



Tulsa Rig Iron pump stabilization features are critical for smooth operation. The stabilizers consists of two components- the suction stabilizer and the discharge dampener.

Included standard suction stabilizers-

Pulsation issues often start on the suction side. First, ensure your positive displacement triplex pump is properly fed by an adequate charge pump that flows at least **1.5 times** the maximum output of the triplex pump, and maintains a minimum of 32 psi. The suction stabilizer is the next step in the process. TRI stabilizers are a cartridge style system that features a readily available replaceable inner bladder. The suction stabilizers minimize the potential for cavitation by promoting acoustic isolation from the suction line.

Optional discharge pulsation dampeners-

TRI discharge dampeners are installed on the outlet side of the discharge manifold and control the pulsating fluid flow caused by the start and stop action of the pump cycles. They feature a nitrogen charged bladder, and will increase pump and fluid end life by dampening the high and low frequency pulsations. Dampeners also improve pump safety and piping system protection, and decrease expendable consumption and pump downtime.

We suggest the discharge dampener bladder pressures be maintained at all times at $\frac{1}{2}$ (**50%**) of your drilling/working pressures. A charge kit and bottle of nitrogen should be kept at the jobsites for this purpose.

Although the discharge dampener is an available option, we highly recommend them for our higher volume pump models.

Please see the following pages for details and instructions on proper operation and maintenance for our optional discharge dampeners.

Tulsa Rig Iron Discharge Dampener Instructions

This guide discusses how to properly pre-charge Tulsa Rig Iron discharge dampeners with nitrogen. This guide is to be read thoroughly, particularly the Safety Instructions before maintaining or servicing the dampeners. Keep this guide readily accessible for anyone who may attempt to service or maintain the dampeners described within.

Our dampeners are designed to be inherently safe when the limiting values on the product label or name plate are followed. However, there is a risk of personal injury and equipment damage if you do not follow the safety, maintenance instructions, and the warning notices specified in these instructions.

The following safety instructions must always be followed when working with our discharge dampeners:



Use only an inert gas like nitrogen for pre-charging. DO NOT use oxygen or shop air, as this may lead to a fire or explosion.



Modifying the dampener (i.e. welding, brazing, machining, or the use of non-original replacement parts) may compromise the integrity of the pressure vessel.



The operating pressure of the dampener must not exceed the maximum operating pressure and the temperature ranges must be within those indicated on the label.



Never loosen the gas valve or disassemble the dampener when under pressure. Always assume the dampener is under pressure until it is confirmed that it isn't.



Never add unnecessary weight or load on top of the dampener, and never use the dampener as a structural support.



The dampener may become very hot during normal operation. Allow it to cool before servicing or touching it.



Always wear PPE such as safety glasses and protective gloves when servicing.

Pre-Charging a Dampener

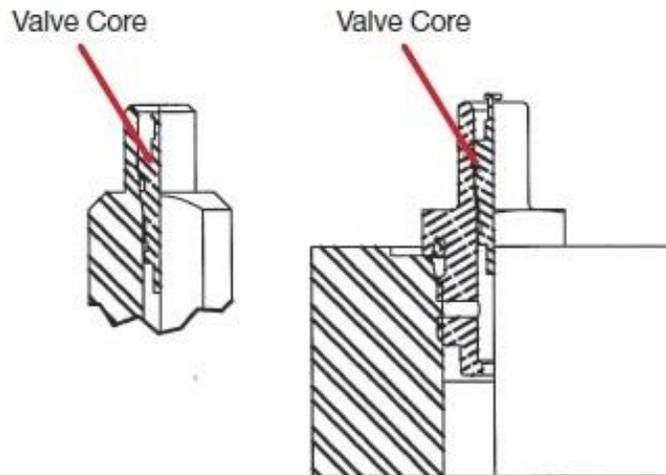


Use only an inert gas like nitrogen for pre-charging. DO NOT use oxygen or shop air, as this may lead to a fire or explosion. Nitrogen that is 99.99 percent by volume is strongly recommended.



All components must be rated for a pressure at least as high as the nitrogen source.

Make sure the nitrogen supply is shut off. Attach the hose's nitrogen tank connector to the nitrogen bottle.



