International Standard 2057

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Agricultural tractors — Remote control hydraulic cylinders for trailed implements

Tracteurs agricoles — Vérins de commande hydraulique des instruments traînés

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2057 was drawn up by Technical Committee ISO/TC 23, *Agricultural tractors and machinery*, and circulated to the member bodies in September 1973.

It has been approved by the member bodies of the following countries :

Australia	Germany, F.R.	Portugal
Austria	Hungary	Romania
Belgium	India	South Africa, Rep. of
Bulgaria	Iran	Spain
Canada	Ireland	Sweden
Chile	Italy	Switzerland
Denmark	Japan	Thailand
Egypt, Arab Rep. of	Netherlands	Turkey
Finland	New Zealand	United Kingdom
France	Poland	USA

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 2057-1975). It differs from the latter only by the deletion of the values in inches and some editorial changes.

Printed in Switzerland

Agricultural tractors — Remote control hydraulic cylinders for trailed implements

1 Scope and field of application

This International Standard gives the specifications and dimensions for the assembly and clearances common to hydraulically operated cylinders and to trailing-type farm implements.

The specifications given permit

— the interchangeability of hydraulic operation between tractors equipped with a cylinder and trailing-type implements designed for this purpose, the tractor possessing enough power at its draw-bar to operate the implement;

— the transference of the hydraulic cylinder from one implement to another.

This International Standard applies to three categories of agricultural tractors, as follows :

Category	Maximum power at the draw-bar
1	Up to 35 kW
2	30 to 75 kW
3	Over 70 kW

2 References

ISO 500, *Agricultural tractors — Power take-off and draw-bar — Specification.*

ISO 730/1, *Agricultural wheeled tractors — Three-point linkage — Part 1 : Categories 1, 2 and 3.*

ISO 789/1, *Agricultural tractors — Test procedure — Part 1 : Power tests.*

3 Definitions

3.1 moving end : The yoke of the piston rod.

3.2 anchor end : The closed end of the cylinder.

3.3 attaching pins : Removable pins in the yokes for attaching the cylinder to the implement.

4 Classification and rating

Minimum thrust capacity (extending stroke of the moving end) shall be based on the calculated piston area and on a pressure of 80 % of the relief valve setting.

Implements requiring a cylinder thrust of more than 80 kN shall be provided with 400 mm stroke cylinders.

Table 1 — General characteristics

Category	Length of stroke	Minimum thrust per kilowatt at the draw-bar	Spherical radius to front attaching pin*
	mm	N	mm
1	$200\ ^{+5}_{0}$	924	1 500
2	$200\ ^{+5}_{0}$	924	2 100
3	$200\ ^{+5}_{0}$	924	2 500
	$400\ ^{+5}_{0}$	924	2 500

* See figures 5 and 6.

5 Dimensional characteristics

5.1 Hydraulic cylinders

Diagram of clearances and indication of cylinder dimensions : see figure 2.

Table 2 — Clearance measurements of cylinders

Dimensions in millimetres

Dimension	Dimensional characteristics	200 mm stroke	400 mm stroke
	Length		
a	— between pin centre lines, extended (maximum)	721	1 210
b	— between pin centre lines, retracted (minimum)	514	800
c	— overall, extended	785	1 280
d	— anchor pin centre lines to cylinder body	32	32
e	— cylinder end flange	64	89
f	— cylinder body	394	670
g	— moving end pin centre lines to stop mechanism	114	270
h	— moving end pin centre lines to stop collar	76	76
	Width		
j	— overall, stop mechanism	217	241
k	— yoke	114	114
m	— cylinder end flange (diameter)	152	178
n	— cylinder outside diameter	127	152
p	— for pin removal only	114	114
	Height		
q	— overall, cylinder end flange	190,5	216
r	— overall, cylinder body	178	203
s	— stop mechanism	60	60
t	— moving end centre line to bottom of stop mechanism	30	30
u	— yoke	89	89
x	— moving end centre line to bottom of yoke	38	38
y	— stop collar (diameter)	102	102

