

# THE „WATERLOOP“ SYSTEM

A flexible and sustainable  
Refrigerating System fit for the Future

SCHLATT (Switzerland; near Zurich)  
27-28.06.2019

**basetec**  
products + solutions

**euramm<sup>o</sup>n**

refrigerants delivered by mother nature

## 1. The “Waterloop” System

- System & Function
- System Example Food Retail
- Comparison: Conventional Refrigeration vs “Waterloop” System

## 2. Our Products and Solutions for “Waterloop” Systems

- Product Categories for “Waterloop” Applications
- BHCU – Basetec Heat Converter Unit
- basetec Solutions for a reliable and economic Cooling Application
- Customer Benefits



# THE „WATERLOOP“ SYSTEM

## “WATERLOOP” SYSTEM & FUNCTION





# System & Function – What does „Waterloop“ mean?

## Technical Perspective:

- “Waterloop” = Decentralized/Secondary Cooling System
- Self-contained cooling device(s), no central refrigeration system
- Heat transfer from cooling device with heat exchanger
- Heat transport with water/glycol = "Waterloop"
- Heat dissipation with drycooler (or cold production with a chiller)

## Application Perspective:

- Wide range of applications
- Mostly, but not only, “Free Cooling” applications
- The term “Waterloop” is widely associated with Food Retail (but includes more applications)

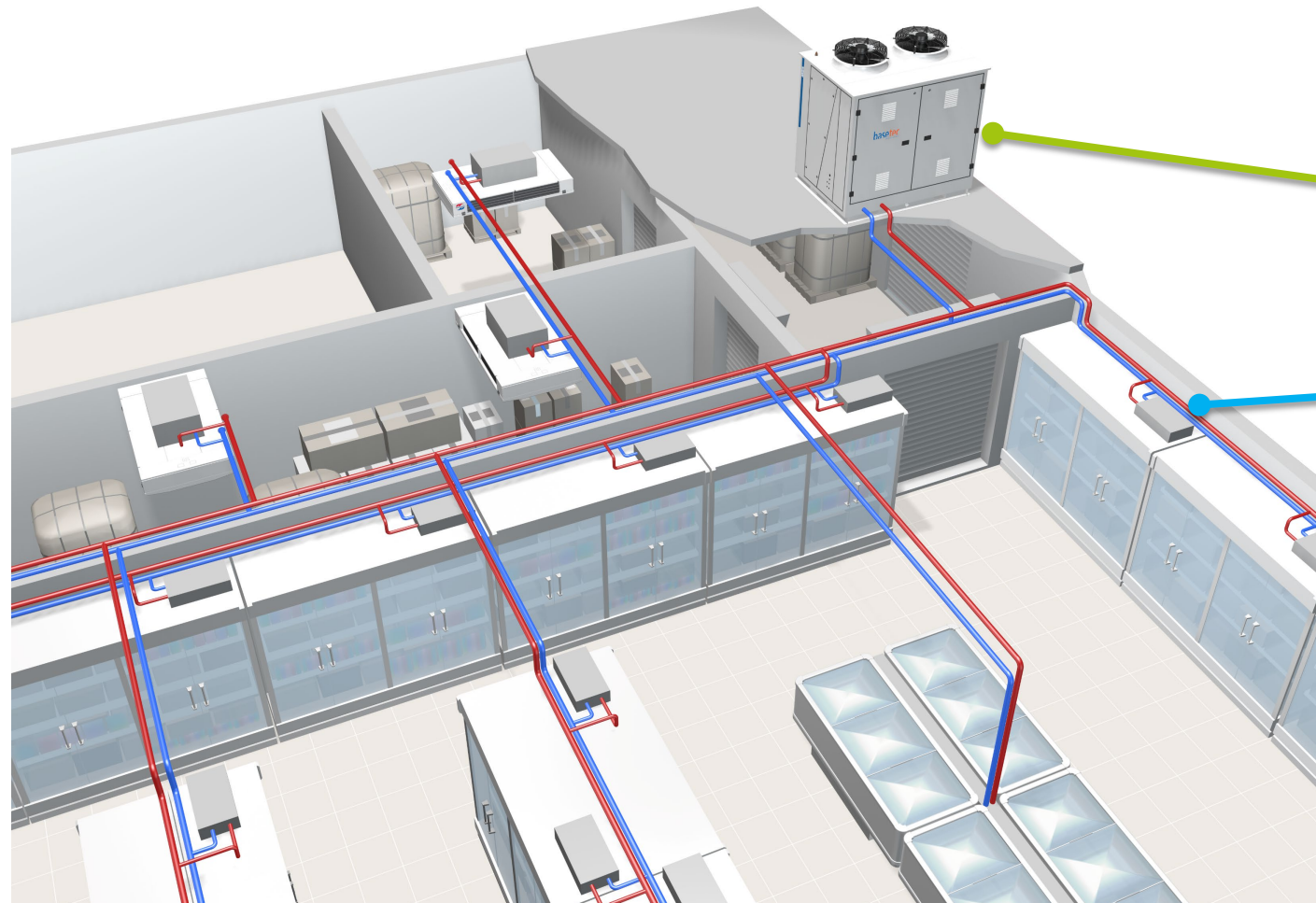


# System & Function – „Waterloop“ Food Retail Application

## “Waterloop” System Example

Application:  
Food Retail  
Cooling System

Explanation:  
  
