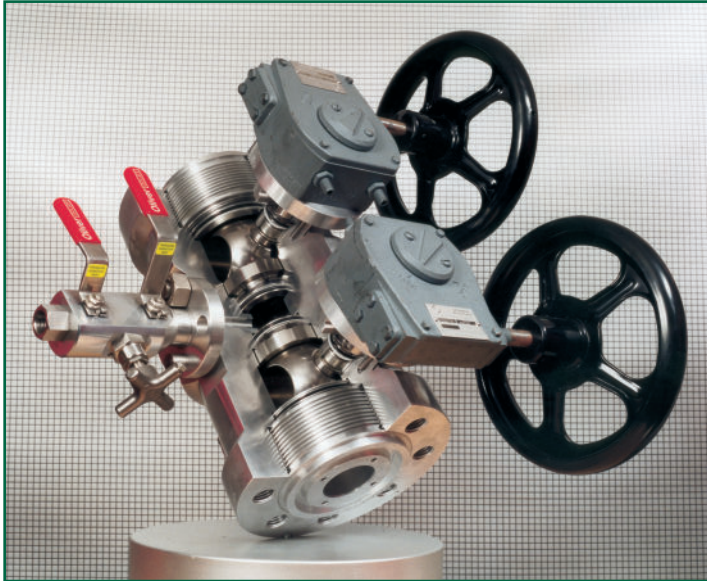


LARGER PROCESS RETURN - FULL BORE

ON FLOWLINES ADDITIONAL \$10,000,000 OF PROCESS THROUGH VALVE A DAY.



Full Bore therefore;

- No system pressure drop problems
- No Hydrate formation problems
- No flow cavitation problems
- No pig restriction problems

A major priority is to MINIMISE PRESSURE DROPS, which will occur in flow lines. By minimising the pressure drops you can maximise the product, which in turn increases PROFIT.

The easiest way to maximise the reductions in diameter of the flow line is to introduce a full bore valve, which will have the largest flow coefficient (C_v) for a given nominal bore.

Flow coefficient, or, C_v by definition is the volume of water in gallons per minute at 60°F that will flow through a given element with a pressure drop of 1 psi. Below are some examples of calculations on different pipeline valves.

**Oliver Twinsafe Valve 6" Double Block
and Bleed Full Bore Ball Valve**

Valve $C_v = 5074$

Typical Single Block 6" Plug Valve

Valve $C_v = 1180$

To calculate the flow that could be achieved from each of these valves with a 1 psi pressure drop, we would use the formula below.

$$Q = C_v \sqrt{\frac{\Delta P}{(s.g.)}}$$

Q = Flow, gallons per minute
 C_v = Flow coefficient
 ΔP = Pressure Drop, psi
s.g. = Specific gravity

The process media will be taken as API 40° Crude with specific gravity of 0.825.

**Oliver Twinsafe Valve 6" Double Block
and Bleed Full Bore Ball Valve**

Flow = 5586 Gallons/Minute

**This actually equates to 191,489 barrels
per day**

Typical Single Block 6" Plug Valve

Flow = 1299 Gallons/Minute

**This actually equates to 44,532 barrels
per day**

Taking the difference between these two figures of 146,966 barrels per day and multiplying this by cost of a barrel of crude oil \$90 it can be seen that an extra \$13,226,940 a day can be produced which is why it makes sense to install an Oliver Twinsafe Full Bore Double Block and Bleed valve.

**Minimising Leak Paths = Maximum Safety.
Maximising Through Paths = Maximum Profits.**

