

ICS 23.040.99

CCS J 15



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 17116.2-2018**

Replacing GB/T 17116.2-1997

---

**Pipe supports and hangers - Part 2: Pipe attachments**

管道支吊架 第2部分：管道连接部件

**Issued on: February 6, 2018**

**Implemented on: September 1, 2018**

---

**Issued by: General Administration of Quality Supervision, Inspection and  
Quarantine;  
Standardization Administration of the PRC**

## Table of Contents

- 1 Scope
- 2 Normative references
- 3 Relevant dimensions of the pipe structure
  - 3.1 Nominal size series of pipe structure
  - 3.2 Minimum inner diameter of the pipe structure
- 4 Pipe structure type 1 non-integral pipe structure
  - 4.1 Load level
  - 4.2 Load series Table
- 5 Piping system grading and pipe material matching
  - 5.1 Piping system classification
  - 5.2 Pipe material matching
- 6 Pipe Structure Classification
  - 6.1 Pipe Structure Classification
  - 6.2 Pipe Structure Type
  - 6.3 Mark
- 7 Requirements
  - 7.1 General requirements
  - 7.2 Horizontal Pipe Department
  - 7.3 Riser pipe department
  - 7.4 Rolling support

## Foreword

GB/T 17116 "Pipe Supporting and Hanging" is divided into the following three parts.

--- Part 1. Technical specifications;

--- Part 2. Pipe connection parts;

--- Part 3. Intermediate connectors and building structure connectors. This part is the second part of GB/T 17116. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part replaces GB/T 17116.2-1997 "Pipe Support and Hanger Part 2. Pipe Connection Parts", and GB/T 17116.2- In.1997, the main technical changes except editorial changes are as follows:

--- Increase the two pipe specifications of DN2700 and DN2900;

--- Added lightweight and flexible small load tube structure;

--- Deepen the energy-saving and environmentally friendly insulation and hanger structure;

--- Added copper tube series;

--- Changed the load classification method;

--- Added chapters on load series, temperature class and material, pipe structure type, etc.;

--- The main size of the typical pipe structure is changed to an informative appendix. This part was proposed by the China Machinery Industry Federation. This part is under the jurisdiction of the National Pipeline Attachment Standardization Technical Committee (SAC/TC237). This section is responsible for drafting the unit. Zhongji Guoneng Power Engineering Co., Ltd. Participated in the drafting of this section. China Power Engineering Consulting Group East China Electric Power Design Institute Co., Ltd., China Machine Productivity Promotion Center, China National Electric Power Engineering Consulting Group Northwest Electric Power Design Institute Co., Ltd., China Petroleum Engineering Construction Corporation East China Design Branch, China Tianchen Engineering Co., Ltd., China Energy Construction Group Guangdong Electric Power Design and Research Institute Co., Ltd., Jiangsu Electric Power Equipment Co., Ltd., Huadian Power Science Research Institute, Jiangsu Yuxin Technology Co., Ltd., Zhejiang Zhenshen Thermal Insulation Technology Co., Ltd., Shanghai Xinqi Hardware Co., Ltd. The main drafters of this section. Xiong Jianwen, Lin Lei, Feng Feng, Chen Yunfen, Su Yinping, Ma Xinqiang, Liu Jian, Liu Jun, Huang Tao, Pu Wansheng, Guo Yanjun, Cao Yandong, Shen Zhongguang, Lin Qiluo, Zhang Chunhua, Chen Xunyu. The previous versions of the standards replaced by this section are.

---GB/T 17116.2-1997. Pipe hanger Part 2. Pipe connection parts

## 1 Scope

China's national dimensional standard for the components that connect a support to the pipe itself. It is Part 2 of GB/T 17116 and specifies the nominal size series, the load series, the temperature classes, the materials, the types and the main dimensions of the typical structural forms of pipe attachments, and it applies to the pipe-connecting components of supports and hangers on round-section metal pipe of controlled outside diameter. The pipe attachment is where the support meets the line, and it is the component that has to reconcile two incompatible requirements. It must transmit the whole weight of the pipe and its contents into the hanger, and it must do so without becoming a thermal short circuit that drains heat out of a hot line, without cutting into the insulation, and without creating a local restraint or a stress concentration on the pipe wall. The forms that solve that problem are standardised here: the clamps that grip the pipe, the welded lugs and shoes that carry insulated lines clear of the support, the trunnions, the straps and the riser clamps that take vertical lines. Because a piping designer selects a support before the fabricator makes it, what matters is that a size and a load class mean the same thing to both. So the part is

organised as series: nominal sizes, load ratings and temperature classes, and for each type of attachment the material to be used at each temperature class and the main connection dimensions - so that a component ordered from one shop fits the intermediate hardware of Part 3 supplied by another. Issued on 6 February 2018 and in force since 1 September 2018, it replaces GB/T 17116.2-1997.

