



# EXTROL®

ASME Commercial Expansion Tanks



For Closed Hydronic Heating & Chilled Water Systems



# EXTROL®

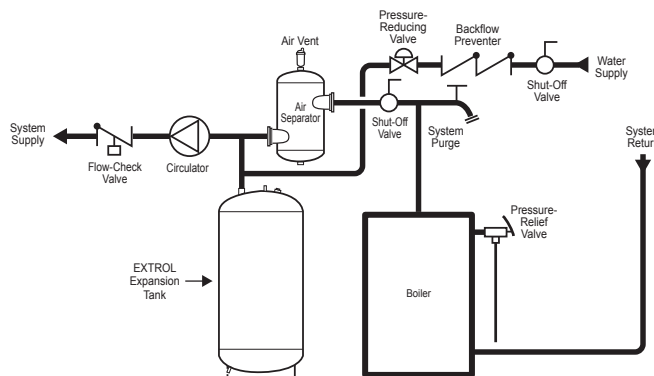
Amtrol hydronic expansion tanks are for use in closed, non-potable hydronic heating and chilled water systems. Available in diaphragm, full acceptance and partial acceptance bladder designs, all Extrol expansion tanks are made in the USA at our ISO 9001: 2008 registered facilities. ASME tanks meet all Section VIII, Division I standards.



## EXTROL AX Series

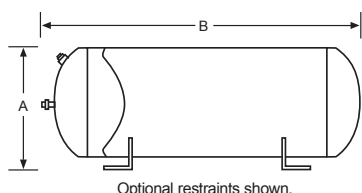
- Diaphragm design; industry's thickest.
- Horizontal and vertical models are available with optional restraints.
- Factory pre-charge: 12 psig.
- Maximum operating temperature: 240° F.

## Typical Installation



## How to Order: Specify Item & Options

Base Item Number \_\_\_\_\_  
 Pressure \_\_\_\_\_  
 Sight Glass Option \_\_\_\_\_  
 Restraint Option \_\_\_\_\_  
**AX-80 125 PSI Rating with Sight Glass & Restraints**



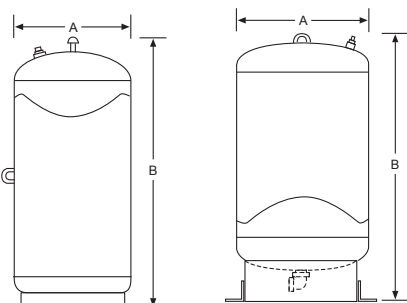
## AX Horizontal Series Specifications

| Model Number | Tank Volume (Gallons) | Max. Accept. Volume (Gallons) | A Diameter (Inches) | B Length (Inches) | System Conn. <sup>1</sup> (Inches) | Shipping Weight (lbs.)<br>Max. Working Pressure |         |         |         |         |
|--------------|-----------------------|-------------------------------|---------------------|-------------------|------------------------------------|-------------------------------------------------|---------|---------|---------|---------|
|              |                       |                               |                     |                   |                                    | 125 PSI                                         | 150 PSI | 175 PSI | 250 PSI | 300 PSI |
| AX-15        | 8.0                   | 2.4                           | 12                  | 19                | 1/2                                | 37                                              | 39      | 48      | 55      | 59      |
| AX-20        | 10.9                  | 2.4                           | 12                  | 26                | 1/2                                | 46                                              | 48      | 60      | 69      | 74      |
| AX-40        | 21.7                  | 11.3                          | 16                  | 29                | 1/2                                | 74                                              | 76      | 96      | 111     | 118     |
| AX-60        | 33.6                  | 11.3                          | 16                  | 43                | 1/2                                | 96                                              | 120     | 125     | 144     | 154     |
| AX-80        | 44.4                  | 22.6                          | 24                  | 29                | 1                                  | 153                                             | 160     | 200     | 230     | 245     |
| AX-100       | 55.7                  | 22.6                          | 24                  | 33                | 1                                  | 174                                             | 180     | 227     | 261     | 279     |
| AX-120       | 68.0                  | 34.0                          | 24                  | 41                | 1                                  | 204                                             | 245     | 266     | 306     | 327     |
| AX-144       | 77.0                  | 34.0                          | 24                  | 46                | 1                                  | 218                                             | 250     | 285     | 327     | 350     |
| AX-180       | 90.0                  | 34.0                          | 24                  | 54                | 1                                  | 232                                             | 265     | 301     | 348     | 372     |
| AX-200       | 110.0                 | 34.0                          | 24                  | 64                | 1                                  | 269                                             | 320     | 350     | 404     | 430     |
| AX-240       | 132.0                 | 46.0                          | 30                  | 51                | 1                                  | 401                                             | 403     | 522     | 602     | 642     |
| AX-260       | 159.0                 | 56.0                          | 30                  | 62                | 1 1/4                              | 455                                             | 460     | 572     | 683     | 728     |
| AX-280       | 211.0                 | 84.0                          | 30                  | 80                | 1 1/4                              | 580                                             | 600     | 755     | 870     | 930     |

