

TUBULAR STEAM HEATER

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



Dimensions overview for type Ø133 - 60bar[g]

Tubular steam heaters 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.

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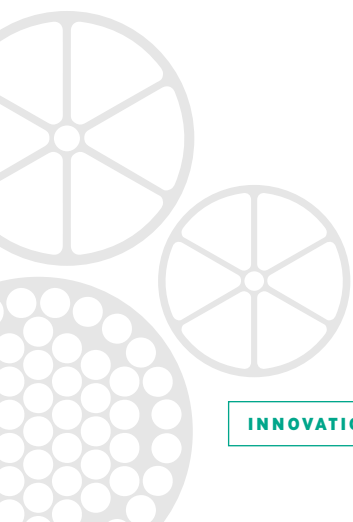
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Introduction

This overview is for Tubular Steam Heaters manufactured by Wila A/S under the category "TSHX" 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 steam to fluid heat transfer 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 Ø133x4 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). For (dangerous fluids) group I restrictions may apply.

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.

Group specifications

Group ordering codes and specifications are as listed below. A more detailed group tables with unit codes and main dimensions can be found on the following pages.

TSHX-xx-133-60

TSHX	Tubular Steam Heater with eccentric product side reducer.	
xx	01, 02, 03	Indicates the heat transfer surface area in m ² .
133	Ø133	Indicates the heat exchanger shell diameter in mm.
40	The heat exchanger is designed for pressure up to 40 bar.	

* Other versions are available.

TSHX-xx-xxx-yyy-zz

xx	See above	
xxx	See above	
yyy	See below	Indicates tube side clamp ferrule connection.
zz	See below	Indicates shell side clamp ferrule connection.

Tube side (P1 and P2) connections are:

Shell size's	Tube side connection size's	
Ø133mm	DN100 – DN80	in accordance with DIN 32676-A
Ø133mm	4" (Ø101.6) – 3" (Ø76.1)*	In accordance with ISO 2852-2

Shell side (S1 and S2) connections, both Ø129 and Ø209 are:

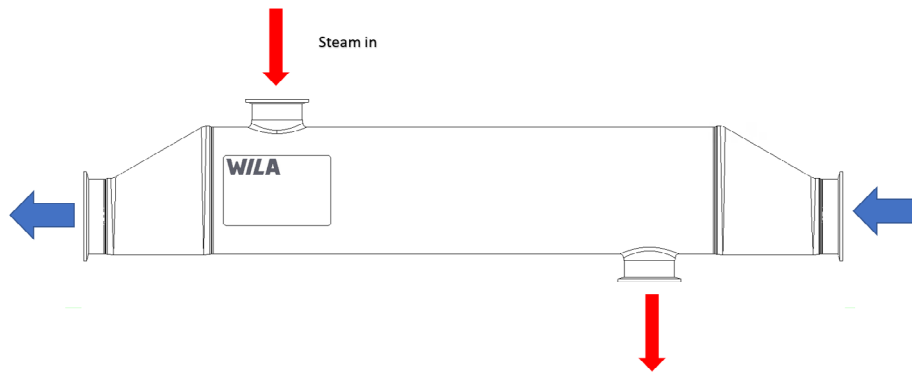
DN80 – DN65 – DN50 – DN40 – DN25	in accordance with DIN 32676-A
Ø76.1 – Ø63.5 – Ø51 – Ø38 – Ø25	in accordance with ISO 2852-2
DN80 (82) – DN65 (70) – DN50 (54) – DN40 (43) – DN25 (28) *	in accordance with DIN 2633 / EN 1092 Type 11

* Numbers in parentheses are numbers used in the unit codes on following pages.

For both tube and shell sides other connections 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.



