

GENERAL INFORMATION AND NOTICES REGARDING USE OF THIS CATALOG:

WHOLESALE ONLY. This catalog is for information purposes only and does not (i) constitute an offer by GEC, or any other party, to sell or otherwise provide any product contained in this catalog or (ii) grant any party the right to purchase from GEC, or any other party, any product contained in this catalog. Orders for products shall be placed with GEC in accordance with GEC's then current purchasing terms, conditions, policies and procedures. Placement of an order by any party shall not be binding on GEC until such order is accepted, in writing or by other verifiable means, by GEC. Any order, when so accepted, shall constitute a contract between GEC and the party placing such order, consisting of the terms of the formal acceptance issued by GEC and no other terms unless specifically approved, in writing, by GEC. GEC has no obligation to accept any order and silence on the part of GEC shall not be construed as acceptance or agreement on the part of GEC. Except as otherwise agreed in writing by the party against whom any such obligation is sought to be enforced, neither GEC nor any other party shall be obligated to (i) provide, disclose or otherwise make available any particular information, (ii) enter into, or participate in, any project, transaction or other relationship or (iii) execute any contract or other document or take, continue or forgo any action whatsoever.

Prices (like other information contained in this catalog) are subject to change by GEC, at any time and without notice. Prices for products do not include sales or use taxes. GEC sells products wholesale to the retail trade and each purchaser shall remit, directly to the proper authorities, all applicable taxes. In States requiring a resale license number, each purchaser shall furnish to GEC such purchaser's certificate number or other proof of license to buy without obligation to pay taxes.

Unless otherwise specified in the terms of formal acceptance issued by GEC in connection with an order, all products are sold ex works (as defined in Incoterms 2010). GEC reserves the right, at its discretion, to make products available for shipping from GEC's premises or the premises of the manufacturer thereof or other third parties.

Acceptance of orders is subject to credit approval by GEC. Until credit is established to GEC's satisfaction, payment by either credit card or cash-in-advance may be required. Alternatively, GEC may, at its discretion, require payment to be made at the time products are made available and collected for shipping to purchaser.

Terms of payment for established accounts are Cash In-Advance or Net 30 Days.

- Cash-In-Advance: electronic payments, checks or credit cards are accepted at time of purchase.
- Net 30 Days: electronic payments or checks are acceptable forms of payment. Credit cards can only be used at time of purchase.

Products will not be made available for shipment, on open account, to a customer whose account is past due.

Claims for shortage or overcharge must be made within ten (10) days of products being made available and collected for shipping to purchaser, and GEC's responsibility therefore ceases after expiration of such ten (10) day period.

Written permission must be obtained from GEC in order for a purchaser to return goods for credit and such return may be subject to a return handling charge. All returned products must be accompanied by the invoice number indicating date purchased and price paid.

All products are sold by GEC solely for resale or for commercial purposes. GEC makes no warranties to those defined as "Consumers" under the Magnuson-Moss Warranty – Federal Trade Commission Improvements Act. EXCEPT AS SPECIFICALLY STATED IN THE TERMS OF FORMAL ACCEPTANCE ISSUED BY GEC, GEC MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, REGARDING ANY MATTER, INCLUDING, WITHOUT LIMITATION, THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF ANY PRODUCTS. Products contained in this catalog may be warranted to the final Consumer by their manufacturer and copies of such warranties are supplied with the applicable product by the applicable manufacturer or are available from the applicable manufacturer. As a convenience, GEC may obtain copies of such consumer warranties from applicable manufacturers and furnish them, free of charge and in connection with the purchase of applicable products, to purchasers from GEC who request them in writing. Address requests to **GEC Customer Service Dept.;** **P.O. Box 29242; Dallas, TX 75229.** Requests must include the GEC order number and the manufacturer's model number of each product for which a copy of the applicable consumer warranty is requested.

This catalog provides product options for consideration by potential purchasers of products from GEC. It is the responsibility of each purchaser to have its personnel (possessing sufficient technical skill, knowledge, training and expertise) thoroughly review and analyze the information set forth in this catalog (and other information as deemed necessary by such purchaser) in order to determine the appropriateness of all aspects of such purchaser's application, installation, usage, inspection and maintenance of products. Each such purchaser is solely responsible for making the final selection of any products to be purchased from GEC, and to ensure that application, installation, usage, inspection and maintenance of all products purchased shall be in compliance with all applicable specifications, instructions, manuals, performance, safety and warning requirements and provisions of NFPA #54, NFPA #58, DOT, ANSI and all applicable federal, state, local and foreign standards, codes, regulations and laws. Each such purchaser should seek further information in the event there are any doubts or questions.

Though GEC makes reasonable efforts to present accurate information in this catalog, GEC cannot guarantee that this catalog (or any other specifications, instructions, manuals or other information made available in connection with the products contained in this catalog) is completely free from error, omission or misstatement. In addition, product illustrations and descriptions are solely for identification purposes and actual products purchased from GEC will not necessarily conform to such illustrations or descriptions. TO THE FULLEST EXTENT ALLOWED BY APPLICABLE LAW, GEC DISCLAIMS ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, REGARDING ANY MATTER RELATED TO THIS CATALOG OR INFORMATION CONTAINED IN THIS CATALOG (OR OTHERWISE MADE AVAILABLE IN CONNECTION WITH PRODUCTS), INCLUDING, WITHOUT LIMITATION, REPRESENTATIONS OR WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. GEC shall not be responsible for any incorrect information and shall not be liable for any death, injury or damage, whether direct, indirect, incidental, or consequential, caused by the use of this catalog or such information. Information contained in this catalog (or otherwise made available in connection with products) is subject to change by GEC, at any time and without notice. Without limiting the foregoing, it is understood that GEC makes no representation or warranty, regarding truthfulness, accuracy or otherwise, with

respect to the content of any warranty, specifications, instructions, manuals or other information created, provided or otherwise made available by any manufacturer or other third party, and expressly disclaims any liability or responsibility for the content thereof. Each purchaser of products from GEC should consult with GEC regarding more detailed information and in order to determine any changes in information contained in this catalog (or otherwise made available in connection with products).

The graphic images, symbols and text contained in this catalog are either the proprietary property of GEC or are otherwise protected under applicable U.S. and international trademark and copyright laws. The trademarks and other proprietary content of this catalog may not be reproduced, displayed, distributed or transmitted in any form or by any means, electronically, mechanically, audio-visually or otherwise, without the express prior written consent of GEC.

IMPROPER SELECTION, APPLICATION, INSTALLATION, USAGE, INSPECTION OR MAINTENANCE OF THE PRODUCTS CONTAINED IN THIS CATALOG MAY RESULT IN DEATH, INJURY AND/OR DAMAGE. GEC'S SOLE RESPONSIBILITY WITH RESPECT TO ITS PRODUCTS IS SET FORTH IN THE TERMS OF FORMAL ACCEPTANCE ISSUED BY GEC IN CONNECTION WITH THE ORDER FOR SUCH PRODUCTS. Terms of formal acceptance currently issued by GEC in connection with orders for products contained in this catalog include the Acknowledgement Terms and Conditions, dated 9/01/2011 which are [set forth in this catalog] [are available at www.gasequipment.com]. As indicated above, such Acknowledgement Terms and Conditions are subject to change by GEC with respect to future orders.

No change or waiver with respect to the foregoing General Information and Notices shall be binding on GEC unless acknowledged in writing by an authorized officer of GEC.

This is a GENERAL PRODUCTS CATALOG. If you would like additional information regarding any product contained in this catalog, please contact GEC.

Contents

General Information and Notices	i-iv
RegO General Information	1-3
NH3 Information	4-12
Regulators & Accessories	13
Pressure Relief Valves & Relief Valve Manifolds	14-17
Globe & Angle Valves	18-23
Excess Flow, Check, Filler & Vapor Equalizing Valves	23-26
Internal Valves & Accessories	27-34
Adapters, Connectors, & Fittings.....	35-37
Rotogages	38
Emergency Shutdown Valves (ESV's)	39-41
Rego Miscellaneous	41-43
Bulk Plant	44-51
Pumps & Compressors	52-69
Motors, Starters, & Switches	70-72
Gauges.....	73-79
Hoses	80-82
Ball & Needle Valves.....	83
Black Pipe Fittings.....	84-88
Leak Detection & Pipe Sealants	89
Safety Equipment	90
Decals & Signs	91
GEC Training Curricula	92

Anhydrous Ammonia Product Offerings

GEC represents these and other companies

REGO®

MASTER DISTRIBUTOR

Blackmer®

CORKEN®

Smart-Hose®
TECHNOLOGIES

Parafour
Innovations, LLC

ROCHESTER
GAUGES, LLC

krug
products inc.

BASE ENGINEERING INC.

RegO® Age of Products

Determining the Age of Products

All RegO products are mechanical devices that will eventually become inoperative due to wear, contaminants, corrosion and aging of components made of material such as metal and rubber.

The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential.

Because RegO products have a long and proven record of quality and service, LP-Gas dealers may forget the hazards that can occur because products are used beyond their safe service life.

The life of a product is determined by the environment in which it "lives." The LP-Gas dealer knows better than anyone what this environment is.

Since 1960, most RegO products are identified with an alphabetical code indicating the month and the year they were manufactured.

Check the product for this code to determine age. If valves or regulators are repainted, take care to keep the date code clear for later identification and inspection.

1960 to 1985 — Two-Letter Date Code

First letter in date code is the month

A — January	G — July
B — February	H — August
C — March	I — September
D — April	J — October
E — May	K — November
F — June	L — December

Relief valves used on ASME tanks carry a numerical code indicating month and year such as 1-75 means January, 1975.

Second letter in date code is the year

R — 1960	A — 1969	J — 1978
S — 1961	B — 1970	K — 1979
T — 1962	C — 1971	L — 1980
U — 1963	D — 1972	M — 1981
V — 1964	E — 1973	N — 1982
W — 1965	F — 1974	O — 1983
X — 1966	G — 1975	P — 1984
Y — 1967	H — 1976	Q — 1985
Z — 1968	I — 1977	

EXAMPLE: DL = April of 1980

From 1985 to 1990 — Digit Date Code

First digit in date code is the month

1 — January	7 — July
2 — February	8 — August
3 — March	9 — September
4 — April	10 — October
5 — May	11 — November
6 — June	12 — December

Second 2 digits in date code are the year

86 — 1986	89 — 1989
87 — 1987	90 — 1990
88 — 1988	

EXAMPLE: 5-87 = May of 1987

After 1990 — Digit-Letter-Digit Date Code

First digit in date code is the month

1 — January	7 — July
2 — February	8 — August
3 — March	9 — September
4 — April	10 — October
5 — May	11 — November
6 — June	12 — December

Letter in date code is the week

A — 1st week
B — 2nd week
C — 3rd week
D — 4th week
E — 5th week

Second 2 digits in date code are the year

91 — 1991	97 — 1997
92 — 1992	98 — 1998
93 — 1993	99 — 1999
94 — 1994	00 — 2000
95 — 1995	01 — 2001
96 — 1996	02 — 2002
03 — 2003	etcetera. . .

EXAMPLE: 6A16 = First week of June, 2016

RegO® Products Warranty Information

Limited 10 Year Warranty and Limitation Of Liability

LIMITED 10 YEAR WARRANTY

RegO warrants to the original purchasers the products and repair kits manufactured by it to be free from defects in materials and workmanship under normal use and service for a period of 10 years from the date of manufacture. If within thirty days after buyer's discovery of what buyer believes is a defect, buyer notifies in writing and ships the product to RegO at 100 RegO Drive, Elon, NC 27244, RegO, at its option, and within forty-five days of receipt, will repair, replace F.O.B. point of manufacture, or refund the purchase price of that part or product found by RegO to be defective. Failure of buyer to give such written notice and ship the product within thirty days shall be deemed an absolute and unconditional waiver of any and all claims of buyer arising out of such defect.

This warranty does not extend to any product or part that is not installed and used after installation in accordance with RegO's printed instructions, all applicable state and local regulations, and all applicable national standards, such as those promulgated by NFPA, DOT and ANSI. This warranty does not extend to any product or part that has been damaged by accident, misuse, abuse, failure to maintain, or neglect, nor does it extend to any product or part which has been modified, altered, disassembled, or repaired in the field. This warranty does not cover any cosmetic issues, such as scratches, dents, marring, fading of colors or discoloration.

Except as expressly set forth above, and subject to the limitation of liability below, RegO MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, with respect to its products and parts, whether used alone or in combination with others. RegO disclaims all warranties not stated herein.

LIMITATION OF LIABILITY

RegO's total liability for any and all losses and damages arising out of any cause whatsoever shall in no event exceed the purchase price of the products or parts in respect of which such cause arises, whether such cause be based on theories of contract, negligence, strict liability, tort or otherwise.

RegO shall not be liable for incidental, consequential or punitive damages or other losses. RegO shall not be liable for, and buyer assumes any liability for, all personal injury and property damage connected with the handling, transportation, possession, further manufacture, other use or resale of products, whether used alone or in combination with any other products or materials.

From time to time buyers might call to ask RegO for technical advice based upon limited facts disclosed to RegO. If RegO furnishes technical advice to buyer, whether or not at buyer's request, with respect to application, further manufacture or other use of the products and parts, RegO shall not be liable for such technical advice or any such advice provided to buyer by any third party and buyer assumes all risks of such advice and the results thereof.

NOTE: Some states do not allow the exclusion or limitation of incidental, consequential or punitive damages, so the above limitation or exclusion may not apply to you. The warranty gives you specific legal rights, and you may have other rights that vary from State to State. The portions of this limited warranty and limitation of liability shall be considered severable and all portions which are not disallowed by applicable law shall remain in full force and effect.

WARNING

All RegO products are mechanical devices that will eventually become inoperative due to wear, corrosion and aging of components made of material such as rubber, etc. The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential to avoid serious injury and property damage.

Many RegO products are manufactured components which are incorporated by others on or in other products or systems used for storage, transport, transfer and otherwise for use of toxic, flammable and dangerous liquids and gases. Such substances must be handled by experienced and trained personnel only, using accepted governmental and industrial safety procedures.

NOTICE TO USERS OF PRODUCTS

The Limited Warranty stated above is a factory warranty to the first purchasers of RegO products. Since most users have purchased these products from RegO distributors, the user must within thirty (30) days after the user's discovery of what user believes is a defect, notify in writing and return the product to the distributor from whom he purchased the product/part. The distributor may or may not at the distributor's option choose to submit the product/parts to RegO, pursuant to this Limited Warranty. Failure by buyer to give such written notice within thirty (30) days shall be deemed an absolute and unconditional waiver of buyer's claim for such defects. Acceptance of any alleged defective product/parts by RegO's distributor for replacement or repairs under the terms of RegO's Limited Warranty in no way determines RegO's obligations under this Limited Warranty.

Because of a policy of continuous product improvement, RegO reserves the right to change designs, materials or specifications without notice.



RegO® Foreword

Foreword

This catalog describes a complete line of equipment available from REGO® for use with Anhydrous ammonia (NH₃). The following points are important to know for proper use of the catalog:

1. Illustrations and drawings of individual products are representative of “product groups” and all products within a product group are similar in construction.
2. Materials used for construction of products in this catalog are suitable for rated service pressure at temperatures of -40° F. to +165° F., unless otherwise specified.
3. Products in this catalog are only intended for use in Anhydrous Ammonia service as follows.
 - a. “A” or “AA” prefix — Products with this prefix are suitable for NH₃ service (i.e., contain no brass parts).
 - b. “AA” prefix on relief valves — These are of partial aluminum materials and are listed by Underwriters Laboratories (UL) for NH₃ service only.
 - c. “SS” prefix—Hydrostatic relief valve with this prefix are suitable for NH₃ (i.e., they have stainless steel materials).
4. We manufacture valves and adapters designed to be used on Anhydrous Ammonia systems, we do not design systems or consult in system design. For this type of information consult a professional Engineer.

Caution

Do not use any product contained in this catalog with any service commodity other than Anhydrous Ammonia NH₃. If you have a need for use of another application, contact REGO®, 100 RegO Drive, Elon, NC 27244, (336) 449-7707 before proceeding.

Proper application, installation and maintenance of products in this catalog are essential. Users of these products should obtain further information if there are any doubts or questions.

Notice

Installation, usage, and maintenance of all REGO® products must be in compliance with all REGO® instructions as well as requirements and provisions of ANSI K61.1 and all applicable federal, state, provincial and local standards, codes, regulations, and laws.

Inspection and maintenance on a periodic basis is essential. Installation and maintenance should be performed only by qualified personnel.

Be sure all instructions are read and understood before installation, operation and service.

Warning

All REGO® products are mechanical devices that will eventually become inoperative due to wear, corrosion and aging of components made of materials such as rubber. The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential to avoid serious injury and property damage.

Many REGO® products are manufactured for storage, transport, transfer and use of toxic flammable and dangerous liquids and gases. Such substances should be handled by experienced and trained personnel only, using accepted governmental and industrial safety procedures.

General Properties of NH3

There's nothing like ammonia. Anyone who has smelled it, even in small concentrations, will know ammonia when he encounters it again. The odor of this colorless gas is characteristically sharp ...pungent ...biting.

Ammonia is one of the most water soluble of all gases. Under atmospheric pressure and at a temperature of 32° F., one volume of water will dissolve 1,150 volumes of ammonia. Such a saturated aqueous solution contains 47.3% ammonia by weight.

"Dry ammonia", which contains no water, is called anhydrous ammonia (NH3).

Ammonia vapor is lighter than air. Considering the specific gravity of air to be 1.0, the specific gravity of ammonia is 0.589. Under atmospheric pressure, ammonia has a vapor density of 0.0556 pound per cubic foot at its boiling point.

For most industrial purposes, ammonia is shipped and stored as a liquid. Ammonia gas liquefies easily, and in its liquid state is a colorless, mobile fluid. At atmospheric pressure, liquid ammonia boils at -28° F. As the temperature rises, the vapor pressure of ammonia increases rapidly. Liquid ammonia has a density under atmospheric pressure of 42.6 pounds per cubic foot, approximately two-thirds that of water.

Flammability of ammonia vapor in air is limited—the heat of combustion is insufficient to maintain a flame. But the flammability increases with the degree of concentration. At a concentration range of 16% to 27% ammonia by volume with air, the mixture can be ignited by a source of ignition at about 1,200° F. If the vapor is contaminated with oil, the ignition temperature would be lower. In an atmosphere of pure oxygen, ammonia burns vigorously producing nitrogen, water, a small proportion of ammonium nitrate, and a trace of nitrous oxide.

Many metals are not affected by dry ammonia. Moist ammonia will not corrode iron, steel or aluminum, but will react rapidly with copper, silver, zinc and their alloys. Mercury should never be used with ammonia, since explosive chemical compounds may be formed. For this reason, mercury should not be used as the liquid in a manometer in measuring rates of flow of ammonia.

Refer to ANSI Standard K61.1, Safety Requirements for the Storage and Handling of Anhydrous Ammonia, as well as state and local codes.

Chart — Minimum Required Rate of Discharge for Anhydrous Ammonia Pressure Relief Valves Used on ASME Containers

From ANSI K61.1-1981, Appendix A (1981). Minimum required rate of discharge in cubic feet per minute of air at 120% of the maximum permitted start-to-discharge pressure for pressure relief valves to be used on containers other than those constructed in accordance with United States Department of Transportation cylinder specifications.

Surface Area Sq. Ft.	Flow Rate SCFM Air	Surface Area Sq. Ft.	Flow Rate SCFM Air	Surface Area Sq. Ft.	Flow Rate SCFM Air	Surface Area Sq. Ft.	Flow Rate SCFM Air	Surface Area Sq. Ft.	Flow Rate SCFM Air	Surface Area Sq. Ft.	Flow Rate SCFM Air	Surface Area Sq. Ft.	Flow Rate SCFM Air
20	258	95	925	170	1500	290	2320	600	4200	1350	8160	2100	11720
25	310	100	965	175	1530	300	2380	650	4480	1400	8410	2150	11950
30	360	105	1010	180	1570	310	2450	700	4760	1450	8650	2200	12180
35	408	110	1050	185	1600	320	2510	750	5040	1500	8900	2250	12400
40	455	115	1090	190	1640	330	2570	800	5300	1550	9140	2300	12630
45	501	120	1120	195	1670	340	2640	850	5590	1600	9380	2350	12850
50	547	125	1160	200	1710	350	2700	900	5850	1650	9620	2400	13080
55	591	130	1200	210	1780	360	2760	950	6120	1700	9860	2450	13300
60	635	135	1240	220	1850	370	2830	1000	6380	1750	10090	2500	13520
65	678	140	1280	230	1920	380	2890	1050	6640	1800	10330		
70	720	145	1310	240	1980	390	2950	1100	6900	1850	10560		
75	762	150	1350	250	2050	400	3010	1150	7160	1900	10800		
80	804	155	1390	260	2120	450	3320	1200	7410	1950	11030		
85	845	160	1420	270	2180	500	3620	1250	7660	2000	11260		
90	885	165	1460	280	2250	550	3910	1300	7910	2050	11490		

Surface area = Total outside surface area of container in square feet.

When the surface area is not stamped on the name plate or when the marking is not legible, the area can be calculated by using one of the following formulas:

1. Cylindrical container with hemispherical heads. Area (in sq. ft.) = overall length (ft.) x outside diameter (ft.) x 3.146.
2. Cylindrical container with other than hemispherical heads. Area (in sq. ft.) = overall length (ft.) + .3 outside diameter (ft.) x outside diameter (ft.) x 3.1416.
3. Spherical container. Area (in sq. ft.) = outside diameter (ft.) squared x 3.1416.

Temperature F°	Approximate Pressure (PSIG)
-28	0
-20	3
-10	9
0	15
10	23
20	33
30	45
40	58
50	74
60	92
70	114
80	138
90	165
100	197
110	232
120	271
130	315

NH3 Safety Commandments*

1. ALWAYS have ample water available.
2. ALWAYS stay clear of hose and valve openings.
3. ALWAYS wear gloves and goggles when transferring NH3.
4. ALWAYS close valves and disconnect hoses when plant is unattended.
5. ALWAYS be sure pressure is relieved before disconnecting hoses or parts.
6. NEVER fill a tank over 85% of capacity.
7. NEVER leave transfer operations unattended.
8. NEVER tamper with relief valves or safety devices.
9. NEVER try to "get by"-use only approved NH3 equipment.
10. NEVER tow a trailer without secure connecting parts and safety chains.

*Courtesy of Operational Safety Manual for Anhydrous Ammonia, Agricultural Ammonia Institute.

Flow Rate SCFM Air = Required flow capacity in cubic feet per minute of air at standard conditions, 60°F. and atmospheric pressure (14.7 psia).

The rate of discharge may be interpolated for intermediate values of surface area. For containers with total outside surface area greater than 2,500 square feet, the required flow rate can be calculated using the formula, Flow Rate—SCFM Air = 22.11 A^{0.82} where A = outside surface area of the container in square feet.

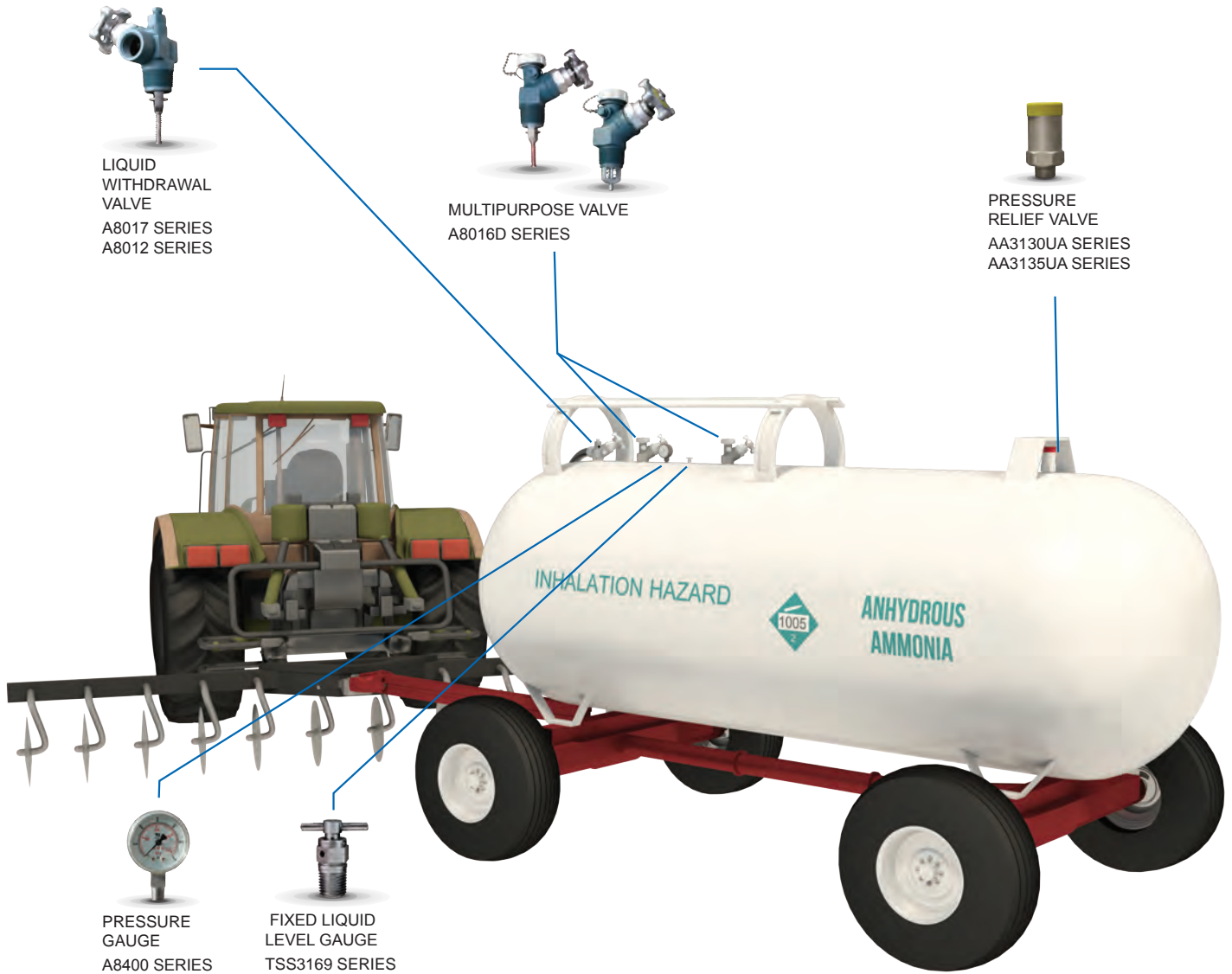
Conversion Factor

ft ²	x	0.092 903	= m ²
SCFM	x	0.028 317	= m ³ /min
ft	x	0.304 8	= m

Anhydrous Ammonia Solutions

You can bet the farm on our performance

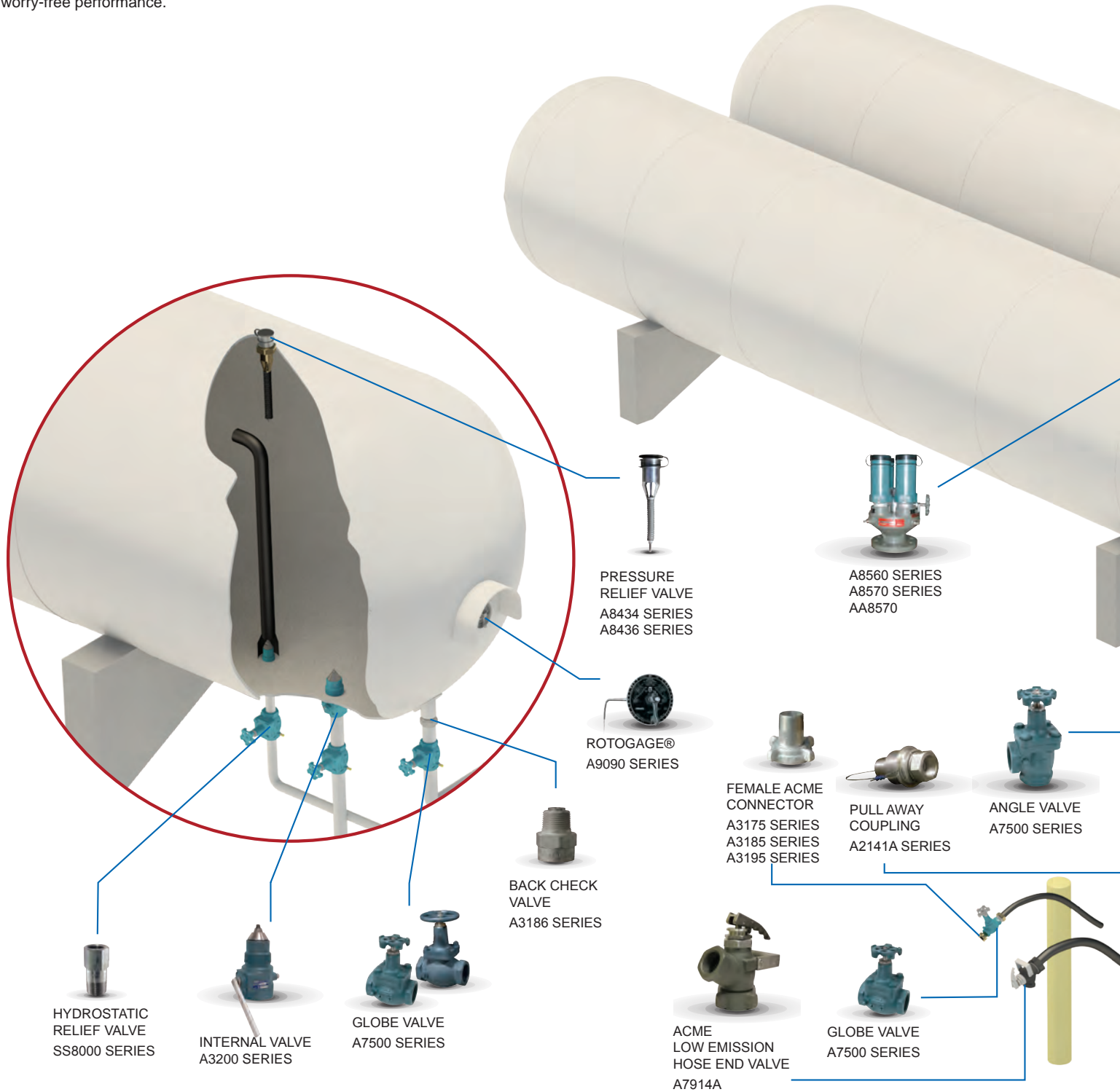
Demanding applications require products you can trust. RegO offers more NH₃ options, and they are all backed with our industry-leading 10-year warranty to help your customers improve their yields with safe, even applications year after year.

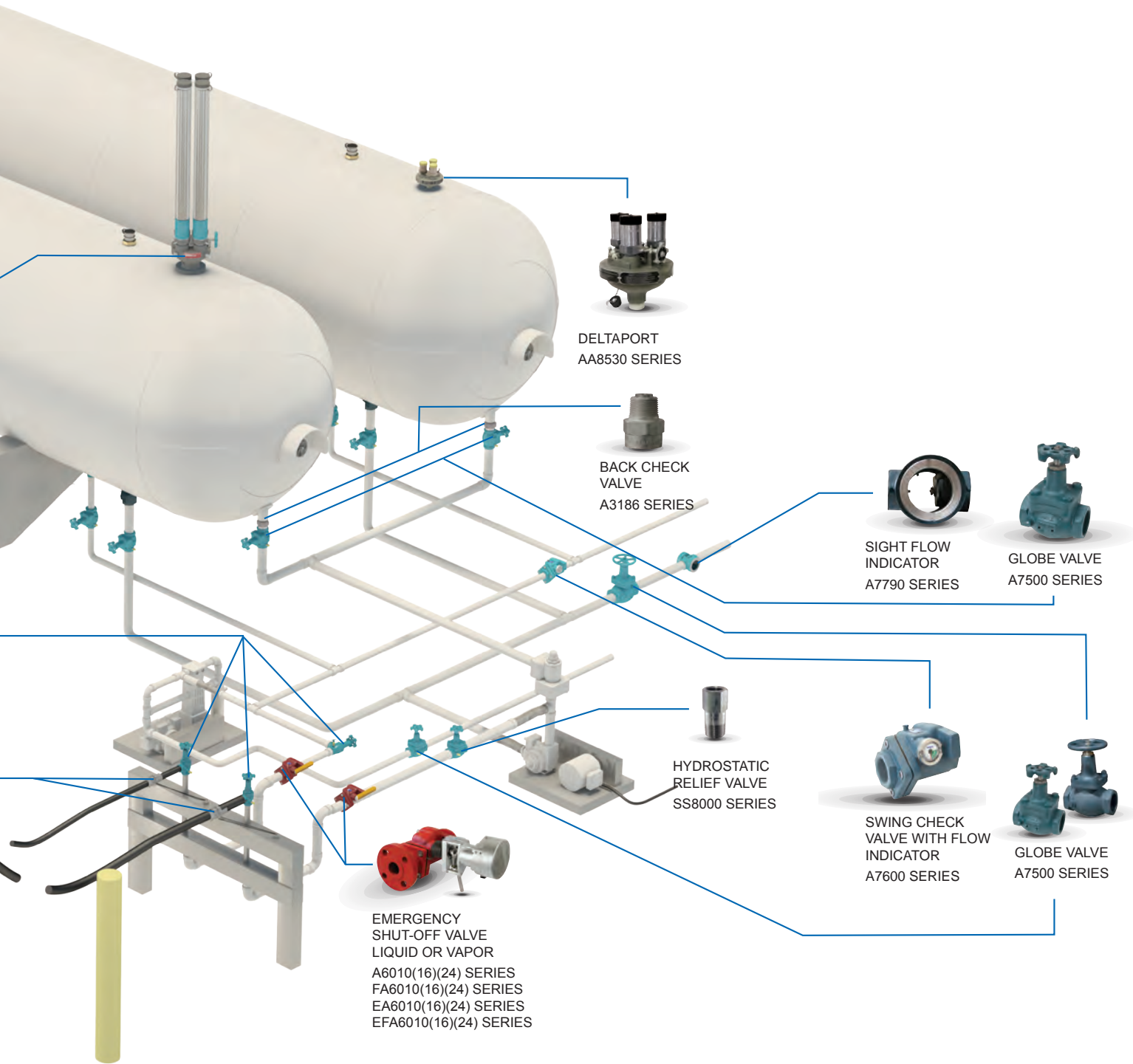


NH3 Bulk Storage Solutions

A complete portfolio for your entire system.

Backed by our industry-leading, 10-year warranty and expert technical support, reliable RegO products are designed and built to deliver years of worry-free performance.







CERTIFICATE



This is to certify that

Engineered Controls International, LLC

100 Rego Drive
Elon, NC 27244
United States of America

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality Management System.**

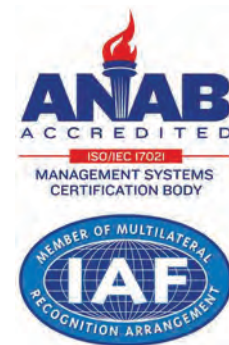
Scope:

The design and manufacture of valves, regulators and fittings for the L.P. Gas, Anhydrous Ammonia, LNG, and Compressed Gas Industries.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2015

Certificate registration no.	10001523 QM15
Date of original certification	1994-10-04
Date of certification	2018-07-20
Valid until	2021-07-19



DQS Inc.

Brad McGuire
Managing Director



**THE NATIONAL BOARD
OF
BOILER & PRESSURE VESSEL INSPECTORS**

Certificate of Authorization



This is to certify that

Engineered Controls International, LLC

Acceptable Abbrev.: ECII, RegO

100 Rego Drive

Elon, NC 27244

United States

is authorized to use the "NB" mark in accordance with the provisions of NB-501, National Board Certification of Pressure Relief Devices.

The scope of Authorization is limited to National Board Certified devices which have been manufactured, assembled and marked in accordance with the following construction codes:

ASME Section VIII, Division 1: "UV" Stamp

Issue Date: November 3, 2017

Expiration Date: October 31, 2020

Executive Director

A handwritten signature in black ink, appearing to read 'D. O. O.', written over a horizontal line.

