



— MODEL — **ZW106**  
6" and Larger  
**Solenoid Control Valve**

**INTRODUCTION**

The Wilkins ZW106 Solenoid Control Valve is an automatic valve designed to either close drip tight or open fully by means of a Three-Way Solenoid Control. It is a hydraulically operated, solenoid controlled, diaphragm type globe or angle valve.

**INSTALLATION**

1. Allow sufficient room around the valve assembly to make adjustments and for disassembly.

**Note: Before the valve is installed, the pipeline should be flushed to remove all chips, scale and foreign matter.**

2. It is recommended that gate or line block valves be installed upstream and downstream of the Model ZW106 to facilitate isolating the valve for preventive maintenance. Minimum one pipe diameter.

3. Place the valve in the line with flow in the direction of flow arrows or by the inlet nameplate. Check all fittings and hardware for proper makeup and that no apparent damage is evident. Be sure main valve cover nuts/bolts are tight. Pressure in some applications can be very high so be thorough in checking and inspecting for proper installation and makeup.

4. Wilkins Valves operate with maximum efficiency when mounted in horizontal piping with the cover UP; however, other positions are acceptable. Due to size and weight of cover and internal components of six inch valves and larger, installation with the cover up is advisable. This makes periodic inspection of internal parts readily accessible.

5. Comply with local and national electrical codes when wiring the Solenoid Control.

**OPERATION AND START-UP**

1. Prior to pressurizing the valve assembly make sure the necessary gauges to measure pressure in the system are installed as required by the system engineer. A X101 Valve Position Indicator can be installed in the center cover port to provide visual indication of the valve diaphragm assembly position during start-up.

**CAUTION:** During start-up and test procedures a large volume of water may be discharged downstream. Check that the downstream venting is adequate to prevent damage to personnel and equipment. If the main valve closes too fast it may cause surging in upstream piping.

2. If isolation valves (B) are installed in pilot system, open these valves. (see ZW106 schematic).

3. The three-way Solenoid Control applies or relieves pressure in the 102C-3H three-way valve cover chamber. This, in turn, applies or relieves pressure in the main valve cover chamber. The following action takes place:

SOLENOID CONTROL(2)		ENERGIZED To OPEN ZW106 SERIES		DE-ENERGIZED To OPEN ZW106 SERIES	
POSITION	FLOW	THREE-WAY VALVE FLOW(3)	MAIN VALVE (1)	THREE-WAY VALVE FLOW(3)	MAIN VALVE 1
ENERGIZED	1TO2	COM. TO N.O.	OPEN	N.C. TO COM.	CLOSED
DE-ENERGIZED	3TO1	N.C. TO COM.	CLOSED	COM. TO N.O.	OPEN

**Note:** Solenoid are not reversible because of different internal construction between Energize to open and De-energize to open solenoids.



4. Slowly open the gate or line block valves upstream and downstream of the valve.

5. Carefully loosen tube fittings at highest points and bleed air from system. Carefully loosen the plug at top of main valve cover. If X101 Valve Position Indicator is installed, carefully open the bleed valve at top of Indicator. Bleed air from cover and tighten plug or bleed screw. Tighten tube fittings.

6. Check the operation of the valve by energizing and de-energizing the solenoid. The valve should open fully and close drip tight.

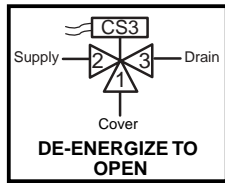
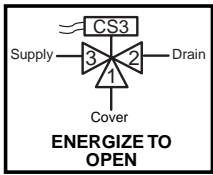
**MAINTENANCE**

1. Wilkins Valves and Controls require no lubrication or packing and a minimum of maintenance. However, a periodic inspection schedule should be established to determine how the fluid handled is affecting the efficiency of the valve assembly. Minimum of once per year.

2. **When ordering parts always refer to the catalog number and stock number on the valve nameplate.**

SYMPTOM	PROBABLE CAUSE	REMEDY
Main valve Fails to Close	Too low pressure differential across valve (Need 5 psid Min under flowing conditions)	Restrict valve opening with X102A flow limiting assembly. (Contact Factory)
	Closed isolation valves in pilot system, or in main line	Open valves
	Lack of cover chamber pressure	Check upstream pressure, tubing, needle valves for restriction
	Diaphragm damaged	Replace diaphragm
	Mechanical obstruction	Remove obstruction
	Object lodged in valve	
	Worn disc	Replace disc
Main valve Fails to Open	Badly scored seat	Replace seat
	CNA needle valve closed	Open this speed control to allow pressure to cover
	Closed isolation valves in pilot system, or in main line	Open valves
Main Valve Vibrates when closing	Insufficient line pressure	Check pressure
	Diaphragm assembly inoperative	Clean & polish stem Replace any defective or damaged parts
	Air in cover	Bleed all air from valve

