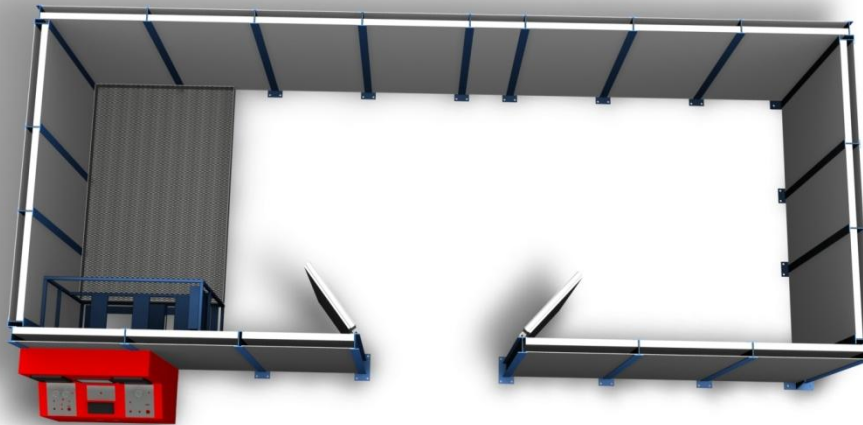


### Option B – Sectional Test Bay

These units are fabricated to a design allowing the sections to be transported in standard ISO Shipping Containers this means they can be utilised in any location worldwide which this give the benefit of maximum efficiency by using the units to satisfy short term contracts with no long term commitment and they can also be used in locations faced with with extreme work above their existing capacity to meet customer demands. The simplicity in design and construction means ease of installation and commissioning and the reverse when relocation is required. The financial benefits of this system include not one location having to take a direct cost on their fixed asset as the cost could be spread around the Region / Geo Market etc.

Additional accessory equipment listed below can be provided along with the Test Bay to ensure that it would be fully operational on arrival at location.

- Diesel or Electric powered Air Compressor unit with sufficient air tank capacity for test system
- Diesel powered Generator unit to run all electrics in Test Bay and Control Room
- Reverse Air Condition Units to provide cooling or heating as location requirements
- Electric ,Air or Mechanical Operated Overhead Crane to span full length and width of Test Bay
- Fixed and Portable Baker Style G Clamp Vices
- Portable Completion Assembly Height Adjustable support stands
- Portable Fluid recycling system for Pressure Testing Fluids
- Full range of Certified Test Fixtures as specified by Client
- Full Range of Internal and External API Drift Bars as specified by Client.
- Purpose built storage racks for Test Equipment.



#### Specifications and Details:

#### Sectional Pressure Test Bay

The pressure test bay must be a full walled enclosure of convenient dimension to house the equipment to be tested.

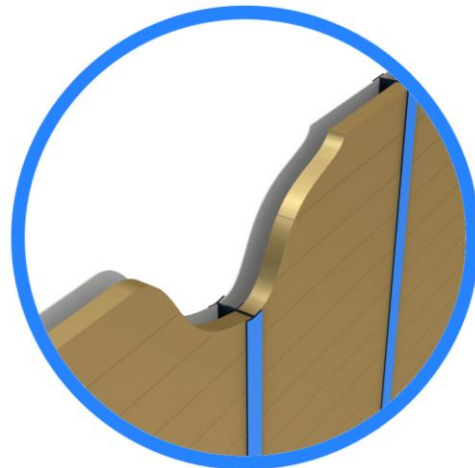
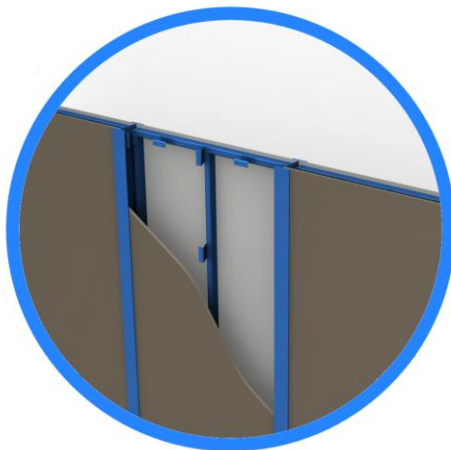
As the units are constructed in sections the minimum length of the pressure test bay must be based on the consideration of the maximum length of the tool to be tested.

We offer various design options for the installation of module assemblies into the test area, further detail and information can be provided on these if required.

Design features are to be based on calculation for 25,000 psi maximum test pressure or to whatever customer requirements are.

For the construction the walls and roof will be reinforced to design criteria of the pressure test requirements

Internal side of the walls should be lined with energy-absorbing material such as wood or compressed wood fibre panels of at least 7/8 in.



#### **Fluid re-cycling system**

Various designs suitable for specific locations are available to meet the necessity of capturing , filtering and re-using pressure test fluids , details on these can be provided if required

#### **Doors**

The doors must connect the four walls into a continuous barrier. One double door access is provided at end of container, again the doors would be constructed and reinforced to meet the design criteria of the pressure test requirements.