REG





CERTIFICATE OF AUTHORIZATION

The named company is authorized by the American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the certification mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with this certification mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:


**Engineered Controls International, LLC
100 Rego Drive
Elon, North Carolina 27244**

SCOPE:

**Manufacture of pressure vessel pressure relief valves at the above location only
(This authorization does not cover welding, brazing or fusing)**

AUTHORIZED: **October 24, 2017**
EXPIRES: **October 31, 2020**
CERTIFICATE NUMBER: **24,118**


Board Chair, Conformity Assessment


Managing Director, Conformity Assessment



High Pressure Industrial / Commercial Pounds-to-Pounds Regulators

AA1580V Series



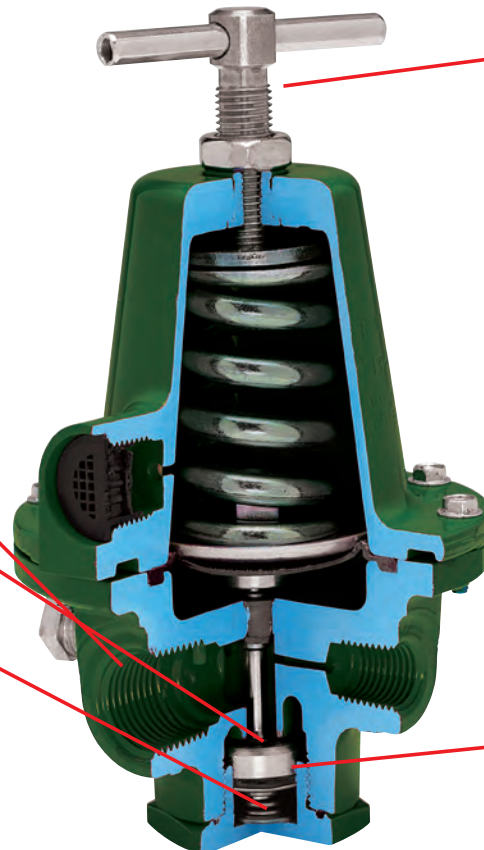
Designed to reduce anhydrous ammonia container pressures to between 3 and 125 PSIG. The AA1580V series is ideal for use in anhydrous ammonia applications such as blue print machines and heat treating.

Part #	Service	Adjustment Method	Inlet & Outlet Connections	Recommended Delivery Pressure Range (PSIG)	Width	Height (max.)	Capacity Determined at Set Pressure of PSIG*	Capacity*
AA1584VW	NH3	Tee Handle	1/2" F. NPT	3-25	2-15/16"	4-7/32"	20	4,500 CFH NH3
AA1584VL	NH3	Tee Handle	1/2" F. NPT	20-50	2-15/16"	4-7/32"	30	4,800 CFH NH3
AA1584VH	NH3	Tee Handle	1/2" F. NPT	45-125	2-15/16"	4-7/32"	60	5,100 CFH NH3
AA1586VW	NH3	Tee Handle	3/4" F. NPT	3-25	25	7"	20	7,000 CFH NH3
AA1586VL	NH3	Tee Handle	3/4" F. NPT	20-50	3-1/2"	7"	30	7,700 CFH NH3
AA1586VH	NH3	Tee Handle	3/4" F. NPT	45-125	3-1/2"	7"	60	8,900 CFH NH3

* Capacity determined at 100 PSIG inlet, set pressure noted on chart at 20% drop.

Typical of the AA1580 Series Industrial High Pressure Regulators

The pounds-to-pounds, industrial regulator gives higher delivery pressure as tank pressure decreases, thus permitting full use of the gas in the tank. Most units are field adjustable to meet changing conditions.



Adjusting Assembly
Large handle with lock-nut release allows easy resetting of delivery pressure.

Connections

Machined and threaded into the body forging; also includes 1/4" NPT pressure gauge ports.

Seat Disc

Synthetic rubber assembly attached directly to the diaphragm assembly to ensure proper movement and regulation.

Back Cap Spring

Provides added upward force to help provide a positive lock-up.

Integral O-Ring
Minimizes tendency to vibrate or hum under extreme loads.

Sensitivity

In those cases where there is a choice of delivery pressure ranges, the lowest spring range which will fulfill your requirements is recommended because the sensitivity of a regulator decreases as the range of the adjusting spring increases.

Relief Valves

Most high pressure regulators are not equipped with integral relief valves. For certain applications where it is desirable to protect equipment downstream of the regulator, relief valves must be installed in the line.

General Information

The "Pop-Action" design permits the RegO® Pressure Relief Valve to open slightly to relieve moderately excessive pressure in the container. When pressure increases beyond a predetermined point, the valve is designed to "pop" open to its full discharge capacity, reducing excess pressure quickly. This is a distinct advantage over ordinary valves which open gradually over their entire range, allowing excessive pressure to develop before the relief valve is fully open. All RegO® internal, semi internal, and external relief valves incorporate this "Pop-Action" design.

Relief Valves in this catalog are only intended for use in anhydrous ammonia service. Do not use any other service commodity. If you have an application other than anhydrous ammonia service, contact REGO® before proceeding.

Fully Internal "Pop-Action" Pressure Relief Valves for Transports and Delivery Vehicles

A8434 and A8436 Series



Designed specifically for use as a primary relief valve on ASME cargo tanks for transportation and delivery vehicles with 2" and 3" F.NPT couplings.

Item #	Start To Discharge Setting PSIG	Container Connection	Overall Height (Approx.)	Height Above Coupling (Approx.)	UL (At 120% of Set Pressure)	ASME (At 120% of Set Pressure)	NH3	Protective Cap (Included)
A8434G	250	2" M. NPT	9-1/16"	1/2"	3700	3456	Yes	A8434-11B
A8434N	265	2" M. NPT	9-1/16"	1/2"	3701	3659	Yes	A8434-11B
A8436G	250	3" M. NPT	17-7/8"	3/4"	10210	9598	Yes	A8436-11B
A8436N	265	3" M. NPT	17-7/8"	3/4"	10211	9839	Yes	A8436-11B

* Per NFPA Pamphlet #58, Appendix D. Area shown is for UL or ASME flow rating—whichever is larger.

External "Pop-Action" Pressure Relief Valves for ASME Containers and Bulk Plant Installations

AA3126, AA3130, AA3135, and A3149 Series



Designed for use as a primary relief valve on ASME above ground and underground containers, bulk plant installations and skid tanks. The 3131 Series may also be used as a primary or secondary relief valve on DOT cylinders, or as a hydrostatic relief valve. All working components of these relief valves are outside the container connection, so the valves must be protected from physical damage.

Item #	Start To Discharge Setting PSIG	Container Connection M. NPT	Overall Height (Approx.)	Height Above Coupling (Approx.)	Flow Capacity SCFM/Air		Accessories			
					UL (At 120% of Set Pressure)	ASME (At 120% of Set Pressure)	Protective Cap	Pipeway Adapter		Weep Hole Deflector
								Part #	Outlet Size	
AA3126L030	30	1/2"	2-3/8"	7/8"	(b)	-	9103-54	AA3126-10	1/2" M. NPT	-
A3149L055	55	2-1/2"	10-1/2"	4-1/8"	2608(c)	-	3149-40	(h)		Included (g)
A3149L200	200	2-1/2"	10-1/2"	4-1/8"	8770 (c)	-	3149-40	(h)		Included (g)
AA3126L250	250	1/2"	2-3/8"	7/8"	277 (c)	-	9103-54	AA3126-10	1/2" M. NPT	-
AA3130UA250	250	3/4"	3-7/16"	1-3/4"	2045	1838	11557-110	AA3131-10	1" F. NPT	-
AA3135UA250	250	1-1/4"	6-13/32"	2-11/16"	6430	6341	AA3135-40PR	AA3135-10	2" F. NPT	3133-11
A3149MG	250	2-1/2"	10-1/2"	4-1/8"	10390	-	3149-40	(h)		Included (g)
A3149G	250	2-1/2"	10-1/2"	4-1/8"	10390	9153		(h)		Included (g)
AA3130UA265	265	3/4"	3-7/16"	1-3/4"	2125	1912	11557-110	AA3131-10	1" F. NPT	-
AA3135UA265	265	1-1/4"	6-13-32"	2-11/16"	6615	6703	AA3135-40PR	AA3135-10	2" F. NPT	3133-11
AA3126L312	312	1/2"	2-3/8"	7/8"	330 (c)	-	9103-54	AA3126-10	1/2" M. NPT	-

(a) Flow rates shown are for bare relief valves. Adapters and pipeways will reduce flow as discussed in the Foreword section.

(b) Not UL or ASME rated. .059 square inch effective area.

(c) Not UL or ASME rated. RegO rated at 120% of set pressure.

(g) Cap supplied with chain.

(h) Outlet 3-1/2-8N (F) thread, will accept 3" M. NPT pipe thread.

(j) Weep hole deflector is Part No. A3134-11B.

External Hydrostatic Relief Valves

SS8001, SS8002, SS8021 and SS8022 Series



Designed especially for the protection of piping and shut-off valves where there is a possibility of trapping liquid anhydrous ammonia. They may be installed in pipelines and hoses located between shut-off valves or in the side boss of RegO shut-off valves.

Item #	Start To Discharge Setting PSIG	Valve Body Material	Container Connection M. NPT	Overall Height (Approx.)	Wrench Hex Section	Pipeaway Adapter Or Threads
SS8001G	250	Stainless Steel	1/4"	7/8"	11/16"	-
SS8002G	250	Stainless Steel	1/2"	7/8"	7/8"	-
SS8021G	250	Stainless Steel	1/4"	1-3/8"	11/16"	1/4" NPSM Thrds
SS8022G	250	Stainless Steel	1/2"	1-3/8"	7/8"	3/8" NPT Thrds
SS8022P	300	Stainless Steel	1/2"	1-3/8"	7/8"	3/8" NPT Thrds
SS8001J	350	Stainless Steel	1/4"	7/8"	11/16"	-
SS8002J	350	Stainless Steel	1/2"	7/8"	7/8"	-
SS8021J	350	Stainless Steel	1/4"	1-3/8"	11/16"	1/4" NPSM Thrds
SS8022J	350	Stainless Steel	1/2"	1-3/8"	7/8"	3/8" NPT Thrds
SS8001L	400	Stainless Steel	1/4"	7/8"	11/16"	-
SS8002L	400	Stainless Steel	1/2"	7/8"	7/8"	-
SS8021L	400	Stainless Steel	1/4"	1-3/8"	11/16"	1/4" NPSM Thrds
SS8022L	400	Stainless Steel	1/2"	1-3/8"	7/8"	3/8" NPT Thrds
SS8001U	450	Stainless Steel	1/4"	7/8"	11/16"	-
SS8002U	450	Stainless Steel	1/2"	7/8"	7/8"	-
SS8021U	450	Stainless Steel	1/4"	1"	11/16"	1/4" NPSM Thrds
SS8022U	450	Stainless Steel	1/2"	1"	7/8"	3/8" NPT Thrds

* 1/2" F. NPT outlet connection.

DuoPort® Pressure Relief Valve Manifolds for Small Storage Containers

AA8542 Series



Designed especially for use as a primary relief device on smaller stationary storage containers, with 2" NPT threaded couplings. These manifolds allow servicing or replacement of either of the two relief valves without evacuating the container or loss of service. The operating lever selectively closes off the entrance port to the relief valve being removed while the remaining valve provides protection for the container and its contents. The rating of each manifold is based on actual flow through the manifold and a single pressure relief valve, taking friction loss into account. It is not merely the rating of the relief valve alone.

Item #	Start To Discharge Setting PSIG	Application	Container Connection M. NPT	Relief Valve Included			Flow Capacity SCFM/Air** (at 120% of set pressure)		
		NH3		Quantity	Part #	Inlet Connection M. NPT	Accessories Pipeaway Adapters	UL Rating (at 120% of set pressure)	ASME Rating (at 120% of set pressure)
AA8542UA250	265	Yes	2"	2	AA3135MUA250	1-1/4"	AA3135-10*	6430 (1)	6341 (1)
AA8542UA265	265	Yes	2"	2	AA3135MUA265	1-1/4"	AA3135-10*	6615 (1)	6703 (1)

* 2" F. NPT outlet connection.

** Flow rating based on number of relief valves indicated in parenthesis (). Flow rates shown are for bare relief valves. Adapters and pipeaways will reduce flow rates as discussed in the Foreword section.

Delta Port Relief Valve Manifolds

AA8530 Series



Designed especially for use as a primary relief device on large stationary pressurized storage containers, the base is supplied with a two-inch NPT threaded container connection. These manifolds incorporate an additional relief valve, not included in the flow rating, allowing for servicing or replacement of any one of the relief valves without evacuating the container. The hand-wheel on the manifold selectively closes off the entrance port to the relief valve being removed while the remaining relief valves provide protection for the container and its contents. All manifold flow ratings are based on flow through the relief valves after one has been removed for service or replacement.

Item #	Start To Discharge Setting PSIG	Application		Relief Valve Included				ASME Flow Rating SCFM/Air at 120% of set Pressure*
		NH3	Container Connection M. NPT	Quantity	Part #	Inlet Connection M. NPT	Accessories Pipeaway Adapters	
AA8532MA250	250	Yes	2"	2	AA3135MA250	1-1/4"	AA3135-10	6,341 (1)
AA8533MA250	250	Yes	2"	3	AA3135MA251	1-1/4"	AA3135-11	12,682 (2)
AA8532MA265	265	Yes	2"	2	AA3135MA265	1-1/4"	AA3135-12	6,615 (1)
AA8533MA265	265	Yes	2"	3	AA3135MA266	1-1/4"	AA3135-13	13,230 (2)

* Flow rating based on number of relief valves indicated in parentheses ().

Flow rates shown are for bare relief valves. Adapters and pipe-always will reduce flow rates as discussed in forwarding information in L-500 catalog. ** 2" F. NPT outlet connection

Multiport™ Pressure Relief Valve Manifold Assemblies for Large Storage Containers

A8560, and A8570 Series



Designed especially for use as a primary relief device on large stationary pressurized storage containers with flanged openings. These manifolds incorporate an additional relief valve, not included in the flow rating, allowing for servicing or replacement of any one of the relief valves without evacuating the container. The handwheel on the manifold selectively closes off the entrance port to the relief valve being removed while the remaining relief valves provide protection for the container and its contents. All manifold flow ratings are based on flow through the relief valves after one has been removed for service or replacement.

Bolt Stud and Nut Assemblies

Item #	Consists of	For Use With:	For Connection To:	Number Required
7560-55	1-Bolt Stud and 2 Nuts	All RegO Multiports™	Modified 3" - 300# and 4"-ANSI 300# Welding Neck Flange	8
7560-56	1-Bolt Stud and Nut	All RegO Multiports™	Manhole Cover Plate	8

Item #	Start To Discharge Setting PSIG	Application		Relief Valve Included				Flow Capacity SCFM/Air** (at 120% of set pressure)	
		NH3	Container Flange Connection	Quantity	Part #	Inlet Connection M. NPT	Accessories Pipeaway Adapter	UL Rating	ASME Rating
A8563G	250	Yes	3"-300#*	3	A3149MG	2-1/2"	****	18,500 (2)	N/A
A8564G	250	Yes	3"-300#*	4	A3149MG	2-1/2"	****	27,750 (3)	N/A
A8573G	250	Yes	4"-300#	3	A3149MG	2-1/2"	****	18,500 (2)	N/A
A8574G	250	Yes	4"-300#	4	A3149MG	2-1/2"	****	27,750 (3)	N/A
A8563AG	250	Yes	3"-300#*	3	A3149G	2-1/2"	****	N/A	18,300 (2)
A8564AG	250	Yes	3"-300#*	4	A3149G	2-1/2"	****	N/A	27,400 (3)
A8573AG	250	Yes	4"-300#	3	A3149G	2-1/2"	****	N/A	18,300 (2)
A8574AG	250	Yes	4"-300#	4	A3149G	2-1/2"	****	N/A	27,400 (3)

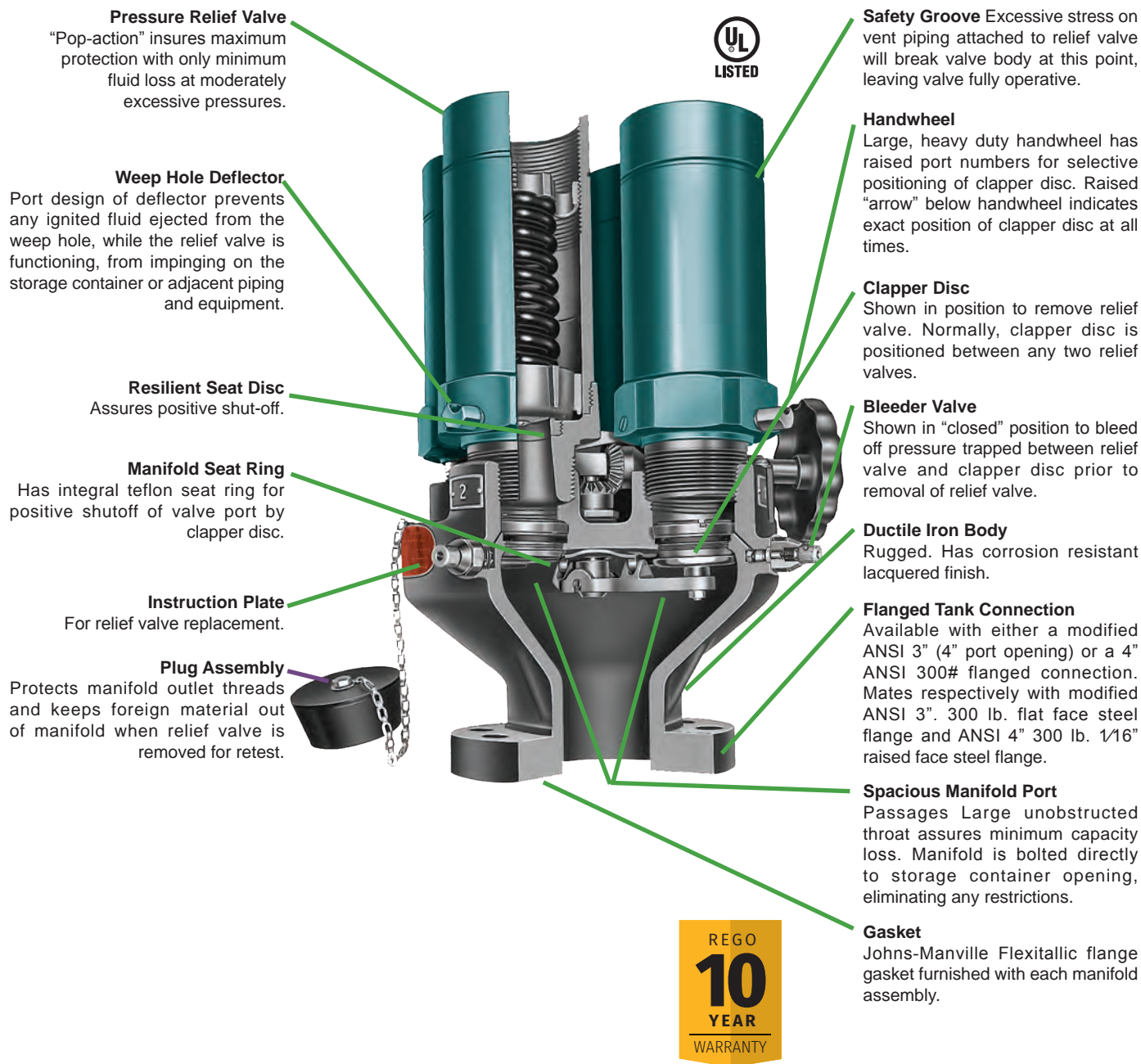
* For use with modified 300# ANSI flange with 4" port.

** Flow rating based on number of relief valves indicated in parentheses (). Flow rates shown are for bare relief valves. Adapters and pipeaways will reduce flow rates as discussed in the Foreword section.

*** 2" F. NPT outlet connection.

**** Outlet 3-1/2-8N (F) thread, will accept 3" M. NPT pipe thread.

Multiport® Pressure Relief Valve Manifold



Flange Dimensions

Manifold Series	Flange Size	Flange Drilling		Port Diameter	Flange Gasket
A8560	Modified 3” 300# (4” Port Dia)		(8) 7/8” Bolt Holes on a 6 5/8” Bolt Circle Diameter Flat Faced.	4”	3” 7564-48
A8570	4” ANSI 300#		(8) 7/8” Bolt Holes on a 7 7/8” Bolt Circle Diameter 1/16” Raised Faced.	4”	4” 7565-48

Quick-Acting Minimum Loss Hose-End Valves for Delivery Trucks and Dispensing Stations

A7793A and A7797A



Designed to vastly reduce the amount of product vented when disconnecting delivery trucks, dispensing systems and anhydrous ammonia nurse tanks. These valves provide instant, full-on flow at the flip of a handle. Shut-off is instant and the handle locks for added protection. This “top of the line” hose-end valve is a fully contained unit that does not require additional filling adapters or connectors.

Item #	Inlet Connection (F. NPT)	Outlet Connection (F. ACME)	Locking Handle	Flow at 1 PSIG (Cv) Pressure Drop* (GPM/NH3)
A7793A	3/4"	1-3/4"	Yes	14.4
A7797A	1"	1-3/4"	Yes	14.4

Quick-Acting Hose-End Valves for Delivery Trucks and Dispensing Stations

A7707L and A7708L



Designed especially for safe operator handling of delivery truck, dispensing systems and anhydrous ammonia nurse tank service. These valves provide instant, full-on flow at the flip of the handle and provide instant positive shut-off with a handle lock for added protection.

Item #	Body Design	Inlet & Outlet Connection (F. NPT)	Locking Handle	Flow at 1 PSIG Pressure Drop (Cv) (GPM/Nh3)**	Accessories		
					Filling Connectors**		
					Extended	Compact	
					Steel	Brass	Steel
A7707L	Straight	1"	Yes	16.2	A7575L4	3175A	A3175A
A7708L	Angle	1"	Yes	19.8	A7575L5	3175A	A3175A

2" ACME Low Emission Hose End Valve for Loading Delivery Trucks and Transports

A7914A



The A7914A Low Emission valve is designed to reduce the amount of product vented when disconnecting delivery truck and transport loading hoses. This valve provides a full-on flow when pressing the release trigger and the lifting of an easy grip handle. Lowering the handle will immediately stop flow and lock the lever in the closed position. This valve can be used with any standard 3-1/4" Male ACME connector, or our 6588LE and 6589LE minimum loss filler valves.

Item #	Inlet Connection	Outlet Connection	Locking Handle	Flow at (Cv) Pressure Drop GPM NH3	
				1 PSIG	10 PSIG
A7914A	2" F.NPT	3-1/4" F.Acme	Yes	49.5	156.6

“V”-Ring Seal Globe and Angle Valves

General Information

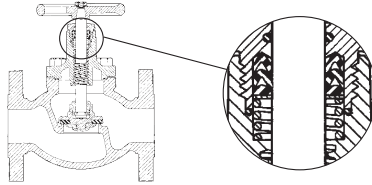
RegO® Globe and Angle Valves are designed and manufactured especially to meet the rigid requirements of the anhydrous ammonia industry. The high quality construction and wide variety of sizes and styles also make them highly suited to many other industries such as chemical and petrochemical.

These ductile iron valves are available in both threaded and flanged connections. Threaded connections are available in ½” F. NPT to 3” F. NPT sizes. Flanged connections are available in 1½”, 2” and 3” pipe sizes.

The ductile iron used in these valves has a 60,000 PSIG tensile strength which closely approaches that of steel castings. Its yield strength of 45,000 PSIG and elongation of 15% is also comparable to that of steel castings. These material features assure the ability of the valve body to withstand impact, wrenching stresses and thermal shock. This ductile iron conforms to ASTM specification A395.

RegO® globe and angle valves are designed for working pressures up to 400 PSIG WOG and for operating temperatures from -40° F. to +160° F.

“V”-Ring Stem Seal



The “V”-ring spring-loaded pressure seal used in these RegO® globe and angle valves is the most effective stem seal yet developed. It should not be confused with conventional valve stem packing where the seal is obtained by compressing the packing around the stem by means of a packing gland with resultant hard operation and frequent packing replacement.

The wax like surface of the teflon “V”-ring seal and consequent low friction assures leak-tight performance for an indefinite period where periodic retightening of the packing is not required and the seal provides extra long service life.

In the RegO® “V”-ring design, the seal is effected by the pressure expanding the “V”-shape of the seal, forcing it against the stem and bonnet surfaces to prevent leakage. The higher the pressure within the valve, the more effective the seal becomes. A spring loaded washer under the “V”-rings keeps them in an expanded position to assure an effective seal under low pressure conditions. A wiper ring, located above the seal, keeps the seal free from grit, and/or other foreign material that may hamper operation.

Installation and Operation Note

Containers and pipe lines should be thoroughly cleaned before globe and angle valves are installed. Large particles of solid foreign matter can permanently damage the seating surface in the valve body, causing the valve to leak. Use a minimum amount of a suitable pipe dope on the male connecting threads as excess amounts may fall off and be carried into the valve, causing damage to the seat or other operating parts.

It is totally unnecessary to use excess force in opening or closing RegO® valves. The type of seat disc material used and the general design of these valves permits them to be opened and closed easily. Proper valve operation insures unusually long life.

Wrenches must never be used to operate valves equipped with handwheels and designed for hand operation.

Downstream Accessory Boss

These RegO® valves incorporate a plugged ¼” F. NPT boss on the downstream side of the body for attaching either a hydrostatic relief valve or vent valve. Boss size on the 2” and 3” valves has been increased to allow a ¾” drilling for accommodation of a standard by-pass valve or jumper lines.

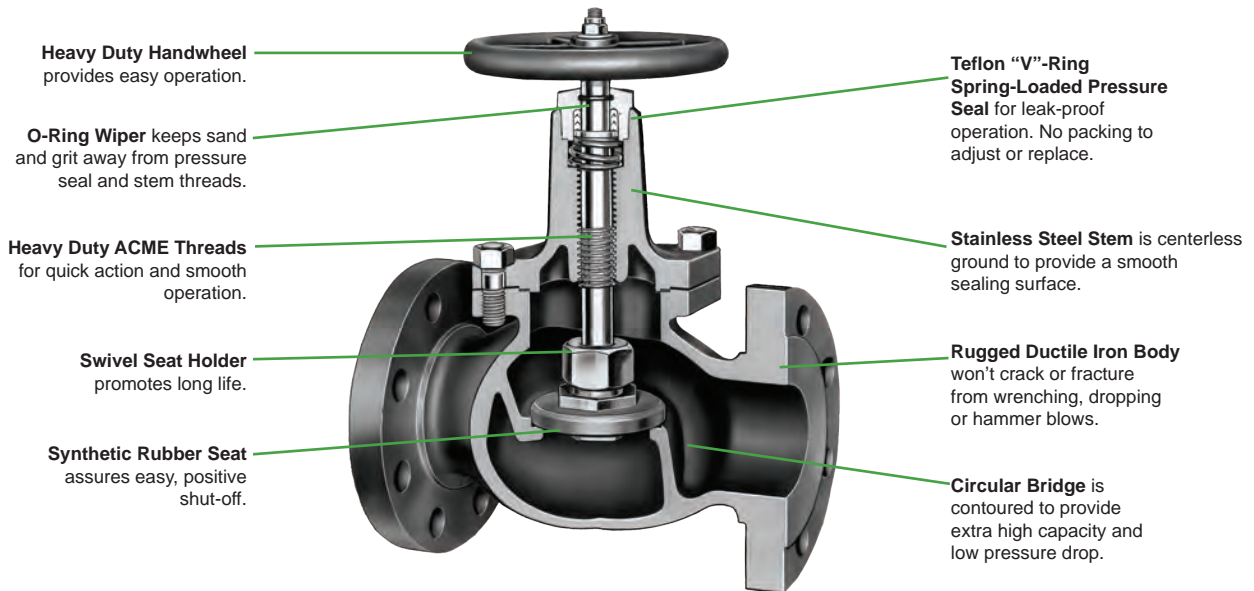
Hydrostatic Relief—When the design of the piping installation is such that liquid may be locked between two shut-off valves, a hydrostatic relief valve should be installed in the lines between the valves. The pressures which can develop due to temperature increase in a liquidfull line are tremendous and can easily damage the valves or piping unless a hydrostatic relief valve is installed.

Vent Valve—If the globe or angle valve is used as a shut-off valve on a loading hose, a vent valve should be installed in the downstream boss to allow liquid trapped beyond the shut-off valve to be vented before disconnecting the hose coupling.

Replace Gate Valves with Flanged Valves

Except for standard flange sizes, RegO® Flanged Globe and Angle Valves are smaller and lighter than contemporary valves, thus reducing price and shipping costs and making them far easier to install. RegO® face to face flange dimensions conform to gate valve dimensions, making replacement of most gate or plug valves with RegO® valves simple and easy.

General Features



“V”-Ring Seal Globe and Angle Valves for Bulk Storage Containers, Transports, and Plant Piping



Specifically designed to ensure positive shut-off and long, maintenance free service life in liquid or vapor service on bulk storage containers, transports, cylinder filling plants and plant piping.

The high quality construction and wide variety of sizes make them highly suited for use with anhydrous ammonia and in the chemical and petrochemical industries.

A7500 Globe Valve Series

Item #	Seat Disc	Inlet and Outlet Connection	Port Diameter	Flow at 1 PSIG Pressure Drop (Cv) (GPM/NH3)**	Accessories	
					Hydrostatic Relief Valve	Vent Valve
A7505AP	Buna N	3/4" F. NPT	3/4"	10.8	SS8001U	TSS3169
A7507AP	Buna N	1" F. NPT	1"	16.2	SS8001U	TSS3169
A7509BP	Buna N	1-1/4" F. NPT	1-1/4"	32.85	SS8001U	TSS3169
A7511AP	Buna N	1-1/2" F. NPT	1-1/2"	38.7	SS8001U	TSS3169
A7511FP	Buna N	1-1/2" Flange**	1-1/2"	41.4	SS8001U	TSS3169
A7513AP	Buna N	2" F. NPT	2"	67.5	SS8001U	TSS3169
A7513FP	Buna N	2" Flange**	2"	70.2	SS8001U	TSS3169
A7517AP	Buna N	3" F. NPT	3-1/8"	117.6	SS8001U	TSS3169
A7517FP	Buna N	3" Flange**	3-1/8"	117.6	SS8001U	TSS3169
TA7034P	Teflon*	1/2" F. NPT	3/4"	9	SS8001U	TSS3169
TA7505AP	Teflon*	3/4" F. NPT	3/4"	10.8	SS8001U	TSS3169
TA7507AP	Teflon*	1" F. NPT	1"	16.2	SS8001U	TSS3169
TA7509BP	Teflon*	1-1/4" F. NPT	1-1/4"	32.85	SS8001U	TSS3169
TA7511AP	Teflon*	1-1/2" F. NPT	1-1/2"	38.7	SS8001U	TSS3169
TA7511FP	Teflon*	1-1/2" Flange**	1-1/2"	41.4	SS8001U	TSS3169
TA7513AP	Teflon*	2" F. NPT	2"	67.5	SS8001U	TSS3169
TA7513FP	Teflon*	2" Flange**	2"	70.2	SS8001U	TSS3169
TA7517AP	Teflon*	3" F. NPT	3-1/8"	117.6	SS8001U	TSS3169
TA7517FP	Teflon*	3" Flange**	3-1/8"	117.6	SS8001U	TSS3169

* Teflon seat discs on valves built to order.

** 300# ANSI R.F. Flange.

A7500 Angle Valve Series

Item #	Seat Disc	Inlet and Outlet Connection	Port Diameter	Flow at 1 PSIG Pressure Drop (Cv) (GPM/NH3)**	Accessories	
					Hydrostatic Relief Valve	Vent Valve
A7506AP	Buna N	3/4" F. NPT	3/4"	15.93	SS8001U	TSS3169
A7508AP	Buna N	1" F. NPT	1"	19.8	SS8001U	TSS3169
A7510BP	Buna N	1-1/4" F. NPT	1-1/4"	48.6	SS8001U	TSS3169
A7512AP	Buna N	1-1/2" F. NPT	1-1/2"	49.95	SS8001U	TSS3169
A7514AP	Buna N	2" F. NPT	2"	79.65	SS8001U	TSS3169
A7514FP	Buna N	2" Flange**	2"	119.7	SS8001U	TSS3169
A7518AP	Buna N	3" F. NPT	3-1/8"	272.7	SS8001U	TSS3169
A7518FP	Buna N	3" Flange**	3-1/8"	272.7	SS8001U	TSS3169
TA7034LP	Teflon*	1/2" F. NPT	3/4"	13.32	SS8001U	TSS3169
TA7506AP	Teflon*	3/4" F. NPT	3/4"	15.93	SS8001U	TSS3169
TA7510BP	Teflon*	1-1/4" F. NPT	1-1/4"	48.6	SS8001U	TSS3169
TA7512AP	Teflon*	1-1/2" F. NPT	1-1/2"	49.95	SS8001U	TSS3169
TA7514FP	Teflon*	2" Flange**	2"	119.7	SS8001U	TSS3169

* Teflon seat discs on valves built to order.

** 300# ANSI R.F. Flange.

Flange Seal Globe and Angle Valves for Bulk Storage Containers, Filling Hoses and Plant Piping

A7704, A7705 and A7706 Globe Valve Series



Designed to ensure positive shut-off and long maintenance-free service life in liquid or vapor service. Ideally suited for use on cylinder charging manifolds, truck filling hoses, bulk storage containers and plant piping.

The high quality construction and wide variety of sizes make them highly suited for use with anhydrous ammonia and in the chemical and petrochemical industries.

Item #	Inlet and Outlet Connection	Flow at 1 PSIG Pressure Drop (GPM/NH3)	Accessories	
			Hydrostatic Relief Valve	Vent Valve
A7704P	1/2"	6.57	SS8001J or SS8001L	TSS3169
A7705P	3/4"	10.35	SS8001J or SS8001L	TSS3169

A7704, A7705 and A7706 Angle Valve Series



Designed to ensure positive shut-off and long maintenance-free service life in liquid or vapor service. Ideally suited for use on cylinder charging manifolds, truck filling hoses, bulk storage containers and plant piping.

The high quality construction and wide variety of sizes make them highly suited for use with anhydrous ammonia and in the chemical and petrochemical industries.

Item #	Inlet and Outlet Connection	Flow at 1 PSIG Pressure Drop (GPM/NH3)	Accessories	
			Hydrostatic Relief Valve	Vent Valve
A7704LP	1/2"	11.07	SS8001J or SS8001L	TSS3169
A7706P	3/4"	15.93	SS8001J or SS8001L	TSS3169

Flange Seal Liquid Transfer Angle Valves for Bulk Storage Containers

A7550 and A7551 Series



In NH3 applicator tanks they may be used as a vapor bleeder valve or as a liquid withdrawal valve when installed in a coupling with a dip pipe.

When equipped with an integral excess flow valve (A7550PX), the valve should be mounted in a forged steel 3000 lb. half coupling. When mounted in a 1-1/4" x 3/4" NPT reducing coupling, the 3/4" female thread in this coupling must be full length — equivalent to a forged steel 3000 lb. half coupling.

The excess flow valve will not function properly if these specifications are not met. Refer to the Warning Bulletin in the Excess Flow Valve Section of this catalog.

Item #	Inlet Connection (M. NPT)	Outlet Connection (F. NPT)	Integral Excess Flow	Flow at 1 PSIG (Cv) Pressure Drop* (GPM/NH3)	Excess Flow Approximate Closing Flow** (GPM/NH3)	Accessories	
						Hydrostatic Relief Valve	Vent Valve
A7550P	3/4"	3/4"	No	11.97	-	SS8001J	TSS3169
A7550PX	3/4"	3/4"	Yes	-	14.4	SS8001J	TSS3169
A7551P	3/4"	1/2"	No	8.01	-	SS8001J	TSS3169

High Capacity Liquid Withdrawal Valves For NH3

A8012 Series



The A8012 Series is designed especially for use as a high capacity liquid withdrawal valve on anhydrous ammonia nurse tanks or risers.

This valve incorporates an integral excess flow valve; when the valve is in operation the handwheel must be completely open and back-seated to allow the excess flow valve to function properly as explained in the excess flow section of our L-500 and L-102 catalogs.

Item #	Inlet Connection	Outlet Connection	Approximate Closing Flow GPM	Accessories	
				Hydrostatic Relief Valve	Vent Valve
A8012D	1-1/2" M.NPT	1-1/4" F.NPT	72 GPM NH3*	SS8001J	TSS3169
A8012C	1-1/2" M.NPT	1-1/4" F.NPT	45 GPM NH3*	SS8001J	TSS3169

* When installed in a horizontally flowing system.

Multipurpose Valve for Filling of NH3 Containers

A8016DBC



Designed specifically for use as a manual filler valve on anhydrous ammonia applicator tanks. This valve incorporates an integral back check valve.

