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An introduction to time/pressure dispensing

What is time/pressure dispensing?

Time/pressure dispensing lets you dispense a wide range of liquid or paste materials by using a **dispensing controller** to apply a pulse of air pressure to the top of a syringe (**dispensing barrel**) which forces the liquid inside the syringe out through a needle or nozzle.

It provides a number of advantages over manual alternatives such as hand syringes, brushing and dabbing…

Why is it better than manual dispensing?

Using a dispensing controller or dispensing machine offers many benefits over dispensing by hand:

- More accurate
- Better repeatability
- Faster
- Less wastage
- Less mess
- Operator safety
  - Less chance of exposure to hazardous chemicals
  - Reduced risk of RSI

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How does it work?

Please **click on the image** to watch a short demonstration of time/pressure dispensing.

What affects the deposit size?

The amount dispensed is controlled by three parameters **you can** adjust:

- The pressure of the pulse of air
- The time of the pulse of air
- The diameter of the dispensing needle

…and one thing **you can't**:

- The material viscosity and thixotropy: how runny is it?

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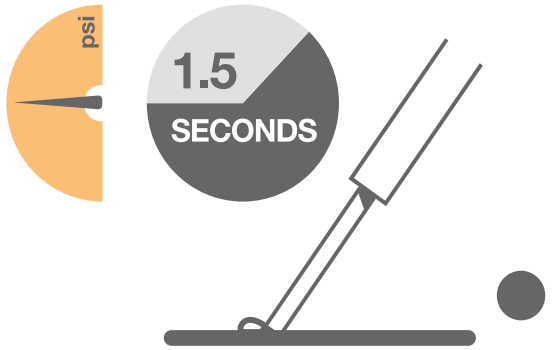
Adjusting the parameters

Begin by using a needle with a diameter the same size as the deposit required and alter **time** and **pressure** to achieve your ideal shot size.

Dispensing needles are supplied in different **gauges**. This refers to the internal diameter of the needle. The higher the gauge, the smaller the diameter.

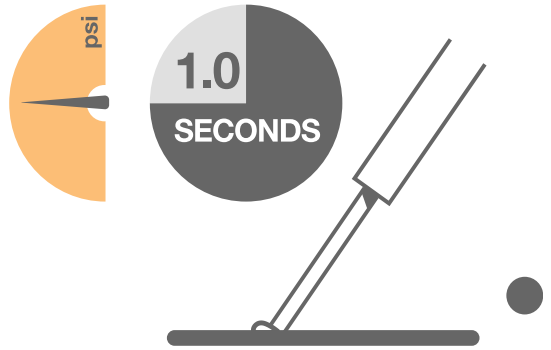
Example 1

30 psi 1.5 sec 18 gauge needle



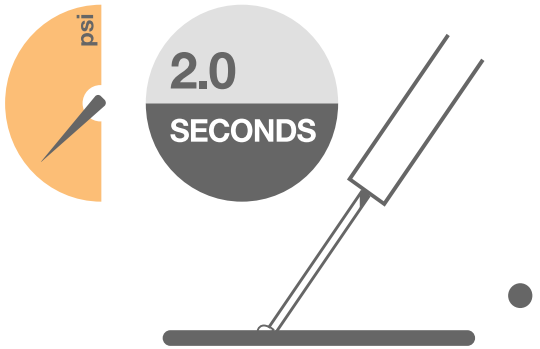
Example 2

30 psi 1.0 sec 18 gauge needle



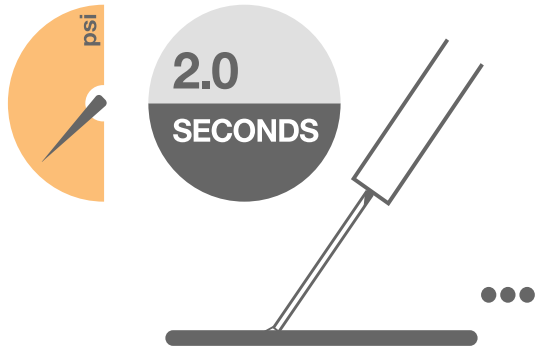
Example 3

15 psi 2.0 sec 22 gauge needle



Example 4

15 psi 2.0 sec 30 gauge needle



What can you dispense?

You can dispense most liquids, fluids and pastes including:

- Adhesives
- Solder pastes or fluxes
- Coatings
- Sealants
- Encapsulants
- Temporary masks
- Greases
- Oils
- Inks
- Varnishes
- Lacquers

What shapes and how much can you dispense?

You can dispense:

- Dots
- Lines or beads
- Potting or infilling

Deposit sizes range from:

- Fractions of a millilitre (ml) in dots
- Beads of fixed width
- Controlled amounts in potting, dosing or infilling

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Types of time/pressure dispensing controller

Dispensing controllers come in two types:

- Analogue timer
- Digital timer

Both types are usually triggered by a foot pedal.

Timing can be:

- Manual – ‘on’ as long as the pedal is depressed
- Timed – ‘on’ for the pre-set time

Usually seconds or fractions of a second

Suck back

To prevent low/medium viscosity materials from dripping at the end of the dispense cycle, many dispensing controllers have a **vacuum suck back** function.

What else do you need?

You need to supply:

- Consumables such as barrels and needles (some dispensing controllers include starter packs of these)
- A source of electricity (for most models)
- A source of clean, dry compressed air:
  - Normal factory air
    or
  - Compressor

Dispensing consumables

Syringe or dispensing barrels

Dispensing barrels come in 3ml, 5ml, 10ml, 30ml, 55ml as standard. They are specially made for time/pressure dispensing.