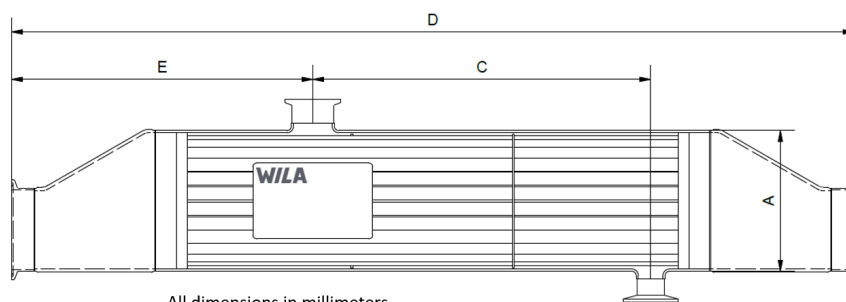
Service side limits

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:

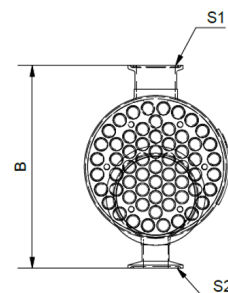
1. For heat exchanger size 1 m² these limits are respectively 10 bar[g] and 185°C
2. For heat exchanger size 2 m² these limits are respectively 8 bar[g] and 176°C
3. For heat exchanger size 3 m² these limits are respectively 6 bar[g] and 165°C

Note:

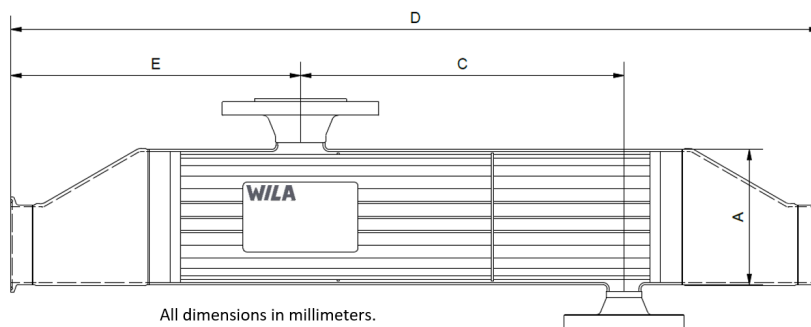
In the following group tables 'Tube bank' is data on the product tubes running parallel inside the shell.



All dimensions in millimeters.

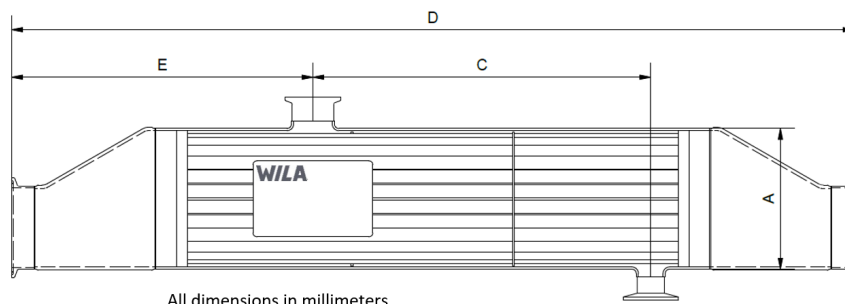


TSHX-01-133-60		60 barg / 85°C		10 bar[g] / 185°C		Maximum pressure / temperature				
		Volume 6 liters		Volume 2.5 liters		316L Eccentric		Dry weight 19 kg		
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-80	W-041149	DN100	Ø133	DN80	DN40	195	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-80	W-041150	Ø101.6	Ø133	DN80	DN40	195	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-80	W-041151	DN80	Ø133	DN80	DN40	195	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-80	W-041152	Ø76.1	Ø133	DN80	DN40	195	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-76	W-041153	DN100	Ø133	Ø76.1	Ø38	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-76	W-041154	Ø101.6	Ø133	Ø76.1	Ø38	189	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-76	W-041155	DN80	Ø133	Ø76.1	Ø38	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-76	W-041156	Ø76.1	Ø133	Ø76.1	Ø38	189	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-65	W-041157	DN100	Ø133	DN65	DN40	195	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-65	W-041158	Ø101.6	Ø133	DN65	DN40	195	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-65	W-041159	DN80	Ø133	DN65	DN40	195	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-65	W-041160	Ø76.1	Ø133	DN65	DN40	195	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-63	W-041161	DN100	Ø133	Ø63.5	Ø38	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-63	W-041162	Ø101.6	Ø133	Ø63.5	Ø38	189	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-63	W-041163	DN80	Ø133	Ø63.5	Ø38	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-63	W-041164	Ø76.1	Ø133	Ø63.5	Ø38	189	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-50	W-041165	DN100	Ø133	DN50	DN25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-50	W-041166	Ø101.6	Ø133	DN50	DN25	189	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-50	W-041167	DN80	Ø133	DN50	DN25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-50	W-041168	Ø76.1	Ø133	DN50	DN25	189	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-51	W-041169	DN100	Ø133	Ø51	Ø25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-51	W-041170	Ø101.6	Ø133	Ø51	Ø25	189	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-51	W-041171	DN80	Ø133	Ø51	Ø25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-51	W-041172	Ø76.1	Ø133	Ø51	Ø25	189	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-40	W-041173	DN100	Ø133	DN40	DN25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-40	W-041174	Ø101.6	Ø133	DN40	DN25	189	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-40	W-041175	DN80	Ø133	DN40	DN25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-40	W-041176	Ø76.1	Ø133	DN40	DN25	189	310	797	285	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-38	W-041177	DN100	Ø133	Ø38	Ø25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-38	W-041178	Ø101.6	Ø133	Ø38	Ø25	189	310	797	285	61 pc Ø12x1mm
TSHX-01-133-080-38	W-041179	DN80	Ø133	Ø38	Ø25	189	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-38	W-041180	Ø76.1	Ø133	Ø38	Ø25	189	310	797	285	61 pc Ø12x1mm

