



CD/K/051-3:2008  
ICS 43.040.40

## **EAST AFRICAN STANDARD**

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**Pneumatic braking system connections between drawing and drawn vehicles — Part 3: The arrangement of connections on vehicles, using contact type or palm type couplings**

**EAST AFRICAN COMMUNITY**

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## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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## Pneumatic braking system connections between drawing and drawn vehicles — Part 3: The arrangement of connections on vehicles, using contact type or palm type couplings

### 1 Scope

This part of CD/K/051 covers the arrangement of the connections of two-line pneumatic braking systems installed on drawing vehicles and drawbar trailers or semi-trailers, using contact type or palm type couplings that comply with the requirements of part 1 or part 2 of the specification, respectively.

### 2 Requirements for installations using contact type couplings

#### 2.1 General

##### 2.1.1 Type of coupling

Couplings shall be contact type couplings that comply with the requirements of part 1 of the specification and that are of the appropriate type given in column 2 or 3 of table 1.

Table 1 — Contact type couplings

1	2	3
Location of coupling	Type of coupling	
	Service	
	Control line	Supply line
Drawing vehicle	Male, with self-sealing valve	Female, with self-sealing valve
Trailer	Female, with operating adaptor	Male

##### 2.1.2 Operating adaptor

A female coupling that is fitted to a trailer shall have an operating adaptor.

##### 2.1.3 Self-sealing valve

A coupling that is fitted to, or has a fixed connection with, a drawing vehicle shall have a self-sealing valve.

##### 2.1.4 Colour coding

The lines shall be colour coded as follows:

- control line - yellow;
- supply line - red.

### 2.2 Articulated vehicles

#### 2.2.1 Arrangement and location of braking connections

The braking connections on an articulated vehicle shall consist of

- fixed pipes on the drawing vehicle,
- flexible hoses attached to these pipes,

- c) flexible hose stowing devices mounted on the drawing vehicle,
- d) for each line, a pair of mating couplings of which one is attached to the flexible hose on the drawing vehicle and the other is rigidly attached to the semi-trailer.

NOTE The coupling interface is therefore at the semi-trailer.

- e) The location of the braking connections, flexible hoses and stowing devices on the drawing vehicle and semi-trailer shall be as shown in Figure 1, except when this is impracticable owing to the installation of long range fuel tanks, or when the purchaser requires the lines to be installed outside the side members of the chassis.

### 2.2.2 Fixed connections on drawing vehicles

The fixed pipes on a drawing vehicle shall comprise two pipes of nominal bore 9 mm, with end fittings that have an M22 x 1.5-6H female thread of length at least 15 mm and complying with the requirements of ISO 765-2-6.

### 2.2.3 Flexible hoses

Hoses shall be of flexible and shall comply with the requirements of ISO 7375. The hoses shall be provided (at each end) with end fittings that have an M22 x 1.5-6g male thread of length  $12 \pm 1$  mm and complying with the requirements of ISO 765-2-6.

### 2.2.4 Hose length

The coiled nylon hose shall be capable of extension to at least dimension J + 750 mm (see Figure 1). To meet this requirement, the length of an uncoiled hose shall be at least 5 m.

### 2.2.5 Hose stowing devices

The drawing vehicle shall be provided with hose stowing devices behind the cab that, when the hoses are not in use

- a) support the flexible hoses clear of the chassis frame of the drawing vehicle,
- b) afford adequate protection against damage, and
- c) inhibit the ingress of moisture and dirt.

### 2.2.6 Hose supports

If necessary to prevent the slack of the hoses from touching any part of the drawing vehicle, flexible hose supports shall be installed in a convenient location.

## 2.3 Drawbar combination vehicles

### 2.3.1 Arrangement and location of braking connections

The braking connections of a drawbar combination vehicle shall consist of

- a) flexible hoses taken directly from the trailer drawbar;
- b) flexible hose stowing devices mounted on the drawbar trailer; and
- c) for each line, a pair of mating couplings of which one is attached to the flexible hose on the trailer and the other is rigidly attached to the drawing vehicle.