“Waterloop” circuit



### BHCU

All-In-One Compact Unit;  
Drycooler with Pump Station  
and Controls

### Cooling Devices

with integrated refrigeration  
circuit(s) and controls



# System & Function – „Waterloop“ Food Retail Application

## “Waterloop” System Example

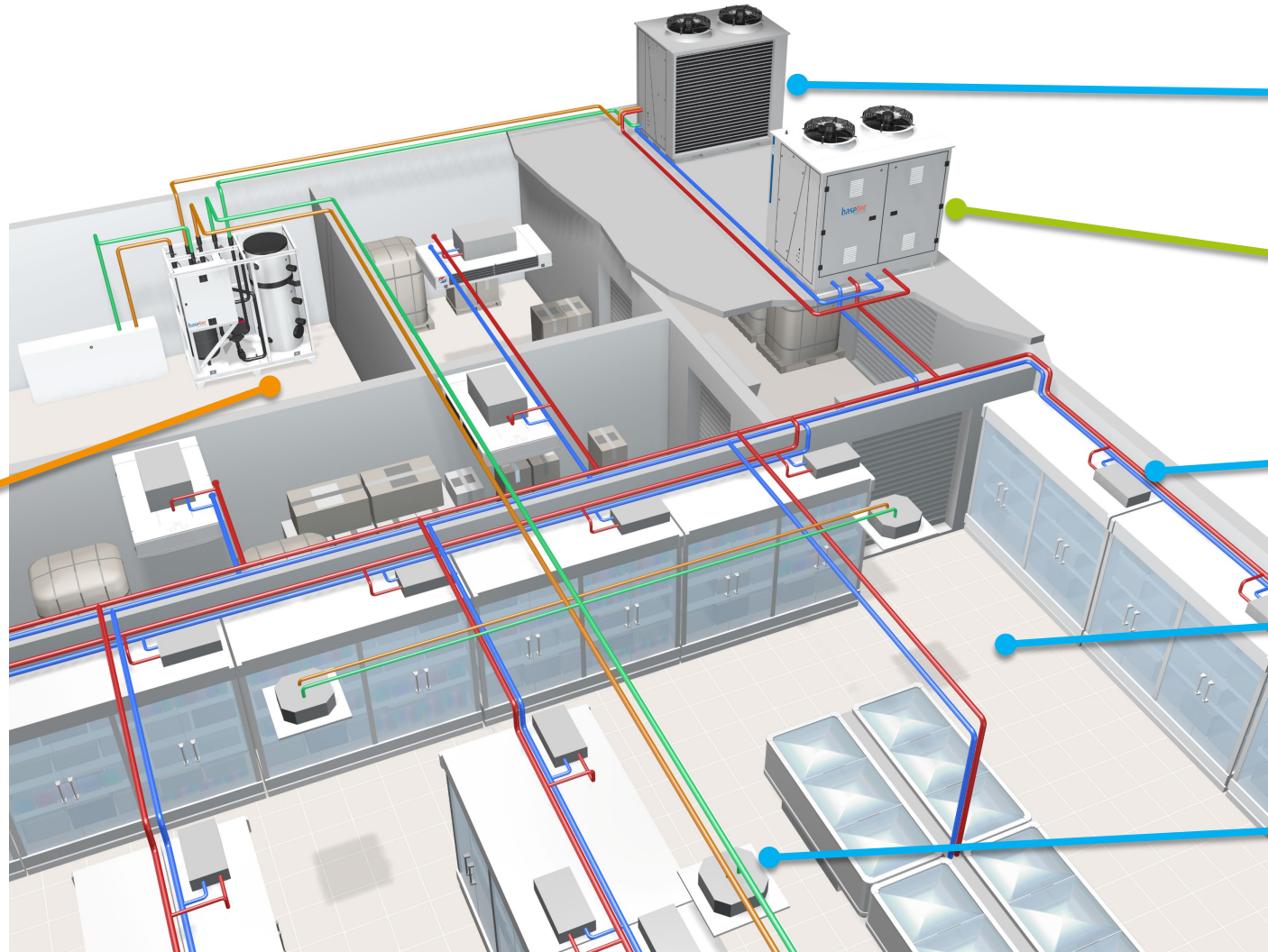
Application:  
Food Retail  
Cooling System  
with Heat Recovery

**BHLU**  
All-In-One Hydraulic Station  
with Controls

Explanation:

