



Galaxy[®] incubator gas accessories

Operating manual

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1 Safety points

Carefully inspect the regulator for oil, grease and damaged or dirty parts. Oxygen vigorously supports combustion; never use the regulator if oil, grease or damaged parts are detected.

Never:

- Use a regulator showing any kinds of damage
- Allow cylinders to become heated
- Use pressure gauges that are damaged, not smooth in operation or not zeroing
- Remove or change any parts of the regulator

Always:

- Check the whole system for damage and leaks at frequent intervals
- Work to international and local codes of practice

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed (see *CO₂ specifications on p. 17*). Before using these products with fluids other than those specified, for non-industrial applications, lifesupport systems, or other applications not within published specifications, consult Eppendorf. Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure. System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided. System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

Water vapor will pass through these units and will condense into liquid if air temperature drops in the downstream system. Install an air dryer if water condensation could have a detrimental effect on the application.

Safety points

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2 Operating instructions

2.1 Using this manual

- ▶ Carefully read this operating manual before using the device for the first time.
- ▶ The operating manual should be considered as part of the product and stored in a location that is easily accessible.
- ▶ When passing the device on to third parties, be sure to include this operating manual.
- ▶ If this manual is lost, please request another one. The latest version can be found on our website www.eppendorf.com (international) or www.eppendorfnna.com (North America).



This equipment operates at a maximum altitude of 2000 m.

2.2 Danger symbols and danger levels

2.2.1 Hazard icons


	Biohazard		Explosion
	UV radiation		Toxic substances
	Electric shock		Crushing
	Hot surface		Hazard point
	Heavy loads		Material damage

2.2.2 Degrees of danger

The following danger levels are used in safety messages throughout this manual.

DANGER	<i>Will</i> lead to severe injuries or death.
WARNING	<i>May</i> lead to severe injuries or death.
CAUTION	May lead to light to moderate injuries.
NOTICE	May lead to material damage.

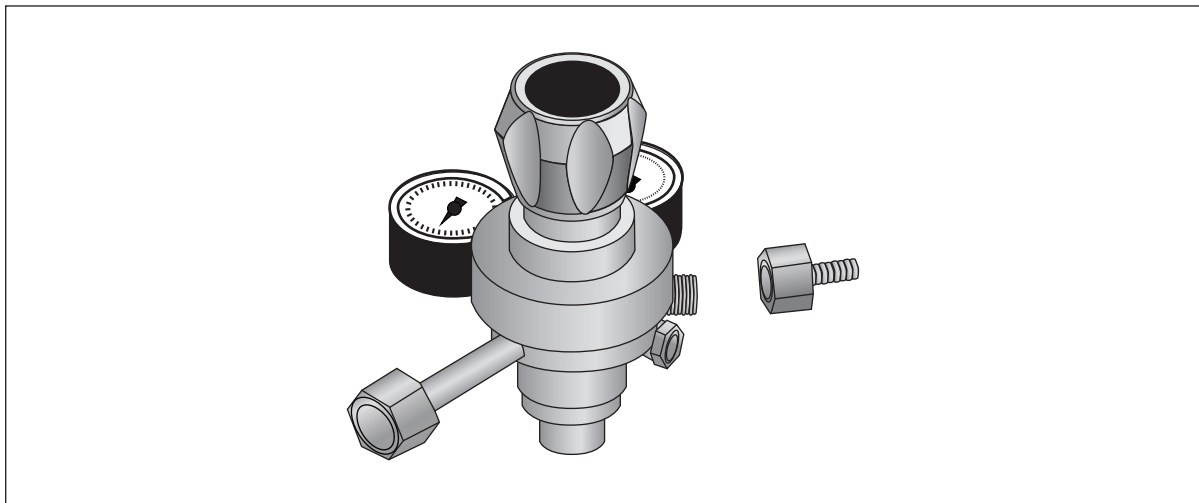
2.3 Symbols used

Example		Meaning
	▶	You are requested to perform an action.
	1. 2.	Perform these actions in the sequence described.
	•	List.
		References useful information.

