



## LR Type Approval Certificate

*This is to certify that the undernoted products have been tested with satisfactory results in accordance with the relevant requirements of the LR Type Approval System.*

This certificate is issued to:

<b>PRODUCER</b>	Emerson Process Management Valve Automation Division -Bettis Corporation
<b>PLACE OF PRODUCTION</b>	18703 GH Circle PO Box 508 Waller, Texas 77484 United States of America
<b>DESCRIPTION</b>	Quarter turn canted/standard scotch yoke, hydraulic/pneumatic, double acting or spring return.
<b>TYPE</b>	GC01, GC2, GC3, GC4, GC5 ,GC7 & GC8 GH2, GH3, GH4, GH5, GH7 & GH8 GHC2, GHC3, GHC4, GHC5, GHC7 &GHC8
<b>APPLICATION</b>	Fixed or mobile offshore use. To drive quarter turn valves to open or closed position using hydraulic or air in both directions ( double acting) or in one direction ( spring return).
<b>SPECIFIED STANDARDS</b>	Emerson Process Management- Company Standard EDOP 2.1 IEC60529 - IP 66 & IP 67M SI 1996 No. 825 SI 1996 No. 913

<b>Certificate No.</b>	04/60004
<b>Issue Date</b>	17 February 2004
<b>Expiry Date</b>	16 February 2009
<b>Sheet</b>	1 of 3

  
Gopalakrishnan.P

Lloyd's Register North America Inc.  
1401 Enclave Parkway, Suite 200, Houston Texas 77077 USA

## RATINGS

### **GC Hydraulic - Spring Return or Double Acting**

Operating pressure, 500 to 5000 psig

Torque output hydraulic, 1259 to 1709356 lb-in

Torque output spring-return, 5672 to 618835 lb-in

### **GC Pneumatic - Spring Return or Double Acting**

Operating pressure, 40 to 200 psig

Torque output pneumatic, 2764 to 1835155 lb-in

Torque output spring-return, 5672 to 618835 lb-in

### **GH Pneumatic - Spring Return**

Operating pressure, 50 to 200 psig

Torque output pneumatic, 7772 to 1799208 lb-in

Torque output spring-return, 10318 to 937107 lb-in

### **GHC Pneumatic - Spring Return**

Operating pressure, 50 to 189 psig

Torque output pneumatic, 7253 to 1765791 lb-in

Torque output spring-return, 10231 to 779636 lb-in

## OTHER CONDITIONS

1. For applications on ESD valves the following are the limitations:-

- (i) The actuators are to be fire proofed to the same rating of the valves and are to be protected against explosion or impact.
- (ii) The actuators are to be spring return self closing type.
- (iii) Suitable local controls are to be provided at the installation to release the hydraulic/pneumatic supply inlet for local closing of the spring return actuators.
- (iv) The manual/hydraulic over rides are not to be provided.
- (v) The evaluation of the leakage rate of the valve is not part of the actuator approval and is to be verified by the owner/operator.

2. This type approval may contribute to the requirement of Verification Scheme established by the duty holder.


Certificate No. 04/60004  
Issue Date 17 February 2004  
Expiry Date 16 February 2009  
Sheet 2 of 3

  
Gopalakrishnan.P

*"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify LR of any modification or changes to the equipment in order to obtain a valid certificate."*

*The Design Appraisal Document No. 04/60004 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

Certificate No. 04/60004  
Issue Date 17 February 2004  
Expiry Date 16 February 2009  
Sheet 3 of 3

  
Gopalakrishnan.P

Lloyd's Register North America Inc.  
1401 Enclave Parkway, Suite 200, Houston Texas 77077 USA



**Lloyd's Register North America, Inc.**

LRNA Operations Office- Houston, 1401 Enclave Parkway,  
Suite 200, Houston, Texas 77077