NOTE The coupling interface is therefore at the drawing vehicle.

- d) The location of the braking connections, flexible hoses and stowing devices on the drawing vehicle and drawbar trailer shall be as shown in Figure 2.

### 2.3.2 Pipes and connections on a drawbar trailer

- a) **Location.** Flexible hoses shall run directly from the trailer forecarriage and shall be secured at a point near the apex of the drawbar (see Figure 2).
- b) **Length.** The length of hoses shall be such that, when they are coupled to the drawing vehicle, the maximum angle of the drawbar centre-line with the longitudinal axis of the drawing vehicle of 90° either way can be attained while at the same time permitting a vertical angular movement of at least 20° above or below the horizontal position. For angles of less than 60° to either side, there shall be complete freedom of lateral movement without any tension on, or contact between, the hoses. For angles of 60°-90°, lateral movement shall not cause deterioration of the hoses. When the vehicle combination is in the straight-ahead position, with the drawbar at its normal operating height, the hose shall not sag below a line projected from the face of the fixed part of the couplings at an angle of 20° below the horizontal centre-line of the coupling.
- c) **Hose ends.** The trailer-mounted hoses that are to receive the couplings shall be provided with end fittings that have an M22 x 1,5-6 g male thread of length  $12 \pm 1$  mm and that comply with the requirements of ISO 765-2-6.
- d) **Hose stowing devices.** The trailer shall be provided with hose stowing devices that, when the hoses are not in use,
- 1) support the flexible hoses;
  - 2) afford adequate protection against damage; and
  - 3) inhibit the ingress of moisture and dirt.

### 2.3.3 Electrical connections

The electrical connections should be located in accordance with ISO 4009 in order to standardize the locations on drawing and drawn vehicles so that interference between different services is avoided.

## 3 Requirements for installations using palm type couplings

### 3.1 General

#### 3.1.1 Type of coupling

Couplings shall be palm type couplings that comply with the requirements of part 2 of the specification.

#### 3.1.2 Self-sealing valve

A coupling that is fitted to, or has a fixed connection with, a drawing vehicle shall have a self-sealing valve.

#### 3.1.3 Colour coding

The lines shall be colour coded as follows:

- a) control line — yellow;
- b) supply line — red.

**3.2 Articulated vehicles**

**3.2.1 Arrangement and location of braking connections**

The braking connections on an articulated vehicle shall consist of

- a) flexible hoses attached to the drawing vehicle;
- b) flexible hose stowing devices mounted on the drawing vehicle;
- c) for each line, a pair of mating couplings of which one is attached to the flexible hose on the drawing vehicle and the other is rigidly attached to the semi-trailer.

NOTE The coupling interface is therefore at the semi-trailer.

- d) The location of the braking connections, flexible hoses and stowing devices on the drawing vehicle and semi-trailer shall be as shown in figure 3, except when this is impracticable owing to the installation of long-range fuel tanks, or when the purchaser requires the lines to be installed outside the side members of the chassis.

**3.2.2 Flexible hoses**

Hoses shall be flexible and shall comply with the requirements of ISO 7375. The hoses shall be provided (at each end) with end fittings suitable for the coupling or the fixed connection on the vehicle, as relevant.

**3.2.3 Hose length**

The coiled nylon hose shall be capable of extension to at least dimension  $J + 750$  mm (see figure 1). To meet this requirement, the length of an uncoiled hose shall be at least 5 m.

**3.2.4 Hose stowing devices**

The drawing vehicle shall be provided with hose stowing devices behind the cab that, when the hoses are not in use,

- a) support the flexible hoses clear of the chassis frame of the drawing vehicle;
- b) afford adequate protection against damage; and
- c) inhibit the ingress of moisture and dirt.

**3.2.5 Hose supports**

If necessary to prevent the slack of the hoses from touching any part of the drawing vehicle, flexible hose supports shall be installed in a convenient location.

