FCV 3000C ROV

Heavy Work Class Remotely Operated Vehicle

The FCV 3000C is designed and built in-house by Fugro and offers the next generation of performance and capability to our world-wide customer base. The FCV 3000C reflects the Fugro commitment to Remote Technology Solutions and incorporates a range of internally developed expertise to help us deliver information from collected data, faster, better and with enhanced accuracy.

Over the years Fugro has developed a wide range of innovative technology and solutions to better address our customers' needs, so it is logical that when we turn our attention to the objectives of our ROV Business Line, we build the new generation of capability on a stable platform of field proven components and include our own particular brand of innovation.

Like its predecessors, the FCV 3000C is part of an evolving system design that provides the customers with all of the essential demands of the deep water ROV System. Such as a 3.5 knot forward and 3.4 knot lateral speed capability, delivered by its 200hp hydraulic power system, through an 800kgf high power, vectored thrust design. This base level of standard capability, combined with the industry leading Sonar, Camera and Manipulator Systems of the 3,000msw rated FCV 3000C will immediately allow the unit to be recognized as an acceptable solution to the rigours of deep water intervention and support.

However, it is in the implementation of the "hidden capability" that will distinguish the Fugro contribution to Remote Technology.

The Fugro view is to "collect and interpret data related to the earth's surface and the soils and rocks beneath", however customers are looking for more than just "data", they are looking for "advice or information" and the FCV 3000C has been designed to allow that information to be available faster and with enhanced accuracy, through the inclusion of in-house developed technology that allows the original data to be time-stamped at the point of origin – the ROV Sensor. This provides the "data set" at the surface requiring only minimal manipulation to translate it to "information".

Other key capabilities that are incorporated into the FCV 3000C are designed to improve the efficiency of the operations and address the needs to provide greater spatial awareness to the Operations Team. The FCV 3000C will offer:

- Real time visualization of the local subsea environment – helicopter view
- Mission rehearsal tools – Simulation and Planning
- Semi autonomous functionality
- 3 Dimensional Dynamic Positioning

Primarily targeted at the deep water areas of the world, the FCV 3000C has been designed to be scaled both upwards, shallower, and downwards, deeper, to cater for the varying demands of the Fugro global customer base.

The FCV 3000C has been developed specifically so as to be easily configured, or re-configured, for all types of tasks, not only in the oil and gas support sector, but also in the other Fugro capabilities can be incorporated to produce a complete package for Integrated Service Provision to the customers.

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Typical operations can range from Drill Rig Support, to Flowline Connection, to Field Support, without the need for any modifications to the Core Vehicle or System. This is accomplished by the fitting of a variety of Tooling Packages that can be rapidly installed to the ROV, by means of "standard interfaces", both mechanical and control, which maps any new sensors to the surface without the need to open Pods and complete a re-wiring exercise. These interfaces ensure that operational changes can be implemented safely and efficiently, with the minimum of fuss, in a limited space environment as typically found on even the fifth generation of Drilling Units.

Typical operations for the FCV 3000C are:

Construction Support Services

- Pipeline route surveys
- Multibeam surveys
- Route and crossing preparation
- Flowline connection
- As-laid, as-trenched and as-built surveys
- Touch down monitoring
- Pipeline and Flowline Commissioning

Filed Support

- Choke / SCM changeout
- Emergency Intervention – Valve override
- Facilities enhancement
- Downhole intervention – valve opening

Inspection, Repair and Maintenance (IRM)

- Pipeline and structures inspection
- Marine growth surveys and removal
- CP / CD surveys
- Freespan correction, including the use of mechanical supports

Drill Rig Support

- All phases of Drilling support, with Tooling
- Wellhead, Manifold and Subsea Tree intervention
- Subsea Facilities abandonment / recovery
- Well Completion and Workover support
- Choke and / or SCM changeout
- Debris clearance surveys

Depth Rating	
Design	3,000msw
Load	3g
Dimensions	
Length	3.0m
Height	1.7m (excel TMS)
Width	1.7m
Weight	4.0Te (incl 400kg payload)
Power	
Motor	1x2850vax @ 150KW (200hp)
Hydraulic Pump Flow	217 + 70lpm@60Hz
Hydraulic Pump Pressure	225 / 210 bar
Single Phase Electric Supply	10KVA providing 24vdc & 115vac
Speed	
Forward / Alt	3.5 knots
Lateral	3.4 knots
Vertical up / down	2.7 knots
Thrusters	
4 x 15' vectored	Fwd: 800kgf / Lateral: 800kgf
3 x 15' vectored	Vertical: 800kgf
Manipulators	
Manipulator 1	Schilling TITAN 4
Manipulator 2	Schilling Rigmaster
Tooling	
Mechanical Interface	Fugro Proprietary – 4 point
Through Frame Lift	3,000kg
Bi-Directional Solenoid	20 x Solenoid Valve Channels
Servo Valves	8, being 7 Thruster + 1 + 2 channels

Control System	
Vehicle Control	Fugro Proprietary ERA-004
FO Multiplexer	Enhanced Prizm Mini 4
Survey Module	Fugro Proprietary StarPort
Sensors	
Heading	Octans III
Pitch and Roll	Octans III
Depth	Digiquartz 8CB4000-I
Altimeter	Simrad 1007 Digital Altimeter
Sonar	KM 1071 6000m Digital
Camera	Minimum of 12 x separate Video channel + 3 x HDTV channel
Light	4 x 600W switch and dim channels
Power Requirements	
System (typical)	500kVA, 380-500vac 3-ph Supply 50/60Hz
Main Lifting Umbilical	Optimized armored design with single mode fibers in robust steel tube
Umbilical Winch	
Winch Capacity	3,800m of 37mm diameter umbilical
Line Pull – Top Layer	10,000kg
Certification	DNV Design & Manufacture
LAR System	
A-Frame Outreach	4.0m
Telescope Range	1.96m
SWL	11,000kg to DNV Rules
TMS	
Type	Side Entry of Top Hat as required
Tether	600m of 30mm diameter tether

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