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

GB/T 17241.1-2024

Replacing GB/T 17241.6-2008

Cast iron pipe flanges - Part 1: PN designated

铸铁管法兰 第1部分：PN系列

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document is Part 1 of GB/T 17241 "Cast Iron Pipe Flanges": GB/T 17241 has been published in the following parts:

--- Part 1: PN series;

--- Part 2: Class series: This document partially replaces GB/T 17241:1-1998 "Types of cast iron pipe flanges", GB/T 17241:2-1998 "Types of cast iron pipe flanges" GB/T 17241:3-1998 "Cast Iron Pipe Flange with Neck Thread", GB/T 17241:4-1998 "Cast Iron Pipe Flange with Neck Slip-On and Neck Socket Welding Pipe flange", GB/T 17241:5-1998 "Tube end flange with loose sleeve cast iron pipe flange", GB/T 17241:6-2008 "Integral cast iron flange" The contents of PN series cast iron pipe flanges in GB/T 17241:7-1998 "Technical conditions for cast iron pipe flanges" series standards are consistent with the original documents: In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) Added DN2200, DN2400, DN2600 sizes of integral cast iron pipe flanges at PN10 and PN16 nominal pressures (See Table 6 and Table 7);
- b) Added flange dimensions for integral cast iron pipe flanges and flange covers at PN63 nominal pressure (see Table 10);
- c) Added cast iron pipe flange cover sizes of DN2200, DN2400, and DN2600 at PN10 and PN16 nominal pressures (see Table 22, Table 23);

- d) Added ductile iron material grades QT350-22, QT450-10, QT500-7 (see Table 31);
- e) Deleted the malleable cast iron material grades KTH330-08 and KTH370-12 (see Table 1 of GB/T 17241:1-1998);
- f) Added the selection principles of flange pressure and temperature ratings (see 6:2);
- g) Changed the flange size tolerance requirements (see 6:3, Chapter 4 of GB/T 17241:7-1998);
- h) The flange sealing surface roughness requirements have been changed (see 6:4, 5:2 of GB/T 17241:7-1998);
- i) Added requirements for flange processing and manufacturing (see 6:5);
- j) Added requirements for flange supporting products (bolts and gaskets) (see 6:6): Please note that some of the contents of this document may involve patents: The issuing organization of this document does not assume the responsibility for identifying patents: This document was proposed by the China Machinery Industry Federation: This document is under the jurisdiction of the National Technical Committee for Standardization of Pipeline Accessories (SAC/TC237): This document was drafted by: China Machinery Productivity Promotion Center Co., Ltd., Xinxing Casting Pipe Co., Ltd., Meide Group Co., Ltd., Liaoning Aiweiier Metal Forming Technology Co., Ltd., Anhui Outaiqi Smart Water Technology Co., Ltd., Anhui Tongfa Equipment Co., Ltd., Hebei Jianzhi Casting Group Co., Ltd., Shanghai Guanlong Valve Energy Saving Equipment Co., Ltd., Bonaswei Valve Co., Ltd., Gaoan Lux Machinery Co., Ltd. and Jiangyin Jintong Petrochemical Equipment Co., Ltd: The main drafters of this document are: Li Xiaoqin, Zhou Zhanhu, Xu Jun, Ren Yanqing, Feng Feng, Wang Shupe, Jiao Xiangjing, Liu Fengnian, Wang Ronghui, Ai Chengguang, Wang Daoqun, Lu Xiaobin, Yao Minghua: The previous versions of this document and the documents it replaces are as follows:

---First published in:1998 as GB/T 17241:1-1998;

1 Scope

GB/T 17241.1-2024 is the Chinese dimensional standard for PN-designated cast iron pipe flanges. Cast iron flanges are everywhere in water supply, drainage, fire mains and low pressure process lines, and a flange standard is one of the purest examples of why standardisation exists: two flanges from different makers have to bolt together and seal, which means the bolt circle, the number and size of the bolt holes, the outside diameter, the thickness, the raised or flat face and the sealing surface finish must all match to the millimetre. The standard tabulates those dimensions for each nominal pressure and nominal size across the range, together with the flange types, the requirements on the material and its grade, the tolerances, the mass, the marking and the inspection. The 2024 edition brings the earlier separate parts into a single PN series document. For a foundry, a

pipeline contractor or a buyer checking a delivery in China, this is the dimension table the joint depends on.

This document specifies the types and parameters, types and dimensions, technical requirements, pressure tests, inspections, and other requirements of PN series cast iron pipe flanges and flange covers: and acceptance, marking and labeling, ordering requirements and packaging: This document is applicable to materials such as gray cast iron, ductile iron, and malleable cast iron, with nominal pressures of PN2.5 to PN63 and nominal sizes of DN10 to DN4000 cast iron pipe flange and flange cover:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document: GB/T 152:

3 Terms and definitions

The terms and definitions defined in GB/T 1047 and GB/T 1048 apply to this document:

4 Fasteners - Countersunk holes for hexagonal head bolts and hexagonal nuts

GB/T 1047 Definition and selection of nominal sizes of piping components

GB/T 1048 Definition and selection of nominal pressure of pipeline components

GB/T 1348 Ductile iron castings GB/T 6060: