

N₂ Service Pal

Portable digital Nitrogen accumulator charging & testing kit with datalogging

- Unique all-in-one testing, regulating charging & recording device
- Easy to operate & very accurate
- Fine control of charging pressures
- 1-120 or 10-230 bar regulator options
- Target pressure/over pressure warnings
- Full data logging for traceability / reporting
- Temperature compensation alert & lookup table
- Easy to use & safe tool free Minimes® connections



The ideal field service tool for accumulator service engineers. Minimes connections for quick, safe and reliable testing & charging of accumulator pressures. Quickly set target pressure for rapid charging. Digital LCD readout for accurate pressure & temperature values with easy to use datalogging for traceability

Hydraulics
Industrial machinery
Mining/ Quarrying machinery
Wind power

Accumulator gas charging equipment

N₂ Service Pal

Hold hundreds of tests

Remaining memory status display.

Bright LCD Screen

Bright LCD screen with easy to read numerical data.

Rechargeable battery indicator



Easy data logging

Simple start/stop operation for datalogging of processes

Easy Navigation

Easy menu system for quick and easy access to settings and operations.

Storage space

Lid and base storage space for accumulator adaptors, battery charger, charging hoses and documents etc.

Fine control of charge pressure

Fine control adjustment valve for ultra control of critical charge pressure values

Tough IP67 case

Weatherproof case for harsh field environments

Discharge valve

Set & check target pressures before final release to the accumulator.

Safe, accurate accumulator charging...

Digital pressure and temperature sensors give highly accurate readings allowing Engineers to accurately pre-set target accumulator pressures before releasing gas to the accumulator. Regulator pressure ranges are either 1-120 Bar or 10 – 230 Bar. The internal pressure sensor is matched to the regulator to increase accuracy. A charge pressure LED shows when the target pressure has been achieved.

A built-in temperature sensor alerts Engineers to low or high temperatures when a compensation pressure will need to be applied due to temperature change, (a compensation chart is supplied with each kit).

Target pressures and accumulator fill pressures can all be recorded and logged on the internal memory. Serial or Job numbers can be added to each charging event to keep a record of work completed; these results can then be downloaded as .csv files for analysis later. Temperatures are also recorded.

Accumulator gas charging equipment

N₂ Service Pal

Feature rich

The N₂ Service Pal has all the features an engineer needs for safe testing and charging of Nitrogen Accumulators with data logging, target pressure alerts and temperature comparison warnings.

TAKE CONTROL



Choose 1 – 120 Bar or 10 -230 Bar regulator options for accurate control of target pressures.

PRESSURE RELEASE



Easy to use single action valve for charging target after setting pressure required.

LIGHT THE WAY



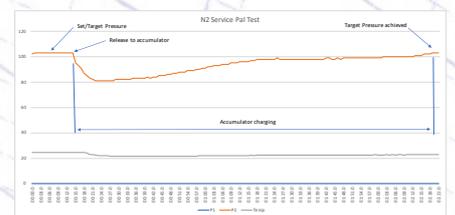
High and low temperature warning
Pressure target light – Green = achieved, red = under/over pressure.

FINE CONTROL



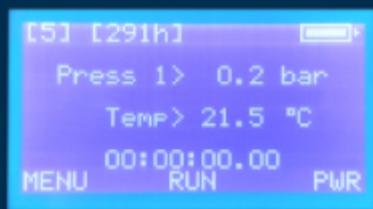
Fine control valve for accurate setting of target pressures.

DATA DOWNLOAD



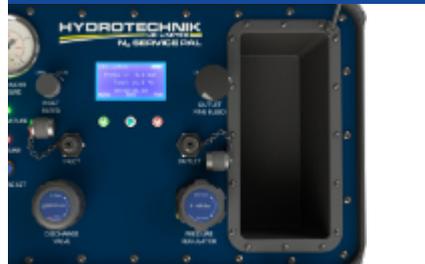
Export test files via USB in .csv file format to easily chart the recorded data.

