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JRG

Securing top grade drinking water through highly effective disinfection unit

**Hycleen Des 30
for an environmentally friendly,
electroactivated disinfection
with natriumhypochlorit**



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

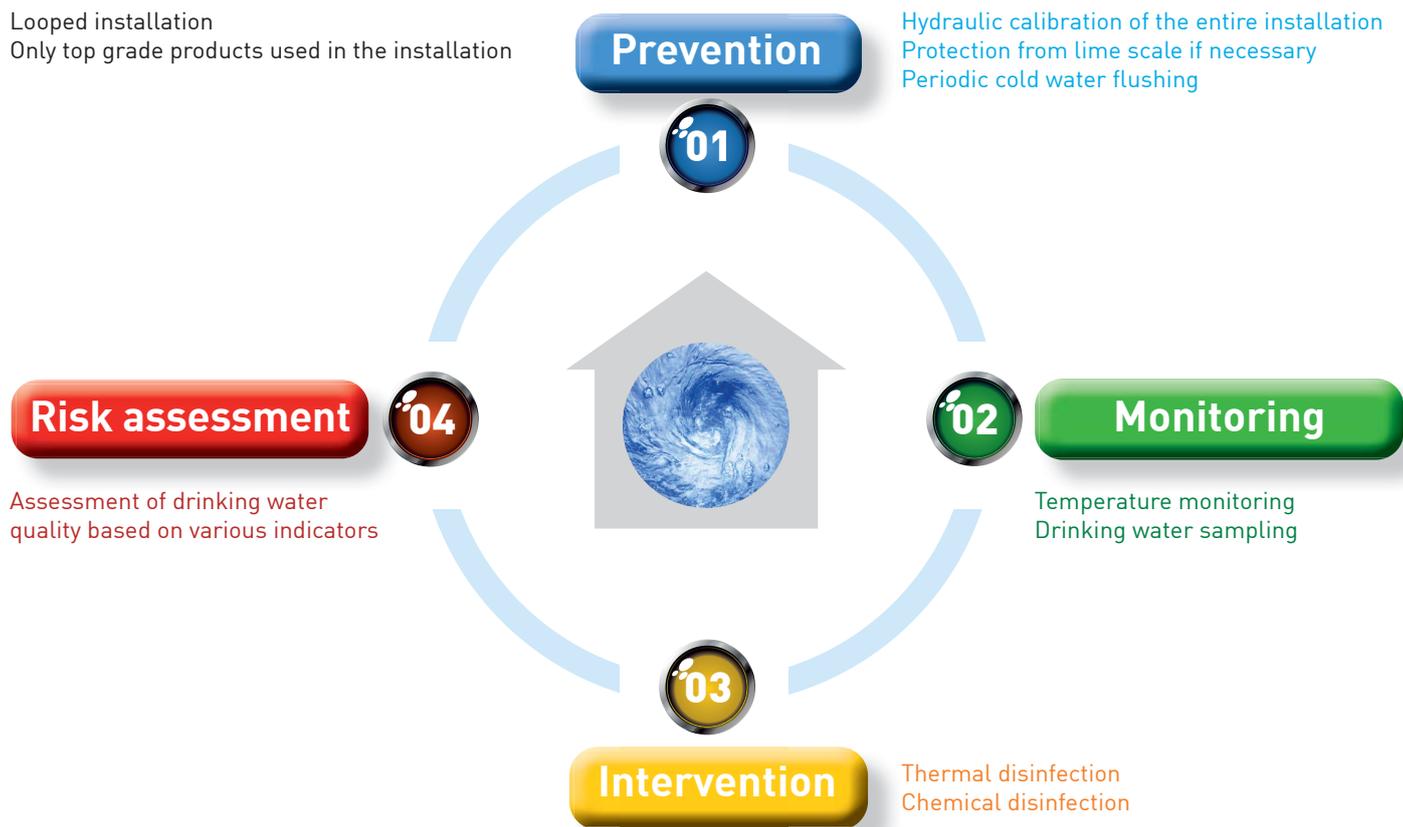
Together with the drinking water bacteria are distributed to and in every home and form a so-called biofilm wherever they find nourishment. Piping systems and valves in the domestic distribution lines provide them with ideal conditions. Long stagnation periods and water temperatures ranging from 25 to 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



