

# TUBULAR STEAM HEATER

DETAILED OVERVIEW FOR TYPE 'TSH'  
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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## Introduction

This overview is for Tubular Steam Heaters manufactured by Wila A/S under the category "TSH" 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.

TSH-xx-133-40

|     |                                                           |                                                              |
|-----|-----------------------------------------------------------|--------------------------------------------------------------|
| TSH | <b>Tubular Steam Heater</b>                               |                                                              |
| xx  | 01, 02, 03                                                | Indicates the heat transfer surface area in m <sup>2</sup> . |
| 133 | Ø133 *                                                    | Indicates the heat exchanger shell diameter in mm.           |
| 60  | The heat exchanger is designed for pressure up to 60 bar. |                                                              |

TSH-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 – DN65         | in accordance with DIN 32676-A |
| Ø133mm       | Ø101.6 – Ø76.1 – Ø63.5      | In accordance with ISO 2852-2  |

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

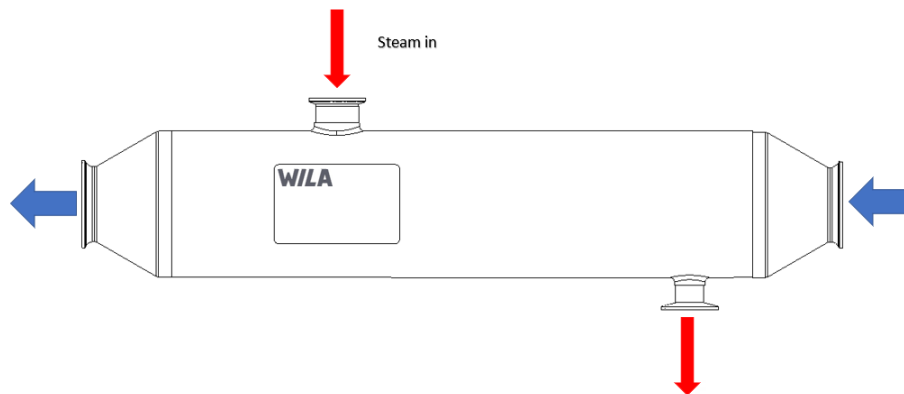
|                                                             |                                               |
|-------------------------------------------------------------|-----------------------------------------------|
| DN80 – DN65 – DN50 – DN40 – DN25                            | in accordance 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 is numbers used in unit codes in 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.



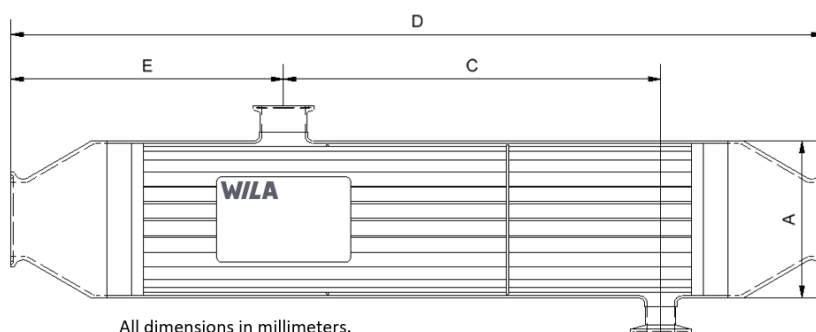
## Service side limits

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:

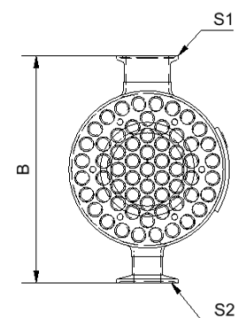
1. For heat exchanger size 1 m<sup>2</sup> these limits are respectively 10 bar[g] and 185°C
2. For heat exchanger size 2 m<sup>2</sup> these limits are respectively 8 bar[g] and 176°C
3. For heat exchanger size 3 m<sup>2</sup> these limits are respectively 6 bar[g] and 165°C

*Note:*

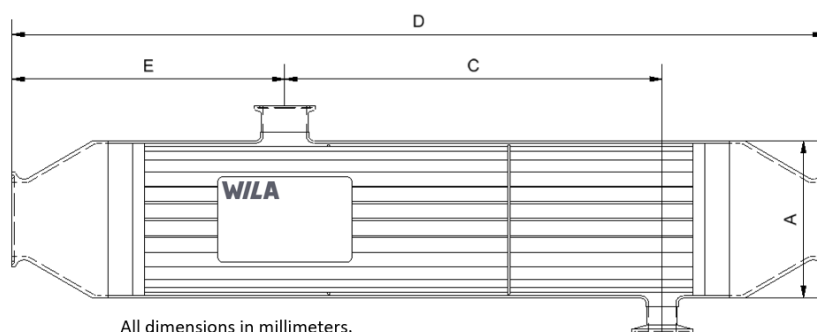
*In the following group tables 'Tube bank' is data on the product tubes running paralell inside the shell.*



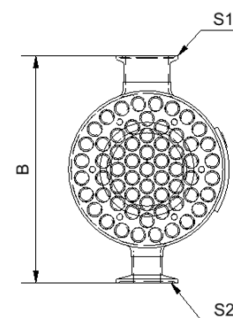
All dimensions in millimeters.



