

High Pressure Liquid **TestPAC**<sup>TM</sup> in convincing PASKALS quality

- › Liquid Pressure up to 4000 Bar
- › Suitable for all FLUIDS (Liquids & Gases)
- › Tough & Reliable & Well Established



**YOU ALSO NEED IT**



Due to its legendary quality & reliability under the toughest worldwide conditions combined with low weight and an excellent price quality ratio the **TestPAC**<sup>TM</sup> is first choice test engineers & research scientist across industries.

In technical collaboration with



**Company Profile**



**PASKALS** is an advanced fluid Systems Company offering a wide range of Products & custom Built Fluid Systems. We have also provide Engineering Consultancy in High Pressure Fluid Systems.

**PASKALS** has collaboration with HASKEL INC. USA ([www.haskel.com](http://www.haskel.com)), WORLD LEADER in high pressure Products.

**PASKALS** offers complete range of advanced fluid systems. Our expertise spans all fluids (including specialty gases) and all applications. From Ultimate Vacuum Systems to systems with pressures up to 7000 Bars. We build systems for high technology industries like Aviation, Defense, R&D, Chemical, oil & Gas, Automotive, Shipping etc.

**PASKALS** has cumulative experience of more than 100 engineering years in this domain and an established niche customer base in INDIA.

We have supplied several systems with various types of gases including Oxygen/Helium/Nitrogen/Refrigerants and developed advanced Fluid Systems on them.

**PASKALS** customers are high end Application Users like Automotive, Chemical Industries, Oil & Gas, High Pressure Gases, Nuclear, Defense, and Space & R&D

We specialize in CNG Vigilant, CNG Circuit Leak Tester, CNG Circuit Component Tester, CNG Service Masters, CNG Dispensing Unit, PressurePAC, TestPAC, Gas Distribution Systems, Gas Generator & Plants, Special Gas Systems, Pilot Plant & Hydraulic Power Packs.

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## About TestPAC With Specification Sheet

Paskals TestPAC is designed to provide on-site High Pressure testing. These units are self-contained and powered by compressed Air.

These units can generate Liquid Pressure up to 4000 bar \* and for gases we have PressurePAC which can generate gas pressure up to 2000 bar\*.

### ADVANTAGES

Ability to stall at any predetermined pressure and holds this fixed pressure without consuming power or generating heat

- No heat, flame or risk of spark
- Infinitely variable cycling speed (flow rate)
- No limit or adverse effect to continuous stop/start applications
- Pump seals are self-lubricated requiring no external air line lubricator
- Reliable, easy to maintain, compact and robust
- Stainless Steel frame standard
- Portable configuration

**YOU MAY SELECT THE RIGHT MODEL NUMBER or \*CALL US FOR FINDING THE RIGHT PRODUCT FOR YOUR APPLICATION.**

Pneumatic Driven <b>TestPAC</b> <sup>TM</sup> -Specification Sheet / Selection Chart			
Model No.	Max. Output Pressure (Bar)	Max Output Flow (LPM)	Drive Air (4-7 Bars) Requirement Flow -SLPM (SCFM)
TP-33-MS-21-188	145-689	1.6-5.7	425 (15)
TP-200-AW-B10 - B25	69-172	17-6.8	2123(75)
TP-200-AW-35 - 150	241-1035	4.0-1.9	1416(50)-849(30)
TP-200-ASF-B10-B15	69-103	17-11.4	2123(75)
TP-200-ASF-25-100	172-689	6.8-1.9	2123(75) - 1416(50)
TP-200-ASF-150	1035	1.1	849(30)
TP-200-HSF-202-302	1551-2068	0.8 - 1.1	1416(50) - 849(30)
TP-200-DSHF-452-903	3103-5171	0.8 - 0.6	849(30)

\*There is several other Pressure /Operation requirements are available as per application, please Consult factory for the same.

## THE COMPACT LINE – Industry wise Application Notes

If we were to try and list every possible application of the **TestPAC**, it would doubtless run for many thousands of pages and be out of date before it was completed.

What we have attempted to do here is give you a selection of some of the more obvious applications with which you can identify. Where possible we have provided a brief description of the application and where our products fit in.

