

# **FITOK**

**Valves and Fittings**



[www.fitokgroup.com](http://www.fitokgroup.com)

- FITOK founded in 1998
- The world's leading supplier of Valves and Fittings
- 900+ employees globally
- Annual output capacity of 4 hundred thousand valves and 4 million fittings
- Each FITOK valve is tested before delivery
- FITOK Germany and China Factories are ISO9001:2008 certified
- FITOK products have been attained the following certificates: ASTM F1387, TA-Luft, TPED , ABS, CRN, GOST and RTN , DVGW
- DOT, E-Mark, PED and other certificates are being applied

# FITOK Overview

- Manufacturing centers in Germany and China
- Inventory and sales service centers in Germany, the USA, China and the UAE

## **FITOK Headquarter and Manufacturing Center**

– In Offenbach, Germany



## **FITOK Manufacturing Center**

– In Shenzhen, China



## **FITOK Global Marketing**

– In Texas, USA



## **FITOK M.E.**

– In Dubai, UAE



# FITOK Overview

- There is a huge stock of raw materials and product inventory, assuring quick delivery and saving you warehousing costs.



600 tons raw materials



500k+ pieces forging blanks



4,000k+ pieces valves and fittings



200k+ meters tubing

# FITOK Overview

**FITOK**  
Valves and Fittings

## Vast Applications



**Oil and Gas**



**Chemical and Petrochemical**



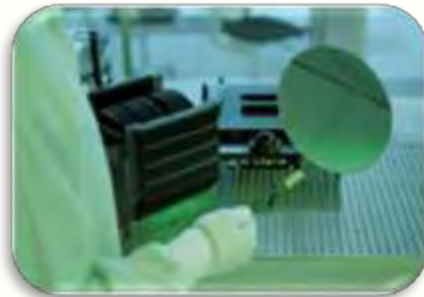
**Alternative Fuel**



**Power Plant**



**Instrumentation**



**Gas and Semiconductor**



**Pulp and Paper**



**Shipbuilding**

# Partners

**FITOK**  
Valves and Fittings

 **PETROBRAS**



 **CEPSA**

 **CNPC**

 **中国石化**  
**SINOPEC**

 **Aker Solutions**

**PROPAK**   
Engineers, Fabricators & Contributors to the Energy Processing Industry



**BASF**

 **Clariant**

**WACKER**

**DOW CORNING**



 **EVONIK**  
INDUSTRIES

**ARKEMA**  
INDUSTRIAL CHEMISTRY

**kemira**



 **神华集团有限责任公司**  
SHENHUA GROUP CORPORATION LIMITED

  
**THE LINDE GROUP**

**MESSER** 

**AIR PRODUCTS** 

 **AIR LIQUIDE**

 **GENERON**  
INNOVATIVE GAS SYSTEMS

 **PRAXAIR**

# Partners

**FITOK**  
Valves and Fittings

ConocoPhillips

中广核  CGN

OCEANEERING®

ALSTOM

 GE

  
EMERSON  
Process Management

SAMSUNG

SIEMENS

WIKAI®


ABB

KROHNE

tyco  
Valves & Controls

Bloomenergy

AMETEK®

YOKOGAWA 

MAGRAL®  
HIDRÁULICA E PNEUMÁTICA

CHART

Atlas Copco

 APP

 APRIL SSYMB

PARSONS  
BRINCKERHOFF

FLOWSERVE

 BAOSTEEL

SG

## General Instrumentation Valves and Fittings

- Product sizes: 1/16" ~ 2" (2mm ~ 50mm)
- Working pressures: up to 10,000 psi (690bar)
- Temperature ranges: -65°F ~ 1,200°F (-54°C ~ 649°C)
- Optional materials include: Stainless Steel, Exotic Alloys, Nylon and PTFE





