# Anderson Greenwood™ Type 4142HF Pressure Relief Valve

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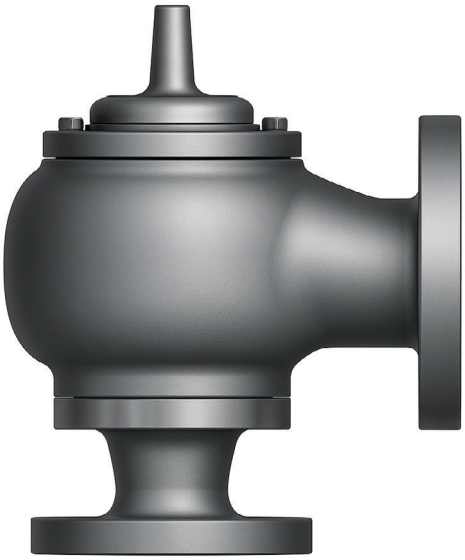

***Figure 1.*** *Type 4142HF Pressure Relief Valve*

**WARNING**

**Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.**

**Anderson Greenwood Pressure Relief Valve must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Pressure Management.**

**The relief valve must be isolated from tank pressure before servicing. All gas/vapour must be blocked and pressure safety vented. Wear appropriate protective clothing and breathing apparatus if hazardous gas/vapours are present. Use appropriate lifting equipment where required.**

## Introduction

### Scope of the Manual

This manual provides instructions for installation, operation, maintenance and parts ordering of the Type 4142HF Pressure Relief Valve (PRV).

## Specifications

This section lists the specifications for the Type 4142HF Pressure Relief Valve. Factory specification is stamped on the nameplate fastened on the Type 4142HF Pressure Relief Valve at the factory.

**Valve Sizes**

2, 3, 4, 6, 8, 10 and 12 in. / DN 50, 80, 100, 150, 200, 250 and 300

**Pallet Designs**

**VLP:** For very low pressure
**LP:** For low pressures
**HP:** For high pressure

**Pressure Pallet Ranges**

See Table 3

**Approximate Weights**

See Table 4

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.

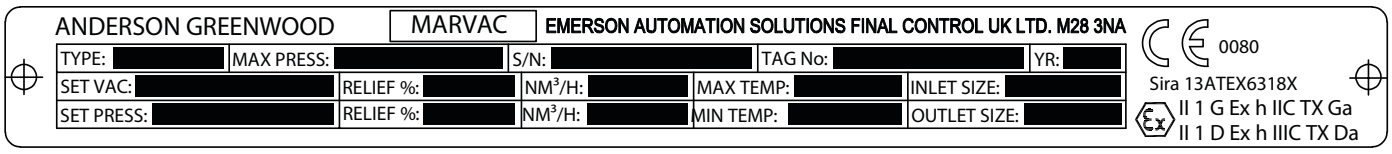


***Figure 2.*** *Type 4142HF ATEX Nameplate*

## Product Description

The Anderson Greenwood™ Type 4142HF PRV is employed in gas/vapor service applications for low pressure storage tanks, vessels or applications requiring low pressure protection with high capacity flow requirements. This product helps to prevent damage to the tank and also prevents the tank's contents from escaping, ensuring the safety of personnel and the surrounding environment.

Pressure relief valves are designed to limit the maximum pressure that can exist in a tank due to inflow of the tank contents or due to changes in temperature as a result of environmental conditions.

The Anderson Greenwood Type 4142HF PRV consists of an inlet connection and a pressure seat discharges directly to atmosphere.

- For ease of maintenance, the pressure seat is removable.
- PTFE coated internals are supplied as an all-weather option.

## Principle of Operation

The Anderson Greenwood Type 4142HF PRV is a direct acting vent valve based on the weight of the pallet to keep the valve closed. When tank pressure acting on the seat sealing area equals the opposing force acting on the pallet, the valve is on the threshold of opening. Any further increase in pressure will cause the pressure pallet to lift allowing the contents of the tank to vent through the valve (out-breathing).

In order for the valve to open and achieve its design lift, an overpressure will be required. The Type 4142HF PRV has been designed to achieve this design lift and rated capacity within 10% overpressure. Since the weight on the pallet determines the set pressure of the valve, the settings are changed by varying the weight on the pallet.

## Set Pressure Verification

**CAUTION**

**Whenever the cover is removed and re-fitted, ensure correct engagement of the pallet stem in the weatherhood guide tube.**

If the pressure settings are to be verified prior to installation, it is recommended that a test rig with a suitable accumulator be used having the following general features:

- Connection to the accumulator tank should ensure a negligible pressure drop between the accumulator and the test valve.
- Observed pressure shall be measured in the accumulator tank.
- The flange on which the valve is mounted shall be level.
- The valve should be tested using clean air or nitrogen.

Remove valve from shipping container and remove all packaging. Check that the pressure setting, the rated capacity and other details on the nameplate are correct.

For set pressure verification, the test apparatus needs to limit the maximum flow rate into the accumulator such that a pressure drop measured in the accumulator can be observed when the valve set pressure is reached.

1. Ensure that the test rig is clean and fasten the valve securely to the test flange.
2. Check nameplate for required set pressure.
3. Increase the inlet pressure slowly until the pallet assembly can be seen to be gently lifting and reseating on the seat. The inlet pressure at this point is the adjusted set pressure and should coincide with the point at which no further rise in inlet pressure is observed. Repeat a further two times to ensure repeatability.