Item #	Inlet Connection	Filling Connection	Filling Capacity at 20 PSIG Pressure Drop GPM/NH3	Accessories	
				Hydrostatic Relief Valve	Vent Valve
A8016DBC	1-1/4"	1-3/4"	95	SS8001J	TSS3169

Multipurpose Valve for Filling of NH3 Containers

A8016DP



Designed specifically for use as a manual valve or vapor equalizing valve on anhydrous ammonia applicator and nurse tanks.

This valve incorporates an integral excess flow valve. When product is required, the valve must be completely open and backseated to allow the excess flow valve to function properly as explained in the excess flow section of this catalog.

Item #	Inlet Connection (M. NPT)	Filling Connection (M. ACME)	Filling Capacity At 20 PSIG Pressure Drop GPM/NH3*	Approximate Excess Flow Closing Flows		Accessories	
				Liquid* GPM/ NH3	Vapor** CFH/ NH3	Hydrostatic Relief Valve	Vent Valve
A8016DP	1-1/4"	1-3/4"	95	44	24000	SS8001J	TSS3169

* Determined at 9.5 to 12 PSIG differential.

** Determined at 100 PSIG inlet.

Multipurpose Valves for Liquid Withdrawal of NH3 Containers

A8017D & A8020D Series



Designed especially for use as a high capacity liquid withdrawal valve on anhydrous ammonia containers.

These valves incorporate an integral excess flow valve. When product is required, the valve must be completely open and backseated to allow the excess flow valve to function properly as explained in the excess flow valve section of this catalog.

The A8017DH is equipped with a soft seated automatic differential back pressure check valve in the seat disc assembly. This allows any pressure build up in the liquid transfer line in excess of 10-15 psig above the container pressure to flow back into the container. The transfer hose is protected against excessive liquid or vapor pressure entrapment, which adds materially to the useful life of flexible hose. In addition to increasing hose service life, the equalizing valve adds substantially to the operating safety of liquid transfer systems.

Item #	Inlet Connection (M. NPT)	Outlet Connection (F. NPT)	Approximate Excess Flow Liquid Closing Flow** (GPM/NH3)	Accessories	
				Hydrostatic Relief Valve	Vent Valve
A8017DH*	1-1/4"	1"	44.1	Not Required	TSS3169
A8017DP	1-1/4"	1"	49.5	SS8001J	TSS3169
A8017DLP	1-1/4"	3/4"	41.1	SS8001J	TSS3169
A8020D	1-1/4"	1"	70.2	SS8001J	TSS3169

* Built-in back pressure check valve incorporated into shut-off valve.

** Determined at 11.5 to 13.5 PSIG differential for 3/4" outlet and 9 to 12 PSIG differential for 1" outlet. For NH3 flow, multiply by .90.

Excess Flow Valves for Liquid or Vapor Line Service

A1519 Series



Designed for top installation, in any position, in liquid or vapor service lines. They are intended for long lines or branch piping where tank mounted excess flow valves cannot suffice.

Item #	Brass or Steel	Inlet Connection NPT	Outlet Connection F. NPT	Wrench Hex Flats	Effective Length (Approx)	Approximate Closing Flows*
						Liquid (GPM NH3)
A1519A2	Steel	1"	1"	1-3/4"	3-1/2"	23
A1519A4	Steel	2"	2"	3"	4-13/16"	90
A1519B4	Steel	2"	2"	3"	4-13/16"	120
A1519A6	Steel	3"	3"	4"	6-27/32"	200

* Based on horizontal installation of excess flow valve. Flows are slightly more when valves are installed with outlet up; slightly less when installed with outlet down.

NOTE: Multiply flow rate by .94 to determine liquid butane flow and by .90 to determine liquid anhydrous ammonia flow.

Excess Flow Valves for Liquid or Vapor

A3272 Series, A3282 Series, and A3292 Series



Designed for liquid or vapor use for filling, withdrawal and vapor equalizing in container or line applications. They are intended for long lines or branch piping where tank-mounted excess flow valves are inadequate.

Item #	Material	Inlet Connection (M. NPT)	Outlet Connection (F. NPT)	Wrench Hex Flats	Effective Length (Approx.)	Approximate Closing Flows*
						Liquid (GPM NH3)
A3272G	Steel	3/4"	3/4"	1-3/8"	1-3/8"	18
A3282C	Steel	1-1/4"	1-1/4"	2"	1-5/8"	45
A3292A	Steel	2"	2"	3"	2"	68
A3292B	Steel	2"	2"	3"	2"	90
A3292C	Steel	2"	2"	3"	2"	110

* Based on horizontal installation of excess flow valve. Flows are slightly more when valves are installed with outlet up; slightly less when installed with outlet down.

Excess Flow Valves for Container Service

A7537 Series, A7539 Series, A8523 and A8525



Designed for mounting in threaded full or half couplings in container installations. They may be used for filling, withdrawal or vapor equalizing applications. The exceptionally low pressure drop makes them ideal for pump suction lines. If a riser pipe to the vapor space is used with these valves, the minimum inside diameter of the riser pipe must be at least two times the valve thread size in order not to restrict flow to the side inlet ports.

Item #	For Use With This Type Coupling	Inlet Connection M. NPT	Outlet Connection NPT	Wrench Hex Flats	Effective Length (Approx.)	Approximate Closing Flows*
						Liquid (GPM NH3)
A8523	Half	3/4"	3/4" Male	1-1/8"	1-3/4"	14
A8525	Half	1-1/4"	1-1/4" Male	1-3/4"	2-1/8"	32
A7537L4	Half	2"	2" Male and 1-1/4" Female	2-5/8"	2-1/2"	70
A7537L4F	Full	2"	2" Male and 1-1/4" Female	2-5/8"	2-1/2"	70
A7537N4	Half	2"	2" Male and 1-1/4" Female	2-5/8"	2-1/2"	115
A7537N4F	Full	2"	2" Male and 1-1/4" Female	2-5/8"	2-1/2"	115
A7537P4	Half	2"	2" Male and 1-1/4" Female	2-5/8"	2-1/2"	135
A7537P4F	Full	2"	2" Male and 1-1/4" Female	2-5/8"	2-1/2"	135
A7539R6F	Half	3"	3" Male and 2" Female	3-3/4"	3-1/8"	135
A7539R6F	Full	3"	3" Male and 2" Female	3-3/4"	3-1/8"	135
A7539T6	Half	3"	3" Male and 2" Female	3-3/4"	3-1/8"	180
A7539T6F	Full	3"	3" Male and 2" Female	3-3/4"	3-1/8"	180
A7539V6	Half	3"	3" Male and 2" Female	3-3/4"	3-1/8"	225
A7539V6F	Full	3"	3" Male and 2" Female	3-3/4"	3-1/8"	225

* Based on horizontal installation of excess flow valve. Flows are slightly more when valves are installed with outlet up; slightly less when installed with outlet down.

Excess Flow Valves for Flange Mounting in Container Service

A3500 Series and A4500 Series



Designed for mounting in flanged tank connections with internal threads in the bottom of a container. They may be used in filling, withdrawal or vapor equalizing application. They provide high flow capacity with low pressure drop to minimize pump inlet line cavitation. If a riser pipe to the vapor space is used with these excess flow valves, the minimum inside diameter of the riser pipe must be at least two times the valve thread size in order not to restrict flow to the side inlet ports. Flange mounted excess flow valves are readily accessible for servicing and completely enclosed and protected in event of fire. Because there is no direct connection between external piping and the valve, stresses imposed on piping will not affect the excess flow valve.

Item #	Inlet Connection NPT	For Installation	Effective Thread (Approx.)	Threaded End To Port	Approximate Closing Flows*
					Liquid (GPM NH3)
A3500L4	2"	Slotted Body	3/4"	1-15/16"	70
A3500N4	2"	Slotted Body	3/4"	1-15/16"	115
A3500P4	2"	Slotted Body	3/4"	1-15/16"	135
A3500R6	3"	Slotted Body	1"	1/9/2016	135
A3500T6	3"	Slotted Body	1"	1/10/2016	180
A3500V6	3"	Slotted Body	1"	1/11/2016	225
A4500Y8	4"	Slotted Body	1-1/16"	1-15/16"	450

NOTE: Multiply flow rate by .94 to determine liquid butane flow and by .90 to determine liquid anhydrous ammonia flow.

Excess Flow Valves for Liquid or Vapor Withdrawal

A8013D Series



These valves are designed for bottom mounting in consumer storage tanks for liquid service. They may also be top mounted for vapor service. These valves are designed especially for use with RegO globe and angle valves.

Item #	Inlet Connection M. NPT	Outlet Connection NPT	Wrench Hex Flats	Effective Length (Approx.)	Approximate Closing Flows**
					Liquid (GPM NH3)
A8013D	1-1/4"	3/4"	1-3/4"	1-3/32"	39
A8013DA	1-1/4"	1"	1-3/4"	1-3/16"	44
A8013DB	1-1/4"	1-1/4"	1-3/4"	1-7/32"	55

* 3/4" F. NPT Dip Pipe Connection

** Based on horizontal installation of excess flow valve. Flows are slightly more when valves are installed with outlet up; slightly less when installed with outlet down.

NOTE: Multiply flow rate by .94 to determine liquid butane flow and by .90 to determine liquid anhydrous ammonia flow.

Excess Flow Valves for Vapor or Liquid

A2137 Series



Designed especially for filling, withdrawing or vapor equalizing in half and full coupling installations. Ideal for container service where welded-in dip pipes are not provided. For vapor use, mount in the bottom opening with a threaded dip pipe. For liquid use, mount in the top opening with a threaded dip pipe. These may also be installed in pipe lines provided the connection is made to the male inlet thread and not the female dip pipe connection.

Item #	Inlet Connection NPT	Outlet Connection F. NPT	Wrench Hex Flats	Effective Length (Approx.)	Approximate Closing Flows***
					Liquid (GPM NH3)
A2137	2"*	2" Male and 1-1/4" Female	2-7/16"	1-9/16"	45
A2137A	2"*	2" Male and 1-1/4" Female	2-7/16"	1-9/16"	64

* 1-1/4" F. NPT Dip Pipe Connection

** 2" F. NPT Dip Pipe Connection

*** Based on horizontal installation of excess flow valve. Flows are slightly more when valves are installed with outlet up; slightly less when installed with outlet down.

Back Pressure Valves for Container or Line Applications

A3186, A3187S, A3196, and A3276BC



Designed to provide protection of a container opening when desired flow is always into the vessel. May be used in line applications where flow must be limited to one direction.

When used with the appropriate single check filler valve, the combination forms a double check filler valve suitable for use in filling of lk storage tanks.

Item #	Material	Inlet Connection F. NPT	Outlet Connection M. NPT	Wrench Hex Flats	Effective Length (approx.)
A3276BC*	Steel	1-1/4"	1-1/4"	2"	2-1/8"
A3186	Steel	2"	2"	3"	2-3/8"
A3187S**	Steel	2" M & 1-1/4" F	2" M & 1-1/4" F	3"	1-27/323
A3196	Steel	3"	3"	4"	3-7/32"

*Soft seat version.

**The 1-1/4" and 2" outlet connections are for a standpipe when installed inside of a container.

NOTE: Multiply flow rate by .94 to determine liquid butane capacity and by .90 to determine liquid anhydrous ammonia capacity.

Electric Actuators

Electric Actuators are a simple, safe and reliable solution with accurate and smooth motion control. There is no need for a compressed air source and no concern of moisture freezing shutting a system down. Remote emergency-shut-down locations can be easily installed and easily maintained. The electric actuators come installed on the valve and are tested for proper operation at the factory. All electric actuators are rated CSA UL Class 1 Div 1 Explosion proof enclosures.

Electric actuators are available to retrofit existing RegO valves and are easy to install. Positional indication and operation, can be removed to a truck cab or control panel (or PLC) to indicate valve position. Manual override handle also indicates position and can be used for Lock-Out. An internal heater is installed to ensure reliability. A thermal fuse is incorporated to ensure no over temp.

Safety Features



Fusible Link
UL rated
mechanically fails at 100°C
(212°F) allowing internal
valve's spring to shut off the
flow.

Electronic Thermal Cut-Off

Internal component cuts power line at 89°C (208°F). Actuator closes when power is lost.

General Specifications

Model	Torque Range (in-lbs)	Speed Range (time to open)
RDM	44 .. 95	2 sec .. 10 sec

- Enclosure: NEMA 6 / IP67 IP67 / 40°C (104°F)
- Enclosure: Class 1, Div 1 Groups D, C, D /T6
- Temperature Range: -40°C/F .. 70°C (185°F) Internal heater standard
- Finish: Anodized white, Stainless
- Stall Protection: By current sense and motion detection
- Feedback: Limit switches
- Life Expectance: 250,000 cycles or equivalent under specified conditions
- Motor: BLDC brushless DC motor
- Voltages: 12/24 VDC
- Positioning precision: +/- 3 deg
- Range Setting: Set according to valve
- Speed setting: Set according to valve
- End of travel detection: By current sense and motion detection
- Power setting: Set according to valve
- Motor control: Internal micro controller
- Mechanical shock: 1 m drop test no damage to function Random SAE J1211, Chassis, Exterior
- Mechanical vibration: Random SAE J1211, Chassis, Exterior
- Housing: All housing parts anodized aluminum
- Bearings: Oiled for life porous bronze bearings
- External Fasteners: Stainless Steel
- Manual Override: Mounted Directly on the valve stem
- Control: 12/24 VDC TTL
- Limit Switches: Switches are triggered at fully closed, and fully open position. (independent I/O)

1-1/4" Threaded Internal Valve with Electric Actuator for Small Capacity Pumping Systems and Vapor Equalization

EA3209E Series



Designed primarily for use with anhydrous ammonia as a main valve on small capacity pumping systems, NH3 nurse tanks and in-line installations. It may also be installed in the vapor equalizing opening on delivery trucks. Installation is quick and easy, and it fits in both full and half couplings, as well as, in-line applications.

Part Number	Inlet Connection M. NPT	Outlet Connection F. NPT	Voltages	Closing Flow NH3
EA3209D050	1-1/4"	1-1/4"	12/24 VDC	45
EA3209D080	1-1/4"	1-1/4"		72
EA3209DT050*	1-1/4"	1-1/4"		45
EA3209DT080*	1-1/4"	1-1/4"		72

* T-Body Design

1-1/2" Internal Valve with Electric Actuator

EA3211D Series



Designed primarily for use with anhydrous ammonia as a main valve on pumping systems, and in-line installations. Installation is quick and easy and it fits in both full and half couplings, as well as, in-line applications.

Part Number	Inlet M.NPT	Outlet F.NPT	Voltages	Closing Flow GPM	
				Half Coupling	Full Coupling
EA3211D080	1-1/2"	1-1/2"	12/24 VDC	72	67
EA3211D110	1-1/2"	1-1/2"		99	76

2" Internal Valves with Electric Actuator For Delivery Trucks, Transports and Stationary Storage Tanks

EA3212 Series



Designed primarily for use with anhydrous ammonia for liquid withdrawal; vapor transfer or vapor equalization of delivery trucks, transports, stationary storage tanks, and in-line installations.

Part Number	Inlet Connection M. NPT	Outlet Connection F. NPT	Voltages	Closing Flow (GPM) Half Coupling	Closing Flow (GPM) Full Coupling
EA3212R105	2"	2"	12/24 VDC	95	59
EA3212RT105		2" T-body			
EA3212R175		2"		158	90
EA3212RT175		2" T-body			
EA3212R250		2"		225	117
EA3212RT250		2" T-body			

3" Internal Valves with Electric Actuator For Delivery Trucks, Transports and Stationary Storage Tanks

EA3213D Series



Designed primarily for use with anhydrous ammonia for liquid withdrawal; vapor transfer or vapor equalization of delivery trucks, transports, stationary storage tanks, and in-line installations.

Part Number	Inlet Connection M.NPT	Outlet Connections F.NPT	Voltages	Closing Flow Half Coupling (GPM)	Closing Flow Full Coupling (GPM)
EA3213D150	3"	3"	12/24 VDC	135	113
EA3213D200				180	144
EA3213D300				270	225
EA3213D400				360	293
EA3213DT150*				135	113
EA3213DT200*				180	144
EA3213DT300*				250	225
EA3213DT400*				325	293

1-1/4" Threaded Internal Valve for Small Capacity Pumping Systems and Vapor Equalization

A3209D & A3209DT Series



Designed primarily for use with anhydrous ammonia as a main valve on small capacity pumping systems, NH₃ nurse tanks and in-line installations. It may also be installed in the vapor equalizing opening on delivery trucks. Installation is quick and easy, and it fits in both full and half couplings, as well as, in-line applications. The valve may be actuated manually by hand, cable or pneumatic actuator.

Item #	T-Body Design	Inlet Connection M. NPT	Outlet Connection F. NPT	Closing Flow NH ₃	Accessories	
					Thermal Latch	Pneumatic Actuator
A3209D050	No	1-1/4"	1-1/4"	45	A3209TL	A3209PA, A3209PAF
A3209D080	No	1-1/4"	1-1/4"	72	A3209TL	A3209PA, A3209PAF
A3209DT050	Yes	1-1/4"	1-1/4"	45	A3209TL	A3209PA, A3209PAF
A3209DT080	Yes	1-1/4"	1-1/4"	72	A3209TL	A3209PA, A3209PAF

Straight Through 1-1/2" Internal Valve

A3211D Series



Designed primarily for use with anhydrous ammonia as a main valve on pumping systems, and in-line installations. Installation is quick and easy and it fits in both full and half couplings, as well as, in-line applications. The valve may be opened manually by hand or pneumatic actuator.

Item #	Inlet M.NPT	Outlet F.NPT	Closing Flow GPM		Accessories
			Half Coupling	Full Coupling	Thermal Latch
			NH ₃	NH ₃	
A3211D080	1-1/2"	1-1/2"	72	67	A3209TL
A3211D110	1-1/2"	1-1/2"	99	76	A3209TL

Threaded Internal Valves For Delivery Trucks, Transports and Stationary Storage Tanks

A3212 Series



Designed primarily for use with anhydrous ammonia for liquid withdrawal; vapor transfer or vapor equalization of delivery trucks, transports, stationary storage tanks, and in-line installations. The valve may be operated manually by cable or pneumatically.

Item #	Inlet Connection M. NPT	Outlet Connection F. NPT	Closing Flow Half Coupling (GPM)	Closing Flow Full Coupling (GPM)	Accessories		
			NH3	NH3	Pneumatic Acuator	Rotary Acuator	Thermal Latch
A3212R105	2"	2"	95	59	A3213PA*	A3212RA	A3213TL
A3212RT105	2"	2" T-body	95	59	A3213PA*	A3212RA	A3213TL
A3212R175	2"	2"	158	90	A3213PA*	A3212RA	A3213TL
A3212RT175	2"	2" T-body	158	90	A3213PA*	A3212RA	A3213TL
A3212R250	2"	2"	225	117	A3213PA*	A3212RA	A3213TL
A3212RT250	2"	2" T-body	225	117	A3213PA*	A3212RA	A3213TL

* For the old A3212A Series please use the A3212PA Pneumatic Actuator

Threaded Internal Valves For Delivery Trucks, Transports and Stationary Storage Tanks

A3213D Series



Designed primarily for use with anhydrous ammonia for liquid withdrawal; vapor transfer or vapor equalization of delivery trucks, transports, stationary storage tanks, and in-line installations. The valve may be operated manually by cable or pneumatically.

Item #	T-Body Design	Inlet Connection M.NPT	Outlet Connection F.NPT	Closing Flow Half Coupling (GPM)	Closing Flow Full Coupling (GPM)	Accessories		
				NH3	NH3	Pneumatic Acuator	Rotary Acuator	Thermal Latch
A3213D150	No	3"	3"	135	113	A3213PA	A3213RA	A3213TL
A3213D200	No	3"	3"	180	144	A3213PA	A3213RA	A3213TL
A3213D300	No	3"	3"	270	225	A3213PA	A3213RA	A3213TL
A3213D400	No	3"	3"	360	293	A3213PA	A3213RA	A3213TL
A3213DT400	Yes	3"	3"	325	293	A3213PA	A3213RA	A3213TL

3" Flanged Internal Valves for Delivery Trucks, Transports and Large Stationary Storage Containers

A3217A & A3217DA



Designed primarily for anhydrous ammonia filling and/or withdrawal on MC331 delivery trucks, transports and stationary storage tanks with flanged pumps or piping. Installation is quick and easy, and the valve may be operated manually by cable or pneumatically. Lever available on right or left side to allow for installation without the use of an extra pulley.

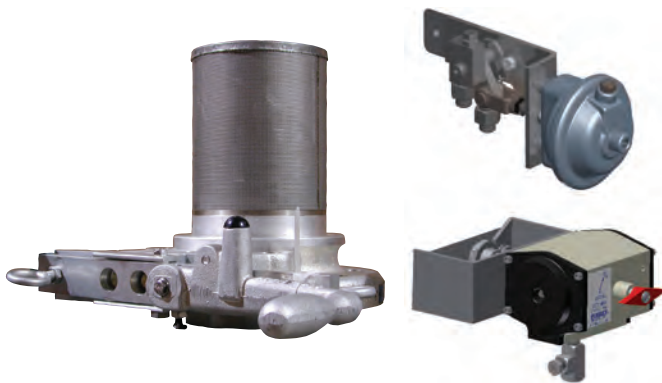
A3217ARPA and A3217ALPA Pneumatic Actuators

These Pneumatic Actuators are designed specifically for use with the A3217 Series 3" Internal Valves. The diaphragm design provides a convenient means of opening and closing the valve from a remote location, using either air or nitrogen.

Item #	Operating Lever Position	Inlet Connection	Outlet Connection	Closing Flow GPM	Accessories
				NH3	Pneumatic Actuator
Single Flange					
A3217AR260	Right	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	236	A3217ARPA, A3217RA
A3217AR410	Right	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	372	A3217ARPA, A3217RA
A3217AR510	Right	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	459	A3217ARPA, A3217RA
A3217AL260	Left	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	236	A3217ALPA, A3217LA
A3217AL410	Left	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	372	A3217ALPA, A3217LA
Double Flange					
A3217DAR260	Right	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	236	A3217ARPA, A3217RA
A3217DAR410	Right	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	372	A3217ARPA, A3217RA
A3217DAR510	Right	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	459	A3217ARPA, A3217RA
A3217DAL260	Left	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	236	A3217ALPA, A3217LA
A3217DAL410	Left	3" 300# ANSI RF Modified Flange*	3" 300# ANSI RF Flange	372	A3217ALPA, A3217LA

4" Flanged Internal Valve for Transports and Large Stationary Storage Tanks

A3219 Series



Designed primarily for anhydrous ammonia service on MC331 transport pressure vessels and large stationary storage tanks. Installation is quick and easy, and it fits in most existing tank flanges. The valve may be actuated manually or pneumatically.

Use of the A3219RT Remote Thermal Release with this valve is suggested to provide a remote means of mechanical closure along with thermal protection, as required by DOT.

A3219FPA Pneumatic Actuator

The A3219FPA Pneumatic Actuator is designed especially for use with the A3219FA Series Flanged Internal Valves. The diaphragm type A3219FPA provides a convenient means of opening and closing the valve from a remote location, using either air or nitrogen, on NH3 transport trailers and stationary tanks.

Item #	Inlet Connection	Outlet Connection	Closing Flow GPM***	Accessories	
			NH3	Pneumatic Actuator	Remote Thermal Release
A3219FA400L	4" 300# ANSI RF Modified Flange**	4" 300# ANSI RF Flange	360	A3219FPA, A3219RA	A3219RT (2)
A3219FA600L	4" 300# ANSI RF Modified Flange**	4" 300# ANSI RF Flange	540	A3219FPA, A3219RA	A3219RT (2)

* Valve supplied with 16 nuts and 8 studs for mounting.

** Modified bore = 5 7/8" diameter with 7" diameter raised face.

*** Other closing flows available

Remote Thermal Release for DOT MC331 Pressure Vessel

A3219RT



Designed especially for use with Internal Valves installed in DOT MC331 pressure vessels. The A3219RT provides a remote means of mechanical closure along with thermal protection, as required by DOT MC331.

The A3219RT is connected by cable to the internal valve(s) on the vessel. In the event of extreme heat (over 212° F.), the fuse link will melt, causing the spring to contract and pull the cable. When properly installed the cable will trip the internal valve release lever(s) allowing the connected handle(s) to move to the closed position.

Item #	For Use With	Release Temperature	Spring Load		Minimum Number Required By MC331
			Fully Extended	After 4" Travel	
A3219RT	Internal Valves	212° F.	≈100 lbs.	≈50 lbs.	2

Flomatic® Internal Valves for Delivery Trucks, Transports and Large Stationary Storage Tanks

A7883FK



Designed primarily for anhydrous ammonia liquid withdrawal on MC331 delivery trucks, transports and large stationary storage containers with flanged connections. The valve is fully automatic, opening and closing as the pump is turned on or off.

Item #	Inlet Connection ANSI Flange	Outlet Connection ANSI Flange	Strainer Width	Base Width	Overall Height (Approx.)	Height from Indicator to Base	Accessories (included with Flomatic® Valve: filter, 3-way valve, studs, nuts and gaskets)	
							Filter	3-Way Valve
A7883FK	3"-300#**	3"-300#	4-3/4"	8-1/4"	10-7/8"	4-13/16"	A7884-201	A7853A

** With 4-13/16" diameter bore.

1/4" Three-Way Quick-Acting Valve

A7853A



A7853A 1/4" Three-Way Quick-Acting Valve

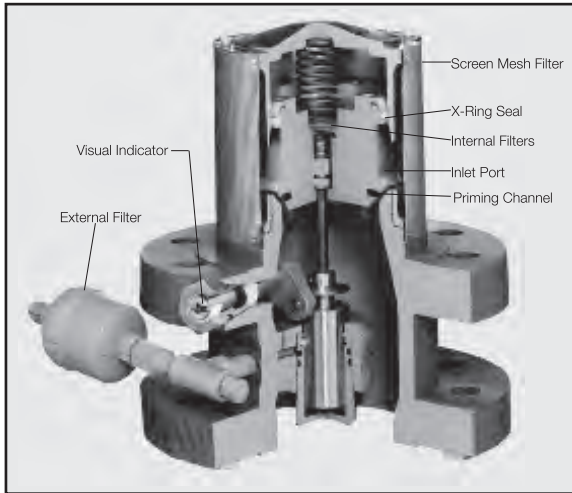


EA7853A 1/4" Three-Way Quick-Acting Valve with Electric Actuator

Ordering Information

Part #	Flange Type	Accessories	
		Pneumatic Actuator	Electric Actuator (Ships with Valve)
A7853A	T-1 Steel Carbon Steel	A7853PAF	-
EA7853A		-	12/24 VDC Voltage

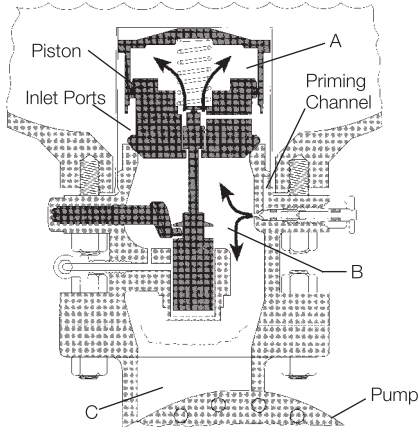
Flomatic® Internal Valve Operation



1. Normally Closed

When the valve is closed, liquid flows into the INLET PORTS, through a channel in the PISTON, and into area A. It also flows down through the PRIMING CHANNEL in the valve body, into area B beneath the valve seat, and into area C to prime the PUMP.

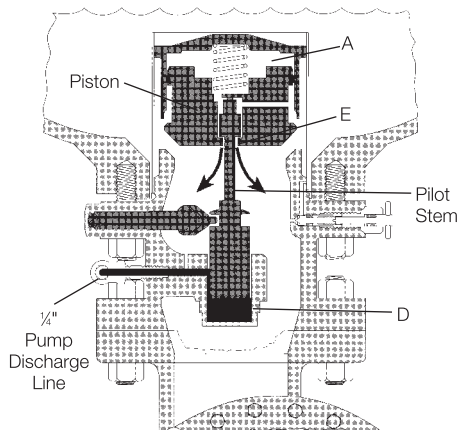
1



2. Pump On – Valve Opening

When the pump is started, differential pressure transmits through the 1/4" piping into chamber D. lifting the PILOT STEM. This opens the seat between the stem and piston at E. Pump suction then evacuates the tank pressure in area A, which becomes equal to the pump suction pressure.

2



General Information

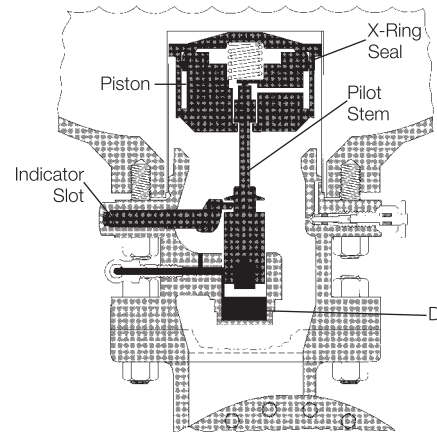
RegO® piston type Flomatic® Internal Valves are normally closed and use pressure differential to provide completely automatic service. Mounted directly between the tank body and pump, the Flomatic® uses the pressure differential developed by the pump to open the valve and it closes automatically when the differential no longer exists.

This means the RegO® Flomatic® opens when the pump is on and closes when the pump is shut off – fully automatic.

3. Pump On – Valve Open

The force below the pilot stem forces the piston up to open the valve; rotating the INDICATOR SLOT to its vertical (valve open) position. Pump differential pressure in area D holds the PILOT STEM and PISTON open. Approximately 20 psig pump differential pressure is required to open the valve; approximately 8 psig differential pressure will hold the valve open.

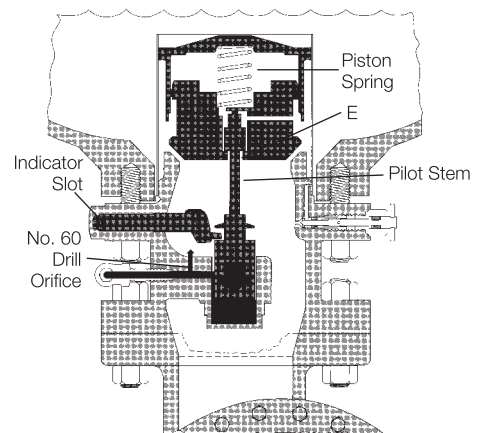
3



4. Pump Off – Valve Closes

With the pump shut off, the pressure in area D which holds the valve open, bleeds out through the #60 DRILL ORIFICE. This loss of pressure permits the SPRING to push the PILOT STEM down to reseat at point E. Since pressures are equal above and below the PISTON, with no sustaining pressure in area D, the SPRING forces the valve closed. The INDICATOR SLOT rotates to the horizontal (valve closed) position.

4



Extended Type Hose Couplings for Vapor and Liquid Service

A7571 and A7575 Series



Designed especially for liquid filling and vapor equalization of anhydrous ammonia. The limited travel of the handle on the tailpiece minimizes spin-off, encouraging cautious removal to properly bleed off trapped product to ensure closure of the filler valve and hose end valve. The ACME threads are machined on a rugged steel insert which is permanently cast in the aluminum handle, providing for durability under repeated use.

Item #	Type of Service	Hose Connection (M. NPT)	Coupling Connection (F. ACME)	Approx. Length	Adapter Included
A7575L2	Liquid	1/2"	1-3/4"	7"	7199-33 (Shipped Loose)
A7575L3	Liquid	3/4"	1-3/4"	7"	—
A7575L4	Liquid	1"	1-3/4"	7"	—
A7575L5	Liquid	1-1/4"	1-3/4"	7"	A7575L5-1 (Shipped Loose)
A7571LA	Vapor	1/2"	1-1/4"	7"	—
A7571LB	Vapor	3/4"	1-1/4"	7"	—

Short Type Hose Couplings for Vapor and Liquid Service

A3175, A3185 and A3195 Series



Item #	Material	Style	Hose Connection (M. NPT)	Coupling Connection (F. ACME)	Tailpiece Bore	Hose End To Nut	Overall Length
A3175	Steel	A - For Liquid Filling	3/4"	1-3/4"	3/4"	2"	2-7/8"
A3175A	Steel	A - For Liquid Filling	1"	1-3/4"	7/8"	2-1/4"	3-1/8"
A3185	Steel	B - For Liquid Filling	1-1/4"	2-1/4"	1-1/4"	2-1/8"	3-3/16"
A3195	Steel	B - For Liquid Filling	2"	3-1/4"	1-7/8"	2-1/4"	3-5/8"
A3195S*	Steel	B - For Liquid Filling	2"	3-1/4"	1-7/8"	2-1/4"	3-5/8"

*With screen.

Caps



Item #	Thread Connection	With Chain & Ring	Ring Fits Pipe Size Up To:	Material
A8016-93	1-3/4" F. ACME	Yes	1-1/4"	Nylon
A8016-9P	1-3/4" F. ACME	Cap Only	-	Nylon
A3175P	1-3/4" F. ACME	Yes	-	Steel
A3184-90	2-1/4" F. ACME	Yes	-	Steel
A3194-90	3-1/4" F. ACME	Yes	-	Steel
A3194-91L	3-1/4" ACME	Yes	Adjustable Cable	Steel

ACME Plugs



Specifically designed to withstand the everyday abuse given to hose end valves on delivery trucks and hose end couplings on risers in bulk plants, these rugged plugs protect the coupling tip as well as prevent the entrance of dirt, dust, snow and rain. They also prevent possible gas contamination from these same sources. The heavily ribbed outer surface permits hand-tight make-up. These plugs are available in a choice of four sizes which may be used with liquid as well as vapor type couplings. As a convenience, the nylon plugs have a retaining chain and ring to prevent loss during a transfer operation.

Not intended for use as pressure closures.

Item #	Material	M. ACME	Chain & Ring Fits Pipe Size Up To:
C5763N	Nylon	1-1/4"	3/4"
C5765N	Nylon	1-3/4"	1-1/4"
C5767N	Nylon	2-1/4"	1-1/4"
C5769N	Nylon	3-1/4"	2"

ACME Adaptors

ACME x Female NPT



Item #	Material	M. ACME	F. NPT	Hex	Overall Length	Diameter	For Spare Gasket Order Part No.
A5764D	Steel	1-3/4"	3/4"	1-3/4"	2-3/16"	7/8"	A2697-20R
A5764E	Steel	1-3/4"	1"	1-3/4"	2-3/16"	7/8"	A2697-20R
A5768H	Steel	3-1/4"	2"	3-1/4"	1-13/16"	1-15/16"	A3194-8R

ACME Adaptors

ACME x Male NPT



Item #	Material	M. ACME	M. NPT	Hex	Overall Length	For Spare Gasket Order Part No.
A5765C	Steel	1-3/4"	1/2"	1-3/4"	2-3/16"	A2697-20R
A5765D	Steel	1-3/4"	3/4"	1-3/4"	2-3/16"	A2697-20R
A5765E	Steel	1-3/4"	1"	1-3/4"	2-3/16"	A2697-20R
A5765F	Steel	1-3/4"	1-1/4"	1-3/4"	2-3/16"	A2697-20R
A5767F	Steel	2-1/4"	1-1/4"	2-1/4"	2-3/8"	A3184-8R
A5769H	Steel	3-1/4"	2"	3-1/4"	2-5/8"	A3194-8R
A5769K	Steel	3-1/4"	3"	4"	3-13/16"	

ACME Adapters

Miscellaneous

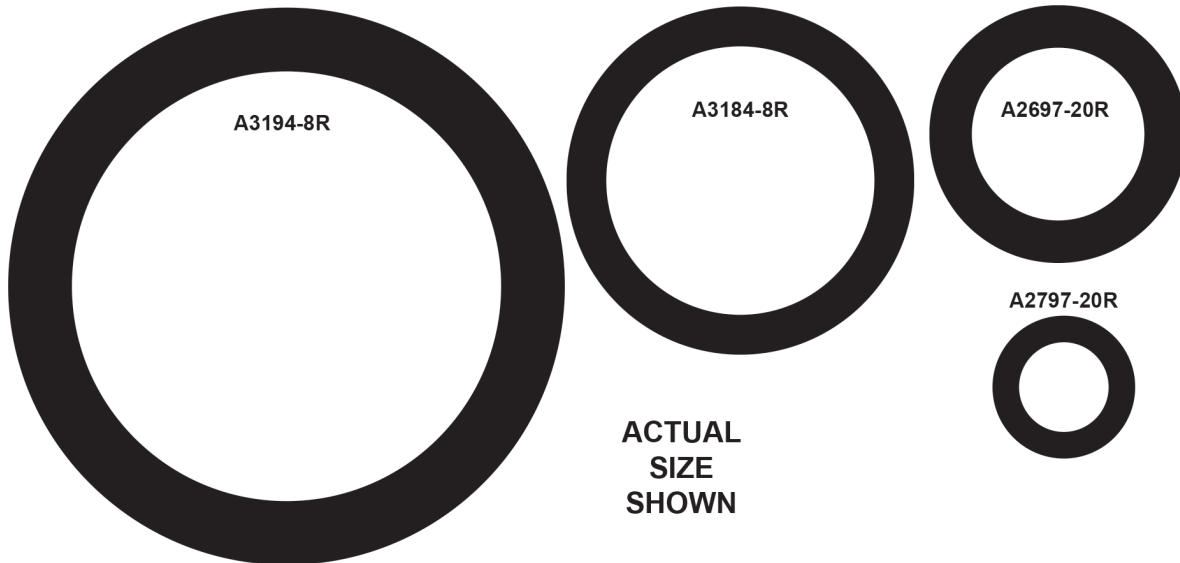


Item #	Material	M. ACME	F. NPT	Overall Length	Diameter	For Spare Gasket Order Part No.
A5764W	Steel	1-3/4"	3/8"	1-1/4"	1-3/4"	2697-20

* 3/8" -16 UNC Thread.

