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

GB/T 4140-2026

Replacing GB/T 4140-2003

Flat-top chains and associated chain wheels for conveyors

输送用平顶链和链轮

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Foreword

4.1 Structural Type This document specifies three types of chains. A linearly running single-hinge flat-top chain, see Figure 1; A linearly running double-hinge flat-top chain, see Figure 4; Side-bending single-hinge flat-top chain, see Figure 5.

4.2 Chain Number The chain number of a flat-top chain consists of the letters C, SC, CC, a number indicating the width of the chain plates, and a letter indicating the number of hinges. C represents the pitch. A 38.10mm straight-running flat-top chain; SC indicates a short-pitch 25.40mm straight-running flat-top chain; CC indicates the pitch. A 38.10mm side-bending flat-top chain, multiplied by 6.35mm (i.e., 1/4in), equals the nominal width of the chain plate. The last letter... S indicates a single-hinge flat-top chain, and D indicates a double-hinge flat-top chain.

4.3 Dimensions

4.3.1 The specifications and dimensions of the flat-top chain shall conform to the provisions of Tables 1, 2 and 3.

Note. The specified maximum and minimum dimensions are to ensure interchangeability of chain plates manufactured by different chain manufacturers. They represent the limits of interchangeability, not manufacturing limits. Tolerances for chain plates.

4.3.2 The hinge clearance dimensions e and f are based on the maximum values of t and d1 given in Table

1. If t and d1 take other values, the values of e and f will be different. It should be recalculated.

4.3.3 The dimensions d2 and d3 given in Tables 1 and 3 ensure that the movable hinge can rotate freely around the pin. The pin is restricted in the fixed hinge. The methods for circumferential rotation and axial movement are determined by the manufacturer.

4.4 Tensile Load

4.4.1 The minimum tensile load of the chain shall meet the values specified in Tables 1, 2, and

3. The minimum tensile load is determined according to the provisions of 4.4.2, by testing... The minimum load value that a sample should reach under tensile load until failure.

Note. This tensile load is not a working load; it is mainly used for comparison of chains made of different materials and with different structures.

4.4.2 Tensile loads should be applied slowly to both ends of the chain segment via the chucks. The chain segment should contain at least 5 free links. The chucks can be hinged. The chain moves freely in the two lateral directions along the center line of the chain within the normal plane. Failure is considered to occur at the first point where the load no longer increases simultaneously with the chain elongation, i.e., the first point on the load-elongation diagram. At the summit.

Note. Both hinge breakage and straightening indicate failure. If the failure occurs at the hinge connecting the specimen and the clamp, the test is invalid.

4.4.3 The tensile test is a destructive test. Even under the minimum tensile loads given in Tables 1, 2, and 3, the chain did not break. It is effective, but its stress has exceeded the yield point, so it should no longer be put into use.

4.5 Chain length accuracy The standard measurement length for a flat-top chain should be 40 links, and should be measured before oiling. The chain being tested should be placed horizontally and supported along its entire length, and the measured force should conform to the provisions of Tables 1, 2 and 3. The limit deviation for measuring length should be -0.1% to 0.3% of the nominal length of the chain.

4.6 Pin Pressing Force The minimum pin press-out force of the chain should meet the values specified in Tables 1, 2, and

3. As shown in Figure 6, place the chain horizontally and vertically into the dedicated [device/system]. In the tooling, the chain plates and hinge coils on both sides of the tooling prevent the chain from tipping over. The lower end of the tooling is supported by the chain plates and the hinge coil is fixed. A connecting force measuring device is used. The sensor's force bar presses against the pin axially. If the force reaches the minimum pin push-out force required in Tables 1, 2, and 3, but the pin does not... If the displacement occurs, the press-out force is deemed acceptable; if the force does not reach the minimum press-out force value for the pin as required in Tables 1, 2, and 3, the pin will begin to shift. If it moves, the pressure output will be substandard.

5.2 Dimensions and Tooth Profile

5.2.1 Code and Name The relevant codes and names for dimensions and tooth profiles are shown in Figure 7.

5.2.2 Dimensions

5.2.2.1 Pitch and outer diameter of hinge coil The values of p and d_1 are shown in Table 1 and Table 3.

5.2.2.2 Pitch circle diameter The calculation of the pitch circle diameter is shown in equation (1).

5.2.2.4 Maximum root circle diameter The calculation of the maximum root circle diameter is shown in equation (3).

5.2.2.7 Tooth alveolar center separation amount The center separation s of the tooth groove is

5.2.2.8 Tooth groove radius The radius of the tooth groove arc, r_i , is

5.2.2.9 Tooth width When used for a single-hinge flat-top chain for linear operation, $b_{\max}$ is 42.8mm. When used for a straight-running double-hinged flat-top chain, $b_{\max}$ is 81.6mm. When used for a side-bending single-hinge flat-top chain, $b_{\max}$ is 32.3mm.

5.3 Radial runout The circular runout of the tooth root circle relative to the sprocket hole axis, measured within one revolution of the sprocket, should conform to the specifications in Table 4.

5.4 End face runout The circular runout of the sprocket tooth side face relative to the center line of the hole, measured within one revolution of the sprocket, should conform to the specifications in Table 5.

5.5 Tooth count range The preferred series of actual tooth counts (z_1) are 17, 19, 21, 25, 27, 29, 31 and 35.

5.6 Marking The sprocket should be marked as follows:

- a) Manufacturer's name or trademark;
- b) Actual number of teeth (z_1);
- c) Symbol. S and H (indicate sprockets applicable to single-hinge chains); D and H (indicate sprockets applicable to double-hinged chains).

When a guide ring is required on the sprocket, the structural form is shown in Figure 9.