UHT treatment

SPX Flow Technology's APV brand is a leader in UHT technology with a comprehensive portfolio of tried and tested UHT plant solutions comprising plate, tubular, injection and infusion UHT plant technologies.

In addition to these basic technologies, variations such as scraped surface heat exchanger, high heat infusion and combi UHT plants are available as well as Add-On, Pure-Lac™, ESL, aseptic tanks, UHT pilot plants and Instant Infusion.

The UHT R & D centre based in Silkeborg, Denmark, operates a UHT pilot plant capable of running all the main UHT systems. This pilot plant is used for product testing and new process development as well as by our customers wishing to test new processes and optimize existing process parameters with the assurance of production scalability.

SPX Flow Technology's APV brand introduced UHT infusion technoogy in 1960 and is today the world leader with a market share of some 90 percent

Today we offer four main infusion systems: Infusion UHT, 143°C (289°F) for 3 sec.; Infusion Pure-Lac™, 135°C (275°F) for 0.5 sec.; Instant Infusion, 135°C (275°F) for as little as 0,1 sec.; High Heat Infusion, 152°C (306°F) for 1 - 3 sec, giving an Fo of 40 - 70.

Infusion UHT plant - SDH

Flexible handling of a wide range of traditional, direct UHT products

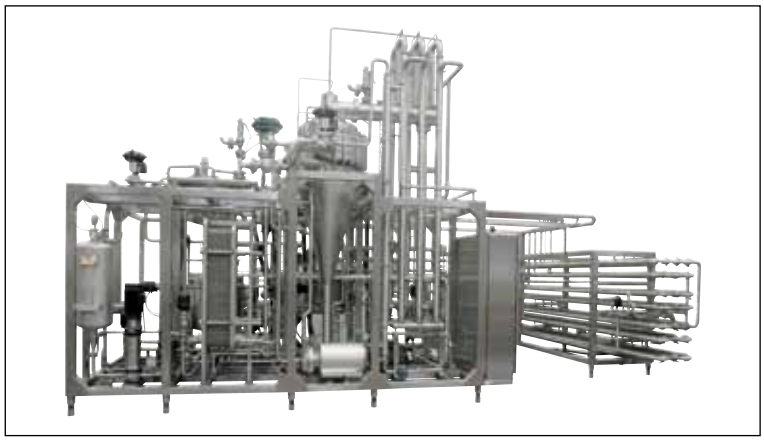
Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, custard, milk shake
Description	A UHT plant designed for very fast heat treatment, with an efficient bacteria spore kill rate and a very low chemical change to the product. Often named the most gentle UHT treatment on the market
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-142-75-25°C (41-167-288-167-77°F)

Advantages

- Gentle and accurate heating in the infusion system
- Fast heating 600°C/sec.
- Accurate holding time
- Superior product quality
- High product flexibility
- Low fouling rate
- Long operating time between CIP
- Operator friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Injection UHT plant - SDI

Flexible handling of a wide range of traditional, direct UHT products



Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, custard, milk shake
Description	A UHT plant designed to give a very fast heat treatment, with an efficient bacteria spore kill rate and very low chemical change to the product
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-142-75-25°C (41-167-194-280-167-77°F)

Advantages

- Gentle and accurate heating in the infusion system
- Fast heating 300°C/sec.
- Superior product quality
- High product flexibility
- Low fouling rate
- Long operating time between CIP
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Tubular UHT plant - STH

Flexible handling of a wide range of traditional, indirect UHT products

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, custard, milk shake
Description	Robust and flexible UHT plant. Back pressure tolerance up to 60 bar and heat regeneration of approx. 85%
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-90-138-75-25°C (41-167-194-280-167-77°F)

Advantages

- High up-time
- Flexible product range
- Easy inspection of product and medium surface
- High pressure tolerance
- Low energy cost
- Low maintenance cost
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Plate UHT plant - SIH

Flexible PHE-based heat treatment of a wide range of traditional, indirect UHT products

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, milk shake, tea, coffee, juice, etc.
Description	A UHT plant designed for cost efficient running and a heat regeneration of up to 96%
Capacity	2,000 - 30,000 l/h (550 - 5,500 U.S. g/h)
Temperature	5-75-90-138-75-25°C (41-167-194-280-167-77°F)

