INTERNATIONAL STANDARD

ISO 10098

First edition
1992-10-01

Wireline diamond core drilling equipment — System CSSK

Équipement de forage au diamant à ligne à câble avec carrotage — Système CSSK

Reference number
ISO 10098:1992(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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.

International Standard ISO 10098 was prepared by Technical Committee ISO/TC 82, *Mining*, Sub-Committee SC 6, *Diamond core drilling equipment*.

Annex A forms an integral part of this International Standard. Annexes B and C are for information only.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Introduction

Wireline diamond core drilling equipment (CSSK system) is intended for independent use as well as for use in combination with system C equipment (see ISO 8866), designed for conventional diamond drilling.

Section 1 covers material and dimensions of wireline drilling equipment. Section 2 covers types and dimensions of gauges intended to check wireline drill rod threads.

This page intentionally left blank

Wireline diamond core drilling equipment — System CSSK

Section 1: General

1.1 Scope

Section 1 of this International Standard specifies the material for and dimensions of equipment for wireline diamond core drilling in solid or weakly fissured medium hard or hard formations to depths of 1 200 m to 1 500 m.

NOTE 1 Cutting materials other than diamond may be used.

It applies to equipment with outer bit diameters of 46 mm, 59 mm, 76 mm and 93 mm with corresponding core diameters from 24 mm to 59 mm.

Section 1 of this International Standard specifies the main dimensions of the following equipment:

a) drill rods,

b) diamond bits,

c) reaming shells,

d) core-lifter cases,

e) core lifters,

f) outer core tubes,

g) retractable (inner) core tubes.

NOTE 2 Holes drilled by CSSK equipment are cased by System C casings (see ISO 8866[1]).

1.2 Designation

The designation of items complying with this International Standard comprises the name of the item, the letters CSSK and the corresponding core bit diameter value.

EXAMPLE

Core bit CSSK59

1.3 Materials

CSSK equipment shall be manufactured from materials which in the manufactured items provide mechanical properties not less than those given in table 1.

Table 1 — Minimum mechanical properties of the materials

Item	Tensile strength R_m N/mm² (MPa)	Yield stress R_e N/mm² (MPa)	Percentage elongation after fracture A %
Drill rods	735	540	12
Tubes of core barrels	690	490	12
Other items	Not specified		

1.4 Dimensions and tolerances

The main dimensions of system CSSK equipment are given in table 2. Symbols for the dimensions are given in table 3. Other dimensions and tolerances

1) ISO 8866:1991, *Rotary core diamond drilling equipment — System C.*

are shown in figures 3 to 11 and given in tables 4 to 12.

All dimensions are given in millimetres.

Tube ovality should be kept within outer diameter tolerances.

Drill rod threads shall be checked by gauges described in section 2 of this International Standard.

Threads of other equipment items shall be checked by gauges manufactured according to national standards.

The maximum deviation in wall thickness shall be kept within the wall thickness tolerances.

Tube curvature for drill rods shall not exceed

$\frac{1}{2\,500}$ of the rod length for CSSK46 and CSSK59;

$\frac{1}{2\,000}$ of the rod length for CSSK76 and CSSK93.

Tube curvature for outer and inner (retractable) core tubes shall not exceed

$\frac{1}{1\,500}$ of the tube length for CSSK46 and CSSK59;

$\frac{1}{1\,200}$ of the tube length for CSSK76 and CSSK93.

The curvature over 250 mm of each rod end, measured according to figure 1, shall not exceed

0,4 mm for CSSK46 and CSSK59 rods;

0,6 mm for CSSK76 and CSSK93 rods.

1.5 Technical requirements

Tubes shall be made seamless. The choice of tube rolling technique and machining operations is left to the manufacturer.

Tube curvatures shall be checked by rolling the tube on a horizontal or slightly inclined flat surface. When rolling, no clearances shall be seen between the rod (tube) ends and the surface nor between the centre of the rod (tube) and the surface. If any clearance is noticed between the rod (tube) and the surface, additional checking shall be carried out.

