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

GB/T 12458-2017

Replacing GB/T 12458-2003

Coupling - Classification

联轴器 分类

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 12458-2003 Coupling - Classification. Apart from editorial changes, the main technical changes with respect to GB/T 12458-2003 are as follows: in 5.2 the title of the subclause has been changed to "group code, variety code and structural type code of the coupling" and the remainder of the content has been changed to the content of 5.2; and the way in which plum-blossom elastic couplings and elastic pin gear couplings are classified has been changed.

This standard was proposed by, and is under the jurisdiction of, the National Technical Committee on Machine Shafts and Accessories of Standardization Administration of China (SAC/TC 109).

The drafting organisations of this standard are the China Machinery Productivity Promotion Centre, the Yueqing Coupling Factory, Zhejiang Huatai Coupling Co. Ltd., Deyang Lida Basic Parts Co. Ltd. and Wuhan Zhengtong Transmission Technology Co. Ltd.

The previous editions of the standard replaced by this one are GB/T 12458-1990 and GB/T 12458-2003.

1 Scope

China's national standard that classifies shaft couplings and lays down how their model designations are built. A coupling is the component that joins two shafts so that one drives the other, and the variety of them is extraordinary: rigid flange couplings that treat the two

shafts as one, gear and chain couplings that tolerate misalignment without any elastic element, diaphragm and spring couplings that flex in metal, rubber-element couplings that damp torsional shock, universal joints that transmit torque through an angle, and safety couplings that are designed to let go before the machine breaks. A designer choosing among them, and a purchaser ordering one, need a common vocabulary and a common naming scheme, otherwise the same product carries three names in three catalogues. This standard supplies both. It sets out the full classification tree - rigid couplings, flexible couplings without and with elastic elements, metallic and non-metallic elastic elements, and rigid and flexible safety couplings - down to individual structural types such as the drum-shaped gear coupling with a brake wheel or the plum-blossom elastic coupling with a flange. It then defines how a model designation is assembled from the group code, the variety code, the structural type code and the size code, how those codes are derived from the pinyin initials of the Chinese name, and how the size code relates to the nominal torque series in GB/T 3507; Table 1 ties every name in the classification to its resulting model. It applies to couplings generally, and the 2017 edition reworked the coding subclause and changed how plum-blossom elastic couplings and elastic pin gear couplings are classified.

This standard specifies the classification of couplings and the method of designating their models.

This standard applies to couplings.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 3507 Nominal torque series of couplings.

GB/T 3852 Shaft hole and connection type and dimensions of coupling.

GB/T 3931 Couplings - Terminology.

3 Terms and definitions

The terms and definitions given in GB/T 3931 apply to this document.

4.1 Rigid couplings

Flange couplings: the basic type; the flange coupling with a locating spigot; the flange coupling with a locating ring; and the flange coupling with a protecting flange.

Radial key rigid couplings: the basic type and the removable type.

Parallel shaft couplings: the rolling bearing type and the sliding bearing type.

Clamp shell couplings: the bolt-clamped type and the hoop-clamped type.

Sleeve couplings.

4.2.1 Flexible couplings without elastic elements

Sliding block couplings: the basic type and the metal disc type.

Gear couplings, subdivided into straight-tooth gear couplings (the basic type, the type with an intermediate shaft and the type with a brake wheel); drum-shaped gear couplings (the basic type, the type with an intermediate shaft, the type carrying an intermediate shaft, the type with an intermediate tube, the type with a brake wheel, the type with a brake disc, the vertically mounted type and the through type); and double-curvature drum-shaped gear couplings (the basic type and the type with an intermediate shaft).

Chain couplings: the double-row roller chain basic type, the single-row roller chain type, the double-row bush chain type, the single-row bush chain type and the silent chain type.

Roller couplings: the spherical roller basic type and the spherical roller type for winding drums. Ball couplings.

Universal joints, subdivided into cross-shaft type universal joints (with a half yoke, with an integral yoke head, with a split bearing housing, with an integral bearing housing, and the through type); cross-pin type universal joints (single, double, and the type for straightening machines); sliding block type universal joints (the basic type and the type for straightening machines); ball-hinge type universal joints (single and double); ball-cage type universal joints (the basic type, the movable type and the heavy-duty type); ball-hinge plunger type universal joints; three-fork rod type universal joints; ball-fork type universal joints; cam type universal joints; three-ball-pin type universal joints; three-pin type universal joints; and ball-pin type universal joints.

4.2.2 Flexible couplings with elastic elements

With metallic elastic elements: diaphragm couplings (the basic type and the type with an intermediate shaft); disc couplings; spring-leaf couplings (non-reversible and reversible); serpentine spring couplings (constant stiffness and variable stiffness); elastic rod couplings (the ordinary type and the high-speed type); helical spring couplings; floating disc spring-leaf couplings; coiled spring couplings; laminated spring couplings (the basic type and the assembled toothed laminated spring type); straight-rod spring couplings (constant stiffness and variable stiffness); bellows couplings; elastic tube couplings; and thin-film couplings.

With non-metallic elastic elements: plum-blossom elastic couplings (the basic type, the flange type, the type with a brake wheel and the type with a brake disc); elastic sleeve pin couplings (the basic type and the type with a brake wheel); elastic pin couplings (the basic

type and the type with a brake wheel); radial elastic pin couplings (the basic type, the single-flange type, the type with a brake wheel and the type with an intermediate shaft); elastic pin gear couplings (the basic type, the taper bore type and the type with a brake wheel); tyre couplings (the basic type and the type with a skeleton); rubber-metal ring couplings; core-type elastic couplings (the basic type and the double-flange type); polygonal elastic couplings; elastic block couplings (the basic type, the type with a brake wheel and the type with a safety pin); H-type elastic block couplings (the basic type, the type with a brake wheel and the type with an intermediate shaft); sector block elastic couplings (the basic type, the type with a brake wheel and the type with an intermediate shaft); saddle block elastic couplings; elastic movable pin couplings; concave ring couplings; rubber sleeve couplings; elastic plate couplings; and diaphragm-rubber elastic couplings.

4.3 Safety couplings

Rigid safety couplings: shear pin type safety couplings (the low-speed type and the high-speed type); internal expanding friction type safety couplings; hydraulic safety couplings (the low-speed type and the high-speed type); steel ball type safety couplings; and friction type safety couplings.

Flexible safety couplings: steel grit type safety couplings (the basic type and the type with a belt pulley); steel ball type safety couplings (the basic type, the type with a belt pulley and the type with a brake wheel); serpentine spring safety couplings (constant stiffness and variable stiffness); and friction plate type safety couplings.

5 Method of designating coupling models

The model of a coupling is made up of the group code, the variety code, the structural type code and the size code.

The group code, the variety code and the structural type code of a coupling take as the code the first Chinese pinyin letter of the first character of the name. Where this would be repeated, the second letter is used, or the first or second pinyin letter of the second or third character of the name, or the first or second pinyin letter of a character with distinctive features in the name, on the principle that within the same group, variety and structural type the codes shall not be repeated.

The main parameter of a coupling is the nominal torque T_n , expressed in newton metres (N.m); its value shall comply with GB/T 3507.

The serial number of the nominal torque of the coupling, or a dimensional parameter, is the size code of the coupling.

The method of designating coupling models is shown by the diagram in the standard: from left to right, the group code, the variety code, the structural type code and the size code.