reflex
Thinking solutions.

# Expansion vessels



## Reflex, Refix



# We are only satisfied if you are

Reflex has set itself the goal of supporting you with well thought-out solutions. Whatever job you need doing in water supply engineering, why not put your trust in our comprehensive range of products and accompanying tailored services? We will ensure that your decision to opt for Reflex is the right one in every respect – from advice and design to installation and ongoing operation.

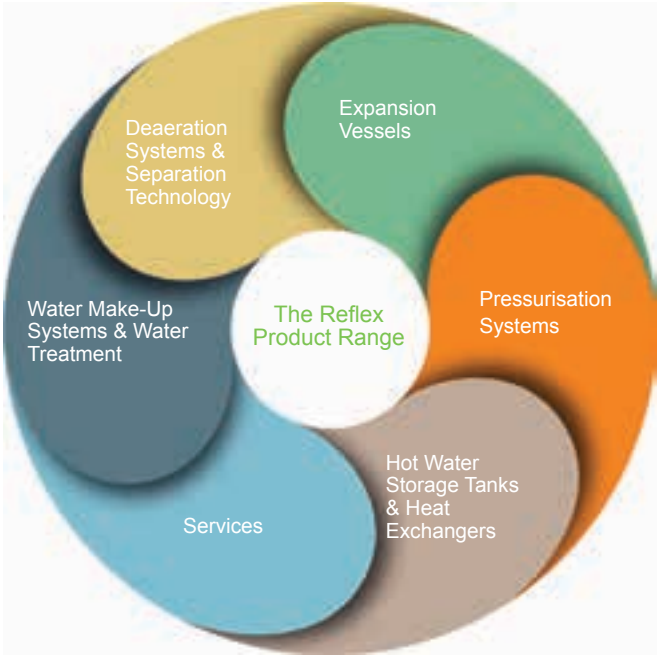
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Reflex's mission is embodied in the company's slogan: "Thinking solutions". Reflex's strength is to think in terms of solutions. Reflex develops ideas that help you to move forward based on decades of experience, in-depth technical understanding and intimate knowledge of the industry!

## We make sure that everything fits

Heating, cooling and hot water supply systems - the demands on supply equipment are varied and complex. You'll be well-advised for every eventuality with our coordinated product ranges. Reflex can offer you the right components for each specific task – and you can be sure that they can be integrated seamlessly into the interplay of a larger overall solution. The result: well thought-out systems that simply perform better.




In this product guide, we've summarised our entire product range for you meaning you can locate all our available products, series and technical information quickly and easily. All weights given are net weights.
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**For heating, chilled water and solar applications**


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**For potable water applications**


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## Heating, Chilled Water and Solar Applications

### 3 bar

**F Diaphragm**



F8-F24 litres
Diaphragm
Page 10

**C Bladder**



C8-C80 litres
Non-replaceable bladder
Page 10

### 6 bar

**N & NG Diaphragm**



NG8-NG140
N200-N1000 litres
Diaphragm
Page 9

**G Bladder**



G100-G10000 litres
Replaceable bladder
Page 12-13

### 10 bar

**S Diaphragm**



S2-S600 litres
Diaphragm
Page 11

*S2 - S33
with bladder



S/V 18-33 litres
Diaphragm
Page 11

**G Bladder**



G100-G10000 litres
Replaceable bladder
Page 12-13

*16 bar / 25 bar: Optional

## V Intermediate Tank



V500-V5000 litres - 6 bar/120°C
V6-V5000 litres - 10 bar/120°C
Page 14

CE

## Potable Water Applications

### Bladder

**DD**



DD2-DD3/10 bar
DD8/25 bar
Page 21

Internal Circulation

**DT**



DT60-DT3000/10 bar
DT80-DT3000/16 bar
Page 22







Internal Circulation

**CE**



C-DE8-C-DE80
10 bar
Page 17

**DE**



DE2-DE5000/10 bar
DE8-DE5000/16 bar
DE8-DE3000/25 bar
Page 18-19











**HW**



HW25-HW100/10 bar
Page 20

### Diaphragm

**DC**



DC25-DC600/10 bar
Page 17





**WSA**

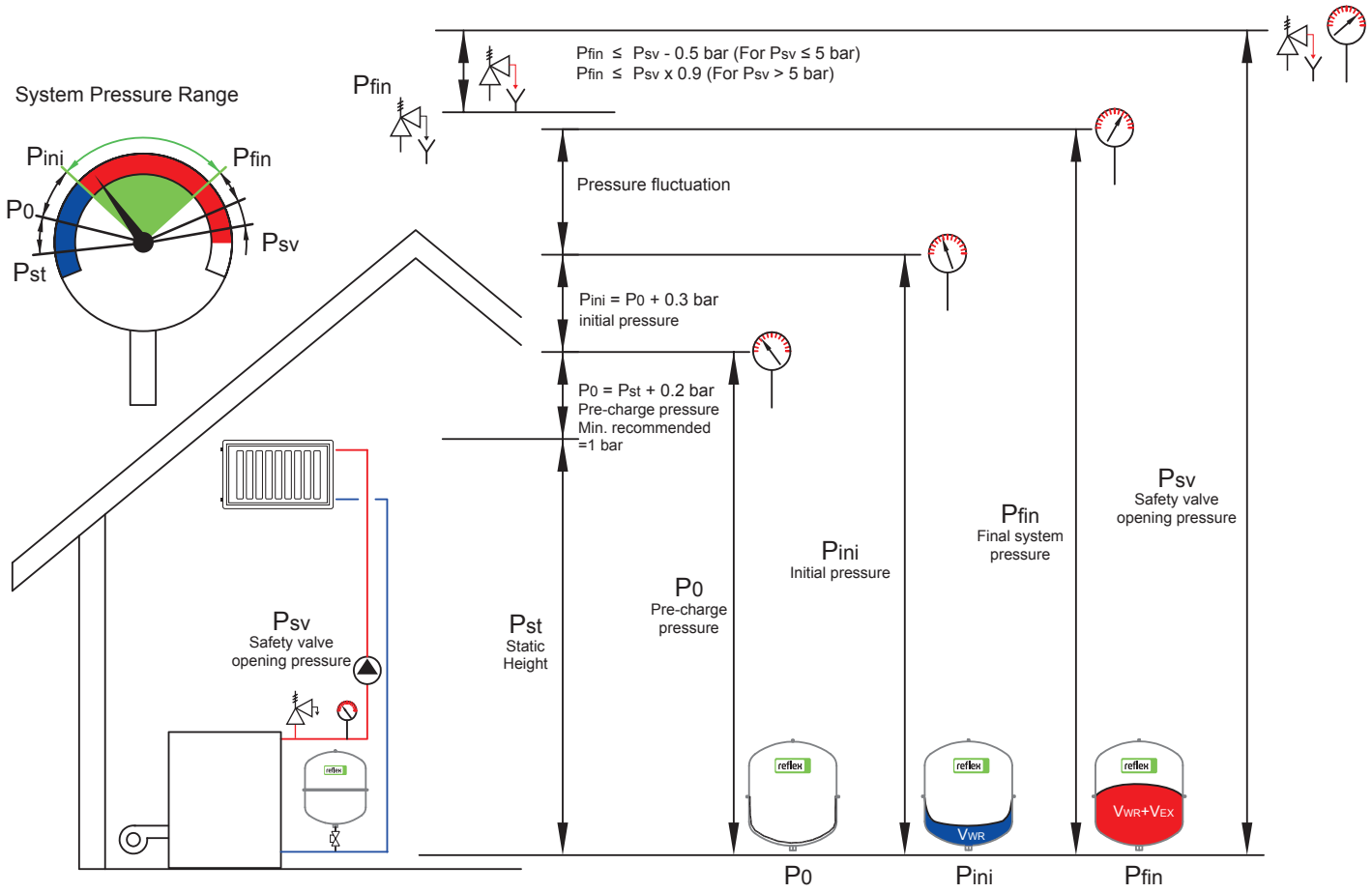


0.165 litres/10 bar
Page 20

WRAS ACS CE DVGW

Vessels with WRAS- and/or ACS-certification upon request

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Expansion vessels do have a number of important functions to fulfil:

- To restrict the pressure fluctuation of the system within certain limits (otherwise loss of water may occur via a responding safety relief valve)
- To prevent a negative pressure at the highest points of the installation in order to avoid the intrusion of air into the piping network
- To avoid steam building or the evaporation of the system liquid, e.g. in circuits with superheated water, solar systems
- To avoid cavitation inside pumps and fittings (preventing pump damage)
- To keep a water reserve in order to avoid a pressure drop caused by occasional losses of volume, e.g. due to venting after the initial starting up of the system
- To compensate for the variations of volume due to the changes in temperature of the system liquid

$$V_{ex} = V_{sys} \times E$$

$$V_{WR} = 0{,}005$$

$$F_{acc} = \frac{P_{fin} - P_0}{P_{fin} + 1}$$

$$V_n \geq \frac{V_{ex} + V_{WR}}{F_{acc}}$$

$$P_{fin} = P_{sv} - 0{,}5 \text{ bar } (P_{sv} < 5 \text{ bar})$$

$$P_{fin} = P_{sv} - 0{,}1 \times P_{sv} \text{ bar } (P_{sv} > 5 \text{ bar})$$

$V_N$ = Nominal volume, litres

$V_{ex}$ = Expanded volume, litres

$V_{WR}$ = Water reserve, litres

$V_{sys}$ = Total water content, litres

e = Expansion coefficient (Eg.: for 90°C, e = 0,0355)

## Reflex N & NG

- For heating and chilled water applications
- Threaded connections
- Non-replaceable diaphragm, according to DIN EN 13831 norm part 3, max. operating temperature 70°C
- Meets or exceeds EC norms for pressure vessels 97/23/CE
- Durable epoxy coating with attractive new colour
- Factory pre-pressurised gas chamber (Nitrogen)



8-25 litres



35-250 litres



300-1000 litres

CE

6 bar

| Type 6 bar / 120°C | Article No Grey | Article No White | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|---|---|
| NG 8 | 8230100 | 7230107 | 10 | 96 | 1.7 | 206 | 305 | - | R ¾ | 1.5 |
| NG 12 | 8240100 | 7240107 | 10 | 72 | 2.4 | 280 | 275 | - | R ¾ | 1.5 |
| NG 18 | 8250100 | 7250107 | 10 | 56 | 2.9 | 280 | 380 | - | R ¾ | 1.5 |
| NG 25 | 8260100 | 7260107 | 10 | 42 | 3.7 | 280 | 490 | - | R ¾ | 1.5 |
| NG 35 | 8270100 | 7270107 | 10 | 24 | 4.8 | 354 | 460 | 175 | R ¾ | 1.5 |
| NG 50 | 8001011 | 7001100 | 11 | 24 | 5.7 | 409 | 493 | 175 | R ¾ | 1.5 |
| NG 80 | 8001211 | 7001300 | 11 | 12 | 9.2 | 480 | 565 | 166 | R 1 | 1.5 |
| NG 100 | 8001411 | 7001500 | 11 | 10 | 11.5 | 480 | 670 | 166 | R 1 | 1.5 |
| NG 140 | 8001611 | 7001700 | 11 | 8 | 13.1 | 480 | 912 | 175 | R 1 | 1.5 |
| N 200 | 8213300 | - | 18 | 4 | 22.0 | 634 | 758 | 205 | R 1 | 1.5 |
| N 250 | 8214300 | - | 18 | 4 | 24.7 | 634 | 888 | 205 | R 1 | 1.5 |
| N 300 | 8215300 | - | 18 | - | 27.0 | 634 | 1092 | 235 | R 1 | 1.5 |
| N 400 | 8218000 | - | 18 | - | 47.0 | 740 | 1102 | 245 | R 1 | 1.5 |
| N 500 | 8218300 | - | 18 | - | 52.0 | 740 | 1321 | 245 | R 1 | 1.5 |
| N 600 | 8218400 | - | 18 | - | 66.0 | 740 | 1531 | 245 | R 1 | 1.5 |
| N 800 | 8218500 | - | 18 | - | 96.0 | 740 | 1996 | 245 | R 1 | 1.5 |
| N 1000 | 8218600 | - | 18 | - | 118.0 | 740 | 2406 | 245 | R 1 | 1.5 |

