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Schema di certificazione

CESI-ATEX

CERTIFICATE



[1] EU-TYPE EXAMINATION CERTIFICATE

[2] Equipment or Protective System intended for use
in potentially explosive atmospheres
Directive 2014/34/EU

[3] EU-Type Examination Certificate number:

CESI 18 ATEX 025 X

[4] Product: **Cable glands 453, 453U and 453O series**
[5] Manufacturer: **Shomal Engineering & Manufacturing Co. (SEMC)**
[6] Address: **C2 St. Salmanshahr Industrial Park
Mazandaran
(Iran)**

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] CESI, notified body n. 0722 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and Council of 26 February 2014, certifies that this Product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Product intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report n. EX- B8011432.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 EN 60079-1: 2014 EN 60079-7: 2015 EN 60079-31: 2014

except in respect of those requirements listed at item 18 of the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the Product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified Product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this Product. These are not covered by this certificate.

[12] The marking of the Product shall include the following:

I M2	Ex db I Mb and Ex eb I Mb and/or	(453 Std. type only)
II 2 GD	Ex db IIC Gb and Ex eb IIC Gb and Ex tb IIIC Db IP66/68	(For all types)

This certificate may only be reproduced in its entirety and without any change, schedule included.

Date 2018.06.17 - Translation issued the 2018.06.17

Prepared
Alessandro Fedato

Verified
Mirko Balaz

Approved
Roberto Piccin

CESI S.p.A.

Testing & Certification Division
Business Area Certification
II Responsabile

(Roberto Piccin)

[13]

Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE n. CESI 18 ATEX 025 X

[15] **Description of equipment**

The Cable glands type **453****, **453U**** and **453O**** have trade mark "SEMC".

The Cable glands **453..** (STANDARD), **453U..** (UNIVERSAL) and **453O..** (OFFSHORE) series are suitable for inserting circular cables into Ex db enclosures having threaded entries and Ex eb or Ex tb enclosures having either threaded or plane entries. Attachment of the glands to an enclosure is by means of the male threaded portion on the male body. An elastomeric inner diaphragm ring is used to realize sealing between the cable and the gland body. To prevent pulling or twisting forces being transmitted to the conductor connections, the cable glands retain the cable armour or the cable braid by specific clamping device.

Ingress protection of IP66/68 (50 m for 30 min.) is maintained when the glands are installed in accordance with the manufacturer's instructions.

The Cable glands 453.. type are designed for steel wire armoured cables suitable for Groups I, IIC, IIIC while 453U.. and 453O.. types are designed for steel wire armoured shielded and braided cables suitable for Groups IIC and IIIC.

The Cable glands **453..**, **453U..** and **453O..** series is comprised of a male lower body, upper body, diaphragm seal and lower insert, grounding cone, universal reduction for type **453U..** or shielding cone for type **453O..** used for shielded and braided cables, braid ring, O-Ring seal and a cap. The elastomeric inner diaphragm seal realizes the pressure on the cable sheath.

Armoured cable clamping: when the upper body is screwed onto the lower body, the armour of the cable is clamped between the grounding cone and the braid ring.

Braided cable clamping (**453U..** and **453O..** types only): when the upper body is screwed onto the lower body, the braid of the cable is clamped between the grounding cone on which is placed the universal reduction (**453U..** types only) or the shielding cone (**453O..** types only).

The lower insert allows the diaphragm seal to expand elastically according the inserted cable diameter.

Cable glands **453..**, **453U..** and **453O..** series standard threads series are cylindrical ISO Metric 965/1 and ISO 965/3 from M16x1.5 up to M100x1.5 and tapered series NPT ANSI/ASME B1.20.1 from 3/8" up to 4".

Cable glands 453.. type with M16x1.5 or 3/8"NPT thread sizes and Cable glands 453U.. and 453O.. types are not admitted for Group I applications.

Alternative available cylindrical threads are GAS ISO 228/1, NPSM ANSI/ASME B1.20.1 and series PG DIN 40430 from PG11 up to PG42 size. Thread series PG DIN 40430 can be used for "Ex eb" execution only.

To guarantee the IP 66/68 degree of protection the Cable glands **453..**, **453U..** and **453O..** series with cylindrical threads use a flat washer placed in-between the male threaded gland body and the enclosure wall, while for all other threads the IP 66/68 degree of protection is achieved with sealant put at least on two complete threads engaged of the threaded coupling.

