

## FlowCAT™ - A Wireless Retrofit Safety Valve



The Expro FlowCAT™ is a fail-safe closed safety valve that can be retrofitted into the well and controlled wirelessly from surface using Expro's award-winning Cableless Telemetry System (CaTS™).

The poppet style valve design is held open by the continuous transmission of EM signals from surface. If the signal transmission is interrupted or a "close" command is transmitted, then a spring will power the poppet into a closed position. An over-pressure reset is applied from surface to re-open the valve and return the well onto production.

In situations where the tubing retrievable downhole safety valve has failed, or the control line is plugged, FlowCAT provides a more consistent and reliable alternative to storm chokes, and a more cost effective solution to performing a full well work over.

The FlowCAT valve is deployed into the well using conventional slickline deployment procedures and can be installed in the existing safety valve nipple profile, or elsewhere in the well, using any industry standard suspension device.

### Benefits:

- Fail-safe closed design
- Installed using standard wireline intervention equipment and procedures
- Sophisticated wireless telemetry protocol minimises the opportunity for "false-close" events
- Compatible with both onshore and offshore platform environments
- Requires no wellhead modifications, penetrations or additional spool pieces
- Valve is resettable from surface without well intervention
- Flexibility over setting depth using standard suspension devices
- Non-elastometric sealing faces provide high integrity sealing; zero leak rate observed during repeated valve function testing
- Capable of high differential uploading across sealing faces
- The surface transmitter has a flexible interface to the existing ESD control system

### Applications:

- Provides a retrofit, surface controlled, flow control solution in wells in which the SC-SSSV control line is plugged or leaking
- Provides a retrofit safety valve option for use in wells never having a surface controlled safety valve installed
- A surface controllable alternative to storm chokes in situations where well flow fluctuations makes the performance of velocity type valves unpredictable
- Frees up the safety valve landing nipple in capillary tube or foam/chemical injection applications
- Allows wells having no safety valve installed to continue to be produced during high density infill drilling operations



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**Performance specification:**

Parameter	Value
Wireless signal type	ElectroMagnetic (EM)
Signal Carrier	Tubing / Casing

**Physical Parameters**

Size	To suit 4.5" 12.6# tubing and 3.812" nipple (additional sizes on request)
Maximum OD	3.60" (not including lock no-go)
Length	7.32m (includes 12 month battery pack and equalising assembly)
Metallurgy and seals	Suitable for sour service (to NACE MR0175 – 2003)

**Operating Parameters**

Pressure rating	5,000 psig (34.4 MPa)
Test pressure	7,500 psig (51.7 MPa)
Temperature range	0°C to 125°C (32°F to 257°F)
Maximum tensile and compressive load	75,000 lbf
Mode of operation	Fail-safe closed with pressure re-set from surface
Time to close	10 - 60 seconds
Flow performance in 4.5" 12.6# tubing	Minimum flow area 2.835 Sq In
Pressure requirement to reset valve	1,500 psi above shut in wellhead pressure
Setting depth	0 to 600m, subject to well parameters.
Operating life expectancy	Target 12 months battery life
Valve qualification	In accordance with a modified API 14A Class1 / ISO 10432 1999 test procedure
Topside transmitter certification	In accordance with ATEX 94/9/EC directive for use in a Zone 1 hazardous area

