



Plain bearings — Quality control techniques and inspection of geometrical and material quality characteristics

TECHNICAL CORRIGENDUM 1

Paliers lisses — Techniques de contrôle de la qualité et vérifications des caractéristiques de qualité géométriques et des matériaux

RECTIFICATIF TECHNIQUE 1

Technical corrigendum 1 to International Standard ISO 12301:1992 was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 5, *Quality analysis and assurance*.

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Table 1 (concluded)

$\varepsilon_{\max}$ is now: Maximum diametral deformation in compression

$\varepsilon_{\min}$ is now: Minimum diametral deformation in compression

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A.1.5

Should read as follows:

A.1.5 Crush height, a

According to the drawing specification, $a = 0,040$ mm to $0,070$ mm ($a_{\min} = 0,040$ mm; $a_{\max} = 0,070$ mm).

Tolerance on crush height, $T_a = 0,030$ mm.

A.1.6

Should read as follows:

A.1.6 Diametral deformation in compression, ε

NOTE — If the diameter of the checking block bore is larger than the upper limit of the housing diameter, ε is increased by that difference.

The minimum diametral deformation in compression, $\varepsilon_{\min}$, is calculated using the following formula:

$$\varepsilon_{\min} = \frac{2}{\pi} (E_{\text{red}} + a_{\min}) = \frac{2}{\pi} (0,039 + 0,040) = 0,050 \text{ mm}$$

The maximum diametral deformation in compression, $\varepsilon_{\max}$, is calculated using the following formula:

$$\varepsilon_{\max} = \frac{2}{\pi} \times T_a + (T_{d_H} + \varepsilon_{\min}) = \frac{2}{\pi} \times 0,030 + (0,019 + 0,050) = 0,088 \text{ mm}$$

where T_{d_H} is the tolerance on the housing diameter d_H .

A.1.7

Should read as follows:

A.1.7 Tangential load, $F_{\tan}$

$$\frac{s_{\text{tot, eff}}}{d_H} = \frac{1,75}{64} = 0,027$$

(See figure A.1.)

The stress, Φ , is derived from figure A.1.

$$\Phi = 1,93 \times 10^5 \text{ N/mm}^2$$

Using this value derived for Φ , the minimum and maximum tangential strengths can be calculated as follows:

$$\sigma_{\tan, \min} = \frac{\Phi}{d_H} \times \varepsilon_{\min} = \frac{1,93 \times 10^5}{64} \times 0,050 = 151 \text{ N/mm}^2$$

$$\sigma_{\tan, \max} = \frac{\Phi}{d_H} \times \varepsilon_{\max} = \frac{1,93 \times 10^5}{64} \times 0,088 = 265 \text{ N/mm}^2$$

Thus the median tangential load, $\bar{F}_{\tan}$, to be applied in this example can be calculated as follows:

$$\bar{F}_{\tan} = \frac{\sigma_{\tan, \min} + \sigma_{\tan, \max}}{2} \times A_{\text{eff}} = \frac{151 + 265}{2} \times 43,75 = 9\,100 \text{ N}$$

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A.2.5

Should read as follows:

A.2.5 Crush height, a

According to the drawing specification, $a = 0,050$ mm to $0,080$ mm ($a_{\min} = 0,050$ mm; $a_{\max} = 0,080$ mm).

Tolerance on crush height, $T_a = 0,030$ mm.

A.2.6

Should read as follows:

A.2.6 Diametral deformation in compression, ε

NOTE — If the diameter of the checking block bore is larger than the upper limit of the housing diameter, ε is increased by that difference.

The minimum diametral deformation in compression, $\varepsilon_{\min}$, is calculated using the following formula:

$$\varepsilon_{\min} = \frac{2}{\pi} (E_{\text{red}} + a_{\min}) = \frac{2}{\pi} (0,065 + 0,050) = 0,073 \text{ mm}$$

The maximum diametral deformation in compression, $\varepsilon_{\max}$, is calculated using the following formula:

$$\varepsilon_{\max} = \frac{2}{\pi} \times T_a + (T_{d_H} + \varepsilon_{\min}) = \frac{2}{\pi} \times 0,030 + (0,022 + 0,073) = 0,114 \text{ mm}$$

where T_{d_H} is the tolerance on the housing diameter d_H .

A.2.7

Should read as follows:

A.2.7 Tangential load, F_{tan}

$$\frac{s_{\text{tot, eff}}}{d_H} = \frac{5,56}{110} = 0,05$$

(See figure A.1.)

The stress, Φ , is derived from figure A.1.

$$\Phi = 1,75 \times 10^5 \text{ N/mm}^2$$

Using this derived value for Φ , the minimum and maximum tangential strengths can be calculated as follows:

$$\sigma_{\text{tan, min}} = \frac{\Phi}{d_H} \times \varepsilon_{\min} = \frac{1,75 \times 10^5}{110} \times 0,073 = 116 \text{ N/mm}^2$$

$$\sigma_{\text{tan, max}} = \frac{\Phi}{d_H} \times \varepsilon_{\max} = \frac{1,75 \times 10^5}{110} \times 0,114 = 181 \text{ N/mm}^2$$

Thus the median tangential load, $\bar{F}_{\text{tan}}$, to be applied in this example can be calculated as follows:

$$\bar{F}_{\text{tan}} = \frac{\sigma_{\text{tan, min}} + \sigma_{\text{tan, max}}}{2} \times A_{\text{eff}} = \frac{116 + 181}{2} \times 183,4 = 27\,235 \text{ N}$$