## Set Pressure Adjustment (see Figure 5)

The valve has been factory set to the required setting, however, if it is necessary to make a set pressure adjustment this can be done as follows:

1. Remove nuts (key 7) and washers (key 6) then remove weatherhood (key 3).
2. The set pressure can be increased or reduced by adding or removing lead weights which can be supplied in various settings.
3. Refit weatherhood (key 3) and secure using nuts (key 7) and washers (key 6).
4. Repeat set pressure verification and repeat set pressure adjustment if required.

If it is not possible to verify the set pressure on a test rig, the required setting can be verified by measuring the combined weight of the pallet and installed weights. Refer to Table 4 for combined weight and equivalent set pressures.

# Installation

**⚠ WARNING**

**Personal injury, property damage, equipment damage or leakage due to escaping steam or bursting of pressure containing parts may result if this equipment is over pressured or is installed where service conditions could exceed the limits given in the specifications or where conditions exceed any ratings of the adjacent piping or piping connections.**

**To avoid such injury or damage, provide pressure-relieving or pressure-limiting device.**

The mating connection to the tank should be flat machined horizontal flange and should be thoroughly cleaned to remove all foreign matter which could lead to valve leakage if trapped between the valve seat and the pallet. The bore diameter of the tank connection nozzle should be at least equal to the inlet bore of the valve connection. For correct valve operation, all discharge piping shall be adequately supported and there shall be no external loads applied to the valve body.

Fit an inlet gasket to the mating flange ensuring it does not obstruct the flow path and install the valve. Ensure that the main axis of the valve is perpendicular. Flange bolting should be tightened uniformly to ensure a good seal.

For valves of aluminium construction, appropriate flat face flanges should be used and a full face gasket fitted.

**Note**

**Storage tank inlet piping configurations should conform to recognised standards. Different configurations will develop different inlet pressure losses when the valve is flowing. This should be taken into consideration when sizing the valve for the application.**

It is recommended that the external surfaces of carbon steel valves are painted immediately after installation.

Any discharge pipework should be adequately supported to prevent any loads being applied to the valve body and should have adequate drainage to prevent accumulation of liquids on the downstream side.

Discharge pipework must be at least equal in size to the valve outlet and any built up back pressure in the discharge line should be limited to 10% of the valve set pressure.

Discharge lines should be positioned so as to allow safe disposal of tank contents under relief conditions.

# Valve Refurbishment

With valve in component parts thoroughly clean all surfaces with a suitable solvent and check for wear, corrosion or other forms of damage. Particular attention should be given to the sealing face of the valve seat.

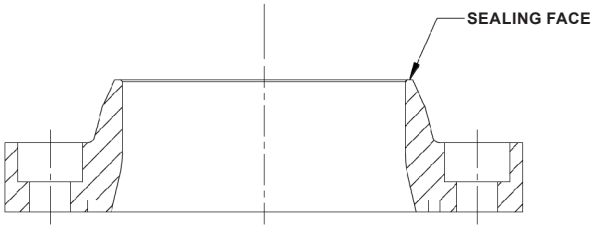


***Figure 3.*** *Sealing Face of Valve Seat*

***Table 1.*** *Seat Lap Band Widths*

| VALVE SIZE, in. / DN | NOMINAL WIDTH, in. / mm | MAXIMUM WIDTH, in. / mm |
|---|---|---|
| 2 / 50 | 0.039 / 1 | 0.059 / 1.5 |
| 3 / 80 | 0.039 / 1 | 0.059 / 1.5 |
| 4 / 100 | 0.047 / 1.2 | 0.071 / 1.8 |
| 6 / 150 | 0.059 / 1.5 | 0.071 / 1.8 |
| 8 / 200 | 0.059 / 1.5 | 0.087 / 2.2 |
| 10 / 250 | 0.079 / 2 | 0.12 / 3 |
| 12 / 300 | 0.079 / 2 | 0.12 / 3 |

Slight damage can be removed by lapping the seat face (removing guide posts); however, care should be taken not to increase the width of the seat face beyond those given in Table 1. If successive refurbishments or severe damage requires the seat to be re-machined, consult the factory for approved dimensions.

Discard and replace any damaged parts plus all soft goods including:

- O-rings
- Diaphragms
- Backing Disks
- Spacer Disks
- Gasket

Also discard and replace the pallet disk. See Table 6 for replacement parts.

## Testing Set Pressure

The pressure settings should be checked and if necessary adjusted

## Maintenance

**⚠ WARNING**

**The relief valve must be isolated from tank pressure before servicing or removing. All gas/vapor must be blocked and pressure safely vented. Wear appropriate protective clothing and breathing apparatus if hazardous gas/vapors are present.**

Regular inspection should be carried out to ensure that the pressure port is free from debris and that nothing preventing the correct operation of the valve is present. Maintenance should be performed at regular intervals and should be carried out by suitably qualified personnel in an appropriately equipped workshop. Alternatively, the valve should be returned to the manufacturer or suitably authorised agent for service/repair. During transport to the workshop the valve should be kept vertical to prevent damage to the internals.

## Valve Disassembly (see Figure 5)

Before the valve is disassembled it should be thoroughly cleaned to remove potential hazards from process contamination.

