

PETAL VALVE - HOW IT WORKS

The valve has eight petals, or two assemblies of eight in the case of double closure units. The use of shafts is eliminated by positioning the petals on a sill, containing them in an annular recess and pivoting one to another by the use of free locating balls contained in cups within the ends of each petal base. Final lock in and radial location is provided by captive ball plugs. The petals pivot on their radial bases and when closed form a cone. Springs acting on the petal cantilevers bias the petals towards the closed position, although they are not depended on to close the valve assembly except when there is no flow at the time of activation.

On assembly, the upstream and downstream sections of the coupling are secured together with titanium alloy break studs, effectively sealing off hydraulic escape ports from petal piston chambers. These chambers are hydraulically charged forcing the petals to pivot open on their base axes and depress the bias springs.

When a state of hydraulic lock has been reached, all the petals are held fully open and a stainless steel sleeve is inserted, with a pair of seals at each end. This ensures a **full and smooth bore** suitable for pigging, acts as a mechanical lock back for the petals and seals off and protects the internal assemblies from the product flow until an activation occurs, ensuring a long, maintenance-free service life.

The hydraulics remain sealed until such time as the coupling separates, allowing the piston chamber oil to bleed away. To suit individual operating conditions, presettable jets are used to systemise the unit. This allows the master petals to close initially, forming a bridge, and the remaining petals to be cushioned down over a period to eliminate line shock. When the operation dictates instantaneous closure, the unit's damper mechanisms are eliminated.

Valve closure is powered by the energy of the flowing product acting on the petal assembly.

THE UNIT IS FAIL SAFE



VIEW OF DOWNSTREAM SECTION OF BENTLEY STANDARD DOUBLE CLOSURE MARINE BREAKAWAY COUPLING FOLLOWING ACTIVATION AND RETRIEVAL OF FLOATING PIPELINE CONDUIT LIFT, SINGLE POINT MOORING TERMINAL, NOVOROSYISK, RUSSIA.



PARTING/CLOSING SEQUENCE STANDARD DOUBLE CLOSURE MARINE BREAKAWAY COUPLING

