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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1720

ROCK DRILLING

EXTENSION DRILL-STEEL EQUIPMENT FOR PERCUSSIVE LONG-HOLE DRILLING

ROPE-THREADED EQUIPMENTS

$1\frac{1}{2}$ to 2 in (38 to 51 mm)

1st EDITION

November 1970

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BRIEF HISTORY

The ISO Recommendation R 1720, *Rock drilling – Extension drill-steel equipment for percussive long-hole drilling – Rope-threaded equipments $1\frac{1}{2}$ to 2 in (38 to 51 mm)*, was drawn up by Technical Committee ISO/TC 82, *Mining*, the Secretariat of which is held by the Deutscher Normenausschuss (DNA).

Work on this question led to the adoption of Draft ISO Recommendation No. 1720, which was circulated to all the ISO Member Bodies for enquiry in March 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Belgium	Iran	Spain
Canada	Israel	Sweden
Czechoslovakia	Italy	Thailand
France	Japan	Turkey
Germany	Netherlands	U.A.R.
Greece	New Zealand	United Kingdom
Hungary	Poland	Yugoslavia
India	South Africa, Rep. of	

The following Member Body opposed the approval of the Draft :

Austria

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 1720 | November 1970

ROCK DRILLING

EXTENSION DRILL-STEEL EQUIPMENT FOR PERCUSSIVE LONG-HOLE DRILLING

ROPE-THREADED EQUIPMENTS

$1\frac{1}{2}$ to 2 in (38 to 51 mm)

1. SCOPE

This ISO Recommendation specifies the basic dimensions for rope-threaded extension drill-steel equipment for percussive long-hole drilling, of the following nominal sizes :

$1\frac{1}{2}$ in (38 mm)

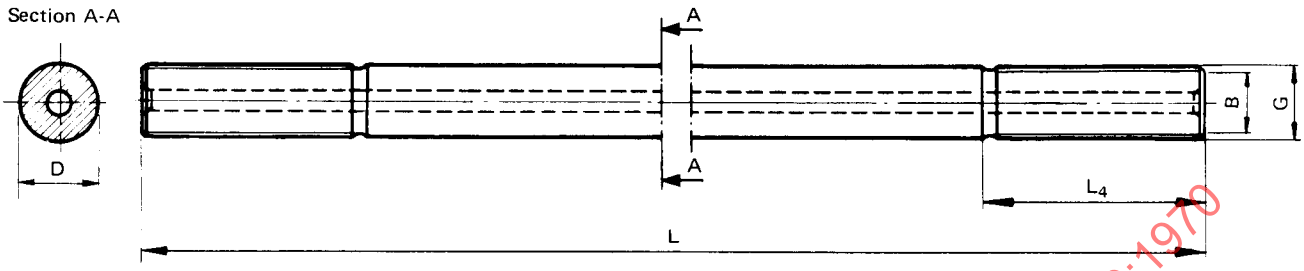
$1\frac{3}{4}$ in (45 mm)

2 in (51 mm)

2. LIST OF COMPONENTS

Equipment	$1\frac{1}{2}$ in (38 mm)		$1\frac{3}{4}$ in (45 mm)		2 in (51 mm)	
Thread diameter	$1\frac{1}{2}$ in		$1\frac{3}{4}$ in		2 in	
Size of drill steel in bar form	$1\frac{1}{2}$ in ϕ (38 mm)		$1\frac{3}{4}$ in ϕ (45 mm)		2 in ϕ (51 mm)	
Lengths of extension rods (see page 5)	mm	ft	mm	ft	mm	ft
	3050 3660 –	10 12 –	3050 3660 –	10 12 –	3050 – 6095	10 – 20
Wrench flats for extension rods	See page 6					
Coupling sleeves	See page 7					
Bit diameter (four-wing bits) (see page 9)	mm	in	mm	in	mm	in
	64 70 76 89 – –	$2\frac{1}{2}$ $2\frac{3}{4}$ 3 $3\frac{1}{2}$ – –	– – 76 89 102 –	– – 3 $3\frac{1}{2}$ 4 –	– – – 89 102 115	– – – $3\frac{1}{2}$ 4 $4\frac{1}{2}$
Rope threads	See pages 9 and 10					
Round drill steel in bar form	See page 11					