## High Pressure Valves and Fittings

- Product sizes: 1/8" ~ 1"
- Working pressures: 10,000 ~ 60,000 psi (690 bar ~ 4,137 bar)
- Temperature ranges: -422 °F ~ 1,200°F (-252 °C ~ 649°C)
- Optional material: High Tensile 316 Stainless Steel



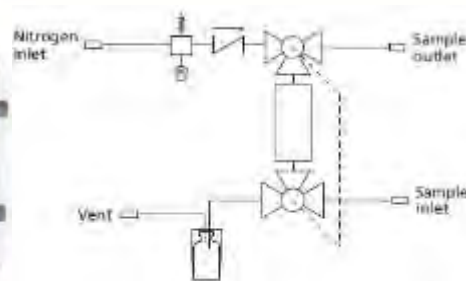
## Specialty Gas Applications

- Product sizes: 1/8" ~ 1"
- Working pressures: vacuum ~ 6,000 psi (414bar)
- Temperature ranges: -99°F ~ 1,000°F ( -73°C ~ 538°C)
- Optional materials include: 316 、 316L 、 316L VAR、 316L VIM/VAR and Exotic Alloys

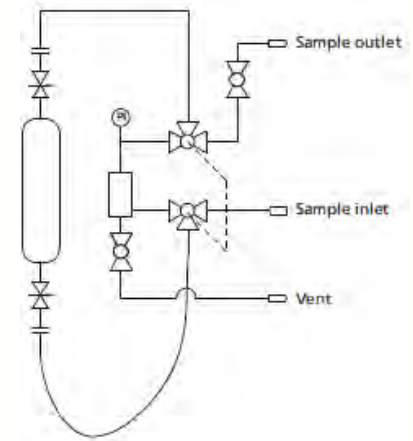


## Closed-loop Sampling Systems

- Closed-loop sampling, without direct contact, safer for the operator and the environment.
- Can be customized according to request and working condition.



**Bottle Configuration**



**Cylinder Configuration**

## Tailor-made 316 SS Material

316 SS Material Comparison between FITOK and ASTM A479:

Chemical Composition	Nickel	Chrome	Carbon
<b>ASTM A479</b>	10-14%	16-18%	≤0.08%
<b>FITOK</b>	<b>12-14%</b>	<b>17-18%</b>	<b>0.04-0.055%</b>
<b>Effects</b>	Ni ↑ resisting hydrogen brittleness↑	Cr ↑ Corrosion resistance ↑	C ↓ Corrosion resistance ↑

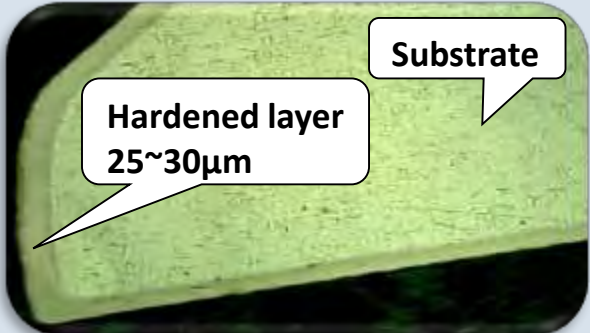
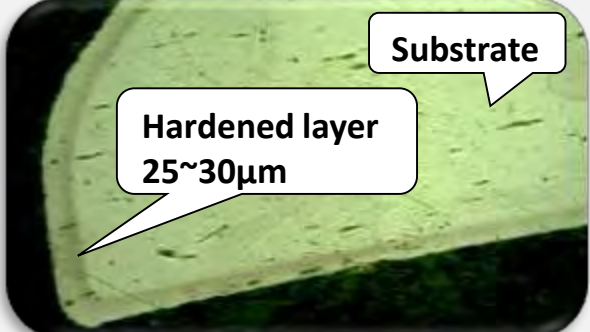
Strict control of raw materials from the beginning ensures the consistency and reliability of FITOK products.

## Safe and Reliable Tube Fittings

By choosing tailor-made material, optimized design, high accuracy machining and high level hardening process, FITOK tube fittings deliver supreme level performance in the industry.