Gaskets

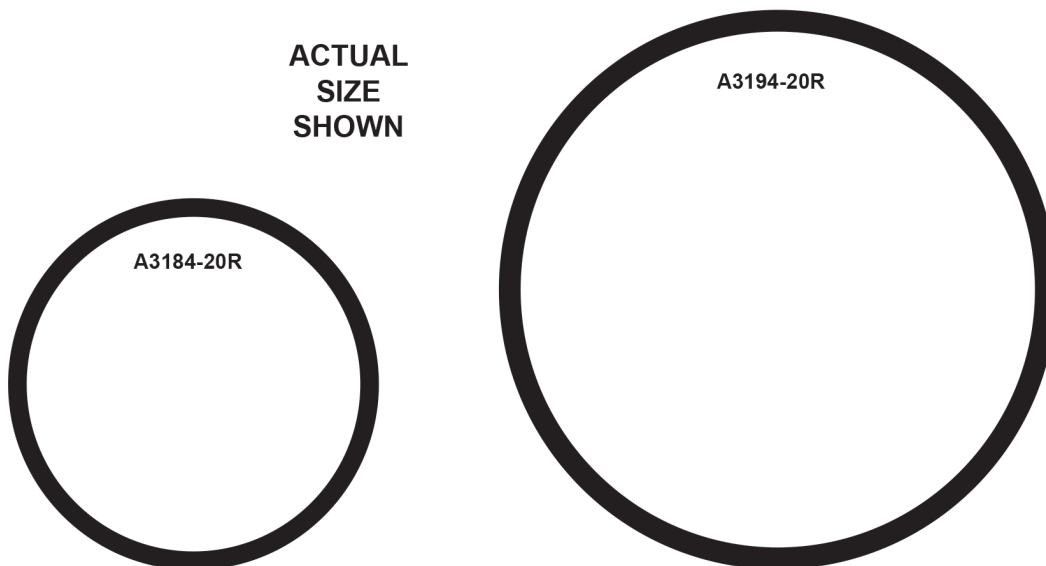
Actual Size



Item #	Connections	Size	Package Size
A2697-20R	Filter, Vapor Valves & Adapter	1-3/4" ACME	25
A2797-20R	Filter, Vapor Valves & Adapter	1-1/4" ACME	25
A3184-8R	Filter, Vapor Valves & Adapter	2-1/4" ACME	10
A3194-8R	Filter, Vapor Valves & Adapter	3-1/4" ACME	10

Buna-N O-Rings

Actual Size



Item #	Connections	Size	Package Size
A3184-20R	Filter, Vapor Valves & Adapter	2-1/4" ACME	10
A3194-20R	Filter, Vapor Valves & Adapter	3-1/4" ACME	10

1" Rotogage® for Large Mobile and Stationary Containers

A9090 Series



Rotogages® are designed to provide an accurate determination of anhydrous ammonia container contents. They mount in a standard 1" NPT coupling on large mobile or stationary containers. To operate the Rotogages®, the vent valve is opened and the dip tube rotated slowly from the container vapor space to the liquid space. The difference in appearance of the discharge indicates when the liquid level is reached. Dial readings then indicate the percentage of product in the container.

Item #	Application	Ellipsoidal Heads		Hemispherical Heads	
		Side Mounted	End Mounted	Side Mounted	End Mounted
A9091R	Small Mobile or Stationary Containers	30" - 45"	30" - 75"	30" - 45"	30" - 45"
A9092R	Small Mobile or Stationary Containers	46" - 61"	76" - 108"	46" - 61"	46" - 61"
A9093TS	Large Mobile or Stationary Containers*	62" - 79"	109" - 147"	62" - 79"	62" - 79"
A9094TS	Large Mobile or Stationary Containers*	80" - 99"	-	80" - 99"	80" - 99"
A9095TS	Large Mobile or Stationary Containers*	100" - 147"	-	100" - 147"	100" - 147"
A9093RS	Large Stationary Containers Only	62" - 79"	109" - 147"	62" - 79"	62" - 79"
A9094RS	Large Stationary Containers Only	80" - 99"	-	80" - 99"	80" - 99"
A9095RS	Large Stationary Containers Only	100" - 147"	-	100" - 147"	100" - 147"

* Supported Design

NOTE: The dip tube must be cut to the required length (1/2" of container inside diameter minus 5-3/4").

Rotogage® Tubes & Dials for Large Mobile and Stationary Containers

Tubes for use with A9090 Series Rotogages



Tubes for use with A9090 Series Rotogages.

Cut to length required.

Item #	Service
A9091-M24.0	Up to 48"
A9091-M36.0	Up to 72"
A9091-M48.0	Up to 96"
A9091-M60.0	Up to 120"
A9091-M72.0	Up to 144"

togauge Dials.

Item #	Service	Container Size
A9091-18N	NH3	All Sizes

* Dial permits higher filling level, per NFPA 58,

Pull-Away Valves for Transfer Operations

A2141 Series



Designed especially to provide pull-away protection for and anhydrous ammonia transfer operations including transport and delivery truck loading and unloading, engine fuel container filling and miscellaneous cylinder filling operations. When properly fastened to the inlet end of the discharge hose, the valve is designed to stop gas escape from both upstream and downstream lines in the event of a pull-away. An excessive tension pull causes the valve to automatically separate, closing two internal back pressure checks. Only a few cubic centimeters of gas escape at the instant of separation.

It is recommended that a convenient means be provided to safely remove the pressure from the line upstream of each coupling half to enable reassembly of the valve. To reassemble, simply push the male half firmly into the female half until the retaining balls slip into the retaining groove. Check for leaks after reassembly.

NOTE: It is recommended that pull-away valves be maintained and safety tested periodically to confirm that they will separate properly in the event of a pull-away. Lubrication every six months is essential to the pull-away's operation. Dry nitrogen or other inert gas is suggested as a source of pressure for pull-away tests.

If the A2141 pull-away valve is going to be stored for a period of time, A2141 Series such as in seasonal applications, it is recommended that it be sprayed with a good grade of rust-preventive machine oil, and covered to protect it from moisture.

Item #	Style	Inlet/Outlet Connections NPT F.	Disconnect Force Approx-lbs	Reconnect Force Approx-lbs	Length Of Valve	Nh3 Liquid Flow Capacity at Various Differential Pressures (GPM)*			
						5 PSIG	10 PSIG	25 PSIG	50 PSIG
A2141A6	Bracket	3/4"	130	80	3-7/8"	9.9	14.4	22.5	32.4
A2141A6L	Lanyard	3/4"	130	80	3-7/8"	9.9	14.4	22.5	32.4
A2141A8	Bracket	1"	75	50	4-9/16"	18.9	27	42.3	60.3
A2141A8L	Lanyard	1"	75	50	4-9/16"	18.9	27	42.3	60.3

* To Determine NH3 liquid flow capacity, multiply by .90

Swing-Check ESVs for Bulk Plants

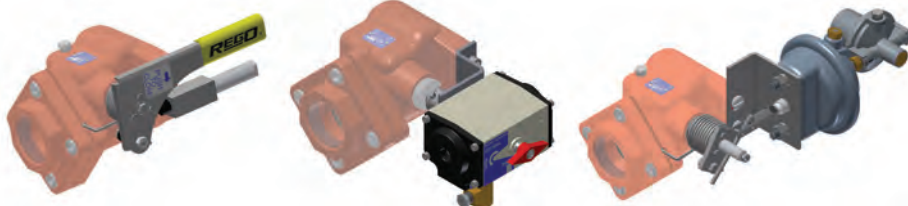
A6010, A6016, and A6024 Series



Designed for installation in liquid transfer lines at Anhydrous Ammonia bulk plants to provide for quick shut-off of liquid or vapor flow in the event of an accidental pull-away, line break, or hose rupture.

Item #	Seat	Inlet and Outlet Connections	Liquid Flow Capacity at 10 PSIG Drop (GPM)	Accessories		
				Remote Close Pneumatic	Remote Open/Close Pneumatic	Remote Open/Close Rotary
VA6010	Viton	1-1/4" F. NPT	233 (NH3)	6016-60D	6016-60C	6016RA
A6010	Buna-N	1-1/4" F. NPT	233 (NH3)	6016-60D	6016-60C	6016RA
VA6016	Viton	2" F.NPT	640 (NH3)	6016-60D	6016-60C	6016RA
A6016	Buna-N	2" F.NPT	640 (NH3)	6016-60D	6016-60C	6016RA
A6024	Buna-N	3" F.NPT	1173 (NH3)	6016-60D	6016-60C	6016RA

Accessories for ESV's



Item #	Description
6016-60D	Remote Close Pneumatic Actuator for A & VA 60 Series ESV's
6016-60C	Remote Open/Close Pneumatic Actuator for 60 Series ESV's
6016RA	Remote Open/Close Rotary Actuator for 60 Series ESV's

Flanged Swing-Check ESVs for Bulk Plants

FA6010, FA6016 and FA6024



Designed for installation in liquid transfer lines at Anhydrous Ammonia bulk plants to provide for quick shut-off of liquid or vapor flow in the event of an accidental pull-away, line break, or hose rupture.

Part Number	Seat	Inlet and Outlet Connections	Liquid Flow Capacity at 10 PSIG Drop (GPM)	Accessories	
				Remote Close Pneumatic	Remote Open/Close Pneumatic
FA6010	Buna-N	1½" - 300# ANSI RF Flange	233	FA6016-60D	*
FA6016		2" - 300# ANSI RF Flange	640		
FA6024		3" - 300# ANSI RF Flange	1173		6016-60C

* Not Available

Electric Actuator Swing-Check ESVs for Bulk Plants

EA6010, EA6016 and EA 6024



Designed for installation in liquid transfer lines at Anhydrous Ammonia bulk plants to provide for quick shut-off of liquid or vapor flow in the event of an accidental pull-away, line break, or hose rupture.

Part Number	Seat	Inlet and Outlet Connections	Voltages	Liquid Flow Capacity at 10 PSIG Drop (GPM) NH ₃
EA6010	Buna-N	1½" F.NPT	12/24 VDC	233
EA6016		2" F.NPT		640
EA6024		3" F.NPT		1173

Electric Actuator Flanged Swing-Check ESVs for Bulk Plants

EFA6010, EFA6016 and EFA6024



Designed for installation in liquid transfer lines at Anhydrous Ammonia bulk plants to provide for quick shut-off of liquid or vapor flow in the event of an accidental pull-away, line break, or hose rupture.

Part Number	Seat*	Inlet and Outlet Connections	Voltages	Liquid Flow Capacity at 10 PSIG Drop (GPM) NH ₃
EFA6010	Buna-N	1½" - 300# ANSI RF Flange	12/24 VDC	233
EFA6016		2" - 300# ANSI RF Flange		640
EFA6024		3" - 300# ANSI RF Flange		1173

ESV Pneumatic Controls

6016PN-50 Pneumatic Remote Control Kit



Control kit with components for connecting and charging the pneumatic controls from a source of compressed gas (air or nitrogen) to a RegO liquid or vapor ESV. Includes charging valves with low pressure indicator, operating valves, 100 feet of 1/4" plastic tubing and tube fittings.

Item #	Description
6016-60D	Cylinder assembly kit to convert 6016 ESVs to pneumatic shutdown.
6016PN-50	Pneumatic remote shutdown system kit, complete with 100' of tubing, fittings, 1 charging valve assembly and 1 remote shutdown valve assembly
6016PN-80	Bypass kit for pneumatic actuators.

3" Heavy Duty Swing Check with Flow Indicator

A7624



This back check valve is designed to provide required back flow protection for the unloading riser in the bulk plant's transfer area. It is designed specifically for pipeline installation and is suitable for anhydrous ammonia service. Product flow moves the swing check to the open position, when flow stops the spring loaded swing check closes.

Item #	For Use With:	Inlet & Outlet Connections	Liquid Capacity at 10 PSIG Drop GPM
A7624	NH3	3" F.NPT	1173-GPM(NH3)

2" Heavy Duty Swing Check with Flow Indicator

A7616

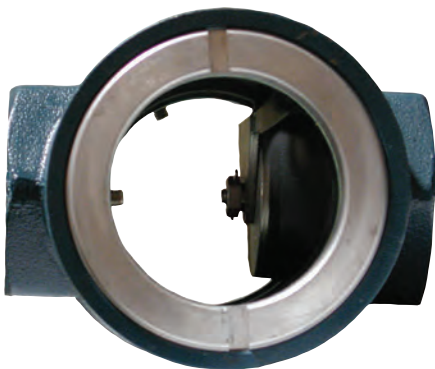


This back check valve is designed to provide required back flow protection for the unloading riser in the bulk plant's transfer area. It is designed specifically for pipeline installation and is suitable for anhydrous ammonia service. Product flow moves the swing check to the open position, when flow stops the spring loaded swing check closes.

Item #	For Use With:	Inlet & Outlet Connections	Liquid Capacity at 10 PSIG Drop GPM
A7616	NH3	2" F.NPT	640-GPM(NH3)

Sight Flow Indicators for Bulk Plants

A7794 and A7796



Designed to promote maximum pump efficiency, these indicators enable bulk plant operators to visually inspect liquid flow conditions. With glass on both sides of the indicator, flow can be observed from either side, even under some poor light conditions. The integral swing check also serves as a back-check valve to prevent reverse flow and product loss if the hose fails in a loading operation.

By installing an indicator on the upstream side of the plant pump, suction conditions can be observed and the pump speed adjusted to obtain the maximum possible flow rate without cavitation. Additionally, if an indicator is installed in the piping at the loading rack, just ahead of the loading hose, the operator can maintain a constant check on pump conditions.

Both installations are designed to allow for observation to provide maximum pump efficiency and ensure safe plant pump operation.

In compressor operations a sight flow indicator installed in the liquid line will give a visual indication when the tank car or transport is emptied. Compressor operation can then be immediately reversed to start recovery of the vapor.

Item #	Inlet/Outlet Connections	Length
A7794	2" F. NPT	5-3/4"
A7796	3" F. NPT	7-3/8"

Combination Valve for Bulk Storage Containers

A2805C



Designed for installation on bulk storage containers, this valve combines a pressure gauge mounting and provision for a fixed tube liquid level gauge.

The shut-off valve prevents the pressure gauge from being subjected to constant pressure, thereby prolonging its life and accuracy. The valve may be closed, and the vent valve opened to vent pressure from the gauge to permit replacement.

For fixed liquid level gauging, the valve can be mounted at the maximum permitted filling level. When equipped with a dip tube threaded 1/8" M.NPT, it can be installed at any convenient level.

Item #	Container Connection	Service Connection	Liquid Level Vent
A2805C	3/4" M. NPT	1/4" F. NPT for Gauge Mounting	Tee Handle

* Has 1/8" F. NPT opening for installing separate dip tube.

Vent Valves

TSS3169



Especially designed to bleed off liquid or vapor pressures trapped in transfer lines. When installed in the downstream boss of RegO globe and angle valves used at the end of a liquid transfer hose, the bleeder valve allows for the controlled venting of the product and indicates to the operator that the valves are closed and he can disconnect the coupling. They may also be used as a fixed liquid level gauge where the dip tube is part of the container.

The 3165C, 3165S and TSS3169 incorporates a No 54 drill size orifice. The 3165D incorporates a No 72 drill size orifice.

An optional instruction plate with "Stop Filling When Liquid Appears" may be ordered for use with these valves.

Item #	Service	Connection	Actuation	Accessories Warning Plate Kit
TSS3169	NH3	1/4" M. NPT	Tee Handle	2550-40P

Fixed Liquid Level Gauges

TA3169F



Especially designed to provide a visible warning when containers are filled to the maximum permitted filling level. At the start of the filling operation, with the vent stem opened, the valve discharges vapor. When the maximum permitted filling level is reached, the valve discharges liquid. The 3165CF*, 3165CF12.0, 3165SF12.0 and TA3169F12.0 incorporate a No 54 drill orifice; the 3165DF* and 3165DF12.0 incorporate a No 72 drill orifice. They all are normally furnished with a 12" 3/16" OD dip tube.

An optional instruction plate with "Stop Filling When Liquid Appears" may be ordered for use with these valves.

Item #	Service	Connection	Actuation	Dip Tube Length	Accessories Warning Plate Kit
TA3169F12.0	NH3	1/4" M. NPT	Tee Handle	12"	2550-40P

Pressure Gauges



Especially designed in a variety of sizes and construction for the anhydrous ammonia industry.

Item #	Service	Case Material	Maximum Pressure	Inlet Connection M.NPT	Case Size	Increment Divisions
A8060	NH3	Steel	60 PSIG	1/4"	2-1/2"	5 lb.
A8150	NH3	Steel	150 PSIG	1/4"	2-1/2"	5 lb.
A8400	NH3	Steel	400 PSIG	1/4"	2-1/2"	5 lb.

** 1/8" M. NPT Connection

RegO Repair Kits

Quick Acting Hose End Valves

Part #	Kit Number	Kit Contents
A7707 Series A7708 Series	A7707-50	Gaskets; groove pin; jam ring
	A7707-75	Bonnet assembly; packing; seat disc & retainer; stem; washers

Quick Acting Valves

Part #	Kit Number	Kit Contents
A7553A	A7553A-50	Gaskets; o-ring; roll pin; seat disc; spring; stem assembly

Pull-Away Couplings

Part #	Kit Number	Kit Contents
A2141A6 A2141A6L	A2141A6-50	O-ring
	A2141A6M	Male coupling
A2141A8 A2141A8L	A2141A8-50	O-ring
	A2141A8M	Male coupling
A2141A10	A2141A10-50	O-ring
	A2141A10M	Male coupling
A2141A16	A2141A16-50	O-ring
	A2141A16M	Male coupling

Flomatic Valves

Part #	Kit Number	Kit Contents
A7884 A7883F A7884F	A7883F-50	Stem assembly kit; bleeder assembly; cylinder cap screws; upper & lower piston cap screws; lock washers; filters; springs; block vee packing; x-seal; gaskets; o-rings; retaining ring; insert roll pin; screw seal; cap
A7883F	A7883F-80	Retaining ring; seat disc; insert; block vee packing; filters; x-seals; cylinder cap screws; o-rings; gaskets
A7884F	A7884F-80	
A7883F	A7883F-150	X-seal; seat disc; gaskets
A7884F	A7884F-150	

Multi Purpose and Transfer Valves

Part #	Kit Number	Kit Contents
A8016D Series A8017D Series A8018D Series	A8016B-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A8017DH A8018DH	A8017BH-20R	Bonnet stem & seat disc assembly; gasket

Transfer Valves

Part #	Kit Number	Kit Contents
A7550P A7550PX A7555P	A7550-15	Bonnet; stem; seat disc retainer assembly; cap; flange packing; bushing

Duoport & Multiport Relief Valve Manifolds

Part #	Kit Number	Kit Contents
AA8542 Series	8540-50	Bleeder valve assemblies; packing gland; set screw; washer; gasket; key
A/AA8560 Series A/AA8570 Series	8560-50	Bleeder valve assemblies; seat ring assemblies; pressure seal rings; packing gland; jam ring; washer; gasket

Shut Off Valves

Part #	Kit Number	Kit Contents
TA7034LP TA7034P	TA7034-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A7505AP A7506AP	A7505-50 7505A-20	
TA7505AP TA7506AP	TA7034-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A7507AP A7508AP	A7507-50 7507A-20	Complete bonnet assembly
TA7507AP	TA7507-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A7509BP A7510BP	A7509-50 7509B-50	Complete bonnet assembly
TA7509BP TA7510BP	TA7509B-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A7511AP A7511FP A7512AP A7512FP	A7511-50 7511A-20	Complete bonnet assembly
TA7511AP TA7511FP TA7512AP TA7512FP	TA7511A-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A7513AP A7513FP A7514AP A7514FP	A7513-50	
A7513AP A7514AP	7513-20	Complete bonnet assembly
A7513FP A7514FP	A7513F-20	
TA7513AP TA7513FP TA7514AP TA7514FP	TA7513A-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer
A7517AP A7517FP A7518AP A7518FP	A7515-50 A7515-20	Gaskets; jam ring; o-ring; pressure seal rings; roll pin; seat disc; washers Complete bonnet assembly
TA7517AP TA7517FP TA7518AP TA7518FP	TA7515A-50	Gaskets; jam ring; o-ring; pressure seal rings; roll pin; seat disc; washers
A7704 A7705 A7706	7705-50	Flange packing; friction washer; gaskets; seat disc
TA7894P	TA7894-50	Gaskets; jam ring; o-ring; pressure seal rings; seat disc; washer

RegO Repair Kits

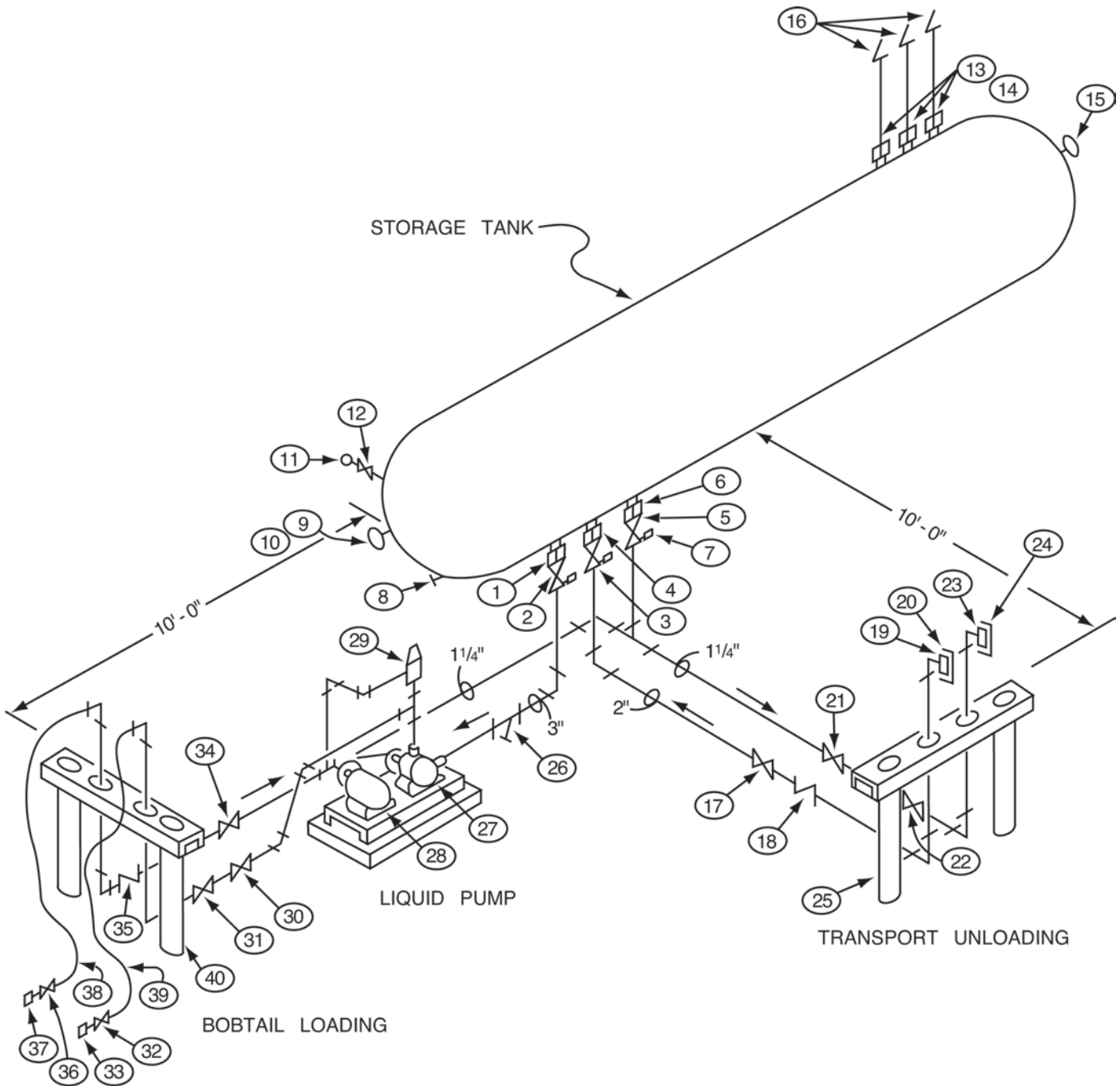
Manual Internal Valves

Part #	Kit Number	Kit Contents
A3209A	A3209A-50	Bearing; cam; gasket; main seat disc assembly; retaining ring; seal o-ring; seat disc
A3209D/DT	A3209D-50	
A3209R050 A3209R080	A3209R-50	
A3210A065	A3210A-50	Bushing; gasket; jam ring; main seat disc assembly; upper & lower retaining rings; o-ring; seal rings (2); seat disc
A3212A Series	A3212A-50	Bearing; cam; gasket; o-rings; seat disc; stem packing
A3212R Series A3212RT Series	A3212R-50	
A3213A Series A3213R/RT Series	A3213A-50	
A3213D/DT Series A3213R Series A3213RT Series	A3213R-50	
A3217F Series	A3217F-50	Dust seal; jam ring; stem o-ring; stem seals (3); stem spring; stem washer
	A3217F-80 O-ring Flange	Cotter pin; dust seal; inner & outer stem bearing; jam ring; main & pilot seat disc; poppet seal o-ring; retaining ring; roll pins (2); seat o-ring; stem o-ring; stem seals (3); upper & lower flange seal o-ring; wear button
	A3217F-80G Gasket Flange	Dust seal; inner stem bearing; jam ring; lower flange seal gasket; main seat disc; outer stem bearing; pilot seat disc; poppet seal o-ring; retaining ring; roll pins (2); seat o-ring; stem o-ring; stem seals (3); upper flange seal gasket; wear button

Manual Internal Valves

Part #	Kit Number	Kit Contents
A3219F Series	A3219F-80 O-ring Flange	Bumper; cotter pins (3); dirt seal; inner & outer stem bearing; lever release spring; main seat disc; poppet seat disc; pivot pin locknut; poppet bearing; seal gland gasket; seat seal o-ring; stem jam ring; stem o-ring; stem seal rings (3); stop screw; upper & lower flange seal o-ring
	A3219F-80G Gasket Flange	Bumper; cotter pins (3); dirt seal; inner & outer stem bearing; lever release spring; main seat disc; poppet seat disc; pivot pin locknut; poppet bearing; seal gland gasket; seat seal o-ring; stem jam ring; stem seal rings (3); stop screw; upper & lower flange seal o-ring
A3219FA	A3219FA-80G Gasket Flange	Bumper; cotter pins (3); dirt seal; inner & outer stem bearing; lever release spring; main seat disc; poppet seat disc; pivot pin locknut; poppet bearing; seal gland gasket; seat seal o-ring; stem jam ring; stem o-ring; stem seal rings (3); stop screw; upper & lower flange seal o-ring

Double Bulkhead



NOTE:

It is the Marketer's responsibility to insure installations are properly designed and installed in accordance with all safety codes, regulations, and manufacturer recommendations; including local authority having jurisdiction. Failure to follow these codes, regulations and recommendations could result in hazardous installation, bodily injury, and/or death.

The Bill of Materials on the following page is to be used as a general guide. The end user MUST follow material guidelines for proper materials where NO BRASS can be used in Anhydrous Ammonia Systems. Follow all guidelines set forth by NFPA #54/ NFPA #58/DOT and ANSI requirements for plant installations including local authority having jurisdiction. Contact the LOCAL AHJ or your Gas Equipment Specialist for assistance on materials.

Double Bulkhead

Item #	Ref. No.	Description	Quantity
A3213RA	1	Rego Pneumatic Actuator	1
A7517AP	2	Rego 3" Globe Valve	1
A7513AP	3	Rego 2" Globe Valve	1
A3212RA	4	Rego Pneumatic Actuator	1
A7509BP	5	Rego 1-1/4" Globe Valve	1
1750-00115	8	Thermometer	1
C6342-11-108	9	Magnetel Gauge	1
22-29	10	Flange Mounting Adapter	1
A2805C	12	Rego Combo Valve	1
A7513AP	17	Rego 2" Globe Valve	1
A3186	18	Rego 2" Back Check Valve	1
A7509BP	21	Rego 1-1/4" Globe Valve	1
A6010	22	Rego 1-1/4" ESV	1
6016RA	22	Rego Pneumatic Actuator	1
BH-10CV2-2CPLG	25	2 Port Vertical Bulk Head w/ 2" 3M Full Couplings	1
BH-SCH80V2-2CPLG-12IN		2 Port Bulkhead (Texas Approved)	1
STYLEC-DI-300	26	3" Strainer	1
BV-200	29	Pump Bypass Valve	1
A7513AP	30	Rego 2" Globe Valve	1
A6016	31	Rego 2" ESV	1
6016RA	31	Rego Pneumatic Actuator	1
A7513AP	32	Rego 2" Globe Valve	1
A7509BP	34	Rego 1 1/4" Globe Valve	1
A6010	35	Rego 1 1/4" ESV	1
A7509BP	36	Rego 1 1/4" Globe Valve	1
A7575L5	37	Rego Extended Type Hose Coupling	1
BH-10CV2-2CPLG	40	2 Port Vertical Bulk Head w/2" 3M Full Couplings	1
BH-SCH80V2-2CPLG-12IN		2 Port Bulkhead (Texas Approved)	1

Bulkhead

Standard Construction

Safety Bulkheads are designed to allow the safe transfer of anhydrous ammonia at the delivery truck loading and transport unloading points in a bulk plant. The bulkhead is Rigid All-Steel construction. It is designed to protect the piping systems against truck pull-away with hose still connected.



Standard Construction

These bulkheads are made of 10" channel iron legs and top rail. When anchored in a concrete block (approximately 4 ft. x 4 ft.), the bulkhead becomes a sound wall of protection against most pull-aways.

Part #	Description
BH-10CV2-2CPLG	2-Port Vertical Bulk Head w/2" 3M Full Couplings
BH-10CV2-3CPLG	2-Port Vertical Bulk Head w/3" 3M Full Couplings
BH-10CV3-2CPLG	3-Port Vertical Bulk Head w/2" 3M Full Couplings
BH-10CV3-3CPLG	3-Port Vertical Bulk Head w/3" 3M Full Couplings

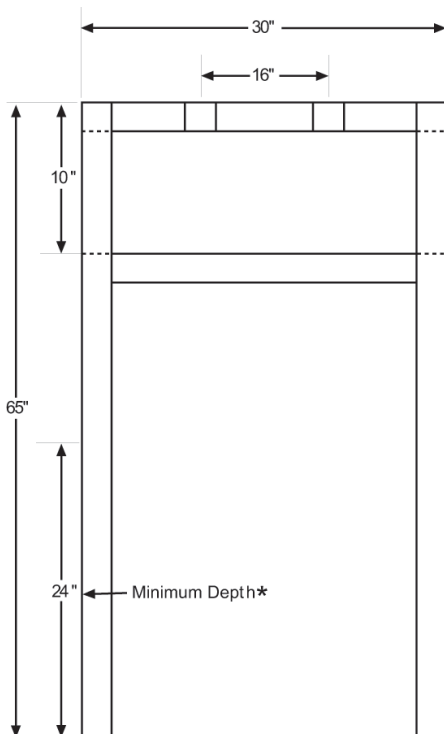
Bulkhead Piping Kit

BH-10CV2-PKG

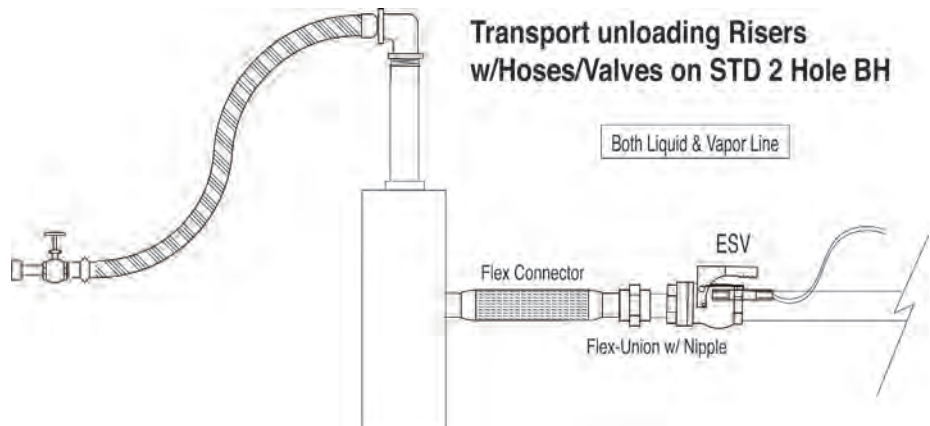


Kit Includes	Description	Qty
EL90-200-2M	FS ELBOW 90 DEGREE 2 INCH AT 2000#	2
REL90-200X114	2" M.NPT X 12" EXTRA HEAVY SCH 80 BLACK PIPE NIPPLE	2
N-200X12	2" M.NPT X 12" EXTRA HEAVY SCH 80 BLACK PIPE NIPPLE	4

Note: Piping kit for HBH-10CV2-2CPLG bulkhead only



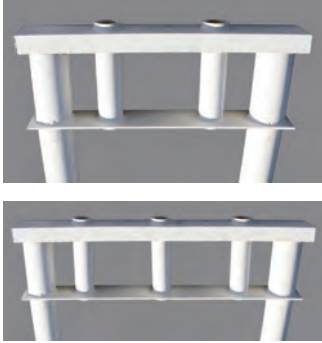
Check with local codes for proper above grade height.
Bulkheads shall be anchored in reinforced concrete to prevent displacement of the bulkhead.
Reinforcement rod not supplied.



Bulkhead

12" Coupling Construction - Texas Approved

Safety Bulkheads are designed to allow the safe transfer of anhydrous ammonia at the delivery truck loading and transport unloading points in a bulk plant. The bulkhead is Rigid All-Steel construction. It is designed to protect the piping systems against truck pull-away with hose still connected.



12" Coupling

These bulkheads are built to comply with the Railroad Commission of Texas regulations for bulkhead design; they incorporate 4" schedule 80 pipe legs with a channel iron top rail and 12" long full couplings welded between the top rail and kick plate.

