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III වන කොටස — මූලික මාන

SPECIFICATION FOR ISO METRIC SCREW THREADS

Part III — Basic Dimensions

ලංකා ප්‍රමිති කාර්යාංශය
BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR ISO METRIC SCREW THREADS

PART III – BASIC DIMENSIONS

S. L. S. 268 : 1974

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BUREAU OF CEYLON STANDARDS
53, DHARMAPALA MAWATHA,
COLOMBO – 3.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This Standard does not purport to include all the necessary provisions of a contract.

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SRI LANKA STANDARD SPECIFICATION FOR ISO METRIC SCREW THREADS

Part III—Basic Dimensions

FOREWORD

This Sri Lanka Standard Specification was prepared by the drafting committee on Metric Screw Threads. It was approved by the Mechanical Engineering Divisional committee of the Bureau of Ceylon Standards and was authorized for adoption and publication by the Council of the Bureau on 21st May 1974.

Although this standard is not a revision of the C.S. 96: "Specification for Dimensions of Parallel Coarse Screw thread of Whitworth Form", this standard will replace it in due course.

This standard is being issued in different parts as under

Part I — Basic & Design Profiles
Part II — Pitch/Diameter Combinations
Part III — Basic Dimensions
Part IV — Tolerancing system
Part V — Tolerances
Part VI — Limits of sizes for commercial bolts, screws and nuts.

This standard (Part III) is based on ISO/R 724:1968 "ISO General Purpose Screw Threads, Basic Dimensions" issued by the International Organisation for Standardization.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test, shall be rounded off in accordance with C.S. 102. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

This standard (Part III) tabulates the basic dimensions for ISO Metric Screw Threads. The values refer to the basic profile as given in Part I of this standard.

2. SYMBOLS

The various symbols used in this standard shall denote the quantities given below against each and also shown in Figure 1.

D = major diameter of internal thread
D_1 = minor diameter of internal thread
D_2 = pitch diameter of internal thread

d	=	major diameter of external thread
d_1	=	minor diameter of external thread
d_2	=	pitch diameter of external thread
H	=	Height of the fundamental triangle
P	=	pitch

3. FORMULAE

The values D_2, d_2, D_1 and d_1 shall be calculated using the following formulae.

D_2	=	D	— $2 \times 3/8$	$H=D$	—	$0.649\,519\,053\,P$ mm
d_2	=	d	— $2 \times 3/8$	$H=d$	—	$0.649\,519\,053\,P$ mm
D_1	=	D	— $2 \times 5/8$	$H=D$	—	$1.082\,531\,755\,P$ mm
d_1	=	d	— $2 \times 5/8$	$H=d$	—	$1.082\,531\,755\,P$ mm

4. BASIC DIMENSIONS

The basic dimensions for the basic profiles of ISO Metric Screw Threads shall be as given in Table I.

Fig. 1.

TABLE 1 — BASIC DIMENSIONS

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
1	0.25 0.2	1.000 000 1.000 000	0.837 620 0.870 096	0.729 367 0.783 494
1.1	0.25 0.2	1.100 000 1.100 000	0.937 620 0.970 096	0.829 367 0.883 494
1.2	0.25 0.2	1.200 000 1.200 000	1.037 620 1.070 096	0.929 367 0.983 494
1.4	0.3 0.2	1.400 000 1.400 000	1.205 144 1.270 096	1.075 240 1.183 494
1.6	0.35 0.2	1.600 000	1.372 668 1.470 096	1.221 114 1.383 494
1.8	0.35 0.2	1.800 000	1.572 668 1.670 096	1.421 114 1.583 494
2	0.4 0.25	2.000 000	1.740 192 1.837 620	1.566 987 1.729 367
2.2	0.45 0.25	2.200 000	1.907 716 2.037 620	1.712 861 1.929 367
2.5	0.45 0.35	2.500 000	2.207 716 2.272 668	2.012 861 2.121 114
3	0.5 0.35	3.000 000	2.675 240 2.772 668	2.458 734 2.621 114
3.5	0.6 0.35	3.500 000	3.110 289 3.272 668	2.850 481 3.121 114
4	0.7 0.5	4.000 000	3.545 337 3.675 240	3.242 228 3.458 734
4.5	0.75 0.5	4.500 000	4.012 861 4.175 240	3.688 101 3.958 734
5	0.8 0.5	5.000 000	4.480 385 4.675 240	4.133 975 4.458 734
5.5	0.5	5.500 000	5.175 240	4.958 734
6	1 0.75	6.000 000	5.350 481 5.512 861	3.917 468 5.188 101
7	1 0.75	7.000 000	6.350 481 6.512 861	5.917 468 6.188 101

