UDC 622.233.6.05

Ref. No. : ISO/R 1719-1970 (E)

Transformed.

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1719

ROCK DRILLING

EXTENSION DRILL-STEEL EQUIPMENT FOR PERCUSSIVE LONG-HOLE DRILLING

ROPE-THREADED EQUIPMENTS

$\frac{7}{8}$ to $1\frac{1}{4}$ in (22 to 32 mm)

1st EDITION

November 1970

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1719, *Rock drilling – Extension drill-steel equipment for percussive long-hole drilling – Rope-threaded equipments* $\frac{7}{8}$ *to* $1\frac{1}{4}$ *in (22 to 32 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. 1719, 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 1719 | November 1970

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ROPE-THREADED EQUIPMENTS

$\frac{7}{8}$ to $1\frac{1}{4}$ in (22 to 32 mm)

1. SCOPE

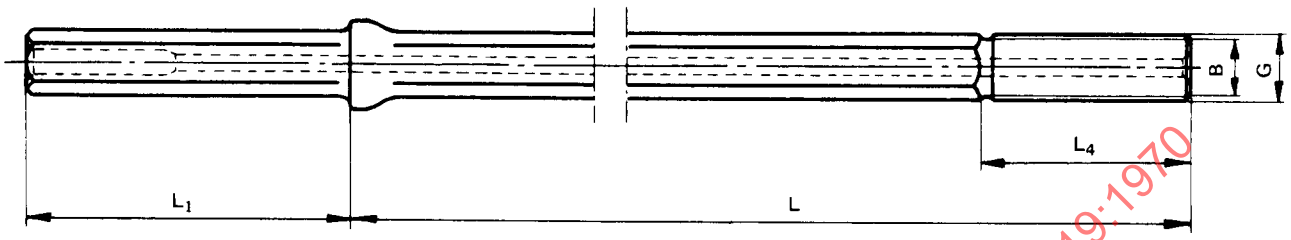
This ISO Recommendation specifies the basic dimensions for rope-threaded extension drill-steel equipment for percussive long-hole drilling, of the following nominal sizes :

$\frac{7}{8}$ in		(22 mm)
1 in	light	(25 mm)
1 in		(25 mm)
$1\frac{1}{4}$ in	light	(32 mm)
$1\frac{1}{4}$ in		(32 mm)

2. LIST OF COMPONENTS

Equipment	$\frac{7}{8}$ in (22 mm)	1 in light (25 mm)	1 in (25 mm)	$1\frac{1}{4}$ in light (32 mm)	$1\frac{1}{4}$ in (32 mm)
Thread diameter	$\frac{7}{8}$ in	1 in	1 in	$1\frac{1}{4}$ in	$1\frac{1}{4}$ in
Size of drill steel in bar form	$\frac{7}{8}$ in hexagonal (22 mm)	$\frac{7}{8}$ in hexagonal (22 mm)	1 in hexagonal (25 mm)	1 in hexagonal (25 mm)	$1\frac{1}{4}$ in round (32 mm)
Lengths of shank rods (See page 5)	mm / ft in: 1000 / 3 3; 1800 / 5 11; 2600 / 8 6; 3400 / 11 2	–	–	–	–
Lengths of shank adapters hexagon type (See page 6)	–	mm: 255; in: 10	mm: 255; in: 10	–	–
Shank adapter lug-shank type (See page 8)	–	Shank-end diameter $1\frac{1}{4}$ in	Shank-end diameter $1\frac{1}{4}$ in	Shank-end diameter $1\frac{1}{4}$ in	Shank-end diameter $1\frac{1}{4}$ in ($1\frac{1}{2}$ in)
Lengths of extension rods (See page 7)	mm / ft in: 800 / 2 7; – / – –; 1600 / 5 3; – / – –; 2400 / 7 10; 3200 / 10 6	mm / ft: 915 / 3; 1220 / 4; – / –; 1830 / 6; 2435 / 8; – / –	mm / ft: 915 / 3; 1220 / 4; – / –; 1830 / 6; 2435 / 8; – / –	mm / ft: 915 / 3; 1220 / 4; 1525 / 5; 1830 / 6; 2435 / 8; – / –	mm / ft: 915 / 3; 1220 / 4; – / –; 1830 / 6; 2435 / 8; 3050 / 10
Wrench flats for extension rods	See page 9				
Coupling sleeve	See page 10				
Bit diameter (chisel bits) (See page 11)	mm / in: 36 / $1\frac{7}{16}$; 38 / $1\frac{1}{2}$; 41 / $1\frac{5}{8}$	–	–	–	–
Bit diameter (four-wing bits) (See page 12)	mm / in: 35 / $1\frac{3}{8}$; 38 / $1\frac{1}{2}$; 41 / $1\frac{5}{8}$; – / –; – / –; – / –; – / –	mm / in: 41 / $1\frac{5}{8}$; 45 / $1\frac{3}{4}$; – / –; 51 / 2; – / –	mm / in: 41 / $1\frac{5}{8}$; 45 / $1\frac{3}{4}$; – / –; 51 / 2; – / –	mm / in: – / –; – / –; 48 / $1\frac{7}{8}$; 51 / 2; 57 / $2\frac{1}{4}$; 64 / $2\frac{1}{2}$	mm / in: – / –; – / –; 48 / $1\frac{7}{8}$; 51 / 2; 57 / $2\frac{1}{4}$; 64 / $2\frac{1}{2}$
Rope threads	See pages 13 and 14				
Hollow hexagonal bars for extension rods	See page 15				
Hollow round bars for extension rods	See page 16				