- FITOK rear ferrule is treated with low temperature carbonization for the whole ferrule. Hardness and corrosion resistance are improved significantly, better sealing performance with improved resistance against harsh environment.

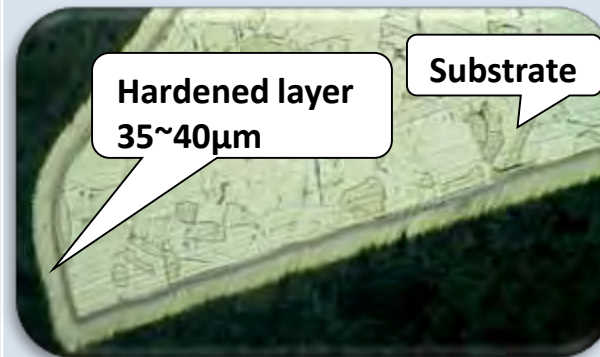
Rear Ferrule Hardening Process Comparison among Major Brands:

<p><b>FITOK</b></p> <p>Low temperature carbonization for the whole ferrule</p>	 <p>Hardened layer 25~30μm</p> <p>Substrate</p>	<p><b>Hardness:</b> HV<sub>0.2</sub> 800~1,000 <b>Salt spray test:</b> 600h no rust <b>Magnetism:</b> No</p>
<p><b>Brand</b></p> <p>Low temperature carbonization for the whole ferrule</p>	 <p>Hardened layer 25~30μm</p> <p>Substrate</p>	<p><b>Hardness:</b> HV<sub>0.2</sub> 800~1,000 <b>Salt spray test:</b> 222h, pitting appeared; 600h, pitting didn't deteriorate <b>Magnetism:</b> No</p>

# Product Superiority

## Brand

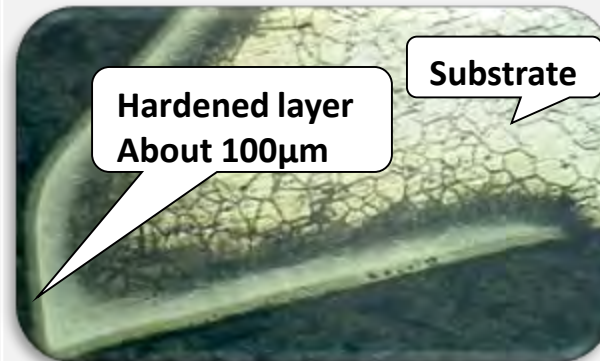
Supercase



**Hardness:** HV<sub>0.2</sub> 700~1,000  
**Salt spray test:** 400h, pitting appeared; 600h, pitting didn't deteriorate  
**Magnetism:** No

## Brand

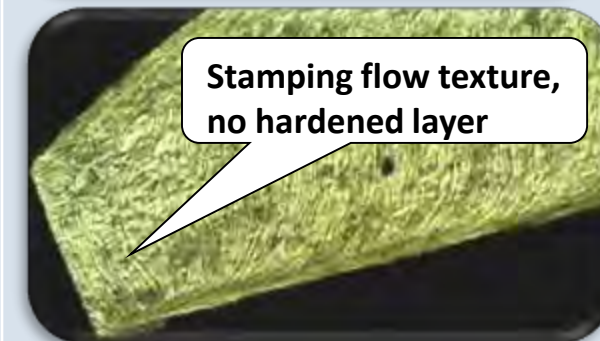
High temperature carbonization for edge area



**Hardness:** HV<sub>0.2</sub> 500~600  
**Salt spray test:** 6h, rust  
**Magnetism:** No

## Brand

Stamping



**Hardness:** HV<sub>0.2</sub> 285  
**Salt spray test:** 600h no rust  
**Magnetism:** Yes

## Safe and Reliable Tube Fittings

- Smaller installation torque avoids threads and sealing surface damage caused by excessive torque, and reduce safety risks caused by incorrect installation.