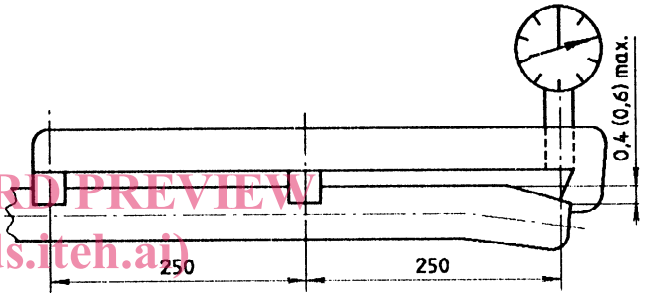


Figure 1 — Measuring rod end curvature

Table 2 — Main dimensions of system CSSK equipment

Designation	Reaming shell (outer diameter)	Core bit (outer and inner diameter)	Outer core tube (outer diameter and wall thickness)	Rectractable core tube (outer diameter and wall thickness)	Drill rod (outer diameter and wall thickness)
CSSK46	46,4	46 × 24	44 × 5	30 × 2,2	43 × 4,8
CSSK59	59,4	59 × 35,4	57 × 6	42 × 2,5	55 × 4,8
CSSK76	76,4	76 × 48	73 × 6,5	56 × 2,8	70 × 4,8
CSSK93	93,4	93 × 59	89 × 7	68 × 3	85 × 5,5

Table 3 — Symbols for dimensions

Symbol	Dimension
D_x	Core bit outer diameter (including diamonds)
D_y	Core bit inner diameter (including diamonds)
D_0	Outer diameter of a tube (not machined)
D	Outer diameter of a tube, machined (D_1 = maximum; D_2 = progressively decreasing)
d_0	Inner diameter of a tube, not machined
d	Inner diameter of a tube, machined (d_1 = maximum; d_2 = progressively decreasing)
L (l) 1)	Maximum length of the outer (inner) part
t	Maximum wall thickness
A (a) 2)	Major diameter of the box (pin) thread at the gauge plane location
B (b) 2)	Minor diameter of the box (pin) thread at the gauge plane location
P	Thread pitch
M (m) 2)	Depression width of the box (pin) thread
N (n) 2)	Protrusion width measured at the top of the box (pin) thread
R	Rounding radius
S	Distance between two parallel planes
Q (q) 2)	Protrusion height of the box (pin) thread

1) The symbol in parentheses refers to the inner part.
2) The symbols in parentheses refer to the pin thread.