TABLE 1 — BASIC DIMENSIONS *(Continued)*

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
8	1.25	8.000 000	7.188 101	6 646 835
	1		7.350 481	6.917 468
	0.75		7.512 861	7.188 101
9	1.25	9.000 000	8.188 101	7.646 835
	1		8.350 481	7.917 468
	0.75		8.512 861	8.188 101
10	1.5	10.000 000	9.025 721	8.376 202
	1.25		9.188 101	8.646 835
	1		9.350 481	8.917 468
	0.75		9.512 861	9.188 101
11	1.5	11.000 000	10.025 721	9.376 202
	1		10.350 481	9.917 468
	0.75		10.512 861	10.188 101
12	1.75	12.000 000	10.863 342	10.105 569
	1.5		11.025 721	10.376 202
	1.25		11.188 101	10.646 835
	1		11.350 481	10.917 468
14	2	14.000 000	12.700 962	11.834 936
	1.5		13.025 721	12.376 202
	1.25		13.188 101	12.646 835
	1		13.350 481	12.917 468
15	1.5	15.000 000	14.025 721	13.376 202
	1		14.350 481	13.917 468
16	2	16.000 000	14.700 962	13.834 936
	1.5		15.025 721	14.376 202
	1		15.350 481	14.917 468
17	1.5	17.000 000	16.025 721	15.376 202
	1		16.350 481	15.917 468
18	2.5	18.000 000	16.376 202	15.293 671
	2		16.700 962	15.834 936
	1.5		17.025 721	16.376 202
	1		17.350 481	16.917 468
20	2.5	20.000 000	18.376 202	17.293 671
	2		18.700 962	17.834 936
	1.5		19.025 721	18.376 202
	1		19.350 481	18.917 468
22	2.5	22.000 000	20.376 202	19.293 671
	2		20.700 962	19.834 936
	1.5		21.025 721	20.376 202
	1		21.350 481	20.917 468

TABLE 1 — BASIC DIMENSIONS *(Continued)*

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
24	3 2 1.5 1	24.000 000	22.051 443 22.700 962 23.025 721 23.350 481	20.752 405 21.834 936 22.376 202 22.917 468
25	2 1.5 1	25.000 000	23.700 962 24.025 721 24.350 481	22.834 936 23.376 202 23.917 468
26	1.5	26.000 000	25.025 721	24.376 202
27	3 2 1.5 1	27.000 000	25.051 443 25.700 962 26.025 721 26.350 481	23.752 405 24.834 936 25.376 202 25.917 468
28	2 1.5 1	28.000 000	26.700 962 27.025 721 27.350 481	25.834 936 26.376 202 26.917 468
30	3.5 3 2 1.5 1	30.000 000	27.726 683 28.051 443 28.700 962 29.025 721 29.350 481	26.211 139 26.752 405 27.834 936 28.376 202 28.917 468
32	2 1.5	32.000 000	30.700 962 31.025 721	29.834 936 30.376 202
33	3.5 3 2 1.5	33.000 000	30.726 683 31.051 443 31.700 962 32.025 721	29.211 139 29.752 405 30.834 936 31.376 202
35	1.5	35.000 000	34.025 721	33.376 202
36	4 3 2 1.5	36.000 000	33.401 924 34.051 443 34.700 962 35.025 721	31.669 873 32.752 405 33.834 936 34.376 202
38	1.5	38.000 000	37.025 721	36.376 202
39	4 3 2 1.5	39.000 000	36.401 924 37.051 443 37.700 962 38.025 721	34.669 873 35.752 405 36.834 936 37.376 202
40	3 2 1.5	40.000 000	38.051 443 38.700 962 39.025 721	36.752 405 37.834 936 38.376 202

TABLE 1 — BASIC DIMENSIONS (*Continued*)