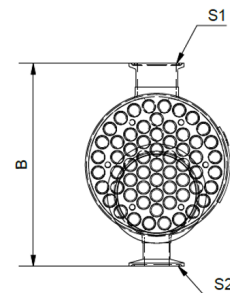


All dimensions in millimeters.

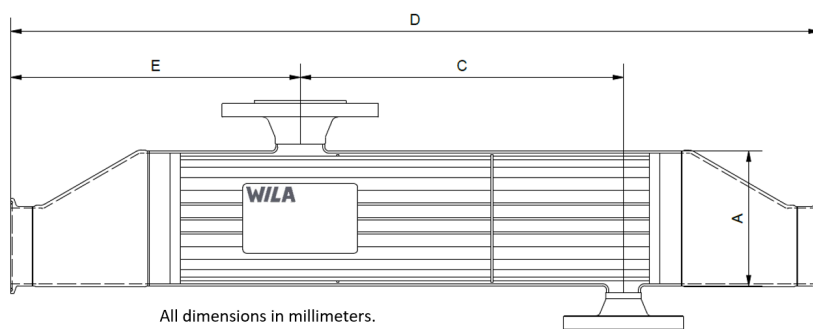
TSHX-01-133-60-F		60 barg / 85°C		10 bar[g] / 185°C			Maximum pressure / temperature			
		Volume 6 liters		Volume 2.5 liters			316L Eccentric		Dry weight 19 kg	
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-82F	W-041245	DN100	Ø133	DN80	DN40	232	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-82F	W-041246	Ø101.6	Ø133	DN80	DN40	232	310	797	284	61 pc Ø12x1mm
TSHX-01-133-080-82F	W-041247	DN80	Ø133	DN80	DN40	232	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-82F	W-041248	Ø76.1	Ø133	DN80	DN40	232	310	797	284	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-70F	W-041249	DN100	Ø133	DN65	DN40	227	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-70F	W-041250	Ø101.6	Ø133	DN65	DN40	227	310	797	284	61 pc Ø12x1mm
TSHX-01-133-080-70F	W-041251	DN80	Ø133	DN65	DN40	227	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-70F	W-041252	Ø76.1	Ø133	DN65	DN40	227	310	797	284	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-54F	W-041253	DN100	Ø133	DN50	DN25	224	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-54F	W-041254	Ø101.6	Ø133	DN50	DN25	224	310	797	284	61 pc Ø12x1mm
TSHX-01-133-080-54F	W-041255	DN80	Ø133	DN50	DN25	224	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-54F	W-041256	Ø76.1	Ø133	DN50	DN25	224	310	797	284	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-01-133-100-43F	W-041257	DN100	Ø133	DN40	DN25	221	310	810	291	61 pc Ø12x1mm
TSHX-01-133-101-43F	W-041258	Ø101.6	Ø133	DN40	DN25	221	310	797	284	61 pc Ø12x1mm
TSHX-01-133-080-43F	W-041259	DN80	Ø133	DN40	DN25	221	310	810	291	61 pc Ø12x1mm
TSHX-01-133-076-43F	W-041260	Ø76.1	Ø133	DN40	DN25	221	310	797	284	61 pc Ø12x1mm



