

International Standard



8116/4

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Textile machinery and accessories — Beams for winding — Part 4: Quality classification of flanges for weaver's beams, warper's beams and sectional beams

Matériel pour l'industrie textile — Ensembles pour enroulement — Partie 4: Classes de qualité pour les joues d'ensembles de tissage, d'ourdissiers et sectionnelles

First edition — 1985-11-15

UDC 677.054.722

Ref. No. ISO 8116/4-1985 (E)

Descriptors : textile machinery, beams: textile machinery, flanges, pressure tests, classifications, quality.

Price based on 4 pages

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8116/4 was prepared by Technical Committee ISO/TC 72, *Textile machinery and allied machinery and accessories*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Textile machinery and accessories — Beams for winding — Part 4: Quality classification of flanges for weaver's beams, warper's beams and sectional beams

1 Scope and field of application

In order to be able to compare the different types of beam flanges and their behaviour under load, it is necessary to specify characteristics and load ranges according to which the flanges may be classified after undergoing acceptance testing.

This part of ISO 8116 explains the theoretical relationships and gives directives for practical use.

2 References

ISO 1025, *Textile machinery and accessories — Sectional beams for warp knitting machines — Terminology and main dimensions*.

ISO 5241, *Textile machinery and accessories — Weaver's beams — Terminology and main dimensions*.

ISO 8116/1, *Textile machinery and accessories — Beams for winding — Part 1: Vocabulary*.

ISO 8116/2, *Textile machinery and accessories — Beams for winding — Part 2: Warper's beams — Terminology and main dimensions*.

3 Principle

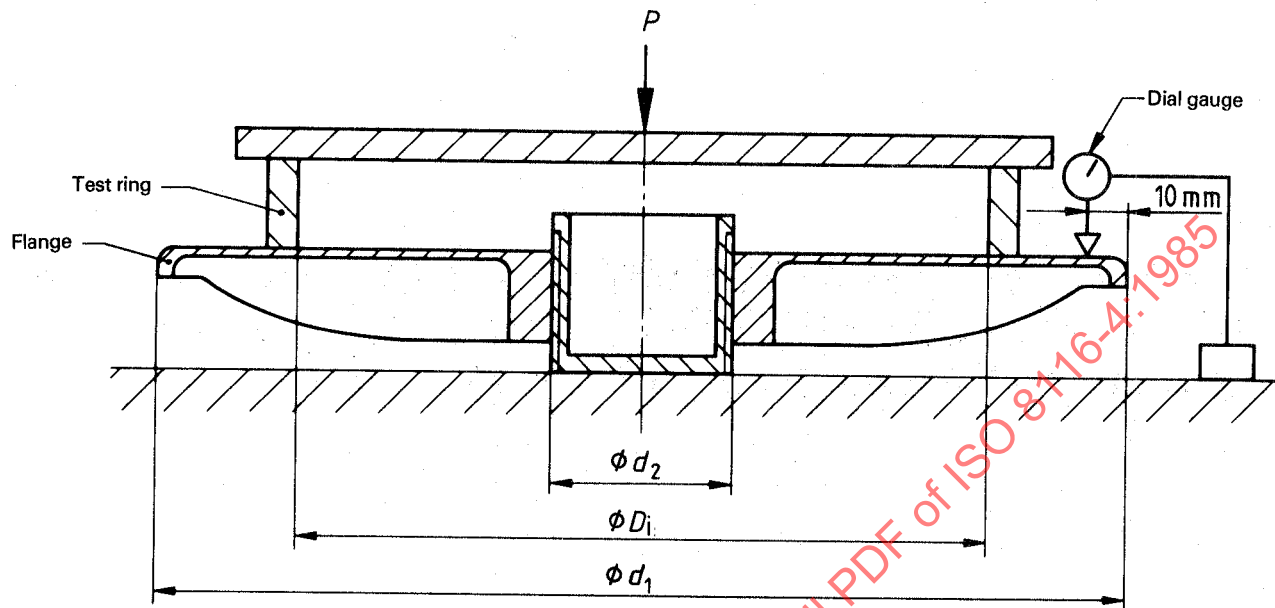
In order to ascertain the quality class of a beam flange, it is subjected to a force test.

For this purpose the flange is centrally loaded by means of a press and using a test ring with a defined diameter. The bending is determined from the average of the observations (readings) taken from three dial gauges set at 120° to each other and supported on the outer edge of the flange by means of a holding device. The bending under load is thereby determined.

The loading should preferably occur in steps for the reading of intermediate values; this permits determination of the way the deflection behaviour changes with increase of load.

It is also possible to unload the flange after each load step in order to ascertain the degree of permanent deformation. However the dial gauges should not be turned back to zero until maximum load is ascertained.

4 Terminology and dimensions



- P = test load, in kilonewtons
 d_1 = outer flange diameter
 d_2 = outer barrel diameter
 D_i = inner diameter of the test ring, calculated according to the formula
 $D_i = 0,6 (d_1 + d_2)$
 D_f = measuring diameter; $D_f = d_1 - 20 \text{ mm}$
 f = deflection of the flange under load (bending)
 $f_{\max}$ = maximum admissible deflection value (maximum admissible bending), calculated according to the formula
 $f_{\max} = 4 \times (d_1 - d_2) \times 10^{-3}$

NOTE — For the bending f the deflection of the flange is fixed according to a certain angle. The same assessment is therefore valid for all quality classes.

The maximum deflection ($f_{\max}$) was fixed on the basis of the experimental values of filament yarns with fine titer. For coarser yarns a greater deflection angle may be chosen and agreed upon in practice. These types of yarn normally have lower loading forces and therefore cause smaller deflections.

For this reason the quality class is determined according to the preceding formula.

Table 1 — Weaver's beams according to ISO 5241

Dimensions in millimetres

d_1	d_2	D_i	$f_{\max}$
500	150	390	1,4
600		450	1,8
700		510	2,2
750		540	2,4
800		570	2,6
850	216	640	2,5
900		670	2,7
950		700	2,9
1 000		730	3,1