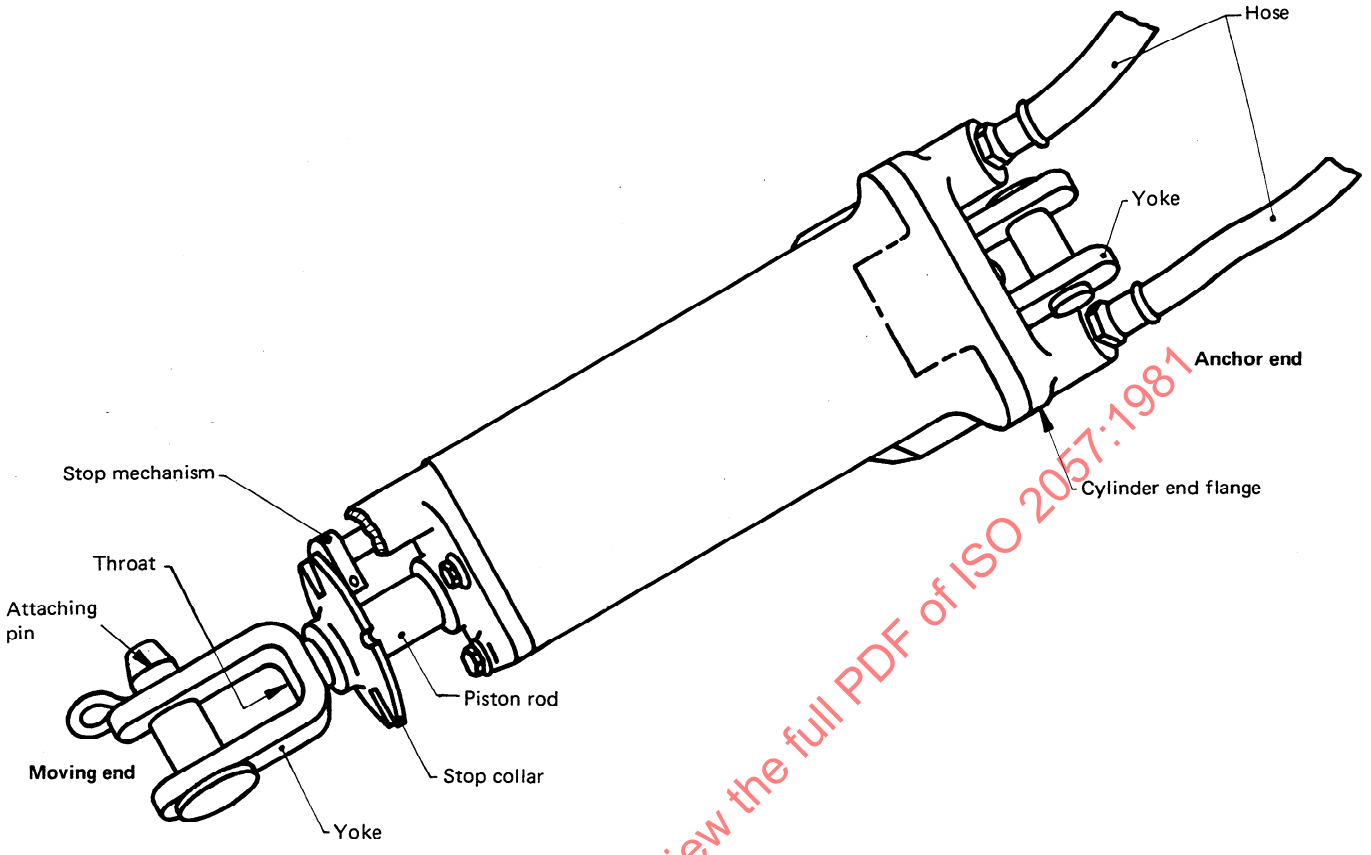

Figure 1 — Hydraulic cylinder — General view

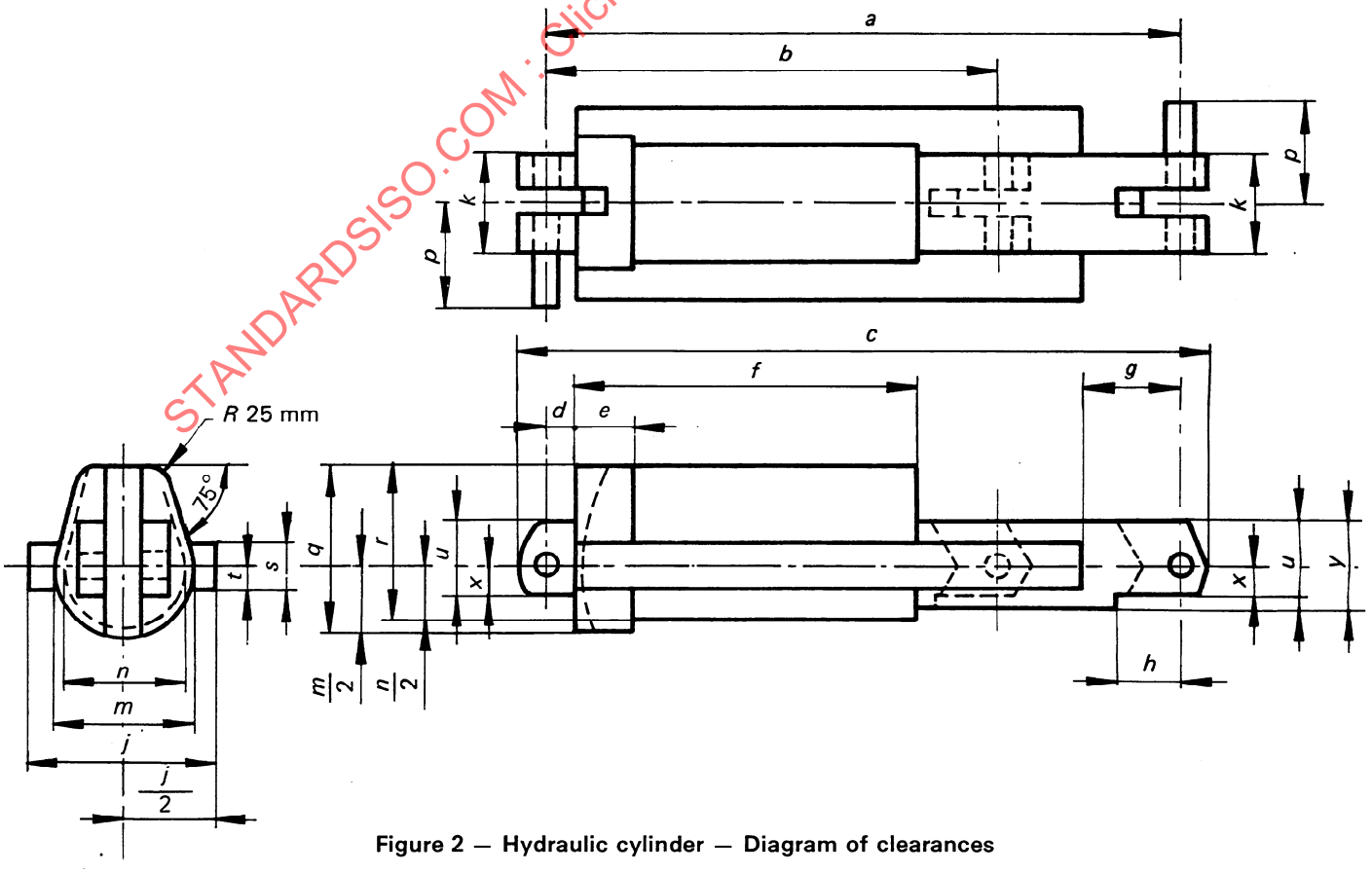

Figure 2 — Hydraulic cylinder — Diagram of clearances

5.2 Yokes

Diagram of clearances and indication of anchor end dimensions : see figure 3.