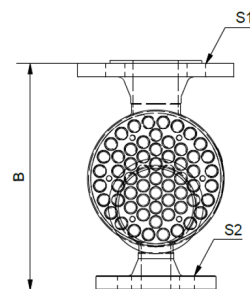
All dimensions in millimeters.



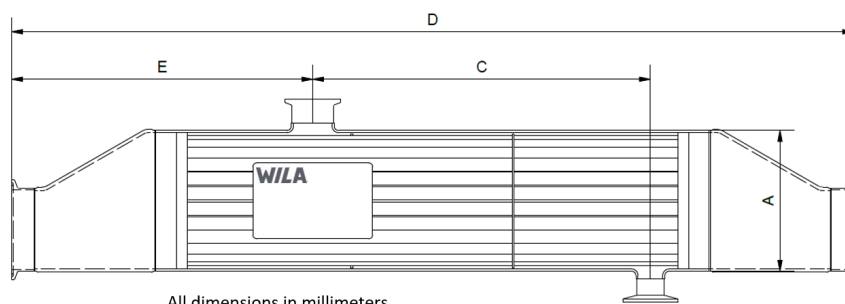
TSHX-02-133-60		60 barg / 85°C		8 bar[g] / 176°C			Maximum pressure / temperature			
		Volume 8.5 liters		Volume 5 liters			316L Eccentric		Dry weight 34 kg	
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-80	W-041181	DN100	Ø133	DN80	DN40	195	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-80	W-041182	Ø101.6	Ø133	DN80	DN40	195	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-80	W-041183	DN80	Ø133	DN80	DN40	195	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-80	W-041184	Ø76.1	Ø133	DN80	DN40	195	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-76	W-041185	DN100	Ø133	Ø76.1	Ø38	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-76	W-041186	Ø101.6	Ø133	Ø76.1	Ø38	189	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-76	W-041187	DN80	Ø133	Ø76.1	Ø38	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-76	W-041188	Ø76.1	Ø133	Ø76.1	Ø38	189	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-65	W-041189	DN100	Ø133	DN65	DN40	195	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-65	W-041190	Ø101.6	Ø133	DN65	DN40	195	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-65	W-041191	DN80	Ø133	DN65	DN40	195	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-65	W-041192	Ø76.1	Ø133	DN65	DN40	195	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-63	W-041193	DN100	Ø133	Ø63.5	Ø38	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-63	W-041194	Ø101.6	Ø133	Ø63.5	Ø38	189	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-63	W-041195	DN80	Ø133	Ø63.5	Ø38	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-63	W-041196	Ø76.1	Ø133	Ø63.5	Ø38	189	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-50	W-041197	DN100	Ø133	DN50	DN25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-50	W-041198	Ø101.6	Ø133	DN50	DN25	189	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-50	W-041199	DN80	Ø133	DN50	DN25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-50	W-041200	Ø76.1	Ø133	DN50	DN25	189	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-51	W-041201	DN100	Ø133	Ø51	Ø25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-51	W-041202	Ø101.6	Ø133	Ø51	Ø25	189	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-51	W-041203	DN80	Ø133	Ø51	Ø25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-51	W-041204	Ø76.1	Ø133	Ø51	Ø25	189	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-40	W-041205	DN100	Ø133	DN40	DN25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-40	W-041206	Ø101.6	Ø133	DN40	DN25	189	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-40	W-041207	DN80	Ø133	DN40	DN25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-40	W-041208	Ø76.1	Ø133	DN40	DN25	189	655	1277	420	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-02-133-100-38	W-041209	DN100	Ø133	Ø38	Ø25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-101-38	W-041210	Ø101.6	Ø133	Ø38	Ø25	189	655	1277	420	61 pc Ø12x1mm
TSHX-02-133-080-38	W-041211	DN80	Ø133	Ø38	Ø25	189	655	1290	426	61 pc Ø12x1mm
TSHX-02-133-076-38	W-041212	Ø76.1	Ø133	Ø38	Ø25	189	655	1277	420	61 pc Ø12x1mm



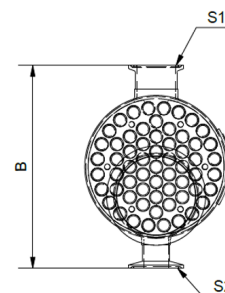
All dimensions in millimeters.



