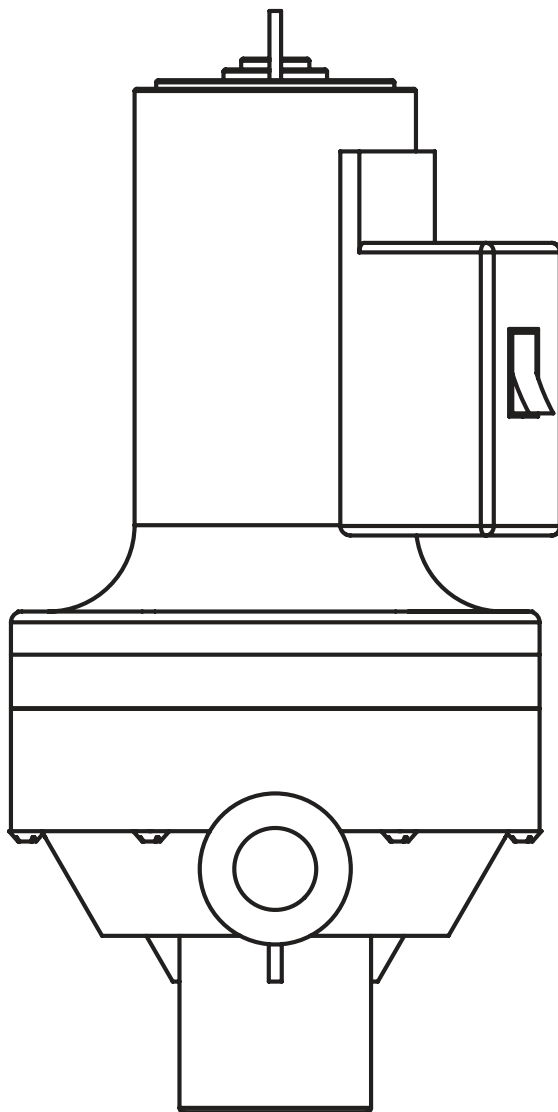


# ***User Instructions*** ***CT6 Diaphragm Pump***

***Six-piston diaphragm pump  
for chemical transfer***

*PCN 75707883 (ENGLISH)*

***Installation***  
***Operation***  
***Maintenance***



## Contents

<b>1. Introduction and Safety</b>	<b>20-5</b>
1.1 General	20-5
1.2 Disclaimer	20-5
1.3 Copyright	20-5
1.4 Duty conditions	20-5
1.5 Safety	20-5
<b>2. Transport and Storage</b>	<b>20-6</b>
2.1 Consignment receipt and unpacking	20-6
2.2 Handling	20-6
2.3 Storage	20-6
2.4 Recycling and end of product life	20-6
<b>3. Description</b>	<b>20-7</b>
3.1 Configurations	20-7
3.2 Operating parameters	20-8
3.3 Available equipment and accessories	20-8
3.4 Materials of construction	20-8
<b>4. Installation and Operation</b>	<b>20-8</b>
4.1 Unpacking the pump	20-8
4.2 Starting the pump	20-8
4.3 Priming	20-8
4.4 Operating in different temperatures	20-8
4.5 Stopping and shutdown	20-8
<b>5. Maintenance</b>	<b>20-8</b>
<b>6. Spare Parts</b>	<b>20-9–20-11</b>
<b>7. Notes</b>	<b>20-12</b>
<b>8. Contacts</b>	<b>20-13</b>

## 1. Introduction and Safety

### 1.1 General

**⚠ These instructions must always be kept close to the product's operating location or directly with the product.**

Flowserve products are designed, developed, and manufactured with state-of-the-art technologies in modern facilities. The unit is produced with great care and commitment to continuous quality control, utilizing sophisticated quality techniques and safety requirements.

Flowserve is committed to continuous quality improvement and being at service for any further information about the product in its installation and operation or about its support products, repair and diagnostic services.

