# International Standard 1120

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

# Conveyor belts — Determination of strength of mechanical fastenings — Static test method

*Courroies transporteuses — Détermination de la résistance des assemblages agrafés — Méthode d'essai statique*

**Second edition — 1984-12-15**



**UDC 621.867.2 : 620.17** **Ref. No. ISO 1120-1984 (E)**

**Descriptors** : conveyor belts, fasteners, mechanical fastenings, tests, tension tests, static tests.



Price based on 3 pages

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

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 1120 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*.

ISO 1120 was first published in 1976. This second edition cancels and replaces the first edition, clauses 6.3 and 7 of which have been revised technically.

# Conveyor belts — Determination of strength of mechanical fastenings — Static test method



## 1 Scope and field of application

This International Standard specifies a static test method for measuring the strength of a conveyor belt mechanical fastening; the joints can be of either the permanent type or capable of disconnection.

This International Standard does not cover vulcanized joints.

NOTE — The purpose of the test specified in this International Standard is to eliminate mechanical fastenings of insufficient static strength. A dynamic test is to be established at a later date.

## 2 Reference

ISO 283, *Full thickness tensile strength and elongation of conveyor belts — Specifications and method of test.*

## 3 Definitions

**3.1 width of fastening:** Number of units multiplied by the pitch, or number of hooks multiplied by the pitch.

**3.2 pitch:** Distance between a point on a unit or hook and the corresponding point on the next unit or hook, according to the type of fastening (see figure 1).

## 4 Principle

Application of an increasing tensile force on a test piece until the joint made by the mechanical fastening breaks and comes apart.

## 5 Apparatus

**5.1 Metallic adaptor plate,** for joints that can be disconnected.

**5.2 Dynamometer,** as described in ISO 283.

## 6 Test pieces

### 6.1 Shape, dimensions and preparation

#### 6.1.1 Joints that can be disconnected

The test piece shall consist of a full thickness piece of belting cut in the longitudinal direction, with a length of 150 mm plus the gripped length, and 150 mm wide. It shall be connected to the connecting plate by the mechanical fastening to be used; the fastened width shall be at least 100 mm.

When the overall fastened width in service is equal to the belt width, the width of the test piece may be considered equal to the overall fastened width, but shall be not less than 100 mm.

#### 6.1.2 Joints that cannot be disconnected

The test piece shall consist of two lengths of belting each of minimum length of 150 mm plus the gripped length, and 150 mm wide, assembled by means of the mechanical fastening to be used.

When the overall fastened width in service is equal to the belt width, the width of the test piece may be considered equal to the overall fastened width, but shall be not less than 100 mm.

### 6.2 Number

Three test pieces shall be tested.

### 6.3 Conditioning

The test shall be carried out on pieces of belt cut at least 5 days after manufacture (including the conditioning period).

The test piece shall be conditioned for 3 days at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 5 %. In the event of dispute, the period of conditioning shall be extended to 14 days.

## 7 Test conditions

The test shall be carried out in a place with a temperature of 23 ± 2 °C and a relative humidity of 50 ± 5 %.

## 8 Procedure

### 8.1 Joints that can be disconnected

Fasten the test piece in one of the grips of the dynamometer and attach the connecting plate to the belt at the distance between grips shown in figure 2.

Exert the tensile force such that it is applied symmetrically, i.e. that there is no tendency to start rupture at one end of the joint.

Separate the grips at a rate of 100 ± 10 mm/min; record the maximum force before the mechanical fastening breaks. A rate of 50 ± 5 mm/min can be used but the results will be different from those obtained with a rate of 100 mm/min; in the event of dispute, the rate of 100 ± 10 mm/min shall be used.

### 8.2 Joints that cannot be disconnected

Fasten the ends of the test piece in the grips of the dynamometer as shown in figure 2.

Exert the tensile force such that it is applied symmetrically, i.e. that there is no tendency to start rupture at one end of the joint.

Separate the grips at a rate of 100 ± 10 mm/min; record the maximum force before the mechanical fastening breaks.

## 9 Expression of results

Find the mean of the values obtained and calculate:

a) the average breaking strength of the fastening, in newtons per millimetre width of fastening (see figures 1 and 2);

b) The strength of the fastening, expressed as a percentage of the full thickness longitudinal minimum breaking strength of the belt specified in ISO 283.

## 10 Test report

The test report shall include the following information:

a) the width of fastening;

b) the brand of fasteners and whether or not they can be disconnected;

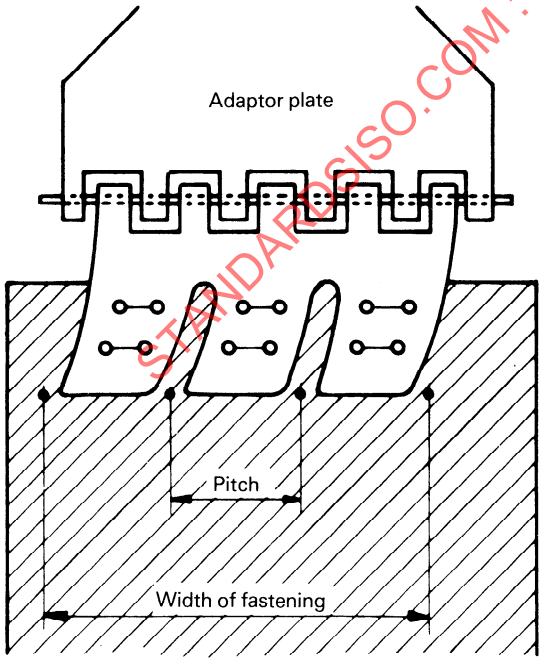
c) the brand and the type of the belt, or the minimum longitudinal and transversal breaking strength;

d) the rate of separation of the grips;