3 Product description

3.1 Two stage CO₂, N₂ and O₂ regulators

Only experienced and properly trained persons should handle compressed gases, they should be conversant with the relevant safety instructions including the current international and local codes of practice and the gas safety instructions from the gas supplier. Attention is drawn to regulations governing the use of Acetylene. If in doubt, users should seek guidance from HM Inspectorate of Explosives.



3.1.1 Description

The Bar Multi-stage regulator provides the ultimate answer to industrial gas pressure requirements. Capable of working on cylinder pressure up to 300 bar, these regulators provide extra safety and precision control to the user. The two stage reduction of cylinder pressure within the multi-stage regulator combines extra safety with precise control over the complete pressure range.

The multi-stage regulator is extremely versatile and can be found in many industries serving a wide range of applications. These include 24 hour life support systems, food and drink processing, laboratory supply systems, high tech manufacturing control and numerous other industrial applications.

The regulator is produced under our quality management system BS EN ISO 2503.

The range is suitable for all standard industrial gases, including oxygen, acetylene, hydrogen, nitrogen, argon, helium etc.

Product description

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3.1.2 Features

Feature	Description
Types	<ul style="list-style-type: none"> • Available in 2 gauge form to give total accuracy and flexibility to suit all welding, cutting, heating and gas control applications • The 2 gauge form features both cylinder contents pressure and the regulated outlet pressure
Inlet configuration	<ul style="list-style-type: none"> • Available with bottom or side entry inlet connections to ensure that the regulator fits both safely and conveniently on all available cylinders
NEVOC	<ul style="list-style-type: none"> • With gas manufacturers throughout Europe filling cylinders to higher pressures, the need for standardization of cylinder connections has necessitated the adoption of a new cylinder connections • The New European Valve Outlet Connection (NEVOC) has been designated to meet these requirements and has been adopted throughout Europe for cylinders filled above 250 bar • Cylinders filled up to and including 250 bar will continue to use relevant national standards (i.e. BS 341 connections in the UK)
Safety pressure gauges	<ul style="list-style-type: none"> • Meeting the requirements of the latest standard BS EN 562, these gauges are the safest possible design • All gauges have the gas service indicated and are marked for maximum working pressure
High flow safety valve	<ul style="list-style-type: none"> • Tamper-proof, this high capacity valve will safely vent excess pressure and reseal, thus extending the life of the regulator
Captive pressure adjusting knob	<ul style="list-style-type: none"> • This important feature is designed into the Gas-Arc range, making it impossible to remove the adjusting knob
300 bar valve	<ul style="list-style-type: none"> • Using the latest technology available, Gas-Arc have designed the 300 Bar valves compatible with high pressure industrial gases
Inlet filter	<ul style="list-style-type: none"> • All regulators are fitted with an integral inlet filter that encapsulates the main valve and is designed to prevent ingress of foreign particles into the regulator
First stage piston	<ul style="list-style-type: none"> • Solid brass piston to withstand the demands of 300 bar service and provide an accurate and constant supply to the second stage

Feature	Description
Second stage diaphragm (unperforated)	<ul style="list-style-type: none"> This design means the efficiency of the diaphragm is greatly improved and also reduces the possibility of leaks, improving safety
Body	<ul style="list-style-type: none"> The regulator body is manufactured in our fully automated UK manufacturing facility, from brass bar stock sourced from reliable and consistent mills from within the EU
Bonnet	<ul style="list-style-type: none"> High strength alloy bonnet is designed to safely contain the increased cylinder pressures An ABS shroud is fitted over the bonnet to allow for the permanent markings of manufacturers name, maximum inlet pressure, and the product standard in accordance with the requirements of BS EN ISO 2503
Flashback arrestors	<ul style="list-style-type: none"> It is recommended that flashback arrestors are fitted in all cases when used with oxygen or fuel gases

3.1.3 Model types

Two stage N₂ regulator	All model types with oxygen option (P0628-7220)
Two stage CO₂ regulator	All model types (P0628-5010)
Two stage O₂ regulator	All model types with 1 – 95 % O ₂ option (P0628-7222)

3.1.4 Markings

The regulator is marked with:

- Maximum inlet pressure (pressure service)
- Rated outlet pressure
- Gas (only use the gas shown)

Product description

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3.2 Inline CO₂/N₂ regulator



Fig. 3-1: Inline CO₂/N₂ regulator

The inline CO₂/N₂ regulator (P0628-5030) features a compact design with full-flow gauge ports and a low torque, non-rising adjusting knob. This snap action knob locks the pressure setting when pushed in.