1. Remove hex set screws (key 7), washers (key 5), cover (key 2) and O-ring (key 8). Remove shroud (key 3.4) and lift out pallet assembly (key 10) complete with pressure setting weights (for higher set valves, remove some of the lead before lifting out the pallet assembly).
2. Remove seat (key 3.1) complete with guide posts (key 3.2) by removing cap-screws (key 4). This will separate the upper body (key 1) from the inlet flange (key 9). Remove gasket (key 6) and O-ring (key 3.3).

## Pallet Disassembly (see Figure 6)

### VLP/LP Pallet disassembly for 2, 3, 4 in. / DN 50, 80, 100

1. Remove nut (key 4) and washer (key 5), where used, to release stem (key 3) from assembly.
2. Separate pallet disk (key 2), diaphragm (key 6), pallet (key 1) and any weights taking care to identify weights removed to help re-assembly.

### VLP/LP Pallet disassembly for 6, 8, 10, 12 in. / DN 150, 200, 250, 300

1. Remove nut (key 4) and washer (key 5) to release stem (key 3) from assembly.
2. Separate pallet disk (key 2), diaphragm (key 6), backing disk (key 7), spacer disk (key 8), pallet (key 1) and any weights taking care to identify weights removed to help re-assembly.

### HP Pallet disassembly for 2, 3, 4, 6 in. / DN 50, 80, 100, 150

1. Remove nut (key 4) and washer (key 5) to release stem (key 3) from assembly.
2. Separate pallet disk (key 2), diaphragm (key 6), backing disk (key 7), spacer disk (key 8), disk (key 9), pallet (key 1) and any weights taking care to identify weights removed to help re-assembly.

### HP Pallet disassembly for 8, 10, 12 in. / DN 200, 250, 300

1. Remove nut (key 4) and washer (key 5) to release stem (key 3) from assembly.
2. Separate pallet disk (key 2), diaphragm (key 6), backing disk (key 7), spacer disk (key 8), disk (key 9), pallet (key 1), support plate (key 10) and any weights taking care to identify weights removed to help re-assembly.

## Pallet Re-assembly (see Figure 6)

### VLP/LP Pallet assembly for 2, 3, 4 in. / DN 50, 80, 100

Assemble pallet (key 1), diaphragm (key 6) and pallet disk (key 2), to stem (key 3) and secure using washer (key 5) where used and nut (key 4).

### VLP/LP Pallet assembly for 6, 8, 10, 12 in. / DN 150, 200, 250, 300

Assemble pallet (key 1), spacer disk (key 8), backing disk (key 7), diaphragm (key 6) and pallet disk (key 2), to stem (key 3) and secure using washer (key 5) and nut (key 4).

### HP Pallet assembly for 2, 3, 4, 6 in. / DN 50, 80, 100, 150

Assemble pallet (key 1), disk (key 9), spacer disk (key 8), backing disk (key 7), diaphragm (key 6) and pallet disk (key 2), to stem (key 3) and secure using washer (key 5) and nut (key 4).

### HP Pallet assembly for 8, 10, 12 in. / DN 200, 250, 300

Assemble support plate (key 10), pallet (key 1), disk (key 9), spacer disk (key 8), backing disk (key 7), diaphragm (key 6) and pallet disk (key 2), to stem (key 3) and secure using washer (key 5) and nut (key 4).

If required, PTFE tape can be applied to stem threads and locking compound used to secure the nut.

## Valve Re-assembly (see Figure 5)

**CAUTION**

**Whenever the weatherhood is removed and re-fitted, ensure correct engagement of the pallet stem.**

1. Re-assemble guide posts (key 3.2) (if removed) and O-ring (key 3.3) to seat (key 3.1).
2. Fit new gasket (key 6) between upper body (key 1) and inlet flange (key 9).
3. Secure seat (key 3.1) and upper body (key 1) to inlet flange (key 9) using capscrews (key 4) ensuring that O-ring is not dislodged during assembly.
4. Re-install pallet ensuring the pallet slides easily between the guide posts.
5. Return setting weights.
6. Assemble shroud (key 3.4) which should be installed over the guide posts (key 3.2) before the cover is assembled.
7. Assemble O-ring (key 8) to cover (key 2), assemble cover to upper body (key 1) ensuring that O-ring is not dislodged during assembly.
8. Secure using washers (key 5), and hex set screws (key 7).

## Pallet Identification

### Pressure Ranges

There are three pallet designs with the following designations which each cover the respective pressure ranges given in Table 3.

VLP - This is a plain spun pallet suitable for very low pressures.

LP - This is similar to the VLP pallet apart from the material thickness and is suitable for slightly higher pressures. See Table 2 for comparison of material thickness.

HP - This construction uses a substantial disk in combination with a spun pallet and is suitable for use up to the highest pressures.

**Note**

**2, 3 and 4 in. / DN 50, 80 and 100 VLP and LP designs contain a recess in the pallet to act as an air cushion to assist seat tightness.**

