



**Direct Accumulator Charging Kit**  
**STA-CK-SKK**  
INSTRUCTION MANUAL

## Product Description

STAUFF's accumulator direct charging kit - SKK is an essential instrument for the verification, pressurisation and nitrogen gas bleeding of STAUFF accumulators fitted with a SKK gas valve connection. Pre-charge pressure can be easily checked by coupling the safety gauge directly to the SKK gas valve connection on the STAUFF accumulator.

## Features

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

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



## Available on request

- 0 - 25, 0 - 100, 0 - 250 & 0 - 400 bar kit

## Application

- For checking and pre-charging of accumulators with M16 x 2.0 (Test 20) or M16 x 1.5 (Test 15) or M12 x 1.65 (Test 12) STAUFF Test coupling connection (optional)

 Maximum working pressure of this equipment (excluding individual pressure rating of gauges) is 400 bar.

-  Only use "gas approved" test hose
-  For use with nitrogen (N<sub>2</sub>) gas only
-  Safety goggles must be worn at all times
-  STAUFF pressure gauges are safety pattern type according to AS1349

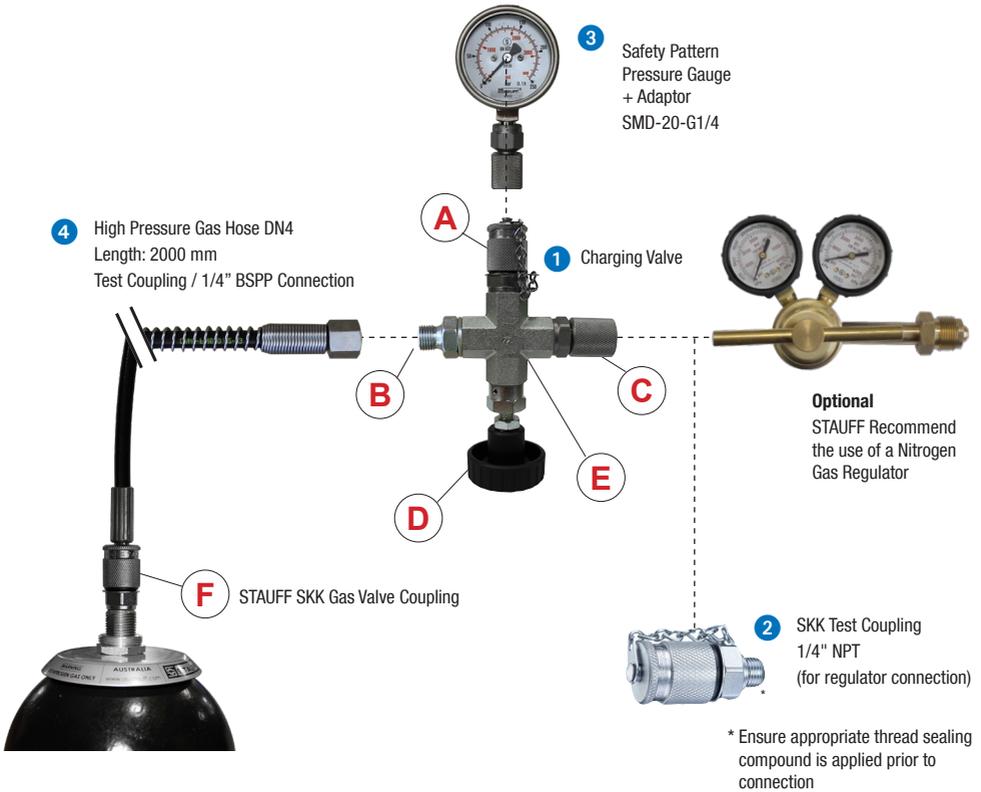
## Safety Instructions and Recommendations

-  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  $\geq 99,8\%$  (N<sub>2</sub>) 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) and pressure gauge (3) are tools for checking gas pressure and pre-charging accumulators. In cases where the gauge and gauge adaptor will be left on the accumulator, make sure that the gauge fitted is rated for the maximum system pressure of the hydraulic circuit.
-  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 - 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 SKK 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 protection cap on the SKK gas valve coupling (F) fitted to the gas side of the accumulator
- Select the safety pattern pressure gauge and adaptor (3) and couple directly to the SKK gas valve coupling (F) on the STAUFF accumulator – pressure should now be indicated on the gauge
- To remove, uncouple the gauge from the STAUFF accumulator

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## Pre-charging Accumulators Instruction

### General

-  **Note:** The following 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 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 test coupling (2)
- Make sure main valve on nitrogen gas bottle is closed
- Connect SDA adaptor end (C) of charging valve to SKK test coupling (2) fitted on regulator
- Connect gauge + adaptor (3) to charging valve (A)
- Connect the test coupling on one end of the hose to the SKK gas valve coupling (F) on the accumulator
- Connect the other end of the hose 1/4" BSPP to the charging valve (B) and tightened with a spanner
- Slightly open the valve on the nitrogen gas source until a small amount of gas can be heard coming from the bleed valve (D) which should be open
- After 5 seconds (0.7 Ltr - 4 Ltr) and 10 to 20 seconds (10 Ltr - 55 Ltr) 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
- Disconnect the hose end connected to the SKK gas valve coupling (F) and then disconnect from the charging valve (B)
- Remove the gauge and adaptor (3) from the charge valve (A) and then attach it to SKK gas valve coupling (F) on the accumulator. Check to ensure the pre-charge pressure is correct.
- After confirming the pre-charge pressure is correct, remove the gauge and gauge adaptor (3) from the SKK gas valve coupling on the accumulator (F)

 **Important:** Whilst the gas hose (4) is connected to the SKK gas valve coupling (F), the SKK gas valve coupling is always open. Before attempting to remove any of the charge equipment, the gas hose (4) connected to the SKK gas valve coupling (F) must first be removed. Failure to do so will drain the nitrogen gas pressure from the accumulator.

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

### Optional Installation - Only applies to SKK-20 & SKK-12 Charging Kits

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 test coupling (2)
- Make sure main valve on nitrogen gas bottle is closed
- Connect SDA adaptor end (C) of charging valve to SKK gas valve coupling (F) fitted on STAUFF accumulator
- Connect gauge + adaptor (3) to charging valve (A)
- Connect the 1/4" BSPP end of the hose to the charging valve (B) and tightened with a spanner
- Connect the other end of the test hose (4) to the SKK test coupling (2) fitted to the regulator
- Slightly open the valve on the nitrogen gas source until a small amount of gas can be heard coming from the bleed valve (D) which should be open
- After 5 seconds (0.7 Ltr - 4 Ltr) and 10 to 20 seconds (10 Ltr - 55 Ltr) 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
- Disconnect the SDA adaptor (C) of charge valve from the SKK gas coupling (F) fitted on the STAUFF Accumulator
- Remove the gauge and adaptor (3) from the charge valve (A) and then attach it to SKK gas valve coupling (F) on the accumulator. Check to ensure the pre-charge pressure is correct.
- After confirming the pre-charge pressure is correct, remove the gauge and gauge adaptor (3) from the SKK gas valve coupling on the accumulator (F)

## 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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