### Reflex Wall hung holder for vessels 8 - 25 litres

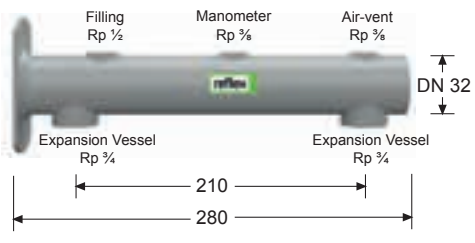
- Bracket with tightening strap for vertical mounting



| | Article No | Product Group | Qpc* |
|---|---|---|---|
| 8 - 25 l | 7611000 | 75 | 36 |

* Quantity per carton

- Holder with multiple connections




| | Article No | Product Group |
|---|---|---|
| 8 - 25 l | 7612000 | 75 |

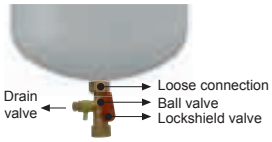
### Reflex Cap Valve - Lockshield

- Shut-off device for inspection and removal of expansion vessels
- Including drain valve
- According to DIN EN 12828
- PN 10 / 120°C

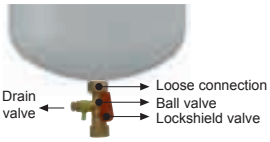


| | Article No | Product Group |
|---|---|---|
| R ¾ x ¾ | 7613000 | 84 |
| R 1 x 1 | 7613100 | 84 |

R ¾ x ¾

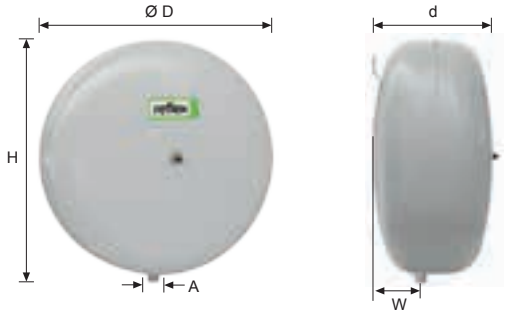



R 1 x 1



## Reflex C

- For heating and chilled water applications
- Suitable for anti-frost mixture up to 50%
- Provided with suspension bracket for easy installation
- Non-replaceable bladder according to DIN EN 13831 norm part 3, max. operating temperature 70°C
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Durable epoxy coating with attractive new colour
- Factory pre-pressurised gas chamber (Nitrogen)
- Reflex EN, now with it's new name Reflex C



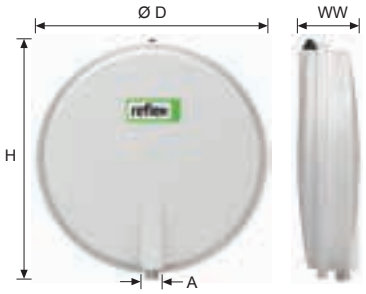

CE

3 bar

| Type 3 bar / 120°C | Article No Grey | Material Group | PU | Weight kg | Ø D mm | H mm | d mm | W mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|---|---|
| C 8 | 8280000 | 17 | 96 | 2.8 | 280 | 287 | 163 | 52 | G ½ | 1.0 |
| C 12 | 8280100 | 17 | 60 | 3.2 | 354 | 362 | 168 | 64 | G ½ | 1.0 |
| C 18 | 8280200 | 17 | 42 | 4.7 | 354 | 362 | 222 | 76 | G ¾ | 1.0 |
| C 25 | 8280300 | 17 | 42 | 5.5 | 409 | 419 | 239 | 93 | G ¾ | 1.0 |
| C 35 | 8280400 | 17 | 24 | 7.3 | 480 | 457 | 240 | 97 | G ¾ | 1.0 |
| C 50 | 8280500 | 17 | 20 | 8.1 | 480 | 457 | 318 | 125 | G ¾ | 1.5 |
| C 80 | 8280600 | 17 | 8 | 14.5 | 634 | 612 | 325 | 135 | G ¾ | 1.5 |

## Reflex F

- Flat vessel for heating (built-in boiler applications)
- According to DIN EN 13831 norm part 3, max. operating temperature 70°C
- From 18 litres with wall-hung clip
- Meets or exceeds EC norms for pressure vessels 97/23/CE
- Durable epoxy coating
- Factory pre-pressurised gas chamber (Nitrogen)




8 litres




12-24 litres

CE

3 bar

| Type 3 bar / 120°C | Article No | Material Group | PU | Weight kg | H mm | D mm | W mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|---|
| F 8 | 9600011 | 15 | 54 | 6.3 | 389 | 389 | 88 | G 3/8 | 0.75 |
| F 12 | 9600030 | 15 | 36 | 7.7 | 444 | 350 | 108 | G 1/2 | 1.0 |
| F 15 | 9600040 | 15 | 36 | 8.2 | 444 | 350 | 134 | G 3/4 | 1.0 |
| F 18 | 9600000 | 15 | 28 | 8.7 | 444 | 350 | 158 | G 3/4 | 1.0 |
| F 24 | 9600010 | 15 | 25 | 9.4 | 444 | 350 | 180 | G 3/4 | 1.0 |

## Reflex S

- For solar, heating and chilled water applications
- Suitable for anti-frost mixture up to 50%
- Non-replaceable diaphragm, according to
- DIN EN 13831 norm part 3,
  Threaded connections
- Max. operating temperature 70°C
- 33 litres with suspension brackets, from 50 litres with feet
- Meets or exceeds EC norms for pressure vessels 97/23/CE
- Durable epoxy coating with attractive new colour
- Factory pre-pressurised gas chamber (Nitrogen)



2-33 litres



50-250 litres



300-600 litres

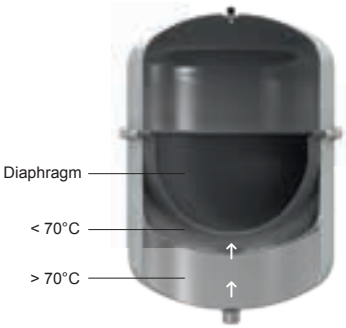
CE

10 bar

| Type 10 bar / 120°C | Article No Grey | Article No White | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|---|---|
| S 2 | 8707700 | - | 14 | 280 | 1.0 | 132 | 260 | - | G ¾ | 0.5 |
| S 8 | 8703900 | 9702600 | 14 | 96 | 1.8 | 206 | 335 | - | G ¾ | 1.5 |
| S 12 | 8704000 | 9702700 | 14 | 72 | 2.5 | 280 | 300 | - | G ¾ | 1.5 |
| S 18 | 8704100 | 9702800 | 14 | 56 | 3.2 | 280 | 410 | - | G ¾ | 1.5 |
| S 25 | 8704200 | 9702900 | 14 | 42 | 3.8 | 280 | 520 | - | G ¾ | 1.5 |
| S 33 | 8706200 | 9706300 | 14 | 24 | 6.3 | 354 | 455 | - | G ¾ | 1.5 |
| S 50 | 8209500 | - | 19 | 20 | 9.5 | 480 | 469 | 158 | R ¾ | 3.0 |
| S 80 | 8210300 | - | 19 | 12 | 12.1 | 480 | 565 | 166 | R 1 | 3.0 |
| S 100 | 8210500 | - | 19 | 10 | 14.2 | 480 | 670 | 166 | R 1 | 3.0 |
| S 140 | 8211500 | - | 19 | 6 | 17.4 | 634 | 941 | 210 | R 1 | 3.0 |
| S 200 | 8213400 | - | 19 | - | 35.6 | 634 | 758 | 205 | R 1 | 3.0 |
| S 250 | 8214400 | - | 19 | - | 40.8 | 634 | 888 | 205 | R 1 | 3.0 |
| S 300 | 8215400 | - | 19 | - | 47.0 | 634 | 1092 | 235 | R 1 | 3.0 |
| S 400 | 8219000 | - | 19 | - | 61.0 | 740 | 1102 | 245 | R 1 | 3.0 |
| S 500 | 8219100 | - | 19 | - | 72.0 | 740 | 1321 | 245 | R 1 | 3.0 |
| S 600 | 8219200 | - | 19 | - | 87.0 | 740 | 1559 | 245 | R 1 | 3.0 |

## Reflex S/V

- Combination tank integrating a solar expansion vessel with an intermediate vessel in one single vessel for solar heating and chilled water applications
- Suitable for anti-frost mixture up to 50%
- Noticeable reduction of space and installation costs
- Non-repleacable diaphragm according to DIN EN 13831 norm part 3
- Meets or exceeds EC norms for pressure vessels 97/23/CE
- 33 litres with wall hung clip
- Max. operating pressure : 10 bar
- Operating temperature range
  -10 bar /+70°C (diaphragm)
  -10 bar /+120°C (tank)
- Factory pre-pressurised gas chamber (Nitrogen)





18-33 litres

CE

10 bar

| Type 10 bar / 120°C | Article No Grey | Article No White | Material Group | Volume Solar/intermediate litres | Weight kg | Ø D mm | H mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|---|
| S/V 18/6 | 9702410 | 8702410 | 14 | 18/6 | 4.2 | 280 | 462 | G ¾ | 2.5 |
| S/V 25/8 | 9702510 | 8702510 | 14 | 25/8 | 5 | 280 | 609 | R ¾ | 2.5 |
| S/V 33/12 | 9706910 | 8706910 | 14 | 33/12 | 7 | 354 | 419 | R ¾ | 2.5 |

## Reflex G

- For heating and chilled water applications
- Replaceable bladder, according according to DIN EN 13831 norm part 3, max. operating temperature 70°C
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Inspection opening (Above 1000 litres Ø 1000 mm)
- Factory-mounted pressure gauge
- Threaded connections up to 1000 litres
- Flanged connections above 1000 litres
- 3000 to 10000 litres with upper flange
- Durable epoxy coating with attractive new colour
- Factory pre-pressurised gas chamber (Nitrogen)