 “Waterloop” circuit

 Heating/Cooling circuit



**Heat Pump**  
with heat recovery function  
for „Waterloop“ system

**BHCU**  
All-In-One Compact Unit;  
Drycooler with Pump Station  
and Controls

**Cooling Devices**  
with integrated refrigeration  
circuit(s) and controls

**Concrete Core  
Activation**  
for heating or cooling  
via floor or ceiling

**Air Conditioning**  
with air handling unit or  
fan coils

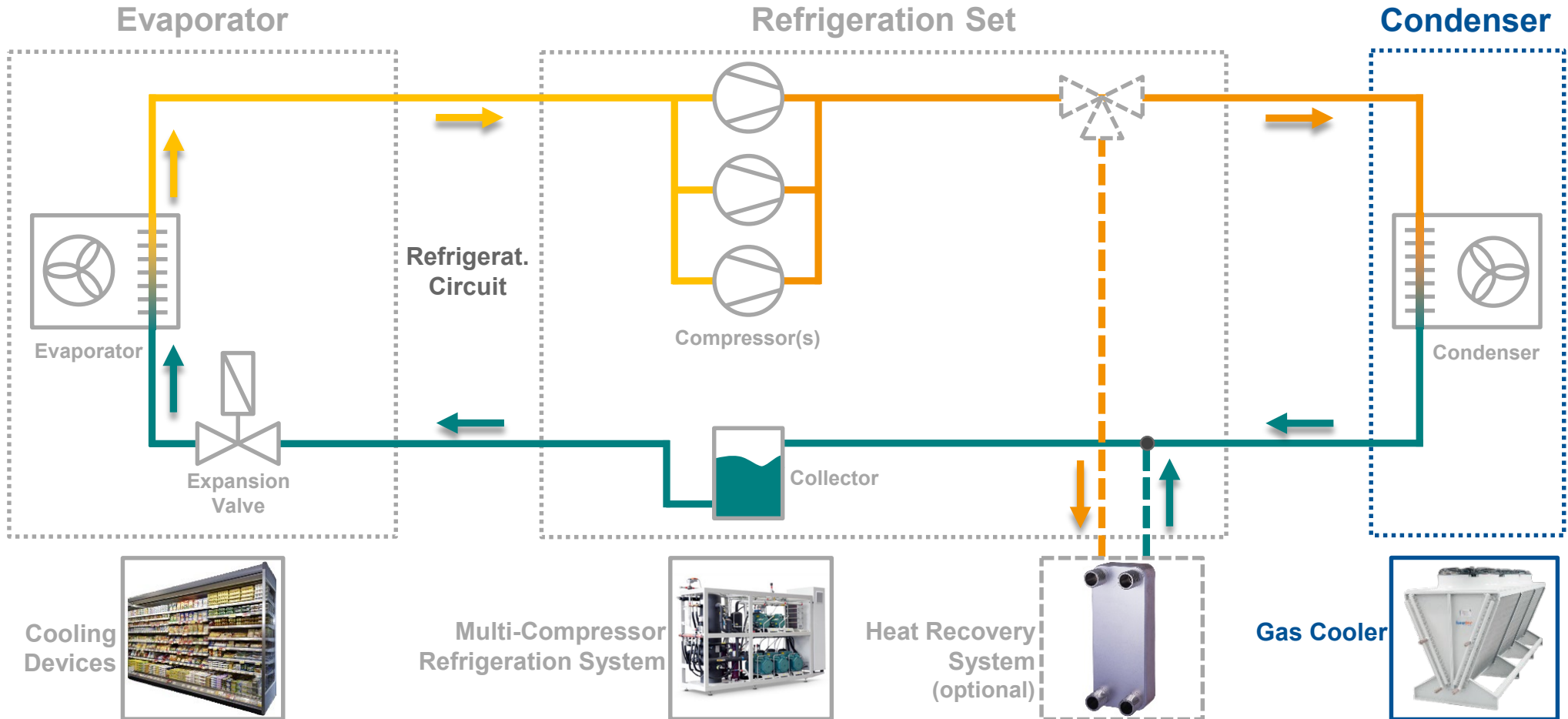
# System & Function – Comparison of Systems

## Conventional Refrigeration System:

Simplified system drawing for presentation

Explanation:



