



# PROFFICO

## ZORRO - mobile chlorinator for water and sewage



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## MOBILE DOSING SYSTEM

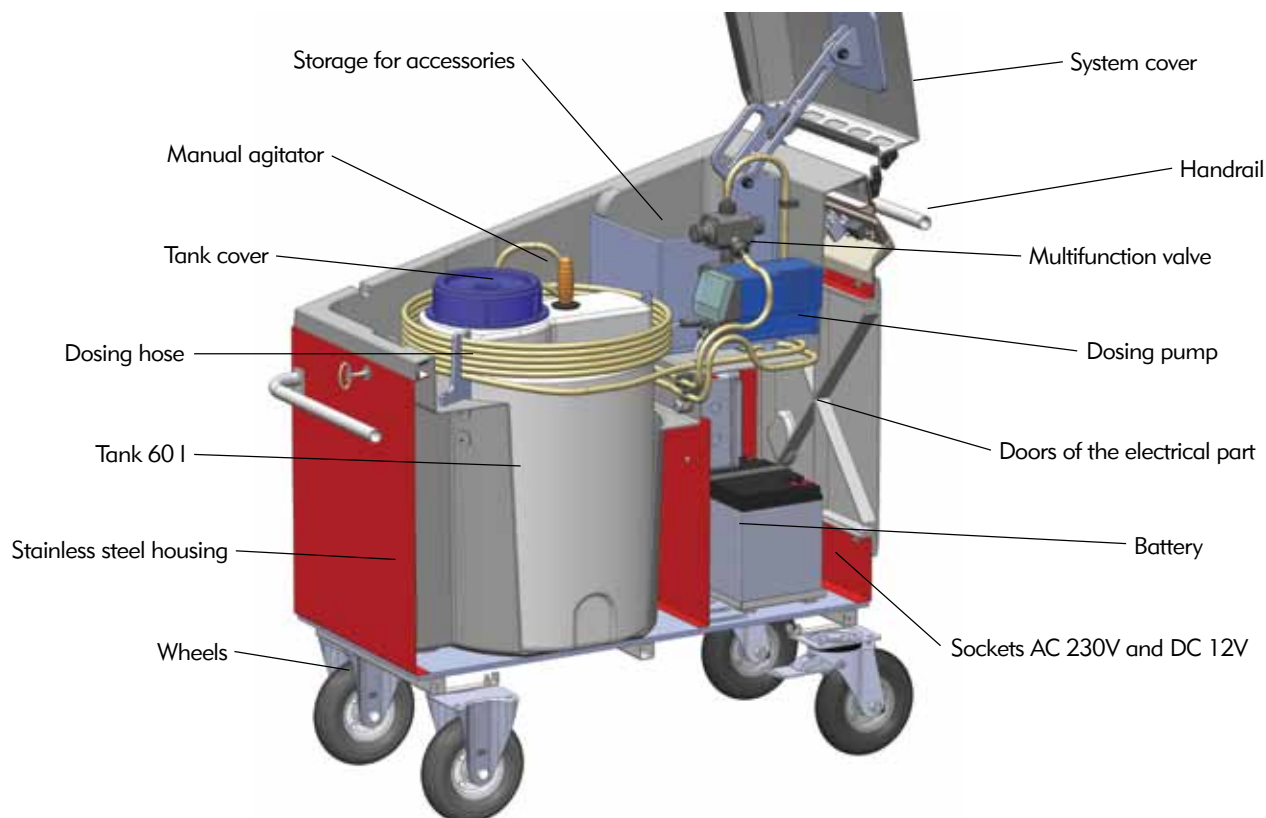
Mobile Zorro chlorinator is intended for disinfection of all types of water supply networks and installations, industrial or technological, with the use of generally available disinfectants such as sodium hypochlorite or commercial chlorine dioxide. The whole technical solution has been patented in the Polish Patent Office.

The Zorro 2 model is completely independent from an external power source and allows the disinfectant to be dosed into systems where the maximum operating pressure does not exceed 8-10 bar. This system can also be used for dosing other liquids in specific technological systems.

