
**Textile machinery — Draw frame for
cotton spinning — Vocabulary and
principles of construction**

*Matériel pour l'industrie textile — Cadre pour la filature du coton —
Vocabulaire et principes de construction*



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Foreword

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The committee responsible for this document is ISO/TC 72, *Textile machinery and machinery and accessories*, Subcommittee SC 1, *Spinning preparatory, spinning, twisting and winding machinery and accessories*.

This second edition cancels and replaces the first edition (ISO 21485:2006), which has been technically revised.

Textile machinery — Draw frame for cotton spinning — Vocabulary and principles of construction

Scope

This International Standard establishes a vocabulary of terms related to, and the principles of construction of, draw frames and their components, used for cotton spinning in the textile industry.

NOTE 1 The draw frame design is not required to conform with the figures shown in this International Standard, which are given only as examples of the different types.

NOTE 2 In addition to terms used in English, one of the three official ISO languages, this International Standard gives the equivalent terms in German; these are published under the responsibility of the member body for Germany (DIN). However, only the terms and definitions given in the official language can be considered as ISO terms and definitions.

Terms and definitions

1 Basic terms

1.1

draw frame

textile machinery consisting of a *delivery unit* (1.3) employed to straighten and parallelize the fibres by drafting, to homogenize the sliver by means of *doubling* (4.1) and to blend and de-dust the fibres

1.2

autoleveller draw frame

textile machinery consisting of a *delivery unit* (1.3) employed to straighten and parallelize the fibres by drafting, to homogenize the sliver by *doubling* (4.1), to blend and de-dust, if applicable, the fibres and to compensate any measured deviation of the fibre mass by means of a variable draft superimposed on the nominal *draft* (4.2)

1.3

delivery unit

working point for filling a *sliver can* (3.1)

2 Machine sides, dimensions (see [Figure 1](#))

2.1

right side

R

textile machine side located to the right as seen facing toward the direction of fibre flow

Note 1 to entry: See ISO 92.

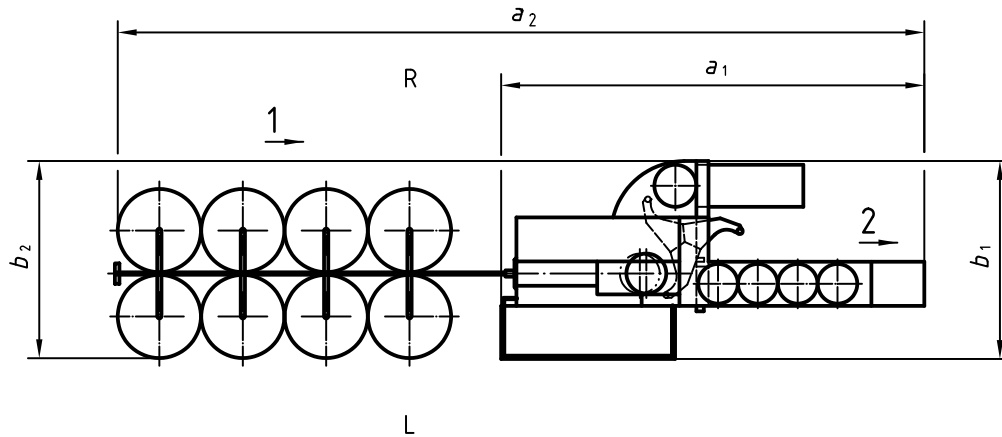
2.2

left side

L

textile machine side located to the left as seen facing toward the direction of fibre flow

Note 1 to entry: See ISO 92.



Key

- a_1 machine depth (without space requirement for deposited sliver cans)
- a_2 overall machine depth (including space requirement for deposited sliver cans)
- b_1 machine width (without space requirement for deposited sliver cans)
- b_2 overall width (including space requirement for deposited sliver cans)
- R right side
- L left side
- 1 feed
- 2 delivery

Space requirement: $a_2 \times b_1$ for $b_2 \leq b_1$
 $a_2 \times b_2$ for $b_2 > b_1$

