

9 Function Pneumatic IWOCS Hydraulic Mini-Panel



This IWOCS hydraulic mini panel features pneumatically driven pumps for both the LP and HP functions. Panel mounted gauges, regulators, ball valves and needle valves provide control and monitoring for all nine functions. The units also feature a hydraulic flow meter on the low pressure supply circuit allowing the accurate measurement of function flow.

There is an accumulator connection port on the panel bulkhead. This can be used to add accumulation to the system. Additional accumulation allows reduced Xmas tree valve response times, as well as the added safety of an accumulated store of hydraulic fluid under pressure should there be a failure in the compressed air supply.

The panel functions can be configured to suit client requirements and are particularly suited to Xmas tree running/testing; subsea running tool operations and SITs, where a full HPU may not be required. A stand-alone ESD system with remote stations can also be added for up to four functions.



Technical details

Low pressure system	3,000 psi max working pressure	High pressure system	10,000 psi max working pressure
Low pressure lines	LP1 - LP7	High pressure lines	HP1 - HP2
Low pressure flow (@3,000 psi)	10 l/min	High pressure flow (@1,000 psi)	1.2 l/min
Low pressure flow totaliser		High pressure connections	JIC 4
Low pressure hot line	Suitable for addition of accumulator bank	Low pressure pump	Haskel GSF60
Low pressure connections	JIC 6	High pressure pump	Haskel AW100
Recirculation filter	3 micron return filter and sample point	Reservoir Capacity	60 litres
Gross weight	500 kg	Dimensions	1,390 x 600 x 1,200 mm

19 Function Pneumatic IWOCs Hydraulic Power Unit



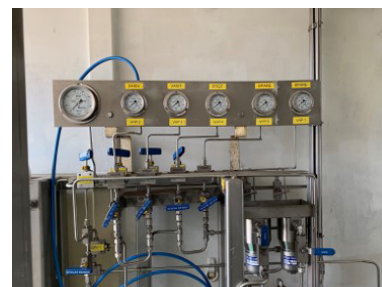
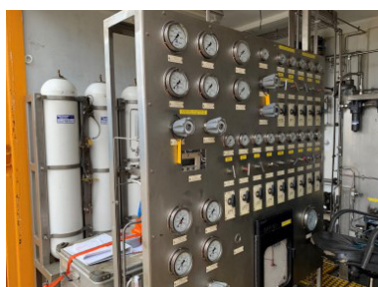
This IWOCs hydraulic power unit features an air driven pumps for the LP, HP and VHP functions with pneumatic pump back-up on LP and HP functions. Panel mounted gauges, ball valves and needle valves provide control and monitoring for all 19 functions.

A Walther multi-function hydraulic connection plate provides function connection to the chosen reeler via a multi-core deck jumper.

The unit is fully containerised providing a safe and weather-tight work area.

The unit features accumulators on both LP and HP circuits to allow faster Xmas tree valve operations and an accumulated store of hydraulic fluid should the compressed air supply be lost.

The panel functions can be configured to suit client requirements and a stand-alone ESD system with remote stations can also be added for up to four functions.



Technical details

Hydraulic output capacity		Fluid compatability	
High pressure circuits	10,000 psi max working pressure	Suitable for both water based glycol and light oil based hydraulic fluid types with kinematic viscosity <15 cSt @ 40oC.	
Low pressure system	3,000 psi max working pressure		
Very high pressure	20,000 psi max working pressure	Compressed air input	
Dimensions	3,000 x 2,420 x 2650 mm	Min pressure	100 psi
Weights dry		HPU accumulator pre-charge standard pressures	
Tare	2,500 kg	2 x HP	2,600 psi (variable)
SWL	7,050 kg	4 x HP	1,812 psi (variable)
Gross	9,550 kg	Electrical input	CTE 110VAC, 16 Amp, 1ph, 50/60Hz

20 Function Electro-Pneumatic IWOCS Hydraulic Power Unit



This IWOCS hydraulic power unit features an electric driven pump for the LP functions with a pneumatic pump for HP functions. Panel mounted gauges, ball valves and needle valves provide control and monitoring for all 20 functions.