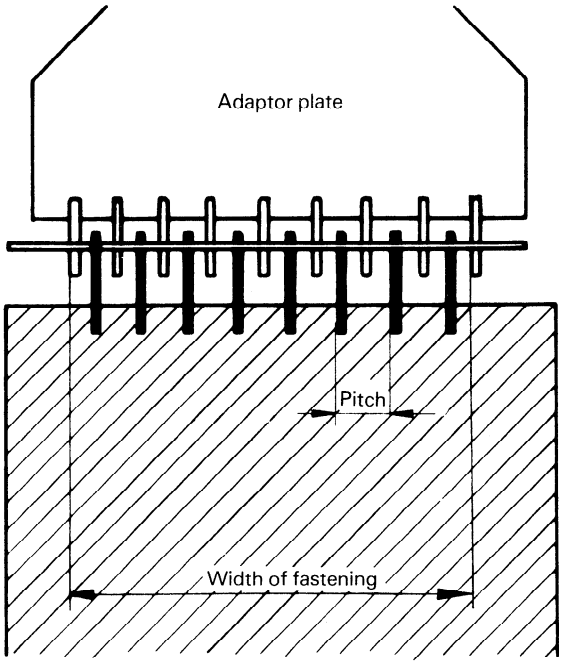
e) the results obtained;

f) the type of failure of the fastening: whether tearing of the belt, or breaking or opening of the fasteners.






Width of fastening = pitch × 3




Width of fastening = pitch × 8

**Figure 1**

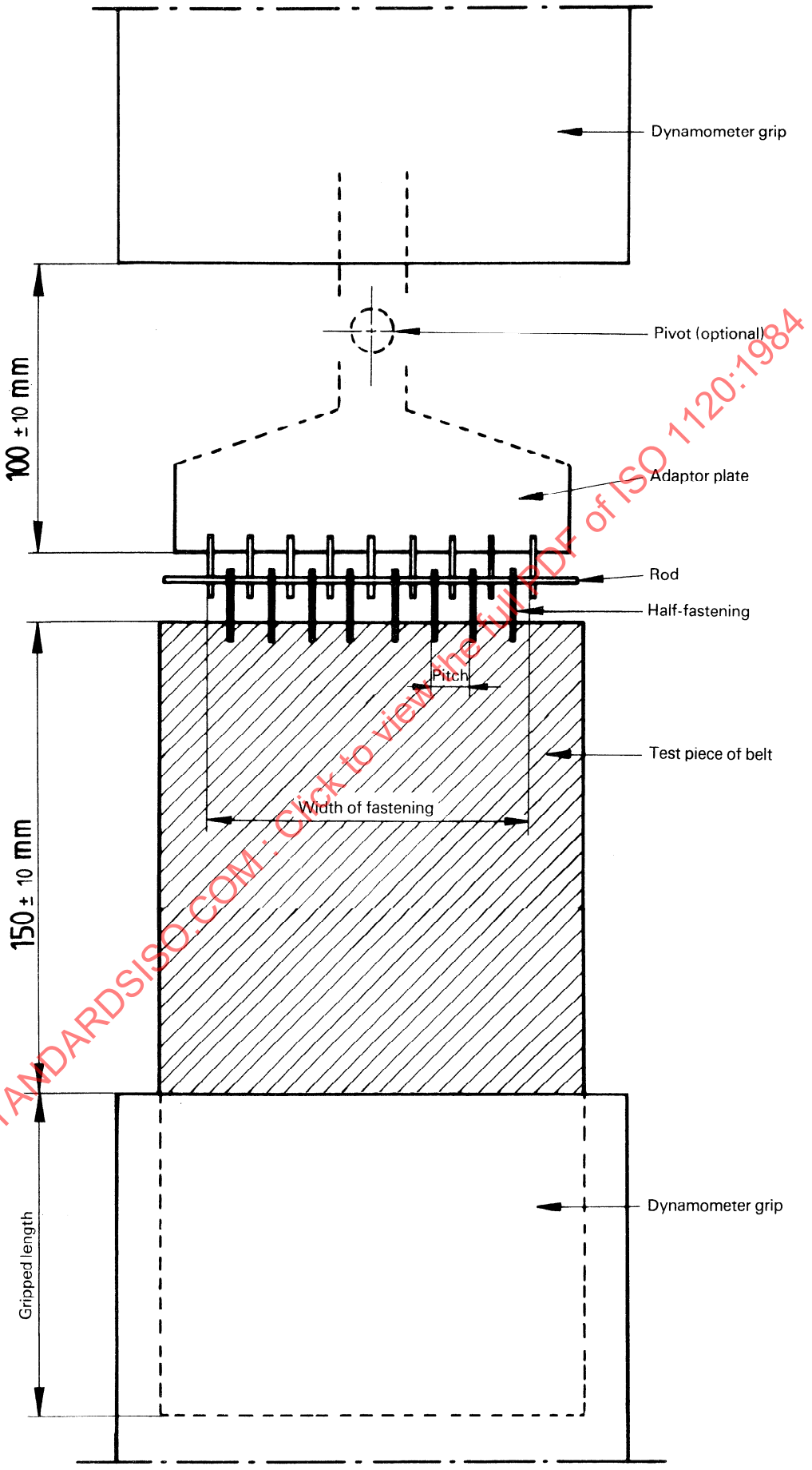



Figure 2

This page intentionally left blank