**8,10 and 12 in. / DN 200, 250 and 300 HP pallets also use a pallet support plate on the back face of the pallet.**

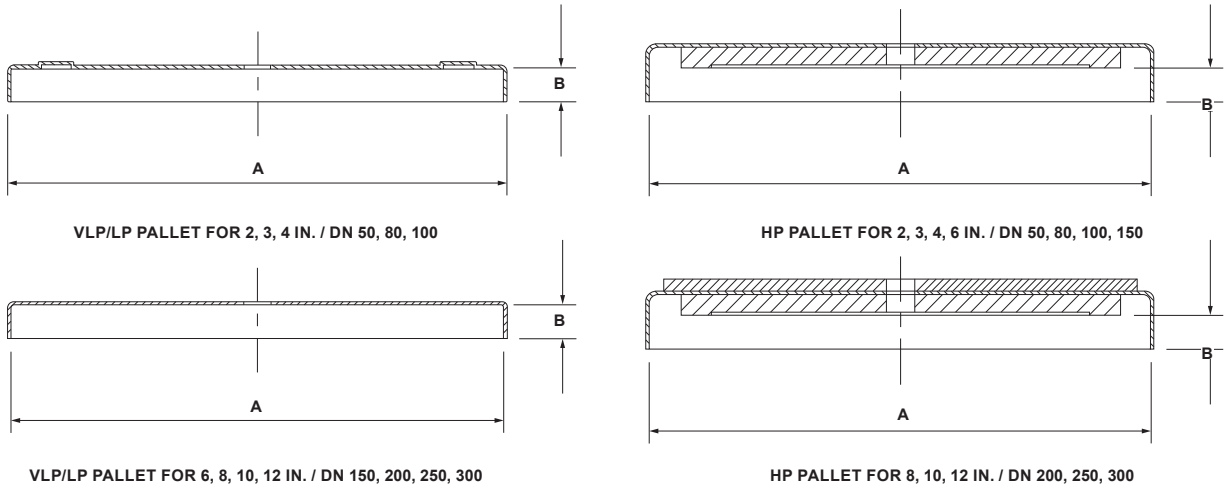


***Figure 4.*** *Pallet Designs with Pressure Ranges*

***Table 2.*** *Pallet Thickness, in. / mm*

| PALLET | 2 in. / DN 50 | 3 in. / DN 80 | 4 in. / DN 100 | 6 in. / DN 150 | 8 in. / DN 200 | 10 in. / DN 250 | 12 in. / DN 300 |
|---|---|---|---|---|---|---|---|
| LP | 0.039 / 1 | 0.039 / 1 | 0.039 / 1 | 0.059 / 1.5 | 0.059 / 1.5 | 0.059 / 1.5 | 0.059 / 1.5 |
| VLP | 0.024 / 0.6 | 0.024 / 0.6 | 0.024 / 0.6 | 0.024 / 0.6 | 0.024 / 0.6 | 0.024 / 0.6 | 0.024 / 0.6 |

***Table 3.*** *Pressure Pallet Ranges, in. w.c. / mbar*

| NOMINAL SIZE, in. / DN | TRIM MATERIAL | VLP PALLET | | LP PALLET | | HP PALLET | |
|---|---|---|---|---|---|---|---|
| | | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum |
| 2 / 50 | Aluminium | 0.48 / 1.2 | 0.96 / 2.4 | 0.96 / 2.4 | 2.8 / 7.0 | 2.8 / 7.0 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 2.3 / 5.6 | 2.3 / 5.6 | 5.6 / 14 | 5.6 / 14 | 40 / 100 |
| 3 / 80 | Aluminium | 0.44 / 1.1 | 0.64 / 1.6 | 0.64 / 1.6 | 2.8 / 7.0 | 2.8 / 7.0 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 1.5 / 3.7 | 1.5 / 3.7 | 5.6 / 14 | 5.6 / 14 | 40 / 100 |
| 4 / 100 | Aluminium | 0.44 / 1.1 | 0.60 / 1.5 | 0.60 / 1.5 | 2.8 / 7.0 | 2.8 / 7.0 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 1.4 / 3.4 | 1.4 / 3.4 | 5.6 / 14 | 5.6 / 14 | 40 / 100 |
| 6 / 150 | Aluminium | 0.44 / 1.1 | 0.76 / 1.9 | 0.76 / 1.9 | 2.8 / 7.0 | 2.8 / 7.0 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 1.7 / 4.2 | 1.7 / 4.2 | 5.6 / 14 | 5.6 / 14 | 40 / 100 |
| 8 / 200 | Aluminium | 0.44 / 1.1 | 0.88 / 2.2 | 0.88 / 2.2 | 4.8 / 12 | 4.8 / 12 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 1.8 / 4.5 | 1.8 / 4.5 | 8.0 / 20 | 8.0 / 20 | 40 / 100 |
| 10 / 250 | Aluminium | 0.44 / 1.1 | 0.84 / 2.1 | 0.84 / 2.1 | 5.2 / 13 | 5.2 / 13 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 1.7 / 4.3 | 1.7 / 4.3 | 8.8 / 22 | 8.8 / 22 | 40 / 100 |
| 12 / 300 | Aluminium | 0.44 / 1.1 | 0.80 / 2.0 | 0.80 / 2.0 | 5.6 / 14 | 5.6 / 14 | 40 / 100 |
| | 316 SST | 1.0 / 2.5 | 1.6 / 4.1 | 1.6 / 4.1 | 9.6 / 24 | 9.6 / 24 | 40 / 100 |

