

Metrisches ISO-Trapezgewinde

Nennmaße

DIN
103
Teil 4

ISO-metric trapezoidal screw threads; Basic sizes

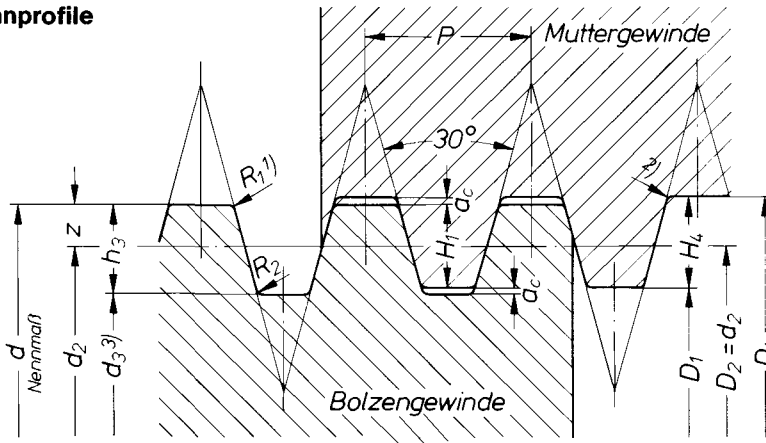
Diese Norm stimmt sachlich vollständig überein mit der von der International Organization for Standardization (ISO) herausgegebenen internationalen Norm ISO 2904-1977:

E: ISO-metric trapezoidal screw threads; Nominal sizes

D: Metrisches ISO-Trapezgewinde; Nennmaße

Maße in mm

Nennprofile



$$D_1 = d - 2H_1 = d - P$$

$$H_1 = 0,5P$$

$$H_4 = H_1 + a_c = 0,5P + a_c$$

$$h_3 = H_1 + a_c = 0,5P + a_c$$

$$z = 0,25P = H_1/2$$

$$D_4 = d + 2a_c$$

$$d_3 = d - 2h_3$$

$$d_2 = D_2 = d - 2z = d - 0,5P$$

a_c Spiel

$R_1 = \max. 0,5a_c$

$R_2 = \max. a_c$

Bezeichnung eines eingängigen Metrischen Trapezgewindes von $d = 40$ mm Nenndurchmesser mit $P = 7$ mm Steigung ⁴⁾:

Tr 40 × 7

Tabelle 1. Maße für die Gewindeprofile

P	1,5	2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	28	32	36	40	44
a_c	0,15	0,25	0,25	0,25	0,25	0,5	0,5	0,5	0,5	0,5	0,5	1	1	1	1	1	1	1	1	1	1	1
$h_3 - H_4$	0,9	1,25	1,75	2,25	2,75	3,5	4	4,5	5	5,5	6,5	8	9	10	11	12	13	15	17	19	21	23
H_1	0,75	1	1,5	2	2,5	3	3,5	4	4,5	5	6	7	8	9	10	11	12	14	16	18	20	22
$R_1 \max.$	0,075	0,125	0,125	0,125	0,125	0,25	0,25	0,25	0,25	0,25	0,25	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
$R_2 \max.$	0,15	0,25	0,25	0,25	0,25	0,5	0,5	0,5	0,5	0,5	0,5	1	1	1	1	1	1	1	1	1	1	1

- 1) Es wird empfohlen, eine Rundung R_1 oder eine Fase am Außendurchmesser des Bolzenschraubengewindes vorzusehen.
- 2) Die größtzulässige Kantenrundung am Außendurchmesser des Muttergewindes infolge Abnutzung des neuen, scharfkantigen Werkzeuges an dieser Stelle darf nicht größer als das Maß a_c sein.
- 3) Bei gerollten Bolzenschraubengewinden kann das Profil im Kerndurchmesser geändert werden, um eine hier notwendige größere Rundung im Kern des Gewindes zu erhalten. Der Kerndurchmesser des Bolzenschraubengewindes kann in diesem Fall um $0,15 \cdot P$ kleiner werden als Nennmaß d_3 .
- 4) Für Gewinde ohne Toleranzangabe gilt Toleranzklasse mittel, und zwar Toleranzfeld 7e beim Bolzenschraubengewinde und Toleranzfeld 7H beim Muttergewinde. Wird ein anderes Toleranzfeld gewünscht, dann ist dies anzugeben; die Bezeichnung lautet dann z. B. für ein Bolzenschraubengewinde mit dem Toleranzfeld 8e:

Tr 40 × 7 - 8 e

Bezeichnung eines mehrgängigen Trapezgewindes siehe DIN 103 Teil 2.

Weitere Normen

- DIN 103 Teil 1 Metrisches ISO-Trapezgewinde; Grundprofile
- DIN 103 Teil 2 Metrisches ISO-Trapezgewinde; Gewindereihen
- DIN 103 Teil 3 Metrisches ISO-Trapezgewinde; Abmaße und Toleranzen für Trapezgewinde allgemeiner Anwendung

Fortsetzung Seite 2 bis 4

Ausschuß Gewinde (AGew) im DIN Deutsches Institut für Normung e. V.