Refrigeration circuit

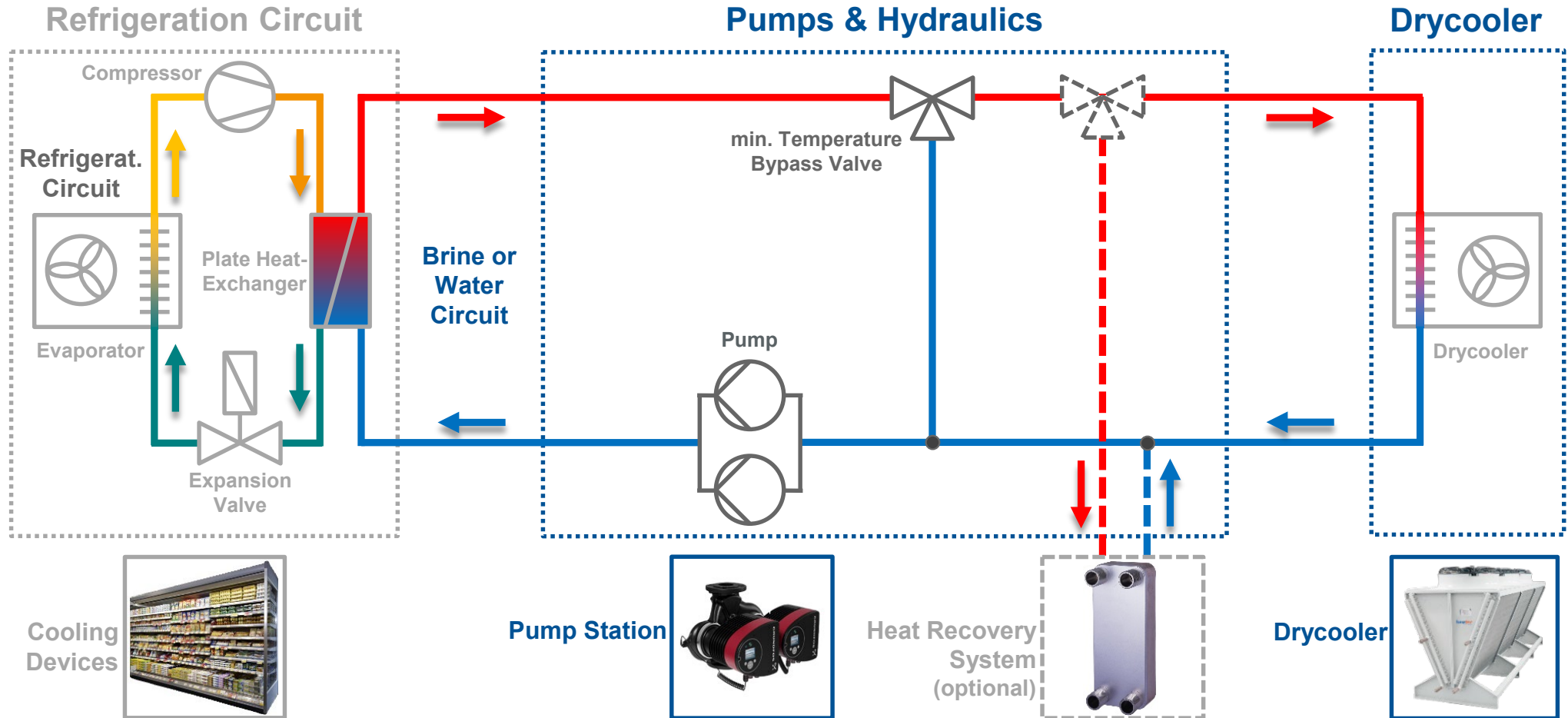


# System & Function – Comparison of Systems

## “Waterloop” System:

**Explanation:**

-  Refrigeration circuit
-  “Waterloop”





## Conventional Refrigeration

- **Technical refrigeration solution**  
Engineered system and system setup
- **System-wide control**  
Compressor rack, one system pressure level
- **Raising refrigerant costs HFC**  
CO<sub>2</sub>: the most popular and green future solution, high know-how level needed
- **Huge amount of refrigerant**  
One big refrigeration circuit for the whole system
- **Refrigerant in the whole store**  
High-pressure CO<sub>2</sub> circuit, refrigerant leaks in the store or building possible
- **Refrigeration with CO<sub>2</sub> (R744)**  
100% green and efficient, but not perfect for hot areas  
→ trans-critical CO<sub>2</sub> system efficiency

← Problem:  
Skills Shortage →

## “Waterloop” System

- **Simple plug-and-play solution**  
Easy system and setup of devices
- **Every unit with own control**  
Plant availability, optimal working point
- **Flexibility also after setup**  
Easy to add or replace cooling devices, lower service know-how and costs
- **Small amount of refrigerant**  
Separate refrigeration circuits in each single cooling device, propane currently ≤150g! → IEC voted increase to ≤500g
- **Less leakage problems**  
Low-pressure brine or water circuit, refrigerant only in cooling devices
- **Refrigeration with Propane (R290)**  
100% green and efficient cooling devices, filled and tested ex works  
→ plug-and-play system

IEC 60335-2;  
EN 378

# THE „WATERLOOP“ SYSTEM

## OUR PRODUCTS AND SOLUTIONS FOR “WATERLOOP” SYSTEMS



# Our Solutions – Product Categories for „Waterloop“

## Products for “Waterloop” Systems:

### BHCU – Basetec Heat Converter Unit

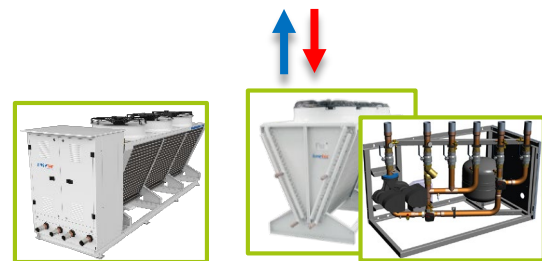
- Unit:** for waste heat and heat recovery systems  
**Application:** pump stations, drycoolers or similar solutions  
**Function:** to transport a heat transfer fluid in a system and/or to distribute or transfer/dissipate/exchange heat

### BHLU – Basetec Hydro Link Unit

- Unit:** for heating and cooling systems  
**Application:** hydraulic stations or similar solutions  
**Function:** to transport a heat transfer fluid in a system and/or to distribute or transfer/store/exchange heat



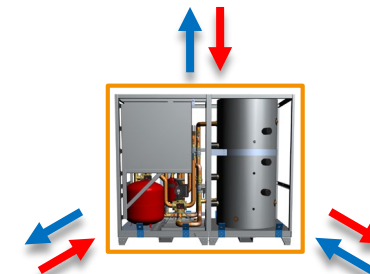
Cooling Devices



Heat Transport,  
Heat Exchange,  
Heat Dissipation



Heat & Cold  
Production for  
AC in Store



Heat Transport,  
Heat Exchange,  
Heat Storage



# Our Solutions – BHCU: Product Portfolio

**BHCU**

## Compact Version

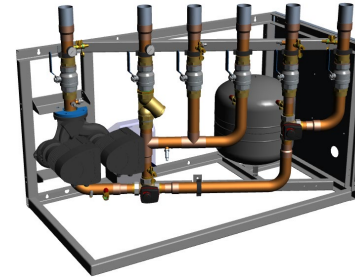
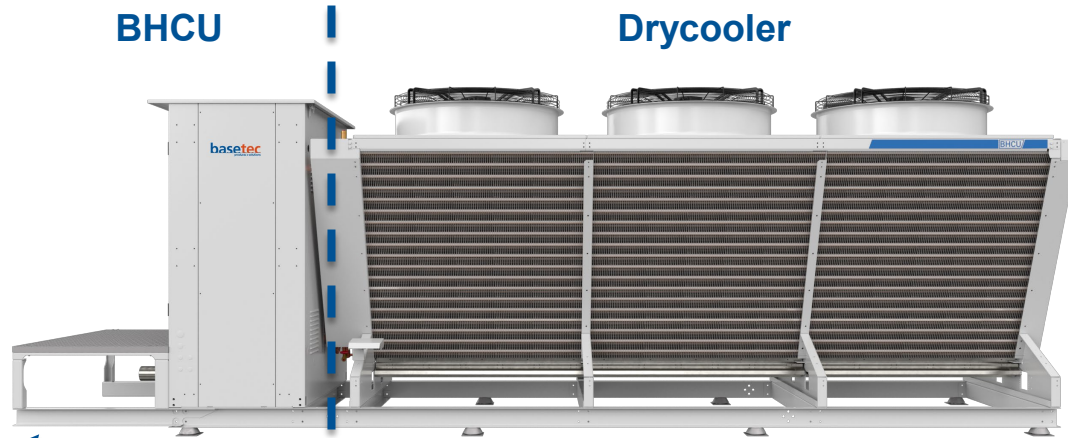
## Split Version

