

Security of drinking water

# Hycleen Des 30

for an environmentally friendly,  
electroactivated disinfection with  
sodiumhypochlorite



# Top grade drinking water is vital



Top grade drinking water is an essential prerequisite for a healthy life and economic prosperity since this key resource – sometimes also called “blue gold”- cannot be simply substituted by any other. However, various factors increasingly impair our water quality. Drinking water of high quality and free of pathogens is indispensable for a healthy life.

## **Biofilm – habitat for bacterial cells in drinking water distribution**

Together with the drinking water bacteria are distributed to and in every home and form a so-called biofilm wherever they find nourishment. Piping systems and valves in the domestic distribution lines provide them with ideal conditions. Long stagnation periods and water temperatures ranging from 25 to 50°C contribute to a proliferation of bacteria such as Legionella and Pseudomonas, which may cause infections in immunocompromised individuals.

## **A question of hygiene and prevention**

In terms of hygiene and prevention high drinking water quality is particularly important in hospitals, rehabilitation centres, retirement homes, nursing homes, residential complexes, hotels, holiday resorts, sports facilities, spa baths, schools, daycare centres, administrative buildings, indoor event venues, military facilities and penal institutions.

On the other hand, maintenance of piping systems in domestic distribution lines and periodic checks of the drinking water quality tend to be neglected, with grave effects; securing top-grade drinking water often proves difficult in large residential properties. However, in view of tightened legal regulations facility operators are pushed to take measures to ensure high drinking water quality to avoid complaints, negative publicity, loss of revenue or even criminal penalties.

# Four steps for optimum drinking water hygiene

Looped, dead-space free installation using only top-grade products.



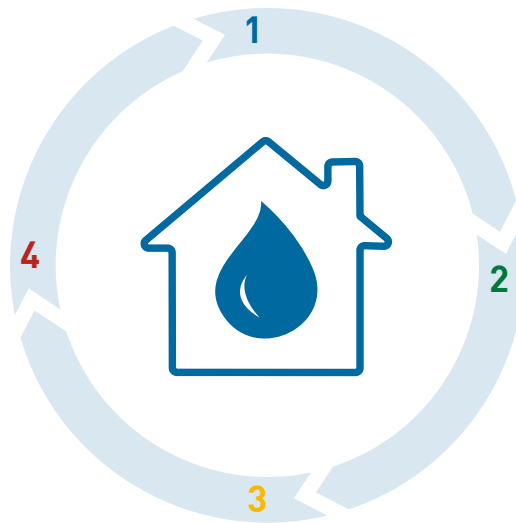
## Prevention

- Hydraulic calibration of the entire system
- Protection from limescale where necessary
- Periodic cold water flush



## Risk Assessment

- Assessment of drinking water quality on the basis of various indicators



## Monitoring

- Temperature monitoring
- Drinking water sampling



## Intervention

- Thermal disinfection
- Chemical disinfection

## The integral drinking water hygiene concept

In order to ensure high-quality drinking water at any time, the cold water as well as the hot drinking water supply needs to be considered as one integral system. That is why, with newly-built or planned properties preventive measures should be considered to minimize disturbances during operation. For existing properties preventive measures, however, should be supplemented with intervention measures.

### Ideal solution for existing properties

The integral water hygiene concept comprises four areas: Prevention, monitoring, intervention and risk assessment. This approach to secure drinking water hygiene offers numerous advantages especially for existing properties because their given condition can be considered when restoring high-quality drinking water. As refurbishments are executed in stages, preventive measures can often be carried out only occasionally, thermal or chemical

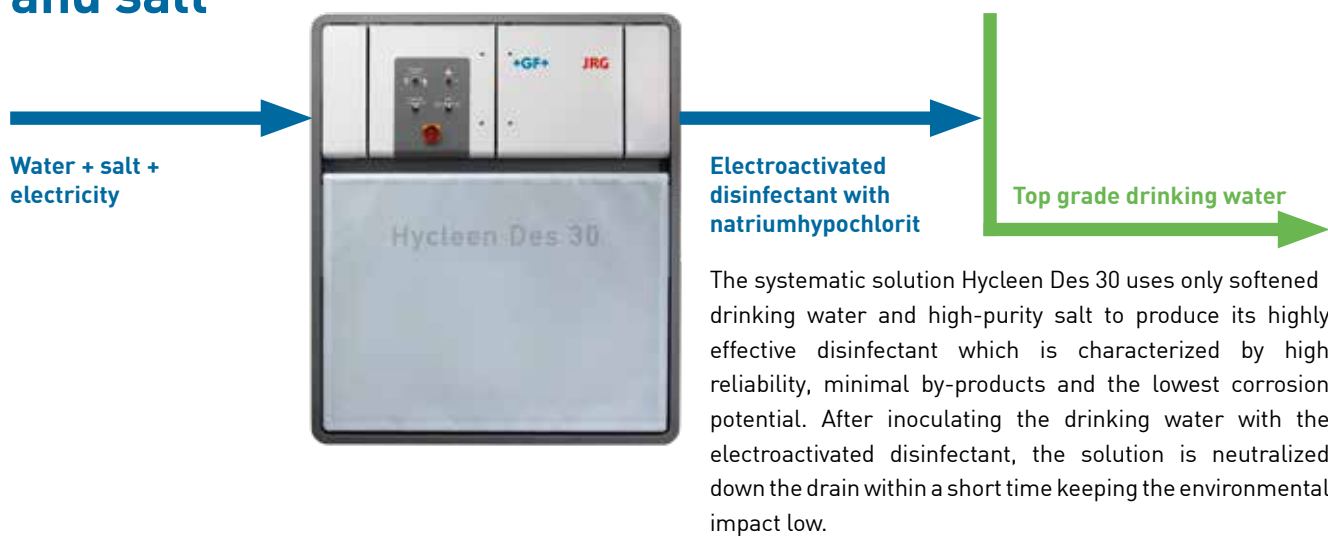
disinfection, on the other hand, are ideal in terms of intervention.