The Cable glands are generally made in Brass (CuZn39Pb3 EN 12164). The following alternative materials can be supplied on demand:

- Nickel-plated Brass type CuZn39Pb3 EN 12164.
- Stainless steel type AISI316; AISI304; AISI303.
- Galvanized carbon steel type FE36; FE37 UNI 10233/4.

The cable glands should be also used for intrinsically safe circuits Ex i and should have a part painted in light blue.

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Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE n. CESI 18 ATEX 025 X

Ambient temperature ranges:

All the models are admitted for:

Models made of Galvanized carbon steel:

- 40 ÷ + 80 °C;

limited up to -20°C .

Identification of Cable glands 453.., 453U.. and 453O.. series:

[illegible]

Code that identifies the series and type

- 453: for steel wire armoured cables

- **453U:** for steel wire armoured, shielded or braided cables

- **4530**: for shielded or braided cables

Size (see Table 1)

Type of thread:

- N: NPT ANSI/ASME B1.20.1

- S: NPSM ANSI/ASME B1.20.1

- P: PG DIN 40430 (assessed for Ex eb protection mode only)

- M: ISO 261 pitch 1.5

- C: GAS ISO 228-1

Thread size (see Table 1)

Manufacturing material:

- B: brass

- **BN:** nickel-plated brass

- X: stainless steel

- **Z:** galvanized carbon steel

Seals material:

- S: Silicon rubber

Flat washer material:

- **Blank:** Silicon rubber

- WF: Fiber flat washer

[13]

Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE n. CESI 18 ATEX 025 X

Types and thread sizes of cable glands are listed on the followings Table 1.

Table 1:

Cable gland		Thread size		Cable Dia. ranges (mm)	
Type	Size	NPT	ISO pitch 1.5	Inner sheath	Armour sheath
453..	01..	3/8"	M 16	6-11	9-16
453..	1S..	1/2"	M 20	6-11	9-16
453..	1..	1/2"	M 20	8.5-14.5	12-20
453..	2S..	3/4"	M 25	8.5-14.5	12-20
453..	2..	3/4"	M 25	12-20	16-26
453..	2L..	3/4"	M 25	12-20	16-26
453..	3S..	1"	M 32	12-20	16-26
453..	3..	1"	M 32	17-26	20-33
453..	4S..	1 1/4"	M 40	17-26	20-33
453..	4..	1 1/4"	M 40	23-32	29-41
453..	5S..	1 1/2"	M 50	23-33	29-41
453..	5..	1 1/2"	M 50	29-41	36-52
453..	6S..	2"	M 63	29-41	36-52
453..	6..	2"	M 63	44-56	50-65
453..	7S..	2 1/2"	M 75	44-56	50-65
453..	7..	2 1/2"	M 75	54.5-68	61-78
453..	80S..	3"	M 80	54.5-68	61-78
453..	80..	3"	M 80	67-73	75-89
453..	8..	3 1/2"	M 90	67-77	75-89
453..	9..	4"	M 100	75-91	88-104

[16] Report n. EX- B8011432.

Routine tests

None.

[17] **Special conditions for safe use (X)**

- The coupling of the cable glands with the enclosures shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which cable glands are mounted.
- The cable glands shall be mounted at the electrical apparatus in such a way that accidental rotation and loosening will be prevented.
- The cable glands 453.. type have to be protected from hydraulic fluids, oils and greases when applied for Group I (mines) applications.
- The cable glands type 453.. M16x1.5 and 3/8"NPT sizes and 453U.. and 453O.. types are not admitted for Group I applications.
- The cable glands 453.. type are for steel wire armoured cables only.
- The cable glands 453U.. type are for steel wire armoured cables, shielded or braided cables.
- The cable glands 453O.. type are for shielded or braided cables only.
- The cable glands 453U.. for use with shielded or braided cables and cable glands 453O.. are only suitable for fixed installations. The cables must be effectively clamped to prevent pulling and twisting.

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[13]

Schedule

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 18 ATEX 025 X**

Special conditions for safe use (X), follow:

- The cable glands shall be installed in such a way that the temperature at the mounting point will remain within the service temperature ranges accordingly to the marking.
- The degree of protection IP 66/68 according to the EN 60529 standard will be guaranteed for the cable glands if the holes into which cable glands are mounted are suitably sealed. To this scope the correct positioning of the gaskets (for cylindrical threads) or the application of sealant on the threads (for tapered threads), shall be done as indicated in the manufacturer instruction.