### 1. HYDROSTATIC PRESSURE TESTING:

Probably this is the most common usage for the **TestPAC**. This heading covers both “burst” and “proof” testing of components.

There are a vast number of components that require pressure testing. These include such items as: Hose, Pipelines, Valves, Pressure Vessels, Gas Bottles, Boilers, Heat Exchangers, Accumulators, Fire Extinguishers, Turbines, Oil-Well Equipment, and many more. The mediums normally used in pressure testing are: water, water and soluble oil, or oil.



### 2. ISOSTATIC PRESSING:

Known as cold Isostatic Pressing, this is a method of compacting powdered materials in all directions simultaneously.

The following are just a few of the industries and uses for Isostatic Presses:-

- a) **Ceramic Industry:** Making high tension insulator blanks for the Electrical and Power market, electro ceramic parts, vapor lamps, sewer pipes, spools for the Textile markets, tubes for Sodium.
- b) **Power/Metallurgy:** Making filter elements, bearings, and blades for turbines, cutting tools, drill bits, hard metal dies and tools, forging performs.

### 3. CRIMPING AND SMALL POWER TOOLS

The connection of couplings to hydraulic hoses, plugs and connectors to cables and wires is achieved by “crimping”. Normally this is done with the aid of a small hydraulic press using an air driven pressure pump. Sometimes a more portable type unit is needed and this can be solved by using the **TestPAC**

Typical items that are crimped include Hydraulic and Pneumatic Hoses, Electrical Wires and Cables, Telephone Cables, Refrigerant Coils

There are, in addition to crimping, many other purposes for **TestPAC** in the small industrial machine market.

These include machines for, Riveting, Punching, Fastening, Clamping, Cutting, Swaging, and Shearing



## THE COMPACT LINE – Industry wise Application Notes

### 4. **HYDRAULIC PRESSES:**

This is a natural and very common usage for **TestPAC**. Some Processes in which it can be used are Press Operation, Press Overload, and Curing Presses Some of the industries using large numbers of Hydraulic Presses, **Automotive Industry, Rubber Industry, Metals Industry, Plastics Industry, and Woodworking**

### 5. **WATER INJECTION BLAST CLEANING:**

A **TestPAC** is used to inject water into nozzle at a pressure of around 125 psi and at a discharge rate of approximately 2.5 gpm. This provides the wet element. This method eliminates dusty blast cleaning allowing operators to wash down blast cleaned surfaces with air and water and then using the air only blow down to dry the damp surface.

### 6. **VALVE ACTUATION**

Pipelines in the Oil. Gas and Petrochemical Industries are fitted with fail safe valve systems. Such systems can be found in Offshore Oil platforms, Oil Pipelines, Gas Pipelines, and Chemical Pipelines

### 7. **ROLLER TENSIONING**

This application concerns the paper and textile finishing trades and is concerned with the hydraulic loading of calendar rolls. The ease of which the outlet pressure of **TestPAC** can be adjusted ensures that every precise roller tension and squeeze can be achieved.

Via a hydraulic cylinder, pressure is applied in order to tension the rollers.

When seams or joints pass through the rollers pressure is relieved.

Just a few of the manufacturers using such equipment

- a) Corrugated Paper, b) Carpets, c) Felt, d) Cord, e) Linen, f) Food (Cereals)

### 8. **LIQUID CHROMATOGRAPHY**

High Pressure Liquid Chromatography is a process used to separate, identify and measure closely related compounds in a given mixture.

For columns packing type HPLC separation, the method of packing the columns is critical

HPCL or High Performance Liquid Chromatography is used throughout Industry to analyze virtually any substance which can be dissolved in a liquid.

### 9. **FILTER PRESSES**

One of the major requirements of a filter press is to achieve a relatively high pressure at the end of the cylinder stroke. This provides a very effective use for a **TestPAC**.

Presses can be found in the following industries, Ceramic, Brewing, Sewerage and Water Waste Treatment, Glass, Food, Chemicals, Filter

## THE COMPACT LINE – Industry wise Application Notes

### 10. CHEMICAL INJECTION AND METERING

Our **TestPAC** are ideal for injecting additives chemicals, detergents, corrosion inhibitors and such like into transmission pipeline systems. Virtually any chemical, pressure and flow injection requirement can be accommodated. Markets range from Chemical, Oil and Gas, Pharmaceutical, Food, Laboratories, Breweries, Textiles.