Core Style Gas Valves

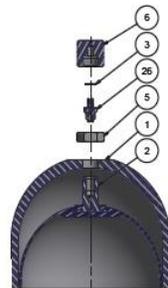
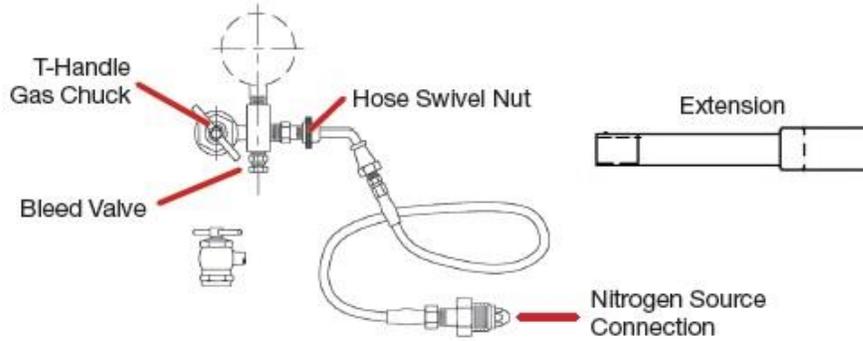
- 1) If present, remove protective cap and gas valve cap.
- 2) Back gas chuck "T" handle all the way out (counterclockwise) before attaching charging assembly to gas valve.
- 3) Close bleed valve.
- 4) If the hose isn't attached to the charging and gauging assembly, attach the hose to the gas valve on the charging and gauging assembly by tightening the hose swivel nut to 10-15 in. lb. Ensure the hose is not twisted or looped.
- 5) Attached swivel nut on gas chuck to the dampeners gas valve. Tighten swivel nut to 10-15 in. lb.
- 6) Turn gas chuck "T" handle clockwise until the gauge starts showing the pressure in the dampener. Do not turn the "T" handle all the way down, as it will damage the valve core.
- 7) Crack open nitrogen bottle or regulator valve and slowly fill the dampener. Shut off when gauge indicates 100 PSI above desired pre-charge.

****TRI suggested pressure is ½ (50%) of your
drilling/working pressure****

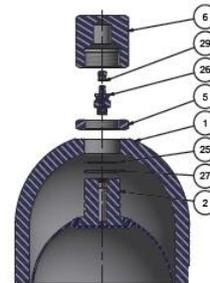
- 8) Let the pre-charge sit for 10-15 minutes to allow the gas temperature to stabilize. If the desired pre-charge is exceeded, close the nitrogen bottle valve and slowly open the bleed valve. ****Do not reduce the pre-charge by depressing the valve core with a foreign object.****
- 9) When finished pre-charging the dampener, turn the "T" handle all the way out (counter clockwise) on the gas chuck. Then open the bleed valve.
- 10) Hold the gas valve to keep from turning, loosen gas chuck swivel nut and remove assembly. Check for pre-charge leak using a common reactant.
- 11) Replace gas valve cap and torque to 12-24 in. lb., and then replace the protective cap.

Charging & Gauging Assemblies (Based on Pre-Charge, Accumulator Size & Style):

Part Number	Charging & Gauging Assemblies for Pre-Charge < 3000 PSI (207 Bar)
4001464	Charging and Gauging Assembly consists of 10' charging hose with a CGA 580 right-hand thread fitting, an adapter incorporating gas valve, bleed valve, gas chuck & gauge.



3,000 PSI, 2.5 Gallon



6,000 PSI, 2.5 Gallon

Item No.	Description
1	Shell
2	Bladder and Stem Assembly
3	O-Ring / Sealing Washer
4	Gas Valve Core
5	Hex Jam Nut
6	Protective Cap
7	Hydraulic Port Assembly
8	Hex Jam Nut /Locking Ring
10	Hydraulic Port Spacer
12	Anti-Extrusion Ring
14	O-Ring
16	Backup Ring
18	Backup Washer (Metal)
25	Backup Ring (2" Stem Only)
26	Gas Valve
27	O-Ring (2" Stem Only)
29	Gas Valve Cap

Suggested Approximate Torque Values			
Item No.	Description	Torque (English)	Torque (Metric)
4	Gas Valve Core	3-5 In-Lb	0.34-0.56 N-M
5	Hex Jam Nut (10-150 Cu. In.)	10-15 Ft-Lb	14-20 N-M
5	Hex Jam Nut (1-15 Gallon)	100-120 Ft-Lb	136-163 N-M
6	Protective Cap	10-15 Ft-Lb	14-20 N-M
8	Locking Ring (1 Gallon)	100 Ft-Lb (Min)	136 N-M (Min)
8	Locking Ring (2.5-15 Gallon)	500 Ft-Lb (Min)	678 N-M (Min)
26	Gas Valve (All Styles)	22-28 Ft-Lb	30-38 N-M
29	Gas Valve Cap	12-24 In-Lb	1-3 N-M