[18] **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements has been assured by compliance to the following standards:

- EN 60079-0: 2012 Explosive atmospheres – Part 0: Equipment - General requirements;
 EN 60079-0/A11: 2013 Explosive atmospheres – Part 0: Equipment - General requirements;
 EN 60079-1: 2014 Explosive atmospheres – Part 1: Equipment protection by flameproof enclosure “d”;
 EN 60079-7: 2015 Explosive atmospheres – Part 7: Equipment protection by increased safety “e”;
 EN 60079-31: 2014 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure “t”.

[19] **Descriptive documents (prot. EX- B8011436).**

- Technical note SHA4-TN-CF (9 pg.)	rev.00	dated	2018.04.24
- Safety, Maintenance and Mounting Instructions SHA4-MI-CF (17 pg.)	rev.0	dated	2018.04.24
- EU Declaration of Conformity FACSIMILE (1 pg.)	rev.00	dated	2018.05.26
- Drawing SHA3-IEC.KBC(M) (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.KBC(NPT) (1 sheet)	rev.00	dated	2017.02.24
- Drawing SHA3-IEC.KBCU(M) (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.KBCU(NPT) (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.KBCO(M) (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.KBCO(NPT) (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.170 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.171 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.172 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.173 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.174 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.175 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.176 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.177 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.178 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.179 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.180 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.181 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.183 (2 sheets)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.184 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.185 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.186 (1 sheet)	rev.00	dated	2018.04.24
- Drawing SHA3-IEC.187 (1 sheet)	rev.00	dated	2018.04.24
- Manufacturing and Materials SHA3-IEC.182 (26 pg.)	rev.00	dated	2018.04.24

One copy of all documents is kept in CESI files.

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Schema di certificazione

CESI-ATEX

CERTIFICATO



[1] CERTIFICATO DI ESAME UE DEL TIPO

[2] **Apparecchiature o Sistemi di Protezione destinati ad essere utilizzati
in atmosfere potenzialmente esplosive
Direttiva 2014/34/UE**

[3] Numero del Certificato di Esame UE del tipo:

CESI 18 ATEX 025 X

[4] Prodotto: **Pressacavi serie 453, 453U e 453O**

[5] Costruttore: **Shomal Engineering & Manufacturing Co. (SEMC)**

[6] Indirizzo: **C2 St. Salmanshahr Industrial Park
Mazandaran
(Iran)**

[7] Questo prodotto e le sue eventuali varianti accettate sono descritti nell'allegato al presente certificato e nei documenti descrittivi pure riportati in esso.

[8] Il CESI, organismo notificato n. 0722 in conformità all' articolo 17 della Direttiva 2014/34/UE del Parlamento Europeo e del Consiglio del 26 Febbraio 2014, certifica che questo prodotto è conforme ai requisiti essenziali di sicurezza e salute per il progetto e la costruzione di prodotti destinati ad essere utilizzati in atmosfere potenzialmente esplosive, definiti nell'Allegato II della Direttiva.

Le verifiche ed i risultati di prova sono registrati nel rapporto a carattere riservato n. EX- B8011432.

[9] La conformità ai Requisiti Essenziali di Sicurezza e Salute è assicurata dalla conformità alle:

EN 60079-0: 2012 EN 60079-1: 2014 EN 60079-7: 2015 EN 60079-31: 2014

ad eccezione di quanto indicato all'art. 18 dell'allegato al presente attestato.

[10] Il simbolo "X" posto dopo il numero del certificato indica che il prodotto è soggetto a condizioni speciali per un utilizzo sicuro, specificate nell'allegato al presente certificato.

[11] Questo CERTIFICATO DI ESAME UE DEL TIPO è relativo soltanto al progetto, all'esame ed alle prove del prodotto specificato in accordo con la Direttiva 2014/34/UE. Ulteriori requisiti di questa Direttiva si applicano al processo di produzione e fornitura del prodotto. Questi requisiti non sono oggetto del presente certificato.

[12] Il prodotto deve riportare almeno i seguenti contrassegni:

I M2	Ex db I Mb ed Ex eb I Mb	(Solo tipo 453 Std.)
II 2 GD	Ex db IIC Gb ed Ex eb IIC Gb ed Ex tb IIIC Db IP66/68	(Per tutti i tipi)

Questo certificato, allegato incluso, può essere riprodotto solo integralmente e senza alcuna variazione.