Diagram of clearances and indication of moving end dimensions : see figure 4.

Table 3 — Clearance measurements of yokes

Dimensions in millimetres

Dimension	Dimensional characteristics	200 mm stroke	400 mm stroke
A	Yoke throat clearance		
	— minimum	27,0	27,0
	— maximum	28,5	28,5
B	Thickness of bar cleared		
	— maximum	26,0	26,0
	— minimum recommended	22,0	22,0
C	Pin diameter		
	— nominal	25,0	31,75
	— maximum	25,0	31,75
D	Length, pin centre line to end of yoke (maximum)	32,0	35,0
E	Length, pin centre line to bottom of throat (minimum) (anchor end)	41,0	45,0
F	Radius of yoke end (moving end)	32,0	35,0
G	Radius of throat clearance (moving end)	35,0	41,0
H	Length, pin centre line to bottom of throat (minimum) (moving end)	41,0	57,0
J	Radius of yoke end (anchor end)	66,5	66,5
K	Radius of throat clearance (anchor end)	35,0	38,0
L	Clearance angle (moving end)	30°	35°
M	Pin hole diameter (minimum)	25,5	32,0

5.3 Length of hoses for hydraulic control

The hose length shall be sufficient for the cylinder to be operated at a distance when the front attaching pin is positioned in accordance with the dimensions in table 1.

5.3.1 For tractors with a power take-off, the disengagement area around the power take-off and the position of the drawbar shall be in accordance with ISO 500 (see figure 5).

5.3.2 For an implement coupled to the tractor by means of a three-point linkage as specified in ISO 730/1, the maximum spherical radius (which determines the position of the front anchor pin on the implement) shall be measured from a point situated in the horizontal plane between the two lower coupling points and at 178 mm ahead of them, the two lower bars being horizontal (see figure 6).

5.3.3 For implements coupled to a tractor by means of a three-point linkage as specified in ISO 730/1, the length of the hoses attached to the hydraulic cylinder shall permit moving the implement 100 mm rearward.

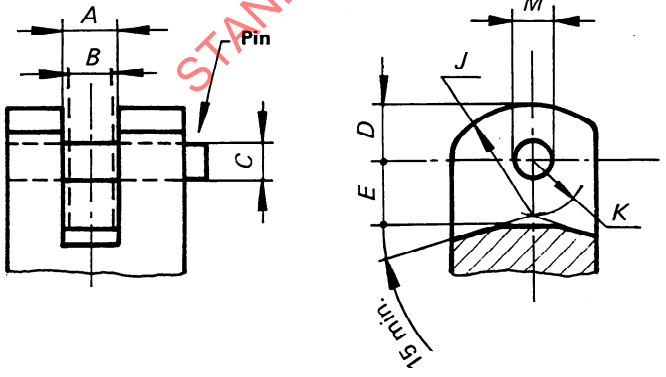

Figure 3 — Anchor end — Diagram of yoke clearances

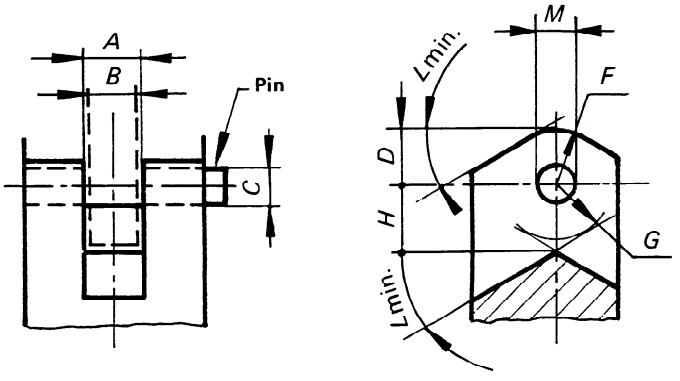

Figure 4 — Moving end — Diagram of yoke clearances