

TETRA PAK® TUBULAR HEAT EXCHANGER S



APPLICATION

Indirect, in-line heating or cooling of water, CIP solutions, process water or food product.

HIGHLIGHTS

- Robust, reliable and durable
- Hygienic design
- Compact and easy to install

WORKING PRINCIPLE

The Tetra Pak Tubular Heat Exchanger S is a single-pass shell-and-tube heat exchanger. The fluid to be heat treated flows through a group of parallel, small diameter inner tubes with the medium (water, steam or glycol) flowing between and around these. The inner tubes are corrugated for increased turbulence and heat transfer.

DESIGN

The unit has a reliable, durable, safe and hygienic design. The small size makes it easy to install.

The heat transfer surface consists of a group of straight inner tubes welded into a tube case at each end. O-rings seal the tube cases from the shell. This design with floating, not fixed or welded, parts absorbs thermal expansion and eliminates the risk of cracking and stress corrosion. It also allows for easy inspection and maintenance.

The heat exchanger is available in five sizes (S0 to S4). The standard design fulfils the requirements of the majority of our customers. The unit can also be customized and is available in a variety of heavy duty designs.

The unit can be installed horizontally or vertically, in a frame or on a wall if there's a shortage of floor space. Vertical mounting is recommended when steam is used as heating medium.

STANDARD DESIGN

MATERIAL

Shell: Pressure vessel steel, 1.4404 (AISI 316 L)
Tube insert: Pressure vessel steel, 1.4404 (AISI 316 L),
corrugated

CONNECTIONS

Shell side: Inlet: flange PN16 [E]
Outlet: socket BSP [F]

Tube insert side: Flange with welding end [G]

APPROVAL

Approved for below specified temperature and pressure range according to the European pressure equipment directive – PED 2014/68/EU, category I.

Design temperature: 160°C (320°F)

Max design pressure: Tube insert 1 000 kPa
Shell 600 kPa

CAPACITY

Temperature (in/out)	S0	S1	S2	S3	S4
50°C / 70°C	20 100	30 300	42 500	54 200	100 000
60°C / 80°C	15 500	23 600	31 900	42 000	91 800
70°C / 90°C	11 400	16 600	23 100	28 600	71 000

Max flow rate in kg/h for pre-defined temperature intervals at 300 kPa steam pressure (absolute) and 15% margin.

OPTIONAL EQUIPMENT

- Tube pusher
- Counter flange(s) for flange PN16

OTHER DESIGNS AND OPTIONS

CONNECTIONS

Tube insert side [G]: Eccentric reducer with welding end

Shell side for the standard design [E+F]:

	S0	S1	S2	S3	S4
SMS male (mm)	63.5	76	104	104	104
Clamp (ISO 2852) (mm)	63.5	76	104	104	104
DIN 11851 male (mm)	65	80	100	100	100
Flange PN16	DIN: DN65 ANSI: 3"	DN65 3"	DN100 4"	DN100 4"	DN100 4"

Shell side for other designs: Flange PN16 at the inlet [E] and socket BSP or flange PN16 at the outlet [F].

HEAVY DUTY DESIGN

Approval according to PED 2014/68/EU, category II

Design temperature: 180°C (356°F)

Max design pressure:

	S0	S1	S2	S3	S4
Tube insert (kPa)	4 000	4 000	2 500	2 500	2 500
Shell (kPa)	1 500	1 500	1 000	1 000	1 000

EXTRA HEAVY DUTY DESIGN

Approval according to PED 2014/68/EU, category II

Design temperature: 210°C (410°F)

Max design pressure:

