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**Specification for
Circular machine screwing dies,
hand screwing dies
and hexagon die nuts**

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The following BSI references relate to the work on this standard:
Committee reference MEE/58 Draft for comment 72/32449DC

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Associated Offices Technical Committee	Engineering Equipment Users' Association
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The Government department and the industrial organization marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

British Electrical Systems Association	Screw Thread Tool Manufacturers' Association
National Physical Laboratory – Department of Trade and Industry	Society of Motor Manufacturers and Traders Limited
	Industrial experts

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Foreword

This British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee in accordance with the BSI policy of producing fully metric standards.

First issued in 1943 as a war emergency standard it was revised in 1950 to include hexagon die-nuts.

During the preparation of this revision of this British Standard account has been taken of agreement reached within the International Organization for Standardization (ISO), and the dimensions of the circular machine screwing dies and hand screwing dies are in agreement with International Standard ISO 2568 'Hand- and machine-operated circular screwing dies and hand operated die stocks'. The use of hexagon die-nuts is particular to the United Kingdom and the dimensions of these have been established by the related trade association.

Appendix A relates to carbon cut thread quality dies in imperial units. Appendix B relates to dimensions for hexagon die-nuts in imperial units. In keeping with the revision of BS 21 'Pipe threads for tubes and fittings where pressure-tight joints are made on the threads' and BS 2779 'Pipe threads where pressure-tight joints are not made on the threads' the new designations of pipe threads have been adopted, namely: 'G' = BSPF, 'R' = BSPT threads.

British Standard Specification for

Circular machine screwing dies, hand screwing dies and hexagon dienuts

1. Scope

This British Standard specifies the overall dimensions of machine- and hand-operated circular screwing dies for all sizes of general purpose threads up to 71 mm and for pipe threads up to G2½ and R2. It also specifies the overall dimensions of hexagon dienuts for general purpose threads up to 52 mm and for pipe threads up to G2 and R2.

Provision is made in Table 1 for 12 outside diameters of circular dies.

NOTE 1. The appropriate dies for screwing sizes larger than those shown in Table 1 should form the subject of agreement between the purchaser and the manufacturer. Table 8 provides a comprehensive range of hexagon dienuts.

Provision is made for solid and split dies.

NOTE 2. The titles of the British Standards referred to in this standard are listed on the inside back cover.

2. General dimensions

The outside diameters and thicknesses of circular dies shall be as given in Tables 1 to 7.

The dimensions for hexagon dienuts shall be as given in Table 8.

3. Screwing sizes

Only those screwing sizes which are associated in the tables with any particular outside diameter of die shall be regarded as standard when used in conjunction with such outside diameter.

4. Slots and recesses for fixing and adjusting screws

4.1 The slots grooves or recesses for the dieholder fixing and adjusting screws shall be placed as shown in Figs. 1 to 7.

4.2 The provision of the slots, groove or conical recess is optional in the case of dies 16 mm, 20 mm and 25 mm diameter.

4.3 The form of the Vee groove is left to the manufacturer's discretion.

5. Tolerances

5.1 Circular screwing dies. The tolerance on the outside diameter D shall be $f10^{*}$ and on the thickness E the tolerance shall be $js12^{*}$.

5.2 Hexagon dienuts. The tolerance across the flats shall be $h13^{*}$.

6. Marking

Dies and dienuts shall be marked with the thread designation. Dies and dienuts made from high speed steel shall be marked HSS.

7. Circular split dies

Circular split dies which conform to the dimensions of this standard will only be supplied when specified by the purchaser (see also Appendix A).

*See BS 4500.