Figure 1 — Machine sides, dimensions

3 Machine components (see Figures 2 and 3)

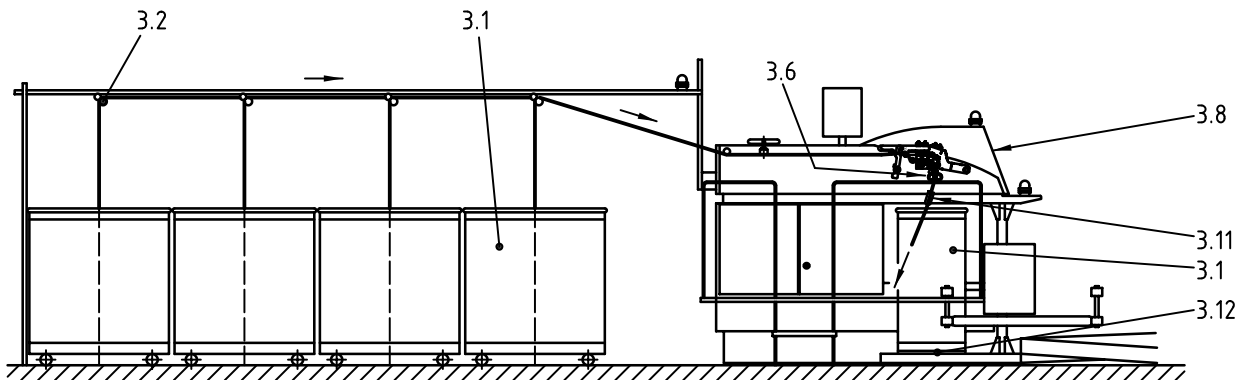


Figure 2 — Machine components (I)

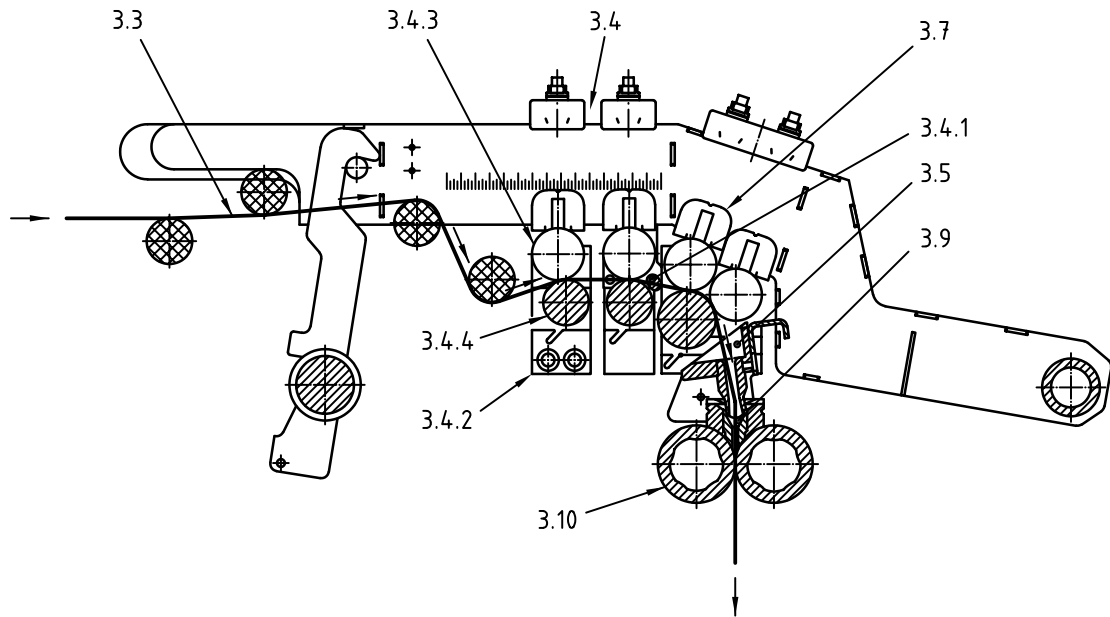


Figure 3 — Machine components (II)

**3.1
sliver can**

round or rectangular container for the deposit of card, comber or draw frame sliver

Note 1 to entry: Round sliver cans are defined in ISO 93-1 and ISO 93-2, rectangular cans in ISO 16853.