The mobile disinfection system Zorro 2e is a lower-cost version of Zorro 2. This version does not have its own 12V power supply, which means that the unit operates only with a continuous 230V supply. The control panel has been modified accordingly for this power supply.

Zorro 2 chlorinators consist of two separate chambers, each equipped with a key lock to prevent access by third parties.

- Technical chamber, which contains a 60-litre tank with manual agitator for preparing the disinfectant solution, dosing pump, multifunction valve, dosing hose and storage compartment for connectors and accessories.
- The electrical chamber contains all the necessary components and protections to enable the electric power supply of the dosing pump without the need for an external power source.

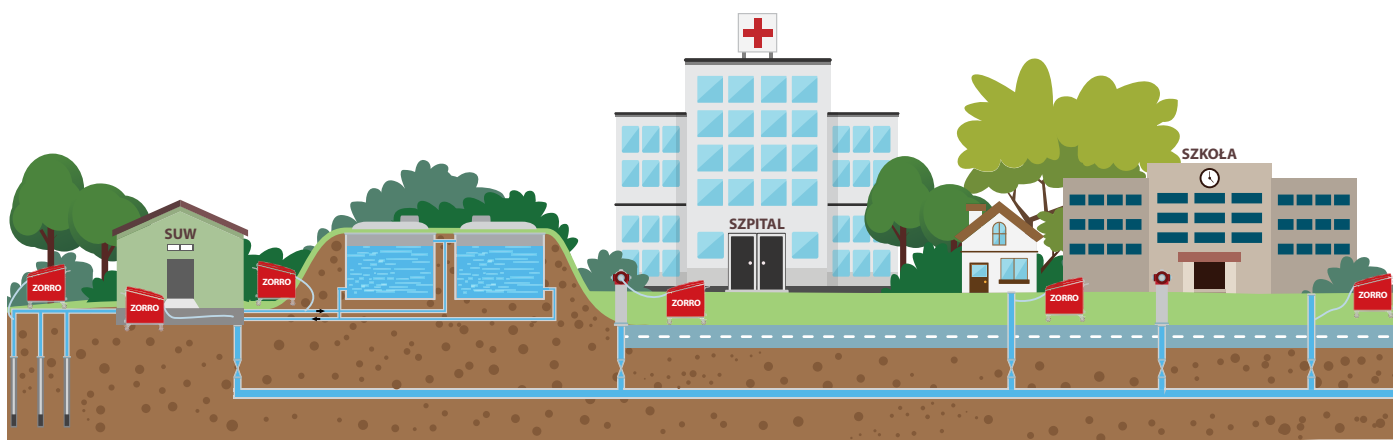


Arrangement of individual components of the Zorro 2 model

The latest Proffico solution, model Zorro 3, is a compact device which, thanks to its small size (case casing) is ideal for disinfection of hard to reach points or small home installations. The Zorro 3 is powered directly from the 230 V network.

## RANGE OF APPLICATIONS

- disinfection of newly built pipelines and water supply systems,
- disinfection of the water network using the hydrant method (e.g. secondary network contamination),
- disinfection of sewage (in sewers, pipes, wells, etc.),
- disinfection of internal water supply systems (schools, hospitals, etc.),
- disinfection or activation of pressure filter beds,
- disinfection of tanks,
- introduction of other chemicals into networks, installations or equipment (potassium permanganate, antiscalant, pH correction, etc.).



## MAIN ADVANTAGES

- mobile unit - thanks to the compact design of the individual devices and the fact that the technical chamber is equipped with wheels, it can be transported safely and easily to its destination,
- the chlorinator housing is made of materials with maximum chemical resistance,
- a wide range of accessories and nozzles allows for versatile dosing,
- handles in the lower part of the technical chamber ensure comfortable and safe fastening of the device during transportation by car (e.g. by means of transport belts)\*,
- a tank equipped with a manual agitator allows to prepare the disinfection solution directly in the unit\*,
- the technical chamber and tank are equipped with drain valves, so unused disinfectant can be removed in a safe and controlled way\*,
- dosing system equipped with a sensor to protect the pump against dry running\*,
- the use of the multi-function valve protects the system against\*:
  - dosing agent in the absence of minimum operating pressure (e.g. damage to the dosing hose, disconnection of the dosing system, lack of conductive medium),
  - dosing when the pressure is higher than that set on the multi-function valve,
  - the disinfectant suction when the dosing pump is switched off (e.g. when there is vacuum in the system or e.g. when the dosing hose is significantly lowered without a quick coupling with non-return valve function),
- internal power supply module - no need to connect to 230V\* network,
- possibility to work in three power modes:
  - mode 1 - power supply via the built-in power supply module\*,
  - mode 2 - external battery power\*,
  - mode 3 - 230V network power supply,
- the unit is equipped with a high-quality system for charging the power module\*