**3.3 Drawbar combination vehicles**

**3.3.1 Arrangement and location of braking connections**

The braking connections of a drawbar combination vehicle shall consist of

- a) flexible hoses taken directly from the trailer drawbar;
- b) flexible hose stowing devices mounted on the drawbar trailer; and
- c) for each line, a pair of mating couplings of which one is attached to the flexible hose on the trailer and the other is rigidly attached to the drawing vehicle.

NOTE The coupling interface is therefore at the drawing vehicle.

- d) The location of the braking connections, flexible hoses and stowing devices on a drawing vehicle and drawbar trailer shall be as shown in Figure 4.

### 3.3.2 Pipes and connections on a drawbar trailer

- a) **Location.** Flexible hoses shall be run directly from the trailer forecarriage and shall be secured at a point near the apex of the drawbar (see Figure 2).
- b) **Length.** The length of hoses shall be such that, when they are coupled to the drawing vehicle, the maximum angle of the drawbar centre-line with the longitudinal axis of the drawing vehicle of 90° either way can be attained while at the same time permitting a vertical angular movement of at least 20° above or below the horizontal position. For angles of less than 60° to either side, there shall be complete freedom of lateral movement without any tension on, or contact between, the hoses. For angles of 60°-90°, lateral movement shall not cause deterioration of the hoses. When the drawbar trailer is in the straight-ahead position with the drawbar at its normal operating height, the hose shall not sag below a line projected from the face of the fixed part of the couplings at an angle of 20° below the horizontal centre-line of the coupling.
- c) **Hose stowing devices.** The trailer shall be provided with hose stowing devices that, when the hoses are not in use,
- 1) support the flexible hoses;
  - 2) afford adequate protection against damage; and
  - 3) inhibit the ingress of moisture and dirt.

### 3.3.3 Electrical connections

The electrical connections should be located in accordance with ISO 4009 in order to standardize the locations on drawing and drawn vehicles so that interference between different services is avoided.

## 4 Manufacturer's responsibility

### 4.1 Trailer manufacturer

The trailer manufacturer normally supplies and fits the pipes and couplings on the trailer and provides flexible hoses and their stowing devices in the case of drawbar trailers.

### 4.2 Drawing vehicle manufacturer

The drawing vehicle manufacturer normally supplies and fits temporary blanking plugs to the female threaded ends of the fixed pipes.

### 4.3 Fifth wheel or tow hitch installer

The installer of the fifth wheel or tow hitch on the drawing vehicle chassis normally supplies and fits the couplings and self-sealing valves and, when a fifth wheel coupling is to be installed, the flexible hoses and stowing devices.

## 5 Inspection

- 5.1 Inspect each vehicle for compliance with the relevant requirements of Clauses 2, 3 and 4, as applicable.

