

Dual Port Valves - User Guide

What is a dual-port valve?

As the name suggests a dual-port valve is one having 2 ports (outlets) rather than the normal 1 port, 1 port having a dip –tube fitted.

The valve is only slightly larger than an equivalent single port valve, meaning that no special cylinders are required.

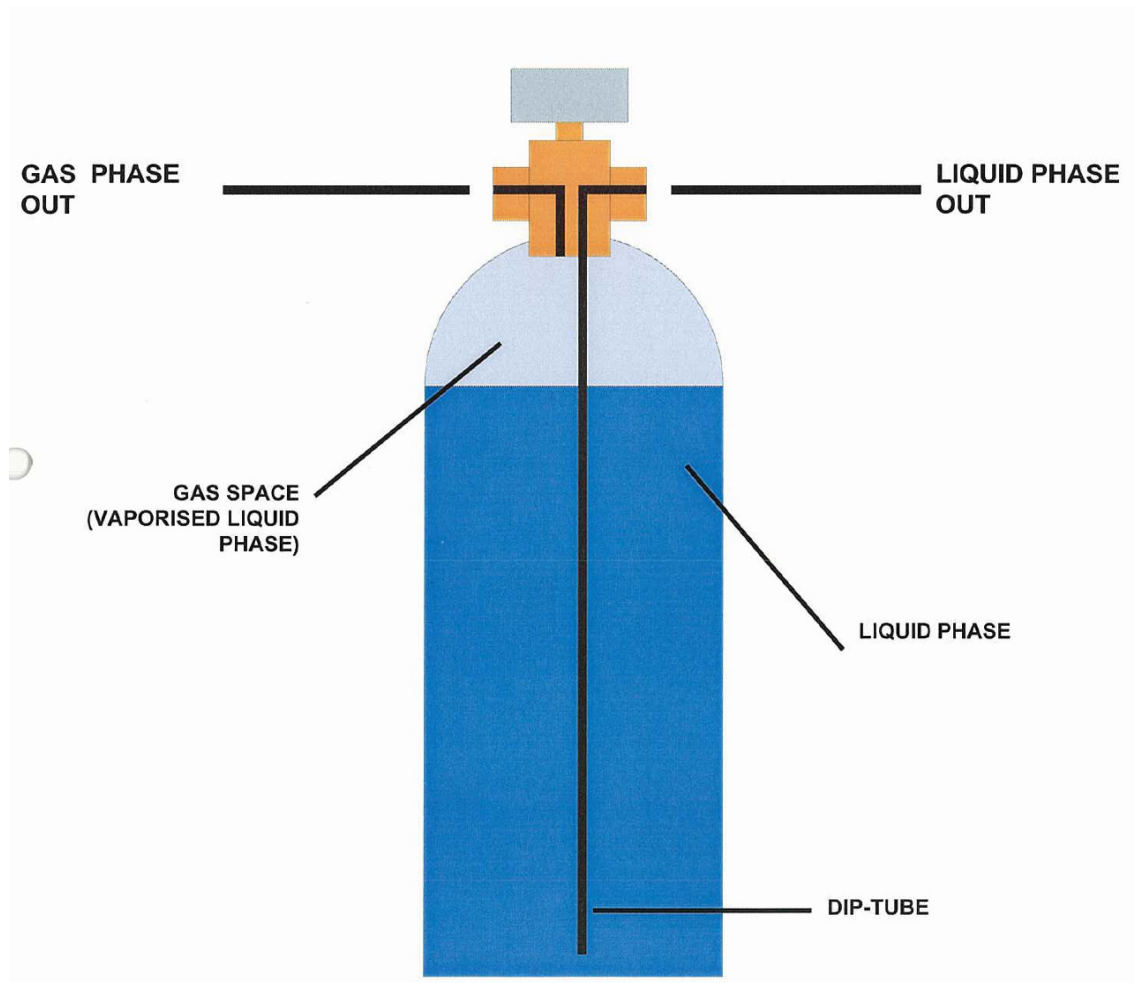
It is usually specified for use with liquefied gas (not cryogenic) either as a pure product phase or as a mixture of different products. A dual port valve will enable the use to take either the liquid phase or the gas phase from a cylinder without having to invert the cylinder.