***Table 4.*** *Equivalent Weights for Pressure Settings*

| INLET SIZE, in. / DN | 2 / 50 | | 3 / 80 | | 4 / 100 | | 6 / 150 | | 8 / 200 | | 10 / 250 | | 12 / 300 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN SEALING AREA, $in.^2$ / $mm^2$ | 4.53 / 2923 | | 9.971 / 6433 | | 17.603 / 11,357 | | 39.662 / 25,588 | | 69.829 / 45,051 | | 109.563 / 70,686 | | 156.894 / 101,222 | |
| PRESSURE, in. w.c / mbar | oz | g | oz | g | oz | g | oz | g | oz | g | oz | g | oz | g |
| 0.4 / 1 | 1.1 | 31 | 2.3 | 65 | 4.1 | 116 | 9.2 | 261 | 0.2 | 6 | 9.4 | 266 | 4.4 | 125 |
| 0.8 / 2 | 2.1 | 60 | 4.6 | 130 | 8.2 | 232 | 2.4 | 68 | 0.4 | 11 | 2.9 | 82 | 8.9 | 252 |
| 1.2 / 3 | 3.2 | 91 | 6.9 | 196 | 12.3 | 349 | 11.6 | 329 | 0.6 | 17 | 12.3 | 349 | 13.3 | 377 |
| 1.6 / 4 | 4.2 | 119 | 9.3 | 264 | 0.4 | 11 | 4.8 | 136 | 0.9 | 26 | 5.8 | 164 | 1.7 | 48 |
| 2 / 5 | 5.3 | 150 | 11.6 | 329 | 4.4 | 125 | 14.0 | 397 | 1.1 | 31 | 15.2 | 431 | 6.2 | 176 |
| 2.4 / 6 | 6.3 | 179 | 13.9 | 394 | 8.5 | 241 | 7.3 | 207 | 1.3 | 37 | 8.7 | 247 | 10.6 | 301 |
| 2.8 / 7 | 7.4 | 210 | 0.2 | 6 | 12.6 | 357 | 0.5 | 14 | 1.5 | 43 | 2.1 | 60 | 15.0 | 425 |
| 3.2 / 8 | 8.4 | 238 | 2.5 | 71 | 0.7 | 20 | 9.7 | 275 | 1.7 | 48 | 11.5 | 326 | 3.5 | 99 |
| 3.6 / 9 | 9.5 | 269 | 4.8 | 136 | 4.8 | 136 | 2.9 | 82 | 1.9 | 54 | 5.0 | 142 | 7.9 | 224 |
| 4 / 10 | 10.5 | 298 | 7.2 | 204 | 8.9 | 252 | 12.1 | 343 | 2.2 | 62 | 14.4 | 408 | 12.3 | 349 |
| 4.8 / 12 | 12.6 | 357 | 11.8 | 335 | 1.1 | 31 | 14.5 | 411 | 2.6 | 74 | 1.3 | 37 | 5.2 | 147 |
| 5.6 / 14 | 14.7 | 417 | 0.4 | 11 | 9.2 | 261 | 0.9 | 26 | 3.0 | 85 | 4.2 | 119 | 14.1 | 400 |
| 6.4 / 16 | 0.8 | 23 | 5.0 | 142 | 1.4 | 40 | 3.4 | 96 | 3.5 | 99 | 7.1 | 201 | 6.9 | 196 |
| 7.2 / 18 | 2.9 | 82 | 9.7 | 275 | 9.6 | 272 | 5.8 | 164 | 3.9 | 111 | 10.0 | 283 | 15.8 | 448 |
| 8 / 20 | 5.0 | 142 | 14.3 | 405 | 1.8 | 51 | 8.2 | 232 | 4.3 | 122 | 12.9 | 366 | 8.7 | 247 |
| 8.8 / 22 | 7.1 | 201 | 2.9 | 82 | 9.9 | 281 | 10.6 | 301 | 4.8 | 136 | 15.7 | 445 | 1.5 | 43 |
| 9.6 / 24 | 9.2 | 261 | 7.6 | 215 | 2.1 | 60 | 13.1 | 371 | 5.2 | 147 | 2.6 | 74 | 10.4 | 295 |
| 10 / 26 | 11.3 | 320 | 12.2 | 346 | 10.3 | 292 | 15.5 | 439 | 5.6 | 159 | 5.5 | 156 | 3.3 | 94 |
| 11 / 28 | 13.5 | 383 | 0.8 | 23 | 2.5 | 71 | 1.9 | 54 | 6.0 | 170 | 8.4 | 238 | 12.2 | 346 |
| 12 / 30 | 15.6 | 442 | 5.5 | 156 | 10.6 | 301 | 4.3 | 122 | 6.5 | 184 | 11.3 | 320 | 5.0 | 142 |
| 13 / 32 | 1.7 | 48 | 10.1 | 286 | 2.8 | 79 | 6.7 | 190 | 6.9 | 196 | 14.2 | 403 | 13.9 | 394 |
| 14 / 34 | 3.8 | 108 | 14.7 | 417 | 11.0 | 312 | 9.2 | 261 | 7.3 | 207 | 1.1 | 31 | 6.8 | 193 |
| 14 / 36 | 5.9 | 167 | 3.4 | 96 | 3.2 | 91 | 11.6 | 329 | 7.8 | 221 | 3.9 | 111 | 15.6 | 442 |
| 15 / 38 | 8.0 | 227 | 8.0 | 227 | 11.3 | 320 | 14.0 | 397 | 8.2 | 232 | 6.8 | 193 | 8.5 | 241 |
| 16 / 40 | 10.1 | 286 | 12.6 | 357 | 3.5 | 99 | 0.4 | 11 | 8.6 | 244 | 9.7 | 275 | 1.4 | 40 |
| 17 / 42 | 12.2 | 346 | 1.2 | 34 | 11.7 | 332 | 2.8 | 79 | 9.1 | 258 | 12.6 | 357 | 10.2 | 289 |
| 18 / 44 | 14.3 | 405 | 5.9 | 167 | 3.9 | 111 | 5.2 | 147 | 9.5 | 269 | 15.5 | 439 | 3.1 | 88 |
| 18 / 46 | 0.4 | 11 | 10.5 | 298 | 12.0 | 340 | 7.7 | 218 | 9.9 | 281 | 2.4 | 68 | 12.0 | 340 |
| 19 / 48 | 2.5 | 71 | 15.1 | 428 | 4.2 | 119 | 10.1 | 286 | 10.4 | 295 | 5.3 | 150 | 4.8 | 136 |
| 20 / 50 | 4.6 | 130 | 3.8 | 108 | 12.4 | 352 | 12.5 | 354 | 10.8 | 306 | 8.1 | 230 | 13.7 | 388 |