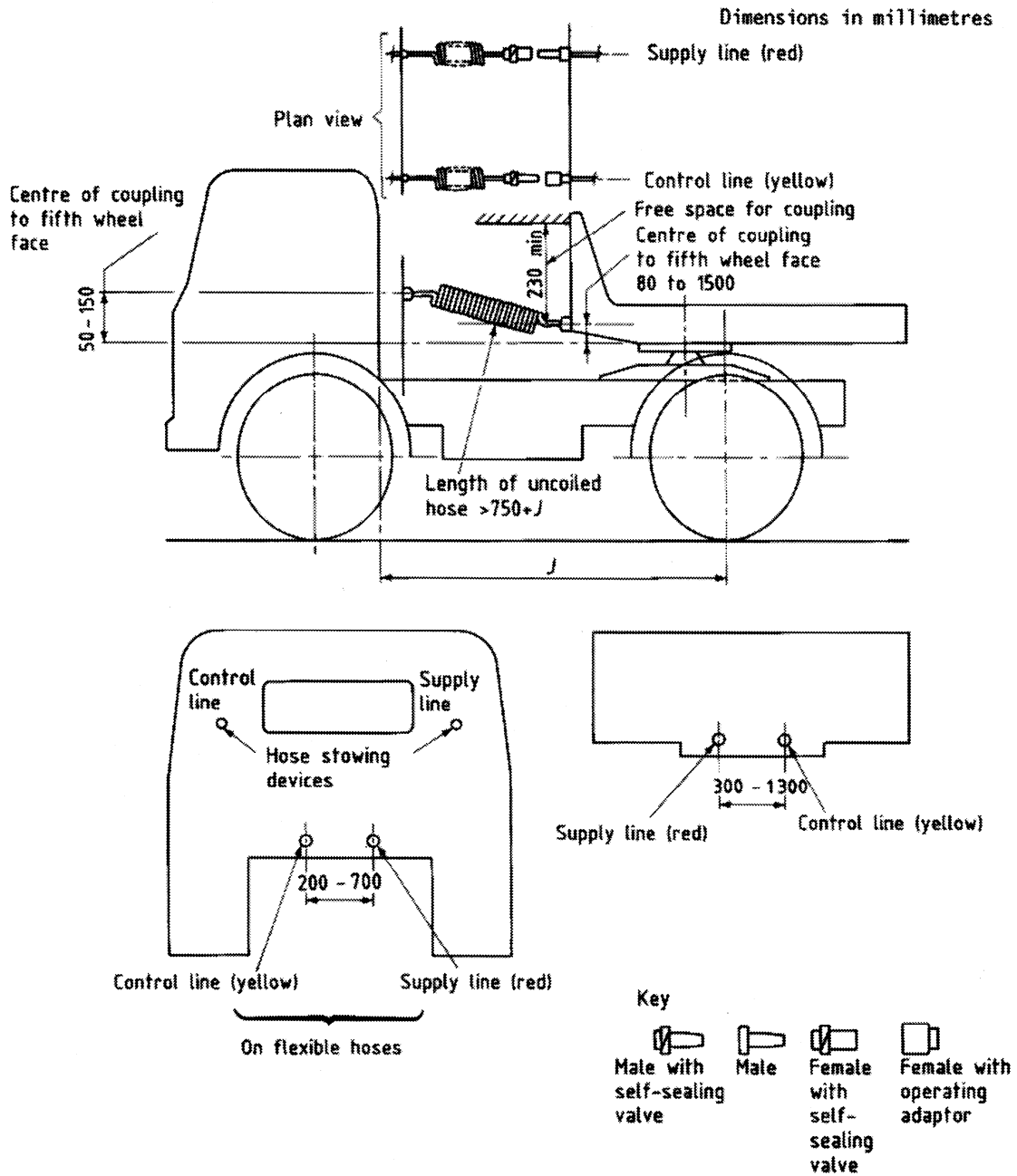


Figure 1 — Articulated vehicle braking connections using