

**BETTIS**

**OPERATING & MAINTENANCE INSTRUCTIONS**

**DISASSEMBLY & ASSEMBLY**

**FOR THE FOLLOWING MODELS**

**722-SR-12, 722-SR-M3-12, 722-SR-M3HW-12,**

**732-SR-12, 732-SR-M3-12, AND 732-SR-M3HW-12**

**SERIES ACTUATORS**

PART NUMBER: 072007

REVISION: "A"

DATE: January, 1988

REPLACES: New Release

ECN	DATE	REV LTR	By *	Date
A9558	01/13/88	A	BSC	1-14-88
			Compiled	
			Checked	
			Approved	02-12-88
			Approved	



## **1.0 INTRODUCTION**

- 1.1 This service procedure is offered as a guide to enable general maintenance to be performed on Bettis 722-SRXX-12, 722-SRXX-M3-12, 722-SRXX-M3HW-12, 732-SRXX-12, 732-SRXX-M3-12, and 732-SRXX-M3HW-12 "Scotch-Yoke" type actuators.
- 1.2 The maximum recommended service interval for this actuator series is six hundred twenty five (625) cycles or five (5) years which ever occurs first. Storage time counts as part of the service interval.

**COMPLETE ACTUATOR REFURBISHMENT  
REQUIRES THAT THE ACTUATOR BE  
DISMOUNTED FROM THE VALVE**

## **2.0 BASIC TOOLS**

All tools are American Standard inch. Large adjustable wrench, two each medium standard screwdriver, small standard screwdriver with edges removed, chain wrench, allen wrench set, putty knife, 3/16" pin punch, 1/2" drive socket set, rubber or leather mallet, torque wrench (up to 2,000 in. lbs.), commercial leak testing solution and non-hardening thread sealant.

## **3.0 REFERENCE BETTIS MATERIALS**

- 3.1 Assembly Drawing Part Number 36314 for clockwise failure (close).
- 3.2 Assembly Drawing Part Number 72605 for counterclockwise failure (open.)
- 3.3 Exploded Detail Drawing Part Number 72603 for 722-SR(CW)-12.
- 3.4 Exploded Detail Drawing Part Number 72616 for 732-SR(CW)012.
- 3.5 Exploded Detail Drawing Part Number 72604 for 722-SR-M3/M3HW(CW)-12.
- 3.6 Exploded Detail Drawing Part Number 72617 for 732-SR-M3/M3HW(CW)-12.
- 3.7 General Operating & Maintenance Instructions Part Number 71584.

## **4.0 GENERAL**

- 4.1 Numbers in parenthesis, ( ) indicate the bubble number (reference number) used on the Bettis Assembly Drawing, Exploded Detail Drawing, and actuator Parts List.
- 4.2 This procedure is written using the stop screw side of the housing (1-10) as a reference and this side will be considered the front side of the actuator.
- 4.3 Refer to Chart 2 for approximate actuator weights.
- 4.4 Mating parts should be marked for ease of reassembly, i.e., cylinder to cylinder adapter, cylinder adapter to housing, right and left stop screws, etc.
- 4.5 When removing seals from seal grooves, use a small screwdriver with sharp edges rounded off or use a commercial seal removing tool.
- 4.6 Use a non-hardening thread sealant on all pipe threads.

- 4.7 Disassembly of actuator should be done in a clean area on a work bench.
- 4.8 LUBRICATION REQUIREMENTS: Use Dow Corning Molykote 44, medium grade.

## 5.0 GENERAL DISASSEMBLY

- 5.1 Remove all operating pressure from actuator cylinder (3-10) and spring cylinder (4-10), allowing the spring to stroke. The spring will rotate the yoke to the fail position.
- 5.2 Remove brace rods to brace support if applicable.
- 5.3 Remove all piping and accessories mounted on actuator.
- 5.4 Remove two breathers (4-20). One is located in the end of spring cylinder (4-10) and the other is located in the port of cylinder adapter (2-30).
- 5.5 When actuator is equipped with a M3 or M3HW jackscrew override; make sure that jackscrew assembly (3-20) is not engaging piston rod (2-10).
- 5.6 Actuators equipped with M3HW jackscrew override with handwheel option; remove hex nut (8-30), lockwasher (8-20), and handwheel (8-10).
- 5.7 The setting of stop screws (1-60) should be checked and setting recorded before stop screws are loosened or removed.
- 5.8 Remove socket cap screws (1-120) from position indicator (1-110), yoke weather cover (6-110) and remove position indicator/yoke weather cover.
- 5.9 Remove snubber (1-130) from top of housing (1-10).
- 5.10 Remove actuator from valve and valve mounting bracket.

