STAUFF®

Direct Accumulator Charging Kit for USA Gas Valve

STA-CK-305

INSTRUCTION MANUAL

Product Description

STAUFF's accumulator charging kit is designed to suit accumulators fitted with gas valve type USA 0.305" x 32 TPI. It allows for the verification, pressurisation and nitrogen gas bleeding of the accumulator. Pre-charge pressure can be easily checked by using STAUFF charging valve (1) which combines a bleed valve, safety pattern gauge and 0.305" x 32 TPI charging chuck adaptor.

Features

The standard kit is delivered in a storage case containing the following:

1. 1 x Charging valve
2. 1 x STA-CK-CHRG-HEAD-0.305-SKK20 (for accumulator connection)
3. 1 x SKK-20 Test coupling 1/4" NPT (for regulator connection)
4. 1 x Safety pattern pressure gauge 0 - 250 bar (standard) according to AS1349
5. 1 x 2000 mm hose
6. 1 x Safety goggles
7. 1 x Operating instructions

Available on request

- 0 - 25 and 0 - 100 bar kit

Application

- For checking and pre-charging of accumulators with gas valve type USA 0.305" x 32 TPI

⚠ Maximum working pressure of this equipment (excluding individual pressure rating of gauges) is 207 bar.

⚠ Only use "gas approved" test hose

⚠ For use with nitrogen (N_2) gas only

⚠ Safety goggles must be worn at all times

⚠ STAUFF pressure gauges are safety pattern type according to AS1349

Safety Instructions and Recommendations

1. Before using the charging head carefully read the directions and safety instructions in this guide.
2. In all cases observe the pressure limits indicated on the accumulator pressure vessels. If necessary refer to the applicable operating instructions.
3. Before attempting to check the pre-charge pressure, the accumulator in the hydraulic circuit under pressure has to be isolated and discharged on the hydraulic side. If required immobilize it and define a safety zone.
4. Only use nitrogen gas with a purity ≥ 99,8% (N_2) to pressurise the accumulator.
5. STAUFF always recommends the use of a nitrogen gas regulator on the nitrogen gas bottle.
6. The charging valve (1) incorporating pressure gauge (4) and charging chuck adaptor (2) are tools for checking gas pressure and pre-charging pressure of accumulators only. These items are not designed to be permanently attached to the accumulator during normal operation.
7. Never use an accumulator in a hydraulic system without it first being pre-charged with the correct nitrogen gas pressure. Failure to do this will result in bladder or diaphragm damage.
8. Ensure safety goggles are worn when either checking or pre-charging accumulators.
9. To ensure optimum efficiency and performance of the hydraulic circuit, the pre-charge pressure must be checked frequently. STAUFF recommends the pressure be checked initially at intervals of 1 month, 3 months and then 6 months after installation. Depending on the amount of loss of pressure (if any) over this time, a planned maintenance schedule for monitoring the pressure can then be put into operation (check annually).

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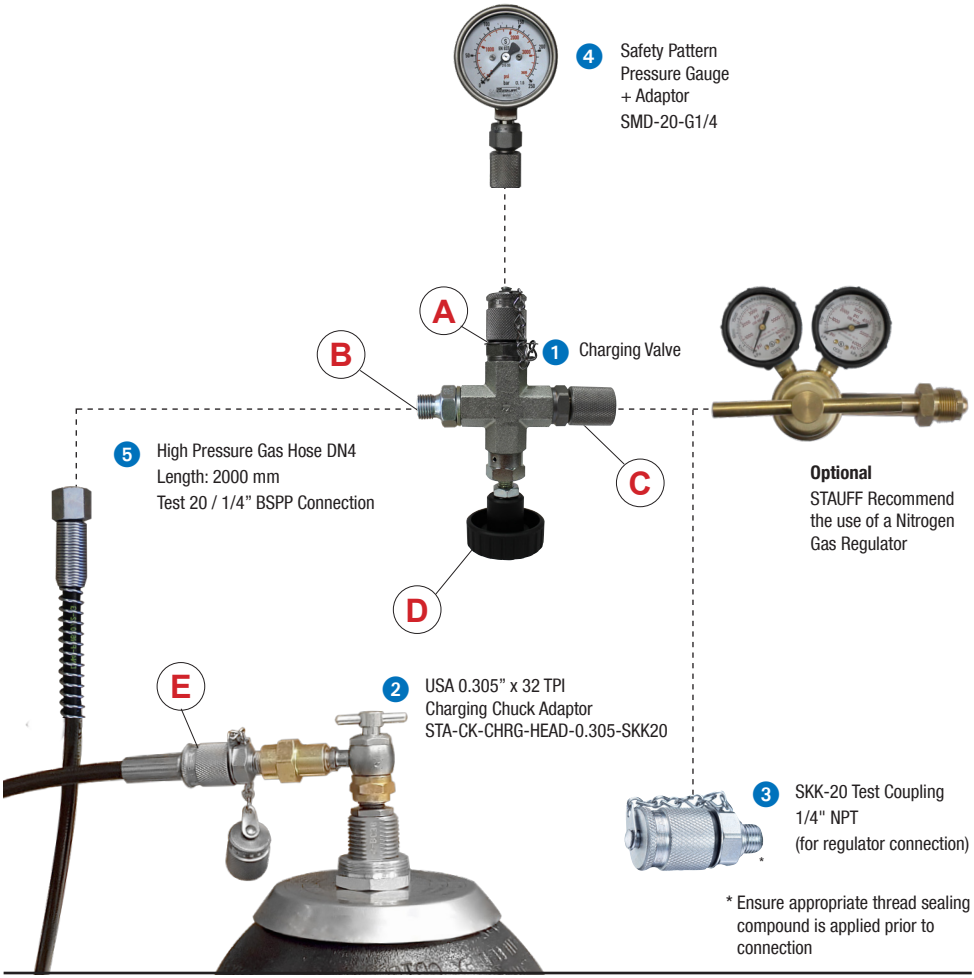
Connection Flow Chart