+1 281 675 3134 Fax +1 281 675 3144

Page 1 of 1
Document number 04/60004
Issue number 0

**DESIGN APPRAISAL DOCUMENT**

Date 17 Feb 2004	Quote this reference on all future communications NAO/0302571/GP
---------------------	---

**THE LR TYPE APPROVAL SYSTEM, 2002**

**Issued to: Emerson Process Management**

**Valve Automation Division -Bettis Corporation**

**for: Quarter turn canted/standard scotch yoke, hydraulic/pneumatic, double acting or spring return  
TYPE APPROVAL CERTIFICATE No. 04/60004**

The undernoted documents have been reviewed for compliance with the requirements of LR Type Approval System, 2002 and this Design Appraisal Document forms part of the certificate.

**APPROVAL DOCUMENTATION**

Request form	05 Dec.02
Part No. 115674 Rev. GXXXX – SRX Assembly drawing & bill of materials	17 Feb 04
Part No. 140952 Rev. A GH/GHC XXX- SRX – Assembly drawing& Bill of materials	17 Feb 04
Design Files 115 for GC series Rev. B	17 Feb 04
Design Files 116 for GH/GHC Rev. B	17 Feb 04

**TEST REPORTS**

LR Houston – test reports T 203042	17 Nov. 03
Wyle Laboratories Test report 47221-01	09 Aug 02

**Supplementary Type Approval Terms and Conditions**

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*Lloyd's Register North America, Inc. reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.*

Gopalakrishnan. P  
Senior Surveyor  
LRNA - Operations - Houston  
☎281 675 3134  
☎281 675 3144  
✉gopalakrishna.pallichadath@lr.org

Part 1A

Subject: Hydraulic/ Pneumatic Systems

Product: Actuator

Producer/Licence No.		Description of Product				Remarks	Cert. No.
Type	Details of Approval		Application		Remarks	Cert. No.	
<p>Emerson Process Management Valve Automation Division - Bettis Corporation 18703 GH Circle PO Box 508 Waller, Texas 77484 USA</p>	<p>GC01, GC2, GC3, GC4, GC5, GC7 &amp; GC8</p>	<p>Quarter turn hydraulic/pneumatic, double acting or spring return</p> <p>GC Hydraulic - Spring Return or Double Acting Operating pressure, 500 to 5000 psig Torque output hydraulic, 1259 to 1709356 lb-in Torque output spring-return, 5672 to 618835 lb-in</p> <p>GC Pneumatic - Spring Return or Double Acting Operating pressure, 40 to 200 psig Torque output pneumatic, 2764 to 1835155 lb-in Torque output spring-return, 5672 to 618835 lb-in</p> <p>GH Pneumatic - Spring Return Operating pressure, 50 to 200 psig Torque output pneumatic, 7772 to 1799208 lb-in Torque output spring-return, 10318 to 937107 lb-in</p>	<p>scotch yoke,</p>	<p>Fixed or mobile offshore use. To drive quarter turn valves to open or closed positions ( double acting) or air in one direction (spring return)</p>	<p>Expires: 16 February 2009 Refer to certificate for conditions of approval.</p>	04/60004	
	<p>GH2, GH3, GH4, GH5, GH7 &amp; GH8</p>	<p>GH Pneumatic - Spring Return Operating pressure, 50 to 200 psig Torque output pneumatic, 7772 to 1799208 lb-in Torque output spring-return, 10318 to 937107 lb-in</p>					
	<p>GHC2, GHC3, GHC4, GHC5, GHC7 &amp; GHC8</p>	<p>GHC Pneumatic - Spring Return Operating pressure, 50 to 189 psig Torque output pneumatic, 7253 to 1765791 lb-in Torque output spring-return, 10231 to 779636 lb-in</p> <p>Refer to Manufacturer's table for the rating for the specific actuator.</p> <p>Temperature rating Standard Minus 20 to 200 Deg. F High 0 to 350 Deg. F Low Minus 40 to 150 Deg. F</p>					