100-500 litres



600-1000 litres
Ø 740



1000-10000 litres
Ø 1000

CE

6 bar

| Type 6 bar / 120°C | Article No Grey | Material Group | Weight kg | Ø D mm | H mm | h mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|
| G 100 | 8519000 | 21 | 19.2 | 480 | 870 | 153 | G 1 | 3.5 |
| G 200 | 8519100 | 21 | 37.0 | 634 | 972 | 190 | G 1 ¼ | 3.5 |
| G 300 | 8519200 | 21 | 42.0 | 634 | 1272 | 190 | G 1 ¼ | 3.5 |
| G 400 | 8521605 | 21 | 43.0 | 740 | 1253 | 146 | G 1 | 3.5 |
| G 500 | 8521705 | 21 | 51.0 | 740 | 1473 | 146 | G 1 | 3.5 |
| G 600 | 8522605 | 21 | 66.0 | 740 | 1718 | 146 | G 1 | 3.5 |
| G 800 | 8523610 | 21 | 94.0 | 740 | 2183 | 146 | G 1 | 3.5 |
| G 1000 Ø 740 | 8546605 | 21 | 150.0 | 740 | 2593 | 146 | G 1 | 3.5 |
| G 1000 Ø 1000 | 8524605 | 22 | 228.0 | 1000 | 1973 | 307 | DN 65/PN 6 | 3.5 |
| G 1500 | 8526605 | 22 | 280.0 | 1200 | 1971 | 305 | DN 65/PN 6 | 3.5 |
| G 2000 | 8527605 | 22 | 250.0 | 1200 | 2431 | 305 | DN 65/PN 6 | 3.5 |
| G 3000 | 8544605 | 22 | 620.0 | 1500 | 2480 | 334 | DN 65/PN 6 | 3.5 |
| G 4000 | 8529605 | 22 | 770.0 | 1500 | 3053 | 334 | DN 65/PN 6 | 3.5 |
| G 5000 | 8530605 | 22 | 849.0 | 1500 | 3588 | 344 | DN 65/PN 6 | 3.5 |
| G 8000 | Per Request | 22 | 979.0 | 1500 | 5404 | 236 | DN 100/PN16 | 3.5 |
| G 10000 | | 22 | 1166.0 | 1500 | 6560 | 236 | DN 100/PN16 | 3.5 |

10 bar

| Type 10 bar / 120°C | Article No Grey | Material Group | Weight kg | Ø D mm | H mm | h mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|
| G 100 | 8518000 | 21 | 19.2 | 480 | 870 | 153 | G 1 | 3.5 |
| G 200 | 8518100 | 21 | 33.4 | 634 | 972 | 144 | G 1 ¼ | 3.5 |
| G 300 | 8518200 | 21 | 34.6 | 634 | 1273 | 144 | G 1 ¼ | 3.5 |
| G 400 | 8521005 | 21 | 51.0 | 740 | 1245 | 133 | G 1 ¼ | 3.5 |
| G 500 | 8521006 | 21 | 57.1 | 740 | 1475 | 133 | G 1 ¼ | 3.5 |
| G 600 | 8522006 | 21 | 118.0 | 740 | 1859 | 263 | G 1 ½ | 3.5 |
| G 800 | 8523005 | 21 | 166.0 | 740 | 2324 | 263 | G 1 ½ | 3.5 |
| G 1000 Ø 740 | 8546005 | 21 | 174.0 | 740 | 2604 | 263 | G 1 ½ | 3.5 |
| G 1000 Ø 1000 | 8524005 | 22 | 335.0 | 1000 | 2001 | 286 | DN 65/PN 16 | 3.5 |
| G 1500 | 8526005 | 22 | 390.0 | 1200 | 1991 | 291 | DN 65/PN 16 | 3.5 |
| G 2000 | 8527005 | 22 | 485.0 | 1200 | 2451 | 291 | DN 65/PN 16 | 3.5 |
| G 3000 | 8544005 | 22 | 830.0 | 1500 | 2532 | 320 | DN 65/PN 16 | 3.5 |
| G 4000 | 8529005 | 22 | 1064.0 | 1500 | 3107 | 320 | DN 65/PN 16 | 3.5 |
| G 5000 | 8530005 | 22 | 1274.0 | 1500 | 3642 | 320 | DN 65/PN 16 | 3.5 |
| G 8000 | 8545000 | 22 | 1470.0 | 1500 | 5404 | 236 | DN 100/PN 16 | 3.5 |
| G 10000 | 8533000 | 22 | 1750.0 | 1500 | 6560 | 236 | DN 100/PN 16 | 3.5 |

## Options

- Operation pressure >10 bar
- Flanged connection:
  For G 1000 - 5000 tanks: DN 150, DN 200
  For G 8000 - 10000 tanks: DN 300

# Accessories

## MBM II Bladder Rupture Detector

- For the signalling of bladder rupture in Reflex G
- Consists of an electrode and relay (factory-mounted)
- Operates 230 V / 50 Hz supply
- Three terminal dry contact
- Recommended: 1 device for each vessel

**Article No :** 7857700 **Material Group :** 86



Relay
Wall mounted (on site)



Electrode
Factory mounted



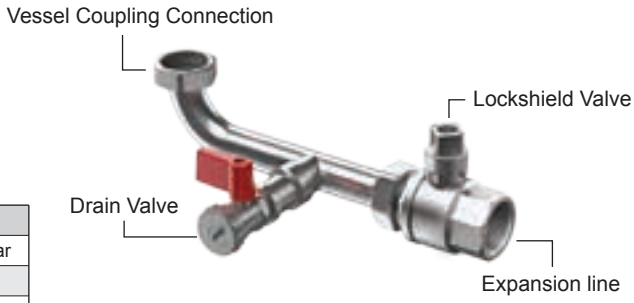

## German TÜV Certification

**German TÜV factory test certificatio**n

**Article no :** 7945610 **Material Group** : 95

## AG Connection Set

- For quick installation and easy inspection of vessel
- Including lockshield valve
- G 1/2 drain valve with loose connection
- According to DIN EN 12828
- PN 16 / 120°C




| Article | Article No | Material Group | Suitable For Model |
|---|---|---|---|
| R 1 | 9119204 | 80 | G 400 - G 1000 Ø 740/10 bar |
| R 1 ¼ | 9119205 | 80 | G 100 - G 500/10 bar |
| R 1 ½ | 9119206 | 80 | G 600 - G 1000 Ø 740/10 bar |

## Reflex Cap Valve - Lockshield

- Shut-off device for inspection and removal of expansion vessel
- Suitable for G, S, N, NG and V vessels

R 3/4x3/4 **Article No :** 7613000 **Material Group :** 84
R 1x1 **Article No :** 7613100 **Material Group :** 84



## Digital Pressure Gauge

- Display range up to approximately 9 bar
- Pressure indication in bar, kPa, psi

**Article No :** 9119198 **Material Group :** 86



## Reflex V Intermediate Tank

- Necessary for installations subject to norm EN 13831 with return temperatures > 70°C or cooling systems at ≤ 0°C
- To avoid faster aging of diaphragm/bladder when subjected to higher temperatures (heating) and to prevent condensation water from freezing (cooling)
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Flanged water connections: 200 litres and above
- Durable epoxy coating with attractive new colour



6-20 litres



40-60 litres



200-350 litres



500-750 litres



1000-2000 litres



3000-5000 litres

CE

6 bar

| Type 6 bar / 120°C | Article No Grey | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A |
|---|---|---|---|---|---|---|---|---|
| V 500 | 8852800 | 24 | - | 160.0 | 750 | 1632 | 210 | DN 40/PN 6 |
| V 750 | 8851800 | 24 | - | 205.0 | 750 | 2323 | 210 | DN 40/PN 6 |
| V 1000 | 8851905 | 24 | - | 310.0 | 1000 | 2020 | 305 | DN 65/PN 6 |
| V 1500 | 8852305 | 24 | - | 445.0 | 1200 | 2020 | 305 | DN 65/PN 6 |
| V 2000 | 8852405 | 24 | - | 545.0 | 1200 | 2478 | 305 | DN 65/PN 6 |
| V 3000 | 8852505 | 24 | - | 775.0 | 1500 | 2556 | 340 | DN 65/PN 6 |
| V 4000 | 8853405 | 24 | - | 1060.0 | 1500 | 3131 | 340 | DN 65/PN 6 |
| V 5000 | 8854805 | 24 | - | 1095.0 | 1500 | 3666 | 340 | DN 65/PN 6 |

10 bar

| Type 10 bar / 120°C | Article No Grey | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A |
|---|---|---|---|---|---|---|---|---|
| V 6 | 8403100 | 24 | 96 | 2.0 | 206 | 244 | - | R 3/4 |
| V 12 | 8403200 | 24 | 72 | 3.0 | 280 | 287 | - | R 3/4 |
| V 20 | 8402000 | 24 | 42 | 4.0 | 280 | 360 | - | R 3/4 |
| V 40 | 8403400 | 24 | 18 | 7.8 | 409 | 562 | 113 | R 1 |
| V 60 | 8402600 | 24 | 12 | 23.0 | 409 | 732 | 172 | R 1 |
| V 200 | 8701800 | 24 | - | 43.0 | 634 | 901 | 142 | DN 40/PN 16 |
| V300 | 8701900 | 24 | - | 48.0 | 634 | 1201 | 142 | DN 40/PN 16 |
| V 350 | 8702400 | 24 | - | 51.0 | 640 | 1341 | 210 | DN 40/PN 16 |
| V 1000 | 8400205 | 24 | - | 560.0 | 1000 | 2055 | 286 | DN 65/PN 16 |
| V 1500 | 8400305 | 24 | - | 780.0 | 1200 | 2045 | 284 | DN 65/PN 16 |
| V 2000 | 8400405 | 24 | - | 940.0 | 1200 | 2055 | 284 | DN 65/PN 16 |
| V 3000 | 8400505 | 24 | - | 1405.0 | 1500 | 2598 | 313 | DN 65/PN 16 |
| V 4000 | 8400605 | 24 | - | 1930.0 | 1500 | 3178 | 313 | DN 65/PN 16 |
| V 5000 | 8400705 | 24 | - | 2015.0 | 1500 | 3173 | 313 | DN 65/PN 16 |

## Options V Intermediate Tank

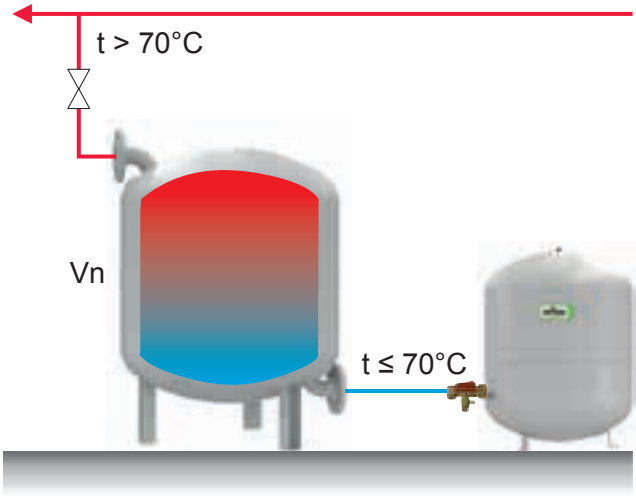
- Operation pressure >10 bar
- Nominal volume > 5000 litres
- Operation temperature > 120°C
- German TÜV factory test certification
- Individual approval carried out by the TÜV [Notified body] in accordance with the Pressure Equipment Directive 97/23/EC

## V Intermediate Tank Applications

V Intermediate tank protect the diaphragms of expansion vessels from impermissible temperature loads. According to DIN 4807 T3 and EN 13831, the continuous temperature on the diaphragms must not exceed 70°C. In a cooling water systems, temperatures ≤ 0°C should be avoided.

