 <b>LINDE AG</b> Process Engineering and Contracting Division	Specification for the Insulation of Oxygen-Bearing Plant Components  <b>Insulation Type OW, OWS and OPP</b>		LINDE STANDARD  <b>151-07</b> Part 2
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## 1 Scope

1.1 This standard shall apply to the thermal and personnel protection insulation of oxygen-bearing plant components with an oxygen content of  $\geq 70\%$  and an operating temperature of  $>15\text{ °C}$  to  $100\text{ °C}$ .

## 2 Purpose

2.1 In supplement to Part 1, this part of the standard describes the design criteria for the application of a functionally effective thermal insulation (hot service) using mineral fibre mats.

## 3 Definitions

3.1 See Linde Standard 151-07 Part 1, Section 3

## 4 Reference Codes and Standards

4.1 LS 151-07 Part 1, Specification for the Insulation of Oxygen-Bearing Plant Components.

## 5 Identification of the Insulation Types

5.1 In the technical documents, the insulation systems are identified with insulation type and insulation thickness in mm. The insulation types covered by this part of the standard are defined as follows:

**Table 1: Insulation Types**

Insulation type	Description of the insulation
OW	Thermal insulation (hot service)
OWS	Thermal insulation (hot service) with simultaneous function as sound insulation
OPP	Personnel protection insulation

## 6 Materials

### 6.1 Delivery, Storage and Documentation

See Linde Standard 151-07 Part 1, Section 6.1

## 6.2 Supporting and Bearing Structures

See Linde Standard 151-07 Part 1, Section 6.2.1

## 6.3 Insulating Layer

See Linde Standard 151-07 Part 1, Section 6.3.1 and 6.3.2

## 6.4 Jacketing

See Linde Standard 151-07 Part 1, Section 6.4

## 6.5 Accessory Materials

Linde Standard 151-07 Part 1, Section 6.5 applies analogously.

# 7 Performance of the Insulation Work

## 7.1 General

See Linde Standard 151-07 Part 1, Section 7.1.

## 7.2. Supporting and Bearing Structures

See Linde Standard 151-07 Part 1, Section 7.2.

## 7.3 Insulating Layer

See Linde Standard 151-07 Part 1, Section 7.3.1 and 7.3.2.

- The design of the insulating layer on piping and flanged plant components are shown in Figures 1 to 3. The design of the insulating layer on equipment is performed by analogy with Linde Standard 151-07 Part 1, Sections 8.1.1 to 8.1.3, and is not illustrated in this part.

## 7.4 Jacketing

See Linde Standard 151-07 Part 1, Section 7.4.

- The design of the jacketing for piping and flanged plant components are shown in Figures 1 to 3. The design of the jacketing on equipment is performed by analogy with Linde Standard 151-07 Part 1, Sections 8.1.1 to 8.1.3, and is not illustrated in this part.

## 7.5 Personnel Protection Insulation Type OPP

7.5.1 This type of insulation is applied where heat losses from plant components with operating temperatures > 60 °C are of no significance or are desired, but where insulation is necessary for personnel protection reasons (risk of burns).

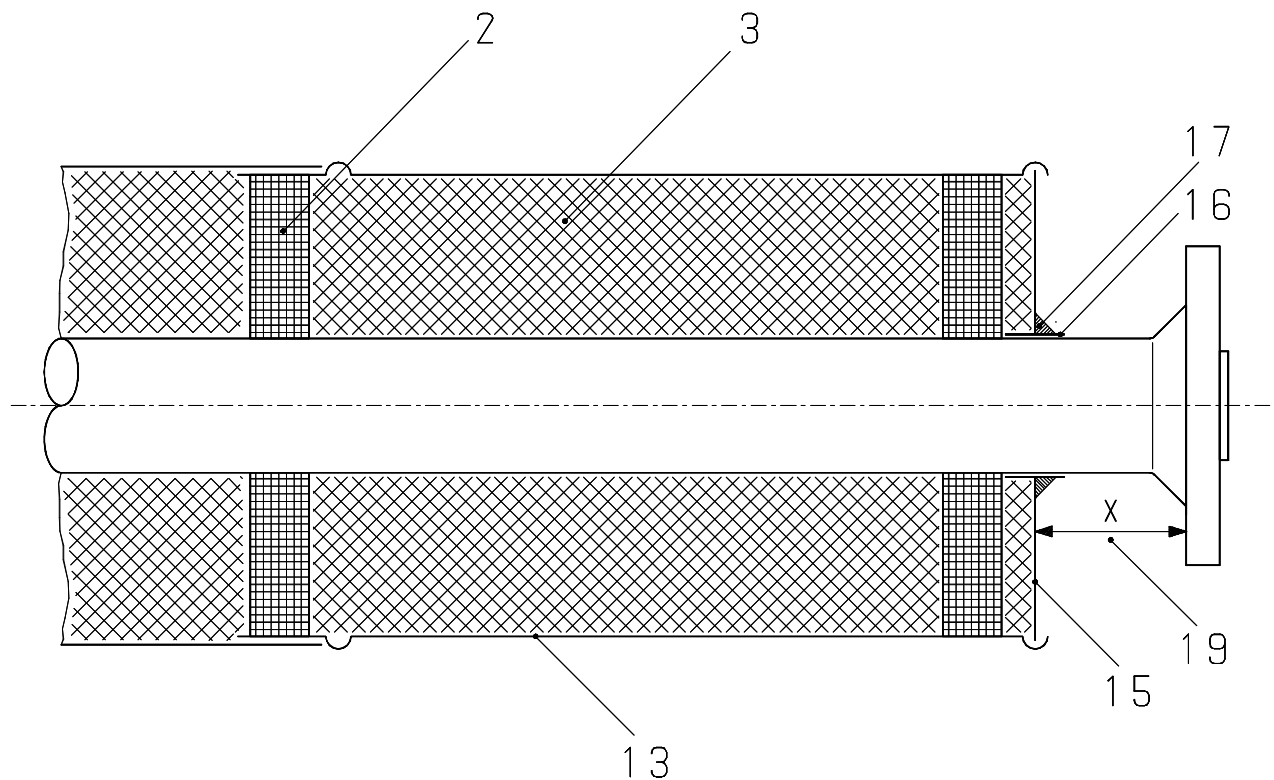
The installation of the personnel protection insulation is limited to the areas listed below:

- Plant components up to a height of 2 metres above the plant floor or catwalks/platforms.
- Plant components installed at a distance of  $\leq 0.5$  metres to the side of ladders and platforms.

## 8 Drawings and Sketches

### 8.1 Piping

#### 8.1.1 Insulation of Horizontal Piping

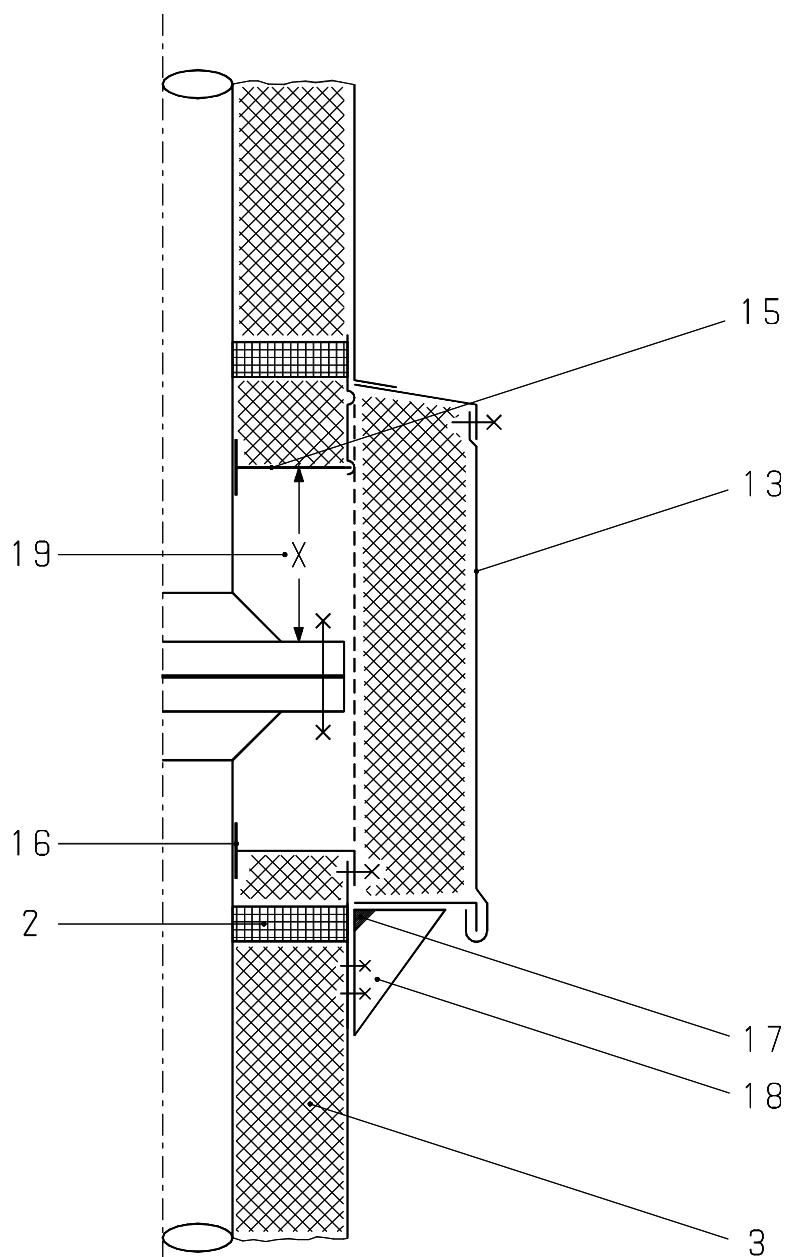


**Figure 1**

- 2 Jacketing of supporting structure
- 3 Mineral fibre mats
- 13 Jacketing
- 15 Insulation end section
- 16 Glassfibre tape
- 17 Gun-grade sealing compound
- 19  $x = \text{Bolt length} + 20 \text{ mm}$

