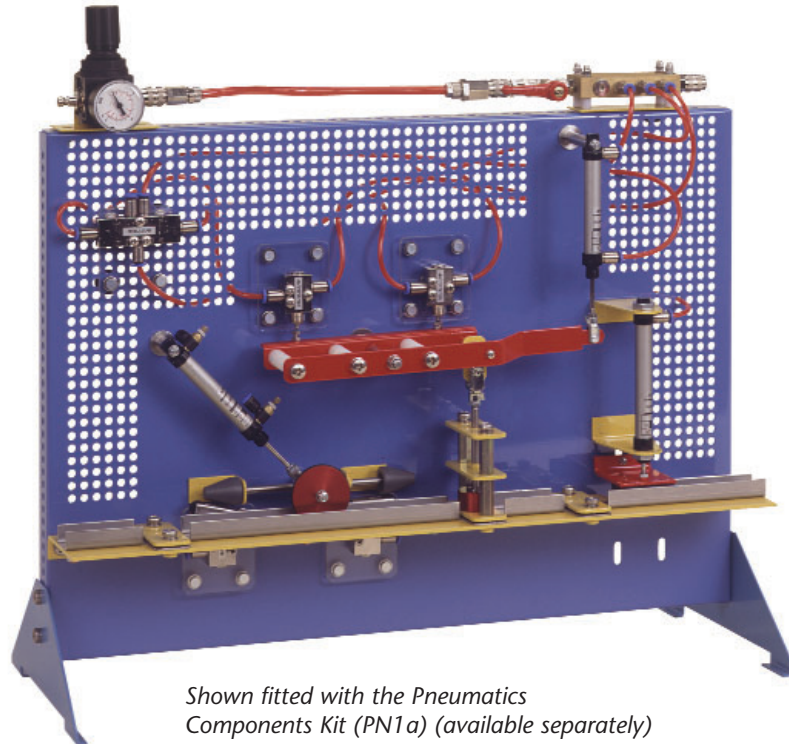


# PN1, 2 and 3 **TASK** Pneumatics Project Kit and Ancillaries

***Builds into a working system that shows pneumatic principles***



*Shown fitted with the Pneumatics Components Kit (PN1a) (available separately)*

- Ideal for classroom demonstrations and for use by small groups of students
- Shows students how to use and control the basic parts of compressed air powered (pneumatic) machines
- Colour-coded parts to help students understand what each part does
- Supports all teaching levels up to and including first year university courses
- Hands-on equipment - easy-to-assemble parts allow students to build the experiments for improved understanding of the experiment
- Optional parts include an Upgrade Kit, Air Control Centre and Contact Controller for PLC or computer control of a complete working machine (computer not supplied)

- **TecEquipment** products are designed and manufactured by TQ Education and Training Ltd
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- TQ is an ISO 9001 certified company

# PN1, 2 and 3 Pneumatics Project Kit and Ancillaries

## Description

Introduces pneumatic principles by allowing students to develop a fully operational pneumatic machine. Because they build a working machine, students quickly learn pneumatic principles and find the product highly motivating.

Students use the Pneumatics Project Kit (PN1) with parts from the Pneumatics Component Kit (PN1A) kit to build a complete working pneumatic machine. The machine feeds, clamps and punches paper tape, by control of three cylinders in sequence.

Students assemble the basic parts of the Pneumatics Project Kit (PN1) onto a mesh panel (included). They then use parts from the additional kit to build pneumatic circuits and study various components and principles, until they have a working machine. During assembly students work with valves, cylinders, a manifold, regulator and gauge, pneumatic pipe and connection hoses.

Note: The PN1 kit includes only the basic project parts. To build a working machine, you need the Pneumatic Components Kit (PN1A, available separately).

For increased learning, students can connect the optional Air Control Centre (PN2), Electropneumatics Upgrade Kit (PN1B) and Contact Controller Plus (DCH1). These allow PLC (Programmable Logic Control) or computer control of the working machine.

Students work individually or in groups of up to three. The colour of parts indicates their function. For example, yellow parts are mainly stationary or passive, and white parts are instrumentation.

The kit comes with Assembly Instructions and a User Guide. A Teacher Guide provides experiment methods, information, references and tips. A Student Workbook guides students through experiments.