They connect to the dispensing controller with a **barrel adaptor assembly.**

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Dispensing consumables

Cartridges

Cartridges are designed for higher volume operations. The basic assembly comprises a **cartridge**, which is held in a **cartridge retainer**.

Capacities: 74ml, 177ml, 237ml, 325ml, 355ml, 591ml.

You can dispense from 310ml cartridges containing sealants, silicones and adhesives using a 310ml cartridge retainer (shown).

Dispensing consumables

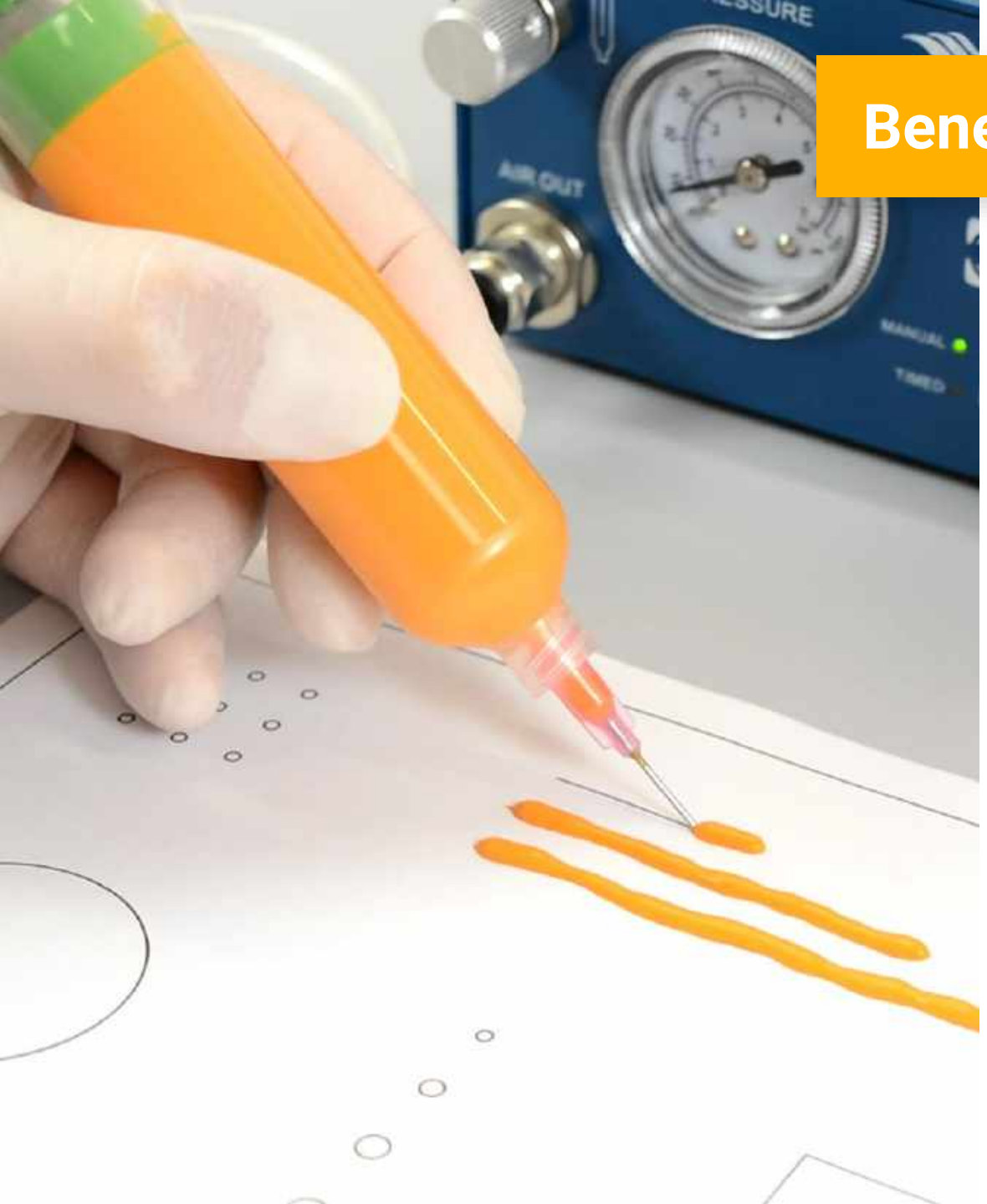
Needles, tips & nozzles

Needles, tips and nozzles are connected to the syringe barrel via a universal Luer Lock fitting.

You should select type, diameter (gauge) and length according to:

- Size of the required deposit
- Type, nature and viscosity of the material being dispensed

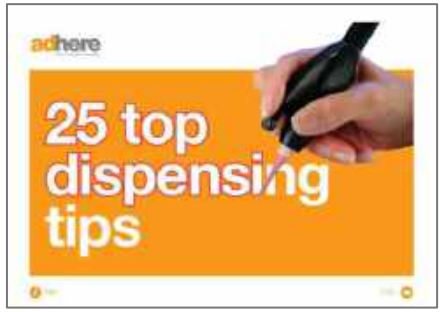
Type and size is often best selected by trial and error.



Benefits

- Measured amount of material deposited, reliably and consistently
  - Greater confidence
  - Fewer rejects
- Speed
  - Faster than manual processes
- Fewer skills needed
- Reduces waste & mess
- Health & safety
  - Reduced exposure to chemicals
  - Operator fatigue, RSI
- When application is too intricate for manual dispensing

See our complete range of time/pressure dispensers



Download our 25 Top Dispensing Tips

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Get in touch to find out more about our dispensing range

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