Installation Torque Comparison between S-brand and FITOK:

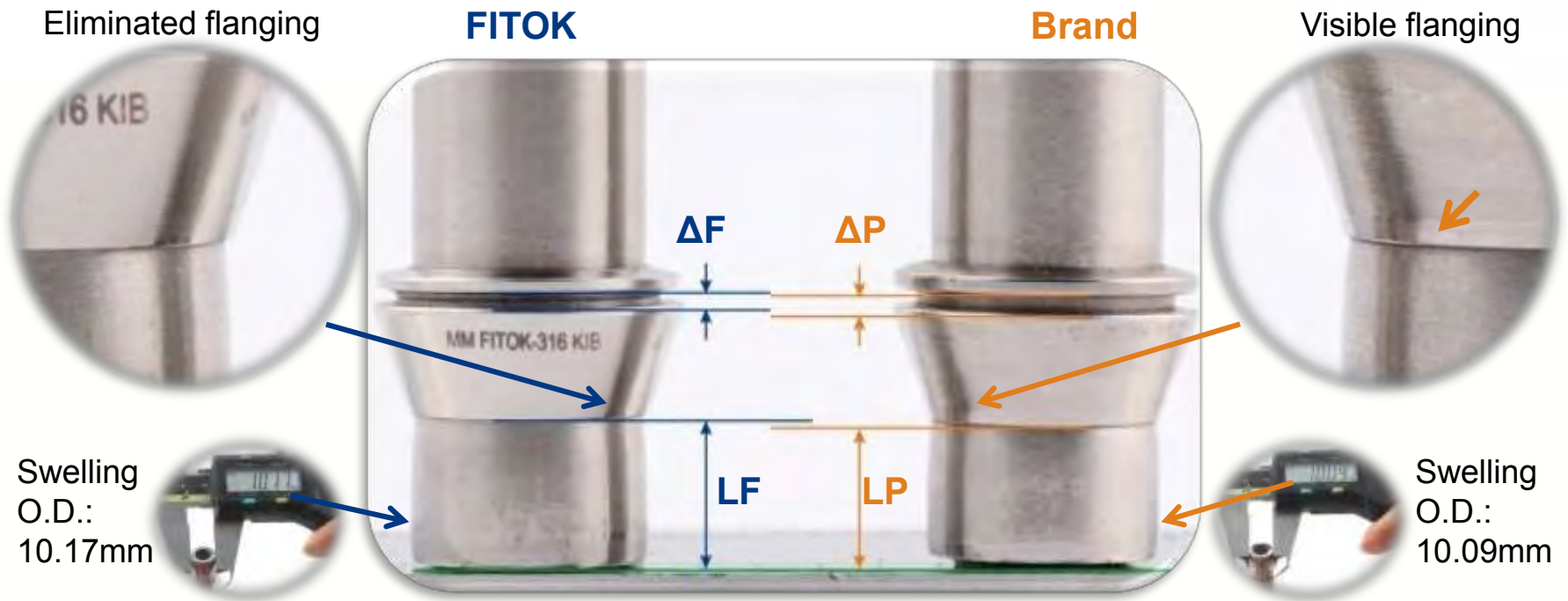
Ferrule Size	1/4"	3/8"	1/2"	3/4"
S-Brand Torque (N.M)	10~16	22~28	32~40	110~140
FITOK Torque (N.M)	11~18	22~28	32~42	100~120

FITOK installation torque is at the same level as S-brand, which is smaller than those of other brands.

# Product Superiority

## Safe and Reliable Tube Fittings

- Comparison of Installation Effect between FITOK and P-Brand :



A.  $\Delta F < \Delta P$  and  $LF > LP$ , tighter grip by FITOK, resulting more force put into the ferrule tightening.

B. Eliminated flanging by FITOK, provides better sealing if there any tube surface roughness.

C. Wider swelling of FITOK tube-end, resulting excellent sealing performance.





## ► Helium Leak Detector

By: INFICON

Mainly used for detecting leak tightness performance of products with low molecular gas. High stability and sensitivity.