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 occa-

sionally, 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

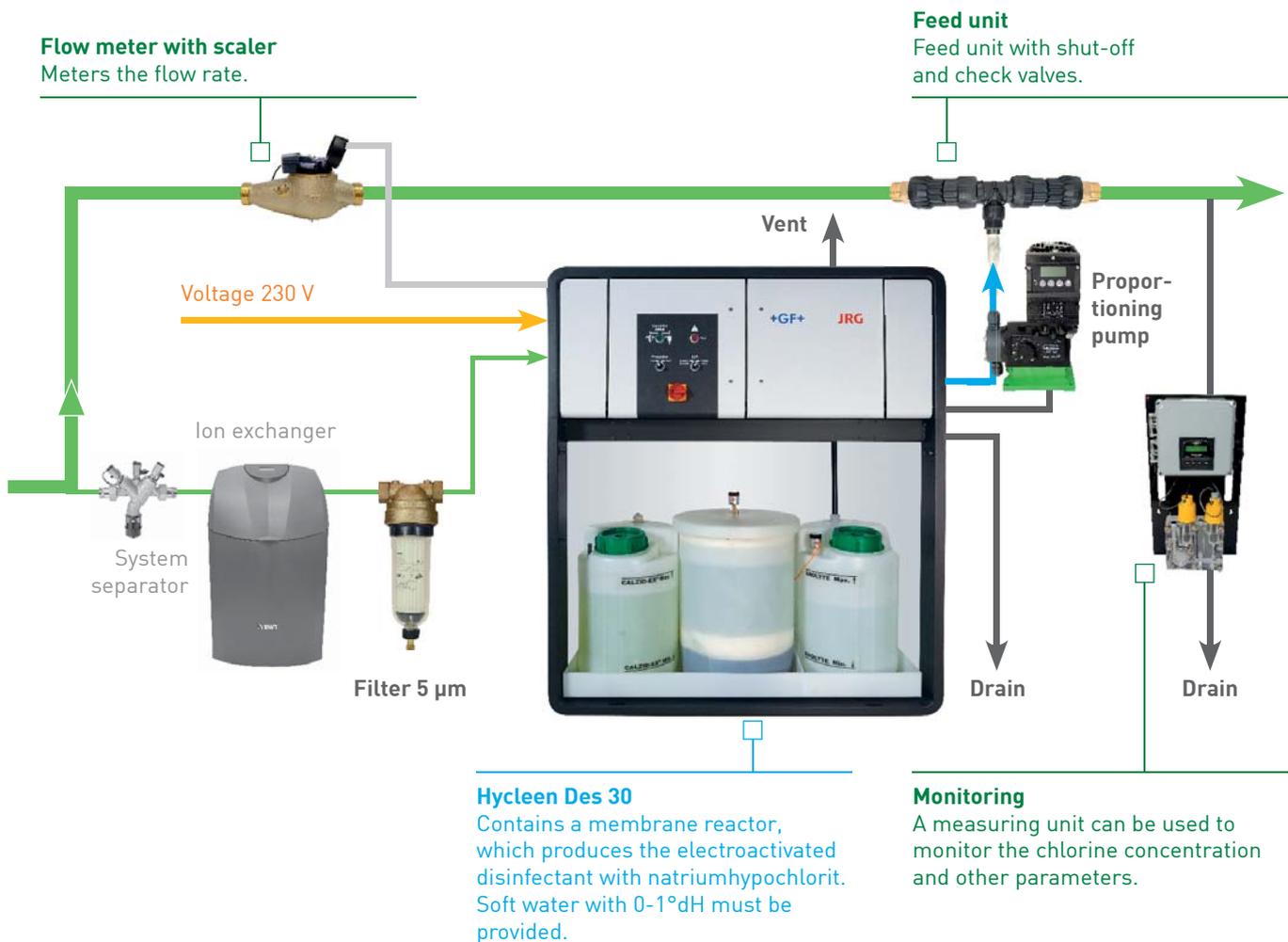


The systematic solution Hycleen Des 30 uses only softened drinking water and high-purity salt to produce its highly effective disinfectant which is characterized by high reliability, minimal by-products and the lowest corrosion potential. After inoculating the drinking water with the electroactivated disinfectant, the solution is neutralized down the drain within a short time keeping the environmental impact low.