Part #	Description
BH-SCH80V2-2CPLG-12IN	2-Port Vertical Bulk Head w/2" 3M Full Couplings
BH-SCH80V2-3CPLG-12IN	2-Port Vertical Bulk Head w/3" 3M Full Couplings
BH-SCH80V3-2CPLG-12IN	3-Port Vertical Bulk Head w/2" 3M Full Couplings
BH-SCH80V3-3CPLG-12IN	3-Port Vertical Bulk Head w/3" 3M Full Couplings

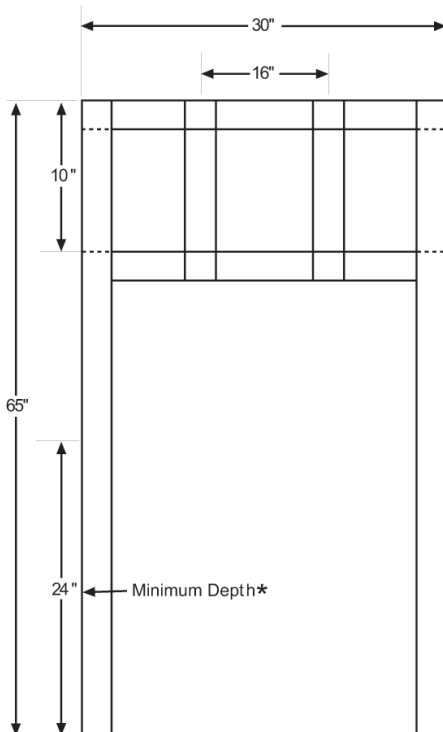
Bulkhead Piping Kit - Texas Approved

BH-SCH80V2-FTG-PKG



Kit Includes	Description	Qty
EL90-200-2M	FS ELBOW 90 DEGREE 2 INCH AT 2000#	2
REL90-200X114	2" X 1-1/4" REDUCING 90 DEGREE ELBOW 3000#	2
N-200X12	2" M.NPT X 12" EXTRA HEAVY SCH 80 BLACK PIPE NIPPLE	2
N-200X4	EXTRA HEAVY WELDED BLACK PIPE NIPPLE 2 X 4	2

Note: Piping kit for BH-SCH80V2-2CPLG-12IN bulkhead only



Check with local codes for proper above grade height.

Bulkheads shall be anchored in reinforced concrete to prevent displacement of the bulkhead.

Reinforcement rod not supplied.

Pneumatic Fittings



Item #	Description
125V-3-10-21	Discharge Valve with Base



Item #	Description
RSA-57444DOT	1/4" Tube x 1/4" Tube x 1/4" Female NPT Tee



Item #	Description
125V-3-10-20	Pneumatic Toggle Valve, 3-way, with Locknut



Item #	Description
ESV-SIGN	Aluminum "Emergency Shutoff Valve" Sign 5-1/2" x 9-1/2" Red on White (valve not included)



Item #	Description
RSA-M3820602	Lexair 3-way actuated valve



Item #	Description
RSA-PTSAE	1/4" Pneumatic Tube 100 ft Roll

Pneumatic Fittings

Composite



Item #	Description
W372PLP-4-2	1/4" Tube x 1/4" Tube x 1/8" NPT Tee



Item #	Description
W68LF-4-2	1/4" Tube x 1/8" NPT Straight
W68LF-4-4	1/4" Tube x 1/4" NPT Swivel Elbow



Item #	Description
364PLP-4	1/4" Tubing Tee

Item #	Description
W369PLP-4-2	1/4" Tube x 1/8" NPT Swivel Elbow
W369PLP-4-4	1/4" Tube x 1/4" NPT Swivel Elbow



Item #	Description
32PLP-4	1/4" Tube Union



SQE Super Quick Exhaust Valve



The universal design of this valve allows it to be used as a SUPER QUICK EXHAUST VALVE or a SHUTTLE VALVE. With the molded shuttle design, the Super Quick Exhaust valves have an operating range as low as 1 psi to 150 psi.

SQE: NFPA limits the pneumatic supply line size to a maximum of 3/8" OD. To reduce closing time of internal valves and ESV's, a SQE valve can be installed in lengthy tubing runs to reduce the closure times.

SHUTTLE VALVE: The shuttle valve can provide for control of internal valves with individual bulkhead ESV's control from multiple bulkhead control station locations without hindering other operators.

Specifications

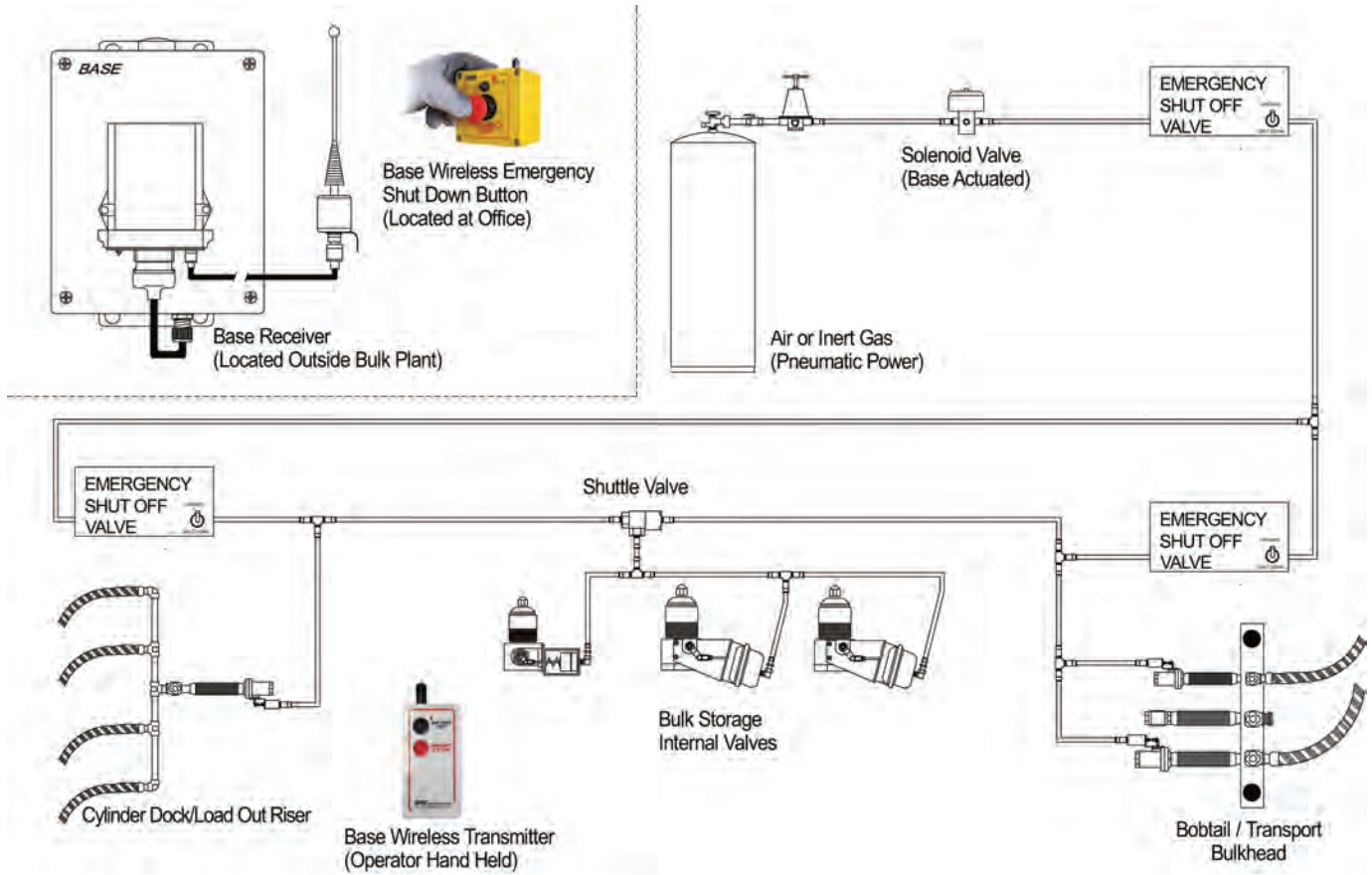
Media: Compressed Air (Consult factory for others)
 Operating Speeds: Up to 600 CPM
 Materials: Zinc & Aluminum Die Cast, Zinc Plated Steel Fasteners, Buna N, Polyurethane
 Temperature Range: -25°F to 180°F (-31.7°C to 82.2°C)

Part #	Port Size		
	In	Out	Exhaust
SQE1	1/8"	1/8"	1/4"
SQE2	1/4"	1/4"	1/4"

Additional Stainless Steel and other types of fittings available.

Wireless Remote Emergency Shutdown System

- Developed to eliminate costly hard-wiring of manual emergency-shutdown switches.
- The ASK system can also be ordered to work in conjunction with existing BASE Truck Remote Units if required. Transmitter devices are low-voltage intrinsically safe units suitable for use in Class 1, Div 2, Group "D" hazardous environments. Receiver units are designed to interface and trip electrical (pumps/compressors), pneumatic, nitrogen, or mechanical plant shut-off equipment (ESV & valve actuators).



Part #	Description	# of Stationary Remotes	# of Handheld Remotes
ASK1F1WAX200A-AC	BASE Wireless Emergency Shutdown kit with 1 stationary and 1 hand held remote, also includes 1 non-classified pneumatic solenoid and electrical wiring for use with NH3 or LPG bulk plant	1	1
ASK1F2WAX200A-AC	BASE Wireless Emergency Shutdown kit with 1 stationary and 2 hand held remote, also includes 1 non-classified pneumatic solenoid and electrical wiring for use with NH3 or LPG bulk plant	1	2

Facility Wireless Emergency Stop Systems

Base Engineering's combination wireless and fixed location E-Stop / emergency shutdown systems were developed to eliminate costly hard wiring of multiple fixed location emergency stop switches. Any number of wireless remote E-Stop switches can be installed within the plant facility and communicate with one receiver/controller unit.

These systems will work in conjunction with existing, hard-wired, manual E-Stop switches and plant safety controls. Operator worn E-Stop remotes can also be added to these systems.

Fixed Location Transmitters



Item#	Description
ASKF200TX	Emergency Shut Down Mushroom Button

Portable Hand-held Transmitters



Item#	Description
ASK100TX E	1 Function Transmitter - Emergency Stop

Replacement Batteries & DC Charger



Item#	Description
BAT4999	Replacement Battery (Black Clip)
BAT5000	Replacement Battery (White Clip)
CHG1006	DC Charger for DSSD/Ranger Style Transmitter

Antennas & Coaxial Cables



Item#	Description
ANT1000	Replacement Antenna for ASK/RVC Systems
ANT6000	Replacement Antenna for DSSD Systems
COAXT-15	15 ft. Coaxial Cable
COAXT-30	30 ft. Coaxial Cable

Cases for Handhelds



Item#	Description
CAS1000	Leather Case for ASK/RVC Style Transmitter

Self-Contained Compressor System

Parafour Eco-Air Series



P4-Eco-Air



P4-Eco-Air-Lite



The P4-ECO-Air Series, Self-Contained Compressor Systems, offer Autogas station operators, bulk plant and distribution systems a unique and reliable way to operate pneumatic controls, with little or no maintenance, and no ongoing cost of consumables.

- Operating Temperature Range = -45°C to 55°C
- Operating Voltage = 120v 60 Hz or 220v 50 Hz (Specify when ordering.)
- Circuit Protection = 10 amp supplemental breaker (requires minimum 10 amp primary service breaker)
- Enclosure = NEMA 4X / 12 / 13, Poly enclosure, metal enclosure is optional
- Output Pressure range = 30-60 psi (2-4.5 bar) field adjustable
- Reservoir Size = Eco-AIR unit is 1 US gallon (7.5 litres), ECO Air-Lite has no reservoir
- Reservoir storage pressure = 80-120 PSI (5.5 – 8.5 bar)
- Min pressure / recharge point = 40 psi
- Compressor Maintenance = NONE
- Regulated Outlet Pressure = 0-100 psi gauge

Part #	Actuators Controlled	Storage Reservoir	Water Drain	Indicator Lamps	External Alarm
P4-Eco-Air	21	Yes	Automatic	1-Power, 1-Fault	Yes - Visual and/or Audible
P4-Eco-Air-Lite	3	No	Manual	1-Power	No

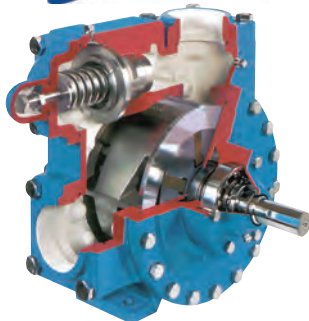
Multi-Purpose Pumps for Bulk Plants, Terminals & Truck Systems




These workhorse pumps have long been popular for a broad range of service on bobtails, transports, vaporizers and bulk transfer service. The LGLD2 and LGLD3 offer a double shaft extension. This permits use of the pump by either right or left handed PTO rotation simply by reversing the position in which the pump is mounted.

Models in these series are fitted for anhydrous ammonia service. All of the pumps are equipped with replaceable cylinder liners and end discs, permitting rebuilding of the pump to like new conditions.

High Capacity Liquefied Gas Pump

Blackmer's LGLD4 pump is fitted with a special cavitation suppression liner for optimum performance & extended service life. UL listed for handling anhydrous ammonia, this durable pump is ideal for rapid loading & unloading of transports and bobtails or bulk plant service. Flow rates range from 130 to 270 GPM with differential pressures up to 125 psi.

V-Belt Drive Style Pumps




These units have high torque V-belts and quick disconnect sheaves. Sheaves are thinner, which puts them closer to the bearings, reducing the stress on both motor and pump shafts. Sheaves and hubs are a two-part assembly that comes apart easily. Units come complete with V belts, belt guard, pump mounted to base plate, and a motor.

Part #	Size	RPM	GPM*	HP*	Max. Diff. Pressure
LGLD2E	2"	420	40	3	150 PSI
LGLD2E	2"	520	50	5	150 PSI
LGLD2E	2"	640	65	5	150 PSI
LGLD3F	3"	420	80	5	150 PSI
LGLD3F	3"	520	108	7.5	150 PSI
LGLD3F	3"	640	133	10	150 PSI
LGLD4B	4"	420	170	10	125 PSI
LGLD4B	4"	520	220	15	125 PSI
LGLD4B	4"	640	270	20	125 PSI

* Differential Pressure = 50 PSI

Note: Delivery depends on system design, pipe sizing and valve capacity.

High Pressure Liquefied Gas Pump



Based on Blackmer's industry standard LGLD2 transfer pump, the LGLH2 has the muscle to handle the toughest jobs. Whether pumping from a bobtail to the top of an 8-story building or feeding a vaporizer in the middle of winter — the LGLH2 can do it. The LGLH2 is dimensionally interchangeable with the LGLD2.

Part #	Performance at 145 psid Differential Pressure			Max. Diff. Pressure	Relief Valve Setting	Maximum Working Pressure
	780 rpm	640 rpm	520 rpm			
LGLH2	61 gpm	47 gpm	32.6 gpm	165 psi	190 psi	390 psi

Multi-Purpose Pump for Bulk Plants & Terminals

LGL 3021 Series



Based on Blackmer's industry standard LGLD3 transfer pump, the LGL3021 replaces competitive pumps without changing piping connections or motor drives. Whether filling delivery truck or transport - the LGL3021 can do it faster and more efficiently than competitive models.

Part #	Size	Maximum Speed	GPM*	HP	Max. Diff. Pressure	Maximum Working Pressure
LGL3021	3" or 4" NPT Flange, Nodular	800 RPM	155	15	150 PSI	350 PSI

* Approximate delivery of propane at 800 RPM at 100 PSI differential pressure.

Blackmer Flange Mounted Pumps for Transports and Bobtails



For Transport Service

The TLGLF4 series transport pump is designed to mount to 4" internal valves. It is suitable for Anhydrous Ammonia service. Ideal intake conditions assure maximum pumping rates and the shortest possible transport turnaround time. An auxiliary intake



port next to the mounting flange can be used for emergency unloading of another tank or transport. Rated for differential Pressures to 125 psi, the pump has twin discharge ports which permit the use of two hoses, if necessary to reduce pressure loss when unloading into restrictive receiving systems.

For Delivery Truck Service

The TLGLF3 pump series flange mounts directly to the truck tank in combination with a flanged internal control valve. Because it eliminates the intake line and related restrictions to flow, it also eliminates the vaporization problem caused by them. That means longer pump life and higher effective pump capacity. The pump is rated to 125 psi differential.

The TLGLF3 pump is suitable for Anhydrous Ammonia. A double shaft extension is standard, making the pump suitable for either right or left-hand PTO rotation. The pumps is equipped with replaceable cylinder liners and end discs, permitting rebuilding of the pump to like-new conditions.

Part #	Description	Suction Flange	Discharge Flange	Pump Speed (RPM)	Maximum Working Pressure (PSI)	Maximum Differential Pressure
TLGLF3C	Flange Mounted	3" 300# ANSI	2" NPT	650	350	150 PSID
TLGLFD4B	Flange Mounted	4" 300# ANSI	2" NPT	650	350	150 PSID

Bypass Valves

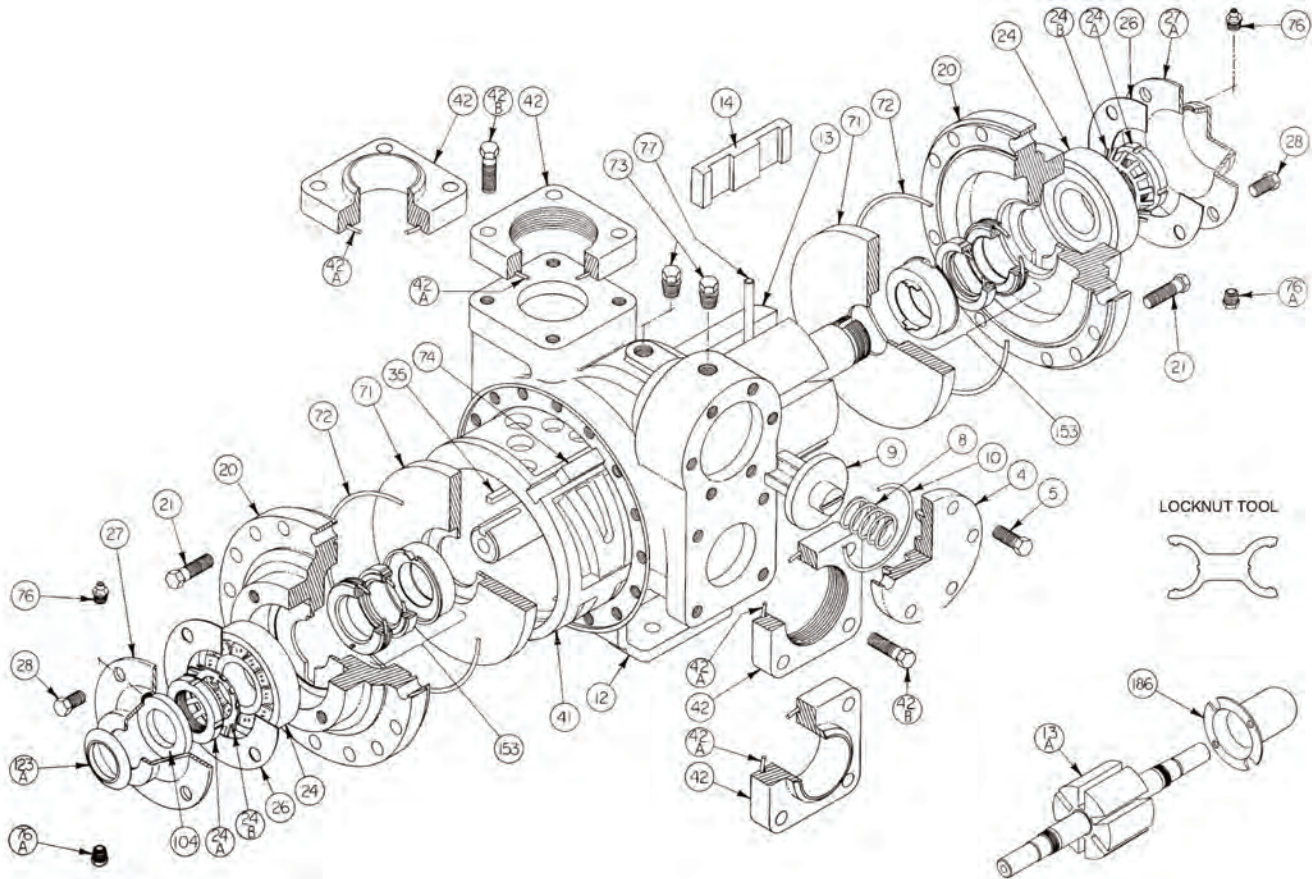


Part #	Common Applications	Used with Blackmer Pump Model	Ports	Max. Rated Flow* - GPM @			
				20 PSI	50 PSI	80 PSI	120 PSI
BV-034	Cylinder Filling Systems	1-1/4" or 1-1/2" Either Valve	3/4" NPT Tapped	25	40	50	60
BV-100	Cylinder Filling Systems	1-1/4" or 1-1/2" Either Valve	1" NPT Tapped	25	40	50	60
BV-114	Bobtail Trucks or Smaller Bulk Plant Systems	2" or 3" Either Valve	1-1/4" NPT Tapped	60	80	100	125
BV-112	Bobtail Trucks or Smaller Bulk Plant Systems	2" or 3" Either Valve	1-1/2" NPT Tapped	60	80	100	125
BV-200	Transports or Large Bulk Plant Systems	3" and 4"	2" NPT Companion Flanges	150	180	220	250

* Normal maximum bypass flow rates without significantly exceeding the set pressure limit.

Models: LGLD2E, LGL2E, LGLD3F, LGL3F

Discontinued Models: LGLD3E, LGL3E



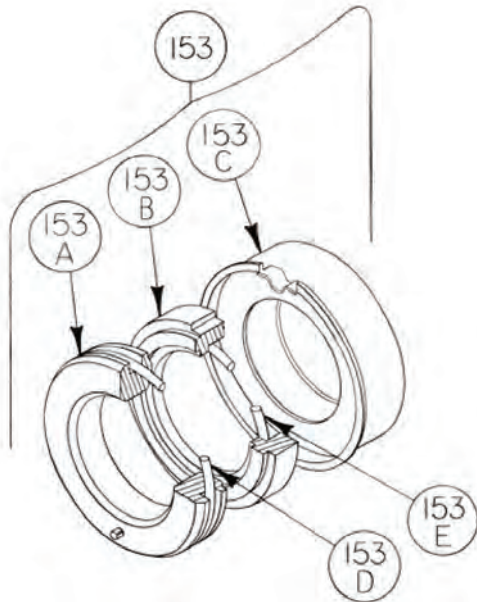
Size 2 Part #	Size 3 Part #	Ref. No.	Description	Parts Per Pump
414401	415113	4	Cover - Relief Valve (R/V)	1
920331	920331	5	Capscrews - R/V Cover	6
471423	475135	8 (1)	Spring - R/V	1
454405	455129	9	Valve - R/V	1
701919	701925	10 (1)	O-Ring - R/V Cover	1
014405	015127	12	Casing	1
264443	265149	13	Rotor & Shaft Asy. - LGL (Includes Ref. Nos. 24A & 24B)	1
264445	265148	13A (2) (5)	Double-Ended Rotor & Shaft Asy. - LGLD (Includes Ref. Nos. 24A & 24B)	1
091419	095131	14 (1)	Vane - Duravane (Std.)	6
034416	035128	20	Head	2
920351	N/A	21	Capscrews - Head (Size 2)	32
N/A	920369	21	Capscrews - Head (Size 3)	40
903156	903166	24 (1)	Ball Bearing	2
903521	903523	24A (2)	Locknut - Bearing	2
903522	903524	24B (1)	Lockwasher - Bearing	2
383940	385125	26 (1)	Gasket - Bearing Cover	2
041431	041815	27 (3)	Bearing Cover (Inboard)	1
041433	041817	27A (4)	Bearing Cover (Outboard)	1
920285	920285	28	Capscrews - Bearing Cover	8 - 12
909209	090209	35 (1)(7)	Key - Shaft, 1/4" Square	1
184405	185111	41 (2)	Liner	1
654401	655112	42	Flange - NPT	2
654405	655102	42	Flange - Weld	2

Size 2 Part #	Size 3 Part #	Ref. No.	Description	Parts Per Pump
702004	702002	42A (1)	O-Ring - Flange	2
920384	920547	42B	Capscrew - NPT Flange	8
920351	920510	42B	Capscrew - Weld Flange	8
064412	065112	71 (1)	Disc	2
702022	702041	72 (1)	O-Ring - Head	2
908198	908198	73	Gage Plug	2
183991	185191	74 (2)(8)	Key - Liner	1
317815	317815	76	Grease Fitting	2
701992	702992	76A	Grease Relief Fitting	2
123905	125110	77 (1) (6)	Push Rod	3
331918	331908	104 (1) (3)	Grease Sea	1
701480	N/A	123A (1) (3)	Dirt Shield	1
341601	341801	186	Shaft Protector (LGLD Models Only)	1
903091	903091	—	Tool - Locknut	—
898979	898981	—	Kit - Maintenance	—
899079	899081	—	Kit - Rebuild	—

1-Included in Maintenance Kit and Rebuild Kit. 2-Included in Rebuild Kit.
 The following applies to double end shaft pumps (LGLD): 3-Use Two 4-Use None
 5-Double-Ended Rotor & Shaft. 6-2" pushrod is metal, 3" is composite.
 7-Pumps before April 2008 used Woodruff key 909130, included in Maintenance kits.
 8-Pump before 1995 require liner key 184407.

Models: LGLD2E, LGL2E, LGLD3F, LGL3F

Mechanical Seal - NH3 or Dual Service - SNCN (ID Code = QA)

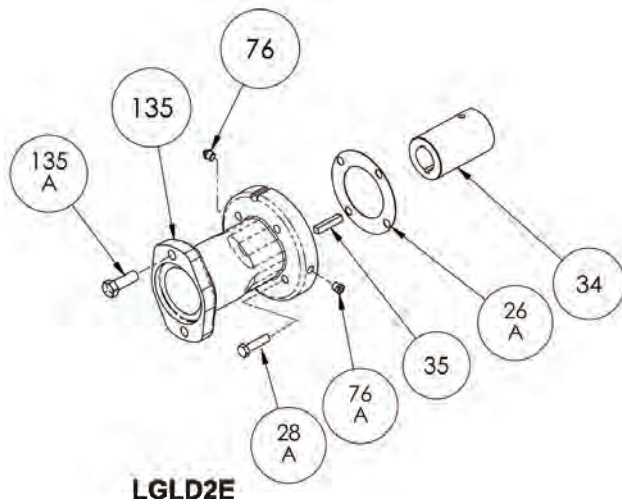


Size 2 Part #	Size 3 Part #	Ref. No.	Description	Parts Per Pump
334439	335225	153(1)	Mechanical Seal Assembly	2
**	**	153A	Stationary Seat (Steel)	2
**	**	153B	Seal Face (Carbon)	2
**	**	153C	Jacket Assembly	2
711924	702025	153D	O-Ring - Stationary (Buna-N)	2
711918	711912	153E	O-Ring Rotating (Buna-N)	2

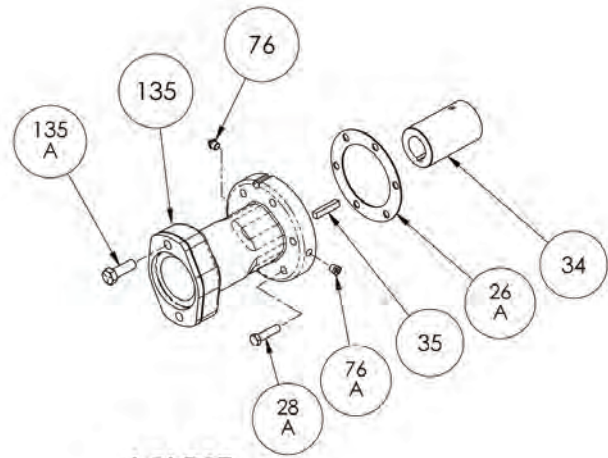
1— Included in Maintenance Kit and Rebuild Kit.

** NOTE: Mechanical Seal Ref. No. 153 is only sold as a complete assembly. Ref. Nos. 153A, 153B & 153C are not available as separate replacement parts.

Optional Hydraulic Motor Adapter Parts



LGLD2E



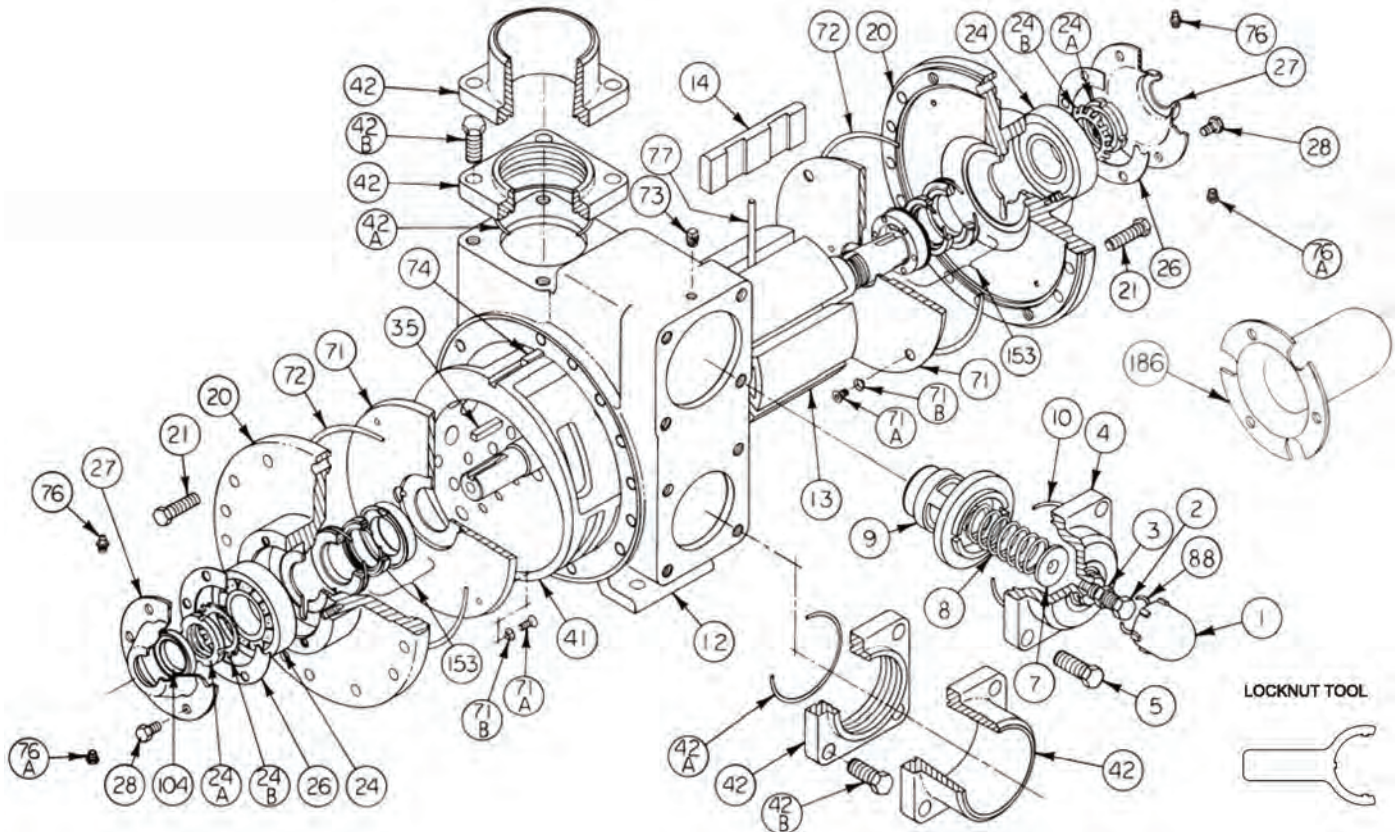
LGLD3F

Part # Size 2 1-1/4" Hyd Motor Shaft	Part # Size 3 1-1/4" Hyd Motor Shaft	Part # Size 3 1" Hyd Motor Shaft	Ref. No.	Description	Parts Per Pump
894425	894425	895140	See Below	Hydraulic Motor Adapter Kit *	See Below
383940	381817	381817	26A	Gasket- Hydraulic Motor Adapter	1
920369	920369	920369	28A	Capscrew – Hydraulic Motor Adapter / Head	4 / 6
906967	906967	906990	34	Coupling w/ Setscrew – straight key hydraulic motor shaft	1
909184	909184	909184	35	Key – Coupling	1
317815	317815	317815	76	Grease Fitting	1
701992	701992	701992	76A	Grease Relief Fitting	1
041827	041831	041831	135	Hydraulic Motor Adapter – SAE A Flange	1
920510	920510	920510	135A	Capscrew – Adapter / Motor	2

* Hydraulic Motor Adapter Kits shipped prior to Spring 2002 were of a two piece design – refer to page 206-C00.

Models: LGLD4B

Repair Parts



Part #	Ref. No.	Description	Parts Per Pump
413957	1	Cap - Relief Valve (R/V)	1
436310	2	Adjusting Screw - R/V	1
432039	3	Locknut - Adjusting Screw	1
412001	4	Cover - R/V	1
920663	5	Capscrew - R/V Cover	4
426355	7	Spring Guide - R/V	1
472039	8 (1)	Spring - R/V	1
452001	9	Valve - R/V	1
701946	10 (1)	O-Ring - R/V Cover	1
12019	12	Casing	1
262041	13 (2)	Rotor & Shaft Assy, Dbl. End (Includes Ref. No. 24A & 24B)	1
92019	14 (1)	Vane - Duravane	6
32041	20	Head	2
920532	21	Capscrews - Head	28
903166	24 (1)	Ball Bearing	2
903541	24A (2)	Locknut - Bearing	2
903542	24B (1)	Lockwasher - Bearing	2
385125	26 (1)	Gasket - Bearing Cover	2
041815	27	Bearing Cover - LGLD4B	2
920285	28	Capscrews - Bearing Cover	12
909183	35 (1)	Key - Shaft	1
182000	41 (2)	Liner	1
652012	42	Flange - 3" NPT	1-2
652007	42	Flange - 3" Weld	1-2
652005	42	Flange - 4" Weld	1-2

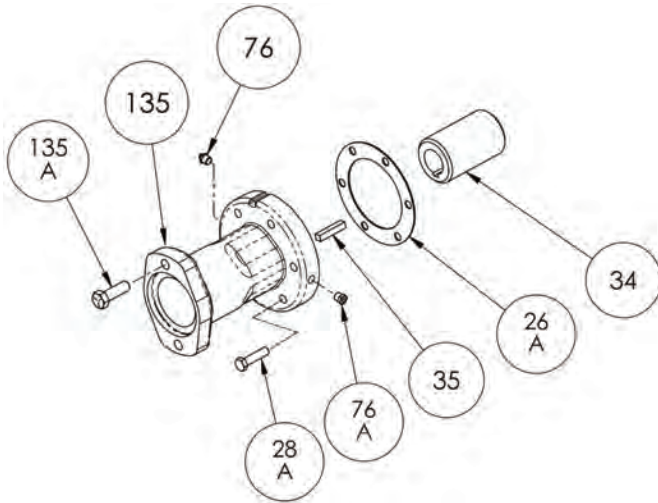
Part #	Ref. No.	Description	Parts Per Pump
701937	42A (1)	O-Ring - NPT, Weld Flange	2
920663	42B	Capscrew - NPT Flange	8
920640	42B	Capscrew - Weld Flange	8
062039	71 (1)	Disc	2
920015	71A (2)	Machine Screw - Disc	8
909634	71B (2)	Lockwasher - Machine Screw	8
702039	72 (1)	O-Ring - Head	2
908198	73	Gage Plug	2
182040	74 (2)	Key - Liner	1
317815	76	Grease Fitting	2
701992	76A	Grease Relief Fitting	2
122009	77 (1)	Push Rod - composite - LGLD4B	3
701926	88 (1)	O-Ring - R/V Cap	1
331908	104 (1)	Grease Seal - LGLD4B	2
341801	186	Shaft Protector	1
903092		Tool - Locknut	
898922		Kit - Maintenance	
899022		Kit - Rebuild -LGLD4B	

1—Included in Maintenance Kit and Rebuild Kit.

2—Included in Rebuild Kit only.