Advantages

- High energy recovery, giving low running cost
- Flexible low viscosity product range
- Low pressure drop
- Pare Clip gaskets (non-glue)
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Scraped surface heat exchanger UHT plant - SSHE

For heat treatment/UHT of products with very high viscosity and/or particle content

Specifications	
Field of application	High-viscosity products
Description	A UHT plant designed for robust and flexible running of products with very high viscosity for which a tubular or plate UHT plant is not suitable
Capacity	200 - 20,000 l/h (550 - 5,500 U.S. g/h)
Temperature	5-75-90-138-75-25°C (41-167-194-280-167-77°F)

Advantages

- Effective processing of high-viscosity products and products containing particles
- Operator-friendly
- Pre-assembled and factory-tested

High heat infusion steriliser - SHH

Flexible heat treatment of a wide range of traditional direct UHT products

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix
Description	A UHT plant designed to give a very high kill rate of bacteria spores (Fo 40 to 70) and higher heat regeneration (approx. 65%) than a conventional infusion plant
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-90-60-125-150-75-25°C (41-194-140-257-302-167-77°F)

Advantages

- Kill rate over Fo 40
- Increased operating time
- High recovery (up to 72%)
- Reduced maintenance costs
- Efficient deaeration prior to heating
- Non-aseptic flavour dosing of the vacuum chamber possible
- Destruction of heat resistant spores (HRS)
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Combi UHT plant - Combi

Ultra-versatile handling of a wide range of traditional indirect and direct UHT products

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, milk shake, tea, coffee, juice
Description	Versatile UHT treatment using a choice of UHT systems - tubular, infusion, ESL and high heat infusion in the same plant. Able to combine all APV UHT plant technologies
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-90-138-75-25°C (and others) (41-167-194-280-167-77°F)

Advantages

- Very high degree of flexibility, towards products and temperature profile
- Can run both direct and indirect UHT
- Can also run ESL/Pure-Lac™
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Add-on UHT plant - Add-On

Add-On, direct and indirect UHT system for an existing pasteuriser

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, milk shake, tea, coffee, juice
Description	A UHT plant designed to be added on to an existing heat treatment plant (pasteuriser or UHT)
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-90-138-75-25°C (and others) (41-167-194-280-167-77°F)

Advantages

- Very high degree of flexibility
- Direct and indirect UHT
- Low investment
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Bactofugate steriliser - SSU

An infusion UHT system designed to sterilise bactofugate

Specifications	
Field of application	Bactofugate and whey cream
Description	A UHT bactofugate sterilisation plant with extra long running time between CIP cleaning
Capacity	200 - 5,000 l/h (55 - 8,000 U.S. g/h)
Temperature	50-140-(50)°C (cooling direct in the main product) 122-284-(122)°F

Advantages

- Over 10 hours between CIP
- High spore kill rate in bactufugate
- Low chemical change
- Operator-friendly
- Pre-assembled and factory-tested

Infusion Pure-Lac™ plant - Pure-Lac™

Pure-Lac™ the new milk with protected freshness and extended shelf life

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, milk shake
Description	Infusion plant with very fast heat treatment involving pasteurisation for 0.5 seconds at 135°C (275°F)
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-135(0.5 sec)-75-5°C (41-167-275(0.5 sec)-167-41°F)

Advantages

- Gentle and accurate heating in the infusion system
- Fast heating 600°C/sec.
- Accurate holding time
- High bacteria spore kill rate
- Superior product quality - low chemical change, pasteurised milk flavour
- Shelf life up to 45 days
- High product flexibility
- Low fouling rate
- Long operating time between CIP
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Infusion ESL plant - ESL

ESL - the new milk with protected freshness and extended shelf life

Specifications	
Field of application	Milk, flavoured milk, coffee cream, cream, ice cream mix, milk shake
Description	Infusion plant with very fast heat treatment involving pasteurisation for 0.5 seconds at 129°C (264°F)
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	5-75-129(0.5 sec)-75-5°C (41-167-264(0.5 sec)-167-41°F)