A Walther multi-function hydraulic connection plate provides full function connection to the chosen reeler via a multi-core deck jumper.

The unit is fully DNV containerised with separate control and pump room sections providing a safe and noise reduced work area.

The panel functions can be configured to suit client requirements and a stand-alone ESD system with remote stations can also be added for up to four functions.



Technical details

High pressure system	10,000 psi MWP	Low pressure system	3000 psi MWP
High pressure lines	HP9 – HP16; HP Hot Lines HP17 – HP20	Low pressure lines	LP1 – LP8
High pressure out put	1 LPM	Low pressure output	35 LPM
Min working pressure	7,500 psiG	Min working pressure	3,000 psiG
Max working pressure	10,000 psiG	Max working pressure	4,000 psiG
Filter size	3 micron	Filter size	3 micron
Suitable for both water based glycol and light oil based hydraulic fluid types with kinematic viscosity <15 cSt @ 40oC.			
Minimum air pressure	75 psiG	Weight	
Electrical requirements	CTE 400VAC, 24 Amp, 3ph, 50/60Hz	Tare	
Input connector type	130VAC 16A-4H 2P+E	SWL	
Dimensions	3,660 x 2,400 x 2,750 mm	Gross	

Pneumatically Operated Electrical Down-Line Mini-Reeler

The pneumatically operated electrical down-line mini-reeler is designed to handle subsea electrical cables of varied configuration. Its small footprint and ease of operation allows operation of the reeler where space is at a premium. Commonly used for Xmas tree and completion down-hole sensor duties, the mini reeler can be quickly mobilised, including electrical IR testing.

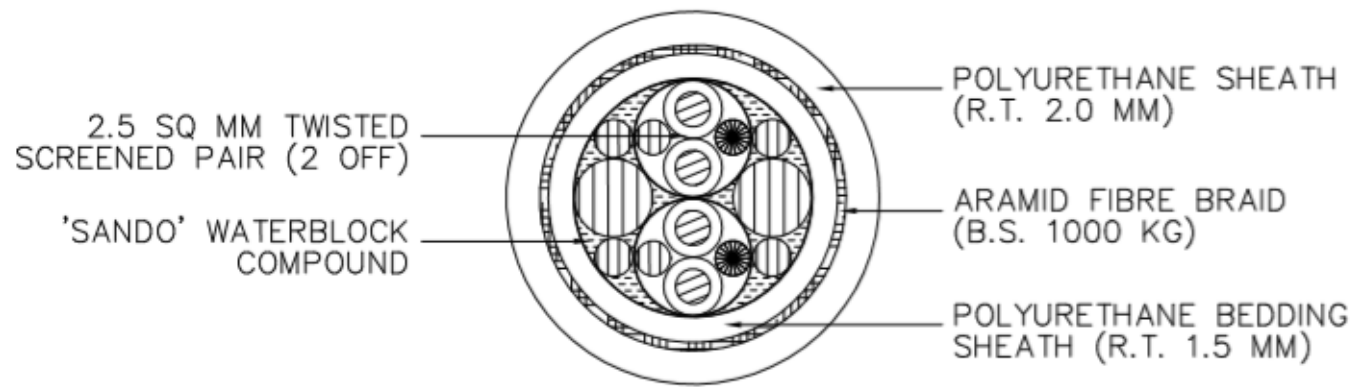
The reeler comes equipped with an electrical junction box, which can be fitted with a connection/pigs tail to client requirements to allow fast and easy connection to the down-line.

The motor drives the system and contains an automatic brake. All input air is filtered and lubricated as well as being regulated to the correct pressure. A lever operated joystick (directional control valve) is located on the control panel in the frame on the side of the drum to operate the speed and direction of the motor and a locking pin is also situated on the side of the frame to stop the drum rotating during transportation should the brake fail. The locking pin is primarily a safety device.