Standard relieving models allow for the reduction of outlet pressure, even when the system is dead-ended.

This unit does not require tools or removal from the airline during disassembly.

4 Installation

4.1 Fitting a 2 stage CO₂, N₂ or O₂ regulator to a cylinder

Before fitting the regulator, ensure the cylinder outlet valve and the regulator inlet are clean and free from contaminants including dirt, oil and water.

If fitted, fully release the regulator adjusting knob by winding anti-clockwise prior to fitting to cylinder. Right hand thread is employed for oxygen and permanent gases, and left hand thread is used for fuel gases. Use only the correct size of spanner and finally tighten by applying 2 blows to the end of the spanner with the heel of the hand.

4.2 Fitting an inline CO₂/N₂ regulator

The inline regulator can be attached to your Galaxy 170 incubator using the two screws provided in the pack.

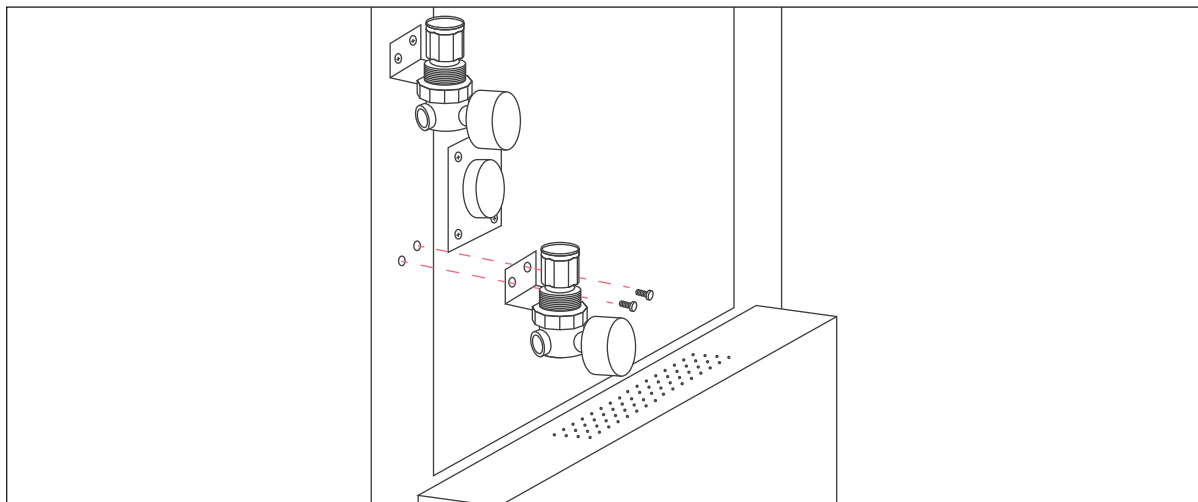


Fig. 4-1: Installing to an incubator

1. Turn off gas supply.
2. Cut PVC tubing to incubator.
3. Connect each end of the tubing to the inlet connectors on the regulator.
Take note of the direction of the flow (located behind the gauge).
4. Fit the supplied cable clips.
5. Turn on the gas supply.
6. Pull the knob.
7. Gradually turn the knob clockwise until the desired pressure is achieved.
5 psi – 7 psi (0.35 - 0.5 bar) in Galaxy CO₂ incubators and New Brunswick™ S41i.

Installation

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5 Operation

1. After fitting of the downstream equipment, open the cylinder valve slowly, this is critical operation and must be down slowly to be safe.
2. If fitted, adjust the regulator knob to the required outlet pressure and purge hoses, making the final adjustments when the gas is flowing.