3. SHANK RODS FOR CENTRAL FLUSHING

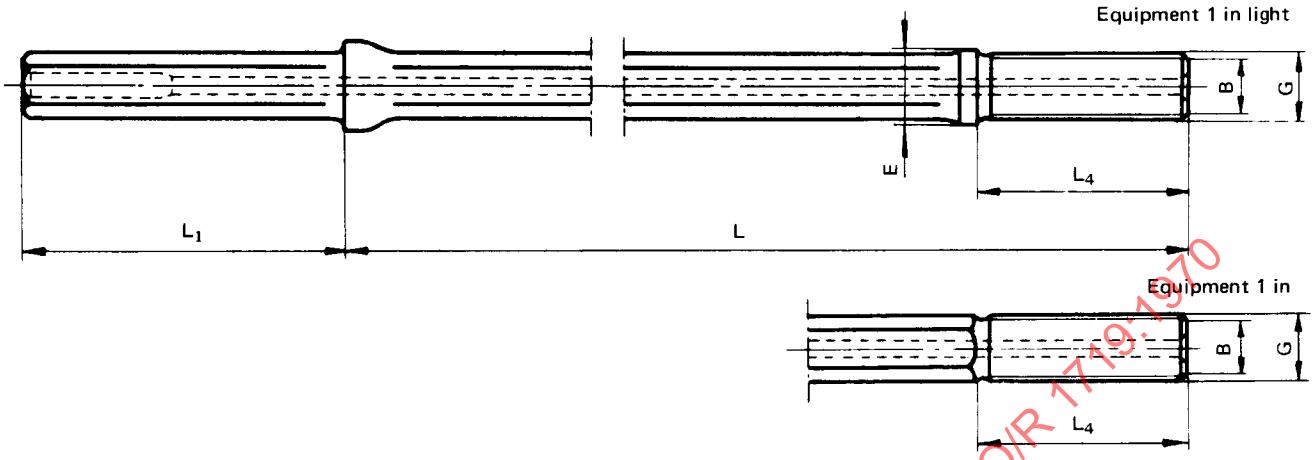


Equipment	Hexagonal drill steel Nominal dimensions		Thread diameter G nominal	B ± 0.7 mm (± 0.0275 in)		L ± 25 mm (± 1 in)			L_1		L_4* ± 1 (± 0.039 in)	
	mm	in	in	mm	in	mm	ft	in	mm	in	mm	in
$\frac{7}{8}$ in (22 mm)	22	$\frac{7}{8}$	$\frac{7}{8}$	16.5	0.650	1000	3	$3\frac{3}{8}$	108	$4\frac{1}{4}$	71.5	2.815
						1800	5	$10\frac{7}{8}$				
						2600	8	$6\frac{3}{8}$				
						3400	11	$1\frac{7}{8}$				

* 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.

