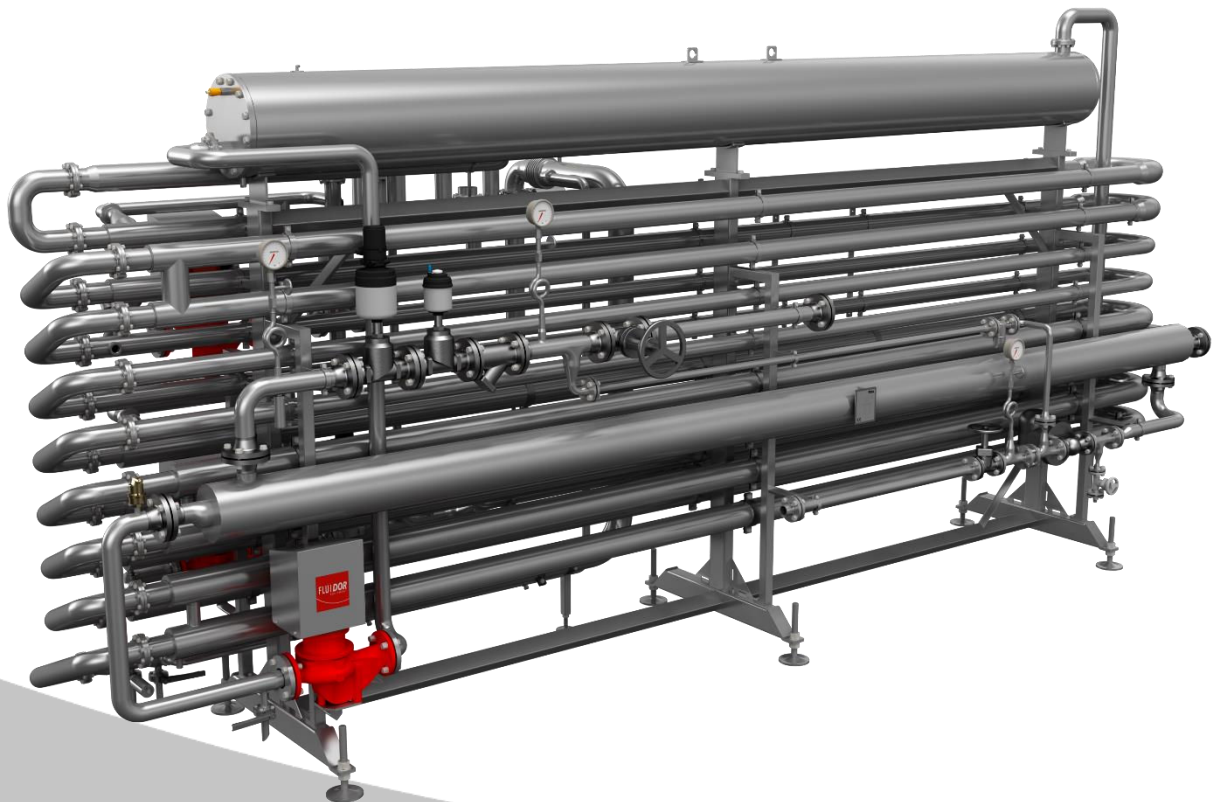


MACHINE SPECIFICATION

CRUSHED ICE MELTER CIM



Machine name	CIM	Manufacturer	Fluidor Equipment B.V.
Publication date	10-07-2023	Address	Ramgatseweg 25, 4941VN Raamsdonksveer, The Netherlands
Version	1.2	Telephone	+31(0)162 581 450

DESCRIPTION

The Crushed Ice-Melter (CIM) is designed for melting ice flakes produced by the Drum Dumper Ice Crusher. The product is warmed up in double walled piping with proportionally controlled service water to a homogeneous compound of around 0 °C. The service water will not exceed 50 °C to avoid over-pasteurization of the product. The required energy for the melting process of the product depends on: structure, specific weight, entrance temperature, specific heat, quantity of insoluble solids (dry solids %), quantity of soluble solids (Brix), pump speed. The adjustable discharge temperature is normally set just above melting point of the product with a deviation of approx. 2 °C depending on the product flow. The product then can easily be pumped to the next process step by the product pump of the Drum Dumper Ice Crusher. The hot service water of minimum 80 preferably 90°C can be supplied by the customer directly or created by the steam/hot water heat exchanger that is mounted on the same skid (steam version). This skid can be installed straight next to the Fluidor Drum Dumper Ice Crusher.