contact type couplings

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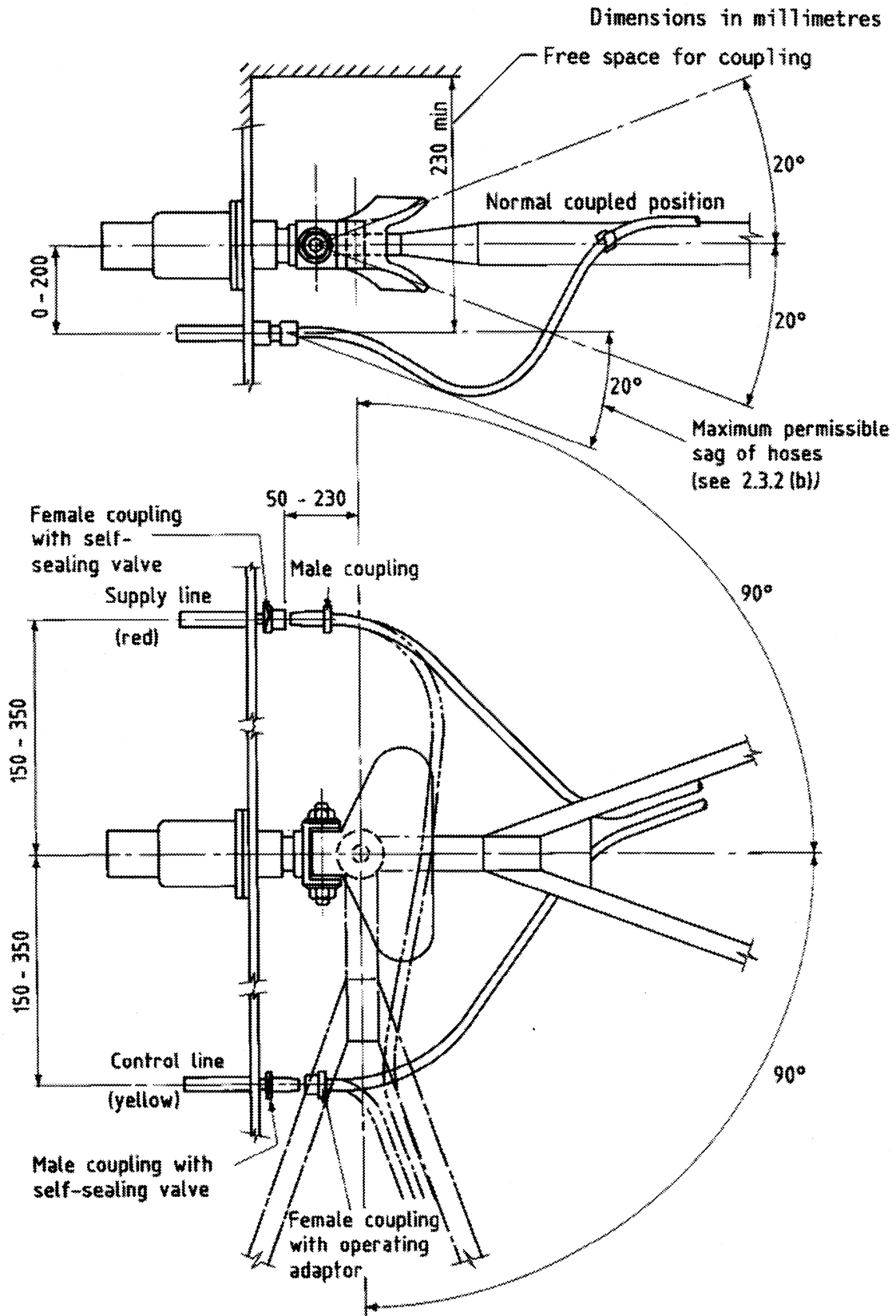