## 6.0 SPRING CYLINDER REMOVAL

- 6.1 When the spring cylinder is installed on the actuator, the spring is under compression. DO NOT remove the spring cylinder until the actuator has the "pre-load" removed.
- 6.2 Spring cylinder "pre-load". Apply nominal operating pressure to the pressure inlet port located in the cylinder adapter (2-30) and cylinder (3-10). Locate the stop screw (1-60) that is on the opposite side of the housing from the spring cylinder (4-10). Loosen jam nut (1-70). Unscrew and remove stop screw (1-60). Remove pressure from the pressure inlet port.
- 6.3 WARNING: Under no circumstances should the spring cartridge (5) be cut apart, as the spring is pre-loaded and the spring cartridge welded together.
- 6.4 Secure the chain wrench around the spring cylinder (4-10) as close to the welded end cap as possible. Using the mallet, break the cylinder spring cylinder (4-10) aside, care should be taken to protect the chamfered edge and cylinder threads.

- 6.5 Due to added weight and the nature of a preloaded assembly, caution should be exercised when handling the spring cartridge (5). The spring cartridge (5) is unattached and is only contained by the spring cylinder (4-10).
- 6.6 Remove the piston cup seal (6-10).
- 6.7 Unscrew and remove standard hex nut (2-70) and lockwasher (2-80) from piston rod (2-10). Some actuators will not have a lockwasher (2-80) but will use a self-locking jam nut (2-70).
- 6.8 Remove the piston (2-20).
- 6.9 Remove the o-ring seal (6-50).

## **7.0 SPRING CYLINDER REMOVAL**

- 7.1 Secure the chain wrench around the cylinder (3-10) as close to the welded end cap as possible. Using the mallet, break the cylinder loose sufficiently so it can be removed.
- 7.2 Remove the cylinder, and when setting the cylinder aside, care should be taken to protect the chamfered edge and cylinder threads.
- 7.3 Unscrew and remove standard hex nut (2-70) and lockwasher (2-80).
- 7.4 Remove the piston (2-20).
- 7.5 Remove piston o-ring seal (6-50).
- 7.6 On the power cylinder (3-10) side of the actuator, unscrew and remove the four cylinder adapter ferris screws (2-90) and gasket seals (6-80) from the cylinder adapter (2-30).
- 7.7 Remove the cylinder adapter (2-30), taking care not to scratch the piston rod (2-10) or disengage the rod bushing (2-40).
- 7.8 Remove rod seal (6-30) from housing side of cylinder adapter (2-30).
- 7.9 On the spring cylinder (4-10) side of the actuator, unscrew and remove the four cylinder adapter ferris screws (2-90) and gasket seals (6-80) from the remaining cylinder adapter (2-30).
- 7.10 Remove the cylinder adapter (2-30), taking care not to scratch the piston rod piston (2-10) or disengage the rod bushing (2-40).
  - 7.10.1 Scratching the piston rod can be prevented by carefully removing the cylinder adapter, thus averting disengagement of rod bushing.
- 7.11 Remove rod seal (6-30) from housing side of cylinder adapter (2-30).
- 7.12 For actuators equipped with M3 or M3HW jackscrew override, the following steps will be used for disassembly of the M3 from cylinder (3-10).
  - 7.12.1 With the cylinder (3-10) on a work bench, lubricate jackscrew assembly (3-20) threads with lubricant.

- 7.12.2 Loosen and thread jam nut (3-30) all the way back to the welded nut.
- 7.12.3 Thread the jackscrew assembly (3-20) into the cylinder (3-10) until the pin (6-160) and washer (6-170) are exposed.
- 7.12.4 Using a 3/16 inch pin punch, drive out and remove pin (6-160).
- 7.12.5 Remove washer (6-170).
- 7.12.6 Thread the jackscrew assembly (3-20) out and remove.
- 7.12.7 Remove thread seal (6-130) and countersunk washer (6-120).

