INTERNATIONAL STANDARD

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Agricultural tractors and machinery — General purpose quick-action hydraulic couplers

Tracteurs et matériels agricoles — Coupleurs hydrauliques à usage général

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 5675 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 4, *Tractors*.

This third edition cancels and replaces the second edition (ISO 5675:1992), which has been technically revised.

Agricultural tractors and machinery — General purpose quick-action hydraulic couplers

1 Scope

This International Standard specifies the essential interface dimensions, as defined in ISO 7241-1, and the operating requirements for hydraulic couplers employed to transmit hydraulic power from agricultural tractors to agricultural machinery. It is applicable to couplers used in hydraulic lines other than those used for braking circuits (see ISO 5676).

NOTE All hydraulic couplers need to be connected and disconnected frequently to allow the transfer of machinery from one tractor to another without the use of tools or special devices.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7241-1:1987, *Hydraulic fluid power — Quick-action couplings — Part 1: Dimensions and requirements*

ISO 7241-2:2000, *Hydraulic fluid power — Quick-action couplings — Part 2: Test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
coupler female part
female part
part that has a cavity to receive the male part

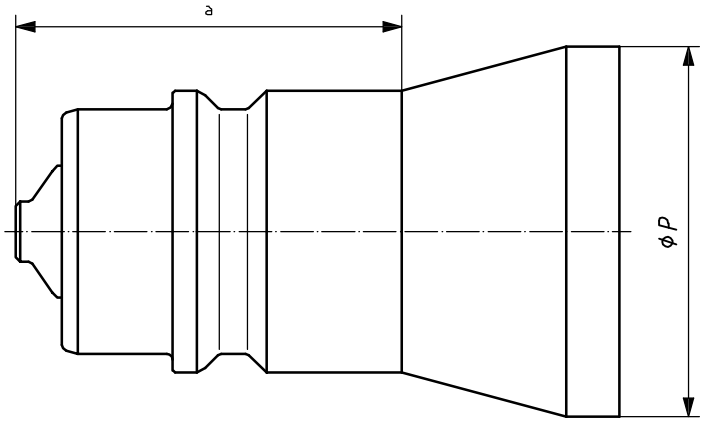
3.2
coupler male part
male part
probe that fits and locks into the cavity of the female part

4 Requirements

4.1 Dimensional requirements

The dimensions of the coupler male part shall be in accordance with ISO 7241-1:1987, Table 1 and Figure 1, series “A”, for sizes 12,5 and 20. In addition, the coupler male part dimension shall be in accordance with Figure 1 and Table 1 of this International Standard, in order to be compatible with dust protection devices.

Any female part shall couple with any male part when both conform to this International Standard.



For dimension P, see Table 1.

[a] Dimension in accordance with ISO 7241-1, series “A”.

Figure 1 — Coupler male part dimensions

Table 1 — Dimension P

Dimensions in millimetres

Nominal size (according to ISO 7241-1)	**Dimension** P
12,5	$\leqslant$ 31
20	$\leqslant$ 38
NOTE 1 The size designation corresponds to the nominal inside diameter of the hose recommended for use with the coupling, as specified in ISO 4397. NOTE 2 Similar couplers are described in ISO 7241-1; however, couplers conforming to ISO 7241-1 might not conform to this International Standard.	

4.2 Operating requirements

4.2.1 The coupler shall be in accordance with the operating requirements of ISO 7241-1, series “A”.

4.2.2 The pressure drop through the coupler shall not be greater than 0,35 MPa (3,5 bar) with a flow of 45 l/min for size 12,5 and 70 l/min for size 20. The pressure drop shall be measured in accordance with ISO 7241-2.

The requirements of this International Standard mean that two coupler parts, one having a conical and the other a ball valve, may be coupled together. Care should then be taken to ensure that these requirements are fulfilled.

4.2.3 It shall be possible to connect the coupler by hand with a pressure of 16 MPa (160 bar) in the male part. The connecting force shall not exceed 200 N with a pressure, in the female part, of 0,25 MPa (2,5 bar) for size 12,5 and of 0,100 MPa (1 bar) for size 20.

4.2.4 The disconnecting force shall not exceed 1,7 kN for size 12,5 and 2,5 kN for size 20 when subjected to an internal pressure of 17,5 MPa (175 bar) in the male part. The disconnecting force shall be measured in accordance with ISO 7241-2.

4.2.5 The spillage at an internal pressure of 0,1 MPa (1 bar) shall be in accordance with Table 2. A spillage test shall be conducted in accordance with ISO 7241-2.

4.2.6 The spillage when disconnecting with an internal pressure of 17,5 MPa (175 bar) shall be in accordance with Table 2.

Table 2 — Spillage on disconnect with pressure

Nominal size (according to ISO 7241-1)	Spillage when disconnecting at	
	0,1 MPa	17,5 MPa
12,5	2,5 ml	4,0 ml
20	9,0 ml	12,5 ml

4.2.7 The force required to fully open the valve in the male part, when there is no internal pressure in the male part, shall not exceed 45 N for size 12,5 and 70 N for size 20.

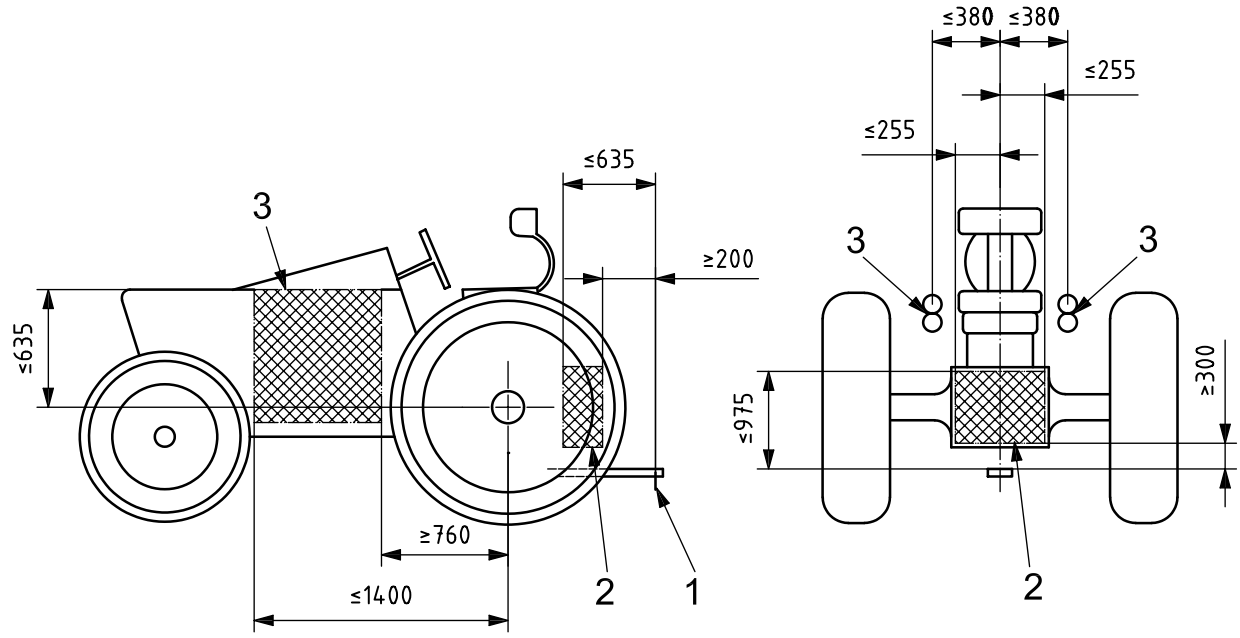
4.2.8 The coupling shall not check-off (closure of the valve) when flowing oil in the male-to-female direction at flow rates less than 190 l/min for size 12,5 and less than 250 l/min for size 20. Fluid viscosity for this requirement shall be in accordance with ISO 7241-2:2000, 5.2.

5 Location on tractor

5.1 Rear-mounted and side coupler

The female part of the coupler shall be mounted within the area described in Figure 2.

Dimensions in millimetres



Key

1 tractor drawbar, located per nominal dimensions given in ISO 6489-3

2 area of location of rear-mounted couplers

3 area of location of side-mounted couplers

Figure 2 — Location of rear-mounted and side coupler

5.2 Front-mounted coupler

The female part of the coupler shall be mounted as close as practicable to the longitudinal axis of the tractor and to the upper link point. If it is not mounted in the longitudinal axis, it should be positioned to the right-hand side, when viewed from the driving position. If so positioned to the right-hand side, it shall be not more than 1 200 mm rearwards from the link point of the lower link with the lower links horizontal.

Bibliography

[1] ISO 4397:1993, *Fluid power systems and components — Connectors and associated components — Nominal outside diameters of tubes and nominal inside diameters of hoses*

[2] ISO 5676:1983, *Tractors and machinery for agriculture and forestry — Hydraulic coupling — Braking circuit*

[3] ISO 6489-3:2004, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 3: Tractor drawbar*

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