This part of GB/T 17116 specifies the nominal size series, load series, temperature class and the number of pipe connecting and connecting pipe connecting parts. The main dimensions of the materials, types and typical structural types. This section applies to the structure of various types of hangers and tubes of circular metal pipes that control the outer diameter.

## 2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 713 steel plate for boiler and pressure vessel

GB 3274 carbon structural steel and low alloy structural steel hot rolled thick steel plate and steel strip

GB/T 3531 steel plate for low temperature pressure vessel

GB/T 5310 seamless steel pipe for high pressure boiler

GB/T 17116.1 Pipe hangers and hangers - Part 1. Technical specifications

GB/T 17116.3 Pipe hangers and hangers - Part 3. Intermediate joints and building structural joints

GB/T 17393 Specification for Thermal Insulation Materials for Austenitic Stainless Steel

GB/T 24511 stainless steel plate and steel strip for pressure equipment

## 3 Relevant dimensions of the pipe structure

3.1 Nominal size series of pipe structure The pipe and hanger structure shall comply with the nominal size series of Table 1. The pipe outer diameters A and B are applicable to steel pipes. The C series is suitable for cast iron pipes and the D series is suitable for copper pipes.

### 3.2 Minimum inner diameter of the pipe structure

3.2.1 The pipe structure directly connected to the pipeline shall have a minimum internal diameter as specified in Table 2. a pipe structure connected to the outer insulation layer of

the pipe, The minimum inner diameter should not be less than the sum of the maximum outer diameter of the pipe and the thickness of the insulation layer twice.

3.2.2 The tolerance of the inner diameter of the pipe structure shall comply with the provisions of GB/T 17116.1. Table

1 Nominal size series of pipe structure Nominal size DN Pipe outer diameter/mm Series A Series B Series C Series D Nominal size DN Pipe outer diameter/mm Series A Series B Series C Series D

|      |          |       |       |      |       |       |      |      |      |       |       |       |      |       |      |       |      |
|------|----------|-------|-------|------|-------|-------|------|------|------|-------|-------|-------|------|-------|------|-------|------|
| 10   | 17.2     | 14    | 12    | 900  | 914   | 920   | 945  | 15   | 21.3 | 18    | 18    | 950   | 965  | 20    | 26.9 | 25    | 22   |
| 1000 | 1016     | 1020  | 1048  | 25   | 33.7  | 32    | 28   | 1050 | 1067 | 32    | 42.4  | 38    | 35   | 1100  | 1118 | 1120  | 1152 |
| 40   | 48.3     | 45    | 56    | 42   | 1150  | 1168  | 50   | 60.3 | 57   | 66    | 54    | 1200  | 1219 | 1220  | 1255 | 65    | 73   |
| 76   | 1300     | 1321  | 1320  | 80   | 88.9  | 89    | 98   | 89   | 1400 | 1422  | 1420  | 1462  | 90   | 101.6 | 1500 | 1524  | 1520 |
| 1565 | 100      | 114.3 | 108   | 118  | 108   | 1600  | 1626 | 1620 | 1668 | 125   | 141.3 | 133   | 144  | 133   | 1700 | 1727  | 1720 |
| 150  | 168.3    | 159   | 170   | 159  | 1800  | 1829  | 1820 | 1875 | 175  | 193.7 | 194   | 1900  | 1930 | 1920  | 200  | 219.1 | 219  |
| 222  | 219.2000 | 2032  | 2020  | 2082 | 225   | 244.5 | 245  | 2100 | 2134 | 2120  | 250   | 273.0 | 273  | 274   | 273  |       |      |
| 2200 | 2235     | 2220  | 2288  | 275  | 298.5 | 298   | 2300 | 2337 | 2320 | 300   | 323.9 | 325   | 326  | 325   | 2400 | 2438  |      |
| 2420 | 2495     | 350   | 355.6 | 377  | 378   | 2500  | 2540 | 2520 | 400  | 406.4 | 426   | 429   | 2600 | 2642  | 2620 | 2702  |      |
| 450  | 457      | 480   | 480   | 2700 | 2743  | 2720  | 500  | 508  | 530  | 532   | 2800  | 2845  | 2820 | 550   | 559  | 2900  | 2946 |
| 2920 | 600      | 610   | 630   | 635  | 3000  | 3048  | 3020 | 650  | 660  | 3200  | 3251  | 3220  | 700  | 711   | 720  | 738   | 3400 |
| 3454 | 3420     | 750   | 762   | 3600 | 3658  | 3620  | 800  | 813  | 820  | 842   | 3800  | 3861  | 3820 | 850   | 864  | 4000  | 4064 |
| 4020 |          |       |       |      |       |       |      |      |      |       |       |       |      |       |      |       |      |