<sup>1</sup>AX-15 through AX-100: Malleable Iron NPTF System Connection. Location: Center.  
 AX-120 through AX-240: Malleable Iron NPTM System Connection. Location: Center.  
 AX-260 and AX-280: Malleable Iron NPTM System Connection. Location: Top Offset.

## How to Order: Specify Item & Options

Base Item Number \_\_\_\_\_  
 Pressure \_\_\_\_\_  
 Sight Glass Option \_\_\_\_\_  
 Restraint Option \_\_\_\_\_  
**AX-100V 150 PSI Rating (No Sight Glass or Restraints)**



AX-15V through AX-100V  
 AX-260V and AX-280V

AX-120V through AX-240V  
 Optional restraints shown.

## AX Vertical Series Specifications

| Model Number | Tank Volume (Gallons) | Max. Accept. Volume (Gallons) | A Diameter (Inches) | B Height (Inches) | System Conn. <sup>2</sup> (Inches) | Shipping Weight (lbs.)<br>Max. Working Pressure |         |         |         |         |
|--------------|-----------------------|-------------------------------|---------------------|-------------------|------------------------------------|-------------------------------------------------|---------|---------|---------|---------|
|              |                       |                               |                     |                   |                                    | 125 PSI                                         | 150 PSI | 175 PSI | 250 PSI | 300 PSI |
| AX-15V       | 8.0                   | 2.4                           | 12                  | 20                | 1/2                                | 39                                              | 41      | 49      | 59      | 62      |
| AX-20V       | 10.9                  | 2.4                           | 12                  | 27                | 1/2                                | 47                                              | 49      | 61      | 71      | 75      |
| AX-40V       | 21.7                  | 11.3                          | 16                  | 30                | 1/2                                | 76                                              | 80      | 99      | 114     | 122     |
| AX-60V       | 33.6                  | 11.3                          | 16                  | 45                | 1/2                                | 98                                              | 103     | 127     | 147     | 157     |
| AX-80V       | 44.4                  | 22.6                          | 24                  | 29                | 1                                  | 155                                             | 167     | 201     | 233     | 248     |
| AX-100V      | 55.7                  | 22.6                          | 24                  | 34                | 1                                  | 176                                             | 187     | 229     | 264     | 282     |
| AX-120V      | 68.0                  | 34.0                          | 24                  | 47                | 1                                  | 214                                             | 255     | 278     | 321     | 342     |
| AX-144V      | 77.0                  | 34.0                          | 24                  | 52                | 1                                  | 230                                             | 267     | 299     | 345     | 368     |
| AX-180V      | 90.0                  | 34.0                          | 24                  | 60                | 1                                  | 271                                             | 275     | 352     | 407     | 434     |
| AX-200V      | 110.0                 | 34.0                          | 24                  | 66                | 1                                  | 290                                             | 358     | 377     | 435     | 464     |
| AX-240V      | 132.0                 | 46.0                          | 30                  | 58                | 1                                  | 401                                             | 403     | 521     | 602     | 642     |
| AX-260V      | 159.0                 | 56.0                          | 30                  | 65                | 1 1/4                              | 460                                             | 467     | 598     | 690     | 736     |
| AX-280V      | 211.0                 | 84.0                          | 30                  | 82                | 1 1/4                              | 590                                             | 605     | 767     | 885     | 945     |

<sup>2</sup>AX-15V through AX-100V: Malleable Iron NPTF System Connection. Location: Top Center.  
 AX-120V through AX-240V: Malleable Iron NPTF System Connection. Location: Bottom.  
 AX-260V and AX-280V: Malleable Iron NPTM System Connection. Location: Top Offset.

# ASME Commercial Expansion Tanks



## EXTROL L Series

- Replaceable, full acceptance bladder design.
- Heavy duty butyl bladder; industry's thickest.
- Free-standing on integral welded ring base.
- Factory pre-charge: 12 psig.
- Maximum operating temperature: 240° F.