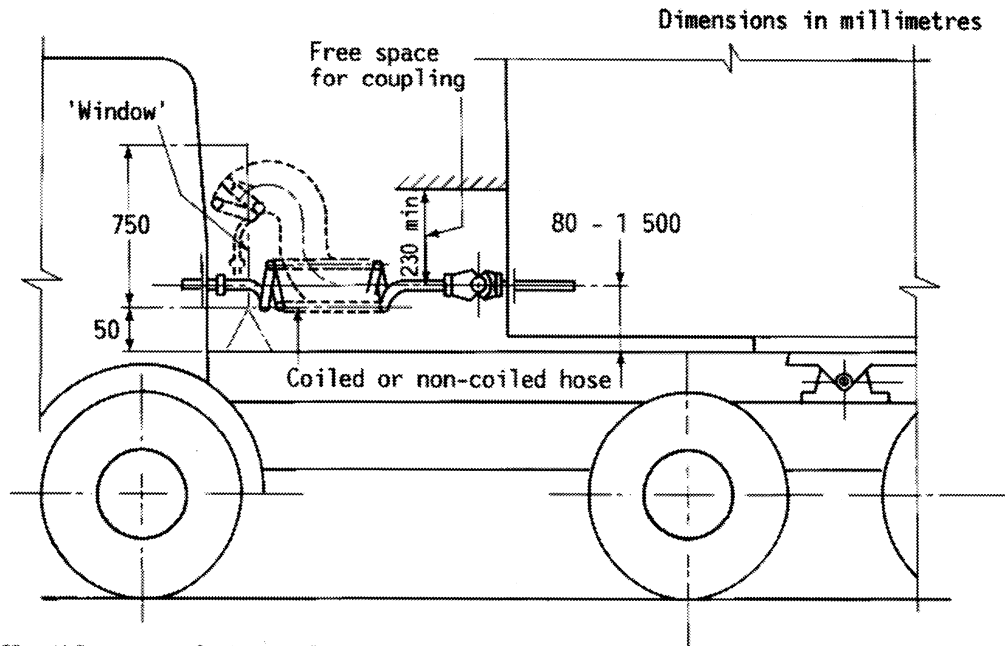
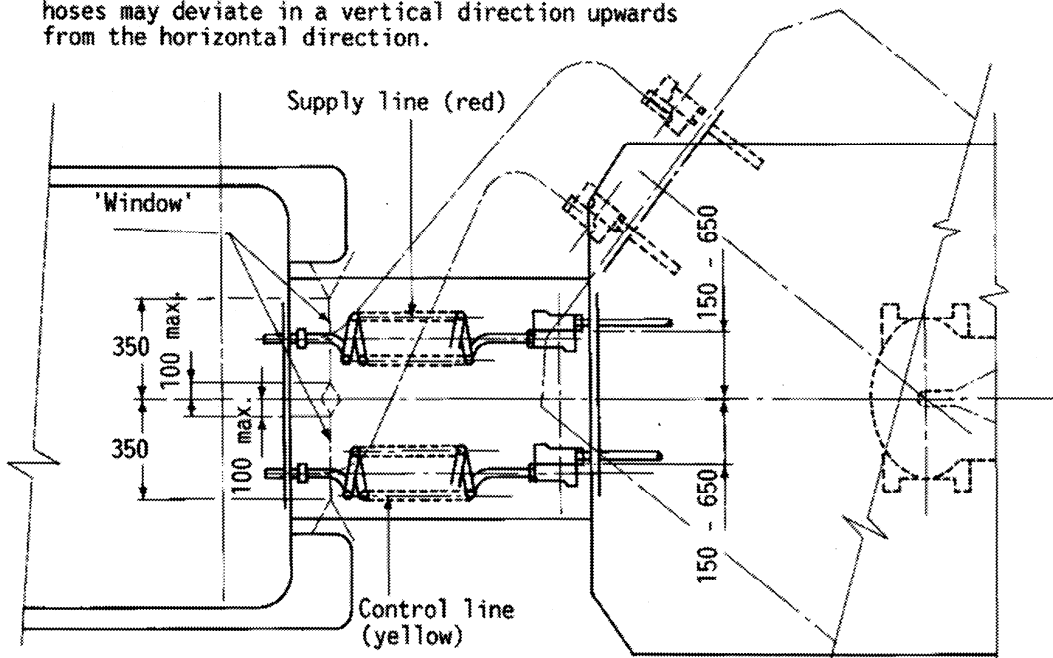