For the sizes and tolerances of forged collared shanks, see ISO Recommendation R 723, *Rock drilling – Forged collared shanks and chuck bushings for hollow hexagonal drill steels.*

4. SHANK ADAPTERS FOR CENTRAL FLUSHING – HEXAGON TYPE



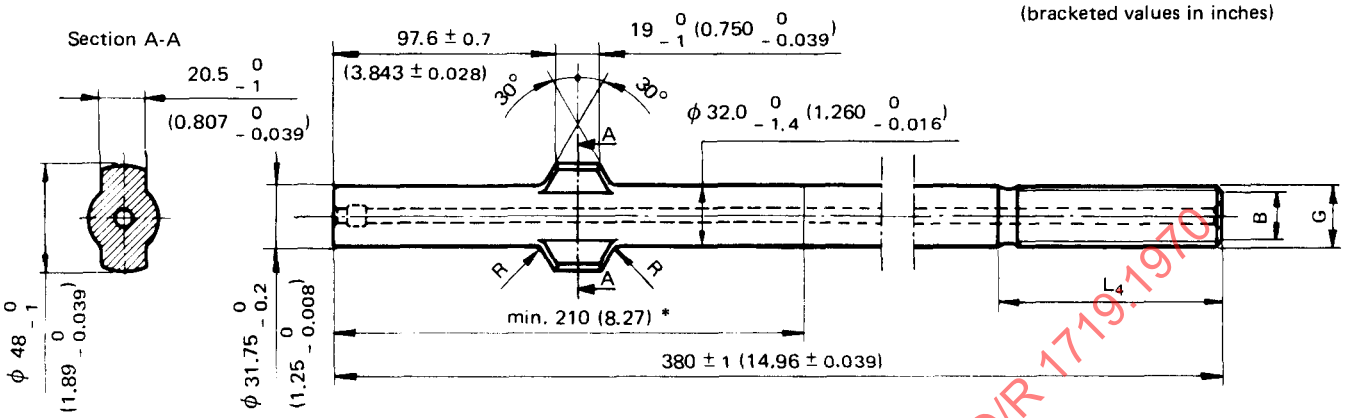
Equipment	Hexagonal drill steel Nominal dimensions		Thread diameter G nominal	B ± 0.7 mm (± 0.0275 in)		E min.		L ± 25 mm (± 1 in)		L_1		L_4 * ± 1 mm (± 0.039 in)	
	mm	in	in	mm	in	mm	in	mm	in	mm	in	mm	in
1 in light (25 mm)	22	$\frac{7}{8}$	1	19.4	0.764	26	1.024	255	10	108	$4\frac{1}{4}$	81	3.189
1 in (25 mm)	25	1	1	19.4	0.764	–	–	255	10	108 159	$4\frac{1}{4}$ $6\frac{1}{4}$	81	3.189

* 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.

For the sizes and tolerances of forged collared shanks, see ISO Recommendation R 723, *Rock drilling – Forged collared shanks and chuck bushings for hollow hexagonal drill steel.*

5. SHANK ADAPTERS FOR CENTRAL FLUSHING; LUG-SHANK TYPE

dimensions in millimetres
(bracketed values in inches)