GF JRG provides the perfect solution: an environmentally friendly, highly efficient electroactivated disinfection unit - the Hycleen Des 30. Many years of experience show that this unit also treats old installation materials with care and therefore proves to be ideal for existing properties.

# Hycleen Des 30 – the systematic disinfection unit

The Hycleen Des 30 unit generates the required electroactivated disinfectant with natriumhypochlorit on site. Years of experience with regard to drinking water additives have set high and unique standards.

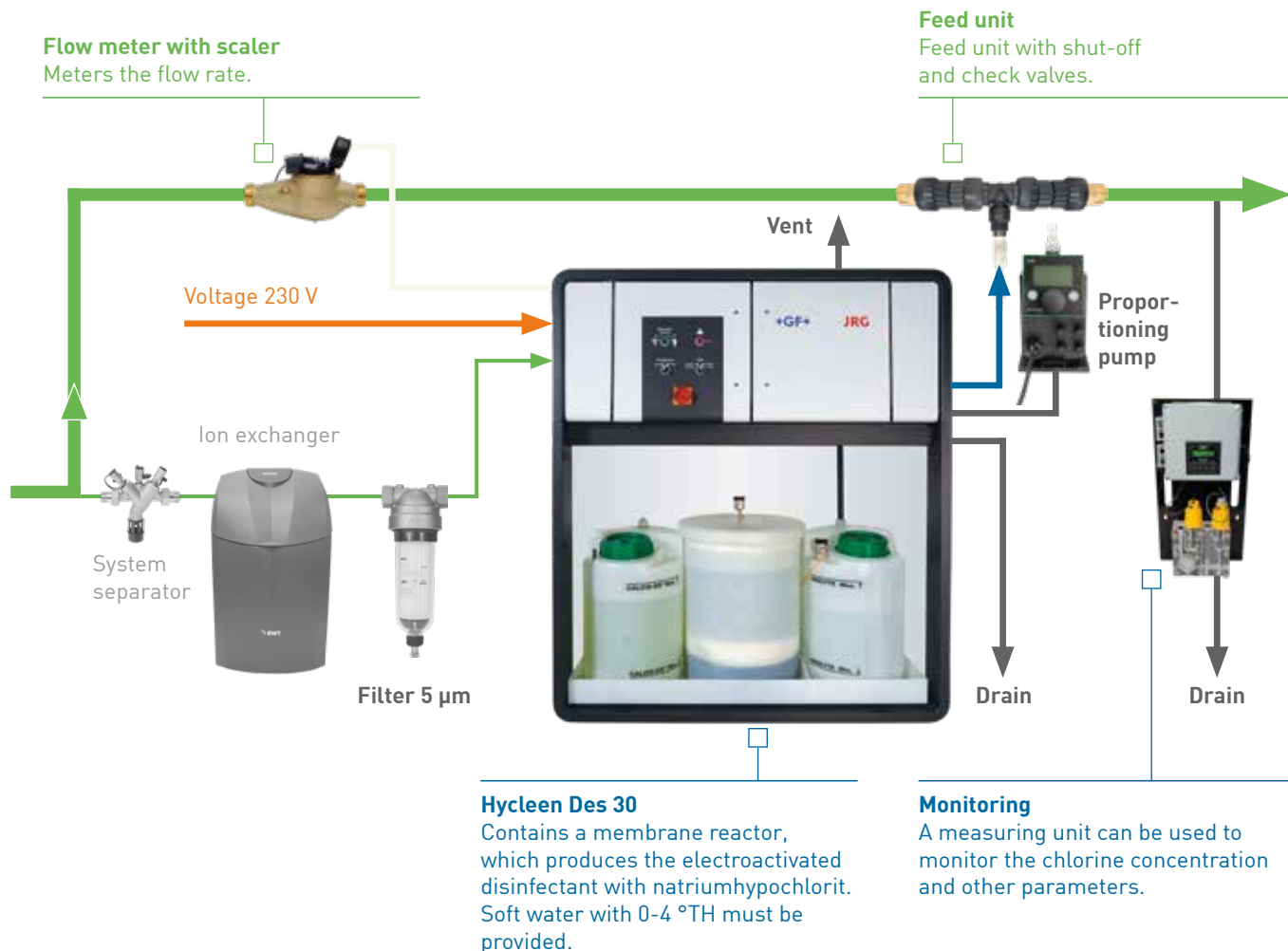
## Environmentally friendly disinfection using water and salt



