

TUBULAR HEAT EXCHANGER

DETAILED OVERVIEW FOR TYPE 'THEX'
HIGH PRESSURE - 60 BAR

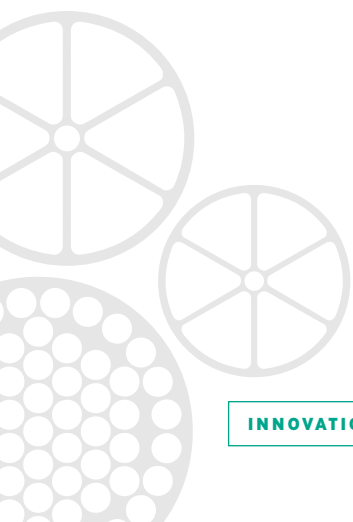


Dimensions overview for type Ø133 - 60 bar[g]

Tubular heat exchangers are highly used in the food and beverage industry and in connection with many applications such as CIP units. In the food and beverage industry tubular heat exchangers are often used in systems to reduce or eliminate microbials to make products safe for consumption and to extend their shelf life. A tubular heat exchanger may also be used to heat or cool products prior to filling, drying, concentration or other processes.

Content

Introduction	3
Regulations and Directives	3
Documentation	3
Group specifications.....	4
Connections	5
Steam pressure limits	5
THEX-.5-133-60	6
THEX-01-133-60	7
THEX-02-133-60.....	8
THEX-03-133-60.....	9



Introduction

This overview is for Tubular Heat Exchangers manufactured by Wila A/S under the category "THEX" hereinafter referred to as "Heat Exchanger". A Tubular Heat Exchanger is by design, two Pressure chambers in a combined housing.

The inner chamber consists of both ends and the insides of all tubes in the tube bundle, hereinafter referred to as "Tube side" or "Product side".

The outer pressure chamber consists of the outside of the tube bundle, and the inside of the exchangers outer shell, hereinafter referred to as "Shell side" or "Service side".

The Heat Exchanger is intended for a fluid to fluid heat transfer, **either** cooling or heating and is made from EN.1.4404 (AISI 316L) stainless steel with a sanitary surface finish. The tube side is suitable for food stuff fluids, such as dairy products and juices. The outside surface roughness is $\leq 1,6\mu\text{m}$ and the internal tube side surface roughness is $\leq 0,8\mu\text{m}$. **All fluid media in use with the Heat exchanger, must be compatible with EN.1.4404 (AISI 316L) Stainless Steel.**

The 60 BAR (870 PSI), maximum product side pressure, heat exchanger design is based on a $\varnothing 133 \times 4$ shell. Other sizes and pressure ratings are also available.

Regulations and Directives

The heat exchanger is designed and manufactured in accordance with

- the European Commission regulation No. 2023/2006 (Good Manufacturing Practices)
- the European Parliament directive No. EN 1935/2004 (Food Contact Materials).
- the European Parliament directive No. EN 1907/2006 (Chemical Restrictions (REACH)).
- PED - Article 4.3 (SEP) in the European Parliament directive No. 2014/68/EU (Pressure Equipment Directive). The Heat Exchanger is only designed for fluid group 2 (non-dangerous fluids).

Documentation

1. Customer drawing with description and design data table
2. Declaration of conformity
3. Pressure test certificate
4. User Manual

As Supplement the following can be provided:

5. 3.1 material certificates according to EN 10204
6. Weld-logs with associated welding certificates according to DS/EN ISO 9601-1.

THEX-xx-133-60

THEX-xx-xxx-yyy-zz

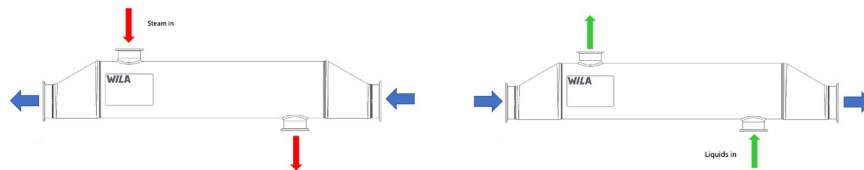
Tube side (P1 and P2) connections are:

Shell side (S1 and S2) connections:

For both tube and shell sides other connection types and sizes are available.

Connections

Always follow your fitting supplier guidelines and local legislations. SSH clamping rings (or similar) are recommended. For steam connections the outlet should always be at the lowest point. For liquids, the outlet should be at the highest point to ensure complete removal of air in the chamber.