ALL IN VIEW



Easy to read bright LCD display for live pressure & temperature readings.

STORE IT



Room to store Accumulator and bottle adaptors, battery charger etc.

STORE IT AGAIN



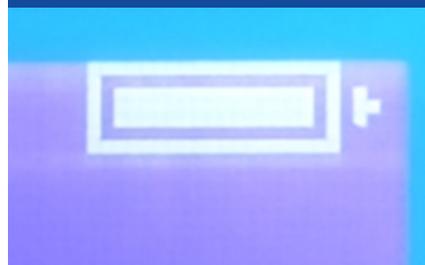
Space for connection hoses, Temperature compensation lookup table.

NO RETURNS



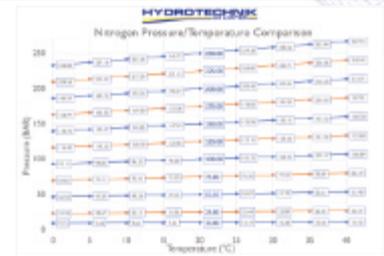
Minimess hoses for safe and tool free testing or charging with anti leak ends.

SUPER CHARGED



Get over 24 hours of continual use from a single charge.

LOOK UP!



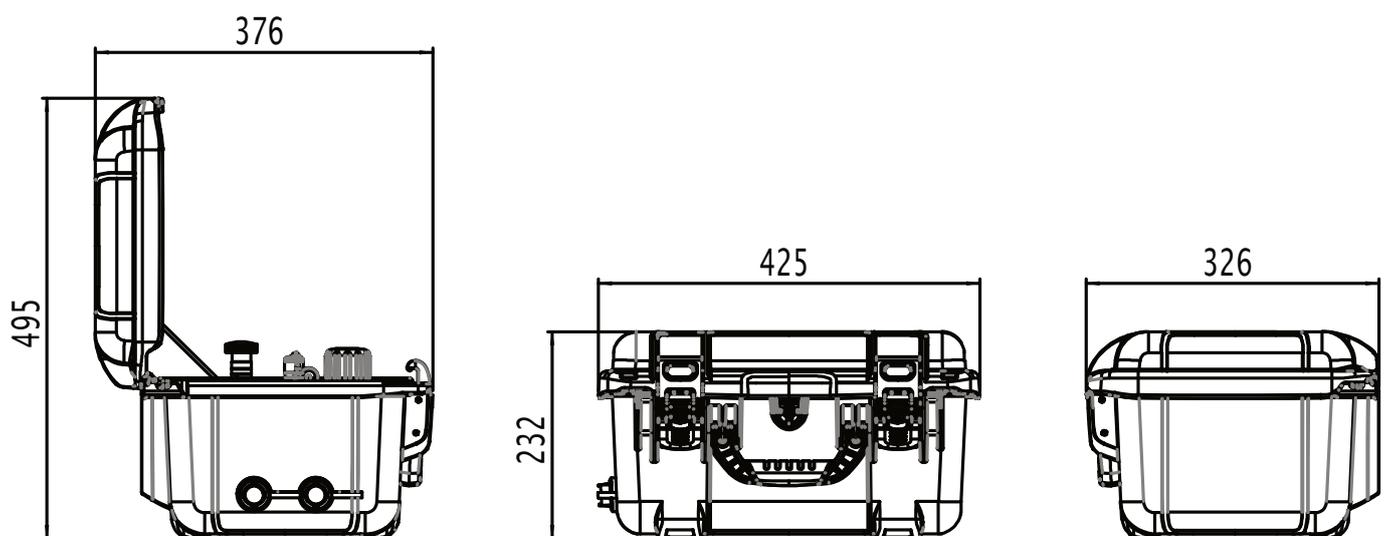
Temperature compensation look up table when charging at different temperatures.