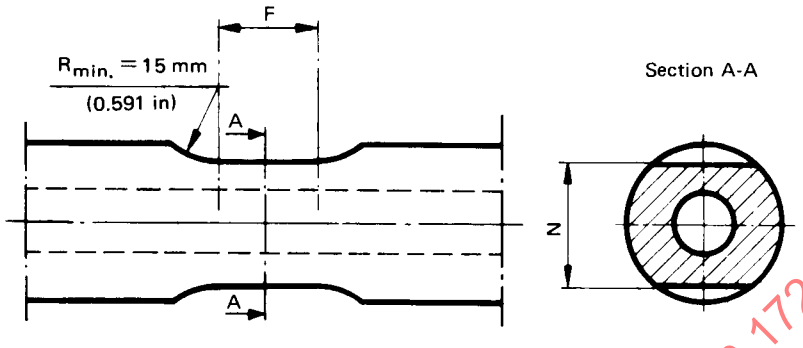
3. EXTENSION RODS



Equipment	Round drill steel *D* nominal		Thread diameter *G* nominal	*B* ± 0.7 mm (± 0.0275 in)		*L*				*L*4 * ± 1 mm (0.039 in)	
						Basic dimension	Tolerance	Basic dimension	Tolerance		
	mm	in	in	mm	in	mm	mm	ft	in	mm	in
1 1/2 in	38	1 1/2	1 1/2	31.4	1.236	3050 3660	± 10	10 12	± 3/8	92	3.622
1 3/4 in	45	1 3/4	1 3/4	37.4	1.472	3050 3660	± 10	10 12	± 3/8	102	4.016
2 in	51	2	2	41.5	1.634	3050 6095	± 10	10 20	± 3/8	102	4.016

* For an eccentric undercut of the thread, where the length of L_4 varies along the circumference of the bar, a tolerance of ± 2.5 mm (0.1 in) is acceptable.

4. WRENCH FLATS FOR ROUND EXTENSION RODS



Dimensions in millimetres

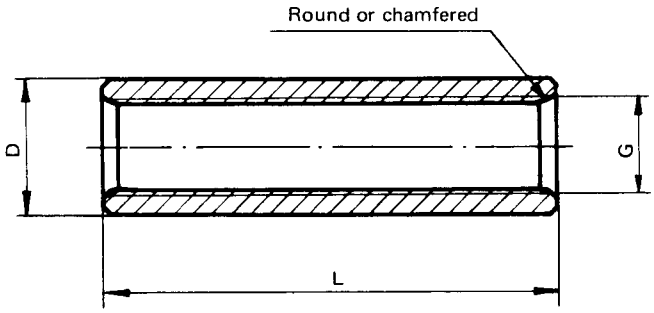
Equipment	Round drill steel	*F*	*N*
	Nominal size	min.	$^{0}_{-0.4}$
$1\frac{1}{2}$ in	38	20	32.3
$1\frac{3}{4}$ in	45	25	38.6
2 in	51	35	45.4

Dimensions in inches

Equipment	Round drill steel	*F*	*N*
	Nominal size	min.	$^{0}_{-0.016}$
$1\frac{1}{2}$ in	$1\frac{1}{2}$	0.787	1.272
$1\frac{3}{4}$ in	$1\frac{3}{4}$	0.984	1.520
2 in	2	1.378	1.520

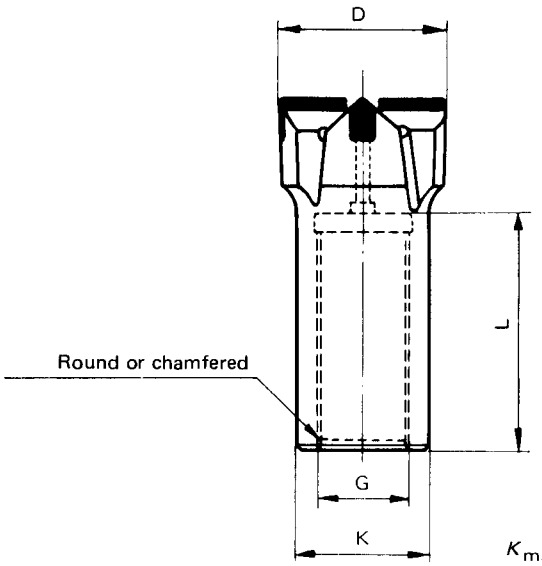
NOTE. – The application of wrench flats is optional.