These instructions are intended to facilitate familiarization with the product and its permitted use. Operating the product in compliance with these instructions is important to help ensure reliability in service and avoid risks. The instructions may not take into account local regulations; ensure such regulations are observed by all, including those installing the product. Always coordinate repair activity with operations personnel, and follow all plant safety requirements and applicable safety and health laws and regulations.

**⚠ These instructions must be read prior to installing, operating, using and maintaining the equipment in any region worldwide. The equipment must not be put into service until all the conditions relating to safety noted in the instructions have been met.**

### 1.2 Disclaimer

**Information in these User Instructions is believed to be reliable. In spite of all the efforts of Flowserve to provide sound and all necessary information, the content of this manual may appear insufficient and is not guaranteed by Flowserve as to its completeness or accuracy.**

Flowserve manufactures products to exacting International Quality Management System Standards as certified and audited by external Quality Assurance organizations. Genuine parts and accessories have been designed, tested and incorporated into the products to help ensure their continued product quality and performance in use. As Flowserve cannot test parts and accessories sourced from other vendors, the incorrect incorporation of such parts and accessories may adversely affect the performance and safety features of the products. The failure to properly select, install or use authorized Flowserve parts and accessories is considered to be misuse. Damage or failure caused by misuse is not covered by the Flowserve warranty. In addition, any modification of Flowserve products or removal of original components may impair the safety of these products in their use.

### 1.3 Copyright

All rights reserved. No part of these instructions may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission of Flowserve.

### 1.4 Duty conditions

This product has been selected to meet the specifications of your purchase order. The acknowledgement of these conditions has been sent separately to the Purchaser. A copy should be kept with these instructions.

**⚠ The product must not be operated beyond the parameters specified for the application. If there is any doubt as to the suitability of the product for the application intended, contact Flowserve for advice, quoting the serial number.**

### 1.5 Safety

**1.5.1 Summary of safety markings:** These User Instructions contain specific safety markings where non-observance of an instruction would cause hazards. The specific safety markings are:

**⚠ This symbol indicates safety instructions where non-compliance would affect personal safety and could result in loss of life.**

**1.5.2 Personnel qualification and training:** All personnel involved in the operation, installation, inspection and maintenance of the unit must be qualified to carry out the work involved. If the personnel in question do not already possess the necessary knowledge and skill, appropriate training and instruction must be provided. If required, the operator may commission the manufacturer/supplier to provide applicable training.

Always coordinate repair activity with operations and health and safety personnel, and follow all plant safety requirements and applicable safety and health laws and regulations.

**⚠ PUMP IS NOT TO BE USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES.**

## 2. Transport and Storage

### 2.1 Consignment receipt and unpacking

Immediately after receipt of the equipment, it must be verified for contents and inspected for damages in transportation. Any shortage and/or damage must be reported immediately to distributor/Flowserve Scienco and must be received within 10 days of receipt of the equipment. Later claims cannot be accepted.

Check any boxes or wrappings for any accessories or spare parts that may be packed separately with the equipment.

Each product has a unique serial number. Check that this number corresponds with that advised, and always quote this number in correspondence as well as when ordering spare parts or further accessories.

### 2.3 Storage

Normal packaging is designed to protect the pump and parts during shipment and storing.

### 2.4 Recycling at the end of product life

At the end of the service life of the product, the relevant materials and parts should be recycled or disposed of using an environmentally acceptable method and in accordance with local regulations.



Make sure that hazardous substances are disposed of safely and that the correct personal protective equipment is used. The safety specifications must be in accordance with the current local regulations at all times.

## 3 Description

### 3.1 Configurations

The CT6 is the premier chemical transfer product, offering the best solution to various customer applications. A competitive analysis demonstrates the multiple CT6 advantages. Standard and High-Flow versions of the CT6 provide for the competitive advantages in flow rate, liquid viscosity, handling and operating pressure.

Extremely simple design including housing (with the diaphragm with molded-in pistons, valves and valve plate, spacer and wobble plate assembly) and motor assembly, simplifies maintenance and field replacement.

The CT6 is designed to transfer chemicals from drums, intermediate bulk containers, and mini bulk systems, as well as other containers.