In the case of pure liquefied products (e.g. Propane, Butane, refrigerants etc) the liquid phase is forced out of the cylinder by the products own saturated vapour pressure. Where the vapour pressure of the product is too low (i.e. below atmospheric pressure) then a supplement pressure may be added (e.g. Helium, Nitrogen etc).

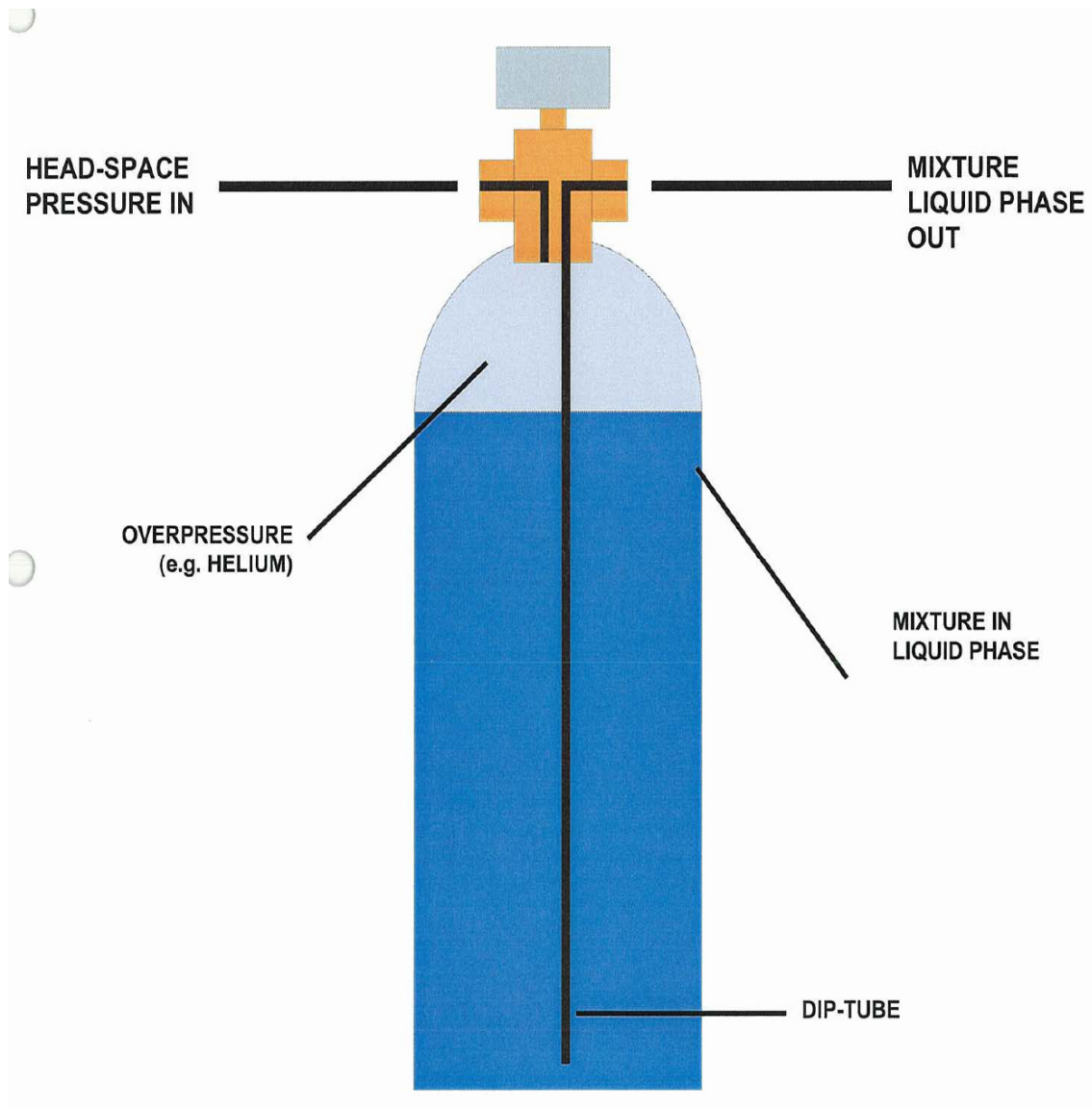
In the case of mixtures (azeotropic), the liquid phase is usually forced out of the cylinder by a “head” pressure (usually called an overpressure) of a permanent gas (e.g. Helium, Nitrogen etc). The reason an overpressure is used for mixtures as standard is to minimize partial vaporisation of the liquid phase possibly resulting in a non-homogeneous mixture.