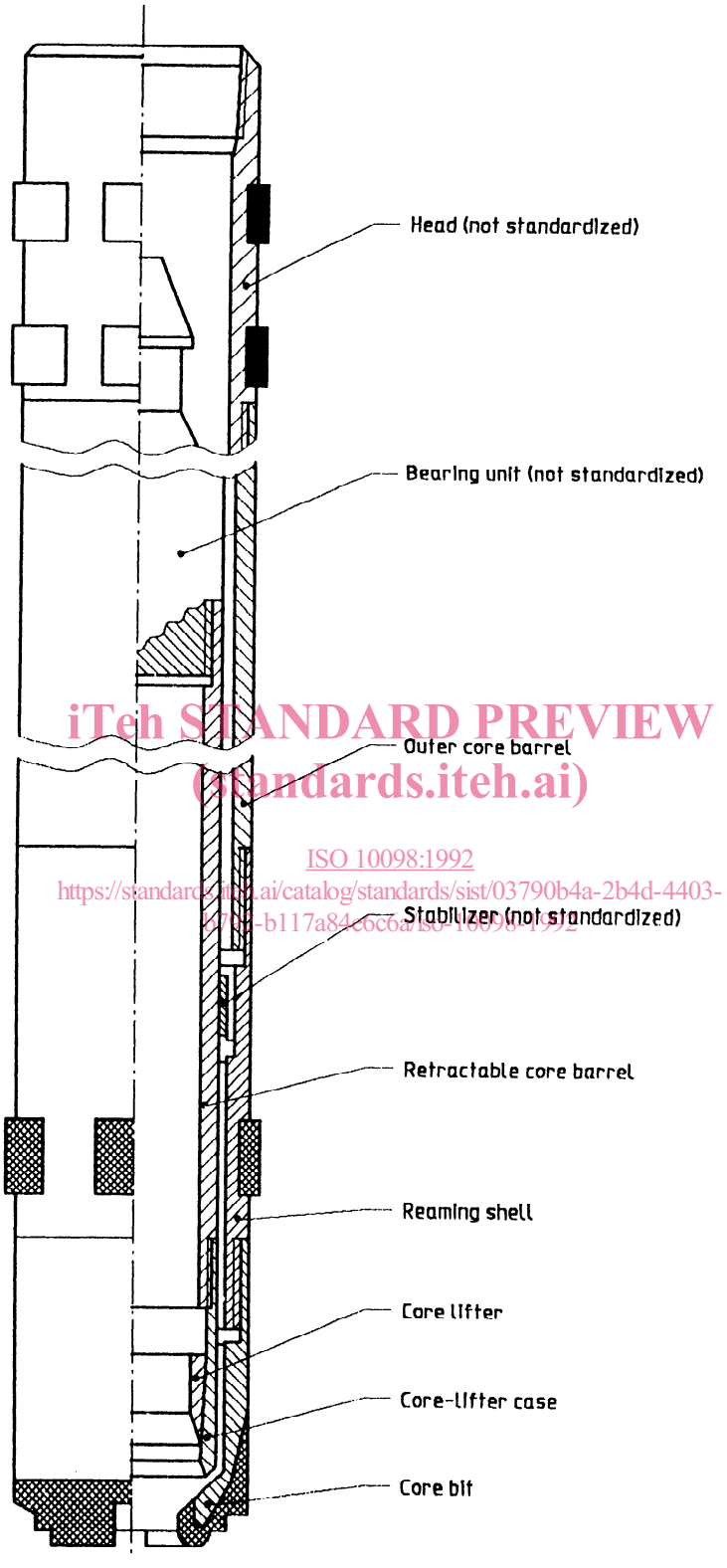


Figure 2 — Wireline core barrel assembly

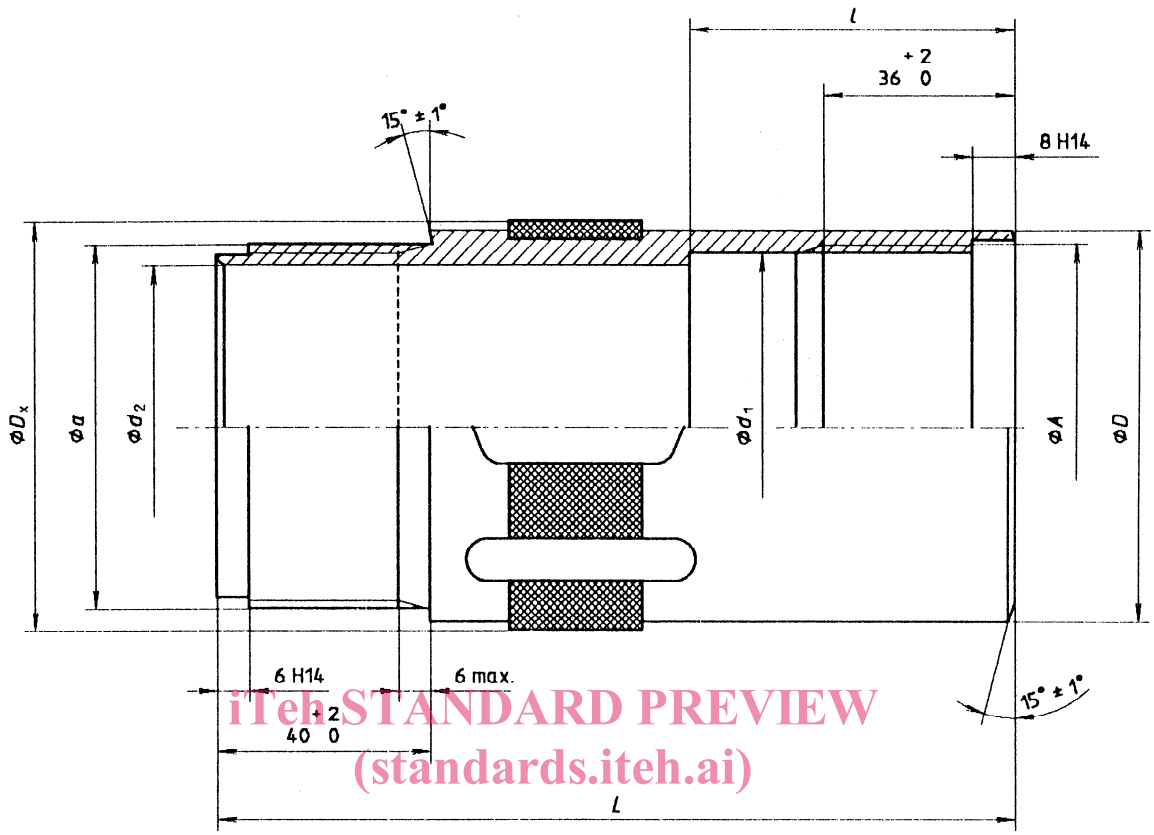


Figure 3 — Reaming shell

Table 4 — Dimensions of reaming shells

Dimension	CSSK46	CSSK59	CSSK76	CSSK93
D_x $^{+0,2}_{0,1}$	46,4	59,4	76,4	93,4