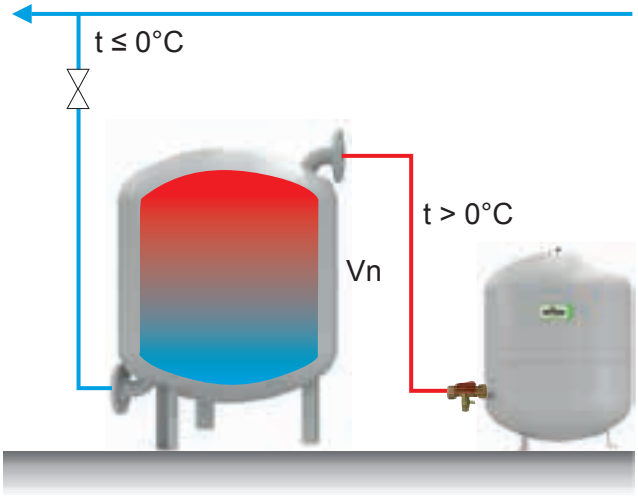
### In heating & solar systems

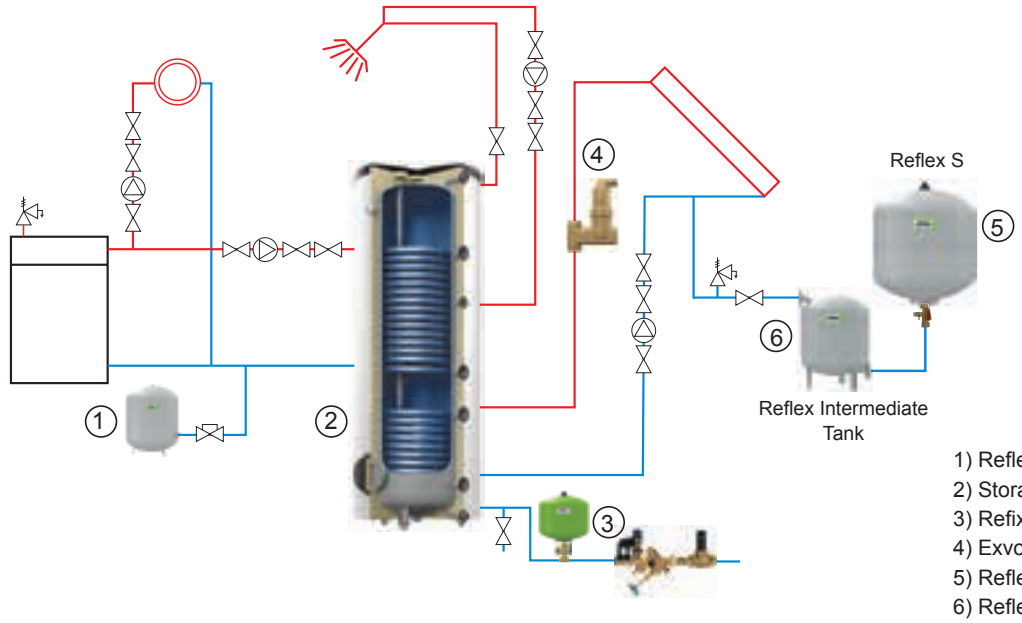
As a rule, heating & solar systems are operated at return temperatures of ≤ 70°C. The installation of intermediate tank is not necessary. In the case of older systems and industrial plants, return temperatures > 70°C are sometimes unavoidable.




### In cooling circuits

If temperature is 0°C, we recommend to an intermediate tank will be installed before the cooling vessel. To size the intermediate tank volume (Vn) , consult Reflex calculation program.




### Applications

- In a solar system application the expansion vessel installed to the flow pipe line therefore, The pump pressure needs to be considered while setting the precharge gas P0.
- For the life time of the membrane we recommend to install a Reflex V intermediate tank before the expansion vessel if the return flow is > 70°C.

1) Reflex N, expansion vessel for boiler circuit
2) Storatherm Aqua Solar hot water heater
3) Refix DD, Hygienic expansion vessel
4) Exvoid, Air separator for solar circuit
5) Reflex S, Expansion vessel for solar system
6) Reflex V, Intermediate tank

## Quick Selection Table For Diaphragm Expansion Vessels

Heating systems: 90/70°C

For detailed calculations, refer to our brochure "Pressurisation Systems - Planning, Calculation, Equipment" or visit www.reflex.de to use our Reflex Pro calculation software

| Safety vayve $P_{sv}$ bar | 2.5 | | $V_n$ | 3.0 | | | | $V_n$ | 4.0 | | | | $V_n$ | 5.0 | | | | | $V_n$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pre-set pressure bar $P_0$ | 1.0 | 1,5 | litres | 0.5 | 1.0 | 1,5 | 1,8 | litres | 1,5 | 2.0 | 2,5 | 3.0 | litres | 2.0 | 2,5 | 3.0 | 3,5 | 4.0 | litres |
| Content litres VA | 30 | - | 8 | 85 | 50 | 19 | - | 8 | 55 | 30 | 5 | - | 8 | 55 | 37 | 16 | - | - | 8 |
| | 45 | - | 12 | 120 | 75 | 29 | - | 12 | 80 | 45 | 7 | - | 12 | 85 | 55 | 24 | - | - | 12 |
| | 85 | - | 18 | 200 | 130 | 60 | 17 | 18 | 140 | 85 | 28 | - | 18 | 140 | 100 | 55 | 8 | - | 18 |
| | 150 | 33 | 25 | 320 | 220 | 120 | 55 | 25 | 230 | 150 | 70 | - | 25 | 230 | 170 | 110 | 43 | - | 25 |
| | 240 | 80 | 35 | 470 | 340 | 200 | 110 | 33 | 330 | 240 | 130 | 25 | 33 | 360 | 270 | 180 | 95 | 5 | 33 |
| | 380 | 110 | 50 | 700 | 510 | 320 | 200 | 50 | 540 | 380 | 230 | 70 | 50 | 550 | 420 | 300 | 170 | 43 | 50 |
| | 500 | 170 | 80 | 1120 | 840 | 440 | 260 | 80 | 870 | 650 | 410 | 120 | 80 | 890 | 710 | 530 | 320 | 95 | 80 |
| | 620 | 210 | 100 | 1400 | 1050 | 540 | 330 | 100 | 1090 | 820 | 430 | 150 | 100 | 1110 | 890 | 670 | 420 | 120 | 100 |
| | 870 | 300 | 140 | 1960 | 1470 | 760 | 460 | 140 | 1530 | 1140 | 610 | 200 | 140 | 1560 | 1250 | 940 | 510 | 170 | 140 |
| | 1240 | 420 | 200 | 2800 | 2100 | 1090 | 660 | 200 | 2180 | 1630 | 870 | 290 | 200 | 2230 | 1780 | 1340 | 720 | 240 | 200 |
| | 1550 | 530 | 250 | 3500 | 2630 | 1360 | 820 | 250 | 2720 | 2040 | 1090 | 370 | 250 | 2790 | 2230 | 1670 | 900 | 300 | 250 |
| | 1860 | 630 | 300 | 4200 | 3150 | 1630 | 990 | 300 | 3270 | 2450 | 1300 | 440 | 300 | 3340 | 2670 | 2010 | 1080 | 360 | 300 |
| | 2480 | 850 | 400 | 5600 | 4200 | 2180 | 1320 | 400 | 4360 | 3270 | 1740 | 580 | 400 | 4460 | 3570 | 2670 | 1440 | 480 | 400 |
| | 3100 | 1060 | 500 | 6920 | 5250 | 2720 | 1650 | 500 | 5450 | 4080 | 2170 | 730 | 500 | 5570 | 4460 | 3340 | 1800 | 600 | 500 |
| | 3720 | 1270 | 600 | 8400 | 6300 | 3260 | 1980 | 600 | 6540 | 4900 | 2610 | 880 | 600 | 6680 | 5350 | 4010 | 2170 | 730 | 600 |
| | 4970 | 1690 | 800 | 11200 | 8400 | 4350 | 2640 | 800 | 8710 | 6540 | 3480 | 1170 | 800 | 8910 | 7130 | 5350 | 2890 | 970 | 800 |
| | 6210 | 2120 | 1000 | 13830 | 10500 | 5440 | 3300 | 1000 | 10890 | 8170 | 4350 | 1460 | 1000 | 11140 | 8910 | 6680 | 3610 | 1210 | 1000 |

Approximate water content:
Radiators
$V_A$ = Q [kW] x 13.5 l/kW
Panel-type radiators
$V_A$ = Q [kW] x 8.5 l/kW

Selection example
$P_{SV}$ = 3 bar
H = 13 m
Q = 40 kW (plates 90/70°C)

$V_{PH}$ = 1000 l (V buffer storage tank)

Calculate
$V_A$ = 40 kW x 8.5 l/kW + 1000 = 1340 l

$P_0 \geq \left(\frac{13}{10}\ 0.2\ \text{bar}\right) = 1.5\ \text{bar}$

From tha table:
With $P_{SV}$ = 3 bar, $P_0$ = 1.5 bar
$V_A$ = 1340 litres
$V_n$ = 250 litres (for $V_A$ max. 1360)

Selected:
1 x Reflex N 250.6 bar
1 x cap ballvalve



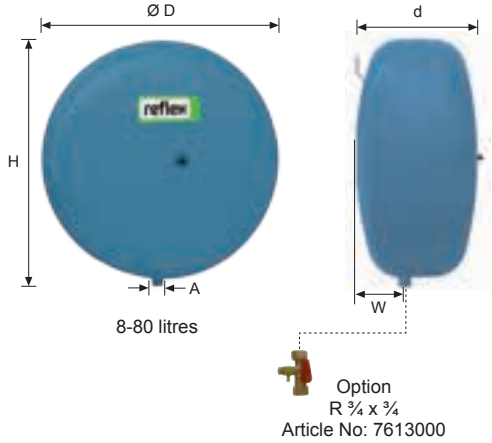

Visit www.reflex.de/pro for further information and the option of downloading free of charge.