It is vital to ensure that any audible vibration or freezing of the regulator is avoided during operation.

3. Check for leaks at all joints with the leak detection spray.
4. On completion of use, close cylinder valve and exhaust gas from lines.
5. If fitted, fully release regulator pressure adjusting knob.

Operation

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6 Technical data

6.1 CO₂ specifications

Description	Multi-stage cylinder regulator CO ₂ , 0 – 4bar side entry
Extended Description	Gas cylinder regulator grade 4.8, 99.998% purity. For use with CO ₂
Max. Inlet Pressure	300 bar (4350 psi)
Operating Pressure	0 – 4 bar (0 – 58 psi)
Effective Orifice Size	3.175 mm (0.125 in)
Inlet Connection	BS 341 No.8 R/H
Outlet Connection	3/8 in BSPP coned male c/w hose tail to suit 6.4 mm (1/4 in) ID hose
Auxiliary Connection	
Mounting Style	In-line
Wetted Materials	Brass, Neoprene
Non-wetted Material	Brass, ABS, MAZAK
Media Temperature	-20 – 60 °C (-4 – 140 °F)
Ambient Temperature	-20 – 60 °C (-4 – 140 °F)
Recommended Filtration	30 micron
Weight	1.95 kg (4.30 lb)
CE Mark	No
ROHS Compliant	No
REACH Compliant	Yes
ATEX Compliant	No
WEEE Compliant	No
Other approvals	
Clean Room Manufactured	Controlled Environment
Commodity Code	84682000
Country of Origin	UK
Any other Technical Data	<p>This regulator incorporates:</p> <ul style="list-style-type: none"> • A tamper proof high flow safety valve • An integral inlet filter that encapsulates the main valve • Safety pressure gauges that meet the requirements of the latest standard BS EN 562

Technical data

Galaxy incubator gas accessories
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6.2 N₂ specifications

Description	Multi-stage cylinder regulator nitrogen/air 0 – 4 bar base entry
Extended Description	Gas cylinder regulator grade 4.8, 99.998 % purity. For use with nontoxic/ non-flammable compressed gases.
Max. Inlet Pressure	300 bar (4350 psi)
Operating Pressure	0 – 4 bar (0 – 58 psi)
Effective Orifice Size	3.175 mm (0.125 in)
Inlet Connection	BS 341 No.8 R/H
Outlet Connection	3/8 in BSPP coned male c/w hose tail to suit 6.4 mm (1/4 in) ID hose
Mounting Style	In-line
Wetted Materials	Brass, Neoprene
Non-wetted Material	Brass, ABS, MAZAK
Media Temperature	-20 – 60 °C (-4 – 140 °F)
Ambient Temperature	-20 – 60 °C (-4 – 140 °F)
Recommended Filtration	30 micron
Weight	1.95 kg (4.30 lb)
CE Mark	No
ROHS Compliant	No
REACH Compliant	Yes
ATEX Compliant	No
WEEE Compliant	No
Other approvals	
Clean Room Manufactured	Controlled Environment
Commodity Code	84682000
Country of Origin	UK
Any other Technical Data	<p>This regulator incorporates:</p> <ul style="list-style-type: none"> • A tamper proof high flow safety valve • An integral inlet filter that encapsulates the main valve • Safety pressure gauges that meet the requirements of the latest standard BS EN 562

6.3 Inline regulator specifications

Fluid	Compressed air	
Maximum pressure	300 psig (20 bar)	
Operating temperature	-20 °C – 65 °C (0 °F – 150 °F) Note: Air supply must be dry enough to avoid ice formation at temperatures below +2 °C (+35 °C)	
Typical flow at 10 bar (150 psig) inlet pressure, 6.3 bar (90 psig) set pressure, and a droop of 1 bar (15 psig) from set	1/8 in ports	6.5 dm ³ /s (14 scfm)
	1/4 in ports	7 dm ³ /s (15 scfm)
Gauge ports	1/8 in PTF with PTF main ports 1/8 in ISO Rc with ISO Rc main ports 1/8 in ISO Rc with ISO G main ports	
Materials	Body	Zinc
	Bonnet	Acetal
	Valve	Brass/nitrile
	Valve seat	Acetal
	Elastomers	Nitrile
Bracket mounting	Use 3 mm (1/8 in) screws to mount bracket to wall	
Dimensions	Panel mounting hole diameter	30 mm (1.19 in)
	Maximum panel thickness	0 mm – 6 mm (0 in – 0.25 in)