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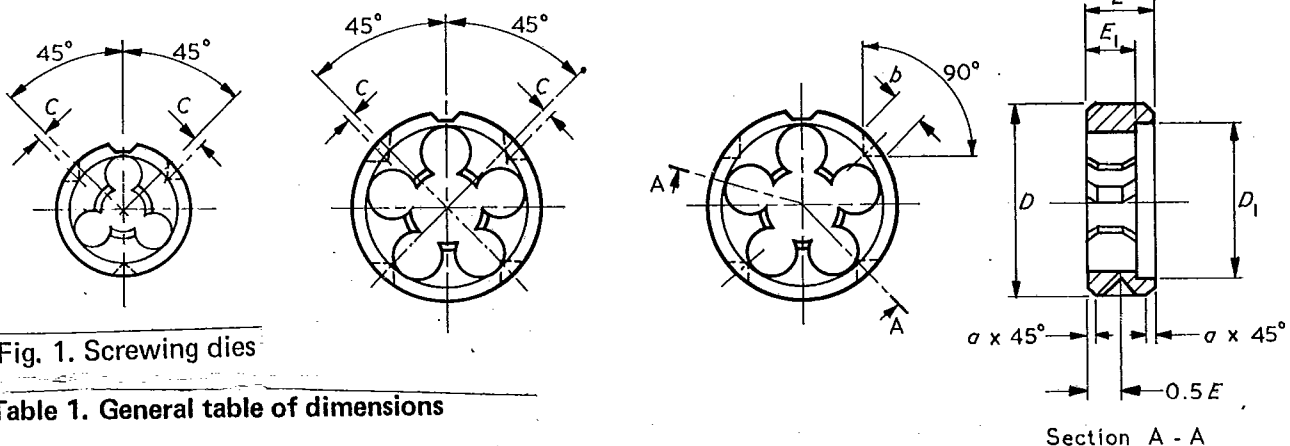
 $D = 16 \text{ mm and } 20 \text{ mm}$ $D \geq 25 \text{ mm}$


Fig. 1. Screwing dies

Table 1. General table of dimensions

Dimensions are in millimetres (except threads per inch)

Nominal diameter of thread		D	D ₁	E	Metric pitches																C	b	a		
					0.20 0.25	0.30 0.35	0.40 0.45	0.50 0.60 0.70	0.75 0.80	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00 4.50	5.00 5.50	6.00					
Threads per inch																									
Over	up to and incl.				80 72	64 56 48	48 44 40	36 32	28 26 24	22 20 19 18	16	14	13 12	11 10	9 8	7	6	5 4½	4 3½						
Cutting length E ₁ *																									
0.90	2.65	16	11	5	2	2.5	3	—														3	0.2		
			—	5	—	—	—	5														0.5			
2.65	6.30	20	15	5		3	—	—	—	—												4	0.5		
			—	5		—	—	5	—	—												0.6			
			—	7		—	—	—	7	7														5	
6.30†	9.00	25	—	9				9	9	9												0.8	1.0		
9.00	11.20	30	—	11					11	11	11	11										1.0			
11.20	15.00	38	—	10						10	10	—	—										1.2	6	1.0
			14						14§	—	14	14													
15.00†	21.20	45	—	14						14	14	14	14	—									1.5	8	2.0
			18						18§	—	—	—	18												
21.20	26.50	55	—	16							16	16	16	—	—								1.8	10	2.0
			22						—	22§	—	22	22												
26.50	37.50	65	—	18							18	18	18	18	—	—	—						2.0	12	2.0
			25						—	—	—	25§	25	25	25										
37.50	42.50	75	—	20							20	—	20	20	—	—	—						2.5	14	2.0
			30						—	—	—	30§	30	—	30										
42.50	53.00	90	—	22							22	—	22	22	—	—	—	—					3.0	16	2.0
			36						—	—	—	36§	36	36	36	36	36								
53.00	63.00	105	—	22							22	—	22	22	—	—	—	—					3.5	18	2.0
			36						—	—	—	36§	36	—	36	36									
63.00	71.00	120	—	22										22	—	—	—	—	—				4.0	20	2.0
			36						—	—	—	—	—	—	36	—	36								

* The cutting length is equal to E except where a value of D₁ is specified.

† The specified value of D is not applicable to dies for 1/4 in threads (see Tables 4 and 5). The specified values of D and E are not applicable to a die for an R1/16 thread (see Table 7).

‡ The specified values of D and E are not applicable to a die for an R1/2 thread (see Table 7).

