



DET NORSKE VERITAS

ACKNOWLEDGEMENT OF RECEIPT - EC

ACKNOWLEDGEMENT NO. 66270-2009-CE-RGC REV. 2

This Acknowledgement consists of 4 pages

This is to confirm that the Technical File for the following product(s):
NS & NSF Series Scotch Yoke Design Pneumatic Actuators
NK Series Rack & Pinion Design Pneumatic Actuators

with type designation(s)

See page 2

Manufactured by
NUTORK CORP.

**No. 158, Lane 1888, Daye Road, Feng-Xian Area,
Shanghai, 201402,
China**

has been received and stored according to

the conformity assessment procedure described in Article 8.1.(b).(ii), of Council Directive 94/9/EC (ATEX) of 23 March 1994, category 2 non-electrical equipment.

Further details are given overleaf.

Place and date

Høvik, 2010-02-08

for **DET NORSKE VERITAS**

This Acknowledgement is valid until

2019-12-15


for Marianne Spæren




Håkon S. Håkonsen

Certification Manager ZNWN0416

Technical Reviewer

Notice: The acknowledgement is subject to terms and conditions overleaf. Any significant changes in design or construction may render this acknowledgement invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Ack. No.: 66270-2009-CE-RGC Rev. 2
Project No.: PRJC-194965-2009-PRC-CHN

Jurisdiction

DNV is appointed by the Directorate for Civil Protection and Emergency Planning as Notified Body (No. 0575) under the terms of the Norwegian regulation "Forskrift om utstyr og sikkerhetssystem til bruk i eksplosjonsfarlig område", dated 1996-12-09 and Article 9 of Council Directive 94/9/EC (ATEX), as amended.

Acknowledgement history

Revision	Description	Issue date
	Original Acknowledgement.	2009-11-27
1	Typing error corrected	2009-12-15
2	Typing error corrected	2010-02-08

Product description

The following types are covered by the Acknowledgement:

Product Description	Type Designations	Category	Product Group	Product Sub Group
NK Series Rack & Pinion Design Pneumatic Actuators	NKD-032, NKD-052, NKD-063, NKD-075, NKD-083, NKD-092, NKD-105, NKD-125, NKD-140, NKD-160, NKD-190, NKD-210, NKD-240, NKD-270, NKS-052, NKS-063, NKS-075, NKS-083, NKS-092, NKS-105, NKS-125, NKS-140, NKS-160, NKS-190, NKS-210, NKS-240, NKS-270	2	Ex equipment II 2 GD c	Non-electrical





Ack. No.: 66270-2009-CE-RGC Rev. 2
 Project No.: PRJC-194965-2009-PRC-CHN

NS & NSF Series Scotch Yoke Design Pneumatic Actuator	NS13DA, NS17DA, NS20DA, NS25DA, NS28DA, NS32DA, NS35DA, NS49DA, NS60DA, NS70DA, NS13SR, NS17SR, NS20SR, NS25SR, NS28SR, NS32SR, NS35SR, NS49SR, NS60SR, NS70SR, NSF14-200 SR(DA) * NSF14-250 SR(DA) * NSF14-300 SR(DA) * NSF16-250 SR(DA) * NSF16-300 SR(DA) * NSF16-350 SR(DA) * NSF25-350 SR(DA) * NSF25-400 SR(DA) * NSF30-450 SR(DA) * NSF30-500 SR(DA) * NSF30-550 SR(DA) * NSF35-550 SR(DA) * NSF35-600 SR(DA) * NSF35-700 SR(DA) * NSF40-600 SR(DA) * NSF40-700 SR(DA) * NSF40-800 SR(DA) * NSF48-800 SR(DA) * NSF48-900 SR(DA) * NSF48-1000 SR(DA) * NSF60-800 SR(DA) * NSF60-900 SR(DA) * NSF60-1000 SR(DA) * NSF60-1100 SR(DA) * * = air supply(3~6bar)	2	Ex equipment II 2 GD c	Non-electrical
---	--	---	---------------------------	----------------

Technical documentation:

The following documentation has been received and stored:

Document No	Document Name
NUTORK-ATEX-090310	Technical File





Ack. No.: 66270-2009-CE-RGC Rev. 2
Project No.: PRJC-194965-2009-PRC-CHN

Terms and conditions

The product liability rests with the manufacturer, his representative or, in the absence of a representative, the importer, in accordance with the General Product Safety Directive 2001/95/EC

The following conditions may render this acknowledgement invalid:

- Changes in the design or construction of the product.
- Changes or amendments to the referenced directive(s).
- Changes or amendments in the standards which form the basis for documenting compliance with the essential requirements of the directive(s).

Conformity declaration and marking of product

In order to fully meet with the requirements of the Directive and legally affix the CE mark, the manufacturer must take all measures necessary to ensure that the manufactured product comply with the technical documentation and with the requirements of the Directive and finally draw up an EC declaration of conformity.

END OF ACKNOWLEDGEMENT



SIL



Functional Safety Verification

No. 0P171123.NTO87

Certificate's Holder:

NUTORK CORP.
No.158, Lane 1888, Daye Road, Fengxian Area,
Shanghai, China

**Product:
Model(s):**

Pneumatic and Hydraulic Actuator
NKD-XXX, NKS-XXX-XX, NSFXX-XXXX-DA,
NSFXX-XXXX-SRX, NSFXX-XXXX-DA-H,
NSFXX-XXXX-SRX-H.

Standard:

Has been assessed per the relevant requirements of:
IEC 61508 Parts 1-7:2010,
IEC 61511-1:2003+Carr.1:2004
And meets requirements providing a level of integrity to:
Systematic Capability: SC 3 (SIL 3 Capable)
Random Capability: Type A Element
SIL 2 @ HFT= 0; SIL 3@ HFT=1; Route 2H

*Safety function:
Pneumatic and Hydraulic Actuator with configurable safety functions:
Stay put or Emergency shut-down (ESD) open or close on demand.
*Specific requirements: The instructions of the associated Installation
and Operating Manual shall be considered.

Verification Mark:



The Verification Mark can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way

Remark: This SIL Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Test Report is existent for the above listed product(s) and found to meet the requirements of above standards for application in safety related system up to Safety Level of SIL 3. The unit must be properly designed into a Safety Instrument Function as per the requirements in the Safety Manual. The Verification Mark shown above can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way. In addition the Verification's Holder is NOT allowed to transfer the Verification to third parties. This certificate can be checked for validity at www.entecerma.it

Date of issue 23 November 2017

Expiry date 22 November 2022

Chief Manager
Marco Morino

Deputy Manager
Amanda Payne

Ente Certificazione Macchine

Via Ca' Bella, 243 - 40053 Valsamoggia Loc. Castello di Serravalle (Bo) Italy

+39.0516705141 +39.0516705156 info@entecerma.it www.entecerma.it

Annex I



No. 0P171123.NTO87

1. SC 3 (SIL 3 Capability):

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer

2. A Safety instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated

3. Random Capability:

The SIL limit imposed by the Architectural Constraints for each element.

4. IEC 61508 Failure Rates in FIT*

For product used in a final element assembly, SIL must be verified for the specific application using the following failure rate data.

Failure rates for the product in FIT*

Model	Failure Category	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}
	Stay put	0	86	0	5
	ESD Open	220	120	76	3
	ESD Close	206	133	95	3

5. SIL Verification: The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

* FIT = 1 failure / 10E9 hours