DESIGN SPECIFICATION

- According actual CE-regulations
- Developed and build according quality system ISO 9001
- Clean design according actual EN1672-2 and HACCP-regulations
- Food contact materials according EC 1935/2004 and FDA
- Good Manufacturing Practice Regulation (EC) 2023/2006
- Components according Fluidor standard components list
- Machine prepared for integration into existing C.I.P.-system
- Control cabinet IP55 / NEMA 12 (VX25....,various sizes, AISI 304)
- Construction parts AISI 304
- Product piping parts AISI 316, DN80, will be build according the pressure Equipment Directive (PED 2014/68/EU). With a design standard according EN13480, ASME B 31.1, category Art 4, par. 3 working Pressure 12 bar and design pressure 15 bar
- Double walled pipe with static mixers
- Steam pipes A312-TP304L, will be build according the pressure Equipment Directive (PED 2014/68/EU). With a design standard according EN13480, ASME B 31.1, category Art 4, par. 3 working Pressure 6 bar and design pressure 10 bar
- Steam/water heat exchanger WN1.4307, will be build according the pressure Equipment Directive (PED 2014/68/EU). With a design standard according EN 13445, ASME VIII, category2 working Pressure 6 bar and design pressure 10 bar
- Stainless steel warm service water buffer tank, capacity 600 dm³ (steam versions only)
- Pumps (steel coated) and proportional control valves (AISI 304) for circulation of service water
- Steam appendages valves and steam trap steel coated
- Automatic Re-Flux for process optimization
- Possibility to by-pass when melting is not required (concentrates)
- Temperature sensors in sanitary execution
- Protection against freezing of the service side by continuous circulation
- Water supply stops when product flow stops to prevent pasteurisation
- User friendly operation. No adjustment required during product change
- Insulated steam exchanger of the CIM, other steam connections/-pipes and -appendages to be insulated by the customer. Optionally, a safety fence can be placed.
- No dismantling required for cleaning
- Machine is designed to be used 12 hours a day 5 days a week and 52weeks a year with proper maintenance and an expected service life of 20 years



REQUIREMENTS

Steam consumption:

- CIM steam: 2500 kg/h at 6 bar 5510 lbs/h at 90 psi
- CIM Limited steam: 1500 kg/h at 6 bar 3300 lbs/h at 90 psi
- Condensate return pressure: ≤ 0,5 bar ≤ 7,5 psi

Hot water consumption :

- CIM water: 62 m³/h at min. 90 °C 273 gpm at min. 194 °F
- CIM Limited water: 37 m³/h at min. 90 °C 162 gpm at min. 194 °F
- Hot water return: ΔT 20 °C, 1 bar ΔT 36 °F, 15 psi
- Layout (dimensional, utility & requirements drawing) available upon request
- Earthquake area extra fixation needed (Anchors option)
- Machine is designed for indoor use in a medium hygiene wet area

Steam requirements:

Parameter	Value
Quality	Dry saturated steam
Humidity	Max 5% condensate
pH	8.5 – 9.2
Carbon dioxide	Max 2 ppm (mg/l)
Chloride	Max 5 ppm (mg/l)
Solid particles	Max 0.5 ppm (mg/l)
Turbidity	Max 1 NTU
Ammonia (NH ₃)	Max 5 mg/l

- Steam must free from condensate and particles.
- Steam supply line must be equipped with a pressure controller in order to maintain a constant feed pressure.
- Condensate traps must be provided close to the process line in order to produce dry steam.
- A master shut-off valve must be installed in the steam supply line.
- Steam pipes must be insulated as protection against personal injury and to avoid condensation.
- Before connecting the steam supply to the process line, the steam pipes must be blown clear with repeated blasts of steam, lasting 5-10 minutes.

TECHNICAL DATA

EU

USA

- Product / CIP temp : -20, +90 °C max 60 minutes -4, 194 °F max 60 minutes
- Ambient temperature : 5 - 25 °C 41 - 77 °F
- Relative humidity : 30 - 70%
- Noise level : < 85 dB(A)
- IP value (control cabinets + drives) : IP55
- Adjustable machine support legs : 80 -160 mm 3.15 - 6.3 inch
- Dimensions h*w*d: : 3130*1500*6780 mm 123*59*266 inch
- Installed power : 3,5 kW 4,7 HP
- Heat load environment : 55800 kj
- Assuming full capacity, steam appendages and pipe insulated

Total weight empty:

- CIM steam : 2500 kg 5510 lbs
- CIM Hot Water : 2000 kg 4400 lbs
- CIM Limited Steam : 2100 kg 4600 lbs
- CIM Limited Hot Water : 1600 kg 3500 lbs

Product pipe volume:

- CIM Steam : 670 L 175 gal
- CIM Hot Water : 670 L 175 gal
- CIM Limited Steam : 460 L 120 gal
- CIM Limited Hot Water : 460 L 120 gal