**Reflex recommendations:**

- Select sufficiently high safety valve actuation pressure: Psv ≥ P0 + 1.5 bar
- If possible, apply a 0.2 bar margin when calculating the gas input pressure: $P0 \geq \frac{H\ [m]}{10}$ + 0.2 bar
- Due to the required supply pressure for the circulating pumps, select an pre-set pressure of at least 1 bar for roof-mounted systems also: P0 ≥ 1 bar
- In a vented system in cold conditions, set the water-side filling or initial pressure at least 0.3 bar higher than the pre-set pressure: Pfil ≥ P0 + 0.3 bar

## Refix C - DE

- For systems not subject to DIN 1988 requirements, e.g. fire-extinguishing and service water systems, geothermal energy
- For heating, heat - pump, chilled water and solar applications
- Non-replaceable bladder according to DIN EN 13831 norm part 3
- Threaded stainless steel connection
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Durable epoxy coating
- Factory pre-pressurised gas chamber (Nitrogen)
- Provided with suspension bracket for easy wall mounting




8-80 litres



Option
R ¾ x ¾
Article No: 7613000

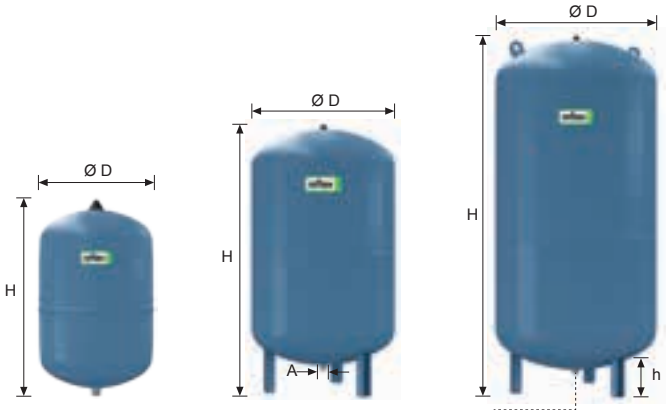
CE

10 bar/70°C

| Type 10 bar / 70°C | Article No Blue | Material Group | PU | Weight kg | Ø D mm | H mm | d mm | W mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|---|---|
| C-DE 8 | 7270900 | 17 | 96 | 3.8 | 280 | 300 | 163 | 52 | G ½ | 4.0 |
| C-DE 12 | 7270910 | 17 | 60 | 5.2 | 354 | 375 | 168 | 64 | G ½ | 4.0 |
| C-DE 18 | 7270920 | 17 | 42 | 5.6 | 354 | 375 | 222 | 76 | G ¾ | 4.0 |
| C-DE 25 | 7270930 | 17 | 42 | 8.2 | 409 | 430 | 239 | 93 | G ¾ | 4.0 |
| C-DE 35 | 7270940 | 17 | 24 | 13.0 | 480 | 500 | 240 | 97 | G ¾ | 4.0 |
| C-DE 50 | 7270950 | 17 | 20 | 15.4 | 480 | 500 | 318 | 125 | G ¾ | 4.0 |
| C-DE 80 | 7270960 | 17 | 8 | 22.4 | 634 | 654 | 325 | 135 | G ¾ | 4.0 |

## Refix DC

- For systems not subject to DIN 1988 requirements, e.g. fire-extinguishing and service water systems, geothermal energy
- For potable water, fire fighting and hydro-pneumatic well applications
- Non-replaceable diaphragm, according to DIN EN 13831 norm part 3
- All vessel parts in contact with water are coated against corrosion
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Durable epoxy coating
- Factory pre-pressurised gas chamber (Nitrogen)
- Vessels with WRAS- and/or ACS-certification upon request
- Reflex DE Junior, now with it's new name Reflex DC




25 litres

50-400 litres

500-600 litres



Option
R 1 - AG Connection
Article No: 9119204

CE WRAS ACS

10 bar/70°C

| Type 10 bar / 70°C | Article No Blue | Material Group | Weight kg | Ø D mm | H mm | h mm | A | Pre-charge pressure bar |
|---|---|---|---|---|---|---|---|---|
| DC 25 | 7200400 | 54 | 4.8 | 280 | 510 | - | G 1 | 2.0 |
| DC 50 | 7309600 | 54 | 12.5 | 409 | 588 | 113 | R 1 | 4.0 |
| DC 80 | 7309700 | 54 | 17.5 | 480 | 680 | 104 | R 1 | 4.0 |
| DC 100 | 7309800 | 54 | 21.1 | 480 | 785 | 104 | R 1 | 4.0 |
| DC 140 | 7309900 | 54 | 29.0 | 480 | 997 | 104 | R 1 | 4.0 |
| DC 200 | 7363500 | 54 | 40.0 | 634 | 883 | 91 | R 1 | 4.0 |
| DC 300 | 7363600 | 54 | 52.0 | 634 | 1184 | 93 | R 1 | 4.0 |
| DC 400 | 7363700 | 54 | 78.0 | 740 | 1173 | 81 | R 1 | 4.0 |
| DC 500 | 7363800 | 54 | 80.0 | 740 | 1392 | 82 | R 1 | 4.0 |
| DC 600 | 7363900 | 54 | 103.0 | 740 | 1629 | 73 | R 1 | 4.0 |

## Refix DE

- For systems not subject to DIN 1988 requirements, e.g. fire-extinguishing and service water systems, geothermal energy
- For potable water, water heating and hydro-pneumatic well applications
- Bladder according to DIN EN 13831 norm part 3
- From 50 litres volume with replaceable bladder
- All vessel parts in contact with water are coated against corrosion
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Fitted with manometer from Ø 1000 mm
- Threaded connections up to 1000 litres
- Flanged connections above 1000 litres
- 3000 to 10000 litres with upper flange
- Durable epoxy coating
- Factory pre-pressurised gas chamber (Nitrogen)
- Vessels with WRAS- and/or ACS-certification upon request



2-25 litres


Option
Wall-hung bracket
Article No: 7611000



33 litres



50-500 litres

10 bar

| Type 10 bar / 70°C | Article No Blue | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A |
|---|---|---|---|---|---|---|---|---|
| DE 2 | 7200300 | 40 | 288 | 1.0 | 132 | 260 | mm | G ¾ |
| DE 8 | 7301000 | 40 | 96 | 1.8 | 206 | 335 | - | G ¾ |
| DE 12 | 7302000 | 40 | 72 | 2.4 | 280 | 307 | - | G ¾ |
| DE 18 | 7303000 | 40 | 56 | 3.2 | 280 | 410 | - | G ¾ |
| DE 25 | 7304000 | 40 | 42 | 3.8 | 280 | 520 | - | G ¾ |
| DE 33 | 7303900 | 40 | 24 | 5.7 | 354 | 454 | - | G ¾ |
| DE 33 1) | 7305500 | 40 | 24 | 6.5 | 354 | 520 | - | G ¾ |
| DE 50 | 7306005 | 42 | 20 | 9.5 | 409 | 604 | 66 | G 1 |
| DE 60 | 7306400 | 42 | 18 | 11.2 | 409 | 734 | 102 | G 1 |
| DE 80 | 7306500 | 42 | 10 | 14.0 | 480 | 745 | 153 | G 1 |
| DE 100 | 7306600 | 42 | 10 | 16.0 | 480 | 850 | 153 | G 1 |
| DE 200 | 7306700 | 42 | 4 | 36.5 | 634 | 967 | 153 | G 1 ¼ |
| DE 300 | 7306800 | 42 | - | 41.5 | 634 | 1267 | 150 | G 1 ¼ |
| DE 400 | 7306850 | 42 | - | 73.0 | 740 | 1245 | 150 | G 1 ¼ |
| DE 500 | 7306900 | 42 | - | 103.0 | 740 | 1475 | 139 | G 1 ¼ |
| DE 600 | 7306950 | 42 | - | 128.0 | 740 | 1859 | 133 | G 1 ½ |
| DE 800 | 7306960 | 42 | - | 176.0 | 740 | 2325 | 263 | G 1 ½ |
| DE 1000 Ø 740 | 7306970 | 42 | - | 214.0 | 740 | 2604 | 263 | G 1 ½ |
| DE 1000 Ø 1000 | 7311405 | 44 | - | 427.0 | 1000 | 2001 | 286 | DN 65/PN 16 |
| DE 1500 | 7311605 | 44 | - | 542.0 | 1200 | 1991 | 291 | DN 65/PN 16 |
| DE 2000 | 7311705 | 44 | - | 717.0 | 1200 | 2451 | 291 | DN 65/PN 16 |
| DE 3000 | 7311805 | 44 | - | 962.0 | 1500 | 2521 | 320 | DN 65/PN 16 |
| DE 4000 | 7354000 | 44 | - | 1085.0 | 1500 | 3070 | 320 | DN 65/PN 16 |
| DE 5000 | 7354200 | 44 | - | 1050.0 | 1500 | 3635 | 320 | DN 65/PN 16 |
| DE 8000 | Upon Request | 44 | - | 1750.0 | 1500 | 5404 | 236 | DN 100/PN 16 |
| DE 10000 | | 44 | - | 1750.0 | 1500 | 6560 | 236 | DN 100/PN 16 |

1) with legs

## MBM II Bladder Rupture Detector

- For the signalling of bladder rupture in Reflex DE 60 litres and above
- Consists of an electrode and relay (factory-mounted)
- Operates 230 V / 50 Hz supply
- Three terminal dry contact
- Recommended: 1 device for each vessel

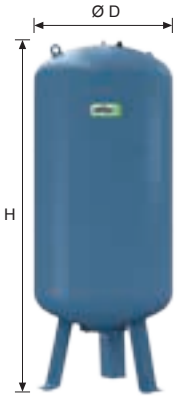
**Article No :** 7857700 **Material Group :** 86


Relay
Wall mounted (on site)

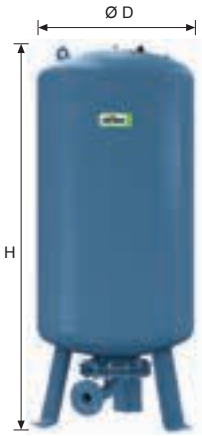

Electrode
Factory mounted



## Refix DE




600-1000 litres
Ø 740




80 - 1000 litres
Ø 740/25 bar




1000-2000 litres
Ø 1000




3000-10000 litres

16 bar

| Type 16 bar / 70°C | Article No Blue | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A |
|---|---|---|---|---|---|---|---|---|
| DE 8 | 7301006 | 40 | 96 | 2.8 | 206 | 335 | - | G ¾ |
| DE 12 | 7302105 | 40 | 72 | 3.5 | 280 | 309 | - | G ¾ |
| DE 25 | 7304015 | 40 | 24 | 5.8 | 280 | 520 | - | G ¾ |
| DE 80 | 7348600 | 42 | - | 18.0 | 480 | 745 | 153 | G 1 |
| DE 100 | 7348610 | 42 | - | 21.0 | 480 | 850 | 153 | G 1 |
| DE 200 | 7348620 | 42 | - | 57.0 | 634 | 967 | 150 | G 1 ¼ |
| DE 300 | 7348630 | 42 | - | 66.0 | 634 | 1267 | 150 | G 1 ¼4 |
| DE 400 | 7348640 | 42 | - | 116.0 | 740 | 1394 | 265 | G 1 ½ |
| DE 500 | 7348650 | 42 | - | 127.0 | 740 | 1614 | 265 | G 1 ½ |
| DE 600 | 7348660 | 42 | - | 158.0 | 740 | 1859 | 265 | G 1 ½ |
| DE 800 | 7348670 | 42 | - | 202.0 | 740 | 2324 | 265 | G1 ½ |
| DE 1000 Ø 740 | 7348680 | 42 | - | 244.0 | 740 | 2604 | 265 | G1 ½ |
| DE 1000 Ø 1000 | 7312805 | 44 | - | 530.0 | 1000 | 2001 | 286 | DN 65/PN 16 |
| DE 1500 | 7312905 | 44 | - | 685.0 | 1200 | 1991 | 291 | DN 65/PN 16 |
| DE 2000 | 7313005 | 44 | - | 895.0 | 1200 | 2451 | 291 | DN 65/PN 16 |
| DE 3000 | 7313105 | 44 | - | 1240.0 | 1500 | 2521 | 320 | DN 65/PN 16 |
| DE 4000 | 7354100 | 44 | - | 1100.0 | 1500 | 3110 | 320 | DN 65/PN 16 |
| DE 5000 | 7354300 | 44 | - | 1120.0 | 1500 | 3645 | 320 | DN 65/PN 16 |
| DE 8000 | Upon Request | 44 | - | 1750.0 | 1500 | 5404 | 236 | DN 100/PN 16 |
| DE 10000 | | 44 | - | 1750.0 | 1500 | 6560 | 236 | DN 100/PN 16 |

