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**SAE J1036 JAN85**

**Dimensional  
Standard for  
Cylindrical Hydraulic  
Couplers for  
Agricultural Tractors**

SAE Standard  
Completely Revised January 1985

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Ø DIMENSIONAL STANDARD FOR CYLINDRICAL HYDRAULIC  
COUPLERS FOR AGRICULTURAL TRACTORS

1. SCOPE:

This standard specifies the essential interface dimensions, the installation dimensions and the operating requirements for hydraulic couplers employed to transmit hydraulic power from agricultural tractors to agricultural implements and farmstead equipment as defined in SAE J1150\*\*.

2. FIELD OF APPLICATION:

This standard applies to couplers used on hydraulic lines other than those used for the braking system which must be connected or disconnected frequently to allow the transference of implement and farmstead equipment from one tractor to another\*\*.

3. DEFINITIONS:

The couplers consist of two parts:

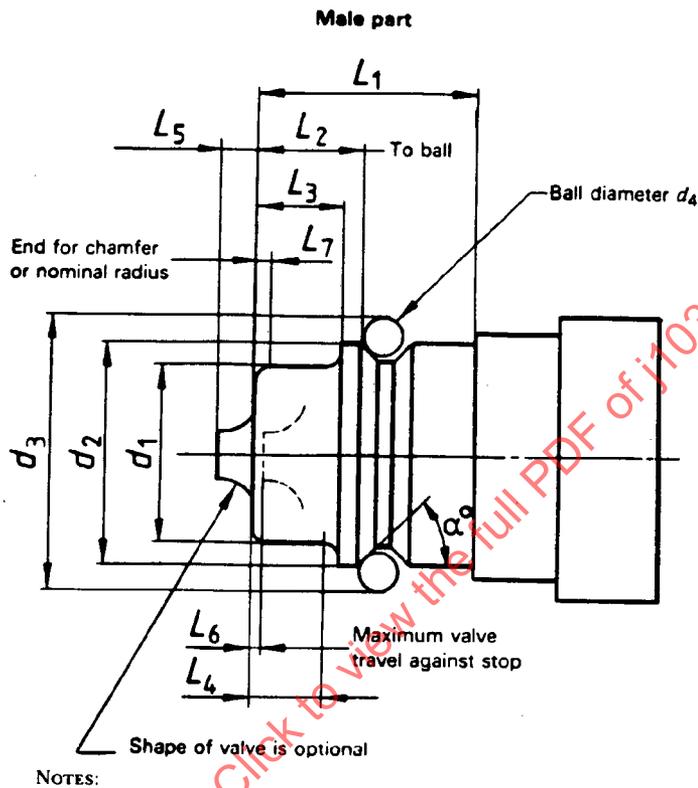
- 3.1 Female Part: The part which provides a cavity to receive the male part. The female part is considered a part of the tractor's hydraulic system, and shall accept and function with a male part which complies with the data in the table\*\*.
- 3.2 Male Part: The probe which fits and locks into the cavity in the female part. The male part is considered a part of the cylinder, motor and/or implement hydraulic system\*\*.

4. DIMENSIONAL CHARACTERISTICS:

The coupler shall comply with Fig. 1 and the data in Table 1.

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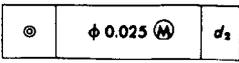
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1. The configuration of the coupler shown is solely for the purpose of illustration and to give dimensional references. It is not intended to give design requirements.
2. Dimension  $L_2$  applies when the balls of diameter  $d_4$  are held at a gauge diameter of  $d_3$  and also against the flank of the ball groove nearest the nose of the valve.

FIGURE 1 - Hydraulic Coupler

TABLE 1 - Dimensional Characteristics of Hydraulic Coupler

Detail	Size	Remarks
		Dimensions in millimeters
$d_1$ max	20.56	
min	20.48	
$d_2$ max	23.74	—
min	23.66	—
$d_3$	30.30	Gauge Diameter. (See Note 2)
$d_4$	4.762	—
$L_1$ min	24.00	—
$L_2$ max	11.79	} See Note 2
min	11.66	
$L_3$ max	9.4	—
min	9.2	—
$L_4$ min	8.50	Length of Diameter $d_1$
$L_5$ max	4.32	Valve Protrusion
$L_6$	0.0-0.5	—
$L_7$ max	1.5	—
$\alpha$ max	46°	—
min	44°	—

### 5. OPERATING REQUIREMENTS:

- 5.1 The pressure drop through the male coupler during operation shall be not greater than 1.75 bar (1.75 kPa) with a flow of 45 L/min, using oil having a viscosity of 32 mm<sup>2</sup>/s<sup>1</sup>.
- 5.2 The working pressure of the coupler shall be based on a maximum relief valve pressure of 250 bar (25 MPa). The male part of the disconnected coupler shall withstand a minimum pressure of 700 bar (70 MPa).
- 5.3 The coupler shall be capable of being connected by hand with a pressure of 7 bar (700 kPa) in either of the valves.
- 5.4 The female coupler shall be so constructed that, when suitably mounted, it will disconnect with a pull on the male part of not more than 1.7 kN applied longitudinally, when subjected to an internal pressure of 175 bar (17.5 MPa). On disconnection, the amount of spill shall not exceed 6 ml\*\*.
- 5.5 If the coupler is swivel-mounted, this shall allow a total angular deviation of 60 deg with respect to an axis parallel to the longitudinal axis of the tractor.
- 5.6 The force required to fully open the valve in the male part, when there is no pressure in the coupler, shall not exceed 45 N.
- 5.7 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 rate of flow.