Data di emissione 17/06/2018

Elaborato
Alessandro Fedato

Pagina 1/5

Verificato
Mirko Balaz

Approvato
Roberto Piccin

CESI S.p.A.
Testing & Certification Division
Business Area Certification
Il Responsabile
(Roberto Piccin)



PRD N. 018B
Membro degli Accordi di Mutuo
Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

[13]

Allegato

[14] **CERTIFICATO DI ESAME UE DEL TIPO n. CESI 18 ATEX 025 X**

[15] **Descrizione dell'apparecchiatura**

I pressacavi tipo **453****, **453U**** e **453O**** hanno marchio di fabbrica "**SEMC**".

La serie di pressacavi **453..** (STANDARD), **453U** (UNIVERSALI) e **453O..** (OFFSHORE) sono impiegate per l'inserimento di cavi circolari all'interno di custodie Ex db aventi entrate filettate e custodie Ex eb oppure Ex tb aventi entrate sia filettate che lisce. Il montaggio dei pressacavi alle custodie è ottenuto mediante la parte filettata maschio del corpo. Un anello a diaframma elastomerico interno è utilizzato per realizzare la sigillatura tra il cavo ed il corpo del pressacavo. Per prevenire che le forze di trazione o di torsione sul cavo vengano trasmesse alle connessioni dei conduttori, il pressacavo trattiene l'armatura o la treccia del cavo, mediante specifico dispositivo di bloccaggio.

Il grado di protezione IP66/68 (50 m per 30 min.) è mantenuto quando i pressacavi sono installati in accordo con le istruzioni del costruttore.

I pressacavi tipo 453.. sono progettati per cavi armati in filo di acciaio adatti per i Gruppi I, IIC, IIIC mentre i tipi 453U.. e 453O.. sono progettati per cavi armati in filo di acciaio, schermati e sotto treccia, adatti per i Gruppi IIC e IIIC.

La serie di pressacavi **453..**, **453U** e **453O..** è costituita da un corpo maschio inferiore, un corpo superiore, tenuta a diaframma e inserto inferiore, un cono di messa a terra, riduzione universale per il tipo **453U..** oppure il cono per lo schermo per il tipo **453O..** usati per cavi schermati e sotto treccia solo, l'anello per la treccia, O-Ring di tenuta e un cappuccio. Il diaframma elastomerico di tenuta interno realizza la pressione sulla guaina del cavo.

Bloccaggio del cavo armato: quando il corpo superiore è avvitato sul corpo inferiore, l'armatura del cavo è bloccata tra il cono di messa a terra e l'anello per la treccia.

Bloccaggio del cavo sotto treccia (solo tipi **453U..** e **453O..**): quando il corpo superiore è avvitato sul corpo inferiore, la treccia del cavo è bloccata tra il cono di messa a terra, sul quale è posizionata la riduzione universale (solo per tipo **453U..**) oppure il cono per lo schermo (solo per tipo **453O..**).

L'inserto inferiore permette alla tenuta a diaframma di espandersi elasticamente in funzione del diametro del cavo inserito.

I tipi delle filettature standard dei pressacavi della serie **453..**, **453U** e **453O..** sono cilindriche ISO Metriche 965/1 ed ISO 965/3 da M16x1.5 fino a M100x1.5 e coniche tipo NPT ANSI/ASME B1.20.1 da 3/8" fino a 4".

I pressacavi tipo 453.. con filettatura di grandezza M16x1.5 o 3/8"NPT e i pressacavi tipi 453U.. e 453O.. non sono ammessi per applicazioni di Gruppo I.

Altre filettature cilindriche disponibili in alternativa sono GAS ISO 228/1, NPSM ANSI/ASME B1.20.1 e tipo PG DIN 40430 dalla grandezza PG11 fino a PG42. Le filettature tipo PG DIN 40430 possono essere usate solo per il modo di protezione "Ex eb".

Per garantire il grado di protezione IP 66/68 pressacavi serie **453..**, **453U** e **453O..** con filettatura cilindrica, usano una rondella piana, posizionata tra il corpo filettato maschio e la parete della custodia, mentre per tutte le altre filettature, il grado di protezione IP 66/68 è ottenuto con del sigillante posizionato su almeno due filetti completi dell'accoppiamento filettato.

I pressacavi sono generalmente costruiti in Ottone (CuZn39Pb3 EN 12164). I seguenti materiali alternativi possono essere forniti su richiesta:

- Ottone nichelato tipo CuZn39Pb3 EN 12164.
- Acciaio inossidabile tipo AISI316; AISI304; AISI303.
- Acciaio al carbonio galvanizzato FE36; FE37 UNI 10233/4.

I pressacavi possono essere anche utilizzati per circuiti a sicurezza intrinseca Ex i e devono avere una parte dipinta in blu chiaro.