### 11. JACKING/LIFTING

**TestPAC** are commonly used in the jacking systems employed by such industries as Aircraft, Construction, Automotive, etc.

### 13. FIRE INDUSTRY (FILLING & TESTING OF FIRE EXTINGUISHERS)

As mentioned under the hydrostatic test section, all fire extinguishers have to be pressure tested at manufacture. Also once employed, they have to be periodically re-tested. Laws tend to be different and this period can vary between one and four years.

In addition to the test, most of these extinguishers have to be filled with either Halon or CO<sub>2</sub>, another application for our **TestPAC**.



### 14. ELECTRONICS (WASHING, CUTTING, CURVING & PURGING OF ICs & PCBs)

**TestPAC** are used for pumping de-ionized water through a spray nozzle at Pressures varying between 2,500 and 4,000 psi. This serves to wash any impurities from the chips surface eliminating faults such as shorts.

### 15. RAILWAYS

Most of the larger railway yard workshops are equipped with pressure test equipment. Often this can be found to be old hand pumps. Most have compressed air or bottled nitrogen on site and can be converted to **TestPAC**.

### 16. TUNNELS/ MINING/ QUARRYING

Under this heading a host of opportunities arise for **TestPAC**.

- a) **TestPAC** can be used for the rapid setting of high yield hydraulic pit props.
- b) **TestPAC** is used for charging the breathing gas bottles in Mines Rescue Stations.
- c) **TestPAC** is used to expand the roof support bolts which prevent roof Collapse.

### 17. LUBRICATION

**TestPAC** are also used in the lubrication business where they serve as a central lubrication system. Building pressure throughout a piping system direct to the

## THE COMPACT LINE – Industry wise Application

component or equipment to be lubricated.

Such systems can be found in the manufacture of Diesel Engines.

### 18. **AUTOMOTIVE INDUSTRY**

**TestPAC** are used for testing the Air Brake Systems in many of the leading truck and tractor manufacturers.

Pressure Test Applications can be found in the engine shops, and for the hydraulic components in such vehicles as earth movers, back hoe loaders etc.

### 19. **UNIVERSITIES (LABORATORY APPLICATIONS)**

Universities can provide a good outlet for all **Paskals** products. Whether it is the laboratories for high pressure chemistry, mechanical engineering, geology, even biology. For example, in materials testing laboratories where steel, wood, concrete etc. is tested for strength, stress and deflection, **TestPAC** are used, building up the pressure to apply the necessary load.

### 20. **DIVING/ SUB AQUA**

The same application as for gas bottles, breathing tanks for the diving/ Sub Aqua Industry have to be tested and re-charged with gas. **TestPAC** are used for this purpose. Purpose built systems is available to measure the expansion or 'permanent' stretch in the vessel, ensuring they are within acceptable limits.

Other industries using high pressure gas bottles are

**A: Fire    B: Mining    C: Diving    D: Aircraft    E: Gas Manufacturers**

### 21. **FOAM MANUFACTURE**

There are several different types of foam; two of these hold applications for **TestPAC** Structural Foam & Pellet Foam

### 22. **HYDRAULIC TUBE PULLING / SWAGING**

**TestPAC** are used for the hydraulic pulling and swaging of Tubes in the manufacture of Heat Exchangers, Marine Boilers and similar. Often working to very high pressures.

### 23. **ARMAMENTS MANUFACTURE (ISOSTATIC & HYDROSTATIC TESTING)**

There are a multitude of applications in this field. To name just few Isostatic Pressing of explosives, Hydrostatic testing of breech mechanisms on high velocity rifles, testing of nose cones and tail fins on mortar bombs, Testing of Tank Barrels.