Smallest detectable leak rate is less than  $5 \times 10^{-12}$  mbar L/S

## ▶ Direct-reading Spectrometer

By: Spectro

Utilized for quantitative analysis of chemical compositions of all types of materials. Confirms whether materials are qualified and provides significantly more details compared to our Portable Spectrometer.

## Portable Spectrometer ◀

By: Innov-X

Suitable for rapid on-site metal material identification, making the supervision of on-site material designation more effective.





## ► Universal Pull-test Machine

Measures physical performance of raw and processed materials, such as elongation test, squeezing test, flaring test , and bending test, etc.

Measurement range: 1.2~300 KN

## X-ray Apparatus ◀

Applies non-destructive X-ray testing for all kinds of materials, welding parts, and nuclear grade products.

Maximum penetration of A3 steel plate: 39mm



# Thank you!

[www.fitokgroup.com](http://www.fitokgroup.com)

# Appendix



**Germany Factory**  
**ISO9001-2008 Certificate by TUV**

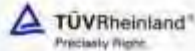


**China Factory**  
**ISO9001-2008 Certificate by DNV**



TA – Luft Certificate by TUV

ASTM F1387 Inspection Certificate by Bureau Veritas



**Test report**  
for interchanging of parts of tube joint system  
**Prüfbericht**  
über Austausch von Teilen der Rohrverbindungssystem

**Report No.:** 114300943\_301  
**Bericht Nr.:**  
**Client:** FITOK INCORPORATED  
**Auftraggeber:**  
**Inspection object:** Interchange testing of parts for tube joint system  
**Gegenstand der Prüfung:** Austauschbarkeitprüfung von Rohrverbindungssystem  
**Inspection Requirement:** The leakage rate must be less than or equal to 1X10<sup>-6</sup> mbar at the test pressure. No leakage of assembled specimens from both manufacturers is allowed when reaching the bursting pressure, after then the bursting pressure must be recorded.  
**Prüfanforderungen:** Die Leckrate muss kleiner oder gleich an 1X10<sup>-6</sup> mbar bei Prüfdruck sein. Keine Leckage der zusammengebauten Prüfung von beiden Hersteller ist erlaubt, wenn der Bruchdruck ist erreicht. Und dann diese Bruchdruck muss protokolliert werden.  
**Marking:** Manufacturer's marking is engraved on the test specimens respectively. F for manufacturer FITOK and S for manufacturer Swagelok.  
**Kennzeichnung:** Die Kennzeichnung von Hersteller sind auf Prüfung jeweils graviert. F für Hersteller FITOK und S für Hersteller Swagelok.

**1. Inspection commission / Prüfaufgabe**  
Verifying tightness-equivalency of tube joint systems manufactured by FITOK and Swagelok.  
Anzeige auf Gleichwertigkeit der Dichtheit von Rohrverbindungssystem hergestellt von FITOK und Swagelok.

**2. Remark / Hinweis**  
The parts of testing specimens bear same appearance but made from different manufacturers.  
Die Teile von Prüfung sind optisch identisch, aber hergestellt von unterschiedlichen Hersteller.

**1. Details of specimen / Prüfungsbeschreibung**

	FITOK	Swagelok	Tube
Front	Cap body / Blindflange	Cap body / Blindflange	Bx1
	Front ferrule / Vordere Klemmung	Front ferrule / Vordere Klemmung	Material grade: Werkstoff
	Rear ferrule / Hintere Klemmung	Rear ferrule / Hintere Klemmung	TP316L
	Nut / Mutter	Nut / Mutter	
	Union body / Verbindungskörper	Union body / Verbindungskörper	
	Material grade / Werkstoff: 316	Material grade / Werkstoff: 316	