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
42	4.5	42.000 000	39.077 164	37.128 607
	4		39.401 924	37.669 873
	3		40.051 443	38.752 405
	2		40.700 962	39.834 936
	1.5		41.025 721	40.376 202
45	4.5	45.000 000	42.077 164	40.128 607
	4		42.401 924	40.669 873
	3		43.051 443	41.752 405
	2		43.700 962	42.834 936
	1.5		44.025 721	43.376 202
48	5	48.000 000	44.752 405	42.587 341
	4		45.401 924	43.669 873
	3		46.051 443	44.752 405
	2		46.700 962	45.834 936
	1.5		47.025 721	46.376 202
50	3	50.000 000	48.051 443	46.752 405
	2		48.700 962	47.834 936
	1·5		49.025 721	48.376 202
52	5	52.000 000	48.752 405	46.587 341
	4		49.401 924	47.669 873
	3		50.051 443	48.752 405
	2		50.700 962	49.834 936
	1.5		51.025 721	50.376 202
55	4	55.000 000	52.401 924	50.669 873
	3		53.051 443	51.752 405
	2		53.700 962	52.834 936
	1.5		54.025 721	53.376 202
56	5.5	56.000 000	52.427 645	50.046 075
	4		53.401 924	51.669 873
	3		54.051 443	52.752 405
	2		54.700 962	53.834 936
	1.5		55.025 721	54.376 202
58	4	58.000 000	55.401 924	53.669 873
	3		56.051 443	54.752 405
	2		56.700 962	55.834 936
	1.5		57.025 721	56.376 202
60	5.5	60.000 000	56.427 645	54.046 075
	4		57.401 924	55.669 873
	3		58.051 443	56.752 405
	2		58.700 962	57.834 936
	1.5		59.025 721	58.376 202

TABLE 1 — BASIC DIMENSIONS *(Continued)*

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
62	4	62.000 000	59.401 924	57.669 873
	3		60.051 443	58.752 405
	2		60.700 962	59.834 936
	1.5		61.025 721	60.376 202
64	6	64.000 000	60.102 886	57.504 809
	4		61.401 924	59.669 873
	3		62.051 443	60.752 405
	2		62.700 962	61.834 936
	1.5		63.025 721	62.376 202
65	4	65.000 000	62·401 924	60.669 873
	3		63.051 443	61.752 405
	2		63.700 962	62.834 936
	1.5		64.025 721	63.376 202
68	6	68.000 000	64.102 886	61.504 809
	4		65.401 924	63.669 873
	3		66.051 443	64.752 405
	2		66.700 962	65.834 936
	1.5		67.025 721	66.376 202
70	6	70.000 000	66.102 886	63.504 809
	4		67.401 924	65.669 873
	3		68.051 443	66.752 405
	2		68.700 962	67.834 936
	1.5		69.025 721	68.376 202
72	6	72.000 000	68.102 886	65.504 809
	4		69.401 924	67.669 873
	3		70.051 443	68.752 405
	2		70.700 962	69.834 936
	1.5		71.025 721	70.376 202
75	4	75.000 000	72.401 924	70.669 873
	3		73.051 443	71.752 405
	2		73.700 962	72.834 936
	1.5		74.025 721	73.376 202
76	6	76.000 000	72.102 886	69.504 809
	4		73.401 924	71.669 873
	3		74.051 443	72.752 405
	2		74.700 962	73.834 936
	1.5		75.025 721	74.376 202
78	2	78.000 000	76.700 962	75.834 936
80	6	80.000 000	76.102 886	73.504 809
	4		77.401 924	75.669 873
	3		78.051 443	76.752 405
	2		78.700 962	77.834 936
	1.5		79.025 721	78.376 202

TABLE 1 — BASIC DIMENSIONS *(Continued)*

(Unit : Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
82	2	82.000 000	80.700 962	79.834 936
85	6	85.000 000	81.102 886	78.504 809
	4		82.401 924	80.669 873
	3		83.051 443	81.752 405
	2		83.700 962	82.834 936
90	6	90.000 000	86.102 886	83.504 809
	4		87.401 924	85.669 873
	3		88.051 443	86.752 405
	2		88.700 962	87.834 936
95	6	95.000 000	91.102 886	88.504 809
	4		92.401 924	90.669 873
	3		93.051 443	91.752 405
	2		93.700 962	92.834 936
100	6	100.000 000	96.102 886	93.504 809
	4		97.401 924	95.669 873
	3		98.051 443	96.752 405
	2		98.700 962	97.834 936
105	6	105.000 000	101.102 886	98.504 809
	4		102.401 924	100.669 873
	3		103.051 443	101.752 405
	2		103.700 962	102.834 936
110	6	110.000 000	106.102 886	103.504 809
	4		107.401 924	105.669 873
	3		108.051 443	106.752 405
	2		108.700 962	107.834 936
115	6	115.000 000	111.102 886	108.504 809
	4		112.401 924	110.669 873
	3		113.051 443	111.752 405
	2		113.700 962	112.834 936
120	6	120.000 000	116.102 886	113.504 809
	4		117.401 924	115.669 873
	3		118.051 443	116.752 405
	2		118.700 962	117.834 936
125	6	125.000 000	121.102 886	118.504 809
	4		122.401 924	120.669 873
	3		123.051 443	121.752 405
	2		123.700 962	122.834 936
130	6	130.000 000	126.102 886	123.504 809
	4		127.401 924	125.669 873
	3		128.051 443	126.752 405
	2		128.700 962	127.834 936