### 24. **AIR CONDITIONING / REFRIGERATION**

**TestPAC** are used for supplying high pressure gas or mixtures or gases for the pneumatic testing of refrigerant coils

## THE COMPACT LINE – Industry wise Application Notes

### 25. CLAMPING:

A typical application is the installation of **TestPAC** to power multiple clamping cylinders for holding work pieces together during a machinery process. Such clamping arrangements can be found clamping metal bars on mechanical saws, holding aluminum castings, engines, etc.

### 26. C N G MARKET – TRANSPORTATION

The use of alternative, cleaner and less expensive fuel for fleet vehicles is now more attractive throughout the world and C N G is one such fuel.

We have various versions available for the Gas **TestPAC** having following features,  
 1. High Pressure up to 350 bar, 2. Step Pressurization, 3. Automatic Leak Detection, 4. Gas Flow Measurement, 5. Data Acquisition.

### 27. DIESEL ENGINES

**TestPAC** is used to push oil to the main engine bearings and cylinder walls for lubrication prior to the engine being started. Normally this is accomplished within a few seconds.

### 28. MILITARY – AIRCRAFT



**Gas TestPAC** units have been designed for operators of helicopters and/ or small aircraft where a portable self-powered Booster is needed for ground support. The Pop Floats are inflated from a 3,000 psi (or newer 5,500 psi) bottle housed in the nose of the cockpit. Powered and fed from a standard Nitrogen gas cylinder the **TestPAC** will charge the in-flight bottle. Sometimes Helium is used in preference to Nitrogen because of its faster inflation characteristics.

The **Gas TestPAC** is also used for charging aircraft suspension struts and accumulators used on the landing gear and park brakes. Also, for inflation of Aircraft tyres using Nitrogen and charging emergency chute bottles.

### 29 Plastics Injection Moulding & Die Casting

This activity involves high pressure Nitrogen and boosting systems. PET bottle manufacturers could use our **Gas TestPAC** to augment the capacity of their small domestic compressors to meet the stringent demands for blow moulding. Large injection moulding manufacturers use Haskel boosters for generating the high pressure demands.

**Other Featured Product**



“Our Innovative **CNG Vigilant** is a must for every CNG vehicle manufacturer for end of line testing. It is a complete solution for your entire Leak testing needs and features like Temperature Compensation & Nitrogen Recycling makes it Best Leak Testers available in market.



**Attractive Features\***

- ✓ Pressure Decay & Differential Pressure Technology for Leak detection of Gas.
- ✓ Single Point Operation
- ✓ LCD Display of Operation
- ✓ Fully Automatic function
- ✓ Step pressurization (3 Stages) to 300 bar.
- ✓ Flow Control
- ✓ Precision
- ✓ Nitrogen Recycling/ Reuse
- ✓ High Pressure Storage
- ✓ Calibrated Rate of filling of the Test Volume
- ✓ Independent programs for various Test Volumes (up to 5 Types)
- ✓ High Pressure Gas safety Interlocking
- ✓ Inbuilt Air & Nitrogen Filtration
- ✓ Most desired product for mass Production setup (OEMs)
- ✓ Printed test report & data entry of the test schedule
- ✓ System will comply poke yoke quality assurance.

**Leak Testing Technologies**

- Pressure Decay + Differential Pressure with Innovative TTLIV
- Temperature Compensation Circuitry & inbuilt Temperature Compensation Software
- Helium Mass Spectrometry (OPTIONAL)
- Leak detection up to  $1 \times 10^{-7}$  atm cc/sec (using Helium mass spectrometry)



CNG CIRCUIT LEAK TEST REPORT	
Model No.	<input type="text"/>
Test Date	<input type="text"/>
Test Pressure	<input type="text"/>
Test Result	<input type="text"/>
Test by:	<input type="text"/>
Ventied by:	<input type="text"/>
Comments:	<input type="text"/>