Technical details

Compressed air input		Weight	
Max volume	60 cfm	Tare weight	800 kg
Max pressure	8 bar (120 psi)	Payload weight	4,000 kg
Dimensions	1,420 x 1,450 x 1,550 mm	Gross weight	4,800 kg



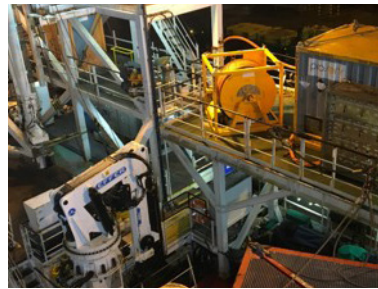
Pneumatically Operated Umbilical Mini-Reeler

The pneumatically operated umbilical mini-reeler is designed to handle smaller umbilicals up to eight cores, dependant on outer diameter of the umbilical. Its small footprint and ease of operation allows operation of the reeler where space is at a premium. Commonly used for Xmas tree running and pressure testing duties, the mini reeler can be quickly mobilised, including high pressure hydrostatic testing and fill/flushing of client specified fluid to SAE 4059 Rev. E Class 6B-F.

The motor drives the system and contains an automatic brake. All input air is filtered and lubricated as well as being regulated to the correct pressure. A lever operated joystick (directional control valve) is located on the

control panel in the frame on the side of the drum to operate the speed and direction of the motor. A locking pin is also situated on the side of the frame to stop the drum rotating during transportation should the brake fail. The locking pin is primarily a safety device.

The HP system is designed to operate at 10,000 psi (690 bar) and consists of up to eight inlets from an external source and up to eight outlet connections. The inlet connections are supplied from four JIC bulkhead fittings and are connected directly to the umbilical on the rear of the kidney panel. Up to six of the bulkhead outlets have a pressure gauge and a two way needle valve to provide lock-in facility.



Technical details

Output capacity		Dimensions	1,810 x 1,600 x 1,840 mm
High pressure system	10,000 psi (690 bar) MWP	Tare weight	1,500 kg
Compressed air input		SWL weight	2,500 kg
Minimum volume	60 cfm	Gross weight	4,000 kg
Maximum pressure	16 bar (232 psi)	Suitable for both water based glycol and light oil based hydraulic fluid types with kinematic viscosity <15 cSt @ 40°C	

Pneumatically Operated Umbilical Reeler



The pneumatically operated umbilical reeler is a purpose built umbilical reeler for the deployment, retrieval and storage of an umbilical that routes hydraulic supplies topside to subsea Xmas trees. The reeler uses a protective frame to enclose a pneumatic motor, gearbox chain drive and control panel and bulkhead interface. Protective meshing encloses the moving components from ingress.

The umbilical reeling and spooling mechanism is powered through a pneumatic radial piston motor fed through a reduction gearbox to achieve the correct drum speed. The drum speed and direction is controlled by a failsafe lever control valve. When the lever is released, it returns to the centre and the flow of air blocked from reaching the motor and applies a brake to the rotating drum.

Padeyes complete with sling set and forklift pockets are provided with the reeler. The padeyes are sized to suit 8.5 tonne shackles and are safe to use for lifting the gross weight of the reeler. The forklift pockets can be used with a suitably rated forklift. A locking pin is situated on

the side of the frame to prevent the drum rotating during transportation should the brake fail. The locking pin is primarily a safety device.

The umbilical on the reeler is interchangeable and is swapped out for each job as required and each one will be different. Details of the umbilical are job specific.