D h12	45	57	73	89
d_1 H10	38,5	50,5	66,5	82,5
d_2 H12	33,5	45	60	75
L h14	150	150	150	180
$l \pm 0,6$	61	61	61	74
Thread ($A \times P$ and $a \times P$)	40 × 4	52 × 4	68 × 4	84 × 4

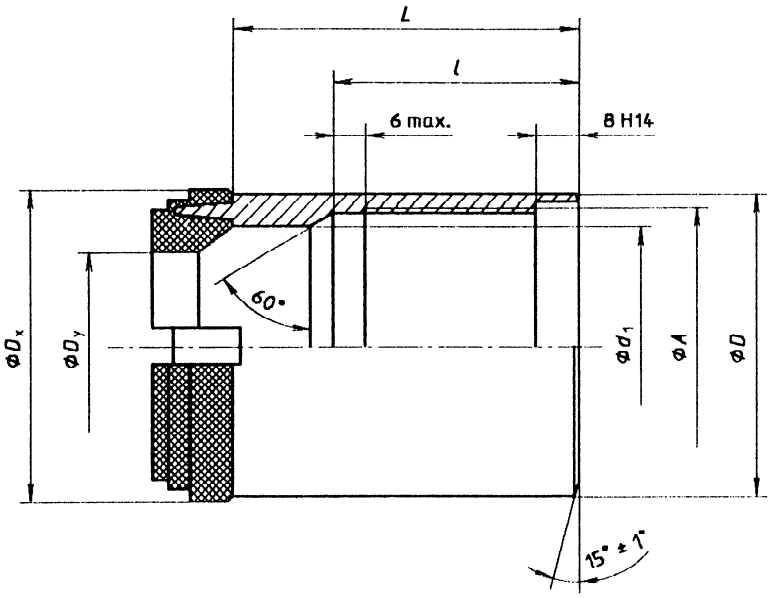
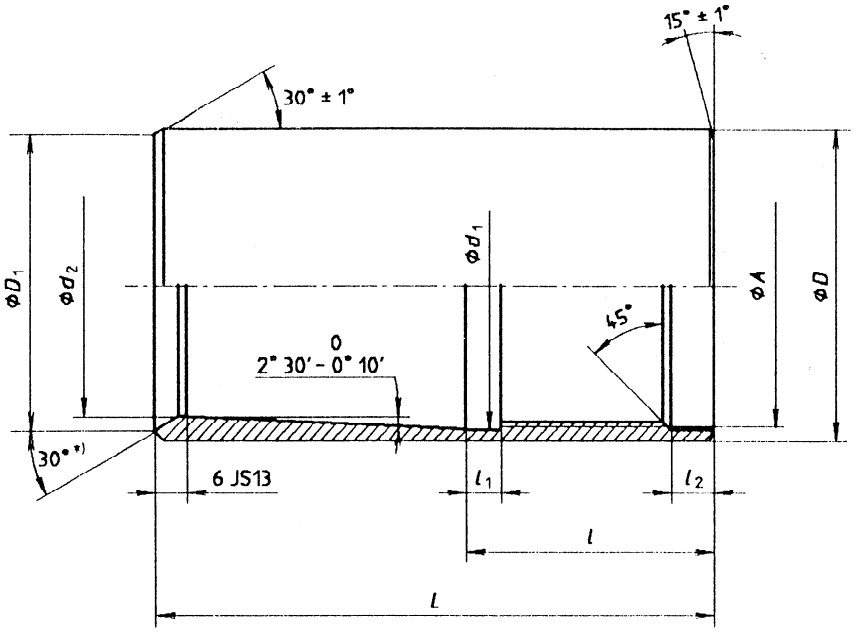