Pre-Charging -Typical Installation



Checking the Pre-charge Pressure

General

⚠ 1. Recommendation: Before proceeding to any operation concerning the initial pressurisation of an accumulator, consult the applicable operating instructions.

⚠ 2. Pressurisation limits: Ensure that the STA-CK-305 Charging Kit and any associated pressure gauge fitted are rated for the intended pressure for both pre-charging and pressure checking. Refer to the manufacturers specifications.

The nitrogen gas pressure varies as a function of the gas temperature. After each inflation and deflation of nitrogen gas, wait for the temperature to stabilise before checking the pressure (this may take several minutes depending on the accumulator size). Never exceed the maximum stated design pressure (PS or DP) of the accumulator as stamped on the vessel. If in doubt consult the manufacturer or check manufacturer's operating instructions or specification manual.

⚠ 3. Taking into account the temperature influence on the pre-charge pressure: In order to observe the working pressures of the accumulator it is advised to adjust the inflation pressure (P0) according to the operating or control temperature.

Bladder Accumulators

Refer to page 4 for connection flow chart

- Remove the gas valve cap fitted to the accumulator gas valve.
- Ensure the tee handle on the charging chuck adaptor (2) is screwed back fully anti-clockwise.
- Fit the charging chuck adaptor (2) to the gas valve on the accumulator. Be sure not to overtighten.
- Select a safety patten gauge and adaptor (4) and couple directly to the SKK-20 fitting on the the charging chuck adaptor (2)
- Slowly turn the tee handle on the charging chuck adaptor (2) clockwise until pressure is indicated on the gauge.
- Once the pressure measurement is read from the gauge, turn the tee handle on the charging chuck adaptor (2) fully anti-clockwise.
- Remove the safety patten gauge and adaptor (4) from the charging chuck adaptor (2). Note a small amount of gas will be released.
- Remove the charging chuck adaptor (2) by unscrewing the hex nut that connects the charging chuck adaptor (2) to the gas valve on the accumulator. Note a small amount of gas will be released.

Pre-charging Accumulators Instruction

General

⚠ **Note:** This information applies to pre-charging new accumulators or after a bladder change when no gas pressure is present inside the accumulator.

Prior to pre-charging an accumulator it is important that the inside of the accumulator shell be lubricated. New STAUFF accumulators are already lubricated internally during the manufacture / assembly process. For older units or accumulators that have been repaired and a new bladder installed, STAUFF recommend that the accumulator be lubricated with enough system fluid to evenly coat the inside of the shell. To ensure good lubrication lay the accumulator horizontally and rotate on its axis.

The pre-charge setting is recommended to be set to 80% - 90% of the minimum system working pressure if no specific pressure has been calculated.

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Applying the Pre-charge Pressure (Topping up the Pre-charge Pressure) Charging Valve Connected Directly to Regulator

Typical Installation

Remove the accumulator gas valve protection cap and gas valve screw cap fitted to the gas side of the accumulator.

