



**2004 Product Catalog**  
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## Alternate Design Codes and Inspection Agencies

Most Accumulators sold by Accumulators, Inc. are designed, manufactured, inspected and tested under Section VIII, Div. I for unfired pressure vessels within the ASME Boiler and Pressure Vessel Code.

Most units are stamped with the ASME "U" stamp and have the form U-1A data report available. Additionally, each unit is registered with the National Board of Boiler and Pressure Vessel Inspectors and assigned a unique National Board number.

Accumulators, Inc. is contracted with One Beacon Insurance Group. They are authorized by ASME (American Society of Mechanical Engineers) and the State of Texas as our Authorized Inspection Agency (AIA). Additionally, vessels that we have fabricated and tested by our regular outside suppliers may be inspected by other ASME Authorized Inspection Agencies. (Some examples are: Hartford Steam Boiler, Kemper Insurance, Underwriters Laboratory or various city, county or state official agencies.)

There are numerous alternate inspection codes and standards in existence, promulgated by various government, statutory, jurisdictional or industry authorities. Each of these codes has its own qualifying and inspection procedures. Some recognize the ASME code with no further action required. Some require a simple registration. Others require a more detailed registration process and proof of adherence to the ASME code. Others have their own various procedures which are reviewed by an appointed Authorized Inspection Agency (AIA).

Many customers confuse the AIA with the code. Many of these agencies can inspect for more than one code. Consequently, when special orders are received, we must know which agency and which code requirements are requested.

Accumulators, Inc. has formal contracts with several AIAs and working relationships with several others and is familiar with numerous codes. Codes are constantly changing and new codes are often created. The list of which AIAs can inspect for which specific code is also constantly changing. When an inquiry or order is received by Accumulators, Inc., we determine the proper code and current AIA and the costs involved.

The cost for ASME design, manufacture, inspection, testing, stamping and National Board Registration, plus the U-1A data report is included in our list prices. Most alternate codes are at additional cost, which may include:

1. Application preparation and AIA application fees
2. Documentation preparation
3. AIA review fees
4. Testing, examinations and inspections
5. AIA fees for inspections, reports or registrations
6. Data books

The following is a list of selected codes and AIAs. It is far from a complete list, and not all are available:

<b>AIAs and Authorities</b>	<b>Codes</b>
One Beacon Insurance Group	ASME (USA) "U", "R"
Kemper Insurance	D.En. (UK)
Underwriters Lab	NPD (Norway)
Hartford Steam Boiler	USCG (USA)
Det Norske Vertias (DNV)	Service des Mines (Fr)
ABS Americas (Abstech)	TUV (Germany)
Lloyds Register	Stoomwezen (Europe)
Bureau Veritas	CSA B51 (Canada) & CRN (Canada)
Delta Lloyds	AS-1210 (Australia)
Lloyds of London	DOT (USA)
TUV	API (USA)
EC (Common Market)	BS 7201 (UK)
Work Health Authority	"CE" Mark under PED

## Bladder Material Specifications

The following chart is for typical applications at moderate cycles and is based on laboratory results. System fluid and contamination can significantly effect performance. Since real world usage can vary widely, Acc. Inc. cannot warrant the acceptability of any particular system **or the expected life of an elastomer product.**

RUBBER COMPOUND	CODE	PEAK RANGE (F)	OPTIMAL RANGE (F)	PERMEANCE	HARDNESS SHORE (A)	TENSILE (PSI)	ELONGATION (%)
Buna-Nitrile	(None)	-10 to 210	35 to 160	5	60	2000	500
Low Temp Buna-Nitrile	L	-60 to 200	-25 to 145	26	45	1500	500
Butyl	B	-45 to 200	35 to 160	3	60	1500	475
Ethylene-Propylene	E	-55 to 300	35 to 250	20	60	1500	500
Fluoro-Elastomer	V	+10 to 480	35 to 450	2	60	1200	400
Epichloro-hydrin	H	-30 to 300	35 to 250	2	55	1200	350

**Temperature Ranges (F).** PEAK: Upper value is based on polymer vendor data. Lower value is based on ASTM D-1053. OPTIMAL: Based on good hydraulic practices. Extended operation beyond these temperatures will shorten the life of the bladder.

**Permeance to Nitrogen.** Parts per million based on ASTM D-1434.

**Physical Properties.** Values are nominal and are based on Laboratory results.

## Bladder Elastomer Compatibility

There are literally thousands of chemical compounds that bladder elastomer compounds have been tested with. An up-to-date listing of the most popular fluids can be found on our website at

[www.accumulators.com](http://www.accumulators.com)

We also maintain an extensive library of elastomer manufacturers' compatibility tables. Please contact our Sales Applications Department, for you application.

### Bladder Special Orders

Accumulators, Inc. manufactures a wide range of special accumulators and bladders that can be adapted to most customer applications.

Bladders can be made with many different types of gas valves, with a wide range of materials, and at many pressure ranges. Many elastomers are available.

Accumulators, Inc. can help you design your special parts.