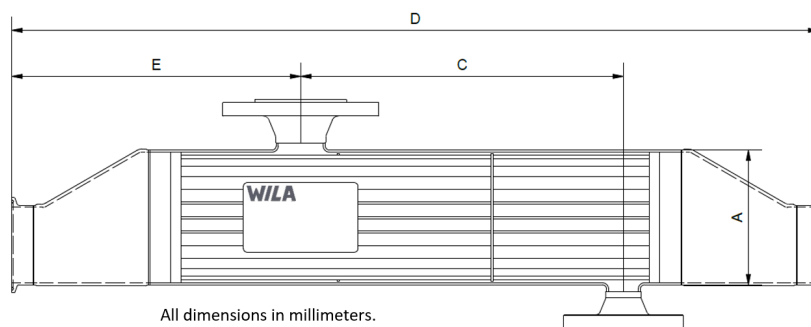
TSHX-02-133-60-F		60 barg / 85°C		8 bar[g] / 176°C			Maximum pressure / temperature				
		Volume 8.5 liters		Volume 5 liters			316L Eccentric		Dry weight 34 kg		
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank	
TSHX-02-133-100-82F	W-041261	DN100	Ø133	DN80	DN40	232	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-101-82F	W-041262	Ø101.6	Ø133	DN80	DN40	232	655	1277	420	61 pc Ø12x1mm	
TSHX-02-133-080-82F	W-041263	DN80	Ø133	DN80	DN40	232	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-076-82F	W-041264	Ø76.1	Ø133	DN80	DN40	232	655	1277	420	61 pc Ø12x1mm	
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank	
TSHX-02-133-100-70F	W-041265	DN100	Ø133	DN65	DN40	227	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-101-70F	W-041266	Ø101.6	Ø133	DN65	DN40	227	655	1277	420	61 pc Ø12x1mm	
TSHX-02-133-080-70F	W-041267	DN80	Ø133	DN65	DN40	227	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-076-70F	W-041268	Ø76.1	Ø133	DN65	DN40	227	655	1277	420	61 pc Ø12x1mm	
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank	
TSHX-02-133-100-54F	W-041269	DN100	Ø133	DN50	DN25	224	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-101-54F	W-041270	Ø101.6	Ø133	DN50	DN25	224	655	1277	420	61 pc Ø12x1mm	
TSHX-02-133-080-54F	W-041271	DN80	Ø133	DN50	DN25	224	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-076-54F	W-041272	Ø76.1	Ø133	DN50	DN25	224	655	1277	420	61 pc Ø12x1mm	
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank	
TSHX-02-133-100-43F	W-041273	DN100	Ø133	DN40	DN25	221	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-101-43F	W-041274	Ø101.6	Ø133	DN40	DN25	221	655	1277	420	61 pc Ø12x1mm	
TSHX-02-133-080-43F	W-041275	DN80	Ø133	DN40	DN25	221	655	1290	426	61 pc Ø12x1mm	
TSHX-02-133-076-43F	W-041276	Ø76.1	Ø133	DN40	DN25	221	655	1277	420	61 pc Ø12x1mm	



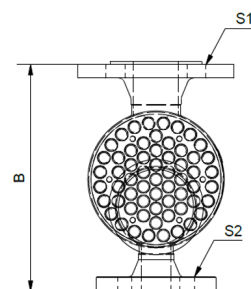
All dimensions in millimeters.