# ZW106 SCHEMATIC



## BASIC COMPONENTS

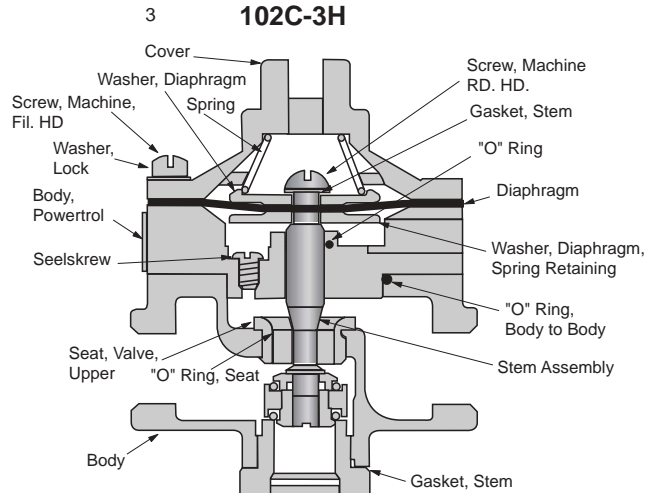
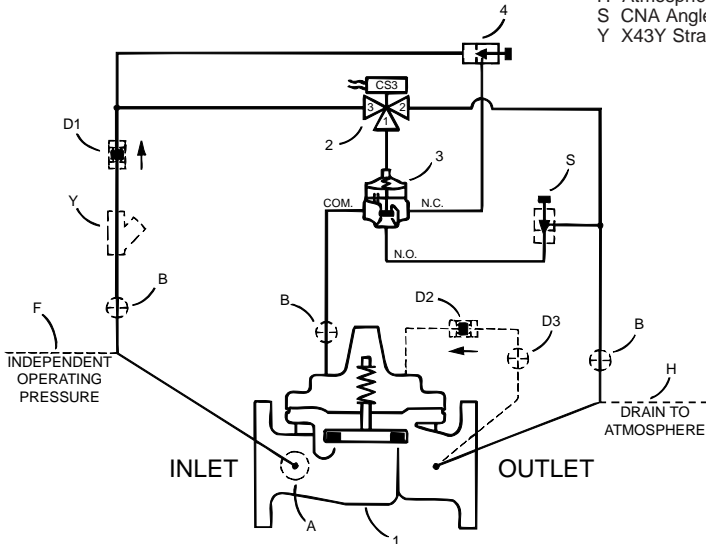
- 1 100-01 Hytrol (Main Valve)
- 2 CS3 Solenoid Control
- 3 102C-3H Three-Way Valve (Closing)
- 4 CNA Angle Needle Valve (Closing)

## OPTIONAL FEATURES

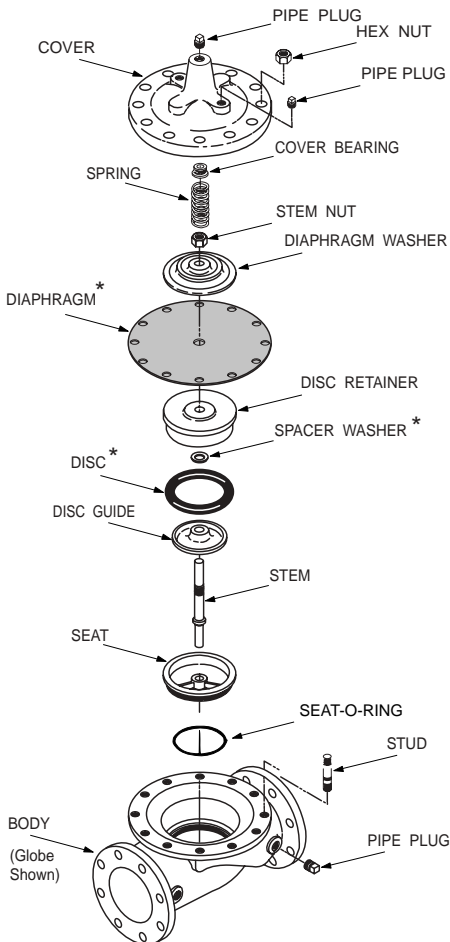
- A X46A Flow Clean Strainer (3" and smaller std.)
- B CK2 (Isolation Valve) (4" and larger std.)
- D Check Valves with Isolation Valve
- F Independent Operating Pressure
- H Atmospheric Drain
- S CNA Angle Needle Valve (Opening)
- Y X43Y Strainer (4" and larger std.)

## SOLENOID WIRING

Wiring must comply with local and National Electrical Codes. For valves equipped with an explosion-proof, watertight solenoid enclosure, the electrical fittings must be approved for use in the approved hazardous locations. Housings for all solenoids have connections for 1/2 inch conduit. The enclosure may be rotated to facilitate wiring.



## 1 HYTROL MAIN VALVE



\*SUGGESTED REPAIR PARTS  
**WILKINS**  
 a ZURN company