm OD M Tube Fitting
	A12M-PM-SS-NY	12 mm OD M Tube Fitting nylon handle panel mount
	A12M-PM-SS-B	12 mm OD M Tube Fitting bar handle panel mount
	A16M-SS	16 mm OD M Tube Fitting
	A16M-PM-SS-NY	16 mm OD M Tube Fitting nylon handle panel mount
VBC6C-	A12T-SS	3/4 in. OD M Tube Fitting
	A16T-SS	1 in. OD M Tube Fitting
	F12N-SS	3/4 in. Female NPT
	F16N-SS	1 in. Female NPT
	M12N-SS	3/4 in. Male NPT
	M16N-SS	1 in. Male NPT
	F16N-PM-SS-NY	1 in. Female NPT nylon handle panel mount
	F16N-PM-SS-B	1 in. Female NPT bar handle panel mount

## 3. Tests

The sole addition of the nylon handle panel mount variant [A16M-PM-SS-NY](#) does not result in additional tests.

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Applicant: HSME Corporation  
Type: VBC6 series

- 3.1 Equipment for measuring and testing:** n/a
- 3.2 Attributive tests:** The component is marked durably by engraving or stamping.  
Additional markings might be added to the component.
- 3.3 Alternative means of testing:** [Theoretical assessment.](#)
- 3.4 Additional information:** The test results refer to the object(s) specified on the first page of this report exclusively.
- Test site TÜV Saarland automobil GmbH, Am TÜV 1, 66280 Sulzbach, Germany
- Test date 2016-06-01 until 2016-06-28
- 3.5 Remarks:**

#### 4. Test Results

Theoretical assessment.  
Result: full compliance, requirements fulfilled

#### 5. Conclusion

The type and variants as described in the information folder (appendix 1) comply with the regulatory requirements referred to on page 1.

With regard to the required level of performance to be achieved, the tested samples were representative for the type to be approved.

The tests were carried out in accordance with the relevant requirements of EN ISO/IEC 17025:2005 and EN ISO/IEC 17020:2012.

There are no safety related technical objections against the use in motor vehicles using CNG in their propulsion system.

Sulzbach/Saar, 2016-06-28  
kuh/beh

  
Dr.-Ing. Stefan Behrning  
Technical expert

E13\*110R00\*110R01\*0345\*01  
Société Nationale de Certification et d'Homologation  
L-5201 SANDWEILER (Luxembourg)  
Organisme accrédité OLAS ISO/IEC 17065  
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Type: VBC6 series



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## Appendix 0

### List of changes

Correction of: n/a  
Modification of: n/a  
Addition of: new variant: [VBC6B-A16M-PM-SS-NY](#)  
Deletion of: n/a

E13\*110R00\*110R01\*0345\*01  
Société Nationale de Certification et d'Homologation  
L-5201 SANDWEILER (Luxembourg)  
Organisme accrédité OLAS ISO/IEC 17065  
Accréditation N° 5/001 (Portée communiquée sur demande)



Technical Report No. TS-110R-009/16  
Applicant: HSME Corporation  
Type: VBC6 series

## ECE-R110, Annex 1A

### Essential Characteristics of the CNG/LNG components

<b>1.2.4.5.8.6..</b>	<b>Manual valve:</b>	<b>yes</b>
1.2.4.5.8.6.1.	Make(s):	HSME
1.2.4.5.8.6.2.	Type(s):	VBC6 series
1.2.4.5.8.6.3.	Drawings:	Appendix 2 of TS-110R-009/16
1.2.4.5.8.6.4.	Working pressure(s):	26.0 MPa
1.2.4.5.8.6.5.	Material:	body: SS316 seal: PTFE, HNBR
1.2.4.5.8.6.6.	Operating temperatures:	-40°C / +120°C