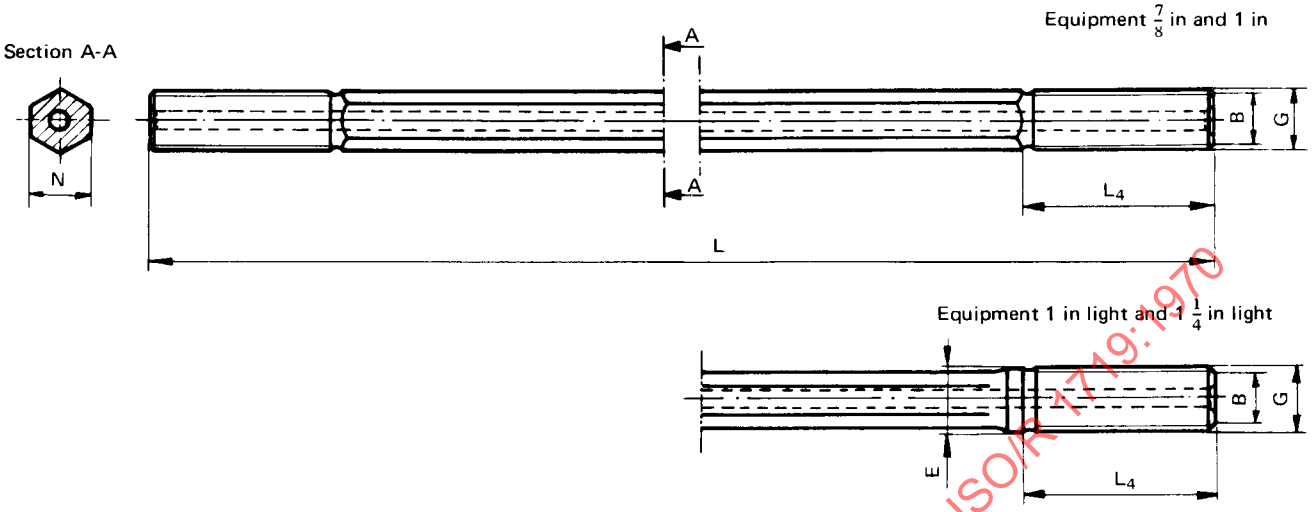


Equipment	Thread diameter G nominal	B ± 0.7 mm (± 0.0275 in)		L_4 ** ± 1 mm (± 0.039 in)		R max.		Flushing tube			
								Outside diameter ± 0.1 mm (± 0.004 in)		Entry length max.	
	in	mm	in	mm	in	mm	in	mm	in	mm	in
1 in	1	19.4	0.764	81	3.189	4	0.157	10	$\frac{25}{64}$	82.5	$3\frac{1}{4}$
$1\frac{1}{4}$ in light (32 mm) $1\frac{1}{4}$ in (32 mm)	$1\frac{1}{4}$	25.6	1.008	81	3.189	4	0.157	10	$\frac{25}{64}$	82.5	$3\frac{1}{4}$

* This refers to the length for which the diameter is $32.0\ ^{0}_{-0.4}$ mm ($1.26\ ^{0}_{-0.016}$ in).

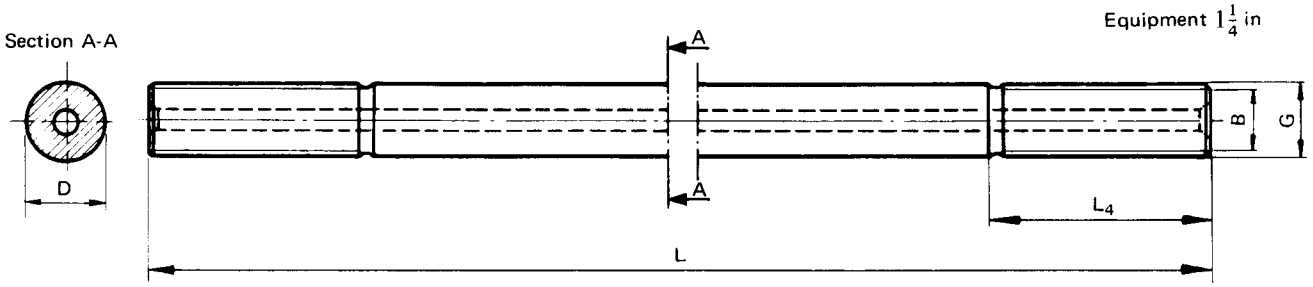
** For an eccentric undercut of the thread, where the length of L_4 varies along the circumference of the bar, a tolerance of ± 2.5 mm (0.1 in) is acceptable.

6. EXTENSION RODS



Equipment	Hexagonal drill steel N nominal		Thread diameter G nominal	B ± 0.7 mm (± 0.0275 in)		E min.		L				L_4* ± 1 mm (0.039 in)	
								Basic dimension	Tolerance	Basic dimension	Tolerance		
	mm	in	in	mm	in	mm	in	mm	mm	ft in	in	mm	in
$\frac{7}{8}$ in (22 mm)	22	$\frac{7}{8}$	$\frac{7}{8}$	16.5	0.650	–	–	800 1600 2400 3200	± 10	2 $7\frac{1}{2}$ 5 3 7 $10\frac{1}{2}$ 10 6	$\pm\frac{3}{8}$	71.5	2.815
1 in light (25 mm)	22	$\frac{7}{8}$	1	19.4	0.764	26	1.024	915 1220 1830 2435	± 25	3 4 6 8	± 1	81	3.189
1 in (25 mm)	25	1	1	19.4	0.764	–	–	915 1220 1830 2435	± 10	3 4 6 8	$\pm\frac{3}{8}$	81	3.189
$1\frac{1}{4}$ in light (32 mm)	25	1	$1\frac{1}{4}$	25.6	1.008	32	1.260	915 1220 1525 1830 2435	± 25	3 4 5 6 8	± 1	81	3.189