[13]

Allegato

[14] CERTIFICATO DI ESAME UE DEL TIPO n. CESI 18 ATEX 025 X

Campi di temperature ambiente:

Tutti i modelli sono ammessi per:

Modelli in Acciaio al carbonio galvanizzato:

- 40 ÷ + 80 °C;

limitati fino a -20°C .

Identificazione dei pressacavi serie 453.., 453U e 453O..:

[illegible]

Codice che identifica la serie ed il tipo

- 453: per cavi armati in filo di acciaio

- 453U: per cavi armati in filo di acciaio, schermati o sotto treccia

- 4530: per cavi schermati o sotto treccia

Grandezza (vedi Tabella 1)

Tipo di filetto:

- N: NPT ANSI/ASME B1.20.1

- S: NPSM ANSI/ASME B1.20.1

- **P:** PG DIN 40430 (approvato solo per il modo di protezione Ex eb)

- M: ISO 261 ¹ passo 1.5

- C: GAS ISO 228-1

Grandezza filettatura (vedi Tabella 1)

Materiale di costruzione:

- **B:** ottone

- **BN:** ottone nichelato

- **X:** acciaio inossidabile

- **Z:** acciaio al carbonio galvanizzato

Materiale tenuto:

- S: gomma Siliconica

Materiale rondella piana:

- in bianco: gomma Siliconica

- WF: rondella piana in fibra

[13]

Allegato

[14] CERTIFICATO DI ESAME UE DEL TIPO n. CESI 18 ATEX 025 X

Tipi e grandezze delle filettature dei pressacavi sono listati nella seguente Tabella 1.

Tabella 1:

Pressacavo		Grandezza filettatura		Campi diametri cavi (mm)	
Tipo	Grandezza	NPT	ISO passo 1.5	Guaina interna	Guaina armatura
453..	01..	3/8"	M 16	6-11	9-16
453..	1S..	1/2"	M 20	6-11	9-16
453..	1..	1/2"	M 20	8.5-14.5	12-20
453..	2S..	3/4"	M 25	8.5-14.5	12-20
453..	2..	3/4"	M 25	12-20	16-26
453..	2L..	3/4"	M 25	12-20	16-26
453..	3S..	1"	M 32	12-20	16-26
453..	3..	1"	M 32	17-26	20-33
453..	4S..	1 1/4"	M 40	17-26	20-33
453..	4..	1 1/4"	M 40	23-32	29-41
453..	5S..	1 1/2"	M 50	23-33	29-41
453..	5..	1 1/2"	M 50	29-41	36-52
453..	6S..	2"	M 63	29-41	36-52
453..	6..	2"	M 63	44-56	50-65
453..	7S..	2 1/2"	M 75	44-56	50-65
453..	7..	2 1/2"	M 75	54.5-68	61-78
453..	80S..	3"	M 80	54.5-68	61-78
453..	80..	3"	M 80	67-73	75-89
453..	8..	3 1/2"	M 90	67-77	75-89
453..	9..	4"	M 100	75-91	88-104

[16] Rapporto n° EX- B8011432.

Prove individuali

Nessuna.

[17] Condizioni speciali per un utilizzo sicuro (X)

- L'accoppiamento dei pressacavi con le custodie deve essere realizzato come indicato dal costruttore nei documenti allegati a questo certificato, in modo da rispettare il modo di protezione dell'apparecchiature su cui i pressacavi sono montati.
- I pressacavi devono essere montati alle apparecchiature elettriche in modo tale da prevenirne la rotazione o lo smontaggio accidentale.
- I pressacavi tipo 453.. devono essere protetti da fluidi idraulici, olii e grassi quando installati per Gruppo I (miniere).
- Le grandezze M16x1.5 e 3/8"NPT dei pressacavi tipo 453.. ed i tipi 453U.. e 453O.. non sono ammessi per applicazioni di Gruppo I.
- I pressacavi tipo 453.. sono solo per cavi armati in filo di acciaio.
- I pressacavi tipo 453U.. sono per cavi armati in filo di acciaio, schermati o sotto treccia.
- I pressacavi tipo 453O.. sono solo per cavi schermati o sotto treccia.
- I pressacavi tipo 453U.. per uso con cavi schermati o sotto treccia e i pressacavi tipo 453O.. sono ammessi solo per installazioni fisse. I cavi devono essere bloccati efficacemente per prevenirne la trazione e la torsione.

Questo certificato, allegato incluso, può essere riprodotto solo integralmente e senza alcuna variazione.