\* Applies only to Zorro 2 model



## TECHNICAL SPECIFICATION OF ZORRO 2 AND ZORRO 2e MODELS

Unit:	mobile disinfection system,
Manufacturer:	Proffico Sp. z o.o.,
Hygiene certificate for drinking water:	yes,
Tank volume:	approx. 60 l,
Tank material:	PE stabilized with UV,
Dosing pump:	Wallace & Tiernan / Evoqua, <small>or other</small>
Capacity and maximum pressure:	7,2 l/h (10 bar),
Optional pump capacity:	1,4; 2,5; 4,3; 4,8; 11,2 l/h
Graphical display on the pump panel:	yes,
Pump operating modes - internal:	number of strokes per minute, setting %, setting l/h,
Pump operating modes - external:	impulse signal with the possibility to multiply and divide the signal, signal (0)4 - 20 mA,
Additional functions of the pump:	mechanical stroke length adjustment, venting, output signals: empty tank / stroke / alarm,
Multifunction valve:	as additional equipment,
Battery capacity:	approx. 70 - 80 Ah*,
Operating time of the internal power supply:	min. 24 h (applies to nominal operating conditions with new and fully charged batteries),
Drainage valve:	yes,
Dosing hose:	diameter 6/12 mm - length approx. 6 m,
Housing:	external: powder-coated stainless steel, internal: polyester-glass composite,
Cover:	composite with technical lock and two-stage hold-open device
Accessory storage:	yes,
Facilitations:	quick reference guide, concentration and dilution table, standard dosing agent: sodium hypochlorite, <small>*other on request</small>
External operating temperature:	from 2 to 35°C (only for the unit, not for the dosed agent),
Operating:	connection / disconnection - 1 person, operation - maintenance-free,
Net weight:	approx. 117 kg - Zorro 2, approx. 100 kg - Zorro 2e,
External dimensions:	1160 x 560 x 1180 mm (+/- 50 mm),
Guarantee:	12 months (not applicable to batteries).