***Table 4.*** *Equivalent Weights for Pressure Settings (continued)*

| INLET SIZE, in. / DN | 2 / 50 | | 3 / 80 | | 4 / 100 | | 6 / 150 | | 8 / 200 | | 10 / 250 | | 12 / 300 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN SEALING AREA, in.$^2$ / mm$^2$ | 4.53 / 2923 | | 9.971 / 6433 | | 17.603 / 11,357 | | 39.662 / 25,588 | | 69.829 / 45,051 | | 109.563 / 70,686 | | 156.894 / 101,222 | |
| PRESSURE, in. w.c / mbar | oz | g | oz | g | oz | g | oz | g | oz | g | oz | g | oz | g |
| 21 / 52 | 6.7 | 190 | 8.4 | 238 | 4.6 | 130 | 14.9 | 422 | 11.2 | 318 | 11.0 | 312 | 6.6 | 187 |
| 22 / 54 | 8.8 | 249 | 13.0 | 369 | 12.7 | 360 | 1.4 | 40 | 11.6 | 329 | 13.9 | 394 | 15.4 | 437 |
| 23 / 56 | 10.9 | 309 | 1.7 | 48 | 4.9 | 139 | 3.8 | 108 | 12.1 | 343 | 0.8 | 23 | 8.3 | 235 |
| 23 / 58 | 13.0 | 369 | 6.3 | 179 | 13.1 | 371 | 6.2 | 176 | 12.5 | 354 | 3.7 | 105 | 1.2 | 34 |
| 24 / 60 | 15.1 | 428 | 10.9 | 309 | 5.3 | 150 | 8.6 | 244 | 12.9 | 366 | 6.6 | 187 | 10.0 | 283 |
| 25 / 62 | 1.2 | 34 | 15.6 | 442 | 13.4 | 380 | 11.0 | 312 | 13.4 | 380 | 9.5 | 269 | 2.9 | 82 |
| 26 / 64 | 3.3 | 94 | 4.2 | 119 | 5.6 | 159 | 13.5 | 383 | 13.8 | 391 | 12.3 | 349 | 11.8 | 335 |
| 27 / 66 | 5.4 | 153 | 8.8 | 249 | 13.8 | 391 | 15.9 | 451 | 14.2 | 403 | 15.2 | 431 | 4.6 | 130 |
| 27 / 68 | 7.5 | 213 | 13.5 | 383 | 6.0 | 170 | 2.3 | 65 | 14.7 | 417 | 2.1 | 60 | 13.5 | 383 |
| 28 / 70 | 9.6 | 272 | 2.1 | 60 | 14.1 | 400 | 4.7 | 133 | 15.1 | 428 | 5.0 | 142 | 6.4 | 181 |
| 29 / 72 | 11.7 | 332 | 6.7 | 190 | 6.3 | 179 | 7.1 | 201 | 15.5 | 439 | 7.9 | 224 | 15.2 | 431 |
| 30 / 74 | 13.8 | 391 | 11.3 | 320 | 14.5 | 411 | 9.6 | 272 | 16.0 | 454 | 10.8 | 306 | 8.1 | 230 |
| 31 / 76 | 15.9 | 451 | 16.0 | 454 | 6.7 | 190 | 12.0 | 340 | 0.4 | 11 | 13.7 | 388 | 1.0 | 28 |
| 31 / 78 | 2.1 | 60 | 4.6 | 130 | 14.8 | 420 | 14.4 | 408 | 0.8 | 23 | 0.5 | 14 | 9.9 | 281 |
| 32 / 80 | 4.2 | 119 | 9.2 | 261 | 7.0 | 198 | 0.8 | 23 | 1.3 | 37 | 3.4 | 96 | 2.7 | 77 |
| 33 / 82 | 6.3 | 179 | 13.9 | 394 | 15.2 | 431 | 3.2 | 91 | 1.7 | 48 | 6.3 | 179 | 11.6 | 329 |
| 34 / 84 | 8.4 | 238 | 2.5 | 71 | 7.4 | 210 | 5.7 | 162 | 2.1 | 60 | 9.2 | 261 | 4.5 | 128 |
| 35 / 86 | 10.5 | 298 | 7.1 | 201 | 15.5 | 439 | 8.1 | 230 | 2.6 | 74 | 12.1 | 343 | 13.3 | 377 |
| 35 / 88 | 12.6 | 357 | 11.8 | 335 | 7.7 | 218 | 10.5 | 298 | 3.0 | 85 | 15.0 | 425 | 6.2 | 176 |
| 36 / 90 | 14.7 | 417 | 0.4 | 11 | 15.9 | 451 | 12.9 | 366 | 3.4 | 96 | 1.9 | 54 | 15.1 | 428 |
| 37 / 92 | 0.8 | 23 | 5.0 | 142 | 8.1 | 230 | 15.4 | 437 | 3.8 | 108 | 4.7 | 133 | 7.9 | 224 |
| 38 / 94 | 2.9 | 82 | 9.7 | 275 | 0.3 | 9 | 1.8 | 51 | 4.3 | 122 | 7.6 | 215 | 0.8 | 23 |
| 39 / 96 | 5.0 | 142 | 14.3 | 405 | 8.4 | 238 | 4.2 | 119 | 4.7 | 133 | 10.5 | 298 | 9.7 | 275 |
| 39 / 98 | 7.1 | 201 | 2.9 | 82 | 0.6 | 17 | 6.6 | 187 | 5.1 | 145 | 13.4 | 380 | 2.5 | 71 |
| 40 / 100 | 9.2 | 261 | 7.5 | 213 | 8.8 | 249 | 9.0 | 255 | 5.6 | 159 | 0.3 | 9 | 11.4 | 323 |