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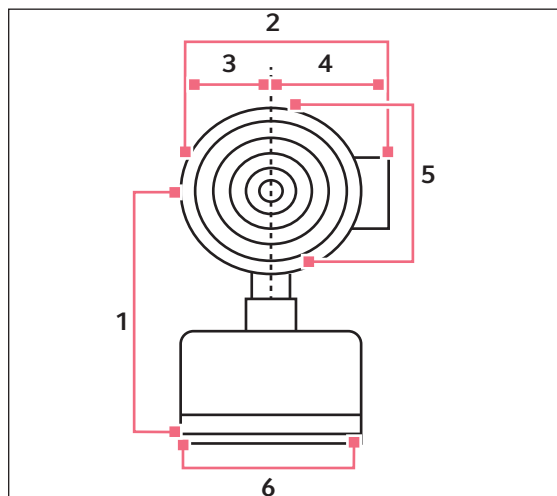


Fig. 6-1: Dimensions

1 54 mm (2.13 in)

2 41 mm (1.63 cm)

3 19 mm (0.73 in)

4 23 mm (0.91 in)

5 38 mm (1.50 in)

6 40 mm (1.57 in)

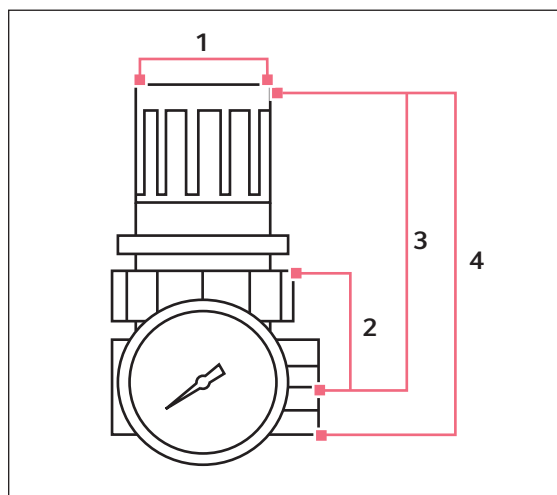


Fig. 6-2: Dimensions

1 28 mm (1.1 in)

2 24 mm (0.95 in)

3 64 mm (2.52 in)

4 75 mm (2.91 in)

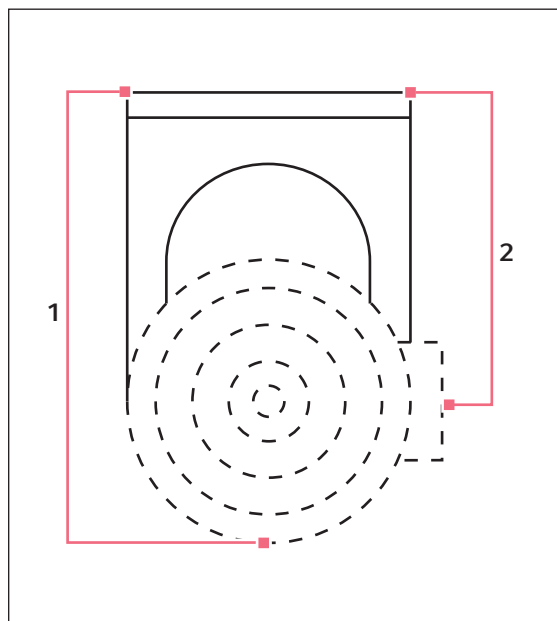


Fig. 6-3: Bracket mounting

1 63 mm (2.47 in)

2 28 mm – 44 mm (1.09 in – 1.73 in)

