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BUREAU OF INDIAN STANDARDS

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भारतीय मानक ***मसौदा***

जल कूप वेधन के लिए वेधनरिग का वर्गीकरण और चयन

(आई एस 12097 का *दूसरा पुनरीक्षण*)

DRAFT *Indian Standard*

CLASSIFICATION AND SELECTION OF DRILLING RIGS FOR WATER WELL DRILLING

(*Second Revision* of IS 12097)

ICS 73.100.30

Diamond Core and Water Well Drilling Sectional Committee, MED 21	Last date for receipt of comments is **28 July 2023**

FOREWORD

(*Formal clauses to be added later*)

This standard was originally published in 1987 and subsequently revised in 1994.

In this revision, the standard has been brought into latest style and format of Indian Standards.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

DRAFT *Indian Standard*

CLASSIFICATION AND SELECTION OF DRILLING RIGS FOR WATER WELL DRILLING

(*Second Revision*)

1 SCOPE

1.1 This standard specifies the classification and recommendations for selection of drilling rigs for drilling of water wells and bore holes.

1.2 The recommendations for selection of drilling rigs include the suitability aspects of different types of drilling rigs and their proper selection for drilling water wells and bore holes in different geological formations.

2 TYPE

The following types of drilling rigs are generally used for drilling of water wells and bore holes:

a) Percussion (cable tool);
b) Rotary:
   1) Direct circulation; and
   2) Reverse circulation;
c) Down-the-hole (DTH);
d) Combination (rotary-cum-percussion); and
e) DTH-cum-rotary.

3 CLASSIFICATION AND SELECTION

The classification and selection of drilling rigs into light, medium, and heavy duty as specified in Table 1 are based on the diameter of the hole, depth of the hole, size of the drill rods, tool weight, and formation to be encountered during drilling.

Table 1 Classification and Selection of Drilling Rigs
(*Clause* 3)

Sl No.	**Type of Drilling Rig**	**Classification**	**Diameter of Hole** (mm)	**Depth of Hole** (m)	**Size of Drill Rods/Tool Weight**
(1)	(2)	(3)	(4)	(5)	(6)
i)		Light	200	Up to 100	Tool weight up to 1 000 kg

	Percussion (cable tool): Suitable for drilling in semi-consolidated hard and bouldery formation	Medium	200	Up to 200	Tool weight 1 001 to 2 000 kg
		Heavy	200	Above 200	Tool weight 2 001 kg and above
ii)	1) Rotary-direct circulation: Suitable for drilling in hard abrasive alluvial, soil, clay shell, etc., formation	Light	200	Up to 250	Up to 73 mm
		Medium	200	Up to 450	Up to 89 mm
		Heavy	200	Above 450	89 mm and above
	2) Rotary reverse circulation: Suitable for drilling in soft alluvial, clay, small gravel and cobble formulations	Medium	500/600	Up to 170	150 mm
		Heavy	600/700	Up to 200	150 mn
iii)	Down the hole (DTH Hammer): Suitable for drilling in hard rocks, like granite, gneiss, traps, basaltic formations	Light	114	Up to 50	76 mm
		Medium	150	Up to 170	89/114 mm
		Heavy	200	Above 170	114 mm
iv)	Combination (Rotary-cum-percussion): Suitable for drilling in alluvial, clay hard and bouldery formations	Medium			
		Rotary	200	Up to 300	Up to 89 mm
		Percussion	300	Up to 170	Tool weight 1 001 to 2 000 kg
		Heavy			
		Rotary	200	Up to 300	Up to 89 mm
		Percussion	450	Up to 170	Tool weight 2 001 kg and above
v)	DTH-cum-Rotary: Suitable for drilling in soft alluvial	Medium			
		DTH	150	Up to 170	89/114 mm
		Rotary	250	Up to 50	114 mm
		Heavy			

	overburden and hard rock formation	DTH	150	Above 170	114 mm
		Rotary	250	Above 50	114 mm