### How to Order: Specify Item & Options

800-L-175-SGR

Base Item Number \_\_\_\_\_

Pressure \_\_\_\_\_

Sight Glass Option \_\_\_\_\_

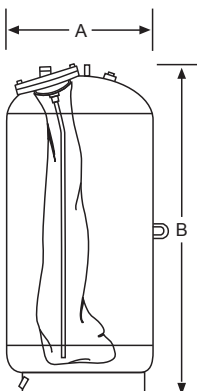
Restraint Option \_\_\_\_\_

**800-L 175 PSI Rating with Sight Glass & Restraints**

### L Series Specifications

| Model Number | Tank Volume (Gallons) | Max. Accept. Volume (Gallons) | A Diameter (Inches) | B Height (Inches) | System Conn. <sup>1</sup> NPTF (Inches) | Shipping Weight (lbs.) Max. Working Pressure |         |         |         |         |
|--------------|-----------------------|-------------------------------|---------------------|-------------------|-----------------------------------------|----------------------------------------------|---------|---------|---------|---------|
|              |                       |                               |                     |                   |                                         | 125 PSI                                      | 150 PSI | 175 PSI | 250 PSI | 300 PSI |
| 200-L        | 53                    | 53                            | 24                  | 38                | 1                                       | 190                                          | 205     | 250     | 290     | 297     |
| 300-L        | 80                    | 80                            | 24                  | 52                | 1                                       | 230                                          | 292     | 320     | 385     | 372     |
| 400-L        | 106                   | 106                           | 24                  | 66                | 1                                       | 275                                          | 343     | 375     | 465     | 595     |
| 500-L        | 132                   | 132                           | 24                  | 79                | 1                                       | 311                                          | 372     | 435     | 545     | 750     |
| 600-L        | 159                   | 159                           | 30                  | 64                | 1½                                      | 439                                          | 510     | 595     | 720     | 810     |
| 800-L        | 211                   | 211                           | 30                  | 82                | 1½                                      | 543                                          | 565     | 620     | 905     | 950     |
| 1000-L       | 264                   | 264                           | 36                  | 74                | 1½                                      | 609                                          | 750     | 750     | 1,015   | 1,065   |
| 1200-L       | 317                   | 317                           | 36                  | 86                | 1½                                      | 700                                          | 860     | 860     | 1,175   | 1,235   |
| 1400-L       | 370                   | 370                           | 36                  | 98                | 1½                                      | 783                                          | 970     | 970     | 1,335   | 1,400   |
| 1600-L       | 422                   | 422                           | 48                  | 69                | 1½                                      | 1,106                                        | 1,425   | 1,650   | 1,916   | 2,015   |
| 2000-L       | 528                   | 528                           | 48                  | 84                | 1½                                      | 1,284                                        | 1,675   | 2,386   | 2,410   | 2,651   |
| 2500-L       | 660                   | 660                           | 48                  | 101               | 2                                       | 1,544                                        | 1,945   | 2,411   | 2,585   | 2,715   |
| 3000-L       | 793                   | 793                           | 48                  | 118               | 2                                       | 1,719                                        | 2,225   | 2,500   | 2,950   | 3,100   |
| 3500-L       | 925                   | 925                           | 54                  | 111               | 2                                       | 2,187                                        | 2,375   | 2,620   | 3,660   | 3,780   |
| 4000-L       | 1,057                 | 1,057                         | 54                  | 125               | 2                                       | 2,352                                        | 2,640   | 3,000   | 4,080   | 4,285   |
| 5000-L       | 1,321                 | 1,321                         | 60                  | 128               | 2                                       | 2,450                                        | 3,740   | 4,100   | 4,200   | 5,200   |
| 7500-L       | 1,980                 | 1,980                         | 72                  | 127               | 3                                       | 4,000                                        | 4,300   | 4,500   | 5,550   | 6,750   |
| 10000-L      | 2,640                 | 2,640                         | 72                  | 159               | 3                                       | 4,900                                        | 5,300   | 5,500   | 6,800   | 11,000  |
| 15000-L      | 3,963                 | 3,963                         | 72                  | 233               | 3                                       | 6,000                                        | 7,600   | 7,900   | 9,800   | 12,500  |

<sup>1</sup>Malleable Iron System Connection.



## EXTROL LBC Series

- Replaceable, partial acceptance bladder design.
- Heavy duty butyl bladder; industry's thickest.
- Free-standing on integral welded ring base.
- Factory pre-charge: 12 psig.
- Maximum operating temperature: 240° F.

