



CACTUS FLOW PRODUCTS

STANDARD OPERATING PROCEDURE

Manual Adjustable Choke Valve — General Work Instructions

1. PRE-OPERATIONAL INSPECTION & ASSEMBLY CHECK

Always verify pressure isolation before touching handwheel controls.

Inspect the valve body, bonnet, and hammer union for signs of wash-out, corrosion, or thread damage.

Confirm downstream and upstream pressure gauges are operational and calibrated.

Ensure the stem packing gland nut is properly torqued to prevent fugitive emissions or leaks.

Bonnet Union Assembly Safety: When tightening or adjusting the bonnet wing nut/hammer nut, **ensure the stem is turned to the fully open position**. Tightening the bonnet assembly while the valve is closed forces the tungsten carbide needle directly into the seat, which can crack or shatter the carbide components.

Factory Delivery Note: The zero-indicator baseline is calibrated and set at the factory prior to shipment. Chokes are shipped with the stem in the **open position** to protect the internal trim during transit and installation.

2. RELEASE STEM LOCK & VERIFY POSITION

Unlocking the stem prevents thread damage and binding.

Loosen the locking thumbscrew/handwheel lock before attempting to rotate the stem or actuate the valve.

Rotate the handwheel clockwise to verify stem movement toward the closed position.

DO NOT OVERTIGHTEN THE STEM. Seat the stem gently against the orifice ring. Excessive torque or forcing the handwheel can crack or shatter the brittle tungsten carbide needle tip and seat insert.

Verify that the barrel indicator scale aligns with **0/64"** (fully closed position).

3. SET FLOW AREA (ADJUSTING ORIFICE)

Always adjust slowly to prevent pressure surges and hydraulic shock.

Verify the thumbscrew is fully backed off to allow smooth stem movement.

Rotate the handwheel counter-clockwise to open the choke to the required orifice size (e.g., 16/64", 24/64", 32/64").

Read the graduation mark on the barrel indicator corresponding to the required equivalent choke size.

Monitor upstream and downstream pressure gauges continuously during adjustment to ensure wellbore stability.

4. LOCK SETTING & MONITOR FLOW

Vibration can back out stem settings if left unlocked.

Once the target pressure and flow rate are achieved, **hand-tighten the locking thumbscrew** on the bonnet collar to hold the stem position.

Periodically monitor differential pressure (ΔP) across the choke. A sudden drop indicates internal seat wash-out; a sudden pressure spike suggests plugging from debris or hydrates.

5. SHUT DOWN & ISOLATION

Chokes are throttling devices, not primary isolation valves.

Loosen the thumbscrew, then rotate the handwheel clockwise until gently seated. Re-tighten the thumbscrew to secure.

IMPORTANT: Chokes are not designed to provide complete shut-off and are not bubble-tight. Always close the upstream/downstream gate valves or wing valves to achieve positive isolation.

Bleed off trapped body-cavity pressure completely through designated bleed ports before performing any maintenance or disassembly.

CRITICAL SAFETY WARNINGS

ALWAYS ensure the stem is fully OPEN when tightening or loosening the bonnet wing nut. Making up or breaking the bonnet nut while closed causes severe axial shock against the carbide seat, resulting in immediate trim destruction.

NEVER strike a hammer union wing nut (or bonnet nut) while the valve body or flowline is under pressure. Striking pressurized components can cause catastrophic metal fatigue, thread shear, or sudden explosive decompression. Always verify complete pressure bleed-off prior to applying hammer force.

DO NOT force or overtighten the handwheel at closure. Severe mechanical force against the carbide seat will fracture the carbide insert or needle.

General work instructions — follow applicable site procedures, pressure-control requirements, and manufacturer specifications. When in doubt, stop work and verify the equipment is fully isolated and depressurized.