## **8.0 HOUSING GROUP DISASSEMBLY**

- 8.1 Remove cover screws (1-30) and seal gaskets.
- 8.2 Remove the housing cover (1-20).
- 8.3 Remove the o-ring seal (6-20) from the cover.
- 8.4 Move the yoke arms to the center position.
- 8.5 Remove the upper yoke roller (1-50).
- 8.6 Lift out and remove yoke pin (1-40).
- 8.7 Holding rod bushing (2-40) in place, pull the piston rod (2-10) out through the rod bushings (2-40).
- 8.8 Lift out the yoke (1-140) from the housing cavity.
- 8.9 Remove both rod bushings (2-40) from housing (1-10).
- 8.10 Remove the lower yoke roller (1-50).
- 8.11 Remove o-ring seal (6-20) from the housing.
- 8.12 Unscrew and remove the remaining stop screw (1-60), jam nut (1-70), and gasket seal (6-90). Be sure to identify this stop screw.
- 8.13 It is not necessary to remove housing pipe plug (1-100) or cylinder adapter pipe plug (2-110).
- 8.14 Using putty knife, remove cover gasket (6-60) and cylinder adapter gaskets (6-70).

## **9.0 GENERAL RE-ASSEMBLY**

- 9.1 Remove all old seals and gaskets, taking care not to scratch or damage seal grooves.

- 9.2 Before starting the assembly of an actuator, all parts should be thoroughly cleaned, inspected and de-burred. Particular attention should be directed to threads, sealing surfaces and areas that will be subjected to sliding motion.
- 9.3 After inspection, the parts should be carefully cleaned to remove all dirt, gaskets and other foreign material.
- 9.4 Coat all seals with lubricant, before installing into seal grooves.

## **10.0 CENTER HOUSING GROUP RE-ASSEMBLY**

- 10.1 If removed, install a pipe plug (1-100) into the drain port of the housing (1-10).
- 10.2 Coat one of the yoke o-ring seals (6-20) with lubricant and install into the housing (1-10).
- 10.3 Apply lubricant to the yoke bore in the body and arrange the body with the yoke bore nearest you. Lubricate the raised ribs in the bottom of the housing.
- 10.4 Apply a generous amount of lubricant to the slots in the upper and lower yoke arms of yoke (1-140).
- 10.5 Coat the bearing surfaces of the yoke (1-140) with lubricant and install into the body. The wide yoke arm should be installed toward the top of the housing.
- 10.6 Coat the piston rod bushings (2-40) with lubricant and install into both sides of the housing.
- 10.7 Coat one of the yoke rollers (1-50) with lubricant and place into the lower yoke arm slot nearest the cylindrical portion of the yoke.
- 10.8 Apply a light coat of lubricant to the piston rod (2-10) and install thru the bushings in the housing.
- 10.9 Coat the yoke pin (1-40) with lubricant and install thru the piston rod (2-10) into the lower yoke roller (1-50).
- 10.10 Coat the remaining yoke roller (1-50) with lubricant and install over the yoke pin and into the slot in the upper yoke arm.
- 10.11 Coat the remaining yoke o-ring seal (6-20) with lubricant and install into the housing cover (1-20).
- 10.12 Coat the yoke bore in the cover (1-20) with lubricant.
- 10.13 Lightly coat the cover gasket (6-60) with lubricant and place onto the housing.
- 10.14 Install the housing cover (1-20) and the four cover screws (1-30) with gasket seals (6-80) onto the housing (1-10). NOTE: For N722 actuators, gasket seals will be item number (6-100).