Technical details: DNV 2.7-1

Dimensions	2.9 x 2.84 x 3.15 m	Fitting	1" Crows foot connection	Gearbox type	Brevini EC4090 / MNI / 400 / 00 / B3	Motor max pressure	8 bar
Weight	Gross 10,000 kg Tare 6,000 kg	Motor type	Globe RM310 motor	Gearbox ratio	400:1	Motor max flow rate	440 cfm
Lifting options	Slings and forklift pockets	Motor RPM maximum	1,800 rpm	Drive sprocket	12B-1 X33T WP	Operational controls	Mechanical pneumatic
Spooler access	Open from front and rear, caged restriction from sides and above	Power output	7.5 kW at 8 bar	Chain size	3/4" pitch	Unit colour	Proserv yellow / grey
Power supply	Pneumatic	Max torque at 6 bar	43 Nm a 1,800 RPM	Motor operation pressure	6 bar	Lubricant	Kilfrost 400

Pneumatically Operated Umbilical Reeler



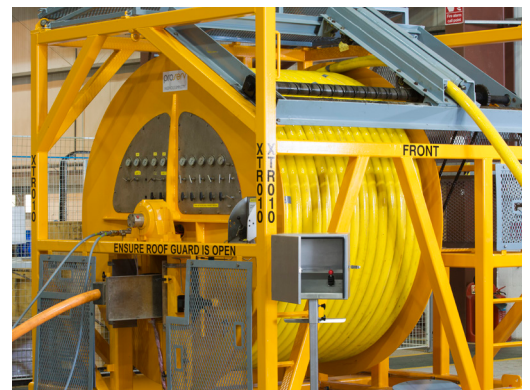
The pneumatically operated umbilical reeler is a purpose built umbilical reeler for the deployment, retrieval and storage of an umbilical which routes hydraulic supplies topside to subsea Xmas trees. The reeler uses a protective frame to enclose a pneumatic motor, gearbox chain drive and control panel and bulkhead interface. Protective meshing encloses the moving components from ingress.

The umbilical reeling and spooling mechanism is powered through a pneumatic radial piston motor fed through a reduction gearbox to achieve the correct drum speed. The drum speed and direction is controlled by a failsafe lever control valve. When the lever is released, it returns to the centre and the flow of air blocked from reaching the motor and applies a brake to the rotating drum.

Padeyes complete with sling set and forklift pockets are provided with the reeler. The padeyes are sized to suit 8.5 tonne shackles and are safe to use for lifting the gross weight of the reeler. The forklift pockets can be used with a suitably rated forklift. A locking pin is situated on

the side of the frame to prevent the drum rotating during transportation should the brake fail. The locking pin is primarily a safety device.

The umbilical on the reeler is interchangeable and is swapped out for each job as required and each one will be different. Details of the umbilical are job specific.



Technical details

Dimensions	2.9 x 2.89 x 3.27 m	Motor type	Globe RM310 motor	Drive sprocket	12B-1 X33T WP	Motor max flow rate	440 cfm
Weight	Gross 10,000 kg Tare 6,000 kg	Power output	7.5 kW at 8 bar	Chain size	3/4" pitch	Operational controls	Mechanical / pneumatic
Lifting options	Slings and forklift pockets	Max torque at 6 bar	43 Nm a 1,800 RPM	Motor operation pressure	6 bar	Unit colour	Proserv yellow / grey
Power supply	Pneumatic	Gearbox type	Brevini EC4090 / MNI / 400 / 00 / B3	Motor max pressure	8 bar	Lubricant	Kilfrost 400
Fitting	1" Crows foot connection	Gearbox ratio	400:1				

Umbilical Deployment Basket

The IWOCS umbilical deployment basket is a flexible deployment solution that can be tailored and modified easily to suit client requirements. The basket can accept up to two hydraulic flying lead parking plates from any manufacturer and the frame can accommodate multiple electrical flying lead parking receptacles.

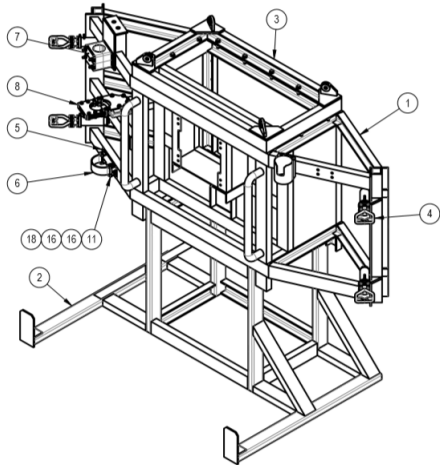
The basket is designed to be run on existing guidewires above the BOP/XT, but modifications can be added in

a modular arrangement to facilitate deployment onto the sea bed, or with a direct interface with other subsea infrastructure.