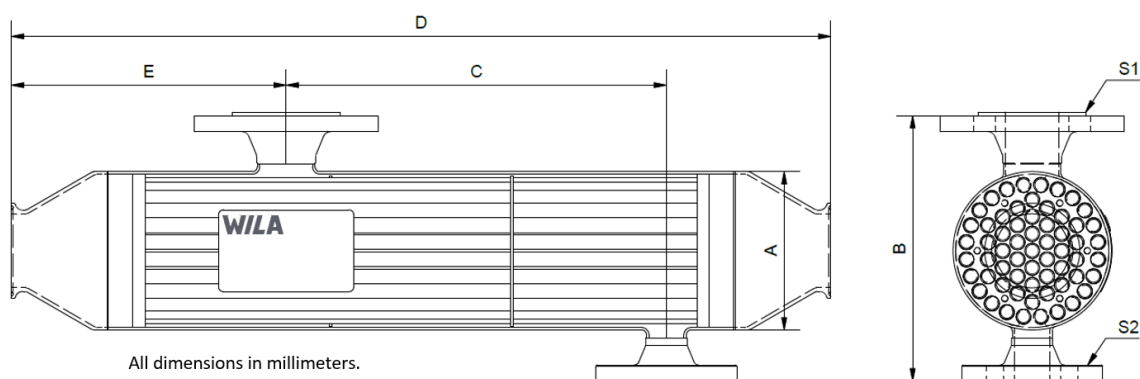
| TSH-01-133-60 (section 1 of 2) |                | 60 barg / 85°C    |      | 10 bar[g] / 185°C |      |     | Maximum pressure / temperature |     |                  |               |
|--------------------------------|----------------|-------------------|------|-------------------|------|-----|--------------------------------|-----|------------------|---------------|
|                                |                | Volume 4.5 liters |      | Volume 2.5 liters |      |     | 316L Concentric                |     | Dry weight 18 kg |               |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-80              | W-040933       | DN100             | Ø133 | DN80              | DN40 | 195 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-80              | W-040934       | Ø101.6            | Ø133 | DN80              | DN40 | 195 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-80              | W-040935       | DN80              | Ø133 | DN80              | DN40 | 195 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-80              | W-040936       | Ø76.1             | Ø133 | DN80              | DN40 | 195 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-80              | W-040937       | DN65              | Ø133 | DN80              | DN40 | 195 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-80              | W-040938       | Ø63.5             | Ø133 | DN80              | DN40 | 195 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-76              | W-040939       | DN100             | Ø133 | Ø76.1             | Ø38  | 189 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-76              | W-040940       | Ø101.6            | Ø133 | Ø76.1             | Ø38  | 189 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-76              | W-040941       | DN80              | Ø133 | Ø76.1             | Ø38  | 189 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-76              | W-040942       | Ø76.1             | Ø133 | Ø76.1             | Ø38  | 189 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-76              | W-040943       | DN65              | Ø133 | Ø76.1             | Ø38  | 189 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-76              | W-040944       | Ø63.5             | Ø133 | Ø76.1             | Ø38  | 189 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-65              | W-040945       | DN100             | Ø133 | DN65              | DN40 | 195 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-65              | W-040946       | Ø101.6            | Ø133 | DN65              | DN40 | 195 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-65              | W-040947       | DN80              | Ø133 | DN65              | DN40 | 195 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-65              | W-040948       | Ø76.1             | Ø133 | DN65              | DN40 | 195 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-65              | W-040949       | DN65              | Ø133 | DN65              | DN40 | 195 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-65              | W-040950       | Ø63.5             | Ø133 | DN65              | DN40 | 195 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-63              | W-040951       | DN100             | Ø133 | Ø63.5             | Ø38  | 189 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-63              | W-040952       | Ø101.6            | Ø133 | Ø63.5             | Ø38  | 189 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-63              | W-040953       | DN80              | Ø133 | Ø63.5             | Ø38  | 189 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-63              | W-040954       | Ø76.1             | Ø133 | Ø63.5             | Ø38  | 189 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-63              | W-040955       | DN65              | Ø133 | Ø63.5             | Ø38  | 189 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-63              | W-040956       | Ø63.5             | Ø133 | Ø63.5             | Ø38  | 189 | 310                            | 688 | 234              | 61 pc Ø12x1mm |



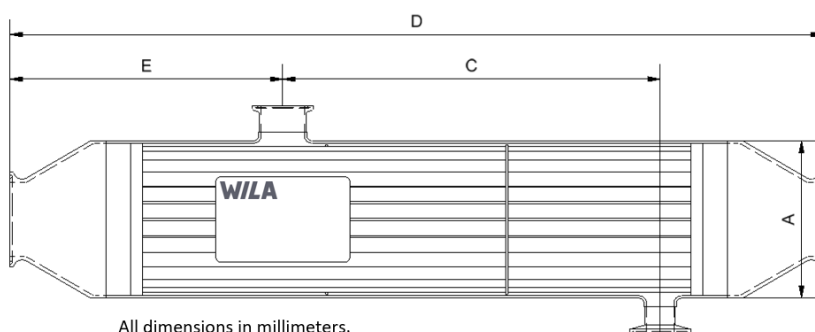
All dimensions in millimeters.