## 11.0 **PRESSURE CYLINDER RE-ASSEMBLY**

- 11.1 Coat the piston rod seal (6-30) with lubricant and install, lip first, into the cylinder adapter (2-30). The energizer ring of rod seal (6-30) must face the cylinder adapter, piston side.
- 11.2 Lightly coat one cylinder adapter gasket (6-70) with lubricant. Install the adapter gasket over the piston rod bushing on the right side of the housing for clockwise actuators and on the left side of the housing for counterclockwise actuators.
- 11.3 Install the cylinder adapter (2-30) over the end of the piston rod and retain with the cylinder adapter ferry screws (2-90) and gasket seals (6-80). Arrange the cylinder adapter with the single cast stiffening rib on the housing side pointing toward the yoke bore and up at 45 degrees. Care should be taken at this point not to scratch the piston rod when installing the cylinder adapter.
- 11.4 If removed, install a pipe plug (2-110) into the cylinder adapter pressure port that is pointing away from the yoke bore and down at 45 degrees.
- 11.5 Coat the cylinder adapter o-ring seal (6-40) with lubricant and install into the cylinder adapter (2-30) in the groove at the inner end of the threads.
- 11.6 Coat the piston o-ring seal (6-50) with lubricant and install onto the piston rod (2-10).
- 11.7 Lightly coat one of the piston cup seals (6-10) with lubricant and install onto the piston outermost groove. The lips of the seal should point outward toward the welded end of the cylinder.
- 11.8 Install the piston (2-20) onto the piston rod and retain with lockwasher (2-80) and hex nut (2-70). One side of the piston has a raised boss in the center that is counter bored to accept an o-ring. This side should be installed against the shoulder of the piston rod. Torque the hex nut (2-70) to approximately 1,750 inch pounds or 146 foot pounds.
- 11.9 For actuators equipped with M3 jackscrew overrides, pre-assembly the M3 into cylinder (3-10) using the following procedure:
  - 11.9.1 Apply a light coating of lubricant to the threads of jackscrew assembly (3-20).
  - 11.9.2 Install jam nut (3-30), countersunk washer (6-120) and thread screw seal (6-130) onto jackscrew assembly (3-20). The countersink of washer (6-120) should face the thread screw seal (6-130). Thread these items until they are up against the welded nut.
  - 11.9.3 Thread the jackscrew assembly (3-20) into the end cap of cylinder (3-10). Turn the jackscrew until the end of the assembly protrudes out of the threaded end of the cylinder.
  - 11.9.4 Install washer (6-170) and pin (6-160) as shown on assembly drawing.
  - 11.9.5 Turn the jackscrew until the washer (6-170) comes into contact with the cylinder end cap.

- 11.9.6 If desirable, wipe away excess lubricant on jackscrew after operation. If preferred, lubricant may be left on jackscrew to provide additional corrosion protection.
- 11.9.7 Tighten jam nut (3-30) against countersunk washer (6-120) and thread screw seal (6-130) until fully tight against end cap.
- 11.10 Apply a very light coating of lubricant to the cylinder threads and the bore of the cylinder (3-10).
  - 11.10.1 **CAUTION:** Excess lubricant in the cylinder bore may cause erratic or jumpy/jerky operation.
- 11.11 Install the cylinder (3-10) over the piston, screwing into the cylinder adapter. Tighten with a chain wrench. Exercise caution to prevent pinching of the piston cup seal lip during installation. It is necessary to depress the seal lip while working the cylinder over it.

## 12.0 **SPRING CYLINDER RE-ASSEMBLY**

- 12.1 Lightly coat the remaining cylinder adapter gasket (6-70) with lubricant and install over the piston rod.
- 12.2 Coat the remaining piston rod seal (6-30) with lubricant and install, lip first, into the cylinder adapter (2-30). The energizer ring of rod seal must face the cylinder adapter (piston side).
- 12.3 Install the cylinder adapter (2-30) over the piston rod and retain with the cylinder adapter ferry screws (2-90) and gasket seals (6-80). Arrange the cylinder adapter with the single cast stiffening rib on the housing side pointing toward the yoke bore and up at 45 degrees. The location of the ports may be different on your actuator depending on plumbing and accessory requirements.
  - 12.3.1 **CAUTION:** Care should be taken at this point not to scratch the piston rod when installing the cylinder adapter.
- 12.4 If removed, install pipe plug (2-110) into the cylinder adapter pressure port that is pointing away from the yoke bore and down at 45 degrees.
- 12.5 Coat the remaining cylinder adapter oring seal (6-40) with lubricant and install into the cylinder adapter in the groove at the inner end of the threads.
- 12.6 Coat the remaining piston oring seal (6-50) with lubricant and install onto the piston rod (2-10).
- 12.7 Lightly coat the remaining piston cup seal (6-10) with lubricant and install into the innermost piston groove, which is on the side of the piston with the raised boss and counter bore. The seal lip should point toward the side of the piston and housing.
- 12.8 Install the remaining piston (2-20) onto the piston rod and retain with lockwasher (2-80) and hex nut (2-70). One side of the piston has a raised boss in the center that is counter bored to accept an "O" ring. This side should be installed against the shoulder of the piston rod.
- 12.9 Push the piston in towards the housing as far as it will go, to ease the installation of the cylinder/spring assembly.