N₂ Service Pal

Technical Specifications

Specifications	Detail
Dimensions	(w)425 mm x (d)326 mm x (h)232 mm
Weight	9.5 kg
Finish	Black HPX resin
Nominal Battery Voltage	15.0 VDC
Charge Voltage	16.8 VDC
Capacity	5.2 Ah
Charge time	2 hours (80%) 5 hours (100%)
Run time	24 hours
Connections	1620 Minimess® test points, 2.5m long microbore hoses
Regulators	1 - 120 bar or 10 - 230 bar
Operating temperature	0°C to +50°C
Environment	Lid closed – IP67 Lid open – IP54
Maximum humidity	97% relative humidity, non-condensing
Certification	Factory calibration certificate CE declaration
Verification frequency	12 months recommended

Drawing



Accumulator gas charging equipment

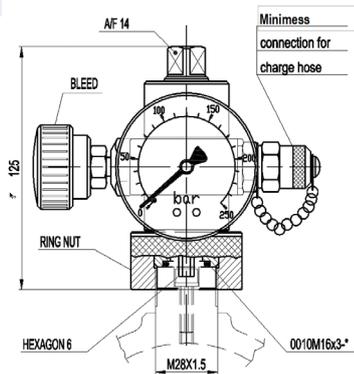
N₂ Service Pal

Accumulator charging / testing devices & adaptors for connection to different accumulator valve connections.

Devices and adaptors allowing connection to valve types as pictured (see ordering table below to specify in your N₂ Service Pal kit)



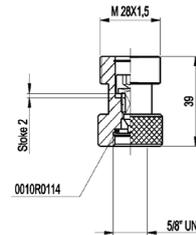
PCFPU Charging Device (M28x1.5 Female)



Important note: Accumulator connection to be specified (refer to ordering codes)

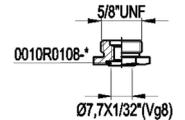
M28x1.5 master valve adaptors

HT2431 (M28x1.5 male to 5/8"-18 UNF female)

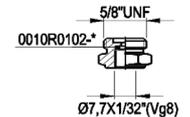


Additional valve adaptors (requires HT2431 Adaptor)

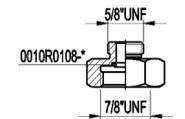
HT2510 (VG8 Schrader style short thread)



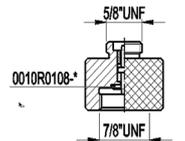
HT2513 (VG8 Schrader style long thread)



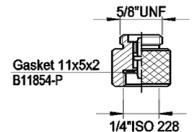
HT2511 (7/8"-14 UNF Female short thread)



HT2514 (7/8"-14 UNF Female long thread & pin)



HT2512 (1/4" BSP Female Parker style with pin)



- ✓ Minimess® charging hose for 1620 series accumulator valves supplied as standard
- ✓ Minimess® charging hose for 1615 series accumulator valves supplied on request (see ordering table below)

Features

- Test or charge using tool-free Hydrotechnik Minimess® connections up to 630 bar
- Simple hand tightening hose connection on to accumulator charging device
- Connection options for most popular accumulator charging valves