BHCU

Drycooler

BHCU

Drycooler



V-SHAPE



VERTICAL



FLAT

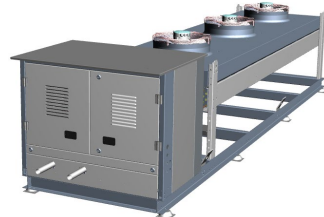


INDOOR

optional  
maintenance  
platform



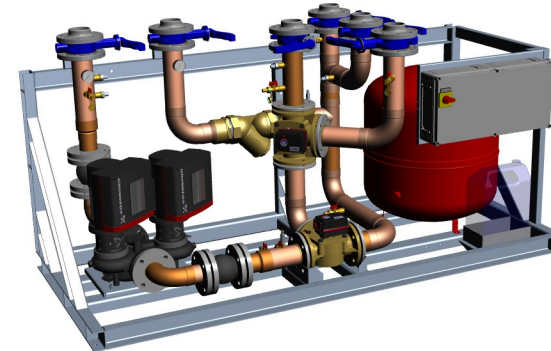
V-SHAPE



FLAT



BASAL



optional casing for  
e.g. outdoor version



# Our Solutions – BHCU: Product Portfolio

## BHCU – Basetec Heat Converter Unit

### Product types:

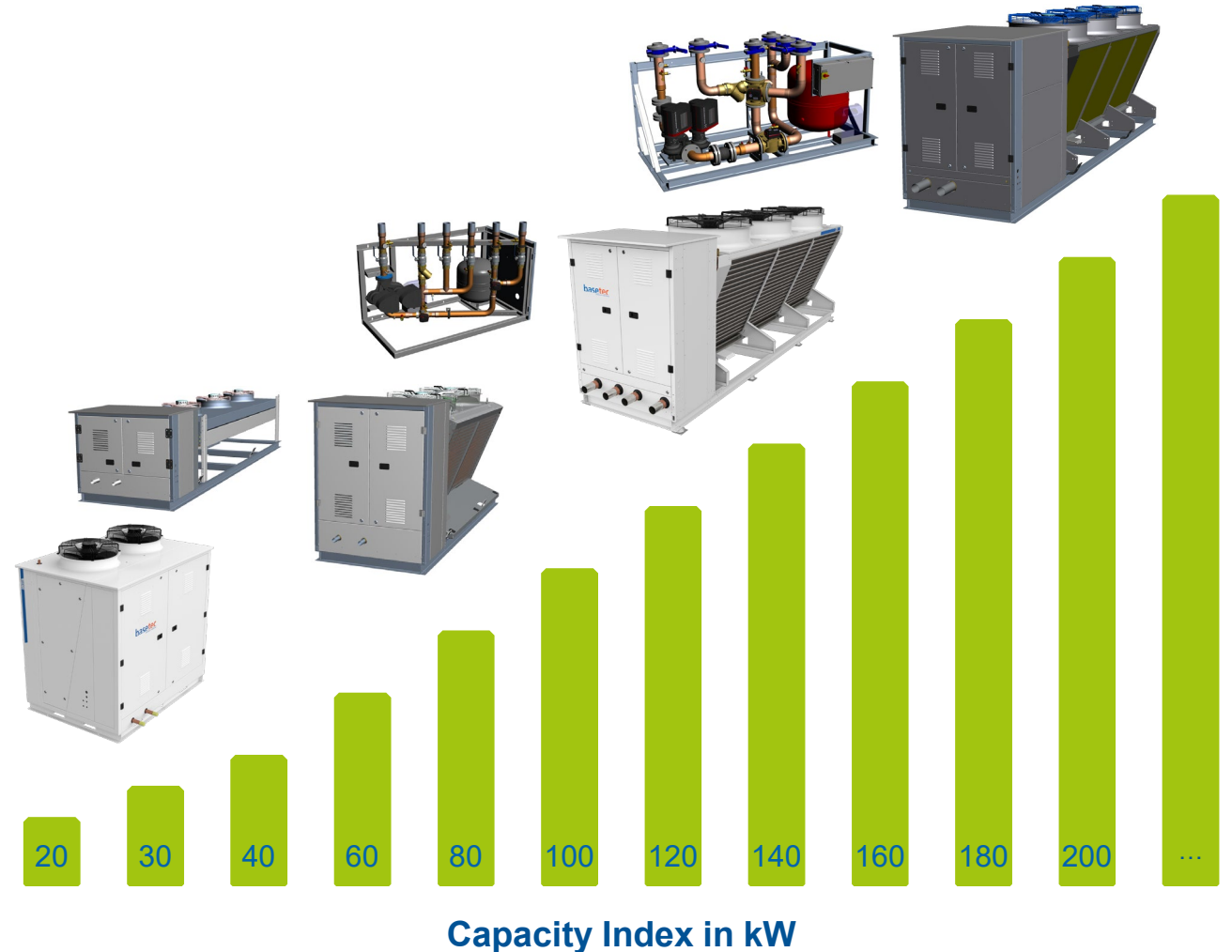
- Compact Units - the easy all-in-one solution
- Split Units - the flexible solution  
separate pump station & drycooler

### Capacity range:

- Standardized units for full capacity range  
depending on customer's needs and dimensioning
- 20kW steps  
from 20 to 200kW, and beyond