25 bar

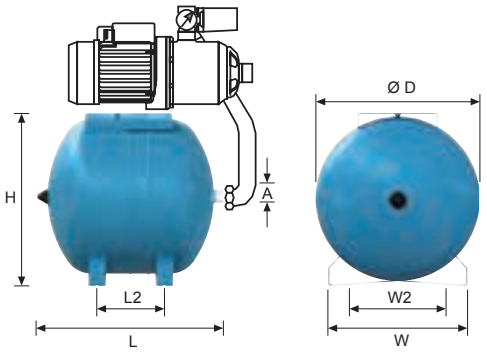
| Type 25 bar / 70°C | Article No Blue | Material Group | PU | Weight kg | Ø D mm | H mm | h mm | A |
|---|---|---|---|---|---|---|---|---|
| DE 8 | 7290100 | 40 | 60 | 2.4 | 206 | 334 | - | G ¾ |
| DE 80 | 7317600 | 44 | - | 70.0 | 450 | 942 | 159 | DN 50/PN 40 |
| DE 120 | 7313700 | 44 | - | 100.0 | 450 | 1253 | 159 | DN 50/PN 40 |
| DE 180 | 7313500 | 44 | - | 116.0 | 450 | 1528 | 159 | DN 50/PN 40 |
| DE 300 | 7313800 | 44 | - | 150.0 | 750 | 1318 | 160 | DN 50/PN 40 |
| DE 400 | 7313300 | 44 | - | 245.0 | 750 | 1423 | 160 | DN 50/PN 40 |
| DE 600 | 7321500 | 44 | - | 290.0 | 750 | 1868 | 159 | DN 50/PN 40 |
| DE 800 | 7321200 | 44 | - | 355.0 | 750 | 2268 | 159 | DN 50/PN 40 |
| DE 1000 Ø 750 | 7321000 | 44 | - | 245.0 | 750 | 2768 | 159 | DN 50/PN 40 |
| DE 1000 Ø 1000 | 7322200 | 44 | - | 800.0 | 1000 | 2051 | 242 | DN 65/PN 40 |
| DE 1500 | 7322100 | 44 | - | 850.0 | 1200 | 2071 | 291 | DN 65/PN 40 |
| DE 2000 | 7313400 | 44 | - | 960.0 | 1200 | 2531 | 240 | DN 65/PN 40 |
| DE 3000 | 7345700 | 44 | - | 1550.0 | 1500 | 2609 | 269 | DN 65/PN 40 |

## Options

- Operation pressure of 40 bar
- Flanged connection DN 150 etc.
- Inner lining according to DIN/DVGW norms
- Stainless steel connection

## Refix HW

- For systems not subject to DIN 1988 requirements, e.g. fire-extinguishing and service water systems, geothermal energy
- For potable water, fire fighting and hydro-pneumatic well applications
- Bladder, replaceable from 50 litres according to DIN EN 13831 norm part 3, max. operating temperature 70°C
- All vessel parts in contact with water are coated against corrosion
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Durable epoxy coating
- Factory pre-pressurised gas chamber (Nitrogen)
- From 50 litres volume with replaceable bladder
- Vessels with WRAS- and/or ACS-certification upon request




CE WRAS ACS

10 bar

| Type 10 bar / 70°C | Article No Blue | Material Group | PU | Weight kg | Ø D mm | H mm | L mm | L2 mm | W mm | W2 mm | A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HW 25 | 7200310 | 49 | 36 | 5.5 | 280 | 294 | 520 | 228 | 270 | 214 | G ¾ |
| HW 50 | 7200320 | 49 | 20 | 15.0 | 409 | 433 | 503 | 175 | 350 | 285 | G 1 |
| HW 60 | 7200330 | 49 | - | 16.0 | 480 | 433 | 573 | 175 | 350 | 285 | G 1 |
| HW 80 | 7200340 | 49 | 16 | 17.4 | 480 | 495 | 595 | 230 | 355 | 285 | G 1 |
| HW 100 | 7200350 | 49 | 16 | 19.4 | 480 | 495 | 705 | 340 | 355 | 285 | G 1 |

## Water Shock Arrestor

- To be used along devices where sudden pressure build-up is caused by quick shut-off such as washing machines, dish washers etc.
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Volume 165 cm3
- Durable epoxy coating
- Factory pre - pressurised gas chamber 4 bar (Nitrogen)
- 10 bar / 70°C
- Vessels with WRAS- and/or ACS-certification upon request

**Article No :** 7351000 **Material Group :** 74




CE WRAS ACS

# Refix

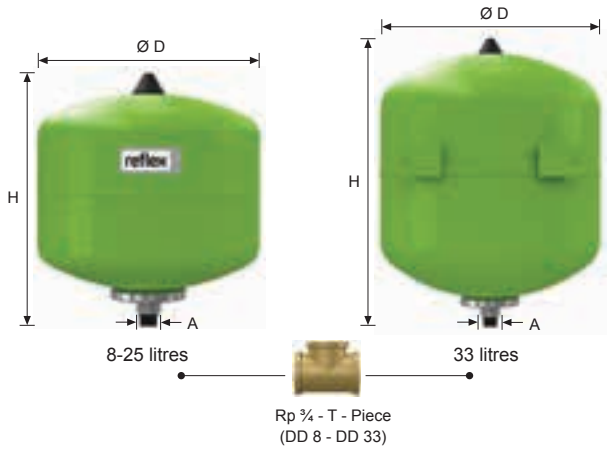
## Refix DD/DT Hygienic Pressure Vessels

- The Refix DD/DT vessels continue to deliver unparalleled performance and persistence, meeting all the tough requirements of the German DIN 4807 part 5. The shell of the tank is made of heavy gauge steel and has epoxy coating from inside.
- The dual water connection for internal circulation delivered in various sizes ranging from 1 1/4 up to DN 100. The butyl rubber bladder offers the lowest permeability compared to any material used today.



## Refix DD

- For potable water applications according to German DIN/DVGW 4807 norm part 5
- Integrated internal circulation
- Non-replaceable bladder according to German KTW-C norm
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Inner anti-corrosion coating according to German KTW-A (food stuff regulation)
- Factory pre-pressurised gas chamber 4 bar (Nitrogen)
- Can be installed with Flowjet - flow through valve
- Connectable to T-piece Rp 3/4 (included in Refix DD delivery)
- Vessels with WRAS- and/or ACS-certification upon request




CE WRAS ACS

10 bar

| Type 10 bar / 70°C | Article No Green | Article No White | Material Group | PU | Weight kg | D mm | H mm | A |
|---|---|---|---|---|---|---|---|---|
| DD 2 [1)] | 7381500 | - | 48 | 288 | 1.0 | 132 | 269 | G 3/4 |
| DD 8 | 7308000 | 7307700 | 48 | 96 | 1.9 | 206 | 345 | G 3/4 |
| DD 12 | 7308200 | 7307800 | 48 | 72 | 2.0 | 280 | 318 | G 3/4 |
| DD 18 | 7308300 | 7307900 | 48 | 56 | 2.8 | 280 | 420 | G 3/4 |
| DD 25 | 7308400 | 7380400 | 48 | 42 | 3.6 | 280 | 530 | G 3/4 |
| DD 33 | 7380700 | 7380800 | 48 | 24 | 5.8 | 354 | 468 | G 3/4 |

25 bar

| Type 10 bar / 70°C | Article No Green | Article No White | Material Group | PU | Weight kg | D mm | H mm | A |
|---|---|---|---|---|---|---|---|---|
| DD 8 | 7290200 | 7290300 | 48 | 60 | 3.4 | 206 | 345 | G ¾ |

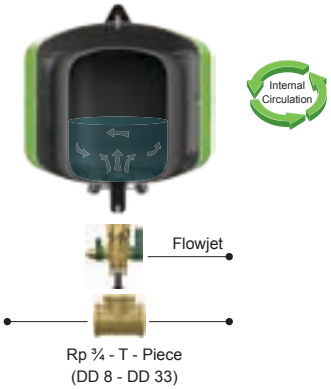
[1)] T - Piece is not included to the delivery

## Flowjet - Flow Through, Shut-off and Discharge Valve

- For easy assembly and maintenance of Refix DD pressure tanks according to DIN/DVGW 4807 norm part 5
- Max. operating pressure 16 bar
- Max. operating temperature 70°C

**Article No :** 9116799 **Material Group :** 85


Flowjet

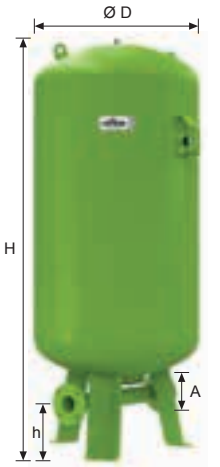


## Refix DT

- For potable water applications according to German DIN/DVGW 4807 norm part 5
- Integrated internal circulation
- In case of Rp 1/4 connection (60 - 500 litres) factory-equipped with Flowjet: flow-through, shut-off and discharge valve
- Replaceable bladder according to German KTW-C norm
- Inner anti-corrosion coating according to German KTW-A (food stuff regulation)
- Meets or exceeds EC norms for pressure vessels 97/23/EC
- Factory pre-pressurised gas chamber 4 bar (Nitrogen)
- Vessels with WRAS- and/or ACS-certification upon request
- Reflex DT5, now with it's new name Reflex DT