Table

2 Minimum inner diameter table of pipe structure Nominal size DN Pipe structure minimum inner diameter/mm Series A Series B Series C Series D Nominal size DN Pipe structure minimum inner diameter/mm Series A Series B Series C Series D

|      |       |      |       |      |      |       |      |      |       |       |      |      |      |      |      |      |       |
|------|-------|------|-------|------|------|-------|------|------|-------|-------|------|------|------|------|------|------|-------|
| 10   | 17.7  | 14.5 | 12.1  | 900  | 928  | 934   | 946  | 15   | 21.8  | 18.5  | 18.1 | 950  | 982  | 0    | 20   | 27.4 | 25.5  |
| 22.1 | 1000  | 1031 | 1035  | 1049 | 25   | 34.2  | 32.5 | 28.1 | 1050  | 1078  | 0    | 32   | 42.9 | 38.5 | 35.1 | 1100 | 1130  |
| 1132 | 1153  | 40   | 48.8  | 45.5 | 57   | 42.1  | 1150 | 1179 | 0     | 50    | 61   | 57.6 | 67   | 54.1 | 1200 | 1231 | 1232  |
| 1256 | 65    | 74   | 77.0  | 83   | 76.1 | 1300  | 1335 | 1334 | 80    | 90.0  | 90   | 99   | 89.2 | 1400 | 1436 | 1434 | 1463  |
| 90   | 103   | 1500 | 1540  | 1536 | 1566 | 100   | 116  | 109  | 119   | 108.2 | 1600 | 1642 | 1636 | 1669 | 125  | 143  | 135   |
| 145  | 133.7 | 1700 | 1744  | 1737 | 150  | 171   | 161  | 171  | 159.7 | 1800  | 1847 | 1838 | 1876 | 175  | 197  | 197  | 1900  |
| 1949 | 1939  | 200  | 222   | 222  | 223  | 220.5 | 2000 | 2052 | 2040  | 2083  | 225  | 248  | 248  | 2100 | 2155 | 2141 | 250   |
| 277  | 277   | 275  | 274.5 | 2200 | 2257 | 2242  | 2289 | 275  | 303   | 2300  | 2360 | 2343 | 300  | 329  | 330  | 327  | 326.5 |
| 2400 | 2462  | 2444 | 2496  | 350  | 361  | 383   | 379  | 2500 | 2565  | 2545  | 400  | 412  | 432  | 430  | 2600 | 2655 | 2633  |
| 2703 | 450   | 464  | 487   | 481  | 2700 | 2757  | 2734 | 500  | 516   | 538   | 533  | 2800 | 2859 | 2834 | 550  | 567  | 2900  |
| 2961 | 2935  | 600  | 619   | 639  | 636  | 3000  | 3063 | 3035 | 650   | 670   | 3200 | 3267 | 3236 | 700  | 722  | 731  | 739   |
| 3400 | 3471  | 3437 | 750   | 773  | 3600 | 3677  | 3638 | 800  | 825   | 832   | 843  | 3800 | 3881 | 3839 | 850  | 877  | 4000  |
| 4085 | 4040  |      |       |      |      |       |      |      |       |       |      |      |      |      |      |      |       |

## 4 Pipe structure type 1 non-integral pipe structure

1.1 Horizontal tube hanger Type 110 Type 111 Type 112 Type 113 Type 114 Double bolt pipe clamp three bolt pipe clamp pipe clamp pipe clamp high temperature pipe clamp extension type separation pipe clamp Type 115 Type 116 Type 117 Type 118 Type 119