[13]

Allegato

[14] **CERTIFICATO DI ESAME UE DEL TIPO n. CESI 18 ATEX 025 X**

Condizioni speciali per un utilizzo sicuro (X), continua:

- I pressacavi devono essere montati in modo tale che la temperatura al punto di installazione rimanga nei campi di temperature di esercizio in accordo alla marcatura.
- Il grado di protezione IP 66/68 in accordo alla norma EN 60529 sarà garantito per i pressacavi se i fori in cui sono montati saranno correttamente sigillati. A questo scopo, il corretto posizionamento delle guarnizioni (per le filettature cilindriche) o l'applicazione del sigillante sui filetti (per le filettature coniche) dovranno essere fatti come indicato nelle istruzioni del costruttore.

[18] **Requisiti Essenziali di Sicurezza e Salute**

I requisiti essenziali di salute e sicurezza sono assicurati dalla conformità alle seguenti norme:

- EN 60079-0: 2012 Atmosfere esplosive – Parte 0: Apparecchiature - Prescrizioni generali;
 EN 60079-0/A11: 2013 Atmosfere esplosive – Parte 0: Apparecchiature - Prescrizioni generali;
 EN 60079-1: 2014 Atmosfere esplosive – Parte 1: Apparecchi con modo di protezione mediante custodie a prova di esplosione “d”;
 EN 60079-7: 2015 Atmosfere esplosive – Parte 7: Apparecchi con modo di protezione a sicurezza aumentata “e”;
 EN 60079-31: 2014 Atmosfere esplosive – Parte 31: Apparecchi con modo di protezione mediante custodie “t” destinati ad essere utilizzati in presenza di polveri combustibili.

[19] **Documenti descrittivi (prot. EX- B8011436).**

- Nota Tecnica SHA4-TN-CF (9 pag.)	rev.00	del	24.04.2018
- Istruzioni di sicurezza, manutenzione e installazione SHA4-MI-CF (17 pag.)	rev.0	del	24.04.2018
- Dichiarazione di Conformità UE FACSIMILE (1 pag.)	rev.00	del	26.05.2018
- Disegno SHA3-IEC.453(M) (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.453(NPT) (1 foglio)	rev.00	del	24.02.2017
- Disegno SHA3-IEC.453U(M) (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.453U(NPT) (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.453O(M) (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.453O(NPT) (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.170 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.171 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.172 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.173 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.174 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.175 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.176 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.177 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.178 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.179 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.180 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.181 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.183 (2 fogli)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.184 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.185 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.186 (1 foglio)	rev.00	del	24.04.2018
- Disegno SHA3-IEC.187 (1 foglio)	rev.00	del	24.04.2018
- Manufacturing and Materials SHA3-IEC.182 (26 pag.)	rev.00	del	24.04.2018

Una copia dei documenti sopra citati è conservata presso l'archivio del CESI.



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx CES 18.0013X

Issue No: 0

Certificate history:

Issue No. 0 (2018-06-22)

Status: **Current**

Page 1 of 3

Date of Issue: **2018-06-22**

Applicant: **Shomal Engineering & Manufacturing Co. (SEMC)**
C2 St. Salmanshahr Industrial Park
Mazandaran
Iran

Equipment: **Cable glands, Series 453**, 453U** and 453O****

Optional accessory:

Type of Protection: **Flameproof enclosures 'd'; increased safety 'e'; Dust Ignition protection 't'**

Marking:

Ex db I Mb and Ex eb I Mb

and/or

Ex db IIC Gb and Ex eb IIC Gb

Ex tb IIIC Db

IP66/68

Approved for issue on behalf of the IECEx
Certification Body:

Mirko Balaz

Position:

Head of IECEx CB

Signature:

(for printed version)

Date:

22-6-2018

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy

CESI

CESI S.p.A.

Testing & Certification Division

Business Area Certification

Il Responsabile

(Roberto Piccin)



IECEx Certificate of Conformity

Certificate No: IECEx CES 18.0013X Issue No: 0
Date of Issue: 2018-06-22 Page 2 of 3
Manufacturer: **Shomal Engineering & Manufacturing Co. (SEMC)**
C2 St. Salmanshahr Industrial Park
Mazandaran
Iran

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[IT/CES/ExTR18.0018/00](#)

Quality Assessment Report:

[DE/TUR/QAR12.0001/04](#)



IECEx Certificate of Conformity

Certificate No: IECEx CES 18.0013X

Issue No: 0

Date of Issue: 2018-06-22

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Cable glands type 453**, 453U** and 453O** have trade mark "SEMC".