60-500 litres
Flowjet



600-1000 litres (Ø 740)
Duo Connection

CE ACS

10 bar

| Type 10 bar / 70°C | Connection | Article No Green | Material Group | Weight kg | Ø D mm | H mm | h mm |
|---|---|---|---|---|---|---|---|
| DT 60 | Flow jet Rp 1 ¼ | 7309000 | 47 | 15.0 | 409 | 766 | 80 |
| DT 80 | Flowjet Rp 1 ¼ | 7309100 | 47 | 17.0 | 480 | 765 | 65 |
| | DN 50/PN 16 | 7365000 | 47 | 23.0 | 480 | 765 | 100 |
| | DN 50/PN 16 | 7335705 | 47 | 24.7 | 480 | 765 | 110 |
| | DN 50/PN 16 | 7335805 | 47 | 26.8 | 480 | 765 | 115 |
| DT 100 | Flowjet Rp 1 ¼ | 7309200 | 47 | 19.2 | 480 | 870 | 65 |
| | DN 50/PN 16 | 7365400 | 47 | 26.8 | 480 | 870 | 100 |
| | DN 65/PN 16 | 7365405 | 47 | 27.8 | 480 | 870 | 110 |
| | DN 80/PN 16 | 7365406 | 47 | 28.9 | 480 | 870 | 115 |
| DT 200 | Flowjet Rp 1 ¼ | 7309300 | 47 | 37.0 | 634 | 975 | 80 |
| | DN 50/PN 16 | 7365100 | 47 | 53.0 | 634 | 975 | 105 |
| | DN 65/PN 16 | 7365105 | 47 | 54.0 | 634 | 975 | 115 |
| | DN 80/PN 16 | 7365106 | 47 | 57.0 | 634 | 975 | 120 |
| DT 300 | Flowjet Rp 1 ¼ | 7309400 | 47 | 43.5 | 634 | 1275 | 80 |
| | DN 50/PN 16 | 7365200 | 47 | 59.0 | 634 | 1275 | 105 |
| | DN 65/PN 16 | 7336305 | 47 | 60.0 | 634 | 1275 | 115 |
| | DN 80/PN 16 | 7336405 | 47 | 63.0 | 634 | 1275 | 120 |
| DT 400 | Flowjet Rp 1 ¼ | 7319305 | 47 | 73.0 | 740 | 1245 | 70 |
| | DN 50/PN 16 | 7365500 | 47 | 79.0 | 740 | 1245 | 95 |
| | DN 65/PN 16 | 7336505 | 47 | 80.0 | 740 | 1245 | 105 |
| | DN 80/PN 16 | 7336605 | 47 | 83.0 | 740 | 1245 | 110 |
| DT 500 | Flowjet Rp 1 ¼ | 7309500 | 47 | 69.0 | 740 | 1475 | 70 |
| | DN 50/PN 16 | 7365300 | 47 | 85.0 | 740 | 1475 | 90 |
| | DN 65/PN 16 | 7365307 | 47 | 86.0 | 740 | 1475 | 100 |
| | DN 80/PN 16 | 7365305 | 47 | 89.0 | 740 | 1475 | 110 |
| DT600 | DN 50/PN 16 | 7365600 | 47 | 164.0 | 740 | 1860 | 235 |
| | DN 65/PN 16 | 7336705 | 47 | 165.0 | 740 | 1860 | 235 |
| | DN 80/PN 16 | 7336806 | 47 | 177.4 | 740 | 1860 | 235 |
| DT 800 | DN 50/PN 16 | 7365700 | 47 | 204.0 | 740 | 2325 | 235 |
| | DN 65/PN 16 | 7336905 | 47 | 205.0 | 740 | 2325 | 235 |
| | DN 80/PN 16 | 7337006 | 47 | 208.0 | 740 | 2325 | 235 |
| DT 1000 Ø 740 | DN 50/PN 16 | 7365800 | 47 | 244.0 | 740 | 2604 | 235 |
| | DN 65/PN 16 | 7337105 | 47 | 245.0 | 740 | 2604 | 235 |
| | DN 80/PN 16 | 7337205 | 47 | 248.0 | 740 | 2604 | 235 |
| DT 1000 Ø 1000 | DN 50/PN 16 | 7320105 | 46 | 386.2 | 1000 | 2000 | 160 |
| | DN 65/PN 16 | 7337305 | 46 | 386.2 | 1000 | 2000 | 150 |
| | DN 100/PN 16 | 7337405 | 46 | 386.2 | 1000 | 2000 | 140 |
| DT 1500 | DN 50/PN 16 | 7320305 | 46 | 502.4 | 1200 | 2000 | 160 |
| | DN 65/PN 16 | 7337505 | 46 | 502.4 | 1200 | 2000 | 150 |
| | DN 100/PN 16 | 7337605 | 46 | 502.4 | 1200 | 2000 | 140 |
| DT 2000 | DN 50/PN 16 | 7320505 | 46 | 686.5 | 1200 | 2450 | 160 |
| | DN 65/PN 16 | 7337705 | 46 | 686.5 | 1200 | 2450 | 150 |
| | DN 100/PN 16 | 7337805 | 46 | 686.5 | 1200 | 2450 | 140 |
| DT 3000 | DN 50/PN 16 | 7320705 | 46 | 1054.0 | 1500 | 2520 | 190 |
| | DN 65/PN 16 | 7337905 | 46 | 1057.0 | 1500 | 2520 | 180 |
| | DN 100/PN 16 | 7338005 | 46 | 1057.0 | 1500 | 2520 | 170 |

## Refix DT




1000-2000 litres (Ø 1000)
Duo Connection




3000 litres
Duo Connection




16 bar

| Type 16 bar / 70°C | Connection | Article No Green | Material Group | Weight kg | Ø D mm | H mm | h mm |
|---|---|---|---|---|---|---|---|
| DT 80 | Flow jet Rp 1 ¼ | 7316005 | 47 | 27.8 | 480 | 765 | 65 |
| | DN 50/PN 16 | 7370000 | 47 | 33.0 | 480 | 765 | 100 |
| | DN 65/PN 16 | 7310306 | 47 | 34.0 | 480 | 765 | 110 |
| | DN 80/PN 16 | 7310307 | 47 | 36.0 | 480 | 765 | 115 |
| DT 100 | Flow jet Rp 1 ¼ | 7365408 | 47 | 29.9 | 480 | 870 | 65 |
| | DN 50/PN 16 | 7370100 | 47 | 35.0 | 480 | 870 | 100 |
| | DN 65/PN 16 | 7370101 | 47 | 36.0 | 480 | 870 | 110 |
| | DN 80/PN 16 | 7370102 | 47 | 38.0 | 480 | 870 | 115 |
| DT 200 | Flow jet Rp 1 ¼ | 7365108 | 47 | 55.0 | 634 | 975 | 80 |
| | DN 50/PN 16 | 7370200 | 47 | 61.0 | 634 | 975 | 105 |
| | DN 65/PN 16 | 7370205 | 47 | 62.0 | 634 | 975 | 115 |
| | DN 80/PN 16 | 7370206 | 47 | 65.0 | 634 | 975 | 120 |
| DT 300 | Flow jet Rp 1 ¼ | 7319205 | 47 | 64.0 | 634 | 1275 | 80 |
| | DN 50/PN 16 | 7370300 | 47 | 70.0 | 634 | 1275 | 105 |
| | DN 65/PN 16 | 7314205 | 47 | 71.0 | 634 | 1275 | 115 |
| | DN 80/PN 16 | 7314206 | 47 | 74.0 | 634 | 1275 | 120 |
| DT 400 | DN 50/PN 16 | 7370400 | 47 | 113.0 | 740 | 1395 | 235 |
| | DN 65/PN 16 | 7339006 | 47 | 119.0 | 740 | 1395 | 235 |
| | DN 80/PN 16 | 7339005 | 47 | 122.0 | 740 | 1395 | 235 |
| DT 500 | DN 50/PN 16 | 7370500 | 47 | 130.0 | 740 | 1615 | 235 |
| | DN 65/PN 16 | 7370507 | 47 | 131.0 | 740 | 1615 | 235 |
| | DN 80/PN 16 | 7370505 | 47 | 134.0 | 740 | 1615 | 235 |
| DT600 | DN 50/PN 16 | 7370600 | 47 | 174.0 | 740 | 1860 | 235 |
| | DN 65/PN 16 | 7339105 | 47 | 175.0 | 740 | 1860 | 235 |
| | DN 80/PN 16 | 7339205 | 47 | 178.0 | 740 | 1860 | 235 |
| DT 800 | DN 50/PN 16 | 7370700 | 47 | 224.0 | 740 | 2325 | 235 |
| | DN 65/PN 16 | 7339305 | 47 | 225.0 | 740 | 2325 | 235 |
| | DN 80/PN 16 | 7339406 | 47 | 228.0 | 740 | 2325 | 235 |
| DT 1000 Ø 740 | DN 50/PN 16 | 7370800 | 47 | 259.0 | 740 | 2604 | 235 |
| | DN 65/PN 16 | 7339505 | 47 | 260.0 | 740 | 2604 | 235 |
| | DN 80/PN 16 | 7339605 | 47 | 263.0 | 740 | 2604 | 235 |
| DT 1000 Ø 1000 | DN 65/PN 16 | 7320205 | 46 | 488.0 | 1000 | 2000 | 160 |
| | DN 80/PN 16 | 7339705 | 46 | 488.0 | 1000 | 2000 | 150 |
| | DN 100/PN 16 | 7339805 | 46 | 488.0 | 1000 | 2000 | 140 |
| DT 1500 | DN 65/PN 16 | 7320405 | 46 | 630.0 | 1200 | 2000 | 160 |
| | DN 80/PN 16 | 7339905 | 46 | 630.0 | 1200 | 2000 | 150 |
| | DN 100/PN 16 | 7340005 | 46 | 630.0 | 1200 | 2000 | 140 |
| DT 2000 | DN 65/PN 16 | 7320605 | 46 | 850.0 | 1200 | 2450 | 160 |
| | DN 80/PN 16 | 7340105 | 46 | 850.0 | 1200 | 2450 | 150 |
| | DN 100/PN 16 | 7340205 | 46 | 850.0 | 1200 | 2450 | 140 |
| DT 3000 | DN 65/PN 16 | 7320805 | 46 | 1240.0 | 1500 | 2520 | 190 |
| | DN 80/PN 16 | 7340305 | 46 | 1240.0 | 1500 | 2520 | 180 |
| | DN 100/PN 16 | 7340405 | 46 | 1240.0 | 1500 | 2520 | 170 |

**Options**
- Operation pressure >16 bar
- MBM connection with tanks over 1000 litres

# Accessories

## German TÜV Certification

**German TÜV factory test certification**

**Article No :** 7945610 **Material Group :** 95

## Reflex Wall - Hung Holder

- Reflex Wall - Hung holder for vessels 8 - 25 litres
- Bracket with tightening strap for vertical mounting

**Article No :** 7611000 **Material Group :** 36



## MBM II Bladder Rupture Detector

- For the signalling of bladder rupture in Reflex DT
- Consists of an electrode and relay (factory-mounted)
- Operates 230 V / 50 Hz supply
- Three terminal dry contact
- Recommended: 1 device for each vessel

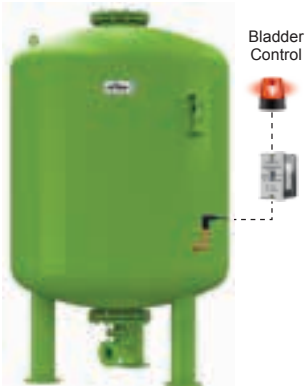
**Article No :** 7857700 **Material Group :** 86



Relay
Wall mounted (on site)