Service side limits

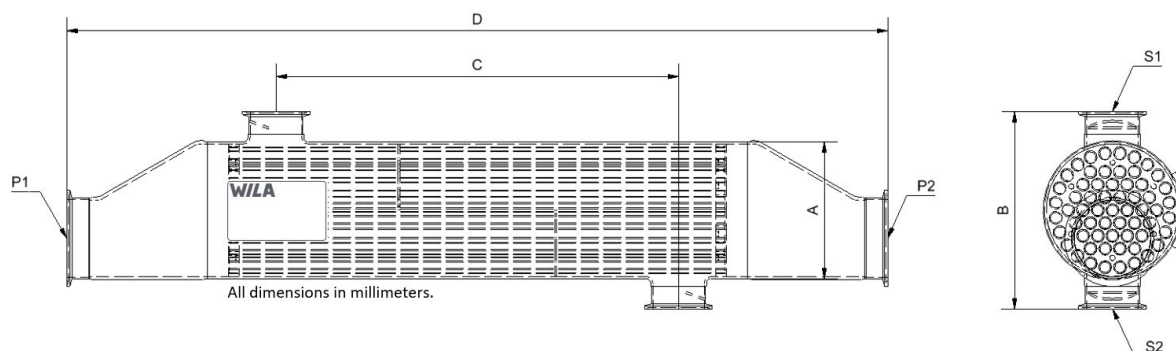
The heat exchanger's shell side maximum pressure and temperature limits are based on the maximum allowed steam pressure, which varies with the size of the heat exchanger:

1. For heat exchanger sizes 0.5m² and 1 m² these limits are respectively 10 bar[g] and 185°C
2. For heat exchanger size 2 m² these limits are respectively 8 bar[g] and 176°C
3. For heat exchanger size 3 m² these limits are respectively 6 bar[g] and 165°C

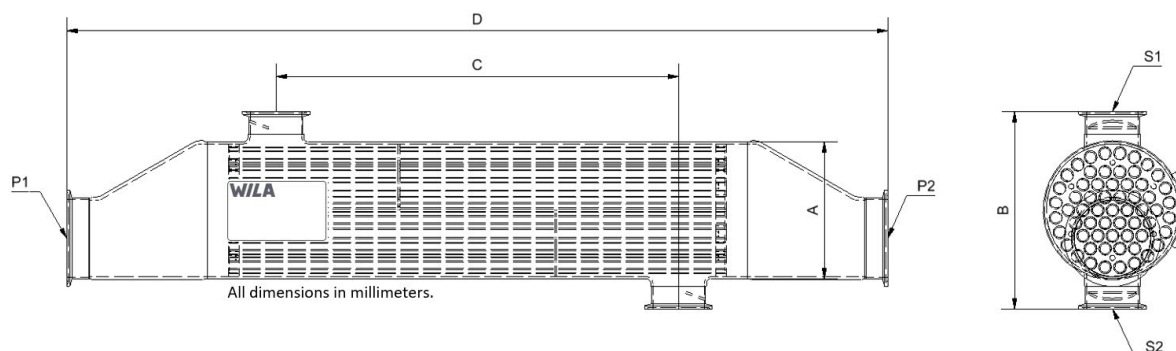
For pressure and temperature limits for other fluids than steam, see "Heat exchangers – pressure and temperature relations" document.

Note:

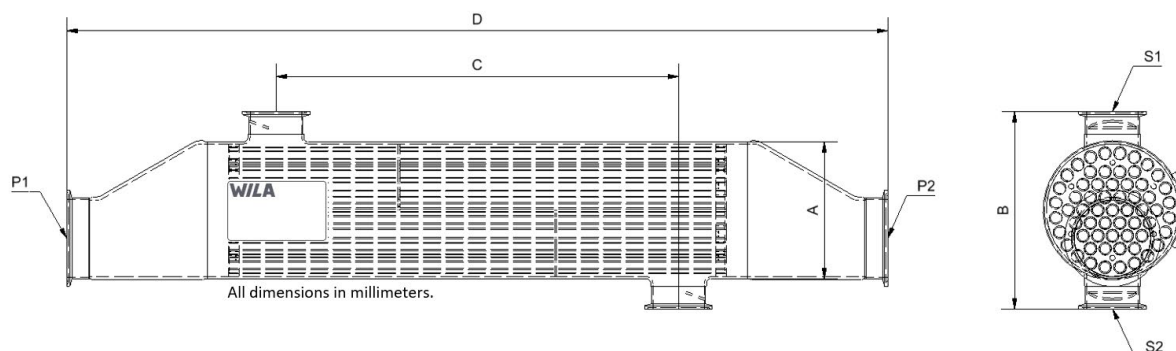
In the following group tables 'Tube bank' is data on the product tubes running paralell inside the shell.