Advantages

- Gentle and accurate heating in the infusion system
- Fast heating 600°C/sec.
- Accurate holding time
- High bacteria spore kill rate
- Superior product quality - low chemical change, pasteurised milk flavour
- Shelf life up to 45 days
- High product flexibility
- Low fouling rate
- Long operating time between CIP
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, PMO, 3A

Instant infusion plant - SII

Ultra-short, high-temperature treatment with precision-controlled holding time

Specifications	
Field of application	Baby food, milk concentrate (max 58% TS) for spray drying
Description	Infusion plant designed for very fast heat treatment and ultra-short, precision-controlled holding time
Capacity	2,000 - 30,000 l/h (550 - 8,000 U.S. g/h)
Temperature	75-140(0.09 sec)-75°C (167-284(0.09 sec)-167°F)

Advantages

- Gentle and accurate heating in the infusion system
- Fast heating 600°C/sec.
- Efficient bacteria spore kill rate
- Up to 70% less vitamin loss
- Precision-controlled holding time down to 0.09 sec.
- Very low chemical change
- Superior product quality
- High product flexibility
- Low fouling rate
- Long operating time between CIP
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, 3A

Multipurpose UHT pilot plant - SPP

The most flexible pilot UHT plant on the market

Specifications	
Field of application	All liquid food products
Description	Up to five heating systems - plate, tubular, injection, infusion and SSHE UHT, or any combination. Also runs Pure-Lac™ and ESL
Capacity	80 - 150 l/h (designed for 100 l/h) (21 - 40 U.S. g/h (27 U.S. g/h)
Temperature	5-75-140-75-20°C (41-167-284-167-68°F)

Advantages

- Very reliable system for product trials before upscaling to commercial production
- Highly flexible
- Quick and easy installation
- One unit with small footprint
- Operator-friendly
- Pre-assembled and factory-tested

Sterile technology

Technology and technical expertise for large-scale production under sterile or aseptic conditions

Specifications	
Field of application	Chemical, dairy, food, pharmaceutical industries
Description	Industrial fermentation for a wide range of products, based on APV's long history in UHT-applications. Since the inception of its first loop fermenter in 1998, APV has developed and implemented continuous and batch fermentation processes requiring sterile conditions
Capacity	Industrial fermentation applications from pilot-scale to production-scale

Advantages

- Wide range of end-products
- Experience in long-term (30 days plus) industrial fermentation applications
- Loop or batch fermentation
- Solid experience from many years of aseptic technology applications
- Specialised in application of customer-owned processes

Processing lines for production of ESL products

Flexible, precise and cost-effective processing

Specifications	
Field of application	Milk, cream and other dairy and food products
Description	Fully automatic processing based on UHT, PHE, THE, SSHE, membrane filtration etc., depending on the product
Capacity	Any
Temperature	70 - 140°C (160 - 280°F), depending on product and pH

Advantages

- Optimum process control and safety
- Higher number of running hours between CIP
- Easy CIP
- High heat recovery
- Operator-friendly control system
- Low running costs
- Low maintenance costs
- Improved product quality
- Improved flavour
- Combination of the ESL methods to tailor shelf life and flavour
- ESL processing lines can be combined with traditional pasteurisation lines for milk and cream

Aseptic tank - SST

Aseptic tank system with PLC system

Specifications	
Field of application	All UHT-treated liquid aseptic products
Description	Modular design comprising tank body, valve battery, CIP system and PLC system, and controlled from the UHT plant
Capacity	2,000 - 30,000 l (550 - 8,000 U.S. g)

Advantages

- Modular system
- Easy and fast installation
- Operator-friendly
- Pre-assembled and factory-tested
- As option designed according to ASME, 3A

Aseptic tank - SPT

Aseptic tank system with PLC system

Specifications	
Field of application	All UHT-treated liquid aseptic products
Description	Small aseptic tank for the pilot UHT plant.
Capacity	500 l (132 U.S. g)

Advantages

- Mobile tank, easy to move
- Easy and fast installation
- Operator-friendly
- Pre-assembled and factory-tested