§ These are values of E and are only applicable to dies for 'R' series threads. The values of E₁ specified in Table 1 are not included in Table 1.

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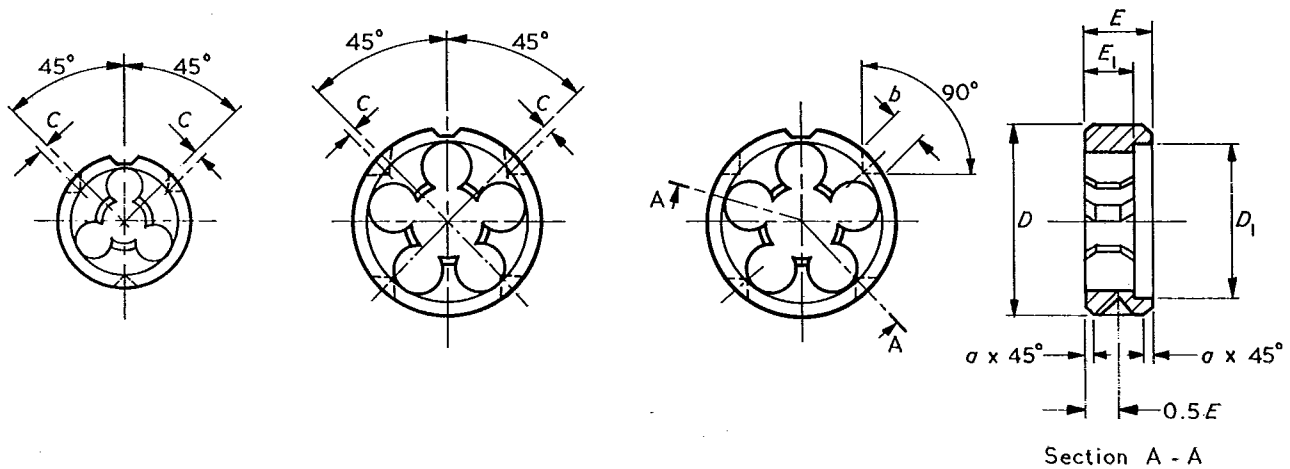
 $D = 16 \text{ mm and } 20 \text{ mm}$ $D \geq 25 \text{ mm}$ 

Fig. 2. Screwing dies, ISO metric coarse threads

Table 2. Circular machine and hand screwing dies for metric coarse threads

Dimensions are in millimetres

Designation	Basic diameter	Pitch	D	D_1	E	E_1	C	b	a	
M 1	1	0.25	16	11	5	2	0.5	3	0.2	
M 1.1	1.1									
M 1.2	1.2									
M 1.4	1.4	0.3				2.5				
M 1.6	1.6	0.35								
M 1.8	1.8									
M 2	2	0.4				3				
M 2.2	2.2	0.45								
M 2.5	2.5									
M 3	3	0.5				20		11	5	0.5
M 3.5	3.5	0.6								
M 4	4	0.7								
M 4.5	4.5	0.75								
M 5	5	0.8								
M 6	6	1								
M 7	7									
M 8	8	1.25	25	9	0.8		5			
M 9	9									
M 10	10	1.5	30	11	1.0		1.0			
M 11	11									

Designation	Basic diameter	Pitch	<i>D</i>	<i>E</i>	<i>C</i>	<i>b</i>	<i>a</i>		
M 12	12	1.75	38	14	1.2	6	1		
M 14	14	2							
M 16	16		2.5	45				18*	
M 18	18								
M 20	20	3		55	22	1.5			
M 22	22								
M 24	24		3.5	65	25		1.8		
M 27	27								
M 30	30	4				75		30	2.0
M 33	33								
M 36	36	4.5	90	36	2.5				
M 39	39								
M 42	42	5				105	36	2.5	
M 45	45								
M 48	48	5.5	120	36	10				
M 52	52								
M 56	56					6	140	48	12
M 60	60								
M 64	64	6	160	56	14				
M 68	68								

*In respect of a die for an M 16 thread, this value of E is an exception to the general table of dimensions (Table 1).