

Operating Instructions

NORELL® IPV VALVED NMR SAMPLE TUBES FOR INTERMEDIATE PRESSURE

The IPV Valved NMR Sample Tubes for Intermediate Pressure are very useful for experiments requiring conditions such as pressurized inert atmosphere blanketing, addition of reactive gaseous reagents under pressure, containment of low boiling point solvents or samples at elevated temperatures, etc.

The IPV Valved NMR tube quickly and easily connects to 1/16 inch (1.6mm) OD PEEK or PTFE pressure tubing (a common size of laboratory instrumentation pressure line often found on HPLC and GC instruments) using the included 1/16 inch flat-bottom port ferrule and #10-32 threaded compression nut.

We recommend limiting the maximum operating pressure to 600 kPa (6 bar, 87 psi) for a 5mm thin wall NMR tube, 900 kPa (9 bar, 130 psi) for a 5mm medium wall NMR tube, or 1200 kPa (12 bar, 175 psi) for a 5mm heavy wall NMR tube. (Additional information can be found on our website at: Valved NMR Sample Tubes for Intermediate Pressure from NORELL®).

Though the IPV Valved NMR Tube can be used under full vacuum, the small inner diameter of the 1/16 inch tubing used may cause a longer evacuation time to reach a high vacuum level.



1. To make the connection to a pressure source, such as an argon or hydrogen gas cylinder, for example, one end of a short length of PEEK or PTFE pressure tubing of 1/16 inch OD (not supplied with the IPV Valved NMR Tube) must first be connected to the gas pressure regulator outlet, or other source of gas pressure. (Ensure that the regulated pressure is within the safe limits described above for the particular IPV Valved NMR Tube to be used, as well).

2. After this connection is made, the IPV Valved NMR Tube can be easily and quickly connected to the other end of the pressure tubing by slipping the compression nut onto the tubing, followed by the ferrule, oriented so that the tapered end of the ferrule faces into the threaded end of the compression nut, with the large flat end of the ferrule flush with the end of the tubing.

3. Insert the pressure tubing with the ferrule into the threaded opening of the white PTFE valve plug until the ferrule bottoms, then slide the compression nut over the tubing, into the white PTFE valve plug and turn the compression nut until the threads engage. Continue turning the compression nut gently until it begins to tighten upon reaching full depth, then finger tighten an additional 1/4 turn to fully compress the ferrule onto the pressure tubing. Lightly tug at the pressure tubing to be sure it is held firmly in place.

4. Gas pressure can now be applied to the IPV Valved NMR Tube. Turn the Valve Operating Cap counter-clockwise (CCW) to lift the white PTFE valve plug from its seated, closed position and open the valve, allowing gas to flow through the central axial passage of the PTFE valve plug, out through the Valve Flow Orifice, into the surrounding annular space of the glass valve shell and finally through the open valve into the interior of the NMR tube.

5. After the desired level of pressure has been reached, the IPV Valve can be closed by turning the Valve Operating Cap fully clockwise (CW) until the PTFE valve plug is tightly sealed, as shown by the white band of contact (Figure 1 at bottom) then close any additional valve(s) as necessary to the pressure source.

6. To disconnect the IPV Valved NMR Tube from the pressure supply, turn the compression nut counter-clockwise (CCW) until the compression nut, ferrule and pressure line pull free, allowing the IPV Valved NMR Tube to be taken elsewhere as needed.

7. To disassemble the IPV Valved NMR Tube for cleaning, while working in a fume hood, slowly turn the Valve Operating Cap counter-clockwise (CCW) to release any residual pressure contained within, then continue turning the Valve Operating Cap until the threads disengage, allowing the white PTFE valve plug to be removed from the glass valve shell.

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