## 8.2 Flanged Plant Components

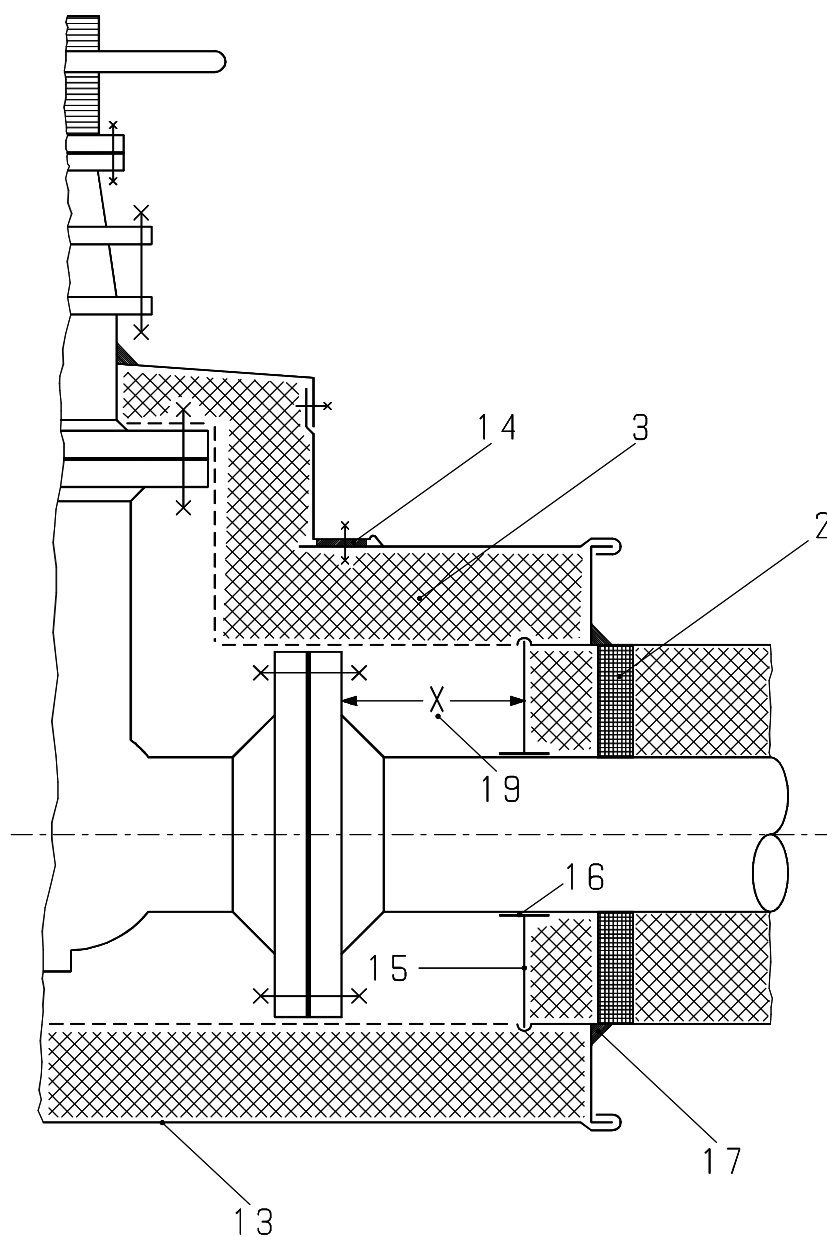
### 8.2.1 Insulation of Flanges



**Figure 2**

- 2 Jacketing of supporting structure
- 3 Mineral fibre mats
- 13 Jacketing
- 15 Insulation end section
- 16 Glassfibre tape
- 17 Gun-grade sealing compound
- 18 Cap support
- 19  $x = \text{Bolt length} + 20 \text{ mm}$

## 8.2.2 Insulation of Valves



**Figure 3**

- 2 Jacketing of supporting structure
- 3 Mineral fibre mats
- 13 Jacketing
- 14 Sealing tape
- 15 Insulation end section
- 16 Glassfibre tape
- 17 Gun-grade sealing compound
- 19  $x = \text{Bolt length} + 20 \text{ mm}$