Doors must have two layers of steel of at least 0.25 in. [6 mm] thick with energy-absorbing material, such as wood or compressed wood fibre panels of at least 7/8 in. inserted between the steel layers



### Option B – Sectional Test Bay

#### Pressure Test Unit

The Control Panel is located inside the Control Room - which is constructed to the same design criteria - and is located adjacent to the Test Bay.

It houses all the pump controls, pressure gauges and pressure recorders monitoring the test pressure, indicators and safety devices.

The Test Bay Camera monitors are also mounted in the Control Room for the Operator to observe and record.

The fittings for test pumps and equipment must be equal to or higher than the rating of the highest pressure pump in the system.

#### Safety Devices

The door locks must be interlocked with the pump air supply and the pump bleed-off system, so that initial pressure cannot be applied unless the doors are locked. The door lock is completely released only when the pressure is totally bled off, preventing access inside the enclosure when the tested piece is under pressure.

A pressure switch turns on a flashing light or lighted flashing warning sign as soon as pump pressure is applied.

#### Cameras

There must be a minimum of two cameras. The first camera must be along any of the longitudinal walls. This camera must be fixed and have the capability to move up, down, left, right, and zoom and light the area if needed. Ideally, if it has the flexibility to travel up and down the height of the wall would be an improvement.

The second needs to be mounted on the wall opposite and parallel of the main door and at the same height as the vice. The camera needs to be fixed and have the capability to zoom in and light the area if needed

#### Fittings and Lines

The WP of all fittings and lines in the test bay must be equal to or higher than the highest pressure pump in the system. Therefore, the test bay's permanent equipment must have connections rated for the highest test pressure with a 1.5 Safety Factor hence: the permanent equipment requires premium type fittings (e.g., Autoclave fittings).

#### Test Fixtures, Caps and Test Plugs

All test fixtures, caps and test plugs must be used only in the pressure test bay and must be clearly marked with:

- Working Pressure
- Maximum Test Pressure
- Local identification number
- FOR SHOP USE ONLY – not for offshore / rig location use

Adapters, blanking plugs and test plugs must have full traceability and must have a working pressure rating greater than or equal to the working pressure of the equipment to be tested. A full list of test fixtures referenced with individual identification number and ratings must be kept next to the pressure bay control panel.



#### Continued

All test fixtures, caps and test plugs must be certified at a minimum frequency of 1 year or according to the manufacture's specifications, whichever is lower. The frequency of the usage can call for more stringent requirement which must be decided by the individual location. At a minimum visual inspection must be performed before and after each usage for any signs of damage on the body or the threads.

#### Gauges and Recorders

Gauges used on the test unit control panel must have a range such that routine measurements are performed in the 25 percent to 75 percent full-scale range. Accuracy and resolution should be at least 0.5 percent of full scale. Gauges and recorders must be calibrated at regular intervals according to the manufacturers' specifications. All gauges and recorders must be certified at a minimum frequency of 6 months or per the manufacture's specifications, whichever is less. The frequency of the usage can call for more stringent requirement which must be decided by the individual location.

#### Pressure Test Records

Pressure tests must be recorded, showing time, using a hard copy device. Either a circular plot from a pressure recorder or a hard copy log from a computer device can be used. If a chart recorder is used, it must be fitted with a clock rotation speed appropriate for the duration of the test. 2 to 4 hour clocks are recommended for the standard 3 to 15 minutes hydrostatic tests.

Hard copy plots must be retained in the equipment quality file. The hard copy plot must be marked with the following information

- Identification of equipment tested (All items of equipment must be listed.)
- Identification of pressure measuring/recording device
- Type of test (annual, major, operational)
- Test fluid (optional)
- Test Pressure
- Result of tests and remarks
- Date of test
- Name and signature of tester or of supervisor
- Name and signature of third party witness (when required)

#### Pressure Data Logger

Specifically designed for harsh workshop environments, the brush finished stainless steel unit incorporates a high brightness 17" TFT display and is operated from a fully sealed IP67 keyboard and pointer device (optional touch screen version available).

Features:

- IP65/67 Sealed Unit
- Large 17" TFT Display
- Slim Robust Stainless Steel Construction
- Industrial Grade' Components
- Proven 'Rugged Laptop Style' Hard Disk Drive
- Standard Operating System – IT supported



#### Continued

- USB & Serial ports
- Network ready
- Auto Voltage Supply Input
- Suitable for all climates

#### **Test Bay Quality File**

A test bay must have a quality file, containing:

- Manufacturer's bulletins for all test equipment
- A list of all test fixtures and adapters with their pressure ratings
- Certification and traceability documents for all the test bay pressure equipment as required
- Calibration certificates for the pressure gauges
- A schematic drawing of the pressure bay setup and of the safety interlocks
- Detailed test procedures and safety instructions.

All testing equipment must be tagged with the following information:

- Last test pressure and date
- Company performing third party testing
- Date of recertification