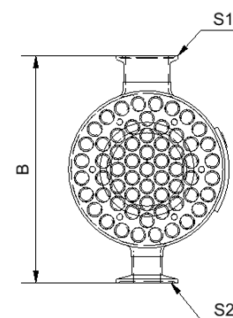
| TSH-01-133-60 (section 2 of 2) |                | 60 barg / 85°C    |      | 10 bar[g] / 185°C |      |     | Maximum pressure / temperature |     |                  |               |
|--------------------------------|----------------|-------------------|------|-------------------|------|-----|--------------------------------|-----|------------------|---------------|
|                                |                | Volume 4.5 liters |      | Volume 2.5 liters |      |     | 316L Concentric                |     | Dry weight 18 kg |               |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-50              | W-040957       | DN100             | Ø133 | DN50              | DN25 | 189 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-50              | W-040958       | Ø101.6            | Ø133 | DN50              | DN25 | 189 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-50              | W-040959       | DN80              | Ø133 | DN50              | DN25 | 189 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-50              | W-040960       | Ø76.1             | Ø133 | DN50              | DN25 | 189 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-50              | W-040961       | DN65              | Ø133 | DN50              | DN25 | 189 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-50              | W-040962       | Ø63.5             | Ø133 | DN50              | DN25 | 189 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-51              | W-040963       | DN100             | Ø133 | Ø51               | Ø25  | 189 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-51              | W-040964       | Ø101.6            | Ø133 | Ø51               | Ø25  | 189 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-51              | W-040965       | DN80              | Ø133 | Ø51               | Ø25  | 189 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-51              | W-040966       | Ø76.1             | Ø133 | Ø51               | Ø25  | 189 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-51              | W-040967       | DN65              | Ø133 | Ø51               | Ø25  | 189 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-065-51              | W-040968       | DN65              | Ø133 | Ø51               | Ø25  | 189 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-40              | W-040969       | DN100             | Ø133 | DN40              | DN25 | 189 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-40              | W-040970       | Ø101.6            | Ø133 | DN40              | DN25 | 189 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-40              | W-040971       | DN80              | Ø133 | DN40              | DN25 | 189 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-40              | W-040972       | Ø76.1             | Ø133 | DN40              | DN25 | 189 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-40              | W-040973       | DN65              | Ø133 | DN40              | DN25 | 189 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-40              | W-040974       | DN65              | Ø133 | DN40              | DN25 | 189 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-38              | W-040975       | DN100             | Ø133 | Ø38               | Ø25  | 189 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-38              | W-040976       | Ø101.6            | Ø133 | Ø38               | Ø25  | 189 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-38              | W-040977       | DN80              | Ø133 | Ø38               | Ø25  | 189 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-38              | W-040978       | Ø76.1             | Ø133 | Ø38               | Ø25  | 189 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-38              | W-040979       | DN65              | Ø133 | Ø38               | Ø25  | 189 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-38              | W-040980       | Ø63.5             | Ø133 | Ø38               | Ø25  | 189 | 310                            | 688 | 234              | 61 pc Ø12x1mm |



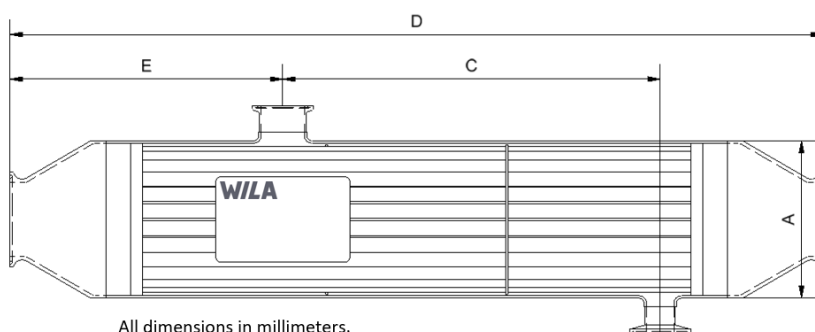
| TSH-01-133-60-F    |                | 60 barg / 85°C    |      | 10 bar[g] / 185°C |      |     | Maximum pressure / temperature |     |                  |               |
|--------------------|----------------|-------------------|------|-------------------|------|-----|--------------------------------|-----|------------------|---------------|
|                    |                | Volume 4.5 liters |      | Volume 2.5 liters |      |     | 316L Concentric                |     | Dry weight 18 kg |               |
| Stock number       | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-82F | W-041077       | DN100             | Ø133 | DN80              | DN40 | 232 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-82F | W-041078       | Ø101.6            | Ø133 | DN80              | DN40 | 232 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-82F | W-041079       | DN80              | Ø133 | DN80              | DN40 | 232 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-82F | W-041080       | Ø76.1             | Ø133 | DN80              | DN40 | 232 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-82F | W-041081       | DN65              | Ø133 | DN80              | DN40 | 232 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-82F | W-041082       | Ø63.5             | Ø133 | DN80              | DN40 | 232 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-70F | W-041083       | DN100             | Ø133 | DN65              | DN40 | 227 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-70F | W-041084       | Ø101.6            | Ø133 | DN65              | DN40 | 227 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-70F | W-041085       | DN80              | Ø133 | DN65              | DN40 | 227 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-70F | W-041086       | Ø76.1             | Ø133 | DN65              | DN40 | 227 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-70F | W-041087       | DN65              | Ø133 | DN65              | DN40 | 227 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-70F | W-041088       | Ø63.5             | Ø133 | DN65              | DN40 | 227 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-54F | W-041089       | DN100             | Ø133 | DN50              | DN25 | 224 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-54F | W-041090       | Ø101.6            | Ø133 | DN50              | DN25 | 224 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-54F | W-041091       | DN80              | Ø133 | DN50              | DN25 | 224 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-54F | W-041092       | Ø76.1             | Ø133 | DN50              | DN25 | 224 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-54F | W-041093       | DN65              | Ø133 | DN50              | DN25 | 224 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-54F | W-041094       | Ø63.5             | Ø133 | DN50              | DN25 | 224 | 310                            | 688 | 234              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2             | A    | S1                | S2   | B   | C                              | D   | E                | Tube bank     |
| TSH-01-133-100-43F | W-041095       | DN100             | Ø133 | DN40              | DN25 | 221 | 310                            | 624 | 202              | 61 pc Ø12x1mm |
| TSH-01-133-101-43F | W-041096       | Ø101.6            | Ø133 | DN40              | DN25 | 221 | 310                            | 640 | 210              | 61 pc Ø12x1mm |
| TSH-01-133-080-43F | W-041097       | DN80              | Ø133 | DN40              | DN25 | 221 | 310                            | 650 | 215              | 61 pc Ø12x1mm |
| TSH-01-133-076-43F | W-041098       | Ø76.1             | Ø133 | DN40              | DN25 | 221 | 310                            | 686 | 233              | 61 pc Ø12x1mm |
| TSH-01-133-065-43F | W-041099       | DN65              | Ø133 | DN40              | DN25 | 221 | 310                            | 670 | 225              | 61 pc Ø12x1mm |
| TSH-01-133-063-43F | W-041100       | Ø63.5             | Ø133 | DN40              | DN25 | 221 | 310                            | 688 | 234              | 61 pc Ø12x1mm |



