

INTERNATIONAL STANDARD

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

*Tracteurs et matériels agricoles — Coupleurs hydrauliques à usage
général*



Reference number
ISO 5675:1992(E)

Foreword

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

This second edition cancels and replaces the first edition (ISO 5675:1981). A second coupler size has been adopted and some requirements adapted to ISO 7241-1:1987.

Annex A of this International Standard is for information only.

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

1 Scope

This International Standard specifies the essential interface dimensions and the operating requirements for hydraulic couplers employed to transmit hydraulic power from agricultural tractors to agricultural machinery. It applies to couplers used in hydraulic lines other than those used for braking circuits (which are covered by ISO 5676[1]). These couplers need to be connected and disconnected frequently to allow the transfer of machinery from one tractor to another.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7241-2:1986, *Hydraulic fluid power — Quick-action couplings — Part 2: Test methods*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 coupler female part: That part which has a cavity to receive the male part.

3.2 coupler male part: Probe which fits and locks into the cavity in the female part.

4 Requirements

4.1 Dimensional requirements

The coupler shall comply with the dimensions shown in figure 1 and given in table 1. Any female part shall couple with any male part where both conform to this International Standard. In figure 1, diameter d_6 , over the length l_8 , shall pass through a 31 mm diameter ring for size 12,5 and a 38 mm diameter ring for size 20 to be compatible with dust protection devices.

NOTE 1 The size designation corresponds to the nominal inside diameter of the hose recommended for use with the coupling, specified in ISO 4397[2].

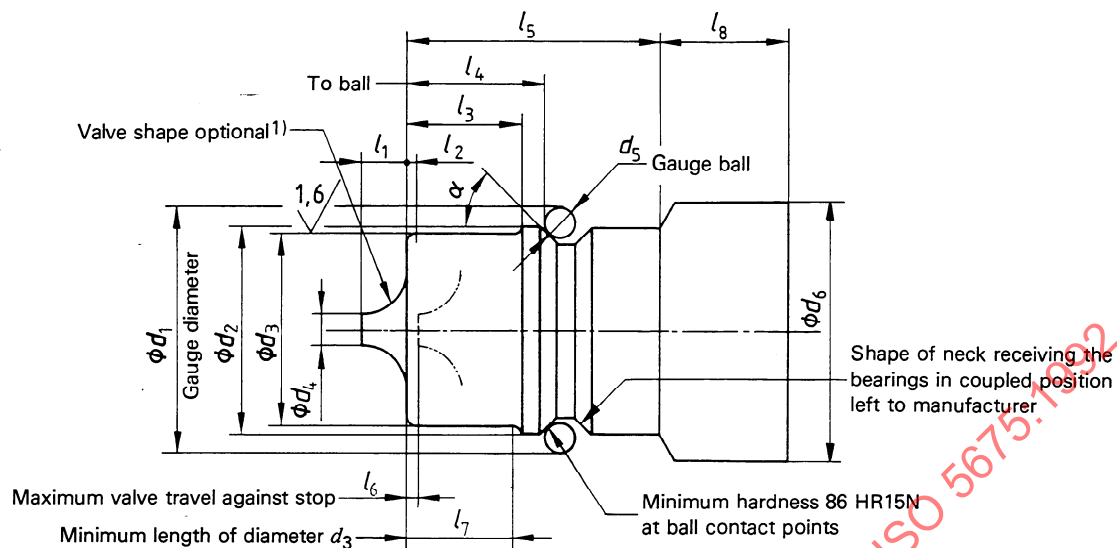
Similar couplers are described in ISO 7241-1[3]; however, couplers conforming to ISO 7241 do not conform to ISO 5675.

4.2 Operating requirements

4.2.1 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 of 70 l/min for size 20. The pressure drop shall be measured in accordance with ISO 7241-2.

This International Standard's requirements mean that two coupler parts, one having a conical and the other a ball valve may be coupled together. In this case, care should be taken to ensure that the requirements above are fulfilled.

4.2.2 The maximum operating pressure shall be 25 MPa (250 bar). The male part of the disconnected coupler shall withstand a pressure of 70 MPa (700 bar).



1) Use dimension d_4 unless the valve is spherical.

Figure 1 — Dimensions

Table 1 — Dimensions

Dimensions in millimetres

Detail	Size 12,5 ¹⁾	Size 20 ¹⁾
Gauge diameter, d_1	30,3	37,1
d_2 min. max.	23,66 23,74	30,4 30,5
d_3 min. max.	20,48 20,56	29,0 29,1
d_4 min. ²⁾	4,5	5,4
d_5	4,762	4,762
l_1 max.	4	7,2
l_2 min. max. ³⁾	0,7 1,5	1,0 2,5
l_3 min. max.	9,2 9,4	15,9 16,1

Detail	Size 12,5 ¹⁾	Size 20 ¹⁾
l_4 min. max.	11,6 11,8	17,5 17,7
l_5 min.	24	27,5
l_6 max.	0,5	0,6
l_7 min.	8,5	13,7
α min. max.	44° 46°	44° 46°

1) See note in 4.1.
 2) When a valve shape other than a ball is used, apply dimension d_4 .
 3) Radius, chamfer, or combined radius-chamfer permissible.

4.2.3 The coupler shall be capable of being connected 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). The disconnecting force shall be measured in accordance with ISO 7241-2.

4.2.5 The spillage shall not exceed 2,5 ml for size 12,5 and 9 ml for size 20. A spillage test shall be conducted in accordance with ISO 7241-2.

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

4.2.7 If a stop is not provided in the female part, the valve spring load shall be sufficient to prevent closure of the valve in the male part on rapid application of a high flow rate.

5 Location on tractor

5.1 Rear-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.

5.2 Front-mounted coupler

The female part of the coupler shall be mounted as described in 5.1: 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.

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Annex A
(informative)

Bibliography

- [1] ISO 5676:1983, *Tractors and machinery for agriculture and forestry — Hydraulic coupling — Braking circuit.*
- [2] ISO 4397:1978, *Fluid power systems and components — Connectors and associated components — Outside diameters of tubes and inside diameters of hoses.*
- [3] ISO 7241-1:1987, *Hydraulic fluid power — Quick-action couplings — Part 1: Dimensions and requirements.*

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