All Proserv umbilical deployment baskets come with an emergency umbilical severance system, allowing quick emergency disconnect of the WOCS.



Technical details	
Tare weight	150 kg
SWL weight	450 kg
Gross weight	12,000 kg
Dimensions	2.70 x 0.88 x 1.30 m



20 Way Umbilical Hose Winch

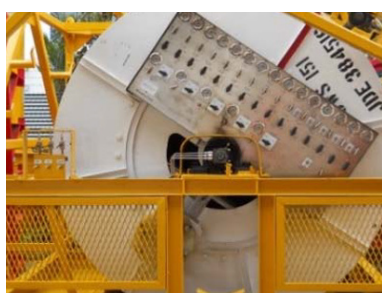


The umbilical reel is designed to meet customers hydraulic control requirements for horizontal and vertical well completions.

It can include as many hydraulic connections as requested for operation and can also be used to control subsea tree functions and LMRP/BOP control system functions.

The umbilical reel is fitted with a spool gear and gauge panel on the drum side with a facility to lock in all 20 functions.

The reel includes an electrical plug for umbilical electric cables. All moving parts are fully guarded with wire mesh guards.



Technical details

Drum capacity	350 m x 20 way umbilical	Dimensions	300 x 300 x300 cm
Connectors	24 Way Walter stab plate and live center	Tare weight	3,400 kg
Drive System	18 HP air motor with SAAR multi disc brakes	Max gross weight	10,000 kg
Brake pull test	@ 1 Ton	Certification	Australian standards Built to Lloyds BS7072/IEE
Reduction mechanism	60:1 Gearbox		
Bearing ratings	14,000 kgf dynamic and 10,000 kgf static load		
Umbilical length	300 m		
Air supply	120 psi		
Working pressure	10,000 psi		

Specification Sheet

20 Way Hydraulic Power Unit

proserv

20 function workover control panel.

11 functions 5k and 9 functions 10k.

Fluid circulation pump with 3micron filters and sampling points.

Digital flowmeter for LP and HP line and a built in 15k psi chart recorder.

HPU is fitted with hotstab connection HP LP and return.



Technical details

Reservoir	700 litres	Haskel low pressure pump (2 sets)		Haskel nitrogen pump	
Low pressure accumulator	4 each x 37 litres	Assembly no	AW-60	Model number	ACD-62
Low pressure max working pressure	5,000 psi	Nominal ratio	60:1	Type	Single stage double acting
High pressure accumulator	2 each x 12 litres	Max pressure	9,800 psi liquid	Max gas in	9,000 psi
High pressure max working pressure	10,000 psi	Date manufactured	August 2007	Max gas out	9,000 psi
LP and HP pumps (two each)	Haskel air driven pump	Haskel high pressure pump (2 sets)		Oaler Fawcett Christie Cylinder (2 sets) High Pressure Side	
Lighting	220 volts	Assembly & serial no	AW-100 / 807-921	Charged to	4,200 psi
Tare weight	3,500 kg	Nominal ratio	100:1	Size	12 litres
Net weight	1,500 kg	Max pressure	16,500 psi liquid	Model	1205k-DC-694
Gross weight	5,000 kg	Date manufactured	August 2007	Max working pressure	690 bar
Proof load	10,000 kg	Haskel Circulating Pump		Oaler Fawcett Christie Cylinder (2 sets) Low Pressure Side	
Dimensions	320 x 250 x 270 cm	Assembly number	ATV-4	Charged to	2,300 psi
Standards	LLoyds Bs 7072 / IEE	Nominal ratio	4:1	Size	37 litres
Rated zone	Zone 1	Max pressure	1200 psi liquid	Model	AC-3703F-CZ-344
		Manufacture	August 2007	Max working pressure	345 bar