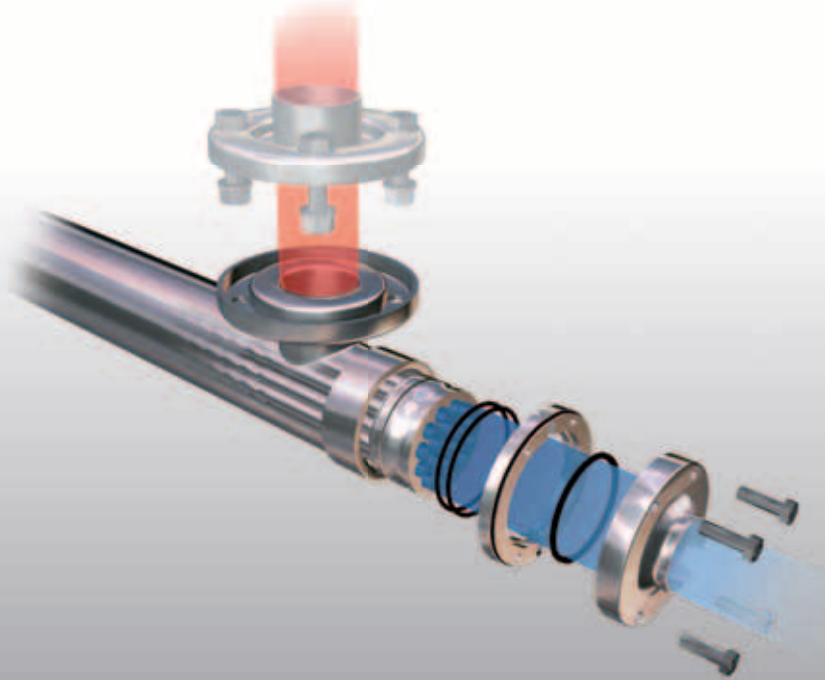


# Tetra Spiraflor<sup>®</sup> CIP & Water Heater

Tubular heat exchangers for CIP solutions and water



## Application

Indirect, in-line heating with steam of CIP solutions and water. The hygienic design makes it also suitable for heat treatment of food products.

## Working principle

Tetra Spiraflor CIP & Water Heater is a compact heating tube designed to be easily installed in the pipework i.e. from the CIP station to the cleaning objects. When steam is used as heating media, vertical mounting is recommended.

The heater has a floating tube insert to absorb thermal expansion, generated by the temperature difference between the liquid and steam at the beginning of each phase of the cleaning cycle. Tetra Spiraflor CIP & Water Heater is a single

pass shell and tube heat exchanger. The water or CIP solution flows through a group of parallel, small diameter tubes with steam between and around these tubes. The tubes are corrugated for increased turbulence and heat transfer.

## Design

The heat transfer surface consists of a group of straight tubes welded onto tube plates at both ends. The tube plates are in turn sealed from the outer shell by O-rings – a floating tube insert design. This design allows tubes for the water or CIP solution to be taken out of the shell for inspection by opening the end couplings.

# Tetra Spiraflo<sup>®</sup> CIP & Water Heater

## Standard design

### Material

Shell	Pressure vessel steel, 1.4404 (AISI 316 L)
Tubes	Pressure vessel steel, 1.4404 (AISI 316 L), corrugated

### Connections

Shell side	Media inlet: flange PN 16	[E]
	Media outlet: socket BSP	[F]
Tube side	Flange with welding end	[G]

### Approval

Approved for below specified temperature and pressure range according to the European pressure equipment directive - PED 97/23/EC, category I.

Design temperature: 160 °C (320 °F)

Design pressure: tubes 1000 kPa shell 600 kPa

## Options

### Connections

Tube side [G]	Eccentric reducer with welding end				
Shell side [E+F]	CIP 0	CIP 1	CIP 2	CIP 3	CIP 4
Flange PN 16	DIN DN65 / ANSI 3"		DIN DN100 / ANSI 4"		
SMS male (mm)	63.5	76	101.6	101.6	101.6
Clamp (ISO 2852) (mm)	63.5	76	101.6	101.6	101.6
DIN 11851 male (mm)	65	80	100	100	100

### Heavy duty design

Design temperature: 180 °C (356 °F)

Max. design pressure:

sizes CIP 0, 1	tubes 4000 kPa	shell 1500 kPa
CIP 2, 3, 4	tubes 2500 kPa	shell 1000 kPa

Connections: flange PN 16 + socket BSP or flange PN 16

Approval according to PED 97/23/EC, category II.

### Other options

- Tube pusher
- Counter flange(s) for flange PN 16
- Material certificate acc. to EN 10204/3.1
- Tube material: 254 SMO

## Environment

The amount of energy consumed is depending on the duty the specific heat exchanger is performing. Utility consumption and heat recovery are optimised for each specific case.

Tetra Spiraflo heat exchangers consist of parts that can be separated for recycling purposes.

## Technical data

	CIP 0	CIP 1	CIP 2	CIP 3	CIP 4
Shell: diameter (mm)	85	108	129	154	154
volume (l)	5.5	9.3	13.5	20.5	30.7
Tubes: number of ...	12	19	27	37	37
diameter (mm)	16	16	16	16	16
volume (l)	3.6	5.8	8.2	11.4	17.1
Heat transfer area					
per tube (m <sup>2</sup> )	1.1	1.8	2.5	3.5	5.2
Weight (kg)	25	38	55	68	89

## Dimensions

	CIP 0	CIP 1	CIP 2	CIP 3	CIP 4
A (mm)	1 720	1 730	1 720	1 720	2 720
B (mm)	2 028	2 034	2 038	2 038	3 038
C (mm)	102.5	114	124.5	137	137
D (mm)	85.5	92	102.5	115	115
E	DIN DN65 / ANSI 3"		DIN DN100 / ANSI 4"		
F (inches)	2	2	2	2	2
G (mm)	52x1.5	63.5x2	76x2	104x2	104x2

The measurements refer to the standard design.

The heater can also be customized to fit specific needs.