**3.2
creel [feed]**

positively driven rollers for pulling feed sliver from the *sliver can* (3.1) or [and] static sliver guides

**3.3
sliver guide**

device for guiding slivers at the entry to the *drafting system* (3.4)

**3.4
drafting system**

device with several consecutive roller pairs running at increasing speeds and a *pressure bar* (3.4.1) to draft the infed sliver

**3.4.1
pressure bar**

static sliver guide component installed in the main drafting zone to guide floating fibres

**3.4.2
roll bearing**

bearing for the *bottom rollers* (3.4.4) in the *drafting system* (3.4)

**3.4.3
top rollers**

friction-driven or positively driven rollers, self-weighted or with additional load, resting on the bottom roller and gripping and carrying the sliver

[SOURCE: ISO 2205:1975]

3.4.4

bottom rollers

fluted, knurled or smooth rollers

[SOURCE: ISO 2205:1975]

3.5

web guide

device located at the exit of the *drafting system* (3.4) to guide the web into the *sliver funnel* (3.9)

3.6

drafting system support

drafting roller stand

base (e.g. of cast iron) on which the *drafting system* (3.4) is mounted

3.7

cleaning device with suction system

cleaner lips and wipers operating in conjunction with the suction system for cleaning measuring devices and other elements

3.8

drafting system hood

hood for covering the *drafting system* (3.4)

3.9

sliver funnel

device for compressing the sliver

3.10

draw rollers

positively driven roller pair for drawing off and compressing the sliver

3.11

coiler

deposit plate

device for depositing the drafted sliver into the *sliver can* (3.1)

3.12

can plate

device for supporting and rotating the *sliver can* (3.1)

4 Doubling and drafting

4.1

doubling

D

simultaneous feeding of several slivers in order to bring them near each other and compensate the deviation in the mass

4.2

draft

V

attenuation of a fibre structure consisting of one or more individual slivers gripped between pairs of rollers by drawing off at increasing speed, expressed by the relationship of delivery speed v_A to entry speed v_E (Example 1) or by the relationship of the entry sliver weight of the fibre structure Tt_E to its delivery sliver weight Tt_A (Example 2)

EXAMPLE 1 $v_E = 60 \text{ m/min}$, $v_A = 360 \text{ m/min}$: $V_{\text{drafting system}} = \frac{v_A}{v_E} = \frac{360}{60} = 6$

EXAMPLE 2 Tt_E of the individual slivers = 6 ktex, $D = 6$, $Tt_A = 6$ ktex: $V_{\text{machine}} = \frac{Tt_E \times D}{Tt_A} = \frac{6 \times 6}{6} = 6$

4.3

autoleveller

device for measuring and compensating sliver weight variations by superimposing a variable draft on the nominal *draft* (4.2) of the frame

Note 1 to entry: The desired change in draft to compensate sliver weight variations of the incoming slivers takes effect in the main drafting zone.

4.4

measuring instrument

device for continuously registering the sliver weight of the incoming slivers

4.5

actuator

device for calculating and implementing a control speed that effects a change in *draft* (4.2) in the main drafting zone and thus compensates the sliver weight variations of the incoming slivers

Annex A (normative)

Principles of construction

A.1 Drive

A.1.1 Main drive

A.1.1.1 Variable speed drive

A.2 Drafting system

Roller drafting system. See [Figure 3](#).

A.2.1 Bottom rollers

Fluted, knurled or smooth rollers. See [Figure 3](#).

A.2.2 Top rollers

Smooth, rubber-coated rollers. See [Figure 3](#).

A.2.3 Top roller pressure

Spring-loaded or pneumatic pressuring systems.

A.3 Stop motions

Mechanical or electrical.

A.4 Position of rotary can plate

Directly on the floor or embedded in the floor or in a base-plate of the machine frame. See [Figure 2](#).

A.5 Dimensions of the spinning cans

NOTE See ISO 93-1 and ISO 93-2, and ISO 16853.

A.6 Sliver

EXAMPLE One sliver per delivery (single-sliver delivery).