Ordering Codes

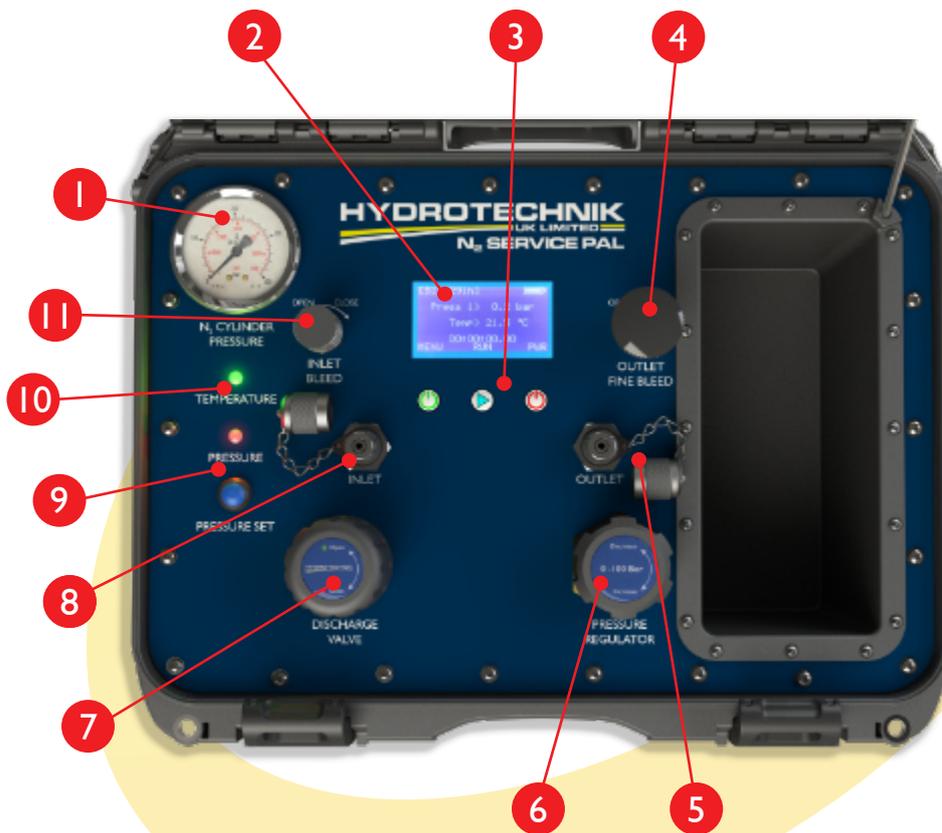
ORDERING CODE				
N2-SP	- 120 or 230	- X, A, B, C, D, E, F, G, H or U	- B, W or N	- 2.5, 5 or 10
(Pre-charging & testing kit)	Pressure Regulator operating range	Connection to Accumulator	Connection to Nitrogen Bottle	Charging Hose Length (length in meters)
	<p>120 = 1...120 bar</p> <p>230 = 10...230 bar</p>	<p>X = Minimess 1620 (Standard)</p> <p>A = Minimess 1615</p> <p>B - M28x1.5</p> <p>C - 5/8"-18 UNF</p> <p>D = 5/16"-32 UNEF / VG8 female (short)</p> <p>E = 5/16"-32 UNEF / VG8 female (long)</p> <p>F = 7/8"-14 UNF female (short)</p> <p>G = 7/8"-14 UNF female (long with pin)</p> <p>H = 1/4" BSP female (with pin)</p> <p>U = Universal (all of the above)</p>	<p>B - G5/8" BSP bullnose male (standard)</p> <p>W - W24,32x1/14" female</p> <p>N - W30x2 Nevoc female</p> <p>Other country Nitrogen bottle adaptors available on request</p>	<p>2.5 = 2.5m long (standard)</p> <p>5 = 5m long</p> <p>10 = 10m long</p> <p>Any length available on request</p>

Ordering example: N2-SP-230-X-B-2.5

N₂ Service Pal instructions (a)

How to measure existing pressures of accumulators with Minimes® test points fitted.

- A:** Isolate the Accumulator from the system and reduce the liquid under pressure to zero
- B:** Remove the protective and sealing caps from the accumulator Minimes test & charging point
- C:** Set the Main Discharge valve “7” to open, make sure both bleed valves “11” & “8” are closed **D:** Switch on the N₂ Service Pal. Connect the microbore charging hose to the outlet test point “5” **E:** Start recording “3” if you wish to record the current accumulator pressure.
- F:** Connect the other end to the Accumulator. The pressure will be displayed as “Pressure 6” On the LCDscreen “3”.
- G:** In the case of the accumulator being over-charged, reduce pressure via Bleed Valve “4”
- H:** When finished, disconnect the microbore charging hose from the accumulator end first i.e. before disconnecting from outlet “5”