The CT6 is powerful and versatile, capable of generating a pressure up to 30 psi (2.0 bar), and to pump viscous chemicals, even at low ambient temperatures (it is recommended to avoid use below liquid freezing point).

The 12-volt motor is engineered to produce flow rate up to 13 gpm (50 lpm) at 21°C (70°F) with a 30-minute duty cycle.

For application flexibility, the pump may be vertically, horizontally or side mounted. A convenient caddy system makes it highly portable. With its durable, lightweight tubular frame, the CT6 Caddy System is designed for maximum flexibility and ease of handling for users of multiple containers.

The CT6 is offered in standard and HF (high-flow) versions. Both versions can be configured with NPT or BSPP parts. An integrated closed system with Micro Matic coupler is also an option.

The pump is chemically resistant. Polypropylene pump housings and peroxide cured EPDM valves and seals are standard. Viton and Santoprene valves and seals are optional.

### 3.2 Operating parameters

- Flows up to 13 gpm (50 lpm) for base model, and 18 gpm (68 lpm) for HF model
- Liquid pressure up to 30 psi (2.0 bar)
- Liquid temperatures up to 66°C (150°F)
- Operating current of 15 to 20 amps
- Dead head current of 25 to 29 amps

### 3.3 Available equipment and accessories

The CT6 Pump is available in multiple configurations, each with varying equipment and accessories, including:

- Electronic meters
- Standard and special hoses
- Recirculation piping
- Various fittings and adapters
- Brackets
- Dispensing Nozzles
- Dip-tubes

**Refer to the Scienco Product Reference Manual FPD-1607 to learn more about the available configurations.**

### 3.4 Materials of construction

The CT6 pump is resistant to corrosion from typical ag-chem and light industrial chemicals. Wetted materials include:

- Glass filled polypropylene
- Stainless steel
- Viton
- EPDM
- Santoprene

**NOTE: Ensure chemical compatibility between liquid pumped and the pump wetted parts before using.**

## 4. Installation and Operation

### 4.1 Unpacking the pump

Unpack the pump, and make sure that pump configuration and materials of construction are correct for your application. Make all necessary connections. Use Teflon® Tape as required.

### 4.2 Starting the pump

Ensure that hoses and fittings are tightly connected. Ensure that switch is in OFF position before making the electrical connection.

For 12V version, attach battery clips securely to the power source (battery or power supply). For the 115V version, plug power cord into a GFCI outlet.

### 4.3 Priming

If the connections are free of leaks, the pump will prime within seconds of startup.

### 4.4 Operating in different temperatures

It is not recommended to start the pump if the temperature is below 0°C (32°F) for AG and below -11°C (12°F) for DEF, or higher than 66°C (150°F) for both.

### 4.5 Stopping and shutdown

At the end of the operation, turn the pump switch OFF and disconnect the cord.

**NOTE: Pump should be drained before storing. If pump is not to be used for an extended period of time, it is suggested to flush any chemicals from the pump with fresh water. Flushing the pump will ensure a long, problem-free life and easy startup when the pump is needed again.**

## 5. Maintenance



It is the final operator's responsibility to ensure that all maintenance steps are carried out by authorized and qualified personnel who have adequately familiarized themselves with the subject matter by studying this manual in detail.

## 6. Spare Parts

The decision on what spare parts to stock varies greatly depending on many factors such as the criticality of the application, and/or the time required to buy and receive new spares. This section identifies all of the components that make up pump addressed in this manual.