- 12.10 Very lightly coat the cylinder threads and the cylinder bore with lubricant.
- 12.10.1 **CAUTION:** Excess lubricant in the cylinder bore may cause erratic or jumpy/jerky operation.
- 12.11 Coat the outside of the spring with lubricant and insert the spring cartridge assembly (5) into the spring cylinder (4-10). One end of the spring cartridge assembly has a flat face with a deep hole in it, this end should be inserted into the cylinder first.
- 12.11.1 **CAUTION:** Care should be taken at this point not to scratch the cylinder bore while inserting the spring cartridge into the cylinder.
- 12.12 Install the spring cylinder, containing the spring cartridge, over the piston and screw into the cylinder adapter (2-30). Tighten with a chain wrench.
- 12.12.1 The chain wrench should be secured as close to the welded end cap as possible.
- 12.13 **POSITION INDICATOR INSTALLATION**
- 12.13.1 For spring to close actuators (clockwise), rotate the yoke to the full clockwise (CW) position. Position the yoke weather cover (6-110) and position indicator (1-110) on the yoke (1-140) with the pointer pointing to the piston rod and perpendicular to the cylinder assemblies.
- 12.13.2 For spring to open actuators (counter clockwise), rotate the yoke to full counter clockwise (CCW) position. Position the yoke weather cover (6-110) and position indicator (1-110) on the yoke with the pointer, pointing to the air cylinder (3-10) and parallel to the piston rod (2-10).
- 12.13.3 Install and tighten yoke position indicator/yoke weather cover screws (1-120). These screws will need to be rechecked for tightness after the actuator has been cycled and tested.
- 12.14 Install the stop screws (1-60), stop screw gasket seals (6-90) and stop screw jam nuts (1-70).

## **13.0 ACTUATOR TESTING**

### **13.1 Leakage Test - General**

- 13.1.1 All areas, where leakage to atmosphere may occur, are to be checked using a leak testing solution.
- 13.1.2 Before leak testing may be accomplished, it will be necessary to provide a piping system whereby pressure may be applied simultaneously to all common pressure ports.
- 13.1.3 All leak testing will use the nominal operating pressure (NOP) as listed on the actuator nametag or from Chart 1 of this procedure.

13.2 Before testing for leaks, alternately apply and release NOP pressure to the pressure side of the pistons to stroke the actuator fully. Repeat this cycle approximately five times. This will allow the new seals to seek their proper working attitude.

13.3 Leakage Test - Procedure

13.3.1 Simultaneously apply NOP pressure to the pressure port in the end of cylinder (3-10) and in the SR cylinder adapter (2-30).

13.3.2 Apply leak testing solution to the following areas:

13.3.2.1 The breather port in the cylinder adapter (2-30), checks piston to cylinder and piston to piston rod seals.

13.3.2.2 The breather port hole in the end of the SR cylinder (4-10), checks the piston to cylinder wall and piston to piston rod seals.

13.3.2.3 The threaded joint between the SR cylinder (4-10) and cylinder adapter (2-30), checks the cylinder to cylinder adapter o-ring seal.

13.3.2.4 The joint between the cylinder adapter and the housing.

13.3.2.5 The snubber port hole located in the housing, checks the cylinder adapter to piston rod seal.

13.3.3 If excessive leakage across the piston is noted, (generally a bubble which breaks three seconds or less after starting to form), the unit must be disassembled and the cause of leakage must be determined and corrected.

13.3.4 If an actuator was disassembled and repaired, the above leakage test must be performed again.

13.4 OPERATIONAL (FUNCTIONAL) TEST

This test is used to verify proper function of the actuator and is to be done off the valve or when the valve stem is not coupled to the actuator yoke.

13.4.1 Adjust the pressure regulator to the pressure rating indicated in Column "B" of Chart 1, for the model actuator being used.

13.4.2 Apply the above pressure to the actuator pressure inlet ports and allow the actuator to stabilize. The actuator should stroke a full 90 degrees travel with stops

13.4.3 Remove pressure from pressure inlet ports.

**14.0 RETURN TO SERVICE**

14.1 Install the breather (4-20) in the end of the spring cylinder (4-10).

14.2 Install the remaining breather (4-20) into the cylinder adapter (2-30) of cylinder (3-10).

14.3 Install the snubber (1-130) in the housing next to the housing cover.

- 14.4 Re-install actuator to valve mounting bracket and valve.
- 14.5 Adjust both stop screws (1-60) back to settings recorded in step 5.7 under General Disassembly.
- 14.6 Tighten both jam nuts (1-70) securely, while holding stop screws (1-60).
- 14.7 Re-install any piping and accessories that were removed.
- 14.8 For actuators equipped with M3 jackscrew override and require an optional handwheel, M3HW, install the handwheel using the following procedure:
  - 14.8.1 Place the handwheel (8-10) onto the welded nut. The handwheel hub has a cast hexagon hole that fits over the welded nut.
  - 14.8.2 Place lockwasher (8-20) onto M3 up against handwheel hub.
  - 14.8.3 Place hex nut (8-30) onto M3 and thread up against lockwasher, torque to 250 foot pounds.
- 14.9 All accessories, including solenoid valves, positioners, pressure switches, etc., should be hooked up and tested for proper operation and replaced, if found defective.
- 14.10 Refer to General Operating & Maintenance Instructions Part Number 71584 for actuator start-up procedures.