Models: LGLD4B

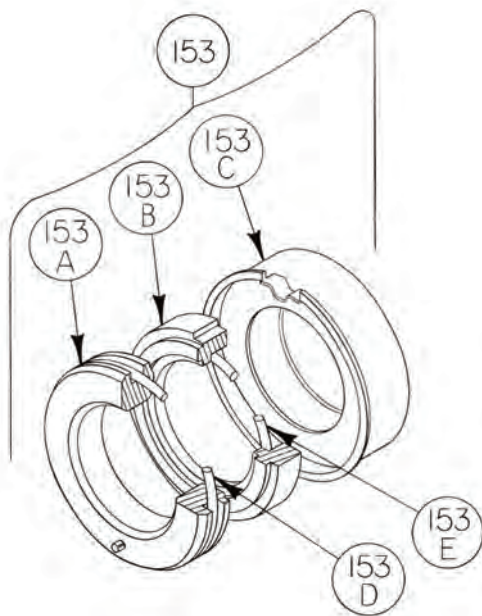
Hydraulic Motor Adapter Parts



Part #	Ref. No.	Description	Parts Per Pump
892037	—	Hydraulic Motor Adapter Kit *	See Below
Includes Items Listed Below			
381817	26A	Gasket – Hydraulic Motor Adapter	1
920369	28A	Capscrew – Hydraulic Motor Adapter / Head	6
906970	34	Coupling w/ Setscrew – 1.25" straight key hyd. motor shaft	1
909184	35	Key – Coupling	1
317815	76	Grease Fitting	1
701992	76A	Grease Relief Fitting	1
041829	135	Hydraulic Motor Adapter – SAE A Flange	1
920510	135A	Capscrew – Adapter / Motor	2

Models: LGLD4B & LGL4B

Mechanical Seal - Standard



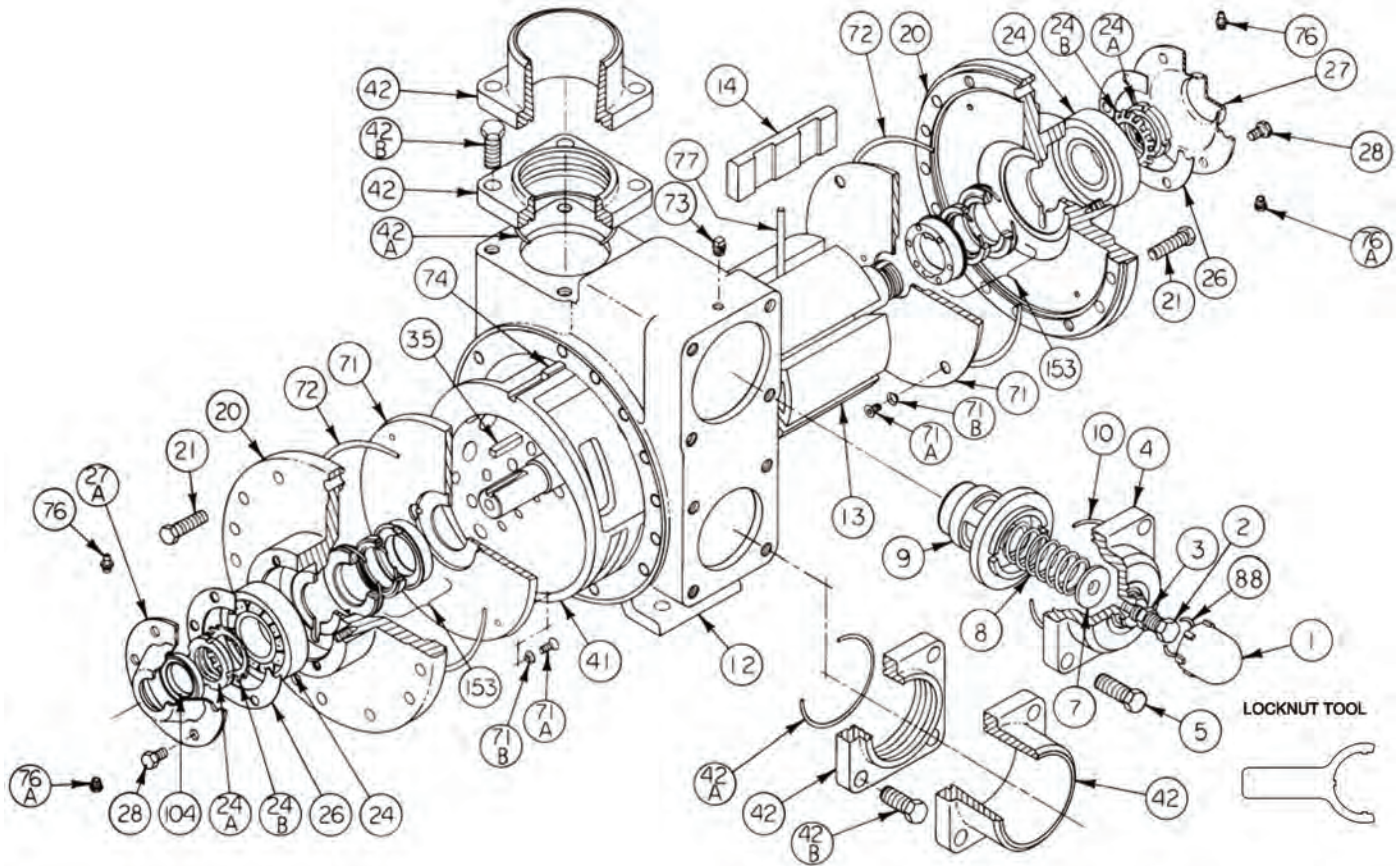
Part #	Ref. No.	Description	Parts Per Pump
332050	153 (1)	Mechanical Seal Assembly	2
**	153A	Stationary Seat (Hardened Steel)	2
**	153B	Seal Face (Carbon)	2
**	153C	Jacket Assembly	2
701934	153D	O-Ring - Stationary (Buna-N)	2
711912	153E	O-Ring - Rotating (Buna-N)	2

1—Included in Maintenance Kit and Rebuild Kit.

** NOTE: Mechanical Seal Ref. No. 153 is only sold as a complete assembly. Ref. Nos. 153A, 153B & 153C are not available as separate replacement parts

Models: LGL4B

Repair Parts



Part #	Ref. No.	Description	Parts Per Pump
413957	1	Cap - Relief Valve (R/V)	1
436310	2	Adjusting Screw - R/V	1
432039	3	Locknut - Adjusting Screw	1
412001	4	Cover - R/V	1
920663	5	Capscrew - R/V Cover	4
426355	7	Spring Guide - R/V	1
472039	8 (1)	Spring - R/V	1
452001	9	Valve - R/V	1
701946	10 (1)	O-Ring - R/V Cover	1
012019	12	Casing	1
262023	13	Rotor & Shaft Asy, Single End (Includes Ref. No. 24A & 24B)	1
092019	14 (1)	Vane - Duravane	6
032041	20	Head	2
920532	21	Capscrews - Head	28
903172	24 (1)	Ball Bearing	2
903541	24A	Locknut - Bearing	2
903542	24B (1)	Lockwasher - Bearing	2
385125	26 (1)	Gasket - Bearing Cover	2
041815	27	Bearing Cover - Inboard, LGL4B	1
041817	27A	Bearing Cover - Outboard, LGL4B	1
920285	28	Capscrews - Bearing Cover	12
909183	35 (1)	Key - Shaft	1
182000	41	Liner	1
652012	42	Flange - 3" NPT	1-2
652007	42	Flange - 3" Weld	1-2

Part #	Ref. No.	Description	Parts Per Pump
652005	42	Flange - 4" Weld	1-2
701937	42A (1)	O-Ring - NPT, Weld Flange	2
920663	42B	Capscrew - NPT Flange	8
920640	42B	Capscrew - Weld Flange	8
62039	71 (1)	Disc	2
920015	71A	Machine Screw - Disc	8
909634	71B	Lockwasher - Machine Screw	8
702039	72 (1)	O-Ring - Head	2
908198	73	Gage Plug	2
182040	74	Key - Liner	1
317815	76	Grease Fitting	2
701992	76A	Grease Relief Fitting	2
122005	77 (1)	Push Rod - metal - LGL4B	3
701926	88 (1)	O-Ring - R/V Cap	1
331908	104 (1)	Grease Seal - LGL4B	1
903092		Tool - Locknut	
898922		Kit - Maintenance	

1—Included in Maintenance Kit.

By-Pass Valves

CORKEN



Item #	Description	Common Applications	Ports	Flow Rate GPM	O-ring Material Options
T166-20	Pump Flow Control Valve	Bobtail Truck & Smaller Bulk Plant Systems	1-1/4" NPT	Up to 80	Buna-N (std), Neoprene®, PTFE, Viton®, Ethylene-Propylene
T166-24	Pump Flow Control Valve	Bobtail Truck & Smaller Bulk Plant Systems	1-1/2" NPT	Up to 100	Buna-N (std), Neoprene®, PTFE, Viton®, Ethylene-Propylene
ZV200	Differential By-pass Valve	Transports or Large Bulk Plant Systems	2" NPT	Up to 250	Buna-N (std), Neoprene®, PTFE, Viton®, Ethylene-Propylene

Note: By-Pass valves are NOT preset. Refer to Corken's installation instruction manual for proper setting procedures.

Coro-Vane Stationary Pumps

CORKEN



The Z-Series pump is a special type of rotary positive displacement pump, known as a sliding vane pump for use in bulk plant installations. The sliding vane pump has many of the positive displacement advantages of the gear pump, plus the ability to compensate for wear, and operate at a lower noise level. The sliding vane pump consists of a rotor turning in a cam (liner) machined eccentrically in relation to the rotor; thereby displacing the liquid trapped between the rotor, cam and vanes. The Z-Series pumps are made with vanes produced from advanced polymers which exhibit extremely low coefficients of friction. The vanes are self-adjusting for wear which gives the pump long life.

Item #	Flange Size	Capacity
Z2000	2"	84 GPM
Z3500	3"	185 GPM
Z4500	4" x 3"	385 GPM

Note: Pump capacity shown are only approximate and will vary depending on motor horsepower, RPM, differential pressures and piping.

Coro-Vane Truck Pumps

CORKEN



The Z-Series pump is a special type of rotary positive displacement pump, known as a sliding vane pump for use in mobile applications.

The sliding vane pump has many of the positive displacement advantages of the gear pump, plus the ability to compensate for wear, and operate at a lower noise level.

The sliding vane pump consists of a rotor turning in a cam (liner) machined eccentrically in relation to the rotor; thereby displacing the liquid trapped between the rotor, cam and vanes. The Z-Series pumps are made with vanes produced from advanced polymers which exhibit extremely low coefficients of friction. The vanes are self-adjusting for wear which gives the pump long life.

Item #	Suction Flange	Discharge Flange	Max. RPM	Max. Working Pressure PSIG	Max Differential Pressure
Z2000	2" NPT	2" NPT	800	400	125 psid
Z3200	3" 300# ANSI	2" EL	800	400	125 psid
Z4200	4" 300# ANSI	2" Dual NPT	800	400	125 psid
Z3500	3" NPT	3" NPT	800	400	125 psid
Z4500	4" 300# ANSI	3" ANSI	800	400	125 psid

Coro-Vane Truck Pump Selection Guide



Item #	Pump RPM	GPM @ 20 PSI	HP	Phase	Frame Size	Suggested Pipe Size			By-pass Valve	Hose Size	
						Inlet	Outlet	Vapor		Liquid	Vapor
Z2000-103-9	780	84	5	3	182T	2-1/2"	2"	1-1/4"	1-1/4"	1-1/2"	1"
Z2000-103-9	780	84	5	1	213T	2-1/2"	2"	1-1/4"	1-1/4"	1-1/2"	1"

Coro-Vane Selection Guide



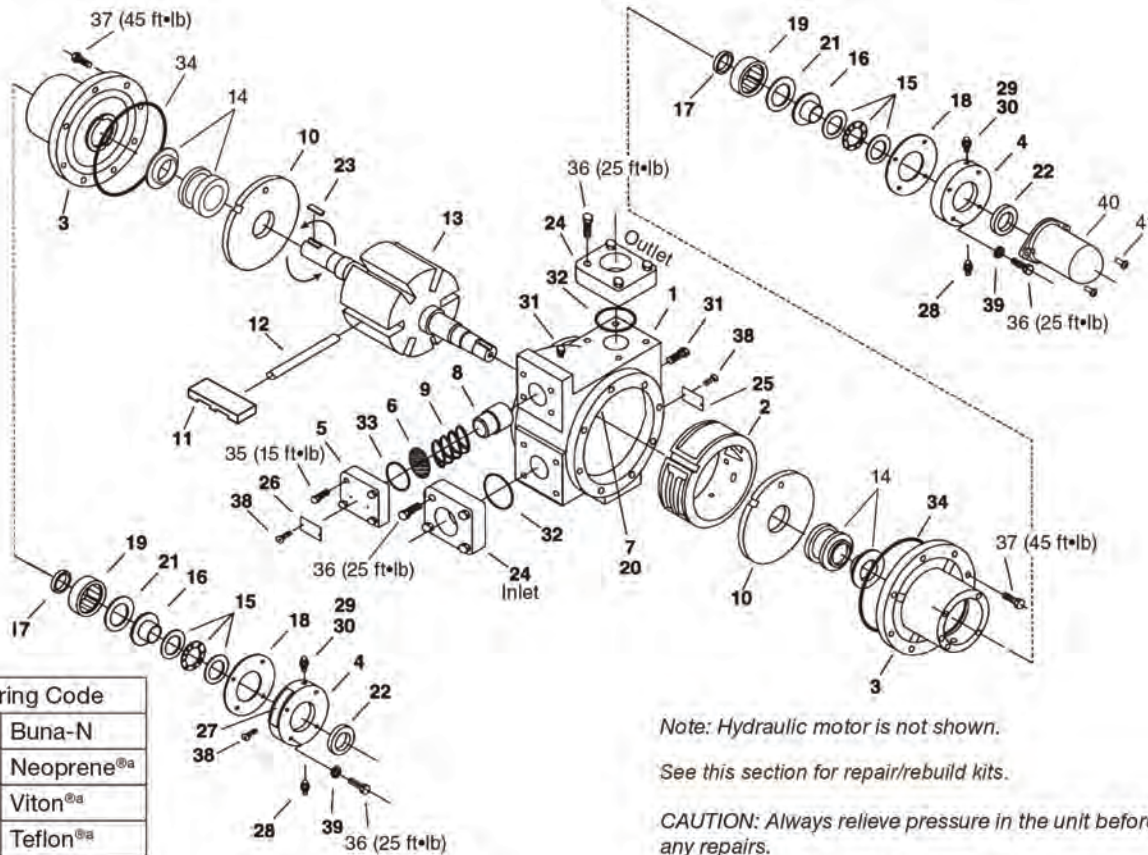
Item #	Pump Speed (RPM)	Differential Pressure (PSI)	Approximate Delivery ¹ (GPM)	Brake HP Required (BHP)	Pump Torque Required (Ft°Lb)
Z2000	750	50	82	2.9	20.4
Z2000	750	100	77	5.8	40.8
Z2000	650	50	69	2.5	20.4
Z2000	650	100	64	5.1	40.8
Z2000	600	50	63	2.3	20.4
Z2000	600	100	58	4.6	40.8
Z2000	500	50	52	1.9	20.4
Z2000	500	100	46	3.9	40.8
Z3200	750	50	112	6.2	43.4
Z3200	750	100	99	9.9	69.3
Z3200	650	50	95	5.2	42
Z3200	650	100	84	8.2	66.3
Z3200	600	50	86	5	41.3
Z3200	600	100	76	7.8	64.8
Z3200	500	50	70	3.8	39.9
Z3200	500	100	62	5.8	60.9
Z4200	750	50	80	12.5	87
Z4200	750	100	70	25.1	175
Z4200	650	50	69	10.8	87
Z4200	650	100	61	21.7	175
Z4200	600	50	63	9.9	87
Z4200	600	100	55	20	175
Z4200	500	50	52	8.4	87
Z4200	500	100	46	16.7	175

The chart shows approximate delivery rates as seen in vapor equalized systems at 70°F (21°C) with no pressure loss in pump suction piping.

The following will cause increased vaporization of the liquid in the pump suction, adversely affecting the delivery.

- 1) Restrictions in the suction piping such as internal valves, excess flow valves, elbows, etc.
- 2) Restriction or lack of a vapor return line.
- 3) Temperatures below 70°F (21°C).

This loss of delivery is not caused by the pump but is a result of the natural thermodynamic properties of liquefied petroleum gases. See the "GUIDE TO CORKEN LIQUEFIED GAS TRANSFER EQUIPMENT" (CP226) for a complete description of these phenomena.



O-ring Code	
A	Buna-N
B	Neoprene ^{®a}
D	Viton ^{®a}
E	Teflon ^{®a}

Note: Hydraulic motor is not shown.

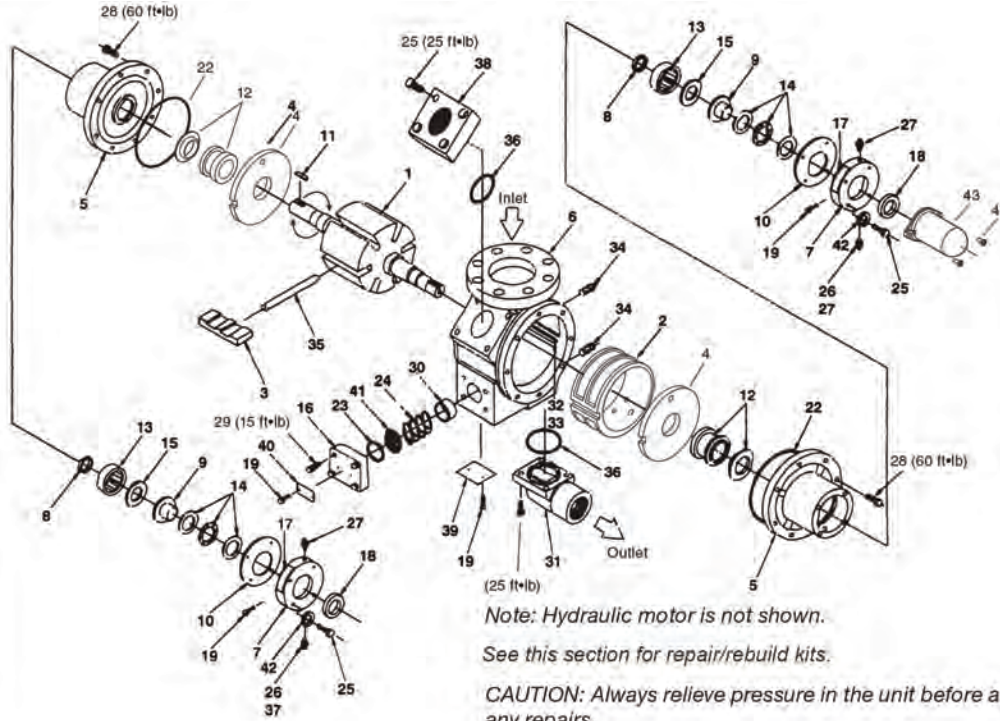
See this section for repair/rebuild kits.

CAUTION: Always relieve pressure in the unit before attempting any repairs.

Item #	Ref. No.	Description	Qty.
4413	1	Case	1
4414	2	Cam	1
4416	3	Head	2
4417	4	Bearing cap	2
1174-3	5	Relief valve cap	1
4282	6	Shim	1
4424	7	Cam key	1
4425	8	Relief valve cap	1
4426	9	Relief valve spring	1
4427	10	Sideplate	2
4428	11 (2)	Vane	6
4262-X	12	Vane driver	3
4430-X2R	13	Rotor-shaft assembly	1
4431-X_6	14 (4)	Seal Assembly	2
4432	15	Thrust bearing assembly	2
4435	16	Bearing race mounting ring	2
4438	17	Grease seal	2
4439	18	Bearing cap shim (.002) Red	As Req.
4439-1	18	Bearing cap shim (.010) Brown	As Req.
4439-2	18	Bearing cap shim (.020) Yellow	As Req.
2754-X	19	Bearing	2
3253	20	Cam key pin	2
2760-244	21	Retainer ring	2
4441	22	Grease seal	2
2270	23	Shaft key — 1/4" x 1-9/16"	2

Item #	Ref. No.	Description	Qty.
4479-2	24 (3)	Flange — 2" NPT	2
2649	25	Nameplate	1
4248	26	Relief valve nameplate	1
1359	27	Lubrication instruction plate	2
1342	28	1/8" NPT relief fitting	4
2158	29	1/8" NPT grease zerker	2
2159	30	Lubricap	2
3442	31	1/4" NPT pipe plug	2
2-231_	32 (4)	O-ring — flange	2
2-224_	33 (4)	O-ring — relief valve cap	1
2-261_	34 (4)	O-ring — case	2
7001-031NC125A	35	Bolt — hexagon head	4
7001-037NC150A	36	Bolt — hexagon head	16
7001-043NC125A	37	Bolt — hexagon head	16
7012-006SF025E	38	Screw	8
7206-037A	39	Lockwasher	8

- (1) Registered trademarks of the DuPont company.
- (2) Slots in blades must face TOWARDS the direction of rotation.
- (3) Optional: 479-2S 2" welded.
- (4) _Denotes O-ring code.

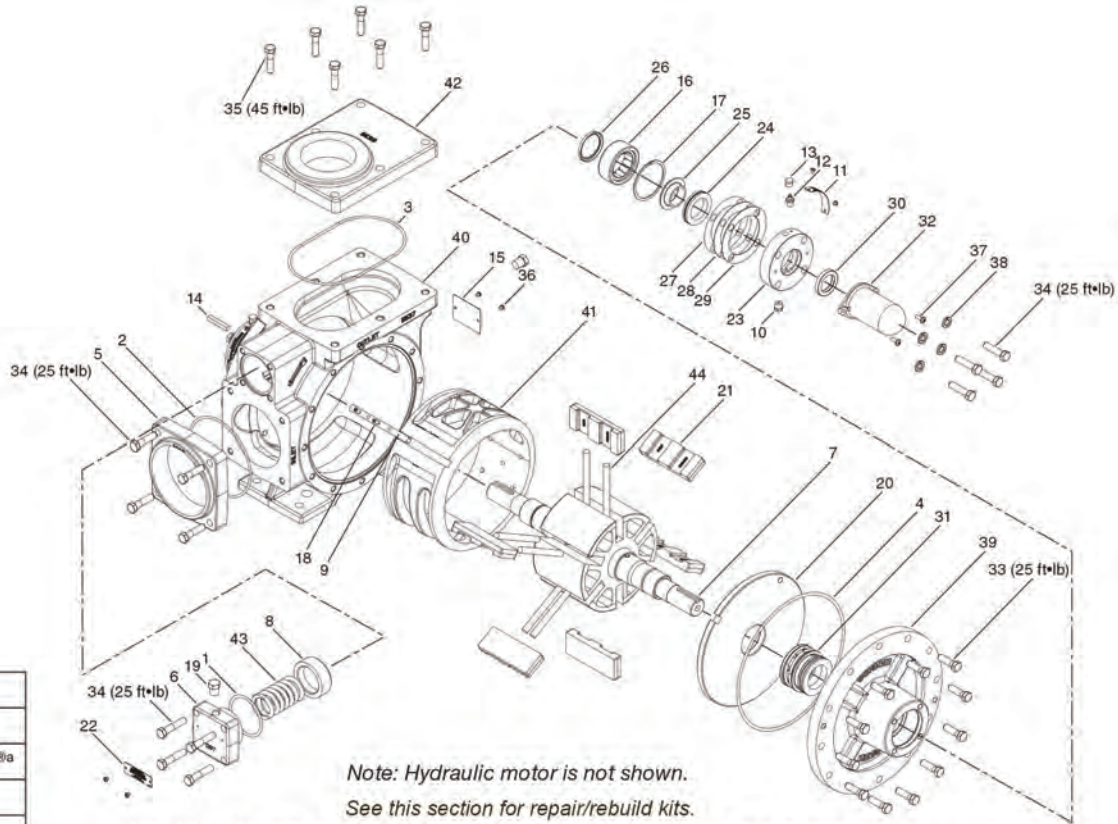


O-ring Code	
A	Buna-N
B	Neoprene [®]
D	Viton [®]
E	Teflon [®]

Item #	Ref. No.	Description	Qty.
4495-X2R	1	Rotor shaft assembly	1
4242	2	Cam	1
4232	3 (1)	Vane	6
4321	4	Sideplate	2
4488	5	Head	2
4239	6	Case	1
4417	7	Bearing cap	2
4438	8	Grease seal	2
4435	9	Mounting ring	2
4439	10	Bearing cap shim (.002) Red	As Req.
4439-1	10	Bearing cap shim (.010) Brown	As Req.
4439-2	10	Bearing cap shim (.020) Yellow	As Req.
2270	11	Shaft key	2
4431-X_6	12 (3)	Seal assembly	2
2754	13	Bearing outer race	2
4432	14	Thrust bearing assembly	2
2760-244	15	Retainer ring	2
1174-2	16	Relief valve cap	1
1359	17	Lubrication instruction plate	2
4441	18	Grease seal	2
7012-006SF019E	19	Screw	8
2-223_	20 (3)	O-ring — seal	2
2-227_	21 (3)	O-ring — seat	2
2-262_	22 (3)	O-ring — case	2
2-224_	23 (3)	O-ring — relief valve cap	1
1240	24	Relief valve spring	1
7001-037NC150A	25	Bolt - 3/8-16 x 1-1/2" hex head	16
2158	26	1/8" NPT grease zerk	2

Item #	Ref. No.	Description	Qty.
1343	27	1/8" NPT relief fitting	4
7001-050NC150A	28	Bolt — 1/2-13 x 1-1/2" hex head	16
7001-031NC125A	29	Bolt — 5/16-16 x 1-1/4" hex head	4
1241	30	Relief valve	1
4243	31 (2)	Flanged elbow — 2"	1
4241	32	Cam key	1
3253	33	Cam key pin	1
3442	34	1/4" NPT pipe plug	1
4262-X	35	Vane driver	3
2-234_	36 (3)	O-ring — flange	1
2159	37	Lubricap	2
1172-2	38	Flange — 2" NPT	1
2649	39	Nameplate	1
4248	40	Relief valve nameplate	1
4282	41	Relief valve shim	As Req.
7206-037A	42	3/8" lockwasher	8

- (1) Registered trademarks of the DuPont company.
- (2) See flange chart for options.
- (3) _ Denotes O-ring code.
- (4) Slots in blades must face TOWARDS the direction of rotation.



O-ring Code	
A	Buna-N
B	Neoprene [®] a
D	Viton [®] a
E	Teflon [®] a

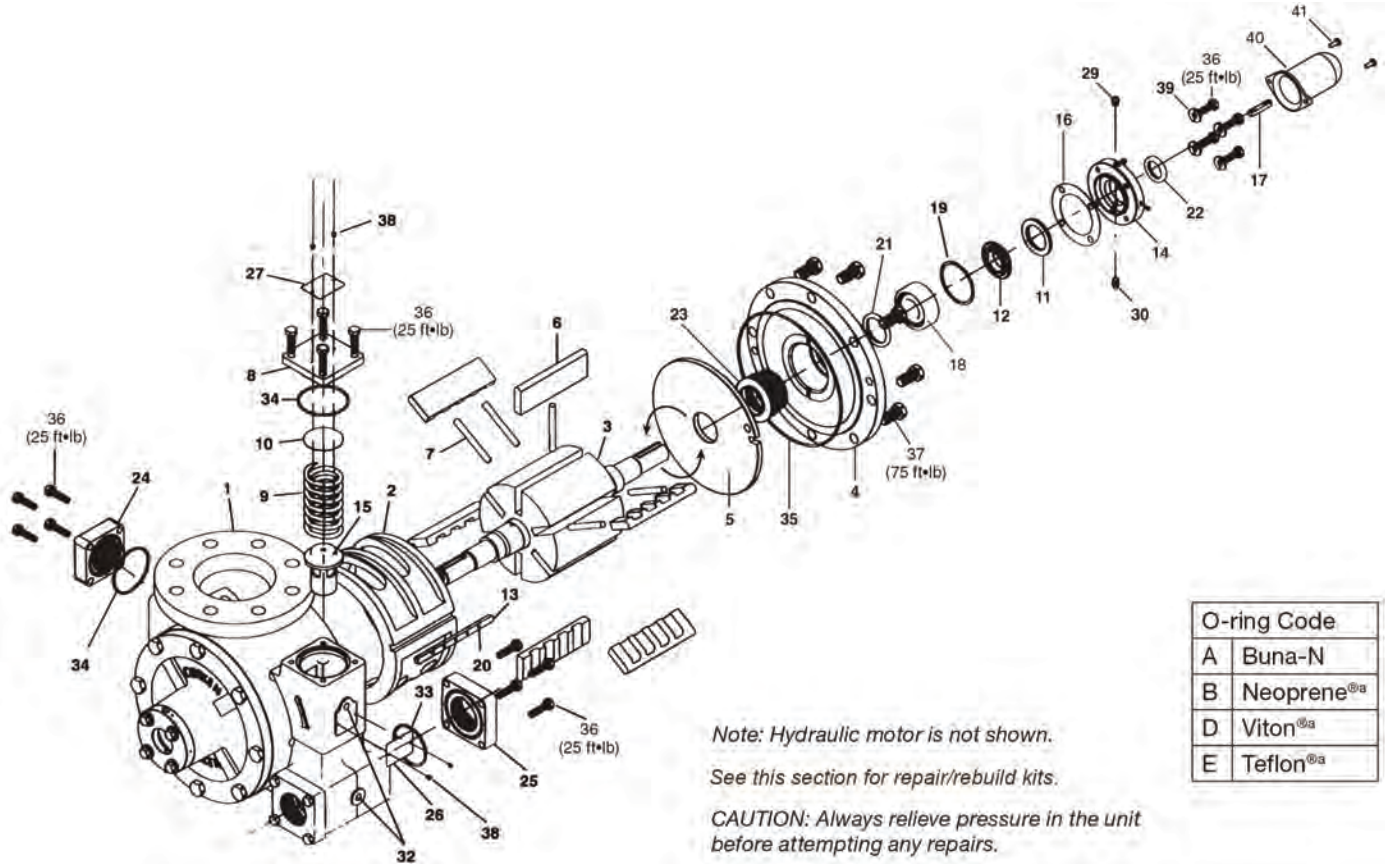
Note: Hydraulic motor is not shown.
See this section for repair/rebuild kits.

CAUTION: Always relieve pressure in the unit before attempting any repairs.

Item #	Ref. No.	Description	Qty.
2-228_	1 (2)	O-ring	1
2-245_	2 (2)	O-ring	1
2-259_	3 (2)	O-ring	1
2-268_	4 (2)	O-ring	2
1206-3	5	Inlet flange — 3" NPT	1
1206-4	5	Inlet flange — 4" NPT	1
1206-3S	5	inlet flange — 3" WF	1
1206-4S	5	inlet flange — 4" WF	1
1207-2	6	Relief valve cap	1
1208-1X6R	7	Rotor shaft assembly	1
1224	8	Relief valve cap	1
1309	9	Cam key	1
1343	10	Grease relief fitting	4
1359	11	Lubrication plate	2
2158	12	Grease zerk	2
2159	13	Lubricap	2
2270	14	Shaft key — 1/4"	1
2649	15	Nameplate	1
2754	16	Outer bearing	2
2760-244	17	Retainer ring	2
3253	18	Cam key pin	2
3442	19	Pipe plug — 1/4" NPT	2
3935	20	Sideplate	2
3936	21 (3)	Vane	6
4248	22	Relief valve warning tag	1
4417	23	Bearing cap	2
4432	24	Thrust bearing assembly	2
4435	25	Thrust bearing mounting ring	2
4438	26	Grease seal / Oil seal	2
4439	27	Bearing cap shim (.002) Red	2

Item #	Ref. No.	Description	Qty.
4439-1	28	Bearing cap shim (.010) Brown	2
4439-2	29	Bearing cap shim (.020) Yellow	2
4441	30	Grease seal	2
4431-X_6	31 (2)	Mechanical seal assembly	2
4985	32	Coro-vane shaft cover	1
7001-037NC125A	33	Hex head bolt	24
7001-037NC150A	34	Hex head bolt	16
7001-043NC150A	35	Hex head bolt	6
7012-006SF019E	36	Screw	9
7012-010SF050E	37	Screw	2
7206-037A	38	Lockwasher — 0.375"	8
5534	39	head	2
5537	40	Case	1
5539	41	Cam	1
5538	42	Outlet flange — 3" NPT Elongated	1
5538-3S	42	Outlet flange — 3" WF Elongated	1
5548	43	Spring	1
5554-X	44	Vane driver	6

(1) Registered trademarks of the DuPont company.
 (2) _Denotes O-ring code.
 (3) Slots in blades must face TOWARDS the direction of rotation.



O-ring Code	
A	Buna-N
B	Neoprene ^{®a}
D	Viton ^{®a}
E	Teflon ^{®a}

Item #	Ref. No.	Description	Qty.
4442	1	Case	1
4443	2	Cam	1
	3	Rotor-shaft assembly	1
	4	Head	2
	5	Sideplate	2
4448	6 (4)	Vane	6
4449-X	7	Vane driver	5
4450	8	Relief valve cap	1
4451	9	Relief valve spring	1
4452	10	Shim	1
4453	11	Thrust bearing assembly	2
4454	12	Bearing race mounting ring	2
4455	13	Cam key	1
4456	14	Bearing cap	2
4457	15	Relief valve	1
4458	16	Bearing cap shim (.002) Red	As Req.
4458-1	16	Bearing cap shim (.010) Brown	As Req.
4458-2	16	Bearing cap shim (.020) Yellow	As Req.
4459	17	Shaft key — 5/16" x 1-3/4"	1
4460-X	18	Roller bearing	2
2760-281	19	Retainer ring	2
3253	20	Cam key pin	5
4462	21	Grease seal	2
4463	22	Grease seal	2
4464-X 6	23 (3)	Seal assembly	2

Item #	Ref. No.	Description	Qty.
1172-2	24 (2)	Aux. inlet flange — 2" NPT	1
4479-2	25 (2)	Discharge flange — 2" NPT	2
2649	26	Nameplate	1
4248	27	Relief valve nameplate	1
1359	28	Lubrication instruction plate	2
1343	29	1/8" NPT relief valve	4
2158	30	1/8" NPT grease zerk	2
2159	31	Lubricap	2
3442	32	1/4" NPT pipe plug	2
2-231	33 (3)	O-ring — discharge flange	2
2-234	34 (3)	O-ring — auxiliary inlet flange	1
2-270	35 (3)	O-ring — case	2
7001-037NC150A	36	Bolt — hexagon head	24
7001-062NC125A	37	Bolt — hexagon head	16
7012-006SF019E	38	Screw	8
7206-037A	39	Lockwasher	8

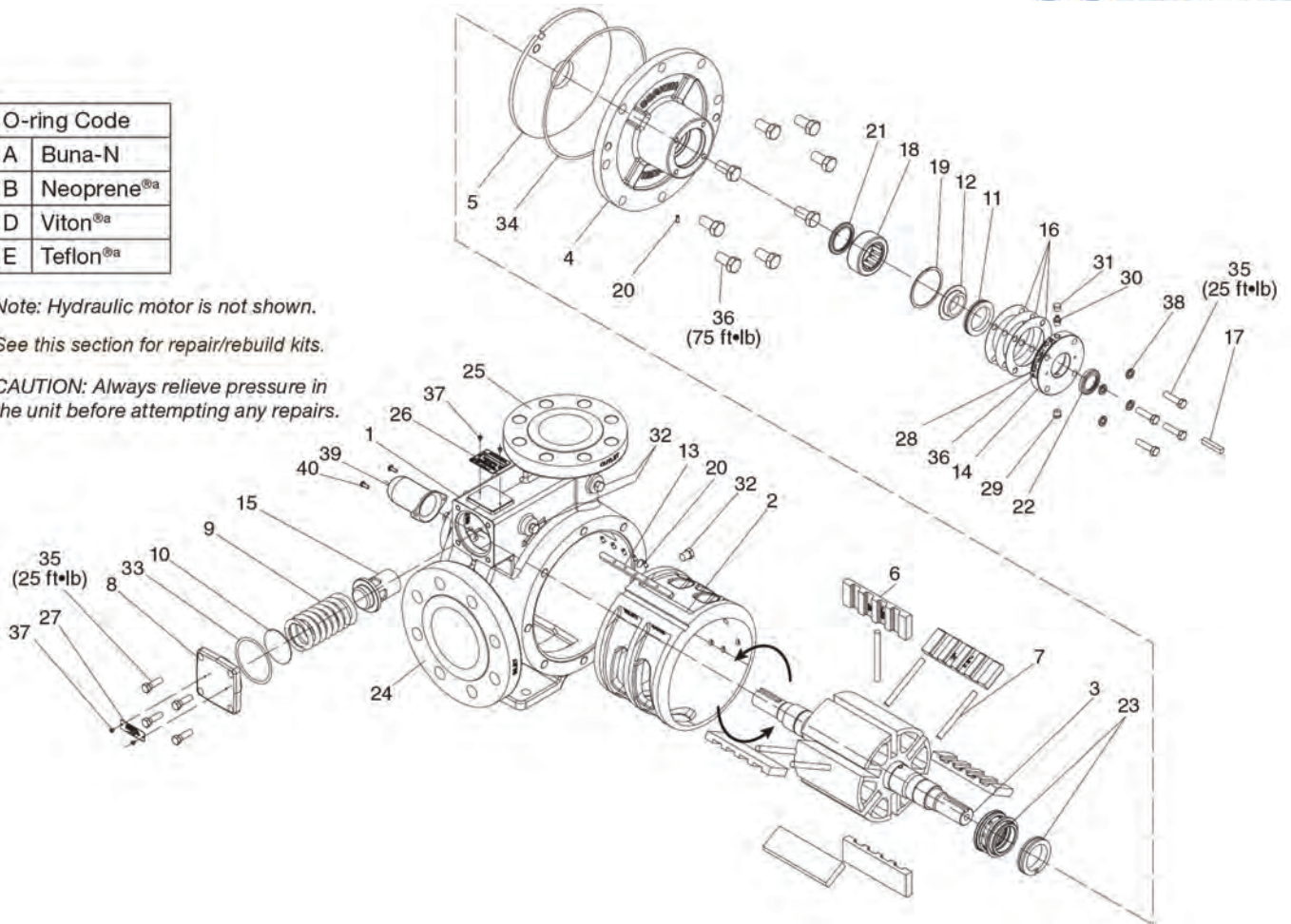
- (1) Registered trademarks of the DuPont company.
- (2) See flange chart for options.
- (3) _Denotes O-ring code.
- (4) Slots in blades must face TOWARDS the direction of rotation.