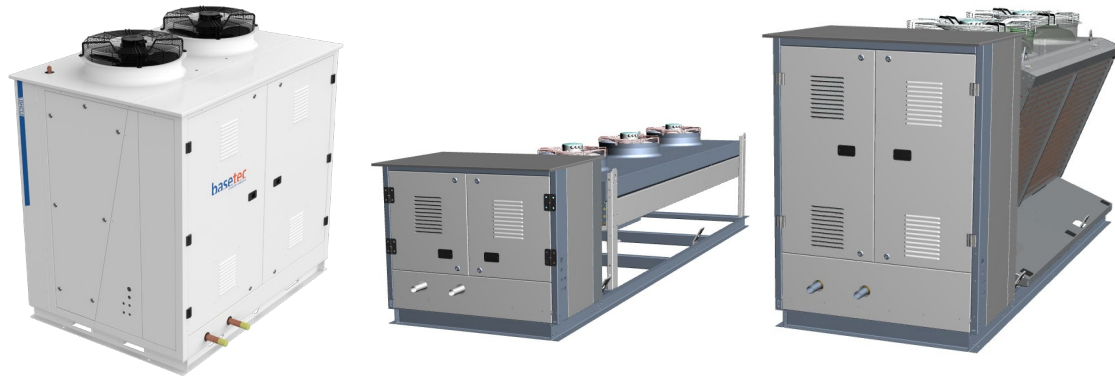
### Applications:

- Cooling - without heat recovery
- Cooling + ... - with heat recovery



@ AT/IN/OUT = 43/48/54°C

# Our Solutions – BHCU: Capacities for Food Retail

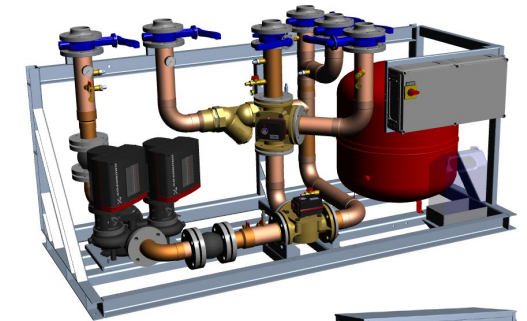
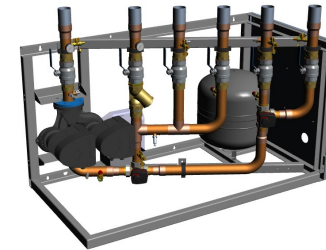
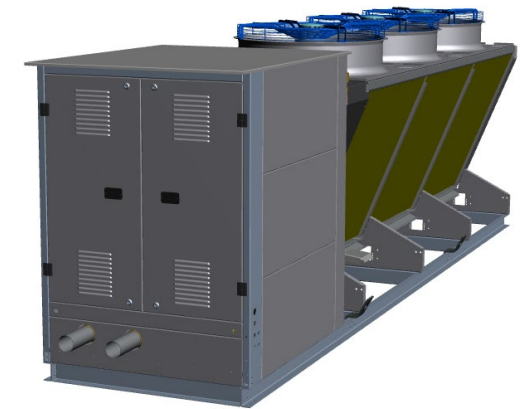


< ~800m<sup>2</sup> / < ~60kW

e.g. convenience stores, small supermarkets, petrol stations

~800...1800m<sup>2</sup> / ~60...160kW

e.g. supermarkets, discounters



> ~1800m<sup>2</sup> / > ~160kW

e.g. big supermarkets, superstores



Assumed values based on retail stores with open cooling devices (e.g. Multideck without doors) / for closed devices with doors ~ -50% capacity


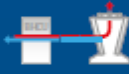














# Our Solutions – BHCU: Product Portfolio

## without heat recovery

### BHCU

## with heat recovery

BHCU basetec Heat Converter Unit	Without heat recovery	Compact	Split	Design
	BHCU + V-SHAPE Compact 	✓		V-SHAPE
	BHCU + V-SHAPE Split 		✓	V-SHAPE
	BHCU + FLAT Compact 	✓		FLAT
	BHCU + FLAT Split 		✓	FLAT
	BHCU + VERTICAL Split 		✓	VERTICAL
	BHCU + INDOOR Split 		✓	INDOOR
	BHCU 	✓	✓	

BHCU basetec Heat Converter Unit	With heat recovery	Compact	Split	Design
	BHCU + V-SHAPE Compact 	✓		V-SHAPE
	BHCU + V-SHAPE Compact 		✓	V-SHAPE
	BHCU + FLAT Compact 	✓		FLAT
	BHCU + FLAT Split 		✓	FLAT
	BHCU + VERTICAL Split 		✓	VERTICAL
	BHCU + INDOOR Split 		✓	INDOOR
	BHCU 	✓	✓	

and more customer solutions

## Well-thought-out solutions for “Waterloop” applications

### All-in-one Plug & Play Solutions

- Preset ex-works according to customers' needs
- Ready to Use; simply connect piping and power supply