The Cable glands 453** (STANDARD), 453U** (UNIVERSAL) and 453O** (OFFSHORE) series are suitable for inserting circular cables into Ex db enclosures having threaded entries and Ex eb or Ex tb enclosures having either threaded or plane entries. Attachment of the glands to an enclosure is by means of the male threaded portion on the male body. An elastomeric inner diaphragm ring is used to realize sealing between the cable and the gland body. To prevent pulling or twisting forces being transmitted to the conductor connections, the cable glands retain the cable armour or the cable braid by specific clamping device.

The Cable glands 453 type are designed for steel wire armoured cables suitable for Groups I, IIC, IIIC while 453U** and 453O** types are designed for steel wire armoured shielded and braided cables suitable for Groups IIC and IIIC only.**

The cable glands characteristics are further described in the Annexe of this certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The coupling of the cable glands with the enclosures shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which cable glands are mounted.
- The cable glands shall be mounted at the electrical apparatus in such a way that accidental rotation and loosening will be prevented.
- The cable glands 453** type have to be protected from hydraulic fluids, oils and greases when applied for Group I (mines) applications.
- The cable glands type 453** M16x1.5 and 3/8"NPT sizes and 453U** and 453O** types are not admitted for Group I applications.
- The cable glands 453** type are for steel wire armoured cables only.
- The cable glands 453U** type are for steel wire armoured cables, shielded or braided cables.
- The cable glands 453O** type are for shielded or braided cables only.
- The cable glands 453U** for use with shielded or braided cables and cable glands 453O** are only suitable for fixed installations. The cables must be effectively clamped to prevent pulling and twisting.
- The cable glands shall be installed in such a way that the temperature at the mounting point will remain within the service temperature ranges accordingly to the marking.
- The degree of protection IP 66/68 according to the IEC 60529 standard will be guaranteed for the cable glands if the holes into which cable glands are mounted are suitably sealed. To this scope the correct positioning of the gaskets (for cylindrical threads) or the application of sealant on the threads (for tapered threads), shall be done as indicated in the manufacturer instruction.

Annex:

SHOMAL - IECEx CES 18.0013X ANNEX- 453_453U_453O c_glands.pdf



Prot: B8013667

Annex to certificate: IECEx CES 18.0013X Issue No.:0 of 2018-06-22
Applicant: Shomal Engineering & Manufacturing Co. (SEMC)
C2 St. Salmanshahr Industrial Park,
Mazandaran (Iran)
Apparatus: Cable Glands, series 453**, 453U**, 453O**

Description of the equipment:

The Cable glands type **453****, **453U**** and **453O**** have trade mark "**SEMC**".

The Cable glands **453**** (STANDARD), **453U**** (UNIVERSAL) and **453O**** (OFFSHORE) series are suitable for inserting circular cables into Ex db enclosures having threaded entries and Ex eb or Ex tb enclosures having either threaded or plane entries. Attachment of the glands to an enclosure is by means of the male threaded portion on the male body. An elastomeric inner diaphragm ring is used to realize sealing between the cable and the gland body. To prevent pulling or twisting forces being transmitted to the conductor connections, the cable glands retain the cable armour or the cable braid by specific clamping device. Ingress protection of IP66/68 (50 m for 30 min.) is maintained when the glands are installed in accordance with the manufacturer's instructions.

The Cable glands 453 type are designed for steel wire armoured cables suitable for Groups I, IIC, IIIC while 453U** and 453O** types are designed for steel wire armoured shielded and braided cables suitable for Groups IIC and IIIC only.**

The Cable glands **453****, **453O**** and **453U**** series are comprised of a male lower body, upper body, diaphragm seal and lower insert, grounding cone, universal reduction for type **453U**** or shielding cone for type **453O**** used for shielded and braided cables, braid ring, O-Ring seal and a cap. The elastomeric inner diaphragm seal realizes the pressure on the cable sheath.

Armoured cable clamping: when the upper body is screwed onto the lower body, the armour of the cable is clamped between the grounding cone and the braid ring.

Braided cable clamping (**453O**** and **453U**** types only): when the upper body is screwed onto the lower body, the braid of the cable is clamped between the grounding cone on which is placed the universal reduction (**453U**** types only) or the shielding cone (**453O**** types only) and the braid ring.

The lower insert allows the diaphragm seal to expand elastically according the inserted cable diameter.