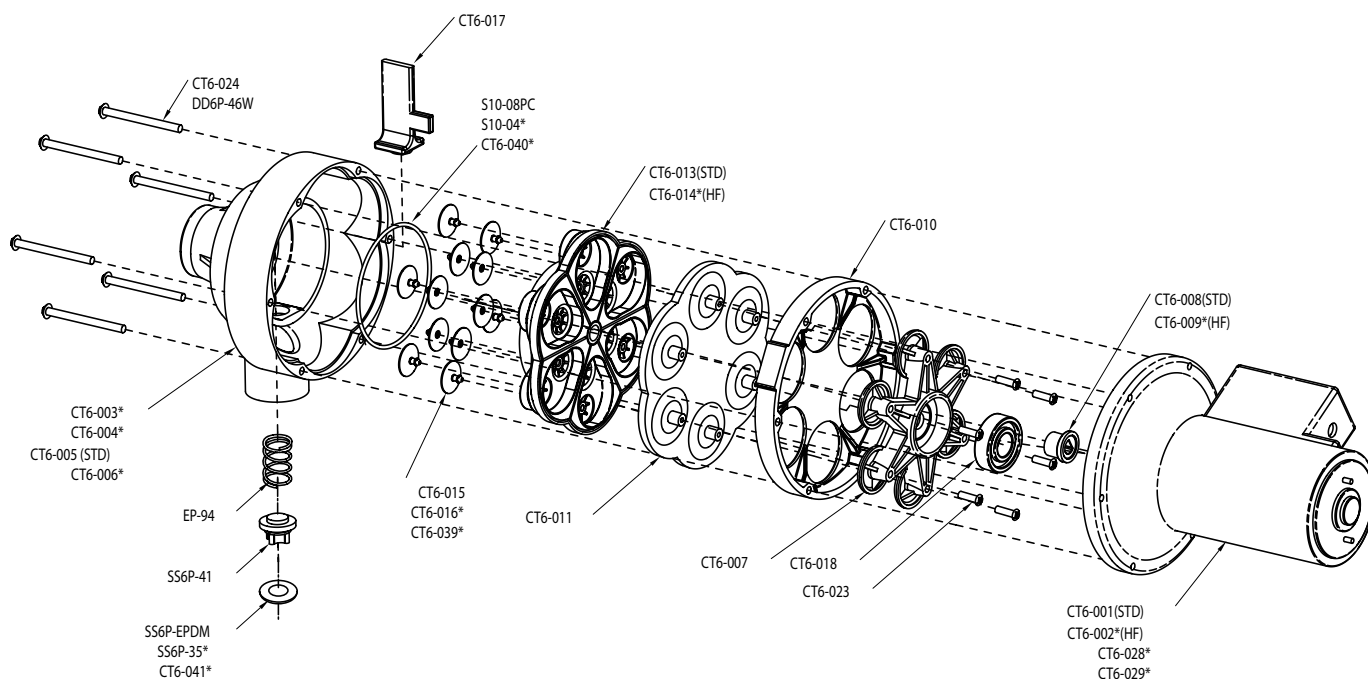
ITEM	DESCRIPTION
CT6-001	Motor Assembly (Green 12V)
CT6-002*	Motor Assembly HF
CT6-003*	<b>Housing</b> - Inlet: MM, Outlet: NPT
CT6-004*	<b>Housing</b> - Inlet: MM, Outlet: BSPP
CT6-005	<b>Housing</b> - Inlet: NPT, Outlet: NPT
CT6-006*	<b>Housing</b> - Inlet: BSPP, Outlet: BSPP
CT6-007	Wobble Plate
CT6-008	Bushing
CT6-009*	Bushing HF
CT6-010	Spacer (Aluminum)
CT6-011	Diaphragm
CT6-013	Valve Plate
CT6-014*	Valve Plate HF
CT6-015	Valves (Peroxide EPDM)
CT6-016*	Valves (Viton)

\* optional

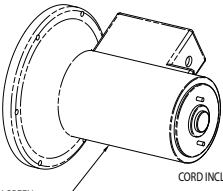
### 6.1 Ordering of spare parts

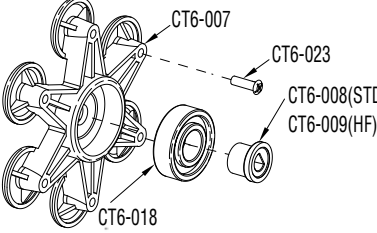
Flowserve keeps records of all pumps that have been supplied. Spare parts can be ordered from your local Flowserve sales engineer or from a Flowserve distributor or representative.