**6. Comment to testing commission / Stellungnahme zum Prüfauftrag**  
The testing results showed that no impact on perfect tightness could be found by exchanging single part of test specimens.  
Die durchgeführten Versuche haben ergeben, daß durch Vertauschen von Einzelteilen der beiden Firmen keine Beeinträchtigung bezüglich einer einwandfreien Dichtheit festgewahrt werden konnte.  
All versions of test combination showed no visual determining leakage or other damage by applying pressure with water or gas.  
Alle Ausführungen der Prüfkombination zeigten weder unter Beanspruchung mit Wasser noch mit Gas visuell feststellbare Leckagen oder sonstige Mängel.  
Under the static pressure or steady application of pressure with gas or water, no defect impacting tightness function was found when single part of tube joint system have been identify, not identify as well, exchanged.  
Ein gewisses wie auch ungewisses Vertauschen von Einzelteilen hat, unter statischer wie auch gleichzeitiger Druckbeanspruchung mit Gas und Wasser keine die Dichtfunktion beeinträchtigende Mängel erkennen lassen.  
It comes to conclusion that the device safely will not be impacted by single un-tightness through exchanging parts manufacturer single part, or steady or fluctuating static or for gas, instead of this, frequent test cycle is not given, and the production fluctuation is not determined as per contract.  
Es ist davon auszugehen, daß durch Vertauschen der oben genannten Einzelteilen keine Beeinträchtigung der Anlagensicherheit durch auftretende Undichtigkeiten gegeben ist, wobei eine Aussage über längeren Zeitraum (stufige Lastwechselzahl) damit nicht abgegeben, sowie eine Erfassung mit Produktionsabweichungen aufgetragen ist nicht ermittelt wurde.

Mar. 10. 2010



(Signature)



TUV Rheinland  
Industrial Service GmbH

(Signature)



Annex I / Anlage I

Sample:



Certificate Number: 10-SQ650614-PDA

Certificate Number: 10-SQ650614-PDA



**Confirmation of Product Type Approval 08/DEC/2010**

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This is to certify that, pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 10/NOV/2015. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And, a Product Design Assessment (PDA) valid until 09/NOV/2015 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that, whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

**FITOK INCORPORATED**  
Model Name(s): Bite Type Compression Couplings

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**Intended Service:** Tubing/piping systems for Steel Vessels, MODUS, FPSO's and other maritime industries

**Description:** Stainless steel tees, straight, 45&90 degree elbows configuration tube fittings, including unions, ports, male&female connections, reducers, caps&plugs, tube adapters, crosses.

**Ratings:** See Attachment

**Service Restrictions:** Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

**Comments:** Not Applicable

**Notes / Documentation:**

**Term of Validity:** This Product Design Assessment (PDA) Certificate 10-SQ650614-PDA, dated 10/Nov/2010 remains valid until 09/Nov/2015 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be

12/08/2010 6:45:07 PM

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to an agreement between the manufacturer and intended client.

**ABS Rules:** 1-1-Appendix 3, 1-1-4/7.7, 4-8-2/5.9, 4-8-2/5.17, 4-8-2/Table 0&10&11 of SVR 2010

**National Standards:**

**International Standards:**

**Government Authority:**

**EUMED:**

**Others:**

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	10-SQ650614-PDA	10/NOV/2010	09/NOV/2015

*Robert Vienneau*

ABS Programs  
ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rules, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product, Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

12/08/2010 6:45:07 PM

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146 Flac, Centre West  
200 Gray Street West  
Toronto, Ontario  
Canada M5H 2B1  
Tel: 416 334 2200  
Fax: 416 331 4108  
Sales Fax: 416 334 2275  
www.tssa.org

May 22, 2014

AMY TAO  
FITOK INCORPORATED  
BLOCK C ZONE E AND BLOCK B ZONE D YIWOTAI INDUSTRIAL AREA DALANG SOUTH ROAD  
LANGKOU COMMUNITY DALANG STREET RADIAN DISTRICT  
SHENZHEN, P.R. CHINA  
CN