Service water volume:

- CIM Steam : 1150 L 300 gal
- CIM Hot Water : 470 L 125 gal
- CIM Limited Steam : 980 L 260 gal
- CIM Limited Hot Water : 310 L 80 gal

CAPACITY

- CIM up to 12 m³/h, depending on product and temperature
- CIM Limited up to 7 m³/h, depending on product and temperature

PRODUCT INFORMATION

- Product type : All frozen fruit juices, concentrates and pulp.
- Product viscosity max : Dynamic viscosity 5.000 cP

CLEANING

- Cleaning depends on the product and company guidelines, the values below are guide values
- CIP cleaning after each production batch or before each production run after 12 hours of downtime

CIP Time (sec)

CIP Step	Caustic	Caustic + Acid	Temperature (°C)	Concentration (%)
Pre Rinse	600	600	45	fresh water
Caustic (Organic soils)	1200	1200	75	0,5 - 2 % (Caustic soda)
Intermediate Rinse		600	20	fresh water
Acid (Inorganic soils)		600	65	0,5 - 1% (Acid)
Final Rinse	600	600	20	fresh water
Total CIP time (min)	40	60		

MACHINE EXECUTIONS

- CIM Steam
- CIM Hot Water
- CIM Limited Steam
- CIM Limited Hot Water

POWER SUPPLY / CONTROLES

- 3 Phase 400V 50Hz 40 A+ neutral + earth, Siemens controls
- 3 Phase 480V 60Hz 35 A + earth, Allen-Bradley controls, UL prepared

COMMUNICATION

- PROFINET connections pre- installed at Siemens controls
- Ethernet/IP connections pre- installed at Allen Bradley controls

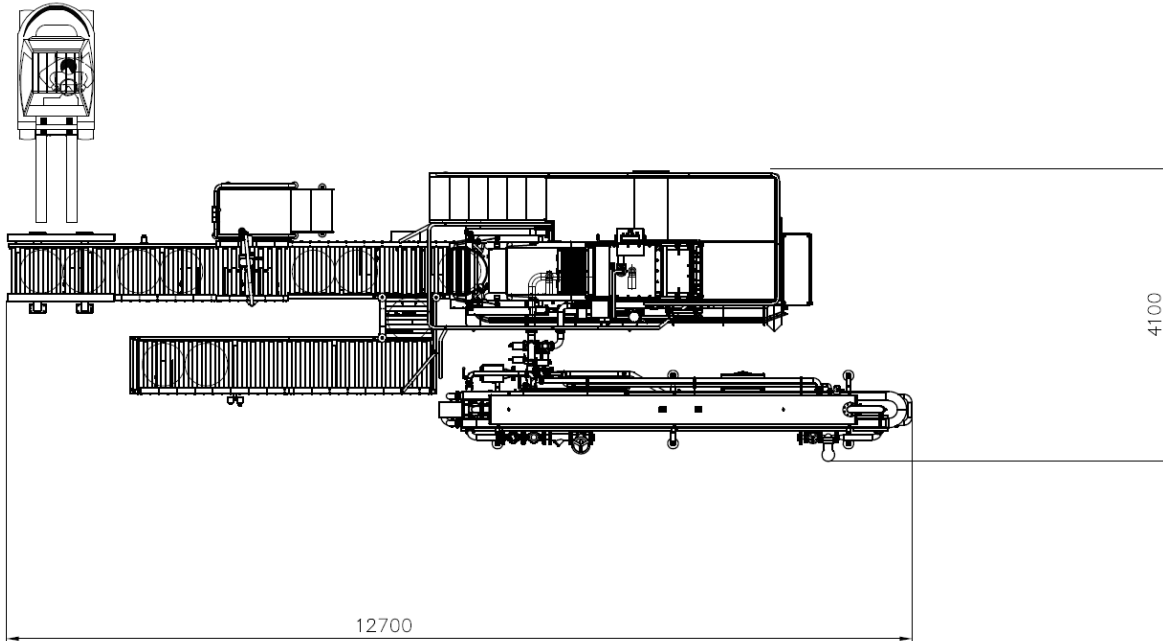
OPTIONS

- Standing enclosure cabinets, IP66 / NEMA 4x (VX25, basic cabinet 800x2000x600, AISI 304)

PROCESS OPTIONS

The CIM can be combined with the following Fluidor machines: DPRICS and TBDICS

PROJECT LAYOUT EXAMPLE



ANNEXED DOCUMENTS

- Machine Lay-out
- Machine P&ID
- Fluidor standard components

GENERAL INFORMATION

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