Bibliography

- [1] ISO 92, *Textile machinery and accessories — Spinning machinery — Definition of side (left or right)*
- [2] ISO 93-1, *Textile machinery and accessories — Cylindrical sliver cans — Part 1: Main dimensions*
- [3] ISO 93-2, *Textile machinery and accessories — Cylindrical sliver cans — Part 2: Spring bottoms*
- [4] ISO 2205, *Textile machinery and accessories — Drafting arrangements for spinning machines — Terminology*
- [5] ISO 16853, *Textile machinery — Sliver cans, rectangular — Main dimensions and tolerances*

Begriffe und Definitionen

1 Grundbegriffe

1.1

Strecke

Textilmaschine, Maschine, bestehend aus einer *Ablieferung* (1.3), zur Ausstreckung und Parallelisierung des Fasergutes durch *Verzug* (4.2), zum Vergleichmäßigen des Bandes durch *Doublieren* (4.1), zum Mischen und Entstauben des Fasergutes

1.2

Regulierstrecke

Textilmaschine, bestehend aus einer *Ablieferung* (1.3), zur Ausstreckung und Parallelisierung des Fasergutes durch *Verzug* (4.2), zum Vergleichmäßigen des Bandes durch *Doublieren* (4.1), zum Mischen und ggf. Entstauben, des Fasergutes sowie zum Ausgleich einer gemessenen Abweichung der Bandmasse durch einen dem Nominalverzug überlagerten veränderlichen Verzug

1.3

Ablieferung

Arbeitsstelle zum Befüllen einer *Spinnkanne* (3.1)

2 Seitenbezeichnung, Maßangaben (siehe Bild 1)

2.1

rechte Seite

R

Seite der Textilmaschine, die gegen den Faserfluss gesehen, rechts liegt

Anmerkung 1 zum Begriff: Siehe ISO 92.

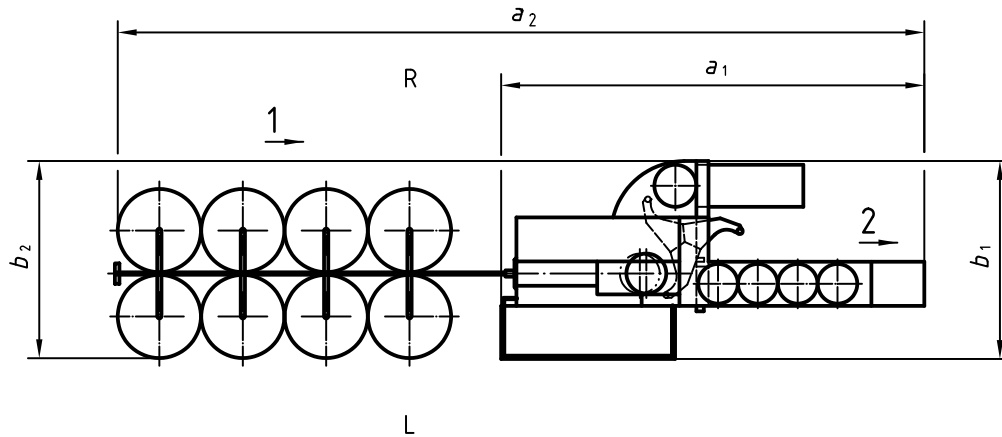
2.2

linke Seite

L

Seite der Textilmaschine, die gegen den Faserfluss gesehen, links liegt

Anmerkung 1 zum Begriff: Siehe ISO 92.



Key

- a_1 Maschinentiefe (ohne Platzbedarf der vorgelegten Spinnkannen)
 - a_2 Gesamttiefe (einschließlich Platzbedarf der vorgelegten Spinnkannen)
 - b_1 Maschinenbreite (ohne Platzbedarf der vorgelegten Spinnkannen)
 - b_2 Gesamtbreite (einschließlich Platzbedarf der vorgelegten Spinnkannen)
 - R rechte Seite
 - L linke Seite
 - 1 Einlauf
 - 2 Maschinentiefe (ohne Platzbedarf der vorgelegten Spinnkannen)
- Platzbedarf: $a_2 \times b_1$ for $b_2 \leq b_1$
 $a_2 \times b_2$ for $b_2 > b_1$