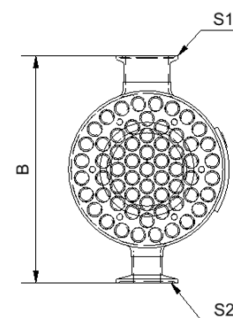
All dimensions in millimeters.



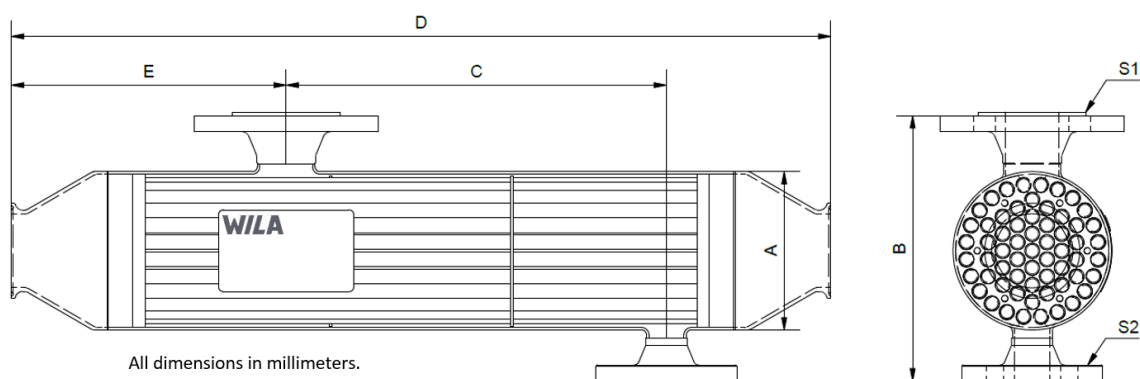
| TSH-02-133-60 (section 1 of 2) |                | 60 barg / 85°C    |      | 8 bar[g] / 176°C |      |     | Maximum pressure / temperature |      |                  |               |
|--------------------------------|----------------|-------------------|------|------------------|------|-----|--------------------------------|------|------------------|---------------|
|                                |                | Volume 6.5 liters |      | Volume 5 liters  |      |     | 316L Concentric                |      | Dry weight 33 kg |               |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-80              | W-040981       | DN100             | Ø133 | DN80             | DN40 | 195 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-80              | W-040982       | Ø101.6            | Ø133 | DN80             | DN40 | 195 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-80              | W-040983       | DN80              | Ø133 | DN80             | DN40 | 195 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-80              | W-040984       | Ø76.1             | Ø133 | DN80             | DN40 | 195 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-80              | W-040985       | DN65              | Ø133 | DN80             | DN40 | 195 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-80              | W-040986       | Ø63.5             | Ø133 | DN80             | DN40 | 195 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-76              | W-040987       | DN100             | Ø133 | Ø76.1            | Ø38  | 189 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-76              | W-040988       | Ø101.6            | Ø133 | Ø76.1            | Ø38  | 189 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-76              | W-040989       | DN80              | Ø133 | Ø76.1            | Ø38  | 189 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-76              | W-040990       | Ø76.1             | Ø133 | Ø76.1            | Ø38  | 189 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-76              | W-040991       | DN65              | Ø133 | Ø76.1            | Ø38  | 189 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-76              | W-040992       | Ø63.5             | Ø133 | Ø76.1            | Ø38  | 189 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-65              | W-040993       | DN100             | Ø133 | DN65             | DN40 | 195 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-65              | W-040994       | Ø101.6            | Ø133 | DN65             | DN40 | 195 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-65              | W-040995       | DN80              | Ø133 | DN65             | DN40 | 195 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-65              | W-040996       | Ø76.1             | Ø133 | DN65             | DN40 | 195 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-65              | W-040997       | DN65              | Ø133 | DN65             | DN40 | 195 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-65              | W-040998       | Ø63.5             | Ø133 | DN65             | DN40 | 195 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-63              | W-040999       | DN100             | Ø133 | Ø63.5            | Ø38  | 189 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-63              | W-041000       | Ø101.6            | Ø133 | Ø63.5            | Ø38  | 189 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-63              | W-041001       | DN80              | Ø133 | Ø63.5            | Ø38  | 189 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-63              | W-041002       | Ø76.1             | Ø133 | Ø63.5            | Ø38  | 189 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-63              | W-041003       | DN65              | Ø133 | Ø63.5            | Ø38  | 189 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-63              | W-041004       | Ø63.5             | Ø133 | Ø63.5            | Ø38  | 189 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |



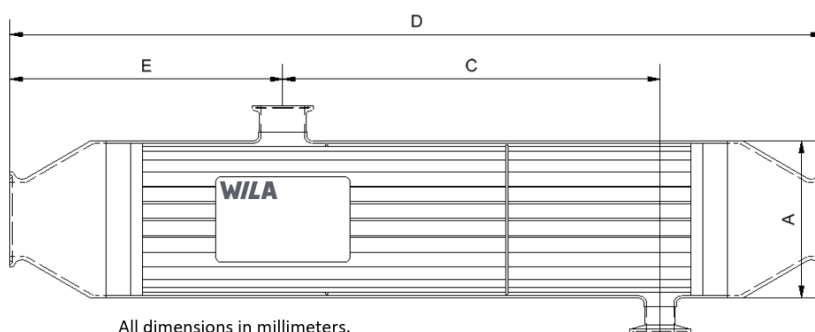
All dimensions in millimeters.



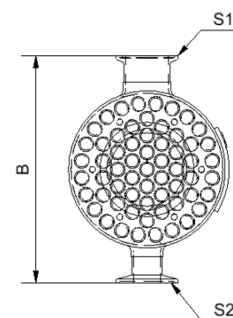
| TSH-02-133-60 (section 2 of 2) |                | 60 barg / 85°C    |      | 8 bar[g] / 176°C |      |     | Maximum pressure / temperature |      |                  |               |
|--------------------------------|----------------|-------------------|------|------------------|------|-----|--------------------------------|------|------------------|---------------|
|                                |                | Volume 6.5 liters |      | Volume 5 liters  |      |     | 316L Concentric                |      | Dry weight 33 kg |               |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-50              | W-041005       | DN100             | Ø133 | DN50             | DN25 | 189 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-50              | W-041006       | Ø101.6            | Ø133 | DN50             | DN25 | 189 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-50              | W-041007       | DN80              | Ø133 | DN50             | DN25 | 189 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-50              | W-041008       | Ø76.1             | Ø133 | DN50             | DN25 | 189 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-50              | W-041009       | DN65              | Ø133 | DN50             | DN25 | 189 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-50              | W-041010       | Ø63.5             | Ø133 | DN50             | DN25 | 189 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-51              | W-041011       | DN100             | Ø133 | Ø51              | Ø25  | 189 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-51              | W-041012       | Ø101.6            | Ø133 | Ø51              | Ø25  | 189 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-51              | W-041013       | DN80              | Ø133 | Ø51              | Ø25  | 189 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-51              | W-041014       | Ø76.1             | Ø133 | Ø51              | Ø25  | 189 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-51              | W-041015       | DN65              | Ø133 | Ø51              | Ø25  | 189 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-51              | W-041016       | Ø63.5             | Ø133 | Ø51              | Ø25  | 189 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-40              | W-041017       | DN100             | Ø133 | DN40             | DN25 | 189 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-40              | W-041018       | Ø101.6            | Ø133 | DN40             | DN25 | 189 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-40              | W-041019       | DN80              | Ø133 | DN40             | DN25 | 189 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-40              | W-041020       | Ø76.1             | Ø133 | DN40             | DN25 | 189 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-40              | W-041021       | DN65              | Ø133 | DN40             | DN25 | 189 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-40              | W-041022       | Ø63.5             | Ø133 | DN40             | DN25 | 189 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-38              | W-041023       | DN100             | Ø133 | Ø38              | Ø25  | 189 | 655                            | 1114 | 343              | 61 pc Ø12x1mm |
| TSH-02-133-101-38              | W-041024       | Ø101.6            | Ø133 | Ø38              | Ø25  | 189 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-38              | W-041025       | DN80              | Ø133 | Ø38              | Ø25  | 189 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-38              | W-041026       | Ø76.1             | Ø133 | Ø38              | Ø25  | 189 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-38              | W-041027       | DN65              | Ø133 | Ø38              | Ø25  | 189 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-38              | W-041028       | Ø63.5             | Ø133 | Ø38              | Ø25  | 189 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |



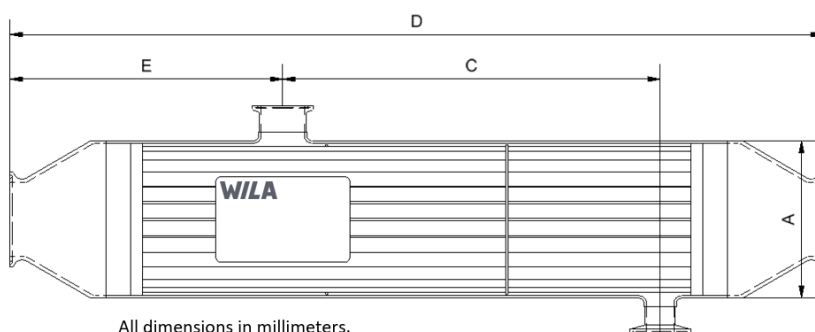
| TSH-02-133-60-F    |                | 60 barg / 85°C    |      | 8 bar[g] / 176°C |      |     | Maximum pressure / temperature |      |                  |               |
|--------------------|----------------|-------------------|------|------------------|------|-----|--------------------------------|------|------------------|---------------|
|                    |                | Volume 6.5 liters |      | Volume 5 liters  |      |     | 316L Concentric                |      | Dry weight 33 kg |               |
| Stock number       | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-82F | W-041101       | DN100             | Ø133 | DN80             | DN40 | 232 | 655                            | 1114 | 342              | 61 pc Ø12x1mm |
| TSH-02-133-101-82F | W-041102       | Ø101.6            | Ø133 | DN80             | DN40 | 232 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-82F | W-041103       | DN80              | Ø133 | DN80             | DN40 | 232 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-82F | W-041104       | Ø76.1             | Ø133 | DN80             | DN40 | 232 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-82F | W-041105       | DN65              | Ø133 | DN80             | DN40 | 232 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-82F | W-041106       | Ø63.5             | Ø133 | DN80             | DN40 | 232 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-70F | W-041107       | DN100             | Ø133 | DN65             | DN40 | 227 | 655                            | 1114 | 342              | 61 pc Ø12x1mm |
| TSH-02-133-101-70F | W-041108       | Ø101.6            | Ø133 | DN65             | DN40 | 227 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-70F | W-041109       | DN80              | Ø133 | DN65             | DN40 | 227 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-70F | W-041110       | Ø76.1             | Ø133 | DN65             | DN40 | 227 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-70F | W-041111       | DN65              | Ø133 | DN65             | DN40 | 227 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-70F | W-041112       | Ø63.5             | Ø133 | DN65             | DN40 | 227 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-54F | W-041113       | DN100             | Ø133 | DN50             | DN25 | 224 | 655                            | 1114 | 342              | 61 pc Ø12x1mm |
| TSH-02-133-101-54F | W-041114       | Ø101.6            | Ø133 | DN50             | DN25 | 224 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-54F | W-041115       | DN80              | Ø133 | DN50             | DN25 | 224 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-54F | W-041116       | Ø76.1             | Ø133 | DN50             | DN25 | 224 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-54F | W-041117       | DN65              | Ø133 | DN50             | DN25 | 224 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-54F | W-041118       | Ø63.5             | Ø133 | DN50             | DN25 | 224 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2             | A    | S1               | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-02-133-100-43F | W-041119       | DN100             | Ø133 | DN40             | DN25 | 221 | 655                            | 1114 | 342              | 61 pc Ø12x1mm |
| TSH-02-133-101-43F | W-041120       | Ø101.6            | Ø133 | DN40             | DN25 | 221 | 655                            | 1130 | 350              | 61 pc Ø12x1mm |
| TSH-02-133-080-43F | W-041121       | DN80              | Ø133 | DN40             | DN25 | 221 | 655                            | 1140 | 355              | 61 pc Ø12x1mm |
| TSH-02-133-076-43F | W-041122       | Ø76.1             | Ø133 | DN40             | DN25 | 221 | 655                            | 1176 | 373              | 61 pc Ø12x1mm |
| TSH-02-133-065-43F | W-041123       | DN65              | Ø133 | DN40             | DN25 | 221 | 655                            | 1160 | 365              | 61 pc Ø12x1mm |
| TSH-02-133-063-43F | W-041124       | Ø63.5             | Ø133 | DN40             | DN25 | 221 | 655                            | 1178 | 374              | 61 pc Ø12x1mm |



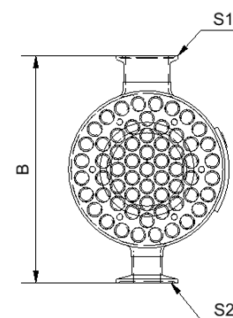
All dimensions in millimeters.