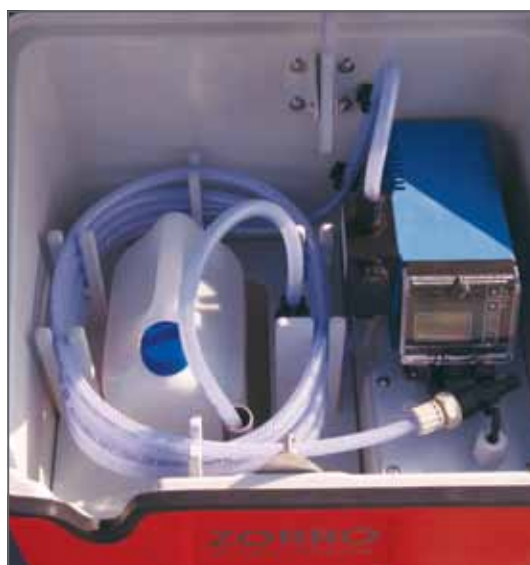


*\*not applicable to the Zorro 2e model*



## TECHNICAL SPECIFICATION ZORRO 3

Unit:	case disinfection system,
Manufacturer:	Proffico Sp. z o.o.,
Hygiene certificate for drinking water:	yes,
Tank volume:	approx. 5 l,
Tank material:	PE,
Dosing pump:	Wallace & Tiernan / Evoqua, <small>or other</small>
Capacity and maximum pressure:	1,4 l/h (10 bar),
Other pump capacities available:	2,5; 4,3; 4,8; 7,2; 11,2 l/h,
Graphical display:	yes,
Pump operating modes - internal:	number of strokes per minute, setting %, setting l/h,
Pump operating modes - external:	impulse signal with the possibility to multiply and divide the signal, signal (0)4 - 20 mA,
Additional functions:	mechanical stroke length adjustment, venting,
Power supply:	230 V (from the network) - cable approx. 6 m long with automatic winding system,
Power supply panel:	on the side of the unit in an easily accessible place,
Dosing hose:	diameter 6/12 mm - length approx. 4,5 m,
Housing:	polyester-glass composite,
Cover:	composite with technical lock and two-stage hold-open device,
Wheels:	four-wheeled chlorinator transport system (also in vertical position),
Facilitations:	telescopic handle for transporting the unit, two side handles and one handle on the cover,
Accessory storage:	no,
Facilitations:	quick reference manual, concentration and dilution table,
Facilitations:	sliding handle for transporting the unit,
Standard dosing agent:	sodium hypochlorite, <small>*others on request</small>
External operating temperature:	from 2 to 35°C (only for the unit, not for the dosed agent),
Operating:	connection / disconnection - 1 person, operation - maintenance-free,
Net weight:	approx. 29 kg,
External dimensions:	520 x 540 x 500 mm (+/- 50 mm),
Guarantee:	12 months.



## STANDARD EQUIPMENT

**The mobile disinfection systems Zorro 2 and Zorro 2e** in standard equipment is ready to use. The scope of delivery and execution corresponds to the description in the technical specifications. Operating manual, warranty card and Hygiene certificate as well as power supply cables (230V and 12V)\* are included. The dosing hose is terminated with a special connector with a male type non-return valve fitting the other quick couplings of the dosing set. The supply module is fully charged, which enables immediate use of the unit.

*\*not applicable to the Zorro 2e model*



**The mobile disinfection system Zorro 3** in standard equipment is ready to use. The scope of delivery and execution corresponds to the description in the technical specifications. The unit comes with an operating manual, warranty card and Hygiene certificate. The dosing hose is terminated with a special connector with a male type non-return valve fitting the other quick couplings of the dosing set. Thanks to its compact case and telescopic handle, which facilitates transport, Zorro 3 is ideal for disinfection of small indoor installations such as private houses, schools, kindergartens, etc.

**On the Customer's request**, Zorro 2 and 3 can be marked with the company logo or decorated with any graphics. Proffico, in accordance with the customer's guidelines, makes a graphic design and after approval, the high resistances to atmospheric factors target graphics are realized.

**The Proffico service** delivers the purchased chlorinator together with selected optional equipment directly to the Customer's site (in the Polish territory). On-site training on the basic operation and operation of the delivered equipment is provided. The Proffico service provides warranty and post-warranty care for the delivered Zorro systems, as well as the availability of materials and spare parts

## OPTIONAL EQUIPMENT

**The hydrant injection kit** ensures that the disinfectant is dosed into the network via a Ø 75 hydrant connector (hydrant plug). We have two options of this solution.

- Option I: mobile, where the dosing line (with LDPE) can be inserted into the hydrant by tightening the hydrant cap. Thanks to this design, the dosing line is inserted directly into the vicinity of the hydrant plug.
- Option II: fixed, where there is no possibility to change the position of the hose after tightening the hydrant connector. The length of the dosing hose (with LDPE) is selected individually, before the connector is tightened.



**The connection kit for the anti-contamination valve** ensures that the disinfectant is dosed directly to the connection near the water meter. The kit is equipped with a female type connector (for connection to the disinfectant dosing hose) with non-return valve function, a ball valve and a GT 1/4" connection fitting. It is an ideal solution for internal disinfection of installations in residential buildings, hospitals, schools or offices. Material made of PP and / or PVDF, LDPE.

**The pipeline injection kit** ensures fully professional and trouble-free dosing of the disinfectant into the pressure pipeline. Thanks to its construction, it is effective in mixing the disinfectant with the main medium without creating so called stagnants. A special membrane at the end of the injection and a ball valve, which acts as a check valve, make it impossible to introduce the disinfectant into the installation. The kit can be screwed directly into the pipeline or mounted with a connection clamp. A flexible diaphragm mounted at the injection end protects the kit from calcium carbonate build-up (systematic crushing of sediment).