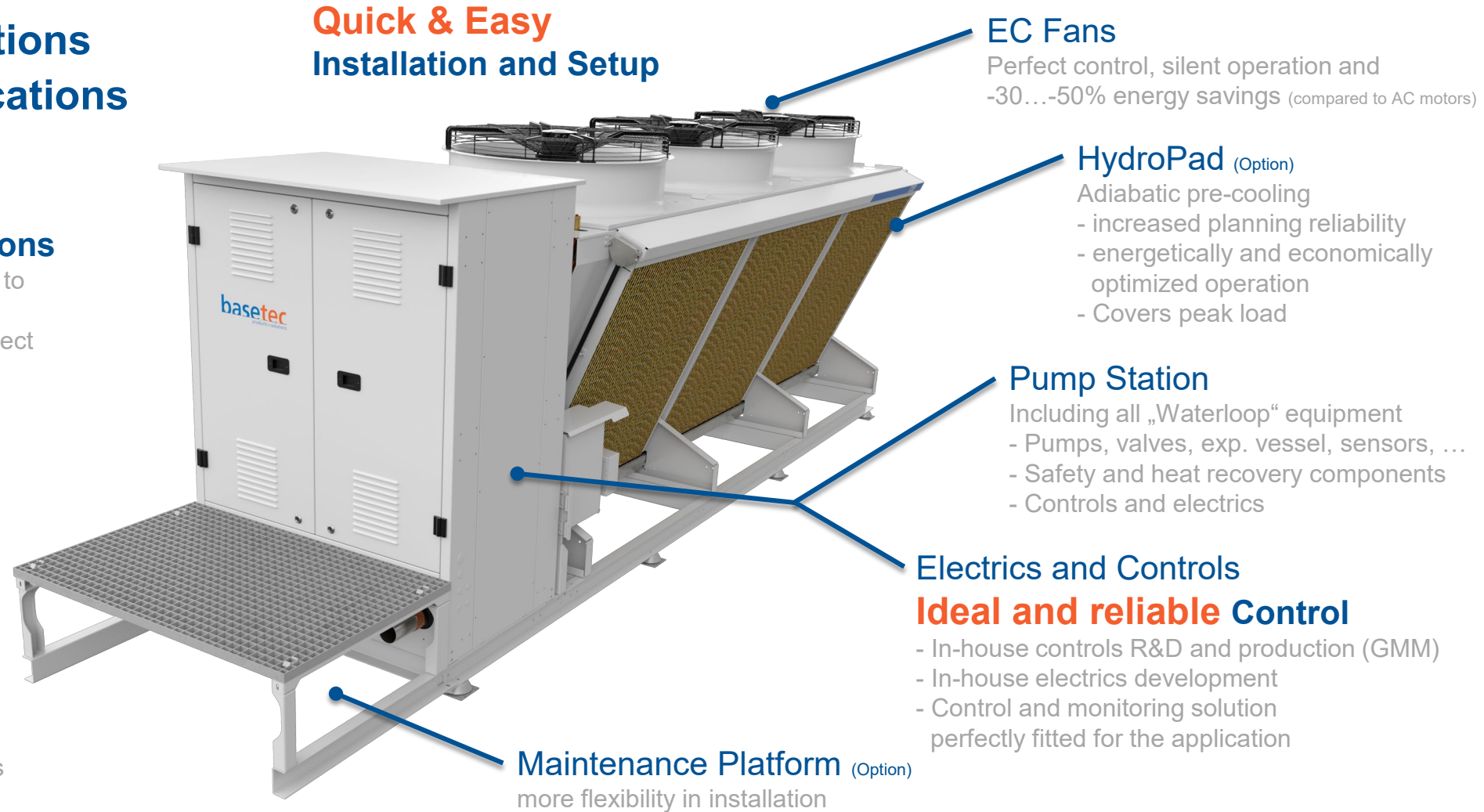
### Standardized Products

- Wide capacity range
- Different fin coatings and sound pressure levels
- Customizable with options and in controls

### OEM Solutions

- Special customer units
- Hydraulics and controls adapted to customers' needs

### Quick & Easy Installation and Setup



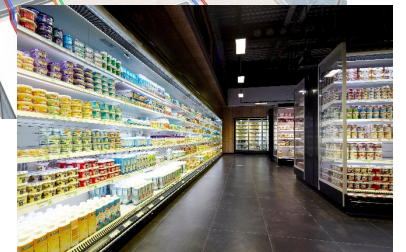
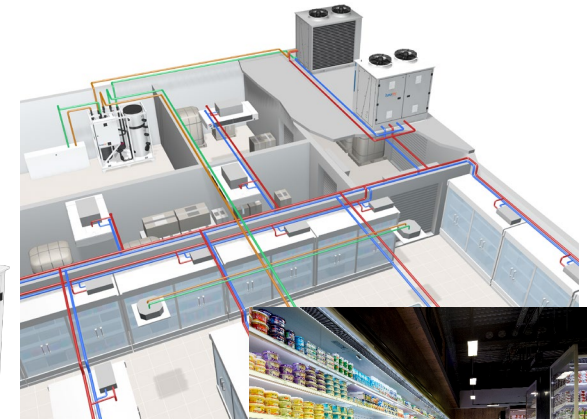
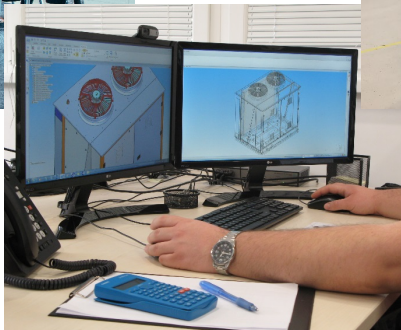
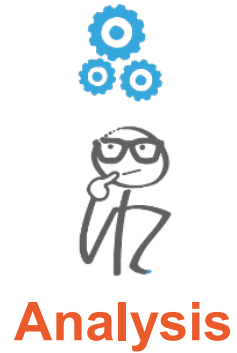
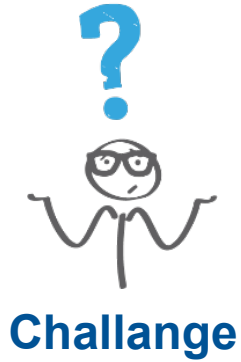
## Maximum Plant Availability and Efficiency