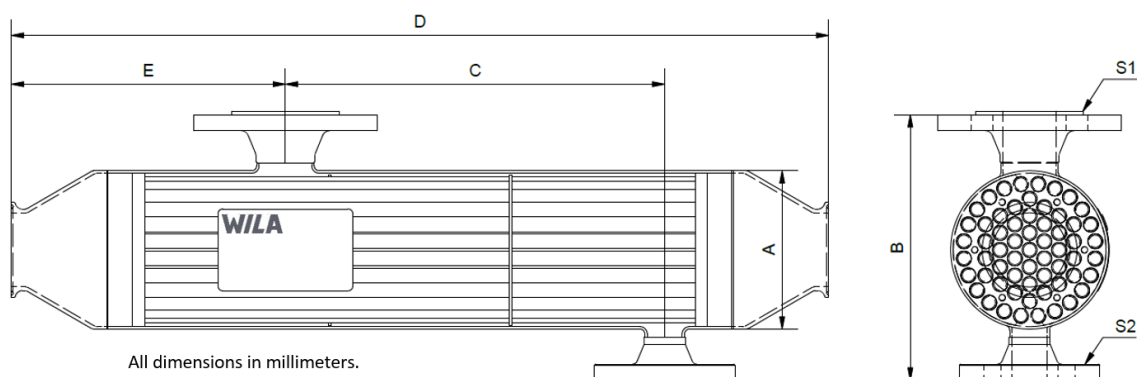
| TSH-03-133-60 (section 1 of 2) |                | 60 barg / 85°C  |      | 6 bar[g] / 165°C  |      |     | Maximum pressure / temperature |      |                  |               |
|--------------------------------|----------------|-----------------|------|-------------------|------|-----|--------------------------------|------|------------------|---------------|
|                                |                | Volume 9 liters |      | Volume 7.5 liters |      |     | 316L Concentric                |      | Dry weight 48 kg |               |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-80              | W-041029       | DN100           | Ø133 | DN80              | DN40 | 195 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-80              | W-041030       | Ø101.6          | Ø133 | DN80              | DN40 | 195 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-80              | W-041031       | DN80            | Ø133 | DN80              | DN40 | 195 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-80              | W-041032       | Ø76.1           | Ø133 | DN80              | DN40 | 195 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-80              | W-041033       | DN65            | Ø133 | DN80              | DN40 | 195 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-80              | W-041034       | Ø63.5           | Ø133 | DN80              | DN40 | 195 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-76              | W-041035       | DN100           | Ø133 | Ø76.1             | Ø38  | 189 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-76              | W-041036       | Ø101.6          | Ø133 | Ø76.1             | Ø38  | 189 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-76              | W-041037       | DN80            | Ø133 | Ø76.1             | Ø38  | 189 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-76              | W-041038       | Ø76.1           | Ø133 | Ø76.1             | Ø38  | 189 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-76              | W-041039       | DN65            | Ø133 | Ø76.1             | Ø38  | 189 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-76              | W-041040       | Ø63.5           | Ø133 | Ø76.1             | Ø38  | 189 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-65              | W-041041       | DN100           | Ø133 | DN65              | DN40 | 195 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-65              | W-041042       | Ø101.6          | Ø133 | DN65              | DN40 | 195 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-65              | W-041043       | DN80            | Ø133 | DN65              | DN40 | 195 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-65              | W-041044       | Ø76.1           | Ø133 | DN65              | DN40 | 195 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-65              | W-041045       | DN65            | Ø133 | DN65              | DN40 | 195 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-65              | W-041046       | Ø63.5           | Ø133 | DN65              | DN40 | 195 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-63              | W-041047       | DN100           | Ø133 | Ø63.5             | Ø38  | 189 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-63              | W-041048       | Ø101.6          | Ø133 | Ø63.5             | Ø38  | 189 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-63              | W-041049       | DN80            | Ø133 | Ø63.5             | Ø38  | 189 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-63              | W-041050       | Ø76.1           | Ø133 | Ø63.5             | Ø38  | 189 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-63              | W-041051       | DN65            | Ø133 | Ø63.5             | Ø38  | 189 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-63              | W-041052       | Ø63.5           | Ø133 | Ø63.5             | Ø38  | 189 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |



All dimensions in millimeters.