Figure 4 — Core bit

Table 5 — Dimensions of core bits

Dimension	CSSK46	CSSK59	CSSK76	CSSK93
D_x	$46\ ^{+0,2}_{0,1}$	$59\ ^{+0,3}_{0,2}$	$76\ ^{+0,3}_{0,2}$	$93\ ^{+0,3}_{0,2}$
D_y	$24\ ^{+0,2}_{0,1}$	$35,4\ ^{+0,3}_{0,2}$	$48\ ^{+0,3}_{0,2}$	$59\ ^{+0,3}_{0,2}$
D h12	45	57	73	89
d_1 H12	33,5	45	60	75
L [1] $\pm$ 1	65	65	65	83,3
$l\ ^{+2}_{0}$	46	46	46	46
Thread ($A \times P$)	40 × 4	52 × 4	68 × 4	84 × 4

1) Depending upon the bit design, this size may be changed.



*) Dimension for reference only.

Figure 5 — Core-lifter case

Table 6 — Dimensions of core-lifter cases

Dimension	CSSK46	CSSK59	CSSK76	CSSK93
D h10	30,3	42	56	68
D_1 JS14	27	39	52	63
d_1 H12	28,7	40,2	54,2	66
d_2 min.	26	36,5	49,5	60
L h12	72	78	105	88,5
l H12	26	28	46,5	28,5
l_1 H12	3	4	6,5	6,5
l_2 H14	4	4	8	4
Thread ($A \times P$)	28,5 × 3,175	40 × 3,175	54 × 4	66 × 4

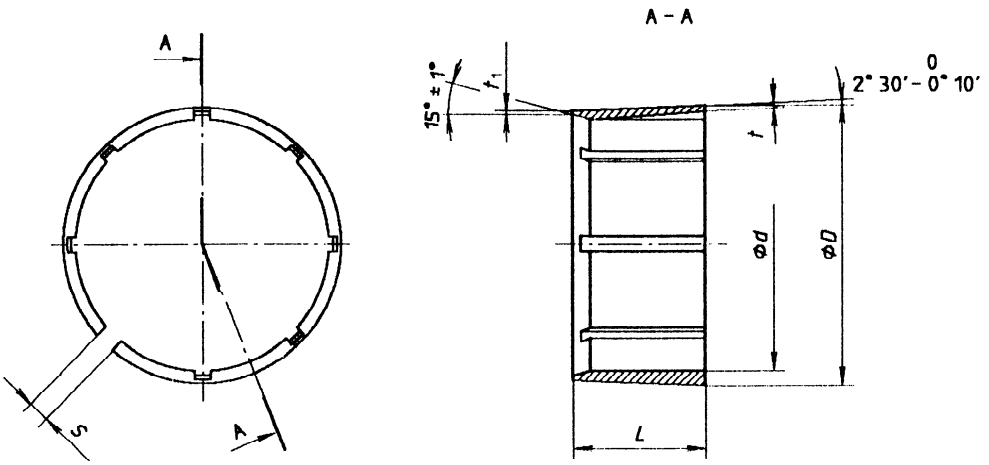


Figure 6 — Core lifter

Table 7 — Dimensions of core lifters

Dimension	CSSK46	CSSK59	CSSK76	CSSK93
D h10	27	39,2	52	64
d H11	23,2	34,6	47,4	58,4
t [1] h12	0,6	0,6	0,7	0,7
t_1 js13	0,3	0,3	0,3	0,4
L h14	20	25	25	35
S H14	3	4	4	4
NOTE — Number of recesses is not standardized.				
1) Dimension for reference only.				