PHC Injection Device Technologies

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member of BIOMEDICA


PHC
Injection Device
Technologies

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# Trusted partner for emergency self-injection.

PHC is a leading provider of injection device technologies and associated development services, whose portfolio includes disposable autoinjectors, pre-fillable needle-safe glass syringes and reconstitution systems for lyophilised and powdered formulations.

With particular strengths in the development and provision of autoinjectors which are intended for intramuscular injection in emergency situations, PHC's customers include government and military authorities, as well as international pharmaceutical companies.

We are one of the very few such companies whose autoinjector devices have achieved international regulatory approvals, have been successfully launched and are used by patients on a daily basis.


PHC

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# Innovative R&D-partner for the pharmaceutical industry.

Our injection device technology portfolio is supported by numerous granted international patents and our device development service is managed by an experienced and focused engineering team.

A member of Biomedica Gruppe, for over 10 years, PHC has developed and supplied technologies and devices to address the needs for self-injection in the most challenging environments and life-threatening situations. With customers and partners ranging from international pharmaceutical companies to military and government authorities, PHC is a proven, trusted provider of innovative, robust products and solutions for self-administration of injectable drugs.


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# PHC's successfully launched products.

# PC-**2A**


**Marketed throughout Europe by ALK-Abelló as the JEXT® epinephrine Autoinjector, PC-2A is now available from PHC for partnering in the administration of other medications and indications.**

**PC-2M is an emergency antidote delivery system, for military and civilian use, which is supplied to international government authorities and armed forces.**


# PC-**2M**

PHC

# Our portfolio of innovative products.

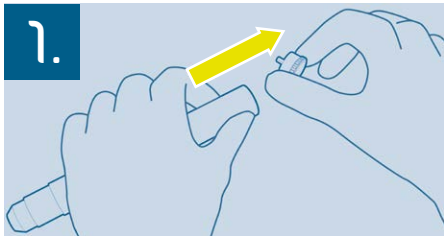
PHC PC-**2A**

# Autoinjector with automated needle shield

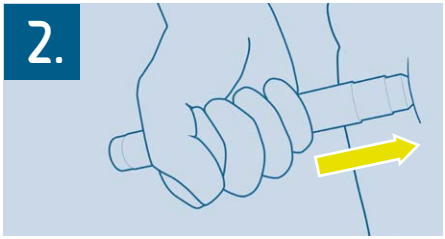
**Emergency, intramuscular self-injection system designed to ensure needle penetration and successful injection through several layers of clothing.**

| | |
|---|---|
| Simple, fast and safe intramuscular self-injection in emergency situations. | Simulator training device available to ensure user familiarisation. |
| Incorporates standard glass cartridge and suitable for wide range of liquid formulations. | Launched as Jext® epinephrine autoinjector. Available for out-licensing for other medications. |
| Flexible design can be optimized for alternative applications. | International patents and registrations. |

**Simple, fast 2-step operating sequence:**




Remove PC-2A from protective pouch and remove yellow safety cap.




Push PC-2A firmly against the injection site to initiate the injection and deliver the medication. Hold in position for 10 seconds before removing PC-2A.


Marketed throughout Europe by ALK-Abelló as the JEXT® epinephrine autoinjector.
www.jext.co.uk
Safety Cap
Medication visible
Needle shield automatically extends and locks to prevent inadvertent exposure to used needle.
PC-2A

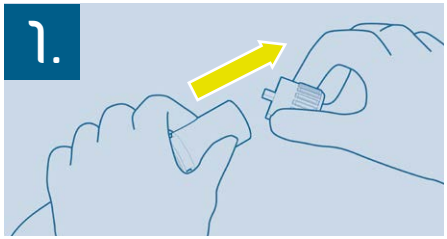
PHC PC-**2M**

# Autoinjector for military and civilian use.

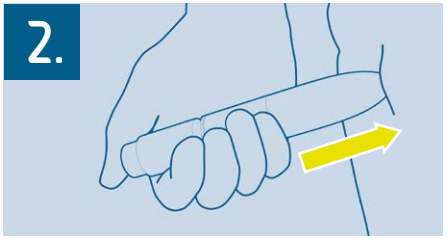
**The reliable solution for intramuscular self-injection of emergency antidotes designed to ensure needle penetration and successful injection through several layers of clothing.**

| | |
|---|---|
| Simple, fast intramuscular self-injection in emergency situations. | Uses standard glass cartridge and suitable for wide range of liquid antidote formulations. |
| Exchangeable injector element provides logistical flexibility and economic advantages. | International patents and registrations. |

## Simple, fast 2-step operating sequence:




Remove PC-2M from protective pouch and remove red safety cap.




Push PC-2M firmly against the injection site to initiate the injection and deliver the medication. Hold in position for 10 seconds before removing PC-2M.

### PC-2M combines interchangeable activator and injector elements.

This design allows exchange of injector units. For example, in case of expiry of medication a new injector unit is connected to the activator, requiring only the disposal of the injector unit. This facilitates a flexible approach to logistics, as well as reducing overall system costs and minimising environmental impact.


Note: Exchange of injector units is carried-out by the manufacturer and cannot be undertaken by users.

PC-**2M**

PHC PC-2

# Re-chargeable Autoinjector

**Multi-use system for subcutaneous or intramuscular self-injection.**

Re-usable Activator device with interchangeable Injector units provides cost-effective solution for regular, planned injections.