## Standard Features

- Supplied with comprehensive User Guides (Assembly Instructions, Student Workbook and Teacher Guide)
- Two-year warranty
- Manufactured in accordance with the latest European Union directives

## Essential Ancillaries

- Pneumatics Components Kit (PN1A)
- 3 bar Compressor (PN3)

## Recommended Ancillaries

- Electropneumatics Upgrade Kit (PN1B)
- Air Control Centre (PN2) - For PLC or computer control
- Contact Controller Plus (DCH1) - For computer control

## Experiments

Students learn about:

- Pneumatic safety issues
- Pneumatic circuit diagrams, including ISO symbols
- Control of single-acting and double-acting cylinders
- Reciprocation, pilot air control, air bleed
- Speed control, regulation, sequential control, time delays
- Common three and five-port valves and logic circuits

## Operating Conditions

*Operating environment:*

Laboratory environment

*Storage temperature range:*

-25°C to +55°C (when packed for transport)

*Operating temperature range:*

+5°C to +40°C

*Operating relative humidity range:*

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

## Sound Levels

Less than 70 dB(A)

## Specifications of the Pneumatics Project Kit (PN1)

Packed Dimensions and Weight: 0.028 m<sup>3</sup> and 8 kg

Main Parts:

- Backplate with safety labels, punch tape
- Valve plate kit, punch, valve actuators
- Valve and actuating levers
- Paper pusher, paper cover, paper guide
- Sliders, slider brackets, cylinder brackets
- Guideplates, manifold plate, stripper plates and regulator plate

Other Parts:

- Pins, supports, clamp and links
- Stripper collar, shelf, spindle, bars, O-ring
- All necessary fixings, nuts, bolts, clips and spacers

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# PN1, 2 and 3 Pneumatics Project Kit and Ancillaries

## Details of Ancillaries

### PN1A - Pneumatics Components Kit

A kit of extra colour-coded parts for the Pneumatics Project Kit that allow students to build a complete working machine.

### PN1B - Electropneumatics Upgrade Kit

A kit of switches that attach to parts of the Pneumatics Project Kit to give position feedback to a PLC or the optional Contact Controller (DCH1) when used with the Air Control Centre (PN2).

### PN2 - Air Control Centre

A unit with a common manifold input and five separate outputs, each with an electrically operated (solenoid) air valve. A DC voltage applied to a valve opens it, to allow compressed air to pass through. Can work directly with a Programmable Logic Controller, or with the Contact Controller (DCH1) for computer control.



The optional Air Control Centre (PN2)

### PN3 - 3 bar Compressor

An electric air compressor, modified and fully automatic for safe use in school laboratories. It can work up to three Pneumatics Projects Kits and has quick-release connections, and a pressure gauge.



The optional Compressor (PN3)

### DCH1 - Contact Controller

A computer control interface with software that allows computer control of the Air Control Centre (PN2).

## Specifications of Ancillaries

### PN1A - Pneumatics Components Kit

Packed Dimensions and Weight: 0.04 m<sup>3</sup> and 2 kg

Main Parts:

- Valves
- Cylinders
- Manifold
- Regulator and gauge unit
- Supply connection hose
- Pneumatic pipe

### PN1B - Electropneumatics Upgrade Kit

Packed Dimensions and Weight: 0.0039 m<sup>3</sup> and 0.5 kg

- Five reed switches with TASK compatible plugs, colour coded wires and clips suitable for 10 mm bore microcylinders

### PN2 - Air Control Centre

Packed Dimensions and Weight: 0.0039 m<sup>3</sup> and 0.75 kg

- Supply voltage: 5 V to 12 V d.c.
- Maximum current: 60 mA per valve
- Maximum recommended pressure: 2 bar
- Bore reducer (to 4 mm)

### PN3 - 3 bar Compressor

Packed Dimensions and Weight: 0.04 m<sup>3</sup> and 15.5 kg

- Maximum pressure: 3.2 bar
- Flow rate: Maximum 8 Litres a minute at 2 bar
- Reservoir: 1 Litre
- Noise: Less than 70 dB(A)
- Electrical Supply: 110 VAC at 4 A or 230 VAC at 2 A (specify on order)

### DCH1 - Contact Controller

- Computer connection
- Digital outputs and inputs
- Analogue inputs
- Mains to low voltage power supply included

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