Figure 2 — Drawbar combination braking connections using contact type couplings

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The flexible part of the coiled, or non-coiled, hose (from the end of the kink protection device) shall pass through the 'window'. The beginning of the hoses may deviate in a vertical direction upwards from the horizontal direction.



The connecting hoses, when uncoupled, must be capable of being hooked onto the drawing vehicle for safety reasons

Figure 3 — Articulated vehicle braking connection using palm type couplings

Dimensions in millimetres

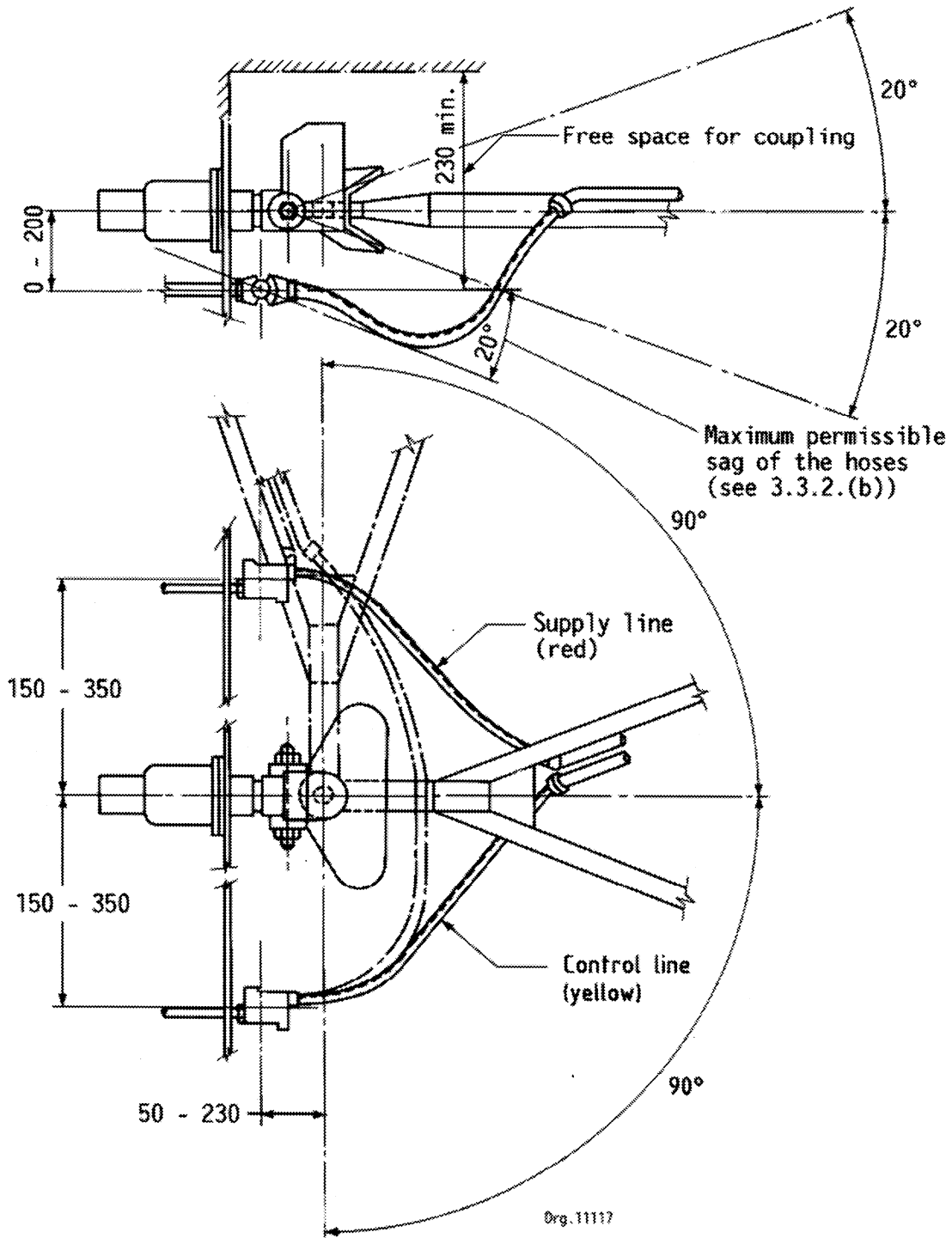


Figure 4 — Drawbar combination braking connections using palm type couplings

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**Appendix A**  
(informative)

**Applicable standards**

ISO 4009, *Commercial vehicles — Location of electrical and pneumatic connections between towing vehicles and trailers*

ISO 7375, *Coiled nylon tubing for air-brake applications*

ISO 7375-1, *Road vehicles — Coiled pipe assemblies for pneumatic braking connection between motor vehicles and towed vehicles — Part 1: Dimensions*

ISO 7375-2, *Road vehicles — Coiled tube assemblies for air brake connection between towing and towed vehicles — Part 2: Performance requirements*

CD/K/051-1:2008, *Pneumatic braking system connections between drawing and drawn vehicles — Part 1: Contact type couplings*

CD/K/051-2:2008, *Pneumatic braking system connections between drawing and drawn vehicles — Part 2: Palm type couplings*

ISO 765-2-6, *Fasteners — Part 2: Screw threads — Section 6: ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

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