**The trailer or car ramps** allow for easy loading and unloading of Zorro 1 and 2 chlorinator onto a car or trailer by one person. They are made of light and durable aluminium. The load capacity of the ramps is about 340 kg and their length after unfolding is about 220 cm. The ramps fold in half of their length so they take up little space in transport. The safety of loading and unloading is ensured by longitudinal 10 mm high edges, which reduce the risk of uncontrolled slide of the trolley from the ramps.

**Chlorine content tests** make possible to determine the approximate chlorine content in the disinfected water easily and quickly. The test compares the colour of the control strip immersed in the test sample to the comparison scale included in the kit. The measuring range of the tests is from 0 to 6.00 mg Cl/l. The package contains 50 strips.



**Bacterial tests** allow to quickly determine the presence of coliforms in water.

The result obtained gives general information on the presence of bacteria, but without distinguishing their type. The set consists of a container and nutrient solution strip tests (2 pieces). The test result is obtained after only 15 minutes! The main advantage of this solution is the possibility to carry out the test in field conditions.

## HOW TO DISINFECT THE INSTALLATION PROPERLY

The most commonly used disinfectant is sodium hypochlorite  $\text{NaOCl}$ , whose commercial solution has a concentration of 12-16%  $\text{Cl}_2$ . The advantage of this agent is its easy availability and relatively low price. The disadvantage of sodium hypochlorite is its short stability period and high sensitivity to sunlight and high temperatures.

The basis for effective disinfection is the dosing of a small dose of disinfectant over a longer period of time (parameter  $c \times t$ ). This is the method of disinfection provided by the mobile Zorro chlorinator. A properly set dosing pump continuously feeds a small dose of the prepared low-concentration of sodium hypochlorite solution to the installation. This ensures that the disinfectant has an optimal contact time with the water.

The solution used in many places so far involving the introduction of a large dose of e.g. sodium hypochlorite into the installation at once (to the hydrant or the pipe) does not guarantee effective disinfection due to too short a time of contact with water in the water network (below 1s). An additional threat resulting from the application of such a solution is the creation of the so-called hypochlorite „bubble“, which is not able to mix effectively with the disinfected water, which in turn significantly reduces the effectiveness of disinfection.



Proffico is currently developing a new solution - a chlorinator control kit that can be mounted directly on the hydrant to control the capacity of the dosing pump located in the mobile Zorro chlorinator, keeping the disinfectant concentration in the water constant regardless of the changing flow.

## MOBILE CHLORATOR PROFFICO

PARAMETR	ZORRO 2	ZORRO 2e	ZORRO 3
Pump capacity	7,2 l/h (others on request)	7,2 l/h (others on request)	1,4 l/h (others on request)
Tank volume	approx. 60 l	approx. 60 l	approx. 5 l
Power supply	own and external battery 12 V / network 230 V	external network 230 V	External network 230 V
Housing	Outer: stainless steel inner: polyester-glass composite	Outer: stainless steel inner: polyester-glass composite	glass-polyester composite
Wheels	rubber ( pumped)	rubber ( pumped)	plastic
Dimensions	1160 x 560 x 1180 mm	1160 x 560 x 1180 mm	520 x 540 x 500 mm
Weight	approx. 117 kg	approx. 100 kg	approx. 29 kg

## REFERENCES

### Waterworks:

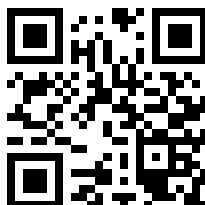
Warszawa, Kraków, Piła, Suwalki, Góra Kalwaria, Sławno, Białe Błota, Głogów, Gliwice, Leżajsk, Przasnysz, Skierniewice, Wschowa, Świdnik, Goleniów, Wolsztyn, Wyszaków, Wysokie Mazowieckie, Łapy, Sulejów, Halinów, Kościerzyna.

### Hospitals:

Łomża, Białystok, Lublin, Puławy, Pisz.

### Factories:

Hortex



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