Refer to page 4 for connection flow chart

- Ensure regulator used is fitted with STAUFF SKK-20 fitting
- Make sure main valve on nitrogen gas bottle is closed
- Connect SDA-20 adaptor end (C) of charging valve (1) to SKK-20 test coupling (3) fitted to the regulator
- Connect gauge + adaptor (4) to charging valve (A)
- Ensure that the bleed valve (D) on the charging Valve (1) is fully closed.
- Connect one end of the gas hose to the SKK test coupling (E) and the charging chuck adaptor (2)
- Connect remaining gas hose end to the charging valve connection (B)
- Ensure the tee handle on the charging chuck adaptor (2) is screwed back fully (turn anti-clockwise).
- Fit the charging chuck adaptor (2) to the gas valve on the accumulator. Be sure to not to overtighten.
- To open the gas valve fitted to the accumulator, slowly turn the tee handle on the charging chuck adaptor (2) clockwise until pressure is read on the gauge (4).
- Slowly open the valve on the nitrogen gas source and allow pressure to increase to the desired pre-charge setting. Wait until the temperature and pressure are stable, and if needed increase the pressure again to the required setting.
- When the pre-charge pressure (P0) is reach and has stabilised, close the valve of the nitrogen gas source.
- Close the gas valve fitted to the accumulator by turning the tee handle on the charging chuck adaptor (2) fully anti-clockwise. Open the bleed valve (D) to drain any residual pressure remaining in the charging chuck adaptor (2) Charging valve (1) and the gas hose (5)

⚠ **Important:** Do not over depress the gas valve fitted to the accumulator as this may result in a damaged gas valve.

⚠ **Important:** Do not over tighten the charging chuck adaptor (2) when fitting to the accumulator gas valve

⚠ **Important:** Do not attempt to remove the hose assembly from the fittings (B) or (E) whilst pressure is still monitored on the gauge (4)

⚠ **Important:** Do not attempt to remove the charging valve (1) by removing the test coupling (C) whilst pressure is still monitored on the gauge (4)

⚠ Only use “gas approved" test hose

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Applying the Pre-charge Pressure (Accumulator has no gas)
Charging Valve Connected Directly to Regulator

Typical Installation

Remove any plastic plugs that are fitted to the accumulator fluid port. Remove the accumulator gas valve protection cap and gas valve screw cap fitted to the gas side of the accumulator. Prepare a container to catch any fluid which may drain from the fluid port during charging.

Refer to page 4 for connection flow chart

- Ensure regulator used is fitted with STAUFF SKK-20 fitting
- Make sure main valve on nitrogen gas bottle is closed
- Connect SDA-20 adaptor end (C) of charging valve (1) to SKK-20 test coupling (3) fitted to the regulator
- Connect gauge + adaptor (4) to charging valve (A)
- Connect one end of the gas hose to the SKK test coupling (E) on the charging chuck adaptor (2)
- Connect remaining gas hose end to the charging valve connection (B)
- Ensure the tee handle on the charging chuck adaptor (2) is screwed back fully (turn anti-clockwise).
- Fit the charging chuck adaptor (2) to the gas valve on the accumulator. Be sure to not to overtighten.
- To open the gas valve fitted to the accumulator, slowly turn the tee handle on the charging chuck adaptor (2) clockwise until a slight resistance is felt. Further rotation of the tee handle at this point might cause damage to the gas valve.
- Ensure that the bleed valve (D) is open so that some of the gas from the nitrogen gas source can be vented to air initially.
- Slightly open the valve on the nitrogen gas source until a small amount of gas can be heard coming from the bleed valve (D)
- After approx. 20 seconds slowly close the bleed valve (D), allow pressure to increase
- Slowly increase the pressure from the nitrogen gas source by opening its valve until the indicated pressure increases to the desired setting. Wait until temperature and pressure are stable, and if needed increase the pressure again to the required setting. When the pre-charge pressure (P0) is reached and stabilised, close the valve of the nitrogen gas source
- Close the gas valve fitted to the accumulator by turning the tee handle on the charging chuck adaptor (2) fully anti-clockwise. Open the bleed valve (D) to drain any residual pressure remaining in the charging chuck adaptor (2), charging valve (1) and the gas hose (5).

⚠ **Important:** Do not over depress the gas valve fitted to the accumulator as this may result in a damaged gas valve.

⚠ **Important:** Do not over tighten the charging chuck adaptor (2) when fitting to the accumulator gas valve

⚠ **Important:** Do not attempt to remove the hose assembly from the fittings (B) or (E) whilst pressure is still monitored on the gauge (4)

⚠ **Important:** Do not attempt to remove the charging valve (1) by removing the test coupling (C) whilst pressure is still monitored on the gauge (4)

Maintenance of the STA-CK Charging Valve (1)

It is recommended to check the various connections and adaptors at regular intervals for cleanliness, detection of possible defects, thread wear and sealing parts.

Please contact your local STAUFF office for further information.

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