UDC 621.882.082.4

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ISO Metric Trapezoidal Screw Thread

General Plan

DIN 103 Part 2

Metrisches ISO-Trapezgewinde; Gewindereihen

This Standard conforms essentially with the International Standard ISO 2902-1977 issued by the International Organization for Standardization (ISO).

ISO metric trapezoidal screw threads; general plan

1 Introduction

This Standard contains ISO metric trapezoidal screw threads with profiles according to DIN 103 Part 1.

It is left to each branch of industry and the individual user to select those trapezoidal threads from this Standard which correspond to their requirements as regards diameter/lead combinations.

2 Choice of diameter and pitch (see Table in Section 4)

For preference, the diameters of Series 1 and if necessary those of Series 2 should be selected. The diameters of Series 3 should be avoided for new designs.

The pitches for a given diameter are shown in the corresponding row. The pitches indicated in boxes should be chosen for preference.

If it is deemed necessary to use trapezoidal screw threads with diameters differing from those indicated in the Table, then one of the pitches in the Table in Section 4 which is allotted to the nominal thread diameter closest to the one required should be selected.

3 Designation

The single-start metric trapezoidal screw threads of this Standard are designated by the letters Tr followed by the nominal diameter of the thread and the pitch P of the single-start thread (in this case lead P = pitch P) in mm, separated by the symbol x.

Example: Tr 40 x 7

The multiple-start metric trapezoidal screw threads of this Standard are designated by the letters Tr followed by the nominal diameter of the thread and the lead P_h of the multiple-start thread in mm, then by letter P (pitch) and the pitch in mm.

Example: Tr 40 x 14 P7

Number of starts = $\frac{\text{Lead } P_h}{\text{Pitch } P} = \frac{14}{7}$ for this example. Hence this example concerns a two-start thread.

For threads without tolerance indication the medium tolerance grade applies, i.e. tolerance field 7 e for bolt threads and tolerance field 7 H for nut threads. If a different tolerance field is desired, then this shall be stated; in such cases, for example for a bolt thread with the tolerance field 8 e, the designation reads: Tr 40 x 7-8e. For a corresponding two-start thread the designation reads: Tr 40 x 14 P 7-8e.

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Explanations on page 3

4 Thread diameters and pitches

Dimensions in mm

Nominal diameter of thread d			Pitches P of single-start trapezoidal threads																				
Series 1	Series 2	Series 3	44	40	36	32	28	24	22	20	18	16	14	12	10	9	8	7	6	5	4	3	2	1,5
8																								1,5
	9																						2	1,5
10																							2	1,5
	11																					3	2	
12																						3	2	
	14																					3	2	
16																					4		2	
	18																				4		2	
20																					4		2	
	22																8			5		3		
24																	8			5		3		
	26																8			5		3		
28																	8			5		3		
	30														10				6			3		
32															10				6			3		
	34														10				6			3		
36															10				6			3		
	38														10			7				3		
40															10			7				3		
	42														10			7				3		
44														12				7				3		
	46													12			8					3		
48														12			8					3		
	50													12			8					3		
52														12			8					3		
	55												14			9						3		
60													14			9						3		
	65											16			10						4			
70												16			10						4			
	75											16			10						4			
80												16			10						4			
	85										18			12							4			
90											18			12							4			
	95										18			12							4			
100										20				12							4			
		105								20				12							4			
	110									20				12							4			
		115							22				14						6					
120									22				14						6					
		125							22				14						6					
	130								22				14						6					
		135						24					14						6					
140								24					14						6					
		145						24					14						6					
	150							24				16							6					
		155						24				16							6					
160							28					16							6					
		165					28					16							6					
	170						28					16							6					
		175					28					16												
180							28				18						8							
		185				32					18						8							
	190					32					18						8							
		195				32					18						8							
200						32					18						8							
	210				36					20							8							
220					36					20							8							
	230				36					20							8							
240					36				22								8							
	250			40					22					12										
260				40					22					12										
	270			40				24						12										
280				40				24						12										
	290		44					24						12										
300			44					24						12										

Further standards

DIN 103 Part 1 ISO metric trapezoidal screw thread; profiles

DIN 103 Part 3 ISO metric trapezoidal screw thread; allowances and tolerances for trapezoidal screw threads of general purpose

DIN 103 Part 4 ISO metric trapezoidal screw thread; nominal dimensions

DIN 103 Part 5 ISO metric trapezoidal screw thread; limiting sizes for nut threads from 8 to 100 mm nominal diameter

DIN 103 Part 6 ISO metric trapezoidal screw thread; limiting sizes for nut threads from 105 to 300 mm nominal diameter

DIN 103 Part 7 ISO metric trapezoidal screw thread; limiting sizes for bolt threads from 8 to 100 mm nominal diameter

DIN 103 Part 8 ISO metric trapezoidal screw thread; limiting sizes for bolt threads from 105 to 300 mm nominal diameter

DIN 103 Part 9 (Preliminary Standard) ISO metric trapezoidal screw thread; gauges for bolt and nut threads, gauge dimensions and construction features

Explanations

The diameter series are subdivided into three ranges of application. The Series 3 diameters so far in use have been retained for the time being, but should be avoided in future for new designs.

A maximum of no more than three pitches is recommended for use with each thread diameter. One of these pitches is designated as the preferred value in order to reduce the number of trapezoidal screw threads in use still further. If it is found necessary in special cases to use a diameter other than those indicated in the Table, then one of the pitches allocated to the diameter closest to the one required should be selected.

The ISO/TC 1 was of the opinion that trapezoidal screw threads over 300 mm in diameter are so seldom used that there was no point in making a recommendation for diameters beyond this range. The Series 1 diameters laid down in this Standard, together with their allotted pitches, are indicated graphically in the diagram below.

Diameter x pitch combinations for single-start trapezoidal screw threads