### How to Order: Specify Item & Options

130-LBC-125 R

Base Item Number \_\_\_\_\_

Pressure \_\_\_\_\_

Sight Glass Option \_\_\_\_\_

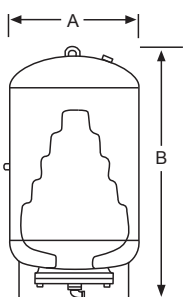
Restraint Option \_\_\_\_\_

**130-LBC 125 PSI Rating with Restraints (No Sight Glass)**

### LBC Series Specifications

| Model Number | Tank Volume (Gallons) | Max. Accept. Volume (Gallons) | A Diameter (Inches) | B Height (Inches) | System Conn. <sup>1</sup> NPTF (Inches) | Shipping Weight (lbs.) Max. Working Pressure |         |         |         |         |
|--------------|-----------------------|-------------------------------|---------------------|-------------------|-----------------------------------------|----------------------------------------------|---------|---------|---------|---------|
|              |                       |                               |                     |                   |                                         | 125 PSI                                      | 150 PSI | 175 PSI | 250 PSI | 300 PSI |
| 35-LBC       | 10                    | 10                            | 10                  | 37                | 1                                       | 67                                           | 76      | 80      | 94      | 100     |
| 50-LBC       | 13                    | 11                            | 12                  | 37                | 1                                       | 76                                           | 78      | 91      | 106     | 114     |
| 85-LBC       | 22                    | 11                            | 16                  | 35                | 1                                       | 92                                           | 95      | 110     | 129     | 138     |
| 100-LBC      | 26                    | 11                            | 16                  | 39                | 1                                       | 99                                           | 102     | 119     | 138     | 150     |
| 130-LBC      | 34                    | 27                            | 20                  | 35                | 1                                       | 135                                          | 140     | 162     | 189     | 202     |
| 165-LBC      | 44                    | 27                            | 20                  | 40                | 1                                       | 149                                          | 153     | 178     | 214     | 225     |
| 200-LBC      | 53                    | 27                            | 24                  | 41                | 1                                       | 195                                          | 205     | 234     | 273     | 293     |
| 300-LBC      | 80                    | 27                            | 24                  | 56                | 1                                       | 233                                          | 254     | 280     | 326     | 350     |
| 400-LBC      | 106                   | 53                            | 24                  | 69                | 1                                       | 274                                          | 308     | 329     | 383     | 411     |
| 500-LBC      | 132                   | 53                            | 24                  | 83                | 1                                       | 310                                          | 352     | 372     | 434     | 465     |
| 600-LBC      | 158                   | 53                            | 30                  | 67                | 1                                       | 438                                          | 442     | 525     | 613     | 657     |

<sup>1</sup>Malleable Iron System Connection.





# EXTROL® Sizing Guide

## Things You Must Know:

1. Total System Volume ..... gallons
2. Minimum System Temperature ..... °F
3. Maximum System Temperature ..... °F
4. Minimum Operating Pressure at Expansion Tank . . . . . psig
5. Maximum Operating Pressure at Expansion Tank . . . . . psig

## Selection of Expansion Tank:

6. Find and enter "Water Expansion Factor" ..... (see Table 1)
7. Amount of Expanded Water = Line (1) x Line (6) . . . . . gallons
8. Find and enter "Tank Acceptance Factor" ..... (see Table 2)
9. Minimum Volume = Line (7) ÷ Line (8) ..... gallons
10. Select an Expansion Tank that is at least equal to Line (9) for Tank Volume (gallons) and Line (7) for Max. Acceptance Volume (gallons). Multiple tanks may be required.