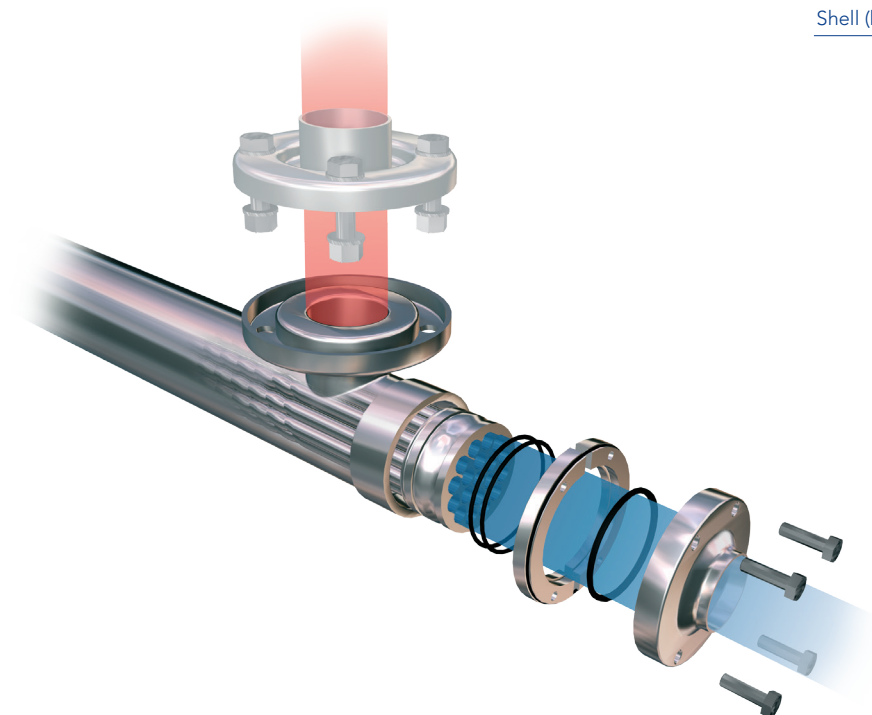
	S0	S1	S2	S3	S4
Tube insert (kPa)	4 000	4 000	4 000	3 200	3 200
Shell (kPa)	1 600	1 500	1 400	1 400	1 400

APPROVAL ACCORDING TO MHLW

Design temperature: 160°C (320°F)

Max design pressure:

	S0	S1	S2
Tube insert (kPa)	3 000	2 200	2 000
Shell (kPa)	1 200	1 200	1 000



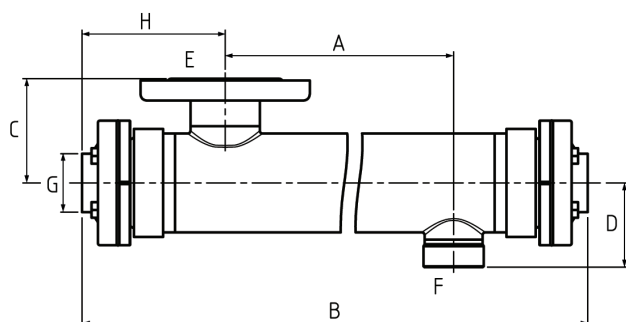
UNIT DATA

	S0	S1	S2	S3	S4
Shell: diameter (mm)	85	108	129	154	154
volume (l)	5.5	9.3	13.5	19.6	29.8
Inner tubes: number of ...	12	19	27	37	37
diameter (mm)	16	16	16	16	16
volume (l)	3.8	6.1	8.6	11.8	17.8
Heat transfer area (m ²)	1.1	1.7	2.4	3.3	5.1
Weight (kg)	32	43	58	72	78

MEASUREMENTS

	S0	S1	S2	S3	S4
A (mm)	1 720	1 720	1 700	1 700	2 700
B (mm)	2 028	2 034	2 038	2 038	3 038
C (mm)	102	114	124	137	137
D (mm)	80	92	102	115	115
E	DIN: DN65 ANSI: 3"	DN65 3"	DN100 4"	DN100 4"	DN100 4"
F (inches)	2	2	2	2	2
G (mm)	51x1.5	63.5x1.6	76.1x1.6	104x2	104x2
H (mm)	154	157	169	169	169

The measurements refer to the standard design.



INFORMATION REQUIRED FOR QUOTATION

- Fluid to be heat treated
- Required flow rate
- Inlet and outlet temperatures for the processed fluid
- Medium (e.g. water, steam, glycol)
- Properties of the medium (temperature or steam pressure)
- Final customer country

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. All Tetra Pak Tubular Heat Exchangers consist of parts that can be separated for recycling purposes.