IOM ULTRAF 6070

Ultrasonic Hydrometer
with Flow Limit Pressure Reducing Valve 2”- 8” (16 bar)

RAPHAEL VALVES INDUSTRIES

Sep-24

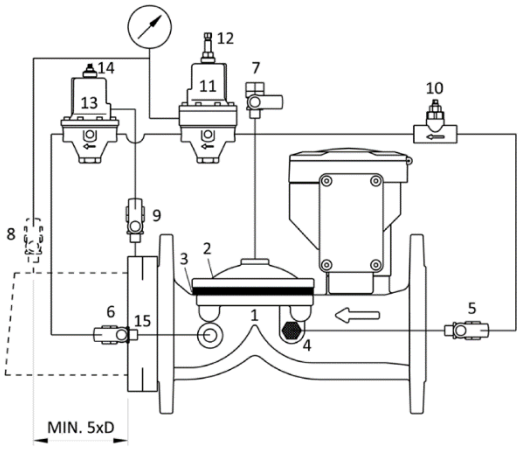
DESCRIPTION

This water meter and flow limiting / pressure reducing valve is an automatic control valve designed to perform two functions: To limit maximum flow rate to a preset value and not allow greater flow past the valve. To reduce a higher upstream pressure into a preset lower downstream pressure and to maintain this pressure constantly regardless of flow-rate demand or upstream pressure fluctuations.

INSTALLATION

- Before installing the Ultraf, flush the pipeline to remove scale, dirt and other particles that might affect the valve's performance.
- Install the Ultraf as indicated by the arrow on the valve's body, showing flow direction. Place the orifice plate 15 as indicated by the flow arrow, making sure ball valve 9 is facing downstream. Connect both tubs from pilot 13 respectively. **Note: In some application, ball valve 6 is pre-assembled in Raphael as part of the valve trim.**
- Connect sensor port of pilot 11 to the downstream pipeline using ball valve 8 as indicated (5 x pipe diameter from orifice plate 15).
- It is recommended to install isolation valves upstream and downstream the control valve.
- Close ball valves 6, 7; open ball valves 5, 8, 9 and turn on the water supply to the valve.
- Check for leaks; tighten bolts & fittings if necessary.

PARTS LIST



1. Body
2. Cover
3. Diaphragm
4. Self-flushing "finger" filter

5,6,7,8,9 Ball valves

10. Needle valve
11. 2-way "reducing" pilot model P161B
12. Pressure adjusting screw
13. 2-way "flow control" pilot model P100
14. Pressure adjusting screw
15. Factory pre- calibrated orifice plate to given flow rate

OPERATING INSTRUCTIONS

1. Make sure that there is a downstream flow demand.
2. Close needle valve 10 all the way and then reopen it for 1-2 turns. The needle valve adjusts the hydraulic reaction speed.
3. Loosen security nut and turn adjusting screw 12 counterclockwise, so that there is almost no pressure on the pilot's spring.
4. Open ball valve 6.
5. Turn adjusting screw 12 clockwise, until some tension obtained. The Ultraf will start to open.
6. To increase downstream set pressure, turn adjusting screw 12 clockwise one turn at a time, allowing some time between turns for the valve to respond. Check downstream pressure until required pressure achieved.
7. To decrease downstream pressure, turn adjusting screw 12 counterclockwise one turn at a time, allowing some time between turns, for the valve to respond. Check downstream pressure until required pressure achieved.
8. To increase maximum set flow rate, turn adjusting screw 14 clockwise one turn at a time, allowing some time. Note: It can be increase by approximately 10% from originally pre-designed.

To open the Ultraf completely, Close ball valves 5 & 6; open ball valves 7. Please note that by so doing the pressure downstream will be as high as the pressure upstream.

To close the Ultraf, close ball valves 6 & 7; open ball valves 5, 8, 9.
To maintain downstream set pressure & limit flow, close ball valves 7; open ball valves 5, 8, 9.
To maintain downstream set pressure & limit flow, turn 3-way selector to the "Auto" position.

MAINTENANCE

- No maintenance is required. Check pressure. Adjust if required.
- It is recommended that the valve will be easily accessible as well as clearly marked to prevent damage.
- In freezing climates, the valve should be dismantled, and water drained during the winter months

TROUBLSHOOTING ULTRAF 6070

PROBLEM	CAUSE	CHECK	SOLUTION
The Ultraf does not open.	1. Ball valve 6 or 9 are closed.	1. Check state of valves.	1. Open valve 6 & 9.
	2. One or both pilots (11 & 13) are clogged or damaged.	2. Check manual opening #8 in "operating instructions".	2. Turn off water supply to the valve. Clean / replace seals and sediments buildup in pilots and in valve / pipeline intakes. Check membranes. If needed - Replace damaged pilot(s).
The Ultraf does not close.	1. Ball valve 7 is open or 5 is closed.	1. Check state of valves.	1. Close ball valves 7; open ball valves 5, 8, 9.
	2. Blocked self-flushing filter 4.	2. Poor water flow downstream.	2. Turn off water supply to the valve. Remove filter 4. Clean or replace if needed. Reassemble and activate.
	3. Clogged or stuck needle valve 10.	3. Check state of needle valve.	3. Repeat adjustment as in "Operating instructions" #2 in 1st page.
	4. Foreign object on sealing seat or damaged diaphragm 3.	4. Poor water flow downstream.	4. Turn off water supply to the valve. Dismantle cover 2 and diaphragm 3 and remove the foreign object. Check that diaphragm body and cover are not damaged. Replace if needed. Reassemble and activate.
Unstable pressure/ excessive flow rate	1. Blocked or damaged pilots 11 / 13.	1. Set pressure is not met when flow or inlet pressure changes. Or- excessive flowrate is permitted.	1. Turn off water supply to the valve. Clean/replace seals and sediments in pilots and in valve/pipeline intakes. Check membranes. If needed - Replace damaged pilot(s). Reassemble and activate.
	2. Blocked waterway in ball valves 5,6,7,8,9 / or trim intakes.	2. Slow hydraulic reaction / no reaction.	2. Turn off water supply to the valve. Clean/replace ball valves and sediments in valve / pipeline intakes.
	3. Needle valve 7 improperly adjusted.	3. Irregular downstream pressure.	3. Repeat adjustment as in "Operating instructions" #2 in 1st page

RAPHAEL, founded in 1949, is the first Israeli manufacturer of water control valves. RAPHAEL´s research department constantly strives to introduce new and innovative products and solutions for water control systems including water works, fire-protection and irrigation systems.

RAPHAEL

RAPHAEL Valves Industries (1975) Ltd.

North Industrial Zone Or Akiva, 3063927 P.O.Box 555, Israel

Tel. +972 4 6263555 | info@raphael-valves.com | raphael-valves.com