5. COUPLING SLEEVES

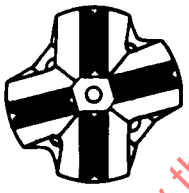


Equipment	L $^{0}_{-1}$ mm $\left(^{0}_{-0.039}\right.$ in$\left.\right)$		D max.		Thread diameter G nominal
	mm	in	mm	in	in
1 $\frac{1}{2}$ in	180	7.1	56	2.205	1 $\frac{1}{2}$
1 $\frac{3}{4}$ in	200	7.9	67	2.638	1 $\frac{3}{4}$
2 in	200	7.9	78	3.071	2

6. FOUR-WING BITS (X-DESIGN)



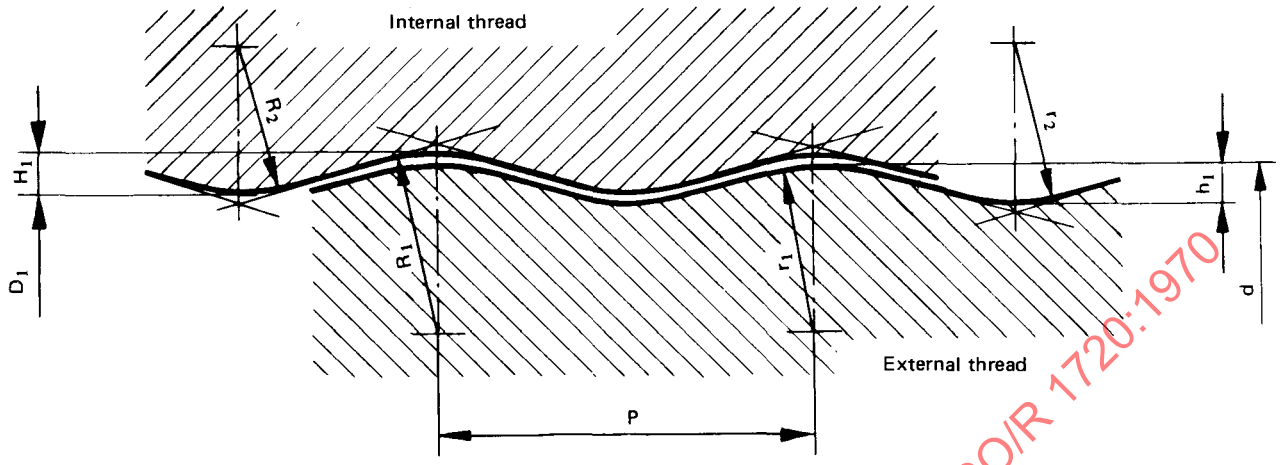
$K_{max} = D - 5$ mm (0.197 in)



X-design

Equipment	Nominal diameter		D				Thread diameter G nominal	L max.	
			Basic size		Tolerance				
	mm	in	mm	in	mm	in	in	mm	in
1 1/2 in	64	2 1/2	63.50	2.500	+ 0.6	+ 0.024	1 1/2	90	3.543
	70	2 3/4	69.85	2.750					
	76	3	76.20	3.000					
	89	3 1/2	88.90	3.500					
1 3/4 in	76	3	76.20	3.000	+ 0.6	+ 0.024	1 3/4	100	3.937
	89	3 1/2	88.90	3.500	+ 0.6	+ 0.024			
	102	4	101.60	4.000	+ 1.0	+ 0.039			
2 in	89	3 1/2	88.90	3.500	+ 0.6	+ 0.024	2	100	3.937
	102	4	101.90	4.000	+ 1.0	+ 0.039			
	115	4 1/2	114.30	4.500	+ 1.0	+ 0.039			

7. LEFT-HAND ROPE THREAD



Dimensions in millimetres

Nominal thread diameter	Internal thread				External thread				Pitch P
	Diameter D_1 $^{+0.25}_{0}$	H_1 $^{+0.2}_{0}$	R_1 ±0.4	R_2 ±0.4	Diameter d $^{0}_{-0.20}$	h_1 $^{+0.2}_{0}$	r_1 ±0.4	r_2 ±0.4	
$1\frac{1}{2}$ in	35.01	1.5	5.5	6.0	37.99	1.5	5.5	6.0	12.7
$1\frac{3}{4}$ in	40.71	1.5	5.5	6.0	44.49	1.5	5.5	6.0	12.7
2 in	47.01	1.5	5.5	6.0	49.99	1.5	5.5	6.0	12.7

Dimensions in inches

Nominal thread diameter	Internal thread				External thread				Pitch P
	Diameter D_1 $^{+0.010}_{0}$	H_1 $^{+0.008}_{0}$	R_1 ±0.016	R_2 ±0.016	Diameter d $^{0}_{-0.008}$	h_1 $^{+0.008}_{0}$	r_1 ±0.016	r_2 ±0.016	
$1\frac{1}{2}$ in	1.378	0.059	0.217	0.236	1.495	0.059	0.217	0.236	0.500
$1\frac{3}{4}$	1.603	0.059	0.217	0.236	1.752	0.059	0.217	0.236	0.500
2 in	1.851	0.059	0.217	0.236	1.968	0.059	0.217	0.236	0.500