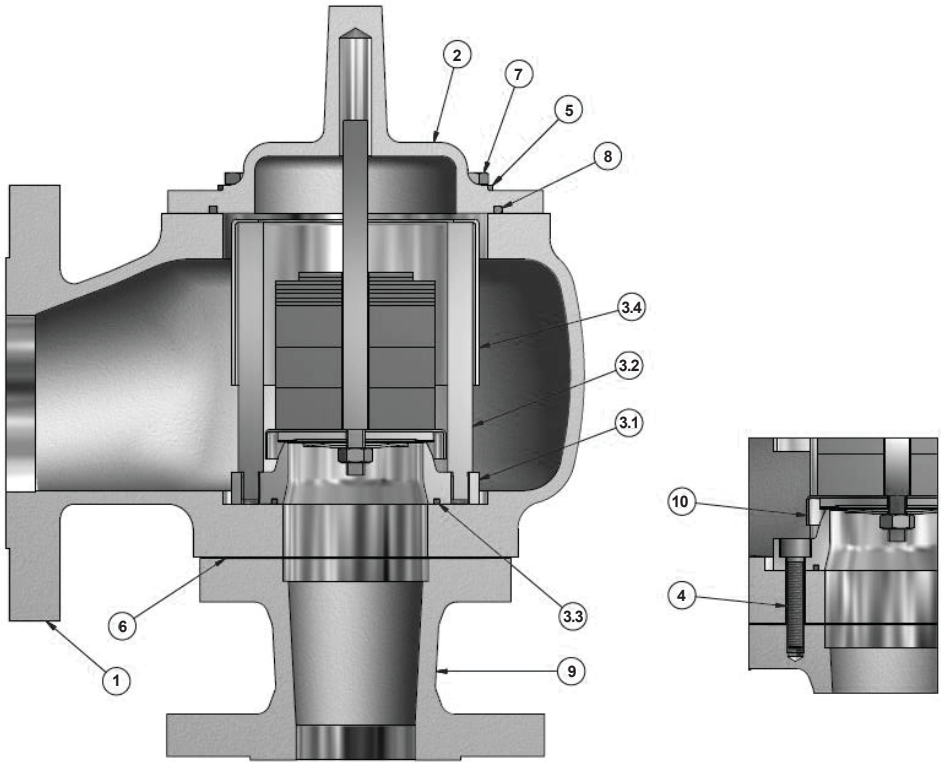


***Figure 5.*** *Type 4142HF Pressure Relief Valve Assembly*

## Parts Ordering

When corresponding with your local Sales Office about this pressure relief valve, include the type number, serial number and other information stamped on the nameplate.

When ordering replacement parts, reference the key number of each needed part and specify the eleven character part number as found in the following parts list.

## Parts List

| Key | Description |
|---|---|
| 1 | Upper Body |
| 2 | Cover |
| 3 | Seat Assembly |
| 3.1 | Seat |
| 3.2 | Vacuum Post |
| 3.3 | O-ring |
| 3.4 | Shroud |
| 4 | Capscrew |
| 5 | Washer |
| 6 | Body Gasket |
| 7 | Hex Set Screw |
| 8 | O-ring |
| 9 | Inlet Flange |
| 10 | Pallet Assembly |