**Table 1: Water Expansion Factor**

| Maximum System Temp. | Minimum System Temperature |       |       |       |       |       |        |
|----------------------|----------------------------|-------|-------|-------|-------|-------|--------|
|                      | 40° F                      | 50° F | 60° F | 70° F | 80° F | 90° F | 100° F |
| 60° F                | .0005                      | .0049 | —     | —     | —     | —     | —      |
| 70° F                | .0015                      | .0014 | .0009 | —     | —     | —     | —      |
| 80° F                | .0026                      | .0025 | .0020 | .0011 | —     | —     | —      |
| 90° F                | .0041                      | .0040 | .0035 | .0026 | .0015 | —     | —      |
| 100° F               | .0058                      | .0057 | .0052 | .0043 | .0031 | .0017 | —      |
| 110° F               | .0077                      | .0077 | .0072 | .0062 | .0051 | .0037 | .0019  |
| 120° F               | .0100                      | .0099 | .0095 | .0086 | .0074 | .0060 | .0043  |
| 130° F               | .0124                      | .0123 | .0118 | .0109 | .0098 | .0083 | .0066  |
| 140° F               | .0150                      | .0149 | .0145 | .0135 | .0124 | .0110 | .0093  |
| 150° F               | .0179                      | .0178 | .0173 | .0164 | .0153 | .0133 | .0121  |
| 160° F               | .0209                      | .0208 | .0204 | .0194 | .0181 | .0165 | .0148  |
| 170° F               | .0242                      | .0241 | .0236 | .0227 | .0216 | .0201 | .0184  |
| 180° F               | .0276                      | .0275 | .0271 | .0261 | .0250 | .0236 | .0219  |
| 190° F               | .0313                      | .0312 | .0307 | .0298 | .0287 | .0272 | .0255  |
| 200° F               | .0351                      | .0350 | .0346 | .0336 | .0325 | .0311 | .0294  |
| 210° F               | .0391                      | .0390 | .0386 | .0376 | .0365 | .0351 | .0334  |
| 220° F               | .0434                      | .0433 | .0428 | .0419 | .0408 | .0393 | .0376  |
| 230° F               | .0476                      | .0475 | .0471 | .0461 | .0450 | .0436 | .0419  |
| 240° F               | .0522                      | .0521 | .0517 | .0507 | .0496 | .0482 | .0465  |

For fluid applications other than water, consult AMTROL technical services.

**Table 2: Tank Acceptance Factor**

| Maximum Operating Pressure (psig) | Minimum Operating Pressure at Tank (psig) |       |       |       |       |       |       |       |       |       |       |
|-----------------------------------|-------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                   | 5                                         | 10    | 12    | 15    | 20    | 30    | 40    | 50    | 60    | 70    | 80    |
| 27                                | 0.527                                     | 0.408 | 0.360 | 0.288 | 0.168 | —     | —     | —     | —     | —     | —     |
| 30                                | 0.560                                     | 0.447 | 0.403 | 0.336 | 0.224 | —     | —     | —     | —     | —     | —     |
| 35                                | 0.604                                     | 0.503 | 0.463 | 0.403 | 0.302 | 0.101 | —     | —     | —     | —     | —     |
| 40                                | 0.640                                     | 0.548 | 0.512 | 0.457 | 0.366 | 0.183 | —     | —     | —     | —     | —     |
| 45                                | 0.670                                     | 0.586 | 0.553 | 0.503 | 0.419 | 0.251 | 0.084 | —     | —     | —     | —     |
| 50                                | 0.696                                     | 0.618 | 0.587 | 0.541 | 0.464 | 0.309 | 0.155 | —     | —     | —     | —     |
| 55                                | 0.717                                     | 0.646 | 0.617 | 0.574 | 0.502 | 0.359 | 0.215 | 0.072 | —     | —     | —     |
| 60                                | 0.736                                     | 0.669 | 0.643 | 0.602 | 0.536 | 0.402 | 0.268 | 0.134 | —     | —     | —     |
| 65                                | 0.753                                     | 0.690 | 0.665 | 0.627 | 0.565 | 0.439 | 0.314 | 0.188 | 0.062 | —     | —     |
| 70                                | 0.767                                     | 0.708 | 0.685 | 0.649 | 0.590 | 0.472 | 0.354 | 0.236 | 0.118 | —     | —     |
| 75                                | 0.780                                     | 0.725 | 0.702 | 0.669 | 0.613 | 0.502 | 0.390 | 0.279 | 0.167 | 0.056 | —     |
| 80                                | 0.792                                     | 0.739 | 0.718 | 0.686 | 0.634 | 0.528 | 0.422 | 0.317 | 0.211 | 0.106 | —     |
| 90                                | 0.812                                     | 0.764 | 0.745 | 0.716 | 0.669 | 0.573 | 0.478 | 0.382 | 0.287 | 0.191 | 0.096 |
| 100                               | 0.828                                     | 0.785 | 0.767 | 0.741 | 0.698 | 0.610 | 0.523 | 0.436 | 0.347 | 0.261 | 0.174 |
| 110                               | 0.842                                     | 0.802 | 0.786 | 0.762 | 0.723 | 0.642 | 0.561 | 0.481 | 0.401 | 0.321 | 0.240 |

Acceptance factors based on expansion tank charged to minimum operating pressure while empty of liquid.



**Non-ASME & Residential Models can be found in catalog MC 2680.**



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