Cable glands **453****, **453O**** and **453U**** series standard threads series are cylindrical ISO Metric 965/1 and ISO 965/3 from M16x1.5 up to M100x1.5 and tapered series NPT ANSI/ASME B1.20.1 from 3/8" up to 4".

Cable glands 453 type with M16x1.5 or 3/8"NPT thread sizes and Cable glands 453U** and 453O** types are not admitted for Group I applications.**

Alternative available cylindrical threads are GAS ISO 228/1, NPSM ANSI/ASME B1.20.1 and series PG DIN 40430 from PG11 up to PG42 size. Thread series PG DIN 40430 can be used for "Ex eb" execution only.

To guarantee the IP 66/68 degree of protection the Cable glands **453****, **453U**** and **453O**** series with cylindrical threads use a flat washer placed in-between the male threaded gland body and the enclosure wall, while for all other threads the IP 66/68 degree of protection is achieved with sealant put at least on two complete threads engaged of the threaded coupling.

The Cable glands are generally made in Brass (CuZn39Pb3 EN 12164). The following alternative materials can be supplied on demand:

- Nickel-plated Brass type CuZn39Pb3 EN 12164.
- Stainless steel type AISI316; AISI304; AISI303.
- Galvanized carbon steel type FE36; FE37 UNI 10233/4.

The cable glands should be also used for intrinsically safe circuits Ex i and should have a part painted in light blue.

Prot: B8013667

Annex to certificate: IECEx CES 18.0013X Issue No.:0 of 2018-06-22
Applicant: Shomal Engineering & Manufacturing Co. (SEMC)
C2 St. Salmanshahr Industrial Park,
Mazandaran (Iran)
Apparatus: Cable Glands, series 453**, 453U**, 453O**

Identification of Cable glands **453****, **453U**** and **453O**** series:

[illegible]

Code that identifies the series and type

- **453:** for steel wire armoured cables
- **453U:** for steel wire armoured, shielded or braided cables
- **453O:** for shielded or braided cables

Size (see Table 1)

Type of thread:

- **N:** NPT ANSI/ASME B1.20.1
- **S:** NPSM ANSI/ASME B1.20.1
- **P:** PG DIN 40430 (*assessed for Ex eb protection mode only*)
- **M:** ISO 261 pitch 1.5
- **C:** GAS ISO 228-1

Thread size (see Table 1)

Manufacturing material:

- **B:** brass
- **BN:** nickel-plated brass
- **X:** stainless steel
- **Z:** galvanized carbon steel

Seals material:

- **S:** Silicon rubber

Flat washer material:

- **blank**: Silicon rubber
- **WF**: fiber flat washer

Prot: B8013667

Annex to certificate: IECEx CES 18.0013X Issue No.:0 of 2018-06-22
Applicant: Shomal Engineering & Manufacturing Co. (SEMC)
 C2 St. Salmanshahr Industrial Park,
 Mazandaran (Iran)
Apparatus: Cable Glands, series 453**, 453U**, 453O**

General product information (follows)

Types and thread sizes of cable glands are listed on the followings Table 1.

Table 1:

Cable gland		Thread size		Cable Dia. ranges (mm)	
Type	Size	NPT	ISO pitch 1.5	Inner sheath	Armour sheath
453*	01**	3/8"	M 16	6-11	9-16
453*	1S**	1/2"	M 20	6-11	9-16
453*	1**	1/2"	M 20	8.5-14.5	12-20
453*	2S**	3/4"	M 25	8.5-14.5	12-20
453*	2**	3/4"	M 25	12-20	16-26
453*	2L**	3/4"	M 25	12-20	16-26
453*	3S**	1"	M 32	12-20	16-26
453*	3**	1"	M 32	17-26	20-33
453*	4S**	1 1/4"	M 40	17-26	20-33
453*	4**	1 1/4"	M 40	23-32	29-41
453*	5S**	1 1/2"	M 50	23-33	29-41
453*	5**	1 1/2"	M 50	29-41	36-52
453*	6S**	2"	M 63	29-41	36-52
453*	6**	2"	M 63	44-56	50-65
453*	7S**	2 1/2"	M 75	44-56	50-65
453*	7**	2 1/2"	M 75	54.5-68	61-78
453*	80S**	3"	M 80	54.5-68	61-78
453*	80**	3"	M 80	67-73	75-89
453*	8**	3 1/2"	M 90	67-77	75-89
453*	9**	4"	M 100	75-91	88-104

Constructional characteristics

Ambient temperature ranges:

All the models are admitted for:

- 40 ÷ + 80 °C;

Models made of Galvanized carbon steel:

limited up to - 20 °C.