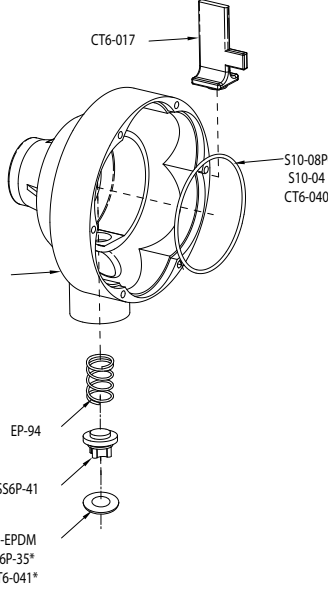
ITEM	DESCRIPTION
CT6-017	Bypass Support
CT6-018	Bearing
CT6-023	Screw (Wobble plate)
CT6-024	Screw (Housing)
CT6-039	Valve, Santoprene
CT6-040	O-ring, Santoprene
CT6-041	Bypass seal, Santoprene
DD6P-46W	Stainless Steel Washer
SS6P-41	Bypass valve
EP-94	Bypass valve spring
SS6P-35EPDM	Bypass valve gasket
SS6P-35*	Bypass valve gasket Viton
S10-08	O-ring
S10-04	O-ring (Viton)



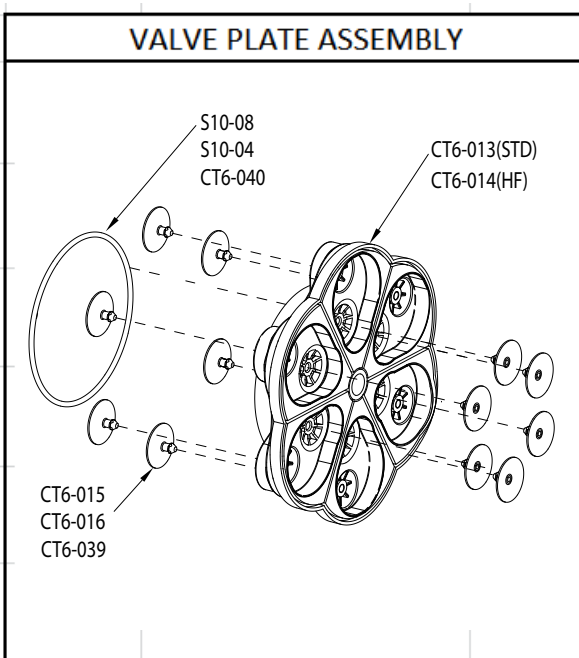
CT6 DIAPHRAGM PUMP - EXPLODED VIEW

MOTOR ASSEMBLY		
 <p>CT6-001, 12V GREEN CT6-002, 12V, GREY(HF) CT6-028, 12V, BLUE CT6-029, 115V, BLUE</p> <p>CORD INCLUDED</p>		
KIT P/N	DESCRIPTION	PARTS
CT6KIT-101	MOTOR ASSEMBLY, 12V CT6 GREEN, INCLUDING SWITCH AND CABLE	CT6-001
CT6KIT-102	CT6 HF, GRAY, INCLUDING SWITCH AND CABLE	CT6-002
CT6KIT-103	MOTOR ASSEMBLY, 12V CT6 BLUE, INCLUDING SWITCH AND CABLE	CT6-028
CT6KIT-104	MOTOR ASSEMBLY, 115V CT6 BLUE, INCLUDING SWITCH AND CABLE	CT6-029