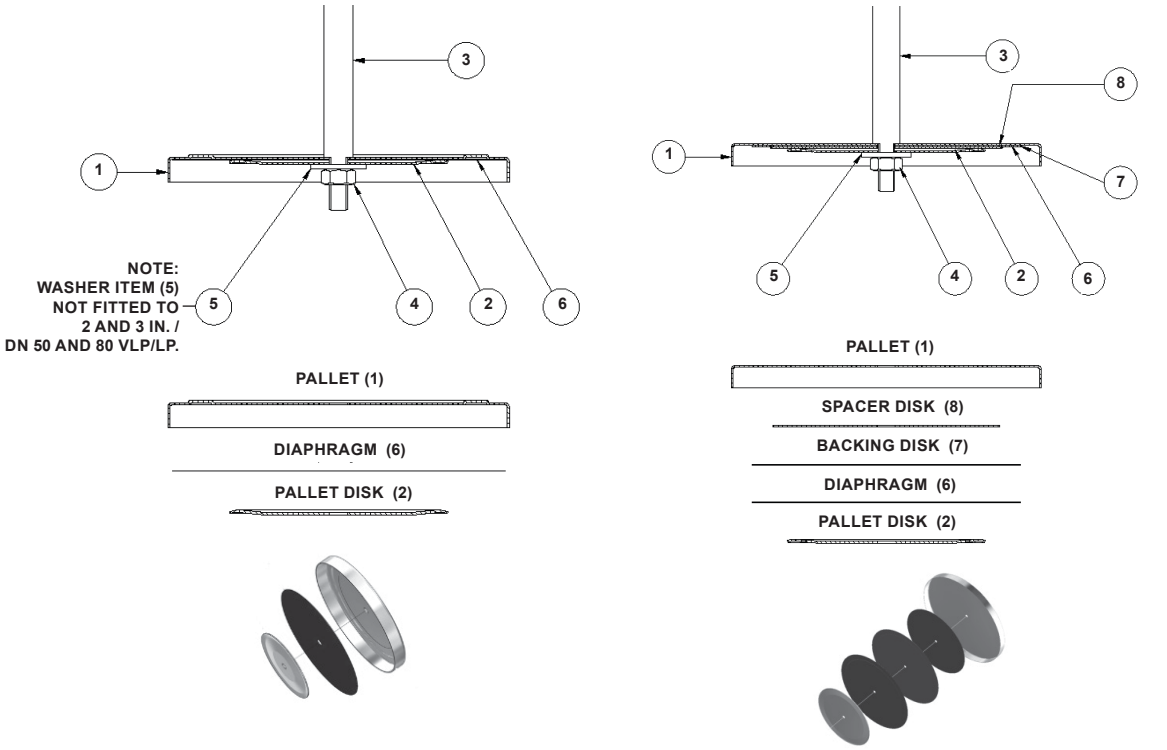


***Figure 6.*** *Pallet Construction*

***Table 6.*** *Replacement Parts*

| DESCRIPTION | USAGE | MATERIAL | NOMINAL SIZE, in. / DN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2 / 50 | 3 / 80 | 4 / 100 | 6 / 150 | 8 / 200 | 10 / 250 | 12 / 300 |
| Pallet Disc (key 2) | Very low pressure | Stainless Steel | 809736-228 | 809742-228 | 809748-228 | 809754-228 | 809760-228 | 809766-228 | 809772-228 |
| | Low pressure | Stainless Steel | 809397-228 | 809398-228 | 809399-228 | 809400-228 | 809443-228 | 809506-228 | 809522-228 |
| | High pressure | Stainless Steel | 809397-228 | 809398-228 | 809399-228 | 809400-228 | 809443-228 | 809506-228 | 809522-228 |
| Diaphragm (key 6) | Very low pressure | PFA | 810044-574 | 810046-574 | 810048-574 | 809589-574 | 809592-574 | 809595-574 | 809598-574 |
| | | PTFE | 809580-A29 | 809583-A29 | 809586-A29 | 809589-A29 | 809592-A29 | 809595-A29 | 809598-A29 |
| | Low pressure | PFA | 810045-574 | 810047-574 | 810049-574 | 810314-574 | 810316-574 | 810318-574 | 810320-574 |
| | | PTFE | 809581-A29 | 809584-A29 | 809587-A29 | 810314-A29 | 810316-A29 | 810318-A29 | 810320-A29 |
| | High pressure | PTFE | 809582-A29 | 809585-A29 | 809588-A29 | 809591-A29 | 809594-A29 | 809597-A29 | 809600-A29 |
| Backing Disc (key 7) | Very low pressure | Gen. Service | N/A | N/A | N/A | 809989-447 | 810050-447 | 810051-447 | 810052-447 |
| | Low pressure | Gen. Service | N/A | N/A | N/A | 810313-447 | 810315-447 | 810317-447 | 810319-447 |
| | High pressure | Gen. Service | 809601-447 | 809602-447 | 809630-447 | 809604-447 | 809605-447 | 809606-447 | 809607-447 |
| Spacer Disc (key 8) | Very low pressure | Gen. Service | N/A | N/A | N/A | 809990-447 | 810053-447 | 810054-447 | 810055-447 |
| | Low pressure | Gen. Service | N/A | N/A | N/A | 809611-447 | 809612-447 | 809613-447 | 809614-447 |
| | High pressure | Gen. Service | 809608-447 | 809609-447 | 809610-447 | | | | |
| Body Gasket (key 6) | HC501F | Gen. Service | 809401-447 | 809402-447 | 809403-447 | 808422-447 | 809444-447 | 809507-447 | 809523-447 |
| O-ring (key 3.3) | Seat | Viton® | 809702-504 | 809703-504 | 809632-504 | 800397-504 | 809634-504 | 807878-504 | 800386-504 |
| | | Nitrile (NBR) | 809702-503 | 809703-503 | 809632-503 | 800397-503 | 809634-503 | 807878-503 | 800386-503 |
| | | PTFE | 809702-502 | 809703-502 | 809632-502 | 800397-502 | 809634-502 | 807878-502 | 800386-502 |
| O-ring (key 8) | Cover | Viton® | 809630-504 | 809631-504 | 809633-504 | 809634-504 | 809640-504 | 809641-504 | 809642-504 |
| | | Nitrile (NBR) | 809630-503 | 809631-503 | 809633-503 | 809634-503 | 809640-503 | 809641-503 | 809642-503 |
| | | PTFE | 809630-502 | 809631-502 | 809633-502 | 809634-502 | 809640-502 | 809641-502 | 809642-502 |



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# Type 4142HF

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