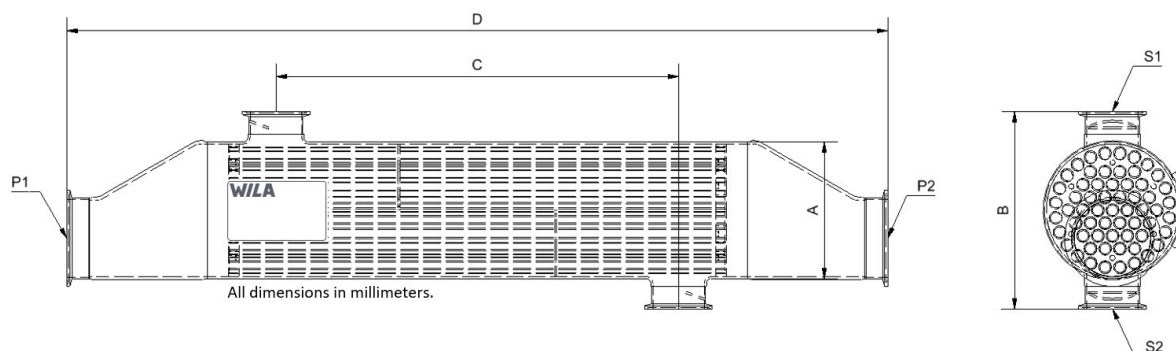
THEX-.5-133-60		60 barg / 85°C		10 bar[g] / 185°C		Maximum pressure / Maximum temperature		
		Volume 4.5 liters		Volume 1 liters		316L Eccentric	Dry weight 11 kg	
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-.5-133-100-51	W-035291	DN100	Ø133	Ø51	190	130	558	61 pc Ø12x1mm
THEX-.5-133-101-51	W-035292	Ø101.6	Ø133	Ø51	190	130	545	61 pc Ø12x1mm
THEX-.5-133-080-51	W-035293	DN80	Ø133	Ø51	190	130	558	61 pc Ø12x1mm
THEX-.5-133-076-51	W-035294	Ø76.1	Ø133	Ø51	190	130	545	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-.5-133-100-38	W-035295	DN100	Ø133	Ø38	190	130	558	61 pc Ø12x1mm
THEX-.5-133-101-38	W-035296	Ø101.6	Ø133	Ø38	190	130	545	61 pc Ø12x1mm
THEX-.5-133-080-38	W-035297	DN80	Ø133	Ø38	190	130	558	61 pc Ø12x1mm
THEX-.5-133-076-38	W-035298	Ø76.1	Ø133	Ø38	190	130	545	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-.5-133-100-50	W-035299	DN100	Ø133	DN50	190	130	558	61 pc Ø12x1mm
THEX-.5-133-101-50	W-035300	Ø101.6	Ø133	DN50	190	130	545	61 pc Ø12x1mm
THEX-.5-133-080-50	W-035301	DN80	Ø133	DN50	190	130	558	61 pc Ø12x1mm
THEX-.5-133-076-50	W-035302	Ø76.1	Ø133	DN50	190	130	545	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-.5-133-100-40	W-035303	DN100	Ø133	DN40	190	130	558	61 pc Ø12x1mm
THEX-.5-133-101-40	W-035304	Ø101.6	Ø133	DN40	190	130	545	61 pc Ø12x1mm
THEX-.5-133-080-40	W-035305	DN80	Ø133	DN40	190	130	558	61 pc Ø12x1mm
THEX-.5-133-076-40	W-035306	Ø76.1	Ø133	DN40	190	130	545	61 pc Ø12x1mm



THEX-01-133-60		60 barg / 85°C		10 bar[g] / 185°C		Maximum pressure / Maximum temperature		
		Volume 6 liters		Volume 2.5 liters		316L Eccentric	Dry weight 19 kg	
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-01-133-100-51	W-035307	DN100	Ø133	Ø51	190	380	808	61 pc Ø12x1mm
THEX-01-133-101-51	W-035308	Ø101.6	Ø133	Ø51	190	380	795	61 pc Ø12x1mm
THEX-01-133-080-51	W-035309	DN80	Ø133	Ø51	190	380	808	61 pc Ø12x1mm
THEX-01-133-076-51	W-035310	Ø76.1	Ø133	Ø51	190	380	795	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-01-133-100-38	W-035311	DN100	Ø133	Ø38	190	380	808	61 pc Ø12x1mm
THEX-01-133-101-38	W-035312	Ø101.6	Ø133	Ø38	190	380	795	61 pc Ø12x1mm
THEX-01-133-080-38	W-035313	DN80	Ø133	Ø38	190	380	808	61 pc Ø12x1mm
THEX-01-133-076-38	W-035314	Ø76.1	Ø133	Ø38	190	380	795	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-01-133-100-50	W-022761	DN100	Ø133	DN50	190	380	808	61 pc Ø12x1mm
THEX-01-133-101-50	W-035316	Ø101.6	Ø133	DN50	190	380	795	61 pc Ø12x1mm
THEX-01-133-080-50	W-035317	DN80	Ø133	DN50	190	380	808	61 pc Ø12x1mm
THEX-01-133-076-50	W-035318	Ø76.1	Ø133	DN50	190	380	795	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-01-133-100-40	W-035319	DN100	Ø133	DN40	190	380	808	61 pc Ø12x1mm
THEX-01-133-101-40	W-035320	Ø101.6	Ø133	DN40	190	380	795	61 pc Ø12x1mm
THEX-01-133-080-40	W-035321	DN80	Ø133	DN40	190	380	808	61 pc Ø12x1mm
THEX-01-133-076-40	W-035322	Ø76.1	Ø133	DN40	190	380	795	61 pc Ø12x1mm