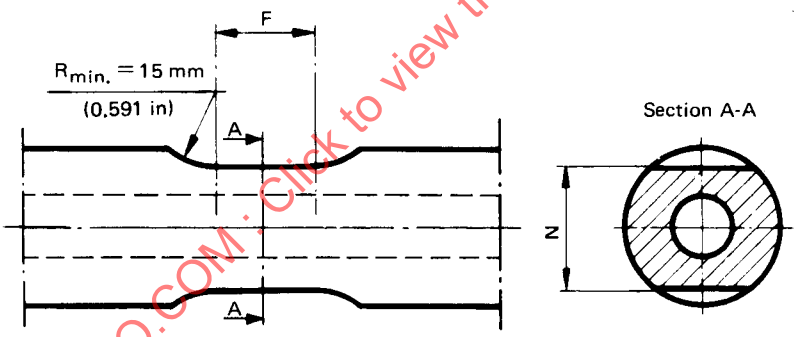
* For an eccentric undercut of the thread, where the length of L_4 varies along the circumference of the bar, a tolerance of ± 2.5 mm (0.1 in) is acceptable.



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	in	mm	in
$1\frac{1}{4}$ in (32 mm)	32	$1\frac{1}{4}$	$1\frac{1}{4}$	25.6	1.008	915 1220 1830 2435 3050	± 10	3 4 6 8 10	$\pm\frac{3}{8}$	81	3.189

* 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.

7. WRENCH FLATS FOR ROUND EXTENSION RODS



Dimensions in millimetres

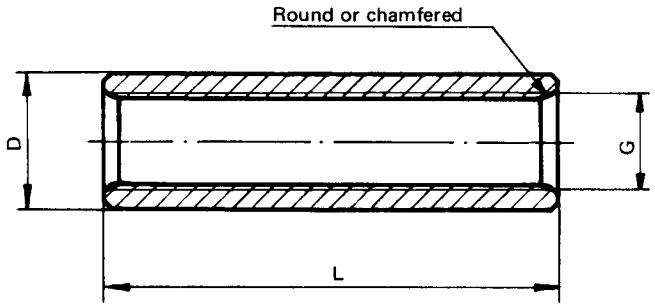
Equipment	Round drill steel Nominal dimension	F min.	N 0 -0.4
$1\frac{1}{4}$ in (32 mm)	32	15	25.6

Dimensions in inches

Equipment	Round drill steel Nominal dimension	F min.	N 0 -0.016
$1\frac{1}{4}$ in (32 mm)	$1\frac{1}{4}$	0.591	1.008

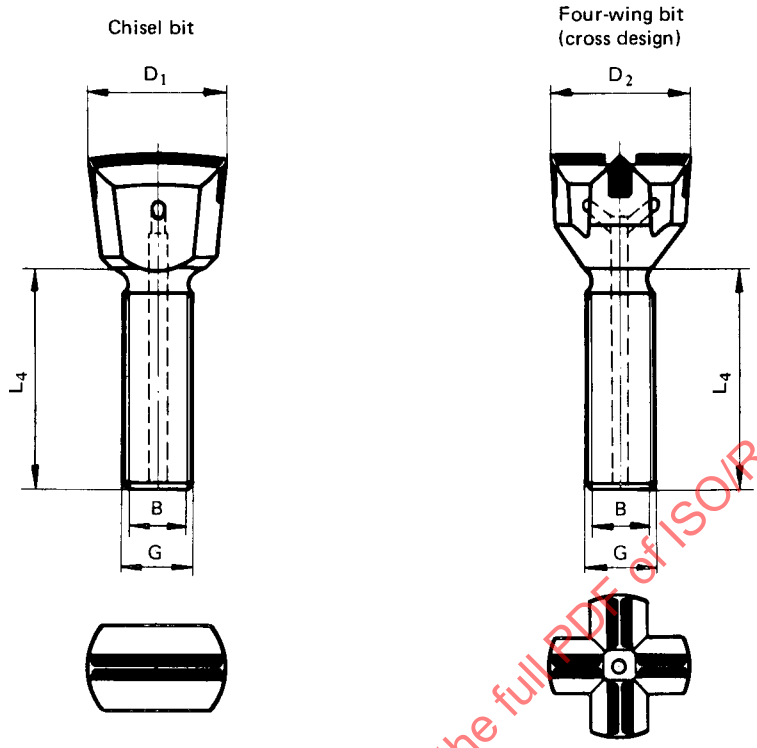
The application of wrench flats is optional.