Service Request Type: BPV/Fitting Registration  
Service Request No.: 1372006  
Your Reference No.:  
Registered to: FITOK INCORPORATED

Dear AMY TAO,

Technical Standards and Safety Authority (TSSA) is pleased to inform you that your submission has been reviewed and registered as follows:

CRN No. DC16897-E  
Main Design No. BALL VALVES, GAUGE VALVES - (SEE SCOPE) VALVES FOR CRN  
CONSTRUCTION (2 PARTS)  
Expiry Date: 22-May-2016

Please be advised that a valid quality control system must be maintained for the fitting registration to remain valid until the expiry date.

The stamped copy of the approved registration and the invoice are mailed separately. Should you have any questions or require further assistance, please contact a Customer Service Advisor at 1 877 582 TDSA (8773) or e-mail [customerservice@tssa.org](mailto:customerservice@tssa.org). We will be happy to assist you. When contacting TSSA regarding this file please refer to the Service Request number provided above.

Yours truly,



Stephen Lam, P-Eng  
Senior Engineer  
Tel: 416 734-3479  
Fax: 416 331 4183  
Email: [slam@tssa.org](mailto:slam@tssa.org)

Protecting Public Safety First



TECHNICAL STANDARDS  
SAFETY AUTHORITY  
146 Flac, Centre West  
200 Gray Street West  
Toronto, Ontario  
Canada M5H 2B1



**STATUTORY DECLARATION**  
Registration of Fittings

I, Wenqin Fan, Quality Manager (Name as it appears e.g. President, Vice President, Chief Engineer, etc.)  
of FITOK INCORPORATED (Name of Manufacturer)  
Located at Block C, Zone E and Block B, Zone D, Yiwotai Industrial Area, Dalang South Road, Langkou Community, Dalang Street, Dalian District, Shenzhen, P.R. China, 36-0155-26022500, 36-0155-31632108 (Plant Address) (Telephone No.) (Fax No.)

all existing design marked fittings listed hereon, which are subject to the Technical Standards and Safety Act Orders and Pressure Vessels Regulation, comply with all of the requirements of

(I have registered with American Standards)  
which specifies the dimensions, materials of construction, procedures for pressure ratings, identification marking the fittings and service.

If not so covered by the provisions of a recognized North American standard and are service manufactured to comply with ASME B31.3/31.2 as supported by the attached data which specifies the dimensions, material of construction, pressure/temperature ratings and the location for all fittings, the marking of the fitting for identification and service.

I further declare that the manufacture of these fittings is controlled by a quality system meeting the requirements of ISO 9001:2008 which has been certified by the following authority, CHYUEN HONG KEVIN YEN TAO. The items covered by this declaration, for which I seek registration, are category E safe fittings. In support of this application, the following Supporting Documents for Valves' CRN Registration, such as ISO 9001:2008 Certification, product catalogue, drawings, have been reported on.

(Drawings, Certificates and Reports, etc.)

---

Declared before me at Shenzhen in the Province of Guangdong  
on 21 day of March, 2014

Commissioner for Ombudsman

  
(Signature of Notary)

**FOR OFFICE USE ONLY**

To the best of my knowledge and belief, the applicant meets the requirements of the Technical Standards and Safety Act, Orders and Pressure Vessels Regulation, and CSA Standard B31 and is accepted for registration in Category E

CRN: DC16897-E  
Registered by: S.Lam  
Date: May 22, 2014

NOTE: This registration expires on May 22, 2016

No. 78: SEE ATTACHED "VALVES FOR CRN REGISTRATION" (2 PARTS) FOR SCOPE OF REGISTRATION 22 May 2014

Technical Standards and Safety Authority

Design and Pressure Vessels Safety Program

**REGISTERED**

CRN: DC16897-E  
Signed: S.Lam  
Date: May 22, 2014



**GOST Certificates for Russian Market**