| TSH-03-133-60 (section 2 of 2) |                | 60 barg / 85°C  |      | 6 bar[g] / 165°C  |      |     | Maximum pressure / temperature |      |                  |               |
|--------------------------------|----------------|-----------------|------|-------------------|------|-----|--------------------------------|------|------------------|---------------|
|                                |                | Volume 9 liters |      | Volume 7.5 liters |      |     | 316L Concentric                |      | Dry weight 48 kg |               |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-50              | W-041053       | DN100           | Ø133 | DN50              | DN25 | 189 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-50              | W-041054       | Ø101.6          | Ø133 | DN50              | DN25 | 189 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-50              | W-041055       | DN80            | Ø133 | DN50              | DN25 | 189 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-50              | W-041056       | Ø76.1           | Ø133 | DN50              | DN25 | 189 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-50              | W-041057       | DN65            | Ø133 | DN50              | DN25 | 189 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-50              | W-041058       | Ø63.5           | Ø133 | DN50              | DN25 | 189 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-51              | W-041059       | DN100           | Ø133 | Ø51               | Ø25  | 189 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-51              | W-041060       | Ø101.6          | Ø133 | Ø51               | Ø25  | 189 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-51              | W-041061       | DN80            | Ø133 | Ø51               | Ø25  | 189 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-51              | W-041062       | Ø76.1           | Ø133 | Ø51               | Ø25  | 189 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-51              | W-041063       | DN65            | Ø133 | Ø51               | Ø25  | 189 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-51              | W-041064       | Ø63.5           | Ø133 | Ø51               | Ø25  | 189 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-40              | W-041065       | DN100           | Ø133 | DN40              | DN25 | 189 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-40              | W-041066       | Ø101.6          | Ø133 | DN40              | DN25 | 189 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-40              | W-041067       | DN80            | Ø133 | DN40              | DN25 | 189 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-40              | W-041068       | Ø76.1           | Ø133 | DN40              | DN25 | 189 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-40              | W-041069       | DN65            | Ø133 | DN40              | DN25 | 189 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-40              | W-041070       | Ø63.5           | Ø133 | DN40              | DN25 | 189 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number                   | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-38              | W-041071       | DN100           | Ø133 | Ø38               | Ø25  | 189 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-38              | W-041072       | Ø101.6          | Ø133 | Ø38               | Ø25  | 189 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-38              | W-041073       | DN80            | Ø133 | Ø38               | Ø25  | 189 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-38              | W-041074       | Ø76.1           | Ø133 | Ø38               | Ø25  | 189 | 1020                           | 1666 | 498              | 61 pc Ø12x1mm |
| TSH-03-133-065-38              | W-041075       | DN65            | Ø133 | Ø38               | Ø25  | 189 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-38              | W-041076       | Ø63.5           | Ø133 | Ø38               | Ø25  | 189 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |



| TSH-03-133-40-F    |                | 40 barg / 85°C  |      | 6 bar[g] / 165°C  |      |     | Maximum pressure / temperature |      |                  |               |
|--------------------|----------------|-----------------|------|-------------------|------|-----|--------------------------------|------|------------------|---------------|
|                    |                | Volume 9 liters |      | Volume 7.5 liters |      |     | 316L Concentric                |      | Dry weight 48 kg |               |
| Stock number       | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-82F | W-041125       | DN100           | Ø133 | DN80              | DN40 | 232 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-82F | W-041126       | Ø101.6          | Ø133 | DN80              | DN40 | 232 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-82F | W-041127       | DN80            | Ø133 | DN80              | DN40 | 232 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-82F | W-041128       | Ø76.1           | Ø133 | DN80              | DN40 | 232 | 1020                           | 1716 | 548              | 61 pc Ø12x1mm |
| TSH-03-133-065-82F | W-041129       | DN65            | Ø133 | DN80              | DN40 | 232 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-82F | W-041130       | Ø63.5           | Ø133 | DN80              | DN40 | 232 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-70F | W-041131       | DN100           | Ø133 | DN65              | DN40 | 227 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-70F | W-041132       | Ø101.6          | Ø133 | DN65              | DN40 | 227 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-70F | W-041133       | DN80            | Ø133 | DN65              | DN40 | 227 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-70F | W-041134       | Ø76.1           | Ø133 | DN65              | DN40 | 227 | 1020                           | 1716 | 548              | 61 pc Ø12x1mm |
| TSH-03-133-065-70F | W-041135       | DN65            | Ø133 | DN65              | DN40 | 227 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-70F | W-041136       | Ø63.5           | Ø133 | DN65              | DN40 | 227 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-54F | W-041137       | DN100           | Ø133 | DN50              | DN25 | 224 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-54F | W-041138       | Ø101.6          | Ø133 | DN50              | DN25 | 224 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-54F | W-041139       | DN80            | Ø133 | DN50              | DN25 | 224 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-54F | W-041140       | Ø76.1           | Ø133 | DN50              | DN25 | 224 | 1020                           | 1716 | 548              | 61 pc Ø12x1mm |
| TSH-03-133-065-54F | W-041141       | DN65            | Ø133 | DN50              | DN25 | 224 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-54F | W-041142       | Ø63.5           | Ø133 | DN50              | DN25 | 224 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |
| Stock number       | Drawing number | P1/P2           | A    | S1                | S2   | B   | C                              | D    | E                | Tube bank     |
| TSH-03-133-100-43F | W-041143       | DN100           | Ø133 | DN40              | DN25 | 221 | 1020                           | 1604 | 467              | 61 pc Ø12x1mm |
| TSH-03-133-101-43F | W-041144       | Ø101.6          | Ø133 | DN40              | DN25 | 221 | 1020                           | 1620 | 475              | 61 pc Ø12x1mm |
| TSH-03-133-080-43F | W-041145       | DN80            | Ø133 | DN40              | DN25 | 221 | 1020                           | 1630 | 480              | 61 pc Ø12x1mm |
| TSH-03-133-076-43F | W-041146       | Ø76.1           | Ø133 | DN40              | DN25 | 221 | 1020                           | 1716 | 548              | 61 pc Ø12x1mm |
| TSH-03-133-065-43F | W-041147       | DN65            | Ø133 | DN40              | DN25 | 221 | 1020                           | 1650 | 490              | 61 pc Ø12x1mm |
| TSH-03-133-063-43F | W-041148       | Ø63.5           | Ø133 | DN40              | DN25 | 221 | 1020                           | 1668 | 499              | 61 pc Ø12x1mm |