8. COUPLING SLEEVES



Equipment	L $^{0}_{-1}$ mm ($^{0}_{-0.039}$ in)		D max.		Thread diameter G nominal
	mm	in	mm	in	in
$\frac{7}{8}$ in (22 mm)	140	5.5	32	1.26	$\frac{7}{8}$
1 in light (25 mm)	160	6.3	37	1.46	1
1 in (25 mm)	160	6.3	37	1.46	1
$1\frac{1}{4}$ in light (32 mm)	160	6.3	45	1.77	$1\frac{1}{4}$
$1\frac{1}{4}$ in (32 mm)	160	6.3	45	1.77	$1\frac{1}{4}$

9. DRILL BITS FOR $\frac{7}{8}$ in EQUIPMENT



9.1 Chisel bits

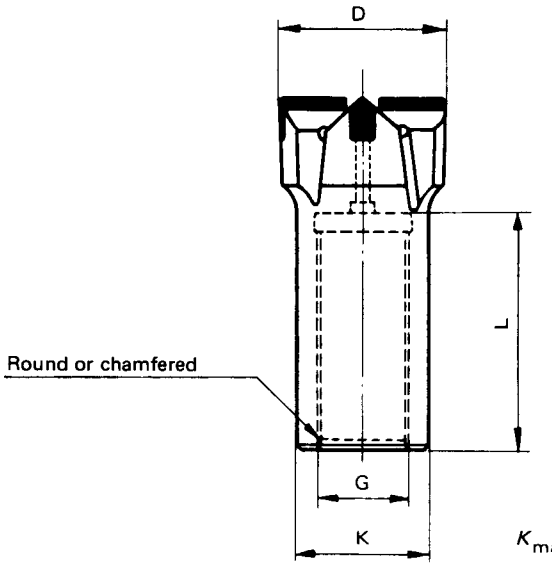
Equipment	B ± 0.7 mm (± 0.0275 in)		D_1						Thread diameter G nominal	L_4*			
			Nominal size		Basic size		Tolerance			Basic size		Tolerance	
	mm	in	mm	in	mm	in	mm	in	in	mm	in	mm	in
$\frac{7}{8}$ in (22 mm)	16.5	0.650	36	$1\frac{7}{16}$	36	1.417	+ 0.3 − 0.1	+ 0.012 − 0.004	$\frac{7}{8}$	71.5	2.815	± 1	± 0.039
			38	$1\frac{1}{2}$	38	1.500							
			41	$1\frac{5}{8}$	41	1.614							

9.2 Four-wing bits (cross design)

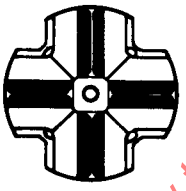
Equipment	B ± 0.7 mm (± 0.0275 in)		D_1						Thread diameter G nominal	L_4*			
			Nominal size		Basic size		Tolerance			Basic size		Tolerance	
	mm	in	mm	in	mm	in	mm	in	in	mm	in	mm	in
$\frac{7}{8}$ in (22 mm)	16.5	0.650	35	$1\frac{3}{8}$	34.92	1.375	+ 0.3 0	+ 0.012 0	$\frac{7}{8}$	71.5	2.815	± 1	± 0.039
			38	$1\frac{1}{2}$	38.10	1.500							
			41	$1\frac{5}{8}$	41.28	1.625							

* If there is no undercut so that L_4 is limited by the run-out of the thread and, accordingly, varies at different points of the circumference of the bar, a tolerance of ± 2.5 mm (0.1 in) is acceptable.

10. FOUR-WING BITS



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



Cross design

Equipment	Nominal diameter		Basic size D $^{+0.3\ (0.012)}_{0}$		Thread diameter G nominal	L max.	
	mm	in	mm	in	in	mm	in
1 in (25 mm)	41	$1\frac{5}{8}$	41.28	1.625	1	80	3.150
	45	$1\frac{3}{4}$	44.45	1.750			
	51	2	50.80	2.000			
$1\frac{1}{4}$ in light and $1\frac{1}{4}$ in (32 mm)	48	$1\frac{7}{8}$	47.62	1.875	$1\frac{1}{4}$	80	3.150
	51	2	50.80	2.000			
	57	$2\frac{1}{4}$	57.15	2.250			
	64	$2\frac{1}{2}$	63.50	2.500			