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
- Approved disinfectant under Drinking Water Ordinance Sect. 11
- 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
- Does not impair the lifetime of GF JRG products; years of experience
- Environmentally friendly disinfectant
- 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. Using the Hycleen Des 30 unit does not impair the lifetime of GF JRG materials - neither in cold nor in hot water lines.

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	< 500
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	< 1
Drinking water temperature	°C	15 - 22
Minimum drinking water pressure at the unit inlet	bar	3,0
Minimum drain connection		DN 65
Drain connection (pipe diffusion sealed)	DN	min. 20
Ventilation	m³/h	20
Saline solution tank	l	100
Natriumhypochlorit tank	l	60
Calzid-Ex tank	l	60
Dimensions (W x H x D)		1545 x 1745 x 545
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

Worldwide at home

Our sales companies and representatives ensure local customer support in over 100 countries.

www.gfps.com

Argentina / Southern South America

Georg Fischer Central Plastics
Sudamérica S.R.L.
Buenos Aires, Argentina
Phone +54 11 4512 02 90
gfcentral.ps.ar@georgfischer.com
www.gfps.com/ar

Australia

George Fischer Pty Ltd
Riverwood NSW 2210 Australia
Phone +61 (0) 2 9502 8000
australia.ps@georgfischer.com
www.gfps.com/au

Austria

Georg Fischer Rohrleitungssysteme GmbH
3130 Herzogenburg
Phone +43 (0) 2782 856 43-0
austria.ps@georgfischer.com
www.gfps.com/at

Georg Fischer Fittings GmbH
3160 Traisen
Phone +43 (0) 2762 90300
fittings.ps@georgfischer.com
www.fittings.at

Belgium / Luxembourg

Georg Fischer NV/SA
1070 Bruxelles/Brüssel
Phone +32 (0) 2 556 40 20
be.ps@georgfischer.com
www.gfps.com/be

Brazil

Georg Fischer Sist. de Tub. Ltda.
04795-100 São Paulo
Phone +55 (0) 11 5525 1311
br.ps@georgfischer.com
www.gfps.com/br

Canada

Georg Fischer Piping Systems Ltd
Mississauga, ON L5T 2B2
Phone +1 (905) 670 8005
Fax +1 (905) 670 8513
ca.ps@georgfischer.com
www.gfps.com/ca

China

Georg Fischer Piping Systems Ltd
Shanghai 201319
Phone +86 21 3899 3899
china.ps@georgfischer.com
www.gfps.com/cn

Chinaust Plastics Corp. Ltd.
Songlindian, Zhuozhou city,
Hebei province, China, 072761
Phone +86 312 395 2000
Fax +86 312 365 2222
chinaust@chinaust.com
www.chinaust.com.cn

Denmark / Iceland

Georg Fischer A/S
2630 Taastrup
Phone +45 (0) 70 22 19 75
info.dk.ps@georgfischer.com
www.gfps.com/dk

Finland

Georg Fischer AB
01510 VANTAA
Phone +358 (0) 9 586 58 25
Fax +358 (0) 9 586 58 29
info.fi.ps@georgfischer.com
www.gfps.com/fi

France

Georg Fischer SAS
95932 Roissy Charles de Gaulle Cedex
Phone +33 (0) 1 41 84 68 84
fr.ps@georgfischer.com
www.gfps.com/fr

Germany

Georg Fischer GmbH
73095 Albershausen
Phone +49 (0) 7161 302-0
info.de.ps@georgfischer.com
www.gfps.com/de

India

Georg Fischer Piping Systems Ltd
400 076 Mumbai
Phone +91 224007 2001
branchoffice@georgfischer.com
www.gfps.com/in

Italy

Georg Fischer S.p.A.
20063 Cernusco S/N (MI)
Phone +39 02 921 861
it.ps@georgfischer.com
www.gfps.com/it

Georg Fischer TPA S.r.l.
IT-16012 Busalla (GE)
Phone +39 010 962 47 11
tpa.ps@georgfischer.com
www.gfps.com/it

Japan

Georg Fischer Ltd
556-0011 Osaka,
Phone +81 (0) 6 6635 2691
jp.ps@georgfischer.com
www.gfps.com/jp

Korea

Georg Fischer Piping Systems
271-3 Seoheon-dong Bundang-gu
Seongnam-si, Gyeonggi-do
Seoul 463-824
Phone +82 31 8017 1450
Fax +82 31 8017 1454
kor.ps@georgfischer.com
www.gfps.com/kr