### The Hycleen Des 30 unit offers facility operators key advantages when disinfecting their drinking water systems:

- Highly effective disinfectant against bacteria – small amounts are sufficient (fully compliant with the minimization principle)
- Depot effect in the entire drinking water installation system
- Disinfectant tested and certified according to the EU Biocides Regulation
- Low risk application; easy to use
- Low risk application – no transport/no storage of dangerous chemicals
- No micro-biologically induced corrosion
- No development of resistance in micro-organisms; biofilms are removed
- Minimizes microbial-induced corrosion
- Development of resistance in micro-organisms strongly impeded
- Cost-effective technique

# System structure for drinking water disinfection



The Hycleen Des 30 is the heart of the whole system and is automatically operated by a central control. For its use on the domestic water inlet further peripheral devices such as system separator, ion exchanger, pre-filter, flow meter, proportioning pump and feed unit must be allowed for and adjusted to the type of property.

## Uncomplicated system configuration

The Hycleen Des 30 is the heart of the whole system and is automatically operated by a central control. For its use on the domestic water inlet further peripheral devices have to be allowed for and adjusted to the type of property.

The Hycleen Des 30 system comprises three tanks. The tank with Calzid-Ex is used to automatically clean the reactor at intervals. The high-purity saline solution is produced in the large tank whereas another tank contains the disinfectant.

# High efficiency, long life

Numerous customers have used the electroactivated disinfectant with natriumhypochlorit for more than ten years and confirm its high efficiency against bacteria such as Legionella and Pseudomonas. Long-term tests confirm that the use of the Hycleen Des 30 system (when used correctly) has no negative impact on the service life of the GF JRG material neither with cold nor with warm water.

## Drinking water hygiene is vital in these facilities

- Hospitals and rehabilitation centres
- Old people's homes and nursing homes
- Residential complexes, hotels and holiday resorts
- Sports facilities
- Spa baths
- Schools and daycare centres
- Administrative buildings
- Indoor event venues
- Military facilities
- Penal institutions

## References

GF JRG engineers faced special challenges when securing the drinking water quality in large existing properties such as shown in the references below.



### Residential village in Germany totalling 20 houses and a central water distribution

Challenge:

Only occasionally occupied and used properties resulting in long stagnation periods of drinking water.



### Hospital in Germany totalling 680 rooms

Challenge:

20-year old drinking water distribution with various microbiological loads.



### Sports and Indoor Event venue St. Jakob in Basel

Challenge:

Greatly varying consumption rates of drinking water resulting in microbiological loads in the course of years.

# Specifications

The Hycleen Des 30 unit generates an natriumhypochlorit disinfectant on site that is highly effective against germs, bacteria, biofilm, and viruses.

Description	Unit	Value
Production volume (neutral anolyte)	l/h	30
Free chlorine in natriumhypochlorit (EN 901)	mg/l	< 200
Production volume NaOCl/NaOH	l/h	20/20
Disinfectant type neutral anolyte or anolyte		selectable
Connection dimension disinfectant tanks	DN	8
Drinking water inlet pressure	bar	3 - 10
System pressure	bar	1,8
Process adjuvant - high-purity saturated saline solution	g/l	0 - 2,0
Operation	Switch	4
Automatic process control		PLC
Level monitoring disinfectant, Calzid-Ex	Switch	inductive
In-process cleaning with Calzid-Ex (organic acid mixture)		automated
Consumption of Calzid-Ex		depending on drinking water hardness
Operating temperature in the room	°C	15 - 35
Relative humidity	%	< 45
Protection class		IP 54
Connections		
Power inlet (frequency 50 Hz)	V AC	230 ± 10%
Power consumption	W	350
Fuse	A	13
Drinking water connection	DN	15, AG ½"
Drinking water volume	l/h	50
Unit feed water hardness	°dH	< 2
Drinking water temperature	°C	15 - 22
Minimum drinking water pressure at the unit inlet	bar	3,0
Minimum drain connection		DN 50
Drain connection (pipe diffusion sealed)	DN	min. 15
Ventilation	m³/h	20
Saline solution tank	l	100
Natriumhypochlorit tank	l	60
Calzid-Ex tank	l	60
Dimensions (W x H x D)		1472 x 1750 x 574
Wall mounting (W x H)		1800 x 2000
Unit weight (tank empty)	kg	90
Unit weight (tank full)	kg	235
Certification		CE approved
Approval of the disinfectant		German Drinking Water Ordinance Sect. 11
Maintenance interval		annual
Additives		
High-purity salt	kg	25
Calzid-Ex	kg	25

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