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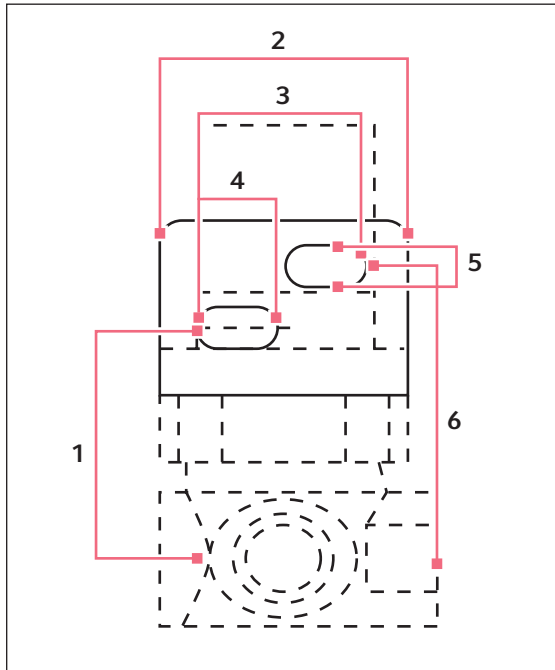


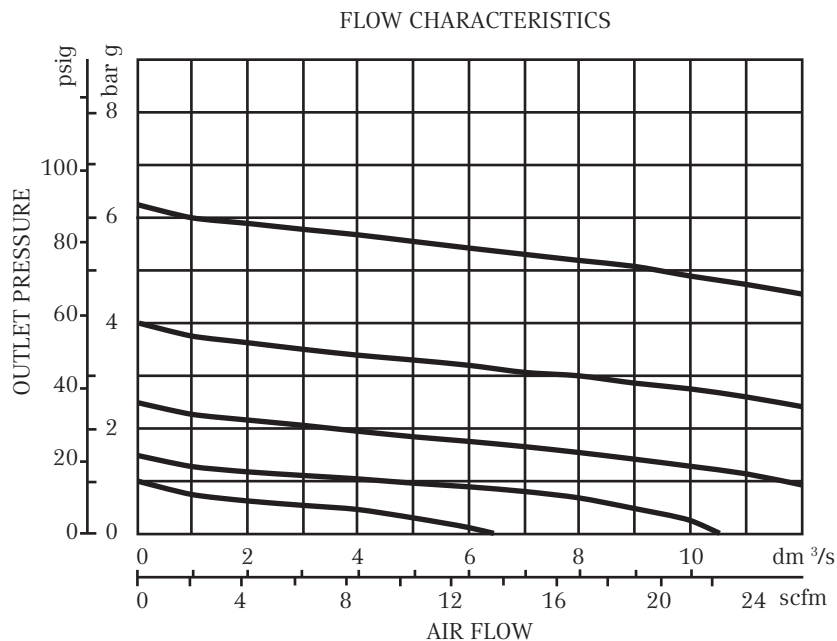
Fig. 6-4: Bracket mounting

- | | | | |
|---|-----------------|---|-----------------|
| 1 | 34 mm (1.34 in) | 4 | 7 mm (0.29 in) |
| 2 | 38 mm (1.50 in) | 5 | 6 mm (0.22 in) |
| 3 | 24 mm (0.93 in) | 6 | 42 mm (1.65 in) |

6.3.1 Typical performance characteristics



Port size: 1/4 in
Inlet pressure: 150 psig (10 bar g)
Range: 5 –psig – 100 psig (0.3 bar – 7 bar)



6.4 Disposal

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community:

Within the European Community, the disposal of electrical devices is regulated by national regulations based on EU Directive 2012/19/EU pertaining to waste electrical and electronic equipment (WEEE).

According to these regulations, any devices supplied after August 13, 2005, in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste. To document this, they have been marked with the following identification:



Because disposal regulations may differ from one country to another within the EU, please contact your supplier if necessary.

In Germany, this is mandatory from March 23, 2006. From this date, the manufacturer has to offer a suitable method of return for all devices supplied after August 13, 2005. For all devices supplied before August 13, 2005, the last user is responsible for the correct disposal.

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