The next 2 pages show how the dual port valve works for both pure products and for mixtures.

1. Pure Product (e.g. Propane)



2. Liquefied Mixture



The different types of dual-port valve

By far the most common form of dual-port valve is the European standard DIN477 number 1 (called DIN1) for short). This valve is available as either a single outlet variety or as a dual port valve (called DIN1 DP/DT for short). This valve is used for the vast majority of pure hydrocarbon products and hydrocarbon mixtures. The valve is normally constructed out of brass but is available in stainless-steel for those cylinders containing aggressive products. The instructions that follow are based on the DIN1 type of dual port valve but are equally valid for any other dual port valve type.

Other dual port valves which may be encountered include a BS341 number 6 dual port valve (used mainly for refrigerants) and CGA350 dual port (the American version of a DIN1).

There are very special dual port valves which have on the same valve body, 2 differing outlet thread types. An example is a DIN6/DIN8 combination. The reason for this is to prevent accidental connection to the wrong side of the valve (e.g. connecting to the liquid side instead of the gas side). These valves are used for very toxic/corrosive products such as Phosgene and Hydrogen Fluoride.



Handwheel located on central "transit" spindle

Blanking nut

DIN1 (BRASS) DUAL PORT VALVE
NEW TYPE
TRANSIT CONDITION

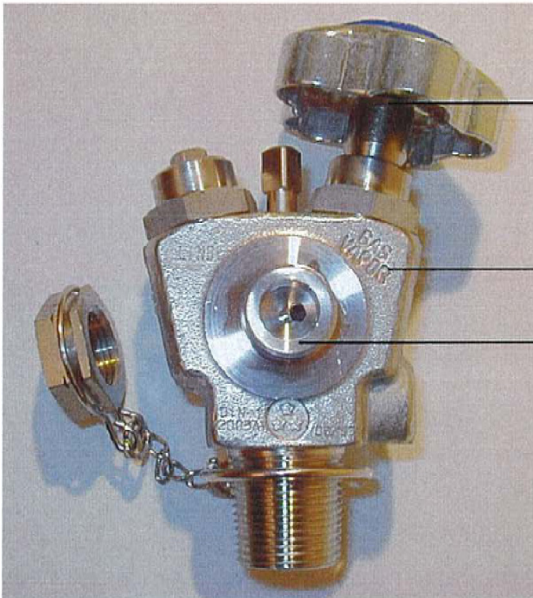


Handwheel on the Liquid spindle

Liquid (Flussig) marking

Liquid port

DIN1 (S/S) DUAL PORT VALVE
NEW TYPE
LIQUID PHASE USE

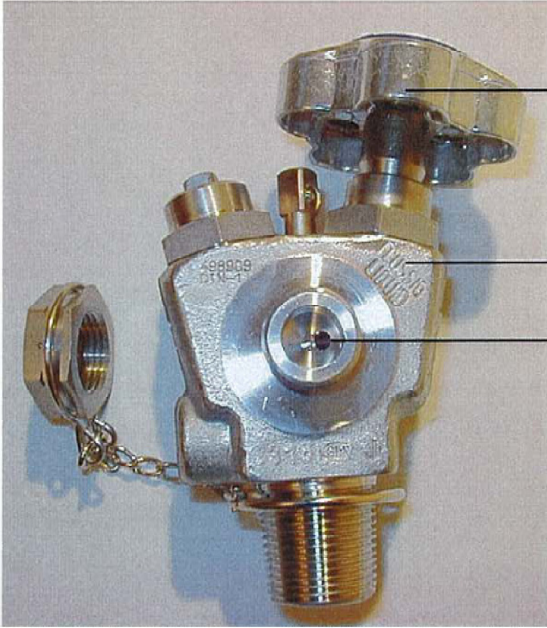


Handwheel on the Gas spindle

Gas (vapour) marking

Gas port

DIN1 (S/S) DUAL PORT VALVE
NEW TYPE
GAS PHASE USE

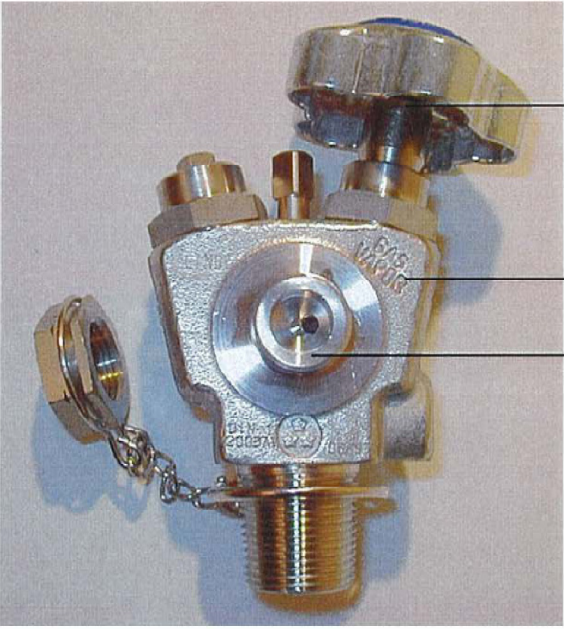


Handwheel on the Liquid spindle