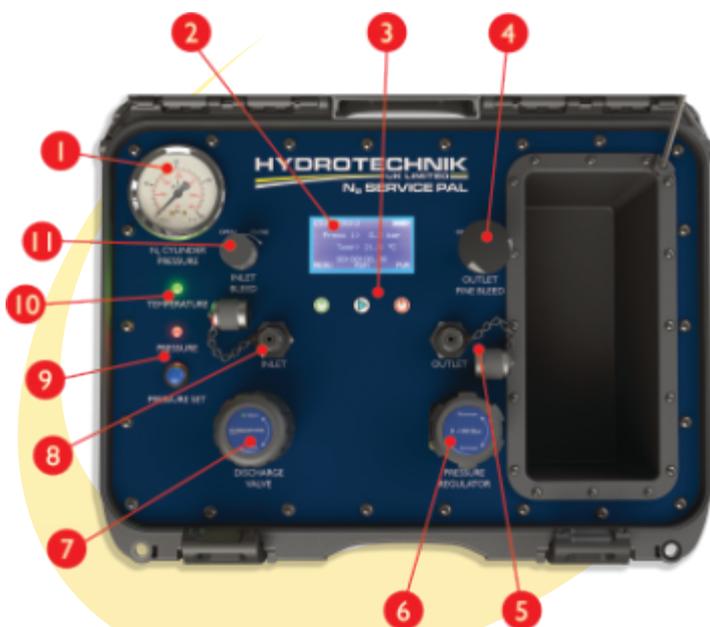


- 1:** Gas Bottle pressure gauge
- 2:** LCD Display showing
- 3:** Start recording a test
- 4:** Outlet Bleed Valve
- 5:** Nitrogen Gas Outlet port
- 6:** High Pressure Control valve
- 7:** Discharge Pressure to Accumulator valve
- 8:** Nitrogen Gas Inlet port
- 9:** Pressure Set/ Achieved Alert
- 10:** Temperature Alert
- 11:** Inlet Bleed Valve

N₂ Service Pal instructions (b)

How to increase or reset pre-charge pressures of accumulators with Minimes® test points fitted

- A:** Switch on the N₂ Service Pal
 - B:** Make sure the Main Discharge Valve “7” is closed firmly
 - C:** Make sure the Nitrogen gas bottle is shut off
 - D:** Unwind both the pressure regulators “6”
 - E:** Connect a microbore charging hose between the Gas Bottle and In let “5”
 - F:** Make sure in let and outlet bleeds “4” & “11” are closed
 - G:** Open the Nitrogen gas bottle to release pressure into the N₂ Service Pal. The available pressure in the bottle will be shown on the analogue gauge “1”. Make sure that this pressure is higher than the target pressure for the accumulator.
 - H:** Start recording “3” if you wish to keep a record of the charging event.
 - I:** To set the target pressure: Slowly adjust the regulator to set the target accumulator pressure (displayed on the screen) press pressure set button “9”
 - J:** If target pressure is accidentally set too high: back off the pressure regulator “6” a little, open the Discharge valve “7” and then firmly close it again (this releases some pressure to the outlet) then open and close the outlet bleed “4”.
- Repeat as necessary. Then increase pressure slowly to the target pressure.
- K:** Connect a microbore charging hose firstly to outlet “5” and then to the accumulator Minimes test point (it is very important that you connect in this order)
 - L:** Make sure the target pressure is correct and open the discharge valve “7” to charge the accumulator the pressure on the LCD “9” will turn red and then green when target pressure is achieved.
 - M:** When target pressure has been reached, close the discharge valve “7” then firstly disconnect the microbore charging hose from the accumulator and then Outlet “5”
 - N:** Turn off the gas at the bottle, bleed via “11”, then remove the microbore charging hose from the gas bottle and inlet “11”
 - O:** Any residual pressure in the N₂ Service Pal can be bled via “11” & “8” bleed valves
 - P:** Press “9” again to stop recording and follow the instructions to save the test.



- 1:** Gas Bottle pressure gauge
- 2:** LCD Display showing
- 3:** Start recording a test
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- 5:** Nitrogen Gas Outlet port
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