Bild 1 — Seitenbezeichnung, Maßangaben

3 Bauteile (siehe Bilder 2 und 3)

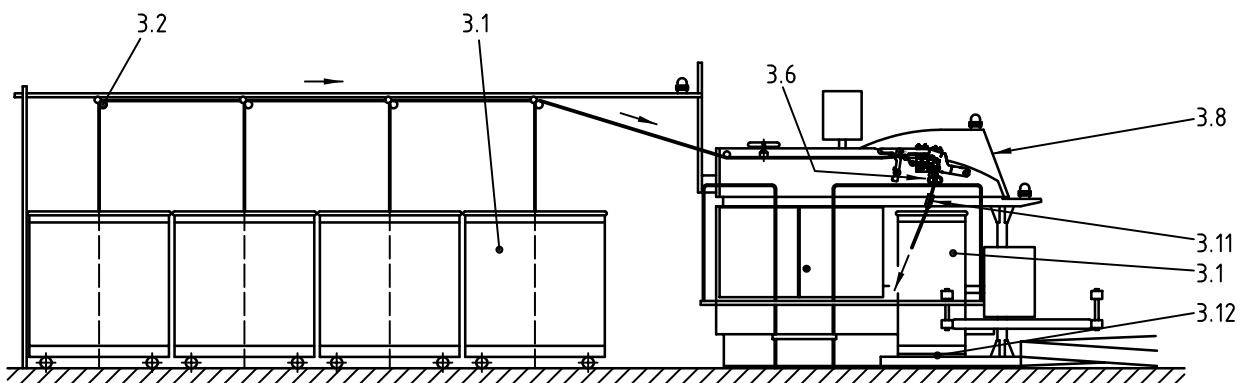


Bild 2 — Bauteile (I)

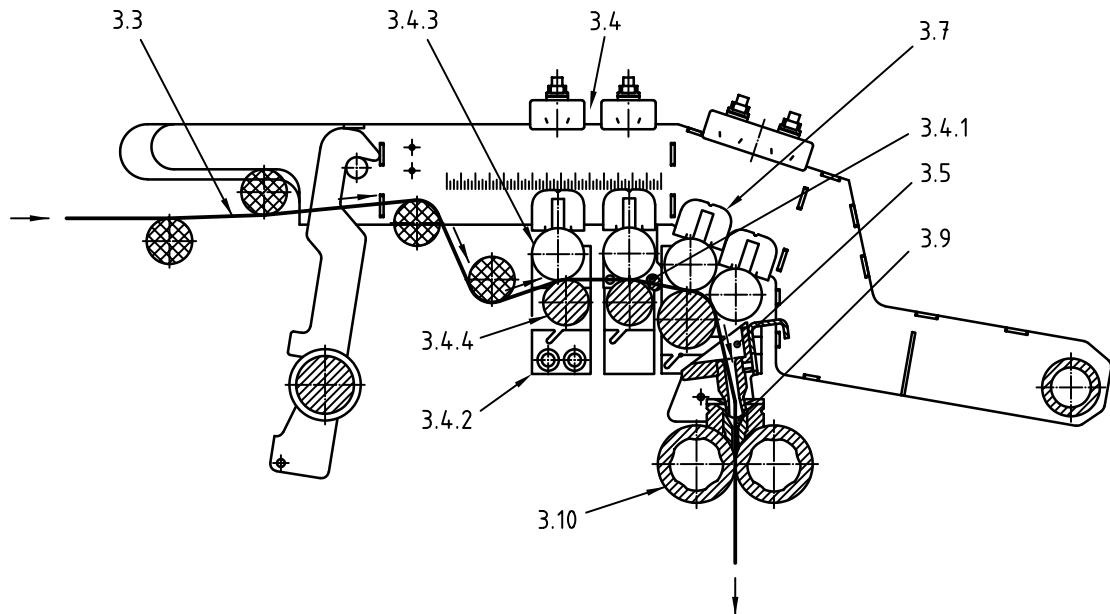


Bild 3 — Bauteile (II)

3.1**Spinnkanne**

runder bzw. rechteckiger Behälter zur Aufnahme des Karden- oder Kämm- bzw. Streckenbandes

Anmerkung 1 zum Begriff: Runde Spinnkannen sind in ISO 93-1 und ISO 93-2 festgelegt, rechteckige in ISO 16853.