O-ring Code	
A	Buna-N
B	Neoprene ^{®a}
D	Viton ^{®a}
E	Teflon ^{®a}

Note: Hydraulic motor is not shown.

See this section for repair/rebuild kits.

CAUTION: Always relieve pressure in the unit before attempting any repairs.



Item #	Ref. No.	Description	Qty.
5522	1	Case	1
4443	2	Cam	1
4444-X2R	3	Rotor-shaft assembly	1
4445	4	Head	2
4446	5	Sideplate	2
4448	6 (3)	Vane	6
4449-X	7	Vane driver	5
4450	8	Relief valve cap	1
4451	9	Relief valve spring	1
4452	10	Shim	1
4453	11	Thrust bearing assembly	2
4454	12	Bearing race mounting ring	2
4455	13	Cam key	1
4456	14	Bearing cap	2
4457	15	Relief valve	1
4458	16	Bearing cap shim (.002) Red	As Req.
4458-1	16	Bearing cap shim (.010) Brown	As Req.
4458-2	16	Bearing cap shim (.020) Yellow	As Req.
4459	17	Shaft key — 5/16" x 1-3/4"	1
4460-X	18	Roller bearing	2
2760-283	19	Retainer ring	2
3253	20	Cam key pin	5

Item #	Ref. No.	Description	Qty.
4462	21	Grease seal	2
4463	22	Grease seal	2
4464-X_6	23 (2)	Mechanical sea assembly	2
2649	26	Nameplate	1
4248	27	Relief valve nameplate	1
1359	28	Lubrication instruction plate	2
1343	29	1/8" NPT relief fitting	4
2158	30	1/8" NPT grease zerk	2
2159	31	Lubricap	2
3442	32	1/4" NPT pipe plug	2
2-231_	33 (2)	O-ring — discharge flange	2
2-234_	34 (2)	O-ring — auxiliary inlet flange	1
2-270_	35 (2)	O-ring — case	2
7001-037NC150A	36	Bolt — hexagon head	24
7001-062NC125A	37	Bolt — hexagon head	16
7012-006SF019E	38	Screw	8
7206-037A	39	Lockwasher	8
4985	40	Shaft cover	1
7012-010SF050E	41	Screw	2

(1) Registered trademarks of the DuPont company.

(2) _Denotes O-ring code.

(3) Slots in blades must face TOWARDS the direction of rotation.

Repair Kit 3193-X16 Z2000

Part #	Description	Qty.
2-224A	O-ring, Buna-N	1
2-231A	O-ring, Buna-N	2
2754-X	Roller bearing	2
4262-X	Vane driver	3
4428	Vane	6
4431-XA2	Seat assembly	2
4432	Thrust bearing	2
4435	Thrust bearing mounting ring	2
4439	Bearing cap shim (.002) Red	8
4439-1	Bearing cap shim (.010) Brown	2
4439-2	Bearing cap shim (.020) Yellow	2
4441	Grease seal	2
2270	Shaft key	1

Repair Kit 3197-X16 Z4200 & Z4500

Item #	Description	Qty.
2-231A	O-ring, Buna-N	1
2-234A	O-ring, Buna-N	2
4460-X	Roller bearing	2
4449-X	Vane driver	3
4448	Vane	6
4464-XA2	Seat assembly	2
4453	Thrust bearing	2
4454	Thrust bearing mounting ring	2
4458	Bearing cap shim (.002) Red	8
4458-1	Bearing cap shim (.010) Brown	2
4458-2	Bearing cap shim (.020) Yellow	2
4463	Grease seal	2
4459	Shaft key	1

Repair Kit 3195-X16 Z3200

Item #	Description	Qty.
2-224A	O-ring, Buna-N	1
2-234A	O-ring, Buna-N	2
2754-X	Roller bearing	2
4262-X	Vane driver	3
4232	Vane	6
4431-XA2	Seat assembly	2
4432	Thrust bearing	2
4435	Thrust bearing mounting ring	2
4439	Bearing cap shim (.002) Red	8
4439-1	Bearing cap shim (.010) Brown	2
4439-2	Bearing cap shim (.020) Yellow	2
4441	Grease seal	2
2270	Shaft key	1

Rebuild Kit 3194-X16 Z2000

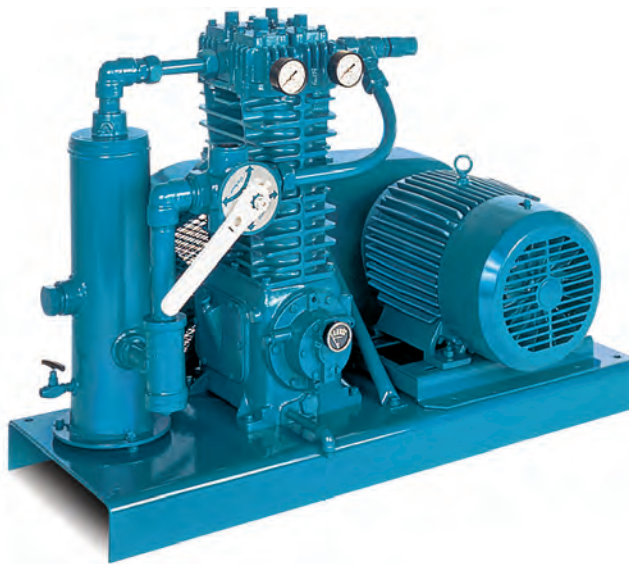
Includes all items in the Repair Kit plus the following

Item #	Description	Qty.
4414	Cam	1
4427	Sideplate	2

Repair Kit 3195-X26 Z3500

Item #	Description	Qty.
2-228A	O-ring, Buna-N	2
2754-X	Roller bearing	2
5554-X	Vane driver	6
3936	Vane	6
6660-xa2	Seat assembly	2
4432	Thrust bearing	2
4435	Thrust bearing mounting ring	2
4439	Bearing cap shim (.002) Red	8
4439-1	Bearing cap shim (.010) Brown	2
4439-2	Bearing cap shim (.020) Yellow	2
4441	Grease seal	2
2270	Shaft key	1

Single-Stage Reciprocating Compressor



Blackmer oil-free compressor for high performance transfer and vapor recovery of Anhydrous Ammonia and other liquefied gases.

Stationary Base Mounting

Compressors are factory mounted for all three of its oil-free compressor models. The stationary base mounting includes liquid trap, four-way valve, belt guard, adjustable motor slide base, V-belt drive assembly including motor sheave and hub, strainer, valves, pressure gauges and interconnecting piping all mounted on a unit base.

Transport Mounting

Blackmer compressors can be transport-mounted. All models of Blackmer compressors may be adapted for either direct drive or V-belt drive applications.

Item #	Speed (RPM)	Approx Delivery ¹		Motor HP ²	Pipe Diameter ³	
		GPM	LPM		Vapor	Liquid
LB-161-LU	425*	49	186	3	1"	2"
LB-161-LU	560	65	246	5	1"	2"
LB-161-LU	715*	63	314	5	1.25"	2"
LB-161-LU	780	90	341	7.5	1.25"	2"
LB-161-LU	825*	92	348	7.5	1.25"	2"
LB-361A-LU	495*	123	466	7.5	1.25"	2.5"
LB-361A-LU	540	134	507	10	1.25"	2.5"
LB-361A-LU	650*	161	609	10	1.5" - 2"	3"
LB-361A-LU	780	194	734	15	1.5" - 2"	3"
LB-361A-LU	825*	205	761	15	1.5" - 2"	3"
LB-601A-LU	550	245	937	15	2" - 2.5"	4"
LB-601A-LU	640	285	1079	20	2" - 2.5"	4"
LB-601A-LU	735*	327	1238	20	2" - 2.5"	4"
LB-601A-LU	790	351	1329	25	2" - 2.5"	4"
LB-942-LU	470	400	1514	25	3" - 4"	6"
LB-942-LU	565	480	1817	30	3" - 4"	6"
LB-942-LU	750	640	2422	40	3" - 4"	6"
LB-942-LU	825	700	2650	50	3" - 4"	6"

1. Delivery will depend on proper system design, piping size and value capacity.

2. HP is for liquid transfer and vapor recovery in moderate climates. Consult your GEC representative for HP requirements in severe climates. For liquid transfer applications without vapor recovery, multiply by 0.4.

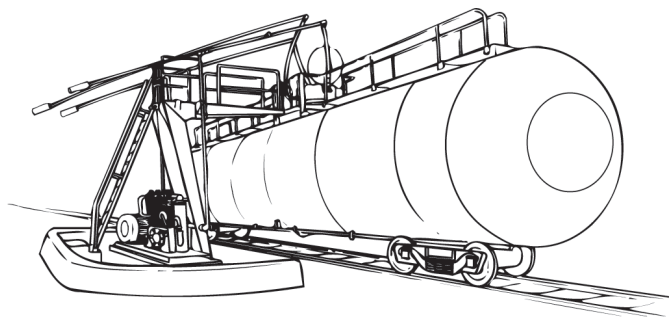
3. Use next larger pipe size if piping exceeds 100 feet.

* Indicates maximum RPM for respective motor HP.

Anhydrous Ammonia Vapor Recovery

- 33,000 water gallon capacity (124,915 lbs.) tank car.
- The amount recovered includes 165 gallons of liquid heel boil off..

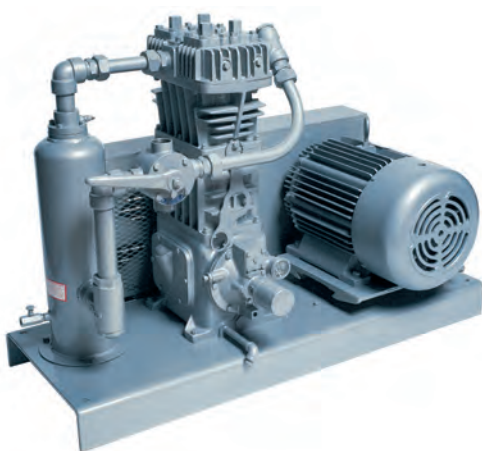
Ambient Temperature	Economically Recoverable Product
PSIG	Gallons
200	1153
175	969
150	845
125	713
100	580
75	441
50	419



Corken Compressors

CORKEN

A compressor unit for liquid transfer and residual vapor recovery of volatile liquids.



SPECIFY MOTOR HORSE POWER TO BE USED.

NH3 Compressors - Sized for Liquid Transfer and Vapor Recovery

Part #	Comp RPM	Approx. Capacity GPM	HP	Phase	Suggested Pipe Size Inlet	Outlet	Hose Size Liquid	Vapor
91-107	640	30	5	3/1	1"	1.5"	1"	1.5"
91-107	800	38	7.5	3	1"	1.5"	1"	1.5"
291-107	640	61	7.5	3	1.25"	2"	1.25"	2"
291-107	800	76	10	3	1.25"	2"	1.25"	2"
491-107	640	130	15	3	1.25"	3"	1.25"	3"
491-107	800	165	20	3	1.25"	3"	1.25"	3"
691-107	640	216	20	3	2"	4"	2"	4"
691-107	800	270	25	3	2"	4"	2"	4"
D791-107*	640	480	30	3	3"	4"	3"	6"
D791-107*	800	598	40	3	3"	4"	3"	6"
891-107	640	415	25	3	3"	4"	3"	6"
891-107	800	518	40	3	3"	4"	3"	6"

NOTE: The capacity shown will vary depending on the length and size of piping and hoses. If piping is complex or over 100' in length, use the next larger pipe size.

*2-Stage Compressor

Krug Vapor Compressor

For efficient transfer of Anhydrous Ammonia.



Item #	Description
K20-3G	Compressor with 4 HP Gasoline Engine
16771B	Compressor Only
K380	Belt
K3927	Pulley

Krug Hand Pump



Item #	Description
K640	Krug Hand Pump

K2-NH3 Piping Kit for Compressor

Contains fittings required to connect Krug Compressors.

Part #	Description	Qty.
LIQUID TRANSFER HOSE		
E12NH3X25FT	25' x 3/4" NH3 Hose	1
T-CS2000SS-034	3/4" Carbon Steel Ball Valve	2
STEL90-034-3M	90 street L	1
FC034-3M	FS Full Coupling-3/4" Threaded	1
A3175	3/4" MPT X 1 3/4" F.ACME	2
SUCTION HOSE		
E8NH3X12FT	12' x 1/2" NH3 Hose	1
T-CS2000SS-012	1/2" Carbon Steel Ball Valve	2
STEL90-012-3M	90° Street L	1
RC-034X012-3M	Reducing Coupling 3/4" X 1/2"	2
A3175	3/4 MPT X 1 3/4" F.ACME	2
DISCHARGE HOSE		
E8NH3X12FT	12' x 1/2" NH3 HOSE	1
T-CS2000SS-012	1/2" Carbon Steel Ball Valve	2
STEL90-012-3M	90 street L	1
RC-034X012-3M	Reducing Coupling 3/4" X 1/2"	2
A3175	3/4" MPT X 1-3/4" F.ACME	2
COMPRESSOR FITTINGS		
A5765C	Steel Adapter 1-3/4"M.ACME X 1/2"	2

Common Pump Magnetic Starter Packages

With ESO Switch & NEMA 4 Enclosure

Magnetic starters are designed for full voltage remote starting of electric motors. All starters include a Emergency Shutoff Overload (ESO) Switch and NEMA 4 Enclosure.



Part #	Phase	Motor HP	Volts	Fail Safe Relay
CTK40-24-36-ES-1P	1	5	230	Yes
CTK40-7-10-ES-3P	3	3	230	No
N4CTK40-3HP-3PH-ES-FSR	3	3	230	Yes
N4CTK22-3HP-3PH-ES-FSR-480	3	3	480	Yes
CTK40-16-22-ES-3P	3	5	230	Yes
CTK40-18-26-ES-3P	3	7.5	230	Yes

Magnetic Motor Starters

With NEMA 4 Enclosure

Magnetic Motor Starter with thermal overloads without push button On/Off switch NEMA 4

Part #	Phase	Motor HP	Volt
N4CTK22-12-18	3	5	230
N4CTK40-18-26	3	7.5	230
N4CTK40-24-36	3	10	230
N4CTK85-34-50	3	15	230
N4CTK85-45-65	3	20	230
N4CTK40480-24-36	3	20	480
N4CTK85-54-74	3	25	230
N4CTK40480-28-40	3	25	480
N4CTK85-63-85	3	30	230
N4CTK40480-34-50	3	30	480

Explosion Proof Switch Box & Switch

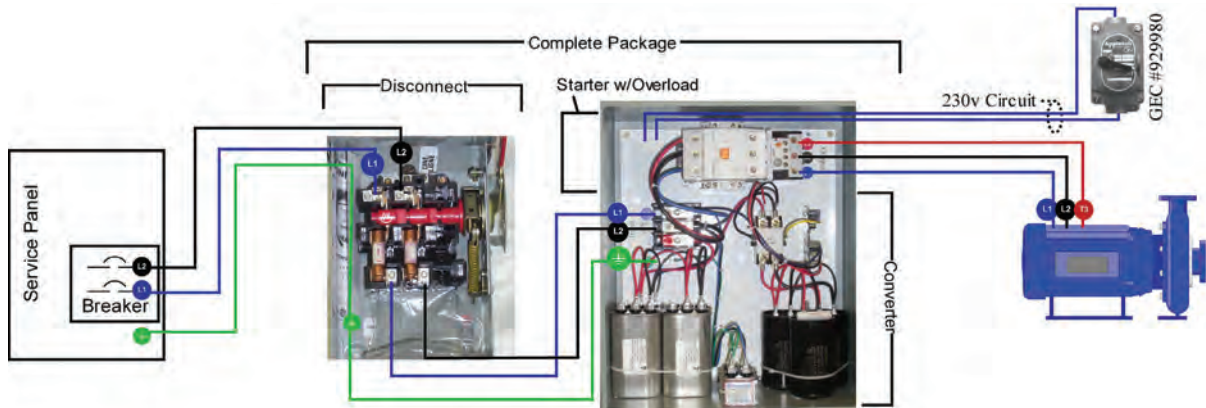


Part #	Description	Commonly Used With
929980	Manual Switch Box & Switch	1-1/2 HP Single Phase 1725 RPM Motor (Blackmer LGF1 Series Pump or 2 HP Circuit Switch)
929980SW	Internal Switch only	N/A

Phase Converter Packages - Non-Explosion Proof

For Mounting in Non-Classified Areas

Static phase converters offer an economical solution when three-phase power can not be provided or is cost prohibitive to obtain. Made in the U.S.A., these phase converters will provide years of trouble-free service while allowing pumps to be turned at rated speed. All converters come with a two-year limited warranty. Converter Package includes: Phase Converter, Magnetic Starter with thermal overloads and Fusible Disconnect with fuses.



Phase Converter Package for Blackmer/Corken VANE PUMPS

When using vane pumps and 3 phase power is not available, it is more economical to operate the 3 phase pump motor on Static Converters.

Part #	Pump HP	Static Converter NEMA4	Magnetic Starter** with Thermal Overloads*	Single Phase Disconnects NEMA 3R		Wire Size <50 ft***	Service Amps	Breaker Amps
				Disconnect Models with Fuses	Amps			
N14-24-36-R30	5	N4CD14	CTK85-24-36	GENLTG3221R30		8	40	30
N15-28-40-R30	7.5	N4CD15	CTK85-28-40	GENLTG3221R30		6	60	40
N16-34-50-R40	10	N4CD16	CTK85-34-50	GENLTG3222R40	40	4	80	50
N17-54-75-R60	15	N4CD17	CTK85-54-75	GENLTG3222R60	60	4	100	80
N18-65-100-R80	20	N4CD18	CTK100-65-100	GENLTG3223R80	80	3	100	100
N18-85-125-R100	25	N4CD18	CTK150-85-125	GENLTG3223R100	100	2	125	125
N19-100-150-R125	30	N4CD19	CTK150-100-150	GENLTG3224R125	125	1	150	150

*Converter and Magnetic Starter with thermal overloads are in the same NEMA 4 box.

**Magnetic Starter installed with standard 230V coil.

***Call for wire sizes longer than 50 ft.

Phase Converter Package for Blackmer/Corken COMPRESSORS

When using a compressor and 3 phase power is not available, it is more economical to operate the 3 phase compressor on Static Converters. For increased horsepower, the compressor motor needs to be increased by approximately 30%. See the guide below. Purchase the larger motor for the pump needed and select the proper converter.

Part #	Pump HP	Increased HP	Static Converter NEMA4	Magnetic Starter** with Thermal Overloads*	Single Phase Disconnects NEMA 3R		Wire Size <50 ft ***	Service Amps	Breaker Amps
					Disconnect Models with Fuses	Amps			
N15-28-40-R30	5	7.5	N4CD15	CTK85-28-40	GENLTG3221R30	30	6	60	40
N16-34-50-R40	7.5	10	N4CD16	CTK85-34-50	GENLTG3222R40	40	4	80	50
N17-54-75-R60	10	15	N4CD17	CTK85-54-75	GENLTG3222R60	60	4	100	80
N18-65-100-R80	15	20	N4CD18	CTK100-65-100	GENLTG3223R80	80	3	100	100
N18-85-125-R100	20	25	N4CD18	CTK150-85-125	GENLTG3223R100	100	2	125	130
N19-100-150-R125	25	30	N4CD19	CTK150-100-150	GENLTG3224R125	125	1	150	150
N21-160-240-R175	30	50	N4CD21	CTK220-160-240	GENLTG3224R175	175	1/0	220	200

*Converter and Magnetic Starter with thermal overloads are in the same NEMA 4 box.

**Magnetic Starter installed with standard 230V coil.

***Call for wire sizes longer than 50 ft.

3 Phase Disconnects



3-Phase 230 & 460 Volt Disconnects NEMA 3 (includes 3 fuses)

Part #	Pump HP	Amps	Volt
GENLTG4221R15	1.5 - 2 - 3 - 5	15	230
GENLTG4221R30	7.5 - 10	30	230
GENLTG4222R40	15	40	230
GENLTG4222R60	20	60	230
GENLTG4223R40	25 - 30	80	230
GENTH3361R30	20 - 25	30	460/480
GENTH3361R40	30	40	460/480

Electric 60 Hz. Proof Motors

3-Phase



Part #	HP	RPM	NEMA Frame	Mount	Amperes 230V	Shaft Size
5HP-3PH-TEFC	5	1800	184T	Rigid Base	13.0	1-1/8"
7.5HP-3PH-TEFC	7.5	1800	213T	Rigid Base	21.0	1-3/8"
10HP-3PH-TEFC	10	1800	215T	Rigid Base	26.0	1-3/8"
15HP-3PH-TEFC	15	1800	254T	Rigid Base	38.0	1-5/8"
20HP-3PH-TEFC	20	1800	256T	Rigid Base	50.0	1-5/8"
25HP-3PH-TEFC	25	1800	284T	Rigid Base	60.0	1-7/8"

Corken Variable Frequency Drive (VFD)



- Converts single phase service to 3-phase service for 3-phase motors.
- Motor starter with overload protection built-in.
- Soft start pre-programmed with ability to control speed.
- VFD programmed for "remote switch".

Part #	For Use with Motor HP	Commonly Used with Pump Models	Voltage/Phase Input
4204-2*	10	FF/DLF150	208/230 - Single Phase
4204*	7.5	FF/DLF075	208/230 - Single Phase
4204-1*	5	FF/DLF060	208/230 - Single Phase
4204-6X1**	3	DL16/17, F16/17, C16	208/230 - Single Phase

* NEMA-1 Enclosure - Not for outdoor installation

**NEMA 3R Enclosure - weatherproof, includes ESO & Cooling Fan

NH₃ Gauges

The A6200 series gauges are designed to withstand the corrosive rigors of NH₃ service. The A6400 series is all-stainless-steel construction designed to withstand NH₃ with chemical additives. All "A" prefix gauges are UL listed for NH₃ service. These gauges come standard with direct-reading percentage dials.

4-Bolt NH₃ Gauges



Senior

Furnished with gasket, dial, and 4 mounting bolts.

Part #	Tank Diameter	Orientation	Head
A6280-1-41	41"	Top Mount	Stainless Steel
A6280-1-46	46"	Top Mount	Stainless Steel
A6280-1-48	48"	Top Mount	Stainless Steel
A6283-1-41	41"	Side/Center Mount	Stainless Steel

Junior

Furnished with gasket, dial, and 4 mounting bolts.

Part #	Tank Diameter	Orientation	Head
A6281-1-37	37"	Top Mount	Stainless Steel
A6281-1-41	41"	Top Mount	Stainless Steel
A6281-1-46	46"	Top Mount	Stainless Steel

Senior N-Serve Gauges



Furnished with gasket, dial, and 4 mounting bolts. All stainless steel construction.

Part #	Tank Diameter	Orientation	Head Construction
A6480-00013	41"	Top Mount	Stainless Steel
A6480-00012	46"	Top Mount	Stainless Steel

NH₃ Replacement Dials



Part #	Description
5323S01848	Junior
5002S00002	Senior

Drill & Tap Kit for Jr. & Sr. Head Percentage Gauges



Part #	Description
TAPKIT	Drill and Tap Kit for Jr. & Sr Gauges

Magnetel® Gauges for Bulk Storage & Mobile Applications

When Ordering Specify

- Liquid product and specific gravity.
- Type vessel, inside diameter (in inches) & head type (ellipsoidal, semi elliptical, hemispherical).
- Prefix (see chart).
- Model # for mounting location (top, side, 8" or 4" dial).
- Trim # according to product compatibility requirements.*
- Bolt hole location of mounting flange
- If other than standard percent of total volume dial is required.
- Top-mounted gauges require dimension from mounting flange face to tank shell plus shell thickness.
- Angle-mounted gauges require tank drawings for computing proper gauge dimensions.

Specify Prefix for Appropriate Diat & Mounting

Dial Prefix

"C" = Combination LPG/NH₃.

"D" = Insulated extension for CO₂ and other cryogenic liquids.

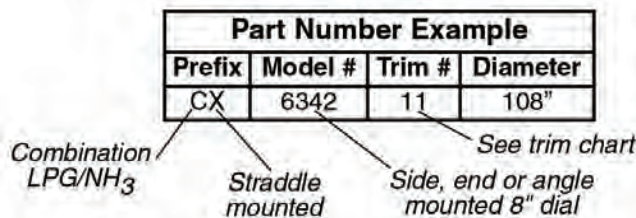
Mounting Prefix

"X" = When straddle mounting is required.

"Y" = When ordering gauge for 2" opening.

"M" = Special mobile.

"V" = Vertical tank.



Materials Code/Trim Number Chart

Trim #	Type Service	Gauge Flange	Float Counter Balance	Bearing Support Block	Float & Support Block	Stem Drive Magnet	All Other Parts
-11	LPG or NH ₃	Type 316 Stainless Steel	Cold-roll Steel - Zinc Plated	Type 303 Stainless Steel	Type 303 Stainless Steel	Alnico VI	300 Sries Stainless Steel

Trim -11 should be used on containers of 3500 WG or more. Gauges for vertical tanks require drawing for computing proper gauge dimensions & mounting locations. More trim levels available for other products.

Magnetel® Bulk Storage Gauges

Rochester Gauges Magnetel® Liquid Level Gauges are available in 4" and 8" dial sizes. Standard calibration is percent of total tank volume.



Magnetel Models

Model #	Mounting	Dial Size
6336-11	Top	4"
6339-11	Side, End or Angle	4"
6342-11	Side, End or Angle	8"
6360-11	Top	8"

Common Magnetel Configurations

Part #	Diameter of Tank	Mounting	Dial Size
C6342-11-84	84"	Side, End or Angle	8"
C6342-11-104	104"	Side, End or Angle	8"
C6342-11-108	108"	Side, End or Angle	8"
C6342-11-130	130"	Side, End or Angle	8"

Special calibration dials are available at extra cost.

Please state requirements.

Other sizes available by special order.

Magnetel® RoughRider® Transport Gauges



The RoughRider is designed to withstand the vibration and shock inherent in mobile service. Their service life in over-the-road and off-road transports carrying liquids including LP Gas, NH₃, and cryogenic liquids is unsurpassed. These gauges provide accurate indications of liquid level at a glance, making inconvenient rotary gauges obsolete. RoughRider gauges are equipped with an exclusive spring steel shock absorber on the float arm which substantially reduces the stress that can quickly destroy conventional gauges.

Part #	Diameter of Tank	Dial
CM6339-11-72	72"	4"
CM6339-11-79	79"	4"
CM6339-11-84	84"	4"
CM6339-11-96	96"	4"

Also available with 8" dial upon request.

Other size supports available by special order.

RoboGauge



For mobile or stationary applications with manway. Make the change from your 1" NPT rotary type gauges to a direct-reading float gauge without tank alterations. LPG and NH₃ tanks can change over to a direct reading float gauge by using Rochester Gauges ROBOGAUGE. This direct reading float gauge can be mounted in containers that have a 1" NPT opening and a manway. This is accomplished through the unique design that allows the gauge to be disassembled into two segments, inserting the head assembly from the outside of the container, then reattaching the support and float assembly inside the container.

Part #	Diameter of Tank
RRCM6339-11-72	72"
RRCM6339-11-84	84"
RRCM6339-11-86	86"

4" Dial not included. Must be ordered separately.

Magnetel® Electronic Dial

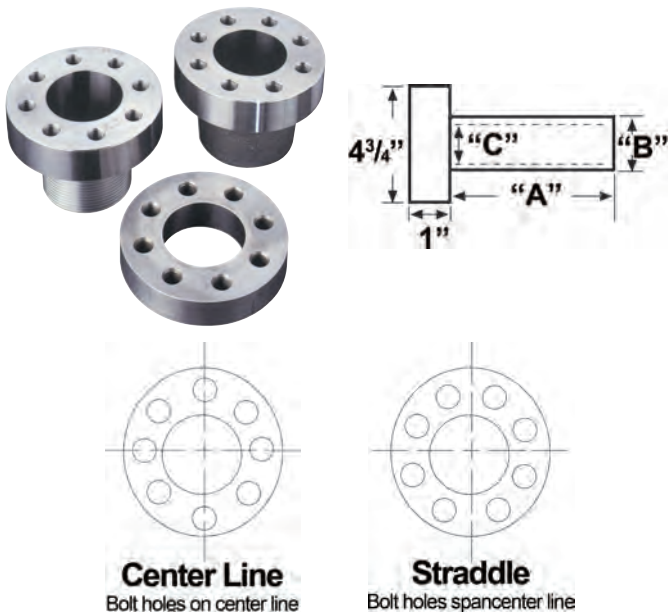
Rochester digital gauge indicator of temperature compensated tank volumes and temperature through Bluetooth e-wireless communication with e-Temp temperature sensor (Sold separately). Digital gauge indicator also displays tank content specific gravity and dual programmable alarm indicators that can be set up remotely using the e-Dial™ App (Available on iTunes and Google Play).

E-dial comes with 24' cable and safety barrier with 5' cable.



Part #	Size	Liquid	Range
6317-00001	4"	Combo for LPG & NH ₃	5% - 95% Transport/Bobtail 3% - 97% Stationary/Bulk Storage
Accessories			
1250-E0001		Temperature Sensor	

Magnetel® Mounting Flanges



Tank-mounting flanges are not included with Magnetel gauges and should be ordered separately. NOTE: Flanges welded to tank with top and bottom holes on the vertical centerline are standard with Rochester Gauges. When the flange is attached so that the bolt holes span the centerline (see drawing at the right), add the pre fix "X" to the Magnetel gauge model number.

Part #	Description	"A"	"B"	"C"
0022-00029	Forged Steel 2-1/2" NPT Threaded Neck Flange	2-3/8"	2-1/2" NPT	2-5/16"
0022-00030	Forged Steel Donut Type - No Neck Weld Flange	—	—	—
0022-00500	Forged Steel Weld Neck Flange	2-3/8"	Weld	2-5/16"

Magnetel® Replacement Parts

Part #	Description
0003-00005	Glass crystal for 8" dial
0003-00408	Tempered glass crystal for 4" dial
0015-00010	Gasket under 8" crystal, two required
0015-00451	Channel gasket for 4" crystal
0015-00019	Mounting flange gasket – Spiral-wound stainless steel, Teflon filled
0040-00413	Stainless steel dial screw for 4" dial
0093S00001	4" dial chamber mounting bracket for RoughRider®
0093S00002	4" dial chamber mounting bracket for Stationary Applications
0093S00403	8" dial chamber mounting bracket
0059-00299	Easy View Angle Mount Dial Kit with 4" Direct Read Dial and angle brackets
0059-00300	Easy View Angle Mount Dial Kit with 4" Fluorescent Direct Read Dial and angle brackets

Magnetel® Light Module



Provides dial illumination.

Part #	Description	Use with
0023S00031	Magnetel Light Module with 10 ft Cable*	4" Fluorescent R3D Dial
0023S00033	Magnetel Light Module with 10 ft Cable*	4" Black/Silver R3D Dial

*Dial not included

Magnetel® R3T



Provides on-demand digital display of tank levels to hand-held devices using the Rochester Gauges R3T App

Part #	Description	Use with	Application
6316	R3T Wireless Transmitter with 1.5 ft of Module Cable	4" Dial	Mobile Applications Only

Magnetel® Transmitter



This transmitter is designed to fit Rochester model 6342 and 6360 Magnetel float gauges with 8" dials. The transmitter provides a current output of 4-20 mA proportional to the liquid volume in a horizontal storage tank. Safety barrier provides intrinsic safe outputs.

Part #	Description
R6315-12	4-20mA Transmitter
0146S00001	Safety Barrier

Magnetel® Replacement Dials

Direct Read



5015S01403



5ARYS03066



5137S01262



5ARXS03045

Part #	Size	Liquid	Range
5015S00480	8" Dial Chamber	Any Liquid - 3% to 97%	3% to 97%
5015S01403	8" Dial Chamber	Combo for LPG & NH3 - 3% to 97%	3% to 97%
5ARYS03066	8" FLUORESCENT Dial Chamber	Combo for LPG & NH3 - 3% to 97%	3% to 97%
5016S00445	4" Dial Chamber	Any Liquid - Rough Rider	5% to 95%
5137S01262	4" Dial Chamber	Combo for LPG & NH3 - Rough Rider	5% to 95%
5ARXS03045	4" FLUORESCENT Dial Chamber	Combo for LPG & NH3 - Rough Rider	5% to 95%

Magnetel® Replacement Dials

R3D Ready



5AACS02783



5ANGS03044



5ABPS02906

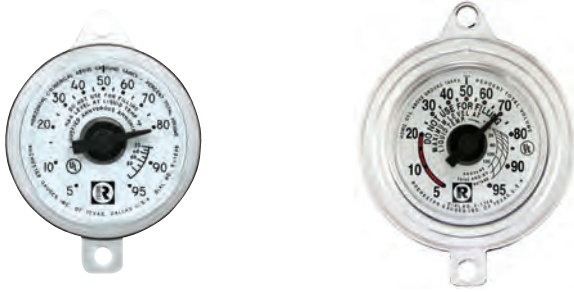


5APKS03045

Part #	Size	Liquid	Range
5AACS02783	Magnetel R3D Ready 8" Dial Chamber less TS Sender & Wire	Combo for LPG & NH3	3% to 97%
5ANGS03044	Magnetel R3D Ready 8" Dial Chamber less MR Module & Wire	Combo for LPG & NH3	3% to 97%
5ARWS03066	Magnetel R3D Ready 8" FLUORESCENT Dial Chamber less MR Module & Wire	Combo for LPG & NH3	3% to 97%
5ABPS02906	Magnetel R3D Ready 4" Dial Chamber less TS Sender & Wire	Combo for LPG & NH3	5% to 95%
5ANTS03047	Magnetel R3D Ready 4" Dial Chamber less MR Module & Wire	Combo for LPG & NH3	5% to 95%
5APKS03045	Magnetel R3D Ready 4" FLUORESCENT Dial Chamber less MR Module & Wire	Combo for LPG & NH3	5% to 95%

Dial Replacement for NH3 4-Bolt Gauge

Not All Dials are Represented



Part #	Dial Type	Gauge Series
5323S01848	Junior	A6200/A6400
5844S01749	Senior	A6200
5844S01848	Senior	A6200

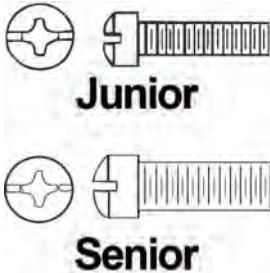
Universal Dial Kit



Fits any Float Gauge. Complete instructions with each kit.