**Our Featured Product**

**PressurePAC**<sup>TM</sup>

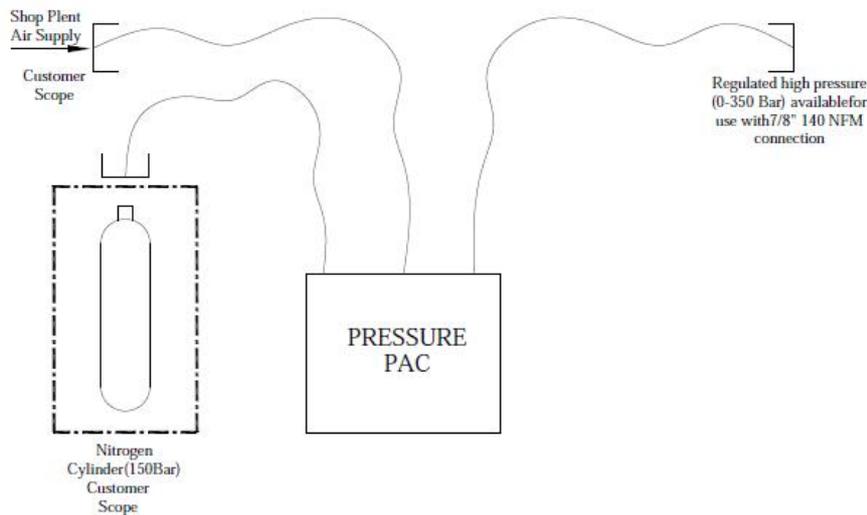
“State of the art technology (Fully Pneumatic) has allowed the engineers at Paskals to design and develop a range of Compact & Safe Systems for the compression of Non-reactive gases such as Nitrogen, Argon, and Helium”.



- ✓ easy to operate just **Plug & Play** type, suits to your need of Regulated High Pressure Gas @300 bar”
- ✓ Add Value to your Product Quality /Safety System by selecting Paskals PressurePAC.
- ✓ PressurePAC are safe, mobile, no moving parts and come with accessories&Operating manuals.
- ✓ Paskals Product support, Training, spares just a phone call away

**“OUR PRESSUREPAC ARE USED IN VARIOUS APPLICATIONS”**

- CNG R&D Set ups in AUTOMOTIVE OEMs & LABS
- CNG Circuit Leakage test \*
- CNG Circuit component prototype testing.
- As intensifier to High Pressure gases.
- R&D labs immediate High Pressure Requirements.

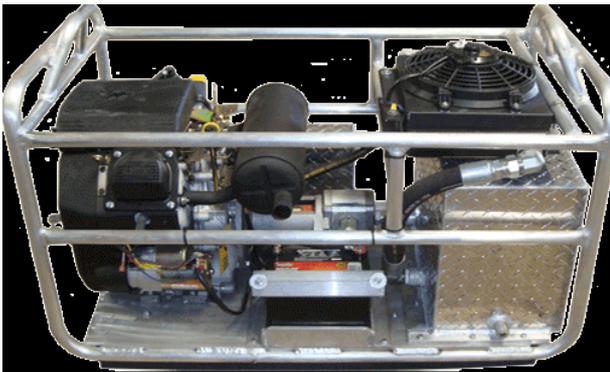


Drive	Drive Pressure (Bar)	Inlet Gas Pressure (Bar)	Outlet Gas Pressure (Bar)	Regulated Gas Pressure (Bar)	Reject Gas Pressure (Bar)
Air	4	150	350	0-350	10

**Our Featured Product**



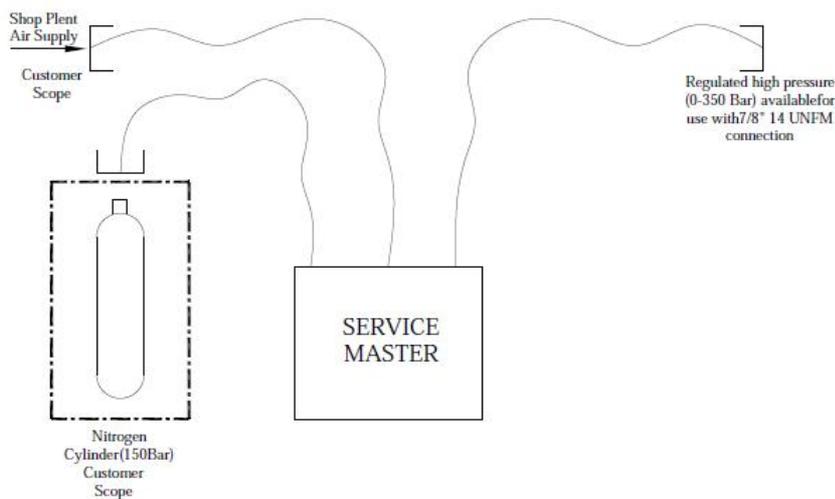
“State of the art technology (Hydraulic Driven) has allowed the engineers at Paskals to design and develop a range of Compact & Safe Systems for the compression of Non-reactive gases such as Nitrogen, Argon, and Helium”.