TABLE 1 — BASIC DIMENSIONS *(Continued)*

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
135	6	135.000 000	131.102 886	128.504 809
	4		132.401 924	130.669 873
	3		133.051 443	131.752 405
	2		133.700 962	132.834 936
140	6	140.000 000	136.102 886	133.504 809
	4		137.401 924	135.669 873
	3		138.051 443	136.752 405
	2		138.700 962	137.834 936
145	6	145.000 000	141.102 886	138.504 809
	4		142.401 924	140.669 873
	3		143.051 443	141.752 405
	2		143.700 962	142.834 936
150	6	150.000 000	146.102 886	143.504 809
	4		147.401 924	145.669 873
	3		148.051 443	146.752 405
	2		148.700 962	147.834 936
155	6	155.000 000	151.102 886	148.504 809
	4		152.401 924	150.669 873
	3		153.051 443	151.752 405
160	6	160.000 000	156.102 886	153.504 809
	4		157.401 924	155.669 873
	3		158.051 443	156.752 405
165	6	165.000 000	161.102 886	158.504 809
	4		162.401 924	160.669 873
	3		163.051 443	161.752 405
170	6	170.000 000	166.102 886	163.504 809
	4		167.401 924	165.669 873
	3		168.051 443	166.752 405
175	6	175.000 000	171.102 886	168.504 809
	4		172.401 924	170.669 873
	3		173.051 443	171.752 405
180	6	180.000 000	176.102 886	173.504 809
	4		177.401 924	175.669 873
	3		178.051 443	176.752 405
185	6	185.000 000	181.102 886	178.504 809
	4		182.401 924	180.669 873
	3		183.051 443	181.752 405
190	6	190.000 000	186.102 886	183.504 809
	4		187.401 924	185.669 873
	3		188.051 443	186.752 405

TABLE 1 — BASIC DIMENSIONS (*Continued*)

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
195	6 4 3	195.000 000	191.102 886 192.401 924 193.051 443	188.504 809 190.669 873 191.752 405
200	6 4 3	200.000 000	196.102 886 197.401 934 198.051 443	193.504 809 195.669 873 196.752 405
205	6 4 3	205.000 000	201.102 886 202.401 924 203.051 443	198.504 809 200.669 873 201.752 405
210	6 4 3	210.000 000	206.102 886 207.401 924 208.051 443	203.504 809 205.669 873 206.752 405
215	6 4 3	215.000 000	211.102 886 212.401 924 213.051 443	208.504 809 210.669 873 211.752 405
220	6 4 3	220.000 000	216.102 886 217.401 924 218.051 443	213.504 809 215.669 873 216,752 405
225	6 4 3	225.000 000	221.102 886 222.401 924 223.051 443	218.504 809 220.669 873 221.752 405
230	6 4 3	230.000 000	226.102 886 227.401 924 228.051 443	223.504 809 225.669 873 226.752 405
235	6 4 3	235.000 000	231.102 886 232.401 924 233.051 443	228.504 809 230.669 873 231.752 405
240	6 4 3	240.000 000	236.102 886 237.401 924 238.051 443	233.504 809 235.669 873 236.752 405
245	6 4 3	245.000 000	241.102 886 242.401 924 243.051 443	238.504 809 240.669 873 241.752 405
250	6 4 3	250.000 000	246.102 886 247.401 924 248.051 443	243.504 809 245.669 873 246.752 405
255	6 4	255.000 000	251.102 886 252.401 924	248.504 809 250.669 873

TABLE 1 — BASIC DIMENSIONS (*Concluded*)

(Unit: Millimetre)

Nominal diameter	Pitch P	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
260	6 4	260.000 000	256.102 886 257.401 924	253.504 809 255.669 873
265	6 4	265.000 000	261.102 886 262.401 924	258.504 809 260.669 873
270	6 4	270.000 000	266.102 886 267.401 924	273.504 809 265.669 873
275	6 4	275.000 000	271.102 886 272.401 924	268.504 809 270.669 873
280	6 4	280.000 000	276.102 886 277.401 924	273.504 809 275.669 873
285	6 4	285.000 000	281.102 886 282.401 924	278.504 809 280.669 873
290	6 4	290.000 000	286.102 886 287.401 924	283.504 809 285.669 873
295	6 4	295.000 000	291.102 886 292.401 924	288.504 809 290.669 873
300	6 4	300.000 000	296.102 886 297.401 924	293.504 809 295.669 873

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The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

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