Part #	Description
3181-01848	NH3 Universal Dial Kit for Junior Style
3180-18002	NH3 Universal Dial Kit for Senior Style

Screws



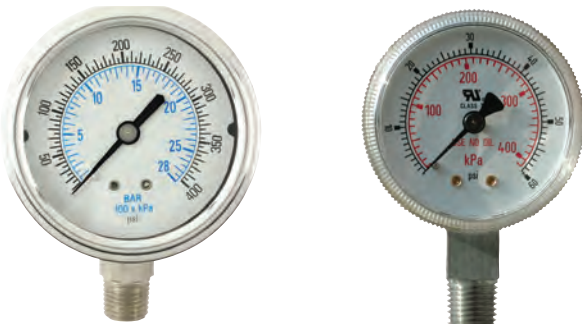
Part #	Style	Description
0040-00415	Senior	Screw - Combination Slotted or Phillips
0040-00416	Junior & Senior	Screw - For Dial Mounting
0040-00438	Senior	Stainless Steel Head Screws 5/16" - 24 x 7/8"
0040-00478	Senior	Screw - For N-Serv A6480 Gauge

Gaskets



Part #	Description
0015-00004	Senior Gauge Gasket
0015-00022	Senior Gauge O-ring

Liquid Filled Pressure Gauges



Part #	Pressure Range	Dial Size	Case Material	Connection
W0160	0-60#	2-1/2"	Stainless Steel	1/4" Bottom
W0162	0-150#	2-1/2"	Stainless Steel	1/4" Bottom
W0164	0-400#	2-1/2"	Stainless Steel	1/4" Bottom
1008SSB-400*	0-400#	2-1/2"	Stainless Steel	1/4" Back
1008SS-400*	0-400#	2-1/2"	Stainless Steel	1/4" Bottom
PGS404HLB	0-300#	4"	Stainless Steel	1/4" Bottom
A8060	0-60#	2-1/2"	Steel	1/4" Bottom
A8150	0-150#	2-1/2"	Steel	1/4" Bottom
A8400	0-400#	2-1/2"	Steel	1/4" Bottom

* Liquid filled

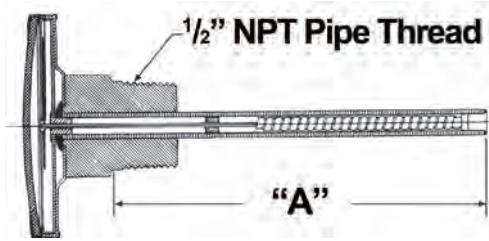
NH3 Bimetal Thermometers



These 2" bimetallic thermometers are commonly used on NH3 storage tanks, bobtails, and transports. They are recommended for use only with thermowells. The thermometer is made of type 304 stainless steel, and the crystal is made out of extra-heavy, curved glass. The aluminum dial has a white face with large black numbers for easy readability. Actuation is by means of a highly sensitive bimetal element, dampened to minimize vibration, attached to a pointer. The unit is hermetically sealed.

Standard Features

- 1/2" MNPT
- Dual Scale Calibration: -90° to +130°F, -70C to +50C, other ranges available.



Part #	Description	"A"
1750-00114	2" Bimetal Thermometer	4"
1750-00115	2" Bimetal Thermometer	6"
1750-00009	2" Bimetal Thermometer	9"
1750-00012	2" Bimetal Thermometer	12"

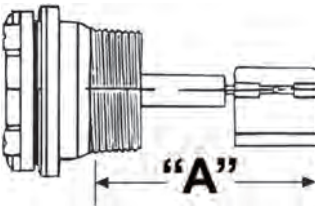
Flow Indicator



Indicates direction of flow of compatible liquids in pipe lines at working pressures up to 600 psig up to 160°F. The indicator must be installed in pipe line tees. Specify Part Number and "A" Dimension

Part #	Length
6286-00325	3-1/4"
6286-00475	4-3/4"

Other lengths available on special order.



Tee Size	"A"
1-1/4" x 1-1/4" x 1-1/4"	3-1/4"
2" x 2" x 2"	3-1/4"
2-1/2" x 2-1/2" x 2-1/2"	3-1/4"
3" x 3" x 3"	4-3/4"
2-1/2" x 2-1/2" x 2-1/2" with 2-1/2" x 2" Bushing	4-3/4"
3" x 3" x 3" with 3" x 2" Bushing	4-3/4"

The distance from the top of the mounting adapter to the end of the vane is the "A" dimension. This dimension is dependent on the tee size, as shown.

Flow Indicator Replacement Dial



Part #	Description
5013S00048	Flow Indicator Dial

HOSE – SAFETY AND TECHNICAL INFORMATION

WARNING – SAFETY NOTE

Failure to follow recommended application information and recommended procedures for selection, installation, care, maintenance and storage of hose, couplings or hose assemblies may result in failure to perform properly and may result in damage to property and serious bodily injury. Make sure that hose selected for any application is recommended for that service. Application information is given with each hose or coupling listing in the Dayco catalog. Refer to the Safety and Technical Data section of this catalog for information regarding safety, care, maintenance and storage. Contact your local Distributor for assistance.

In any application, there may be inherent risk of bodily injury or property damage and the user is responsible for implementation of adequate safety precautions.

LP Gas Hose: This discussion again emphasizes the importance of hose selection. LP Gas has volatile characteristics that require special hose construction. The rubber compounds must be designed to handle LP Gas, and the cover must be perforated to prevent gas build-up among the various layers of the hose. Use of the wrong hose may lead to early and sudden failure. In particular, anhydrous ammonia hose is not recommended for LP Gas service. This is important to emphasize because both types of hose are often used in the same area and care must be taken they do not become accidentally switched. DO NOT USE LP GAS HOSE FOR ANHYDROUS AMMONIA. Couplings are also a concern in this service; permanent crimp steel couplings are recommended, as well as high-pressure steel inserts attached with interlocking, bolt-on clamps.

Couplings with male swivel end styles are not recommended. DO NOT USE WITH SCREW-TOGETHER REATTACHABLE COUPLINGS. (Refer to RMA Publication IP-10 "Liquid Petroleum Gas, Specifications for").

WARNING: For LP Gas use ONLY. Do not use for anhydrous ammonia. Do not use with any fluid or vapor other than the intended use for which the hose was designed. Do not use with male swivel couplings. Do not use with screw-together reattachable couplings.

SAFETY

General: Safety in the application and use of industrial hose is a major concern because of the many potentially dangerous products conveyed, and because so many people are involved. Handling these products can be accomplished safely if a few simple precautions are strictly observed. Some of the most important of these are:

- All operators must be thoroughly trained.
- The correct hose must be selected to handle the application.
- The couplings must be correct for the application and also must be securely attached.
- Both hose and couplings should be well maintained and inspected regularly.

Safety, Care, Maintenance and Storage (REPRINTED FROM RMA HOSE HANDBOOK IP-2 NINTH EDITION 2015)

Hose has a limited life and the user must be alert to signs of impending failure, particularly when the conditions of service include high working pressures and/or the conveyance or containment of hazardous materials.

SAFETY WARNING: Failure to properly follow the manufacturer's recommended procedures for the care, maintenance and storage of a particular hose might result in its failure to perform in the manner intended and might result in possible damage to property and serious bodily injury.

Please refer to RMA (Rubber Manufacturer's Association) HOSE HANDBOOK IP-2 NINTH EDITION 2015, or later for more on the proper use, care and maintenance of hose.

General Test and Inspection Procedures for Hose

*REFERENCE NPGA TECHNICAL BULLETIN T145 AND T114 T145 "Hoses and Flexible Connectors used in Plants and Cargo Vehicles" T114 "Guide to Hose Inspection"

An inspection and hydrostatic test should be made at periodic intervals to determine if a hose is suitable for continued service.

A visual inspection of the hose should be made for loose covers, kinks, bulges or soft spots which might indicate broken or displaced reinforcement. The couplings or fittings should be closely examined and, if there is any sign of movement of the hose from the couplings, the hose should be removed from service. The periodic inspection should include a hydrostatic test for one minute at 150% of the recommended working pressure of the hose. During the hydrostatic test, the hose should be straight, not coiled or in a kinked position. Water is the usual test medium and, following the test, the hose may be flushed with alcohol to remove traces of moisture. A regular schedule for testing should be followed and inspection records maintained.

SAFETY WARNING – Before conducting any pressure tests on hose, provisions must be made to ensure the safety of the personnel performing the tests and to prevent any possible damage to property. Only trained personnel using proper tools and procedures should conduct any pressure tests.

PLEASE REFER TO NPGA TECHNICAL BULLETIN T145 ON "HOSES AND FLEXIBLE CONNECTORS USED IN PLANTS AND CARGO VEHICLES" and T114 "GUIDE TO HOSE INSPECTION".

NH3 Liquid Transfer Hose Assemblies

“E” Series



For conveyance of NH3 products, liquid or vapor. Complete range of sizes for all stages of NH3 production and delivery.

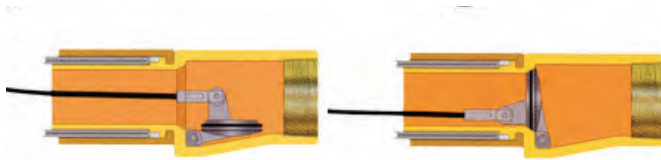
The “E” Series assemblies are hydraulically pre-coupled with male pipe threads on each end and available in various lengths.

WARNING!!: For Anhydrous Ammonia use only. Do not use male swivel couplings or screw-together reattachable fittings. **IMPORTANT:** REFER TO THE SAFETY AND TECHNICAL DATA INFORMATION SECTION FOR THE PROPER USE OF THIS HOSE.

Part #	Hose I.D.	Length	Approx Wt. (lbs/ea)
1" Hose I.D.			
E16NH32X12.5FT	1"	12.5'	7.28
E16NH32X15FT	1"	15'	10.07
1-1/4" Hose I.D.			
E20NH32X12.5FT	1-1/4"	12.5'	10.13
E20NH32X15FT	1-1/4"	15'	14.96

Additional or unique lengths can be special ordered upon request.

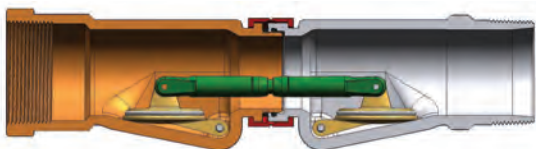
Smart-Hose for Truck and Bulk Plant Hose Assemblies



Smart-Hose® assemblies are designed and engineered with a valve integrated in each end fitting. If the hose assembly experiences a catastrophic hose failure, the Smart-Hose® Safety System is designed to instantaneously shut off the flow in both directions. Designed as a passive safety device, the Smart-Hose® Safety System needs no human intervention to activate.

Part #	Hose I.D.	Working Pressure PSI	Burst Pressure PSI	Length	Application
NH3 HOSE					
L16NH3X10FT	1" FNPT	350	1750	15'	NH3
L20NH3X15FT	1-1/4" FNPT	350	1750	15'	NH3
L24NH3X19FT	1-1/2" FNPT	350	1750	18'6"	NH3
L3-32NH3X19FT	2" FNPT	350	1750	18'6"	NH3

Smart-Hose Break-Away Coupler



The Smart Break-Away Coupler is designed for any hazardous transfer application that has a potential for a pull-away incident.

- Full Flow Break-Away
- Custom design break-points
- Significant Cost Savings
- No Annual maintenance
- Re-buildable

Part #	Size	Ends	Model	Seal	Material of Construction	Length	Application
L3-32NH3-FBA	2"	FNPT X FNPT	LL3-BA	Nitrile	316 SS	12"	NH3
L3-32NH3-MBA	2"	MNPT X MNPT	LL3-BA	Nitrile	316 SS	12"	NH3
A81-024-97-0018-0-00-00	3"	MNPT X MNPT	LL3-BA	Nitrile	316 SS	18"	NH3
A81-024-97-0018-0-1121-1121	3"	FNPT X FNPT	LL3-BA	Nitrile	316 SS	18"	NH3

Pig's Tail Hose Guard



- 100% Virgin Polyethylene - Strong, flexible and durable with excellent memory and abrasion resistance
- Beveled Edges - Smooth edges won't cut user during installation
- Multiple Sizes - Broad size range to wrap any hose or use it for bundling
- UV Resistant - Black pig's tail protects against UV rays

Part #	I.D.	Wall	Helix - Band Width	Min. Hose O.D.	Length
R50SSG-11FT	1.5"	0.12"	1.38"	1-3/4"	11'
R50SSG-BOX	1.5"	0.12"	1.38"	1-3/4"	66'
R63SSG-11FT	2.0"	0.14"	1.57"	2-1/4"	11'
R63SSG-BOX	2.0"	0.14"	1.57"	2-1/4"	66'
R75SSG-11FT	2.4"	0.15"	1.6"	2-5/8"	11'
R75SSG-BOX	2.4"	0.15"	1.6"	2-5/8"	66'

Stainless Steel Swivels for Hose-end Filler Valves Type



Part #	Size and Description	Type	Repair Kit
JO-1N	1" MNPT x 1" FNPT	NH3	JO-1NSK
JO-34N	3/4" MNPT x 3/4" FNPT	NH3	JO-34NSK

Swivels for Hose Reel, Bulkhead and Loading Arm Applications



Part #	Size	Description	Type	Repair Kit
SMAC-190N	1" FNPT x 1" FNPT	Swivel Elbow	NH3	SMAC-190NSK
SMAC-114N	1 1/4" FNPT x 1 1/2" FNPT	Swivel Elbow	NH3	SMAC-114NSK
SMAC-114STN	1 1/4" FNPT x 1 1/4" FNPT	Straight Swivel	NH3	SMAC-114STNSK
SMAC-112N	1 1/2" FNPT x 1 1/2" FNPT	Swivel Elbow	NH3	SMAC-112NSK
SMAC-112STN	1 1/2" FNPT x 1 1/2" FNPT	Straight Swivel	NH3	SMAC-112STNSK
SMAC-200N	2" FNPT x 2" FNPT	Swivel Elbow	NH3	SMAC-200NSK
SMAC-200STN	2" FNPT x 2" FNPT	Straight Swivel	NH3	SMAC-200STNSK

T-SS-2000N

- 2 Piece - Standard Port - Threaded Connection - 2000 WOG with Lockable Handle



Part #	Size	Type	Material
T-100SS-014	1/4"	Threaded	Stainless Steel

T-CS-2000N-SS

- 2 Piece - Standard Port - 2000 WOG - Carbon Steel Body with Stainless Steel Trim with Lockable Handle.



Part #	Size
T-CS2000SS-014	1/4"
T-CS2000SS-012	1/2"
T-CS2000SS-034	3/4"
T-CS2000SS-100	1"
T-CS2000SS-114	1-1/4"
T-CS2000SS-112	1-1/2"
T-CS2000SS-200	2"

T-SS-1000N

- 3 Piece 4 Bolt - Swing Out Body - Full Port - 1000 WOG with Lockable Handle- Stainless Steel Construction



Item #	Size	Type
500-304	3/4"	Threaded
500-305	1"	Threaded
500-306	1-1/4"	Threaded
500-307	1-1/2"	Threaded
500-308	2"	Threaded
500-310	3"	Threaded
500-311	4"	Threaded

Barrel Lock

High Security Lock for Utility Valves and Meters



Part #	Description
267253	Barrel Lock Heads 25/PACK USE W/ #267237
267237	Barrel Lock Studs 25/PACK USE W/ #267253
267254	Key for Barrel Lock

Accessories



Part #	Description	Size
899-705	Yellow Lever Handle Fits T-100	1", 1-1/4"
899-708	Yellow Lever Handle Fits T-100	1-1/2", 2"

Part #	Description
899-916	Repair Kit for T-CS-1000
899-917	Repair Kit for T-SS-1000
899-918	Repair Kit for T-CS-10004B-200
899-920	Repair Kit for 3" JOMAR SS BALL VALVE

Needle Valve

Carbon Steel Needle Valves Suitable for NH3



Part #	Inlet Connection	Outlet Connection	Flow Through
V-334CS-90	1/4" M.NPT	1/4" F.NPT	Straight
V-334CSFM	1/4" F.NPT	1/4" M.NPT	90 Degree

Nipples



Part #	IPS	Length
N-014XC	1/4"	Close
N-014X2	1/4"	2"
N-014X3	1/4"	3"
N-014X4	1/4"	4"
N-014X6	1/4"	6"
N-014X8	1/4"	8"
N-038XC	3/8"	Close
N-038X2	3/8"	2"
N-038X4	3/8"	4"
N-038X6	3/8"	6"
N-038X8	3/8"	8"
N-012XC	1/2"	Close
N-012X2	1/2"	2"
N-012X3	1/2"	3"
N-012X4	1/2"	4"
N-012X6	1/2"	6"
N-012X8	1/2"	8"
N-012X12	1/2"	12"
N-034XC	3/4"	Close
N-034X2	3/4"	2"
N-034X212	3/4"	2-1/2"
N-034X3	3/4"	3"
N-034X4	3/4"	4"
N-034X5	3/4"	5"
N-034X6	3/4"	6"
N-034X8	3/4"	8"
N-034X9	3/4"	9"
N-034X10	3/4"	10"
N-034X12	3/4"	12"
N-100XC	1"	Close
N-100X2	1"	2"
N-100X3	1"	3"
N-100X4	1"	4"
N-100X5	1"	5"
N-100X6	1"	6"
N-100X8	1"	8"
N-100X10	1"	10"
N-100X12	1"	12"

Nipples



Part #	IPS	Length
N-114XC	1-1/4"	Close
N-114X2	1-1/4"	2"
N-114X3	1-1/4"	3"
N-114X4	1-1/4"	4"
N-114X6	1-1/4"	6"
N-114X8	1-1/4"	8"
N-114X10	1-1/4"	10"
N-114X12	1-1/4"	12"
N-112XC	1-1/2"	Close
N-112X2	1-1/2"	2"
N-112X3	1-1/2"	3"
N-112X4	1-1/2"	4"
N-112X6	1-1/2"	6"
N-112X8	1-1/2"	8"
N-112X12	1-1/2"	12"
N-200XC	2"	Close
N-200X3	2"	3"
N-200X4	2"	4"
N-200X6	2"	6"
N-200X7	2"	7"
N-200X8	2"	8"
N-200X10	2"	10"
N-200X12	2"	12"
N-200X14	2"	14"
N-300XC	3"	Close
N-300X3	3"	3"
N-300X4	3"	4"
N-300X5	3"	5"
N-300X6	3"	6"
N-300X8	3"	8"
N-300X10	3"	10"
N-300X12	3"	12"
N-400X6	4"	6"

Tee



Part #	Size
014TEE-2M	1/4"
038TEE-2M	3/8"
012TEE-2M	1/2"
034TEE-2M	3/4"
100TEE-2M	1"
114TEE-2M	1-1/4"
112TEE-2M	1-1/2"
200TEE-2M	2"
300TEE-2M	3"

Full Couplings



Part #	Size
FC-014-3M	1/4"
FC-038-3M	3/8"
FC-012-3M	1/2"
FC-034-3M	3/4"
FC-100-3M	1"
FC-114-3M	1-1/4"
FC-112-3M	1-1/2"
FC-200-3M	2"
FC-300-3M	3"

90° Elbow



Part #	Size
EL90-014-2M	1/4"
EL90-038-2M	3/8"
EL90-012-2M	1/2"
EL90-034-2M	3/4"
EL90-100-2M	1"
EL90-114-2M	1-1/4"
EL90-112-2M	1-1/2"
EL90-200-2M	2"
EL90-300-2M	3"

45° Elbow



Part #	Size
EL45-034-2M	3/4"
EL45-100-2M	1"
EL45-114-2M	1-1/4"
EL45-200-2M	2"
EL45-300-2M	3"

Reducing Elbow



Part #	Size
REL90-200X114	2" x 1-1/4"

Y-Type Strainers



Part #	Size	Plug Size
STYLE B-DI-012	1/2"	1/2"
STYLE B-DI-034	3/4"	1/2"
STYLE B-DI-100	1"	3/4"
STYLE B-DI-114	1-1/4"	3/4"
STYLE B-DI-112	1-1/2"	1"
STYLE B-DI-200	2"	1"
STYLE C-DI-300	3"	1-1/4"
STYLE C-DI-400	4"	1-1/4"

90° Street Elbow



Part #	Size
STEL90-014-3M	1/4"
STEL90-012-3M	1/2"
STEL90-034-3M	3/4"
STEL90-100-3M	1"
STEL90-114-3M	1-1/4"
STEL90-200-3M	2"

Crosses



Part #	Size
CR-114-2M	1-1/4"
CR-200-2M	2"
CR-300-2M	3"

Reducing Coupling



Part #	Size
RC-038X014-3M	3/8" x 1/4"
RC-012X038-3M	1/2" x 3/8"
RC-034X012-3M	3/4" x 1/2"
RC-100X034-3M	1" x 3/4"
RC-114X100-3M	1-1/4" x 1"
RC-112X114-3M	1-1/2" x 1-1/4"
RC-200X114-3M	2" x 1-1/4"

Unions



Part #	Size
AAR-014-3M	1/4"
AAR-012-3M	1/2"
AAR-034-3M	3/4"
AAR-100-3M	1"
AAR-114-3M	1-1/4"
AAR-112-3M	1-1/2"
AAR-200-3M	2"
AAR-212-3M	2-1/2"
AAR-300-3M	3"

Bushings



Part #	Pipe Size
BU014X018-3M	1/4" x 1/8"
BU038X014-3M	3/8" x 1/4"
BU012X014-3M	1/2" x 1/4"
BU012X038-3M	1/2" x 3/8"
BU034X014-3M	3/4" x 1/4"
BU034X038-3M	3/4" x 3/8"
BU034X012-3M	3/4" x 1/2"
BU100X014-3M	1" x 1/4"
BU100X012-3M	1" x 1/2"
BU100X034-3M	1" x 3/4"
BU114X014-3M	1-1/4" x 1/4"
BU114X012-3M	1-1/4" x 1/2"
BU114X034-3M	1-1/4" x 3/4"
BU114X100-3M	1-1/4" x 1"
BU112X012-3M	1-1/2" x 1/2"
BU112X034-3M	1-1/2" x 3/4"
BU112X100-3M	1-1/2" x 1"
BU112X114-3M	1-1/2" x 1-1/4"
BU200X014-3M	2" x 1/4"
BU200X012-3M	2" x 1/2"
BU200X034-3M	2" x 3/4"
BU200X100-3M	2" x 1"
BU200X114-3M	2" x 1-1/4"
BU200X112-3M	2" x 1-1/2"
BU212X100-3M	2-1/2" x 1"
BU212X200-3M	2-1/2" x 2"
BU300X114-3M	3" x 1-1/4"
BU300X200-3M	3" x 2"
BU300X212-3M	3" x 2-1/2"

Pipe Plugs



Part #	Size
018 HXP	1/8"
014 HXP	1/4"
038 HXP	3/8"
012 HXP	1/2"
034 HXP	3/4"
100 HXP	1"
114 HXP	1-1/4"
112 HXP	1-1/2"
200 HXP	2"
300 HXP	3"

Concentric Swage Nipples



Part #	Size
SN-034X012	3/4" x 1/2"
SN-100X034	1" x 3/4"
SN-114X012	1-1/4" x 1/2"
SN-114X034	1-1/4" x 3/4"
SN-114X100	1-1/4" x 1"
SN-112X114	1-1/2" x 1-1/4"
SN-200X034	2" x 3/4"
SN-200X100	2" x 1"
SN-200X114	2" x 1-1/4"
SN-200X112	2" x 1-1/2"
SN-300X200	3" x 2"

Flanges



Part #	Flange Size & Bolt Style	Flange Diameter	Thread/Pipe Size	Type of Flange
W30FT34	3/4" RF 4-BOLT	4.62"	NPT 3/4"	300# Threaded
W30FT1	1" RF 4-BOLT	4.88"	NPT 1"	300# Threaded
W30FT114	1-1/4" RF 4-BOLT	5.25"	NPT 1-1/4"	300# Threaded
W30FT112	1-1/2" RF 4-BOLT	6.12"	NPT 1-1/2"	300# Threaded
W30FT2	2" RF 8-BOLT	6.50"	NPT 2"	300# Threaded
W30FT3	3" RF 8-BOLT	8.25"	NPT 3"	300# Threaded
W30FT4	4" RF 8-BOLT	10.00"	NPT 4"	300# Threaded
WFT34	3/4" RF 4-BOLT	3.88"	NPT 3/4"	300# Threaded
WFT1	1" RF 4-BOLT	4.25"	NPT 1"	300# Threaded
WFT114	1-1/4" RF 4-BOLT	4.62"	NPT 1-1/4"	300# Threaded
WFT112	1-1/2" RF 4-BOLT	5.00"	NPT 1-1/2"	300# Threaded
WFT2	2" RF 4-BOLT	6.00"	NPT 2"	300# Threaded
WFT3	3" RF 4-BOLT	7.50"	NPT 3"	300# Threaded
WFT4	4" RF 8-BOLT	9.00"	NPT 4"	300# Threaded
WBL34	3/4" RF 4-BOLT	4.62"/3.88"	300#/150#	Blind
WBL1	1" RF 4-BOLT	4.89"/4.25"	300#/150#	Blind
WBL114	1-1/4" RF 4-BOLT	5.25"/4.62"	300#/150#	Blind
WBL112	1-1/2" RF 4-BOLT	6.12"/5.00"	300#/150#	Blind
WBL2	2" RF 8 or 4-BOLT	6.50"/6.00"	300#/150#	Blind
WBL3	3" RF 8 or 4-BOLT	8.25"/7.50"	300#/150#	Blind
WBL4	4" RF 8-BOLT	10.00"/9.00"	300#/150#	Blind

Flange Gaskets



Part #	Flange Size	Weight	I.D.	O.D.
GAS30FLEX304GRAF34	3/4"	300#	1"	2-5/8"
GAS30FLEX304GRAF1	1"	300#	1-14"	2-7/8"
GAS30FLEX304GRAF114	1-1/4"	300#	1-7/8"	3-1/4"
GAS30FLEX304GRAF112	1-1/2"	300#	2-1/8"	3-3/4"
GAS30FLEX304GRAF2	2"	300#	2-3/4"	4-3/8"
GAS30FLEX304GRAF3	3"	300#	4"	5-7/8"
GAS30FLEX304GRAF4	4"	300#	5"	7-1/8"

Flange Studs & Nuts



Includes one stud and 2 nuts

Part #	Flange Size	Stud Size	Number of Studs
BLT-B7 5/8"X3"	3/4"	5/8" x 3"	4-150# or 300#
BLT-B7 5/8"X3"	1"	5/8" x 3"	4-150# or 300#
BLT-B7 5/8"X3"	1-1/4"	5/8" x 3"	4-150# or 300#
BLT-B7 3/4"X3-1/2"	1-1/2"	3/4" x 3-1/2"	4-150# or 300#
BLT-B7 3/4"X3-1/2"	2"	3/4" x 3-1/2"	4-150# or 8-300#
BLT-B7 3/4"X4"	3"	3/4" x 4"	4-150# or 8-300#
BLT-B7 3/4"X4-1/2"	4"	3/4" x 4-1/2"	8-150# or 300#

Flex Connectors

Not for mobile use.

Heavy-duty Stainless Steel Flex Connectors.



Part #	Size	Length
FH034X12	3/4"	12"
FH034X18	3/4"	18"
FH034X24	3/4"	24"
FH100X12	1"	12"
FH100X18	1"	18"
FH100X24	1"	24"
FH114X12	1-1/4"	12"
FH114X18	1-1/4"	18"
FH114X24	1-1/4"	24"
FH112X12	1-1/2"	12"
FH112X18	1-1/2"	18"
FH112X24	1-1/2"	24"
FH200X12	2"	12"
FH200X18	2"	18"
FH200X24	2"	24"
FH300X18	3"	18"
FH300X24	3"	24"

Flex Connectors with Union

Not for mobile use.

Heavy-duty Stainless Steel Flex Connectors with Union. Not for mobile use.



Part #	Size	Length
FH100X18-union	1"	18"
FH114X18-union	1-1/4"	18"
FH112X18-union	1-1/2"	18"
FH200X18-union	2"	18"
FH300X18-union	3"	18"

Leak Detector

Use this Leak Detector on Gas and Air Line Connections, Tanks, Tank & Cylinder Valves, Cylinders, Condensers or any system that can be leak tested with air or gas. Low temperature leak detector designed for use above and below freezing.



Part #	Description	Size	Application	Color
LD-1	Economy Refill	1 gallon	Low Temp	Pink
LD-128R	Economy Refil	1 gallon	Regular	Blue
LD-8	Container with Dauber Cap	8 oz	Low Temp	Pink
LDPD-E	Spray Bottle (empty)	16 oz	N/A	N/A
Dispenser	Container with Dauber Cap (empty)	1 pint	N/A	N/A



Part #	Description	Size	Application
SHERLOCK 8 OZ	Container with Dauber cap	8 oz	Low Temp
SHERLOCK 1 GAL	Economy Refill	1 gallon	Low Temp

Rectorseal

Slow dry - soft set. Non-seizing - breaks out easily without stripping, galling, or damaging threads. 3 sizes available all with brush top can.



Part #	Size
RS5C-4	1/4 Pint
RS5C-2	1/2 Pint
RS5C-1	1 Pint

Teflon Sealant

FPC Gasoila Soft-Set with Teflon. Brush top can.



Part #	Size
SS04	1/4 Pint
SS08	1/2 Pint
SS16	1 Pint

Plastic Seal

John Crane PLS-2 Plastic Seal for every pipe joint service. Leak proof, seize proof, non-hardening, insoluble. With brush cap. UL listed.



Part #	Size
401-00203	1/4 Pint
401-00225	1 Pint

Pipe Thread Compound

Laco Slic-Tite paste with Teflon heavy duty thread sealing compound. Angle brush in cap. UL Listed.



Part #	Size
1/4PT SLIC-TITE	1/4 Pint
1/2PT SLIC-TITE	1/2 Pint

Teflon Thread Tape

For Pipe Sizes Not to Exceed 1-1/2"



Part #	Size	Description
121-520	1/2" x 520"	Standard Density 3 mil, White
M520-12	3/4" x 500"	Standard Density 3 mil, White
TT61	1/2" x 520"	Medium Density 3.5 mil, White

Ansell Edmont Gloves



Part #	Description	Length	Size
GL-4-414L	Snorkel Jersey Line PVC Full Coated with Gauntlet	14"	Large



Part #	Description	Length	Size
GL-97-681-09	ActivArmr combines warmth and dexterity in a liquid-proof glove. Protects against Cold & Liquid.	10"	#9 Medium
GL-97-681-10		11"	#10 Large



Part #	Description	Length	Size
GL-23-202-L	VersaTouch chemical resistant, mediumweight PVC supported glove with cotton & acrylic double lining.	11.8"	Large
GL-23-202-XL		11.8"	X- Large

Safety Headgear and Accessories



Part #	Description	Size
M2925	UVEX Flex Seal Safety Goggles	—
672171	Ratchet headgear	—
672172	Polycarbonate visor to be used with 672171 ratchet headgear	—
28-102ALUM	Faceshield attachment for hard hat - aluminum trim	—
Accessories		
SB1-1	C-Clear Brand Anti-Fog, Anti-Static Spray Cleaner for faceshield	1 oz.
SB2-1	C-Clear Brand Anti-Fog, Anti-Static Spray Cleaner for faceshield	2 oz.
SB4-1	C-Clear Brand Anti-Fog, Anti-Static Spray Cleaner for faceshield	4 oz.
SB8-1	C-Clear Brand Anti-Fog, Anti-Static Spray Cleaner for faceshield	8 oz.
GC01	C-Clear Brand Anti-Fog Gel Cup	1 oz.



Part #	Description	Application	Material	Size	Colors
V-5	Anhydrous Ammonia	Anhydrous Ammonia	Vinyl	24" x 10" Can be cut along dotted line to be sized to 7" by 48"	Green or Red on White



Part #	Description	Application	Material	Size	Colors
V-2A	Anhydrous Ammonia	Anhydrous Ammonia	Vinyl	24" x 3"	Green on White



Part #	Description	Application	Material	Size	Colors
V-2B	Inhalation Hazard	Anhydrous Ammonia	Vinyl	36" x 3"	Green on White



Part #	Description	Application	Material	Size	Colors
A-82	Ammonia Emergency Shutoff - Push to Close	Anhydrous Ammonia	Vinyl	10" x 12"	Red on White



Part #	Description	Application	Material	Size	Colors
V-90-5	Liquid	Bulk Storage	Vinyl	Five 4" x 1" per sheet	Red on White



Part #	Description	Application	Material	Size	Colors
V-91-5	Vapor	Bulk Storage	Vinyl	Five 4" x 1" per sheet	Red on White



Part #	Description	Application	Material	Size	Colors
V-1005	Anhydrous Ammonia Liquefied 1005 - 2	Placards	Vinyl	10.875" x 10.675"	Green & Black on White

Gas Equipment Company Training Curricula

As an added benefit to our customers, we offer on-site training. Our sales representatives are factory trained on these products with many years of practical experience. Contact your sales representative or closest branch location for more details.

REGO TRAINING PROGRAMS

1) History of LP-Gas & RegO	45 min
2) Regulators - Basic	1 hr
3) Regulators - Advanced	1 hr
4) Container Installation.....	1.5 hrs
5) Pipe Sizing	1 hr
6) Filler Valves	45 min
7) Relief Valves.....	1 hr
8) Chek-Loks	30 min
9) Back Pressure Check Valves	20 min
10) Cylinder Valves & Multivalves	40 min
11) Excess Flow Valves.....	30 min
12) Globe & Angle Valves.....	20 min
13) Internal Valves - Threaded & Flanged.....	1 hr
14) Flowmatic Internal Valves.....	40 min
15) Multiports & DuoPorts	20 min
16) Pull Away Valves	15 min
17) Rotogauges.....	15 min
18) Emergency Shut-Off Valves	20 min
19) Introduction to Anhydrous Ammonia and NH3 Equipment.....	3 hrs
BLACKMER/CORKEN PUMPS.....	4 hrs
PUMPING SYSTEMS	
REPAIRING	
BLACKMER/CORKEN COMPRESSORS.....	4 hrs
COMPRESSOR SYSTEMS	
REPAIRING	
CATHODIC PROTECTION (TM01).....	2 hrs
TANKS	
PIPING	
GASTITE	1 hr
CREATING AN EFFICIENT TROUBLE FREE TRANSFER SYSTEM (TM02).....	4 hrs
PERFECTION PLASTIC (TM03).....	1 hr
PRESSURE TEST & LEAK CHECK (TM04).....	1 hr
VAPORIZERS—DIRECT FIRE (TM05).....	2 hrs
SIZING	
FUNCTION	
TROUBLE SHOOTING	
MY TRUCK WON'T PUMP (TM06)	4 hrs

NOTE Training programs provided by Gas Equipment Company, Inc. are intended to further the knowledge of trained LP Gas and NH3 industry personnel, and should not be construed to replace manufacturer instructions.

Installation, usage, and maintenance of all products must be in compliance with all manufacturer instructions as well requirements and provisions of NFPA #54, NFPA #58, DOT, ANSI, and all applicable federal, state, provincial and local standards, codes, regulations, and laws.

Inspection and maintenance on a periodic basis is essential. Installation and maintenance should be performed only by qualified personnel. Be sure all instructions are read and understood before installation, operation, and service.



Proud of our Heritage;
 Focused on your Future!

ATLANTA, GA

(800) 241-4155
 (770) 995-1131
 FAX (770) 995-1216
 1440 Lakes Parkway, Suite 300
 Lawrenceville, GA 30043

CHANDLER, OK

(800) 763-0953
 (405) 258-2652
 FAX (405) 258-9108
 1125 S. Industrial Rd. Bldg E
 Chandler, OK 74834

DALLAS, TX

(800) 821-1829
 (972) 241-2333
 FAX (800) 875-8553
 11616 Harry Hines Blvd.
 Dallas, TX 75229

FAYETTEVILLE, NC

(800) 447-1625
 (910) 323-3747
 FAX (910) 323-3879
 1565 Wilmington Hwy.
 Fayetteville, NC 28306

HOUSTON, TX

(800) 334-7816
 (713) 896-1077
 FAX (713) 896-9299
 11510 N. Petro Park
 Houston, TX 77041

INDIANAPOLIS, IN

(800) 241-1971
 (317) 541-1971
 FAX (317) 541-8352
 3168 N. Shadeland Ave
 Indianapolis, IN 46226

KANSAS CITY, MO

(800) 821-5062
 (816) 746-9555
 FAX (816) 746-8522
 224 NW Plaza Drive
 Kansas City, MO 64150

LITTLE ROCK, AR

(800) 643-8222
 (501) 376-7141
 FAX (501) 376-0917
 2711 Springer Blvd
 Little Rock, AR 72206

ORLANDO, FL

(800) 821-0631
 (407) 843-6586
 FAX (407) 648-1546
 4400 Hwy. 19A, Suite 6
 Mount Dora, FL 32757

RICHMOND, VA

(800) 368-4013
 (804) 717-5723
 FAX (804) 717-5727
 12660 Bermuda Triangle
 Chester, VA 23836

ST. LOUIS, MO

(800) 423-4685
 (314) 298-8219
 FAX (314) 298-7753
 13789 Rider Trail N. Ste. 106
 Earth City, MO 63045

www.gasequipment.com
www.youtube.com/GasEquipmentTV

E-mail: info@gasequipment.com

Copyright © 2019 Gas Equipment Company, Inc.