TSHX-03-133-60		60 barg / 85°C		6 bar[g] / 165°C			Maximum pressure / 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	E	Tube bank
TSHX-03-133-100-80	W-041213	DN100	Ø133	DN80	DN40	195	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-80	W-041214	Ø101.6	Ø133	DN80	DN40	195	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-80	W-041215	DN80	Ø133	DN80	DN40	195	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-80	W-041216	Ø76.1	Ø133	DN80	DN40	195	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-76	W-041217	DN100	Ø133	Ø76.1	Ø38	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-76	W-041218	Ø101.6	Ø133	Ø76.1	Ø38	189	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-76	W-041219	DN80	Ø133	Ø76.1	Ø38	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-76	W-041220	Ø76.1	Ø133	Ø76.1	Ø38	189	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-65	W-041221	DN100	Ø133	DN65	DN40	195	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-65	W-041222	Ø101.6	Ø133	DN65	DN40	195	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-65	W-041223	DN80	Ø133	DN65	DN40	195	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-65	W-041224	Ø76.1	Ø133	DN65	DN40	195	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-63	W-041225	DN100	Ø133	Ø63.5	Ø38	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-63	W-041226	Ø101.6	Ø133	Ø63.5	Ø38	189	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-63	W-041227	DN80	Ø133	Ø63.5	Ø38	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-63	W-041228	Ø76.1	Ø133	Ø63.5	Ø38	189	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-50	W-041229	DN100	Ø133	DN50	DN25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-50	W-041230	Ø101.6	Ø133	DN50	DN25	189	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-50	W-041231	DN80	Ø133	DN50	DN25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-50	W-041232	Ø76.1	Ø133	DN50	DN25	189	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-51	W-041233	DN100	Ø133	Ø51	Ø25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-51	W-041234	Ø101.6	Ø133	Ø51	Ø25	189	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-51	W-041235	DN80	Ø133	Ø51	Ø25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-51	W-041236	Ø76.1	Ø133	Ø51	Ø25	189	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-40	W-041237	DN100	Ø133	DN40	DN25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-40	W-041238	Ø101.6	Ø133	DN40	DN25	189	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-40	W-041239	DN80	Ø133	DN40	DN25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-40	W-041240	Ø76.1	Ø133	DN40	DN25	189	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-38	W-041241	DN100	Ø133	Ø38	Ø25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-38	W-041242	Ø101.6	Ø133	Ø38	Ø25	189	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-38	W-041243	DN80	Ø133	Ø38	Ø25	189	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-38	W-041244	Ø76.1	Ø133	Ø38	Ø25	189	1020	1777	550	61 pc Ø12x1mm



All dimensions in millimeters.



TSHX-03-133-60-F		60 barg / 85°C		6 bar[g] / 165°C			Maximum pressure / 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	E	Tube bank
TSHX-03-133-100-82F	W-041277	DN100	Ø133	DN80	DN40	232	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-82F	W-041278	Ø101.6	Ø133	DN80	DN40	232	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-82F	W-041279	DN80	Ø133	DN80	DN40	232	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-82F	W-041280	Ø76.1	Ø133	DN80	DN40	232	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-70F	W-041281	DN100	Ø133	DN65	DN40	227	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-70F	W-041282	Ø101.6	Ø133	DN65	DN40	227	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-70F	W-041283	DN80	Ø133	DN65	DN40	227	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-70F	W-041284	Ø76.1	Ø133	DN65	DN40	227	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-54F	W-041285	DN100	Ø133	DN50	DN25	224	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-54F	W-041286	Ø101.6	Ø133	DN50	DN25	224	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-54F	W-041287	DN80	Ø133	DN50	DN25	224	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-54F	W-041288	Ø76.1	Ø133	DN50	DN25	224	1020	1777	550	61 pc Ø12x1mm
Stock number	Drawing number	P1/P2	A	S1	S2	B	C	D	E	Tube bank
TSHX-03-133-100-43F	W-041289	DN100	Ø133	DN40	DN25	221	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-101-43F	W-041290	Ø101.6	Ø133	DN40	DN25	221	1020	1777	550	61 pc Ø12x1mm
TSHX-03-133-080-43F	W-041291	DN80	Ø133	DN40	DN25	221	1020	1790	556	61 pc Ø12x1mm
TSHX-03-133-076-43F	W-041292	Ø76.1	Ø133	DN40	DN25	221	1020	1777	550	61 pc Ø12x1mm