- ✓ Easy to operate just **Plug & Play** type, suits to your need of Regulated High Pressure Gas @300 bar
- ✓ Add Value to your CNG Vehicle Circuit servicing/maintenance needs by selecting Paskals CNG Service Master.
- ✓ Paskals Product support, Training, spares just a phone call away.

**“OUR PRESSUREPAC ARE USED IN VARIOUS APPLICATIONS”**

- CNG R&D Set ups in AUTOMOTIVE OEMs & LABS
- CNG Circuit Leakage test \*
- CNG Circuit component prototype testing.
- As intensifier to High Pressure gases.
- R&D labs immediate High Pressure Requirements.



Drive	Drive Voltage (Volts)*	Inlet Gas Pressure (Bar)	Outlet Gas Pressure (Bar)	Regulated Gas Pressure (Bar)	Reject Gas Pressure (Bar)
Electric	220V	150	350	0-300	10

\*Other Options in 24 V DC/12 VDC are also available .Please consult Factory.

**CNG PRODUCTS**

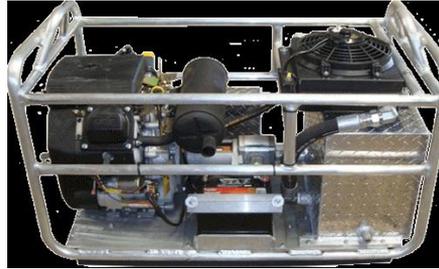
**CNG VIGILANT**<sup>TM</sup>  
LeakTesters



**Attractive Features\***

- ✓ Pressure Decay & Differential Pressure technology for Leak Detection of Gas.
- ✓ Single point operation
- ✓ LCD Display of operation
- ✓ Fully Automatic Function
- ✓ Step Pressurization (3 stages) to 300 bar
- ✓ Flow Control
- ✓ precision
- ✓ Nitrogen Recycling / Reuse
- ✓ High Pressure storage
- ✓ Calibrated rate of filling of the Test Volume.
- ✓ Independent programs for various Test Volumes (up to 5 types)
- ✓ High Pressure Gas Safety Interlocking
- ✓ Inbuilt air & Nitrogen filtration
- ✓ Most desired product for Mass Production set ups (OEMs).
- ✓ Printed Test report & data entry of the test schedule
- ✓ System will comply Poke yoke quality assurance.

**CNG Service Master**<sup>TM</sup>



**Attractive Features\***

- ✓ Hydraulic operated
- ✓ Snoop/Soap solution for joints leak Check.
- ✓ Low voltage electric power required
- ✓ High Pressure storage
- ✓ Step Pressurization (3 stages) to 300 bar
- ✓ Manual Operation
- ✓ Mobile/Portable and easy handling
- ✓ Low cost /Economic Model
- ✓ Highly recommended for CNG Vehicle service stations/retrofitment centers/maintenance depots.

**PressurePAC**<sup>TM</sup>



**Attractive Features\***

- ✓ Fully Automatic Pneumatic Operated
- ✓ No Electrical Power Required
- ✓ Pneumatic logic controlled operation
- ✓ Safety interlocking
- ✓ Step Pressurization to 300 bar
- ✓ Fully Mobile
- ✓ Ergonomic Panel
- ✓ Nitrogen Recycling
- ✓ Compact
- ✓ Trusted Performance
- ✓ Recommended for CNG vehicle OEMs,
- ✓ OEMs CNG R&D centers/Labs
- ✓ CNG components i.e. Valves, regulator manufactures for their immediate Pressure testing requirement

**OUR PRODUCTS**



**IN TECHNICAL COLLABORATION WITH**



\*For further assistance, please consult factory.