Electrode
Factory mounted




## Digital Pressure Gauge

- Display range up to approximately 9 bar
- Pressure indication in bar, kPa, psi

**Article No :** 9119198 **Material Group :** 86

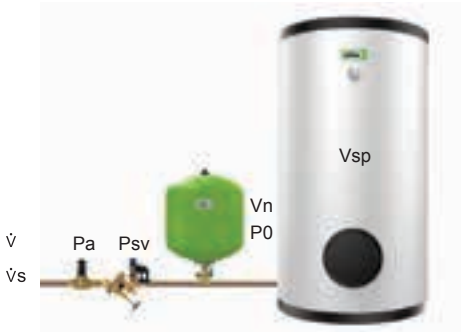


## Quick Selection Table For Hot Water Heating Applications

### Selection of the nominal vessel volume ( Vn )

10°C Cold water inlet temperature

60°C Storage temperature




- Preset press. gas $P_0$ = 3.0 bar
- Set press. of the pressure reducer $P_a \geq 3.2$ bar

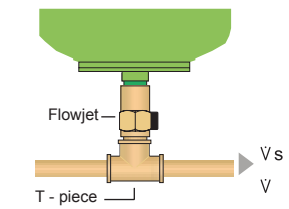
| PsV [bar] | 6 | 7 | 8 | 10 |
|---|---|---|---|---|
| VSt [litres] | Nominal volume Refix [litres] | | | |
| 90 | 8 | 8 | 8 | 8 |
| 100 | 8 | 8 | 8 | 8 |
| 120 | 8 | 8 | 8 | 8 |
| 130 | 8 | 8 | 8 | 8 |
| 150 | 8 | 8 | 8 | 8 |
| 180 | 12 | 8 | 8 | 8 |
| 200 | 12 | 12 | 8 | 8 |
| 250 | 12 | 12 | 12 | 8 |
| 300 | 18 | 18 | 12 | 12 |
| 400 | 25 | 18 | 18 | 18 |
| 500 | 25 | 25 | 18 | 18 |
| 600 | 33 | 25 | 25 | 18 |
| 700 | 33 | 33 | 25 | 25 |
| 800 | 60 | 33 | 33 | 25 |
| 900 | 60 | 60 | 33 | 25 |
| 1000 | 60 | 60 | 33 | 33 |
| 1500 | 80 | 80 | 60 | 60 |
| 2000 | 100 | 100 | 80 | 80 |
| 3000 | 100 | 100 | 100 | 100 |

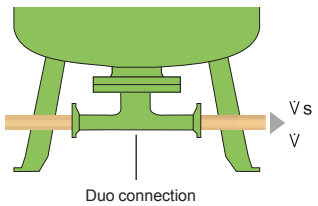
- Pre-charge press. gas $P_0$ = 4.0 bar = factory setting
- Set press. of the pressure reduce $P_a \geq 4.2$ bar

| PsV [bar] | 6 | 7 | 8 | 10 |
|---|---|---|---|---|
| VSt [litres] | Nominal volume Refix [litres] | | | |
| 90 | 8 | 8 | 8 | 8 |
| 100 | 12 | 8 | 8 | 8 |
| 120 | 12 | 8 | 8 | 8 |
| 130 | 12 | 8 | 8 | 8 |
| 150 | 18 | 12 | 8 | 8 |
| 180 | 18 | 12 | 8 | 8 |
| 200 | 18 | 12 | 12 | 8 |
| 250 | 25 | 18 | 12 | 12 |
| 300 | 25 | 18 | 18 | 12 |
| 400 | 33 | 33 | 18 | 18 |
| 500 | 60 | 33 | 25 | 18 |
| 600 | 60 | 60 | 25 | 25 |
| 700 | 60 | 60 | 33 | 25 |
| 800 | 80 | 60 | 60 | 25 |
| 900 | 80 | 60 | 60 | 33 |
| 1000 | 100 | 60 | 60 | 60 |
| 1500 | 200 | 100 | 80 | 60 |
| 2000 | 200 | 200 | 100 | 80 |
| 3000 | 300 | 200 | 200 | 100 |

## Selection according to peak volume flow Vs

When the nominal volume of the Refix unit has been selected, it must be checked in the case of water-carrying vessels whether the peak volume flow V s resulting from the piping calculation according to DIN 1988 can be implemented on the Refix. If this is the case, the 8-33 litre vessel of the Refix DD unit may have to be replaced with a 60 litre Refix DT 60 vessel to enable a higher flow rate. Alternatively, a Refix DD unit with an appropriately dimensioned T-piece may be used.




| Available connections | | Recomm. max. peak flow V̇s* | Actual Pressure loss with volume flow V̇ |
|---|---|---|---|
| Refix DD<br>With or without Flowjet<br>T - piece duct | 8-33 litres<br>Rp ¾ = Standard<br>Rp 1 (on site) | ≤ 2.5 m³/h<br>≤ 4.2 m³/h | $\Delta p = 0.03 \text{ bar} \cdot \left(\frac{\dot{V}\,[m^3/h]}{2.5\ m^3/h}\right)^2$<br>negligible |
| Refix DT<br>With Flowjet Rp 1 ¼ | 60-500 litres | ≤ 7.2 m³/h | $\Delta p = 0.04 \text{ bar} \cdot \left(\frac{\dot{V}\,[m^3/h]}{7/2\ m^3/h}\right)^2$ |
| Refix DT<br>Duo connection DN 50<br>Duo connection DN 65<br>Duo connection DN 80<br>Duo connection DN 100 | 80-3000 litres | ≤ 15 m³/h<br>≤ 27 m³/h<br>≤ 36 m³/h<br>≤ 56 m³/h | $\Delta p = 0.14 \text{ bar} \cdot \left(\frac{\dot{V}\,[m^3/h]}{15\ m^3/h}\right)^2$<br>$\Delta p = 0.11 \text{ bar} \cdot \left(\frac{\dot{V}\,[m^3/h]}{27\ m^3/h}\right)^2$<br>negligible |
| Refix DE, DC, CD-E<br>(non water-carrying) | | Unlimited | $\Delta p = 0$ |

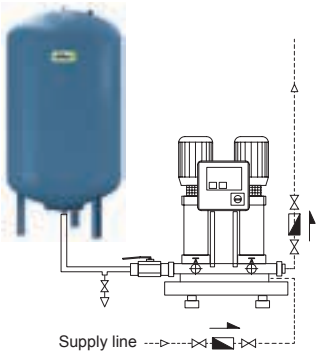
* Calculated for a speed of 2 m/s

For detailed calculations, refer to our brochure “Pressurisation Systems - Planning, Calculation, Equipment” or visit www.reflex.de to use our Reflex Pro calculation software

## Refix DE Applications

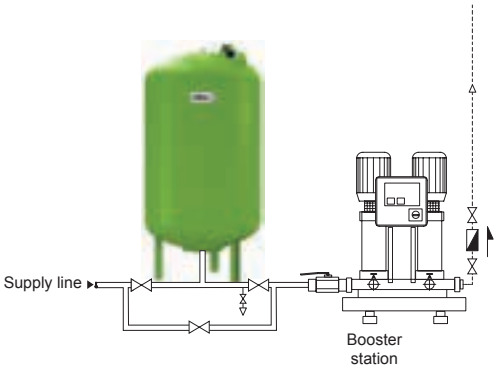
### DE vessel on a booster set

Pressure vessels are installed on a pressure booster system in order to reduce pump starts and to eliminate pump starts at small draw-offs. This reduces pump wear and extends pump life time.



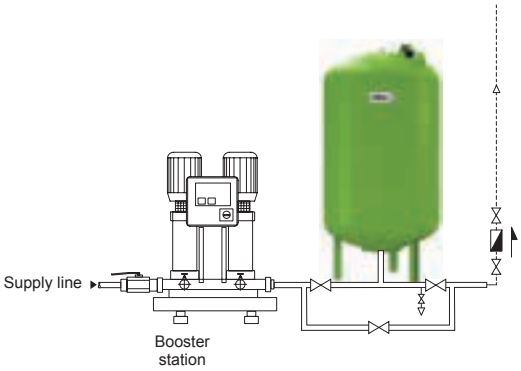

### DT vessel on a booster set - suction side

Pressure vessel with flow-through function according to DIN 4807, part 5. Inside epoxy coating in combination with butyl rubber bladder ensures to fulfil the most strict German food stuff regulations such as KTW-C (bladder) and KTW-A (inner lining). If supply pressure from the water mains is too low a pressure vessel can advantageously be installed on the suction side of the booster system. This will avoid cavitation in the pump, and also will eliminate to risk of creating vacuum in the water mains by pump starts. This will reduce the pump wear.



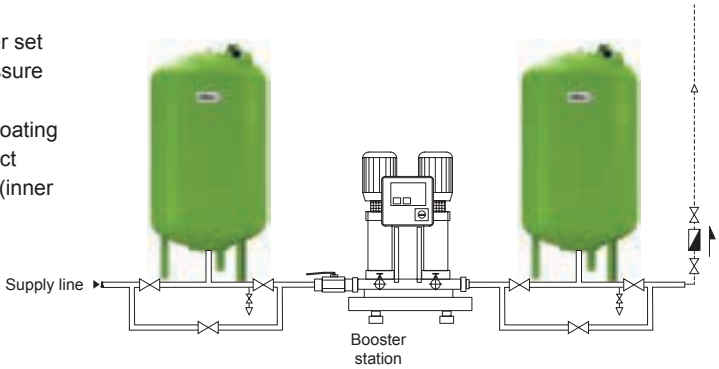

### DT vessel on a booster set - discharge side

Pressure vessel with flow-through function according to DIN 4807, part 5. Inside epoxy coating in combination with butyl rubber bladder ensures to fulfil the most strict German food stuff regulations such as KTW-C (bladder) and KTW-A (inner lining). With the vessel mounted on the discharge side of the booster system, the numbers of pump starts are reduced and also pump starts at small draw-offs are totally eliminated. Maintenance of the vessel can be done without shutting off the water supply with the shown pipework.




### DT vessel on a booster set - suction and discharge side

Installation of a pressure vessel on both sides of the pressure booster set can also be necessary. See explanation above. By using the DT pressure vessel according DIN 4807, part 5 there is a high grade of protection against contamination of the cold water supply mains. Inside epoxy coating in combination with butyl rubber bladder ensures to fulfil the most strict German food stuff regulations such as KTW-C (bladder) and KTW-A (inner lining).



# Notes




The Reflex brand name is well known in Europe and throughout the world as a major leader in pressure control technology for heating, chilled and potable water applications. Our world wide growth has allowed us to build several state-of-the-art manufacturing facilities supplying the industry with outstanding quality products. Reflex Winkelmann GmbH having its headquarters in the Westfalian city of Ahlen is not only a recognized leader in expansion vessels but also a significant manufacturer of advanced system solutions such as compressor and pump-controlled pressurisation systems, automatic air separation systems and hot water heaters.




Reflex has achieved its significant global growth today thanks to the unique combination of its world-class manufacturing skills, dedication to high-product quality at an affordable price and its commitment to continuous technical training of its people, our most precious resource. Our tradition goes back to 1898. This family oriented company started its core business in the elaboration of steel. A business in which we are recognised leaders today. The Heinrich Winkelmann Group form the parent company to a whole group of diversified manufacturing companies serving the heating segment and the whole automotive industry with over 3.100 employees. A tradition of more than a hundred years in this business makes us real experts today.

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reflex
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