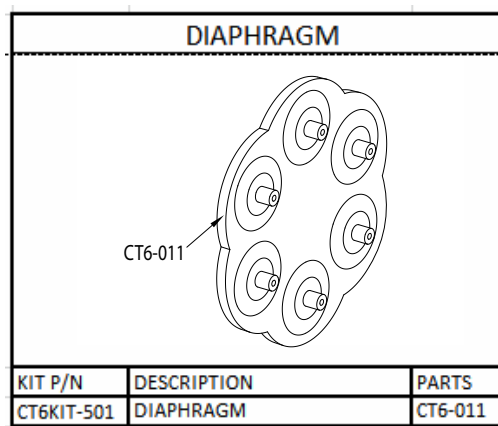
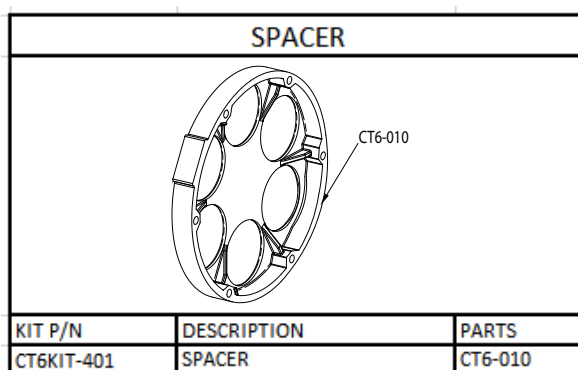
WOBBLE PLATE ASSEMBLY		
<p>NOTE: CT6-007, CT6-018, AND CT6-008 OR 009 COME PRE-ASSEMBLED.</p>  <p>CT6-007 CT6-023 CT6-008(STD) CT6-009(HF) CT6-018</p>		
KIT P/N	DESCRIPTION	PARTS
		CT6-007 CT6-008 CT6-018 CT6-023
CT6KIT-601	WOBBLE PLATE ASSEMBLY	CT6-007 CT6-009 CT6-018 CT6-023
CT6KIT-602	WOBBLE PLATE ASSEMBLY, HF	CT6-007 CT6-009 CT6-018 CT6-023

PUMP HOUSING ASSEMBLY		
 <p>CT6-017</p> <p>S10-08PC S10-04 CT6-040</p> <p>CT6-003 CT6-004 CT6-005 CT6-006</p> <p>EP-94</p> <p>SS6P-41</p> <p>SS6P-EPDM SS6P-35* CT6-041*</p>		

KIT P/N	DESCRIPTION	PARTS	KIT P/N	DESCRIPTION	PARTS
CT6KIT-201	KIT, HOUSING, INLET MM, OUTLET 1"NPT, EPDM	CT6-003 CT6-017 EP-94 SS6P-41 SS6P-35EPDM S10-08	CT6KIT-207	KIT, HOUSING, INLET 2"NPT, OUTLET 1"NPT, VITON	CT6-005 CT6-017 EP-94 SS6P-41 SS6P-35 S10-04
CT6KIT-202	KIT, HOUSING, INLET MM, OUTLET 3/4" BSPP, EPDM	CT6-004 CT6-017 EP-94 SS6P-41 SS6P-35EPDM S10-08	CT6KIT-208	KIT, HOUSING, INLET 1"BSPP, OUTLET 3/4"BSPP, VITON	CT6-006 CT6-017 EP-94 SS6P-41 SS6P-35 S10-04
CT6KIT-203	KIT, HOUSING, INLET 2"NPT, OUTLET 1"NPT, EPDM	CT6-005 CT6-017 EP-94 SS6P-41 SS6P-35EPDM S10-08	CT6KIT-209	KIT, HOUSING, INLET MM, OUTLET 1"NPT, SANTOPRENE	CT6-003 CT6-017 EP-94 SS6P-41 CT6-041 CT6-040
CT6KIT-204	KIT, HOUSING, INLET 1"BSPP, OUTLET 3/4"BSPP, EPDM	CT6-006 CT6-017 EP-94 SS6P-41 SS6P-35EPDM S10-08	CT6KIT-210	KIT, HOUSING, INLET MM, OUTLET 3/4" BSPP, SANTOPRENE	CT6-004 CT6-017 EP-94 SS6P-41 CT6-041 CT6-040
CT6KIT-205	KIT, HOUSING, INLET MM, OUTLET 1"NPT, VITON	CT6-003 CT6-017 EP-94 SS6P-41 SS6P-35 S10-04	CT6KIT-211	KIT, HOUSING, INLET 2"NPT, OUTLET 1"NPT, SANTOPRENE	CT6-005 CT6-017 EP-94 SS6P-41 CT6-041 CT6-040
CT6KIT-206	KIT, HOUSING, INLET MM, OUTLET 3/4" BSPP, VITON	CT6-004 CT6-017 EP-94 SS6P-41 SS6P-35 S10-04	CT6KIT-212	KIT, HOUSING, INLET 1"BSPP, OUTLET 3/4"BSPP, SANTOPRENE	CT6-006 CT6-017 EP-94 SS6P-41 CT6-041 CT6-040