THEX-02-133-60		60 barg / 85°C		8 bar[g] / 176°C		Maximum pressure / Maximum temperature		
		Volume 8.5 liters		Volume 5 liters		316L Eccentric	Dry weight 34 kg	
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-02-133-100-51	W-035323	DN100	Ø133	Ø51	190	870	1298	61 pc Ø12x1mm
THEX-02-133-101-51	W-035324	Ø101.6	Ø133	Ø51	190	870	1285	61 pc Ø12x1mm
THEX-02-133-080-51	W-035325	DN80	Ø133	Ø51	190	870	1298	61 pc Ø12x1mm
THEX-02-133-076-51	W-035326	Ø76.1	Ø133	Ø51	190	870	1285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-02-133-100-38	W-035327	DN100	Ø133	Ø38	190	870	1298	61 pc Ø12x1mm
THEX-02-133-101-38	W-035328	Ø101.6	Ø133	Ø38	190	870	1285	61 pc Ø12x1mm
THEX-02-133-080-38	W-035329	DN80	Ø133	Ø38	190	870	1298	61 pc Ø12x1mm
THEX-02-133-076-38	W-035330	Ø76.1	Ø133	Ø38	190	870	1285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-02-133-100-50	W-035331	DN100	Ø133	DN50	190	870	1298	61 pc Ø12x1mm
THEX-02-133-101-50	W-035332	Ø101.6	Ø133	DN50	190	870	1285	61 pc Ø12x1mm
THEX-02-133-080-50	W-035333	DN80	Ø133	DN50	190	870	1298	61 pc Ø12x1mm
THEX-02-133-076-50	W-035334	Ø76.1	Ø133	DN50	190	870	1285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-02-133-100-40	W-035335	DN100	Ø133	DN40	190	870	1298	61 pc Ø12x1mm
THEX-02-133-101-40	W-035336	Ø101.6	Ø133	DN40	190	870	1285	61 pc Ø12x1mm
THEX-02-133-080-40	W-035337	DN80	Ø133	DN40	190	870	1298	61 pc Ø12x1mm
THEX-02-133-076-40	W-035338	Ø76.1	Ø133	DN40	190	870	1285	61 pc Ø12x1mm



THEX-03-133-60		60 barg / 85°C		6 bar[g] / 165°C		Maximum pressure / Maximum temperature		
		Volume 10 liters		Volume 7.5 liters		316L Eccentric	Dry weight 48 kg	
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-03-133-100-51	W-035339	DN100	Ø133	Ø51	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-101-51	W-035340	Ø101.6	Ø133	Ø51	190	1360	1775	61 pc Ø12x1mm
THEX-03-133-080-51	W-034422	DN80	Ø133	Ø51	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-076-51	W-035342	Ø76.1	Ø133	Ø51	190	1360	1775	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-03-133-100-38	W-035343	DN100	Ø133	Ø38	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-101-38	W-035344	Ø101.6	Ø133	Ø38	190	1360	1775	61 pc Ø12x1mm
THEX-03-133-080-38	W-035345	DN80	Ø133	Ø38	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-076-38	W-035346	Ø76.1	Ø133	Ø38	190	1360	1775	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-03-133-100-50	W-035347	DN100	Ø133	DN50	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-101-50	W-035348	Ø101.6	Ø133	DN50	190	1360	1775	61 pc Ø12x1mm
THEX-03-133-080-50	W-035349	DN80	Ø133	DN50	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-076-50	W-035350	Ø76.1	Ø133	DN50	190	1360	1775	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1/S2	B	C	D	Tube bank
THEX-03-133-100-40	W-035351	DN100	Ø133	DN40	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-101-40	W-035352	Ø101.6	Ø133	DN40	190	1360	1775	61 pc Ø12x1mm
THEX-03-133-080-40	W-035353	DN80	Ø133	DN40	190	1360	1788	61 pc Ø12x1mm
THEX-03-133-076-40	W-035354	Ø76.1	Ø133	DN40	190	1360	1775	61 pc Ø12x1mm