Liquid (Flussig) marking

Liquid port

DIN1 (S/S) DUAL PORT VALVE
NEW TYPE
LIQUID PHASE USE

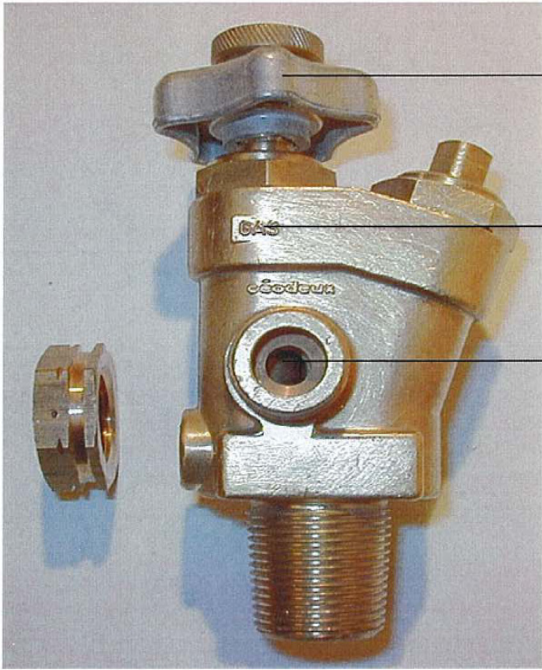


Handwheel on the Gas spindle

Gas (vapour) marking

Gas port

DIN1 (S/S) DUAL PORT VALVE
NEW TYPE
GAS PHASE USE

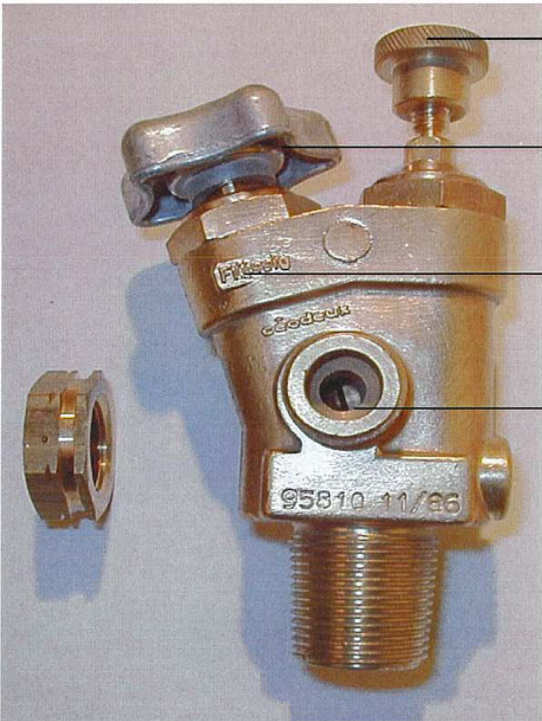


Handwheel on "Gas"
spindle

Gas marking

Gas port

DIN1 (BRASS) DUAL PORT VALVE
OLD TYPE
GAS PHASE USE



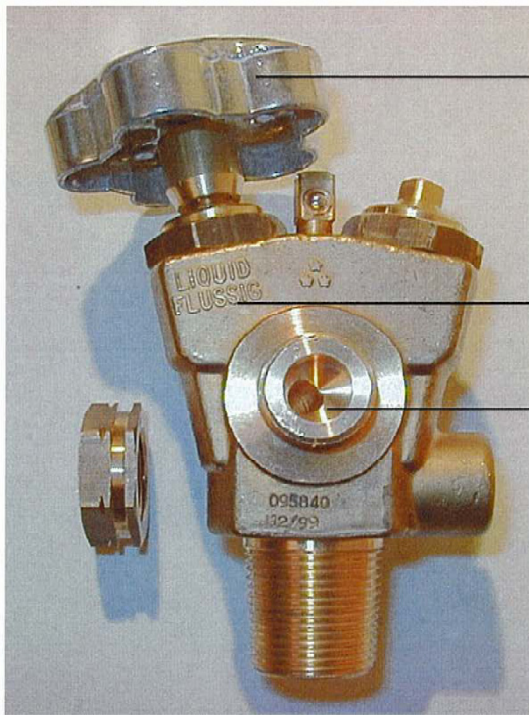
Locking nut

Handwheel on "Liquid"
spindle

Liquid (Flussig) marking

Liquid port

DIN1 (BRASS) DUAL PORT VALVE
OLD TYPE
LIQUID PHASE USE

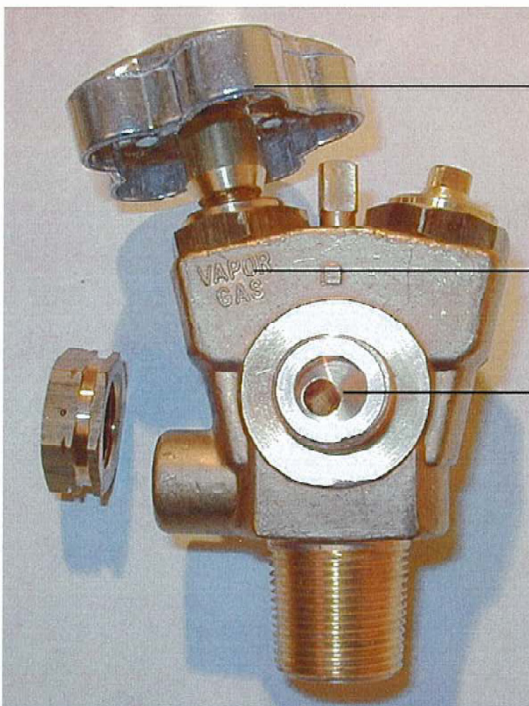


Handwheel on the
"Liquid" spindle

Liquid (Flussig) marking

Liquid port

DIN1 (BRASS) DUAL PORT VALVE
NEW TYPE
LIQUID PHASE USE



Handwheel on the "Gas"
spindle

Gas (Vapour) marking

Gas Port

DIN1 (BRASS) DUAL PORT VALVE
NEW TYPE
GAS PHASE USE



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