KIT P/N	DESCRIPTION	PARTS
CT6KIT-301	VALVE PLATE ASSEMBLY, EPDM	CT6-013
		CT6-015
		S10-08
CT6KIT-302	VALVE PLATE ASSEMBLY, VITON	CT6-013
		CT6-016
		S10-04
CT6KIT-303	VALVE PLATE ASSEMBLY, SANTOPRENE	CT6-013
		CT6-039
		CT6-040
CT6KIT-303	VALVE PLATE ASSEMBLY, EPDM, HF	CT6-014
		CT6-015
		S10-08
CT6KIT-304	VALVE PLATE ASSEMBLY, VITON, HF	CT6-014
		CT6-016
		S10-04
CT6KIT-302	VALVE PLATE ASSEMBLY, SANTOPRENE	CT6-014
		CT6-039
		CT6-040





## **Product Warranty**

Flowserve Corporation (the Company) warrants that the Equipment manufactured by and delivered hereunder will be free of defects in material and workmanship for a period of twelve months from the initial Equipment startup or until eighteen months after shipment, whichever occurs first. The Purchaser shall be obligated to promptly report any failure to conform this warranty, in writing to the Company with said period. Flowserve Corporation shall, as its option, correct such non-conformity, by suitable repair to such Equipment or, furnish a replacement part F.O.B. point of shipment, provided the Purchaser has stored, installed, maintained and operated such Equipment in accordance with good industry practices and has complied with specific recommendations of the company. Accessories or Equipment furnished by the Company, but manufactured by others, shall carry whatever warranty the manufacturers have conveyed to the Company, which can be passed on to the Purchaser. The Company shall not be liable for any repairs, replacements, or adjustments to the Equipment or any costs of labor performed by the Purchaser or others without the Company's prior written approval. The effects of corrosion, erosion and normal wear and tear are specifically excluded. THE COMPANY MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FAIRNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

Correction by the Company of nonconformity's whether patent or latent, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of the Company for such nonconformity's, whether based on contract, warranty, negligence, indemnity, strict liability or otherwise with respect to or arising out of such Equipment.

The Purchaser shall not operate Equipment, which is considered to be defective, without first notifying the Company in writing of its intention to do so. Any such of Equipment will be at the Purchaser's sole risk and liability.

Nothing contained in this brochure is intended to extend any warranty representation, expressed or implied, regarding the products described herein, any such warranties or other terms and condition of sales of products shall be in accordance with Flowserve Pumps standard terms and conditions of sale for such products, which are available on request.

### **Technical Service & Support**

3732 Cook Blvd. Suite 101  
Chesapeake, VA 23323-1628 USA  
Telephone: 800-343-7867 (343-PUMP)  
Fax: 757-673-3528  
Website: [www.flowserve.com](http://www.flowserve.com)  
Email: [csb@flowserve.com](mailto:csb@flowserve.com)

***Your Flowserve factory contacts:***

**Flowserve Scienco**  
3900 Cook Blvd.  
Chesapeake, VA 23323-1628 USA  
Ph: +800-343-7867 (343-PUMP)  
Fax: +757-673-3528  
Website: [www.flowserve.com](http://www.flowserve.com)  
Email: [csb@flowserve.com](mailto:csb@flowserve.com)

***Your local Flowserve representative:***

To find your local Flowserve representative, please use the Sales Support Locator System found at [www.flowserve.com](http://www.flowserve.com)