- **Fin coating for every application**  
Aluminum, epoxy, dip coating (KTL – cataphoretic painting)
- **Optimized application control with our GMM controller**  
Fans and valve control for cooling and heat recovery operation;  
Monitoring the “Waterloop” system and the drycooler; with alarm management
- **min. 2 fans / EC fans with GMM control**  
If one fan fails, there’s a 2<sup>nd</sup> one to run;  
If the controller fails, the fans will run in emergency mode (GMM Bypass Function)
- **Redundant Double Pump**  
If one pump fails, the 2<sup>nd</sup> one will start automatically
- **Invers operation for drycooler fans**  
reduces drycooler coil pollution for max. performance
- **Maintains min. fluid temp. at unit outlet**  
Integrated mixing valve avoids too-low condensing temp. in connected cooling devices
- **Monitoring functions for unit and system**  
Continuous checking of pump failure, system pressure,  
strainer and drycooler coil contamination, ambient and fluid temp.  
→ all values, warnings and errors available on the GMM controller
- **Advanced monitoring solutions**  
Optional Modbus RTU connection for customer’s monitoring system





# Our Solutions – Realizing your Ideas and adding Value



# Our Solutions – Global Experience with „Waterloop“

More than **10000** Units

running worldwide (2013...2019)

**Know-How** and **Experience**

in „Waterloop“ applications

**Reliable** solutions

with very high quality standards

**Worldwide** production

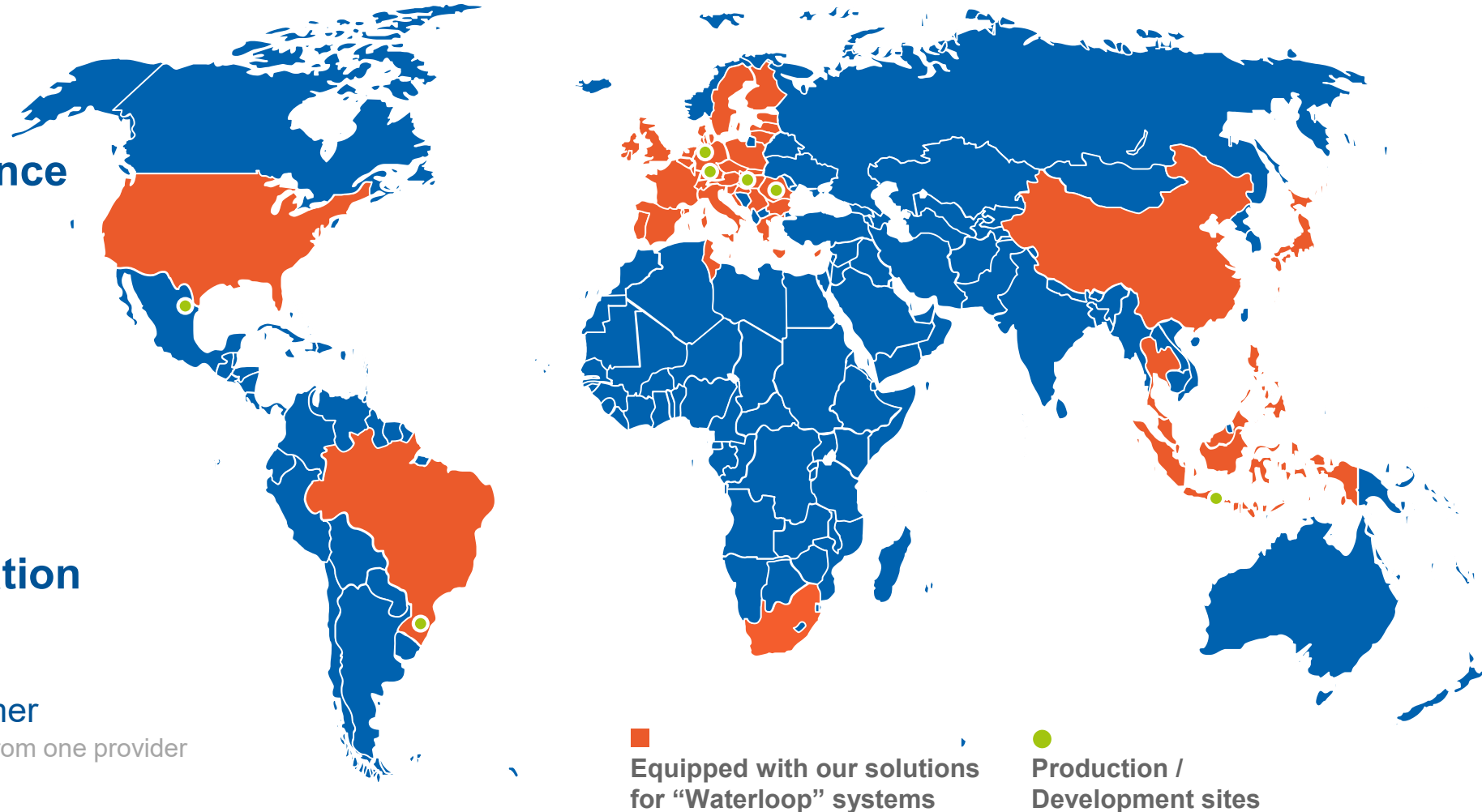
in acc. with to national standards

**R&D** and **Standardization**

in Europe

**Added Value** for the customer

with easy-to-use plug-and-play solutions from one provider



# THANK YOU VERY MUCH FOR YOUR ATTENTION

For Information and Questions please contact us as your Solutions Partner

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