**CHART 1**

**PRESSURE REQUIREMENTS & LIMITATIONS  
FOR MODELS  
722-SRXX-12 & 732-SRXX-12**

<b><u>ACTUATOR MODEL *</u></b>	<b><u>NOMINAL OPERATING PRESSURE (NOP)</u></b>	<b><u>MAXIMUM OPERATING PRESSURE (MOP)</u></b>	<b><u>MAXIMUM HYDROSTATIC TEST PRESSURE</u></b>	<b><u>MAXIMUM AIR ASSIST PRESSURE (MAAP)</u></b>	<b><u>COLUMN B SPRING SELECTION PRESSURE</u></b>
722-SR40-12	40	105	125	44	33
722-SR60-12	60	115	125	29	49
722-SR80-12	80	130	150	17	64
732-SR40-12	40	160	200	125	31
732-SR60-12	60	175	200	108	50
732-SR80-12	80	190	225	98	61
732-SR100-12	100	200	225	85	75

\* Includes actuator models that have -M3 and -M3HW included in their model numbers, i.e., 732-SR60-M3-12.

**CHART 2**

**WEIGHTS FOR MODELS  
722-SRXX-12 & 732-SRXX-12**

<b><u>ACTUATOR MODEL</u></b>	<b><u>APPROXIMATE WEIGHT (LBS.) **</u></b>			
	<b><u>SR40</u></b>	<b><u>SR60</u></b>	<b><u>SR80</u></b>	<b><u>SR100</u></b>
722XX-SR-12	215	229	235	
722-SRXX-M3-12	220	234	240	
722-SRXX-M3HW-12	225	239	245	
732-SRXX-12	275	291	316	326
732-SRXX-M3-12	280	296	321	331
732-SRXX-M3HW-12	285	301	326	336

\*\* Weights listed for each model are for bare actuators without valve mounting brackets and accessories.



**World Area Configuration Centers (WACC) offer sales support, service, inventory and commissioning to our global customers. Choose the WACC or sales office nearest you:**

***NORTH & SOUTH AMERICA***

19200 Northwest Freeway  
Houston, TX 77065  
USA  
T +1 281 477 4100  
F +1 281 477 2809

Av. Hollingsworth,  
325, Iporanga Sorocaba  
SP 18087-105  
Brazil  
T +55 15 3238 3788  
F +55 15 3228 3300

***ASIA PACIFIC***

No. 9 Gul Road  
#01-02 Singapore 629361  
T +65 6501 4600  
F +65 6268 0028

No.1 Lai Yuan Road  
Wuqing Development Area  
Tianjin 301700  
P.R.China  
T +86 22 8212 3300  
F +86 22 8212 3308

***MIDDLE EAST & AFRICA***

P. O. Box 17033  
Dubai  
United Arab Emirates  
T +971 4 811 8100  
F +971 4 886 5465

P. O. Box 10305  
Jubail 31961  
Saudi Arabia  
T +966 3 340 8650  
F +966 3 340 8790

24 Angus Crescent  
Longmeadow Business Estate  
East P.O. Box 6908; Greenstone  
1616 Modderfontein, Extension 5  
South Africa  
T +27 11 451 3700  
F +27 11 451 3800

***EUROPE***

Berenyi u. 72- 100  
Videoton Industry Park,  
Building #230  
Székesfehérvár 8000  
Hungary  
T +36 22 530 950  
F +36 22 543 700

For complete list of sales and manufacturing sites, please visit  
[www.emersonprocess.com/valveautomationlocations](http://www.emersonprocess.com/valveautomationlocations)  
Or contact us at [info.valveautomation@emerson.com](mailto:info.valveautomation@emerson.com)

[www.emersonprocess.com/bettis](http://www.emersonprocess.com/bettis)

©2016 Emerson Process Management. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. Bettis is a mark of one of the Emerson Process Management family of companies. All other marks are property of their respective owners.

The contents of this publication are presented for information purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

**BETTIS™**



**EMERSON™**  
Process Management