3.2**Gatter [Zuführung]**

zwangsläufig angetriebene Walzen zum Abziehen des Vorlagebandes aus der Spinnkanne (3.1) bzw. statische Leiteinrichtungen

3.3**Bandführung**

Vorrichtung zum Führen der Bänder am *Streckwerk*seinlauf (3.4)

3.4**Streckwerk**

Vorrichtung, bestehend aus nacheinander angeordneten, mit ansteigenden Geschwindigkeiten umlaufenden Walzenpaaren und aus einem *Druckstab* (3.4.1) zum Verziehen der vorgelegten Bänder

3.4.1**Druckstab**

Führungsorgan, das feststehend im Hauptverzugsfeld angeordnet ist und die schwimmenden Fasern führt

3.4.2**Stanze****Zylindersupport**

Lagerung für die Unterwalzen des *Streckwerkes* (3.4)

3.4.3**Oberwalzen**

auf den Unterwalzen aufliegende, durch Reibung (Eigengewicht) oder zusätzliche Belastung mitgenommene oder zwangsläufig angetriebene Walzen, die das Faserband klemmen und weiter führen

[SOURCE: ISO 2205:1975]

3.4.4

Unterwalzen

geriffelte, gekordelte oder glatte Walzen

[SOURCE: ISO 2205:1975]

3.5

Vliesführung

Führungsteil am Streckwerksauslauf (3.4) zur Führung des Faser-Vlieses zum *Bandtrichter* (3.9)

3.6

Streckwerksträger

Streckwerksbasis

Basis (z. B. Gussteil), auf dem das *Streckwerk* (3.4) montiert ist

3.7

Putzvorrichtung mit Absaugung

Putzleisten und Abstreifer in Verbindung mit Absaugung von Messorganen und Arbeitsorganen

3.8

Streckwerkshaube

Haube zum Abdecken des *Streckwerkes* (3.4)

3.9

Bandtrichter

Vorrichtung zum Verdichten des Bandes

3.10

Abzugswalzen

zwangsläufig angetriebenes Walzenpaar zum Abziehen und Verdichten des verstreckten Bandes

3.11

Drehteller

Ablageteller

Vorrichtung zum Ablegen des Streckenbandes in die *Spinnkanne* (3.1)

3.12

Kannteller

Vorrichtung zur Aufnahme und zum Drehen der *Spinnkanne* (3.1)

4 Doublierung und Verzug

4.1

Doublierung

D

gleichzeitige Vorlage mehrerer Bänder zum Vereinigen und Vergleichmäßigen

4.2

Verzug

V

Verfeinerung eines aus mehreren einzelnen Bändern bestehenden, zwischen Walzenpaaren geklemmten Faserverbandes durch Abzug mit gesteigerter Geschwindigkeit, ausgedrückt durch das Verhältnis der Ausgangsgeschwindigkeit v_A zur Eingangsgeschwindigkeit v_E (Beispiel 1) oder der Eingangsbandmasse des Faserverbandes Tt_E zu seiner Ausgangsbandmasse Tt_A (Beispiel 2)

BEISPIEL 1 $v_E = 60 \text{ m/min}, v_A = 360 \text{ m/min}: V_{\text{Streckwerk}} = \frac{v_A}{v_E} = \frac{360}{60} = 6$

BEISPIEL 2 Tt_E der einzelnen Bänder = 6 ktex, $D = 6$, $Tt_A = 6 \text{ ktex}: V_{\text{Maschine}} = \frac{Tt_E \times D}{Tt_A} = \frac{6 \times 6}{6} = 6$

4.3

Regulierung

Vorrichtung zur Erfassung und zum Ausgleich von Bandmassenschwankungen, in dem der Nominalverzug (4.2) von einem veränderlichen Verzug überlagert wird

Anmerkung 1 zum Begriff: Die gewünschte Verzugsänderung zum Ausgleich der Bandmasseschwankungen der einlaufenden Bänder wird im Hauptverzugsfeld vorgenommen.

4.4

Messorgan

Vorrichtung zur kontinuierlichen Erfassung der Bandmassen der einlaufenden Bänder

4.5

Aktorik

Vorrichtung zur Berechnung und Umsetzung einer Steuerdrehzahl, die eine *Verzugsänderung* (4.2) im Hauptverzugsfeld bewirkt und somit die Bandmasseschwankungen der einlaufenden Bänder ausreguliert