Malaysia

George Fischer (M) Sdn. Bhd.
40460 Shah Alam, Selangor Darul Ehsan
Phone +60 (0) 3 5122 5585
my.ps@georgfischer.com
www.gfps.com/my

Mexico / Northern Latin America

Georg Fischer S.A. de C.V.
Apodaca, Nuevo Leon
CP66636 Mexico
Phone +52 (81) 1340 8586
Fax +52 (81) 1522 8906
mx.ps@georgfischer.com
www.gfps.com/mx

Middle East

Georg Fischer
Piping Systems (Switzerland) Ltd
Dubai, United Arab Emirates
Phone +971 4 289 49 60
gss.ps@georgfischer.com
www.gfps.com/int

Netherlands

Georg Fischer N.V.
8161 PA Epe
Phone +31 (0) 578 678 222
nl.ps@georgfischer.com
www.gfps.com/nl

Georg Fischer Waga N.V.
NL-8160 AG Epe
Phone +31 (0) 578 678 378
waga.ps@georgfischer.com
www.waga.nl

New Zealand

Georg Fischer Ltd
13 Jupiter Grove, Upper Hutt 5018
PO Box 40399, Upper Hutt 5140
Phone +64 (0) 4 527 9813
nz.ps@georgfischer.com
www.gfps.com/nz

Norway

Georg Fischer AS
1351 Rud
Phone +47 67 18 29 00
no.ps@georgfischer.com
www.gfps.com/no

Poland

Georg Fischer Sp. z o.o.
05-090 Sekocin Nowy
Phone +48 (0) 22 31 31 0 50
poland.ps@georgfischer.com
www.gfps.com/pl

Romania

Georg Fischer
Piping Systems (Switzerland) Ltd
020257 Bucharest - Sector 2
Phone +40 (0) 21 230 53 80
ro.ps@georgfischer.com
www.gfps.com/int

Russia

Georg Fischer
Piping Systems (Switzerland) Ltd
Moscow 125047
Phone +7 495 258 60 80
ru.ps@georgfischer.com
www.gfps.com/ru

Singapore

George Fischer Pte Ltd
11 Tampines Street 92, #04-01/07
528 872 Singapore
Phone +65 6747 0611
sg.ps@georgfischer.com
www.gfps.com/sg

Spain / Portugal

Georg Fischer S.A.
28046 Madrid
Phone +34 (0) 91 781 98 90
es.ps@georgfischer.com
www.gfps.com/es

Sweden

Georg Fischer AB
117 43 Stockholm
Phone +46 (0) 8 506 775 00
info.se.ps@georgfischer.com
www.gfps.com/se

Switzerland

Georg Fischer
Rohrleitungssysteme (Schweiz) AG
8201 Schaffhausen
Phone +41 (0) 52 631 30 26
ch.ps@georgfischer.com
www.gfps.com/ch

Taiwan

Georg Fischer Co., Ltd
San Chung Dist., New Taipei City
Phone +886 2 8512 2822
Fax +886 2 8512 2823
www.gfps.com/tw

United Kingdom / Ireland

George Fischer Sales Limited
Coventry, CV2 2ST
Phone +44 (0) 2476 535 535
uk.ps@georgfischer.com
www.gfps.com/uk

USA / Caribbean

Georg Fischer LLC
Tustin, CA 92780-7258
Phone +1 (714) 731 88 00
Toll Free 800/854 40 90
us.ps@georgfischer.com
www.gfpiping.com

Georg Fischer Central Plastics LLC
Shawnee, OK 74801
Phone +1 (405) 273 63 02
gfcentral.ps@georgfischer.com
www.centralplastics.com

Vietnam

George Fischer Pte Ltd
136E Tran Vu, Ba Dinh District, Hanoi
Phone +84 4 3715 3290
Fax +84 4 3715 3285

International

Georg Fischer
Piping Systems (Switzerland) Ltd
8201 Schaffhausen/Switzerland
Phone +41 (0) 52 631 30 03
Fax +41 (0) 52 631 28 93
info.export@georgfischer.com
www.gfps.com/int

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37 732 62
digital only (03.14)
© Georg Fischer JRG AG
Hauptstrasse 130
CH-4450 Sissach/Switzerland
Telefon +41 (0) 61 975 22 22
info.jrg.ps@georgfischer.com