Integrated needle-safety system.

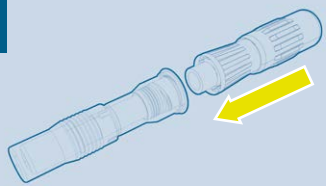
Incorporates standard glass primary packaging; suitable for a wide range of liquid medications.

Easy, fast re-charging of Activator and loading of new Injector.

Design concept, ready for realization to customer demand.

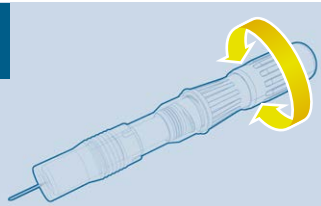
## Simple preparation and operating sequence:

1.



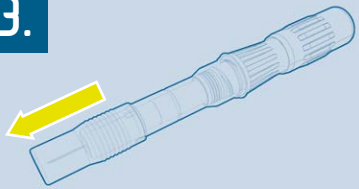
Attach Injector unit to Activator.

2.



Twist safety cap to prepare the Injector; audible »click« indicates ready for injection. Push PC-2 against injection site to initiate delivery of medication.

3.



Remove PC-2 from injection site. Slide the needle shield over exposed needle.


Activator (re-useable)
PHC
Standard cartridge
Sterile injection unit

PC-**2**

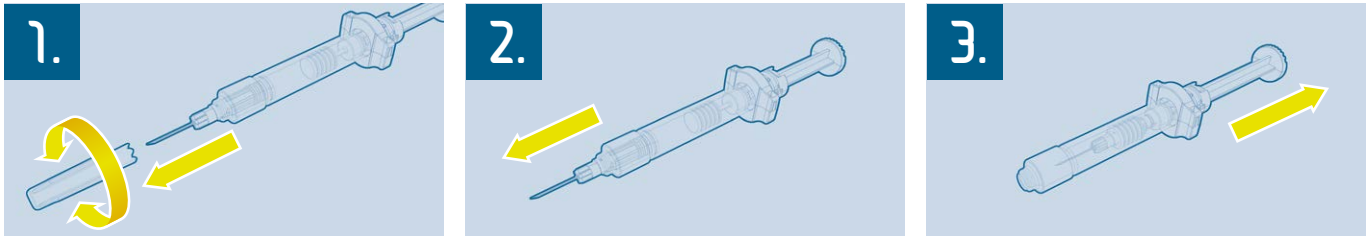
PHC PC-**MXo**

# Pre-fillable Safety Syringe

**With “dry-needle” barrier system and tamper-evident closure.**

- Pre-fillable glass safety syringe with retractable needle.
- Proprietary “dry-needle” barrier system isolates needle from medication until use.
- Compatible with existing drug filling systems.
- Avoids drug contact and interaction with metal and adhesive, creating optimal drug storage conditions.
- Sterility assured by tamper-evident indicator, based on seal breakage.
- Patented design study, adaptable to customer demand.

## Simple operating sequence:




Twist needle shield in either direction to open fluid pathway and remove needle shield.

Undertake injection.

After injection, retract plunger rod – which withdraws the needle, locking safely and securely inside the used syringe.


Drug only in contact with glass and pharmaceutical rubber
After use the needle will be locked in place. A re-use of the safety syringe is impossible.
Tamper evident closure

PC-**MXo**

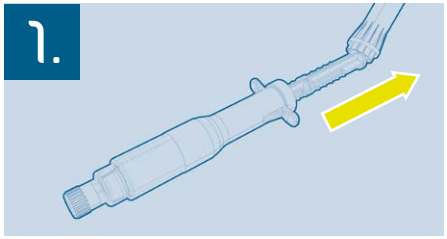
PHC PC-**Lyo**

# Prefilled syringe for lyophilized drugs.

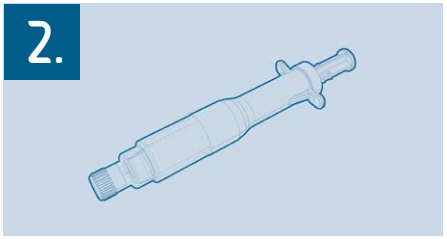
**Safe preparation and easy application in one device.**
**Suitable for a wide range of freeze-dried formulations.**

- Integrated system, utilising standard glass primary packaging and associated filling processes.
- Luer closure provides choice of needle.
- Simple, intuitive preparation and injection sequence.
- Sterility assured by tamper-evident indicator, based on closure seal breakage.
- Innovative design facilitates liquid filling and lyophilisation processes in separate locations.
- Patented design study, adaptable to customer demand.

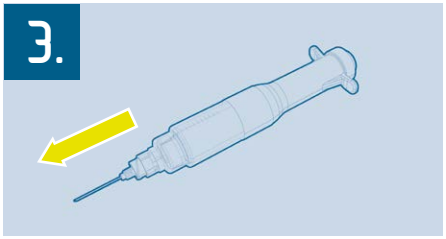
## Simple operating sequence:




Remove protective cover.




Depress plunger rod to transfer liquid diluent into lyophilisate chamber. Agitate to mix, as required.




Attached needle or infusion set; undertake delivery of medication.


Diluent and
lyophilisate
in two separate
containers

# PC-**Lyo**