Tabelle 2. Gewinde-Nennmaße

Gewinde-Nenndurchmesser <i>d</i>			Steigung <i>P</i>	Flanken- durchmesser <i>d</i> ₂ = <i>D</i> ₂	Außen- durchmesser <i>D</i> ₄	Kerndurchmesser	
Reihe 1	Reihe 2	Reihe 3				<i>d</i> ₃	<i>D</i> ₁
8			1,5	7,250	8,300	6,200	6,500
	9		1,5 2	8,250 8,000	9,300 9,500	7,200 6,500	7,500 7,000
10			1,5 2	9,250 9,000	10,300 10,500	8,200 7,500	8,500 8,000
	11		2 3	10,000 9,500	11,500 11,500	8,500 7,500	9,000 8,000
12			2 3	11,000 10,500	12,500 12,500	9,500 8,500	10,000 9,000
	14		2 3	13,000 12,500	14,500 14,500	11,500 10,500	12,000 11,000
16			2 4	15,000 14,000	16,500 16,500	13,500 11,500	14,000 12,000
	18		2 4	17,000 16,000	18,500 18,500	15,500 13,500	16,000 14,000
20			2 4	19,000 18,000	20,500 20,500	17,500 15,500	18,000 16,000
	22		3 5 8	20,500 19,500 18,000	22,500 22,500 23,000	18,500 16,500 13,000	19,000 17,000 14,000
24			3 5 8	22,500 21,500 20,000	24,500 24,500 25,000	20,500 18,500 15,000	21,000 19,000 16,000
	26		3 5 8	24,500 23,500 22,000	26,500 26,500 27,000	22,500 20,500 17,000	23,000 21,000 18,000
28			3 5 8	26,500 25,500 24,000	28,500 28,500 29,000	24,500 22,500 19,000	25,000 23,000 20,000
	30		3 6 10	28,500 27,000 25,000	30,500 31,000 31,000	26,500 23,000 19,000	27,000 24,000 20,000
32			3 6 10	30,500 29,000 27,000	32,500 33,000 33,000	28,500 25,000 21,000	29,000 26,000 22,000
	34		3 6 10	32,500 31,000 29,000	34,500 35,000 35,000	30,500 27,000 23,000	31,000 28,000 24,000
36			3 6 10	34,500 33,000 31,000	36,500 37,000 37,000	32,500 29,000 25,000	33,000 30,000 26,000
	38		3 7 10	36,500 34,500 33,000	38,500 39,000 39,000	34,500 30,000 27,000	35,000 31,000 28,000
40			3 7 10	38,500 36,500 35,000	40,500 41,000 41,000	36,500 32,000 29,000	37,000 33,000 30,000
	42		3 7 10	40,500 38,500 37,000	42,500 43,000 43,000	38,500 34,000 31,000	39,000 35,000 32,000
44			3 7 12	42,500 40,500 38,000	44,500 45,000 45,000	40,500 36,000 31,000	41,000 37,000 32,000
	46		3 8 12	44,500 42,000 40,000	46,500 47,000 47,000	42,500 37,000 33,000	43,000 38,000 34,000
48			3 8 12	46,500 44,000 42,000	48,500 49,000 49,000	44,500 39,000 35,000	45,000 40,000 36,000

Die Gewinde-Nenndurchmesser sind vorzugsweise aus der Reihe 1 und wenn notwendig aus der Reihe 2 zu wählen. Die Durchmesser der Reihe 3 sollen für Neukonstruktionen vermieden werden.

Tabelle 2. (Fortsetzung)

Gewinde-Nenndurchmesser d			Steigung P	Flanken- durchmesser $d_2 = D_2$	Außen- durchmesser D_4	Kerndurchmesser	
Reihe 1	Reihe 2	Reihe 3				d_3	D_1
	50		3	48,500	50,500	46,500	47,000
			8	46,000	51,000	41,000	42,000
			12	44,000	51,000	37,000	38,000
52			3	50,500	52,500	48,500	49,000
			8	48,000	53,000	43,000	44,000
			12	46,000	53,000	39,000	40,000
	55		3	53,500	55,500	51,500	52,000
			9	50,500	56,000	45,000	46,000
			14	48,000	57,000	39,000	41,000
60			3	58,500	60,500	56,500	57,000
			9	55,500	61,000	50,000	51,000
			14	53,000	62,000	44,000	46,000
	65		4	63,000	65,500	60,500	61,000
			10	60,000	66,000	54,000	55,000
			16	57,000	67,000	47,000	49,000
70			4	68,000	70,500	65,500	66,000
			10	65,000	71,000	59,000	60,000
			16	62,000	72,000	52,000	54,000
	75		4	73,000	75,500	70,500	71,000
			10	70,000	76,000	64,000	65,000
			16	67,000	77,000	57,000	59,000
80			4	78,000	80,500	75,500	76,000
			10	75,000	81,000	69,000	70,000
			16	72,000	82,000	62,000	64,000
	85		4	83,000	85,500	80,500	81,000
			12	79,000	86,000	72,000	73,000
			18	76,000	87,000	65,000	67,000
90			4	88,000	90,500	85,500	86,000
			12	84,000	91,000	77,000	78,000
			18	81,000	92,000	70,000	72,000
	95		4	93,000	95,500	90,500	91,000
			12	89,000	96,000	82,000	83,000
			18	86,000	97,000	75,000	77,000
100			4	98,000	100,500	95,500	96,000
			12	94,000	101,000	87,000	88,000
			20	90,000	102,000	78,000	80,000
		105	4	103,000	105,500	100,500	101,000
			12	99,000	106,000	92,000	93,000
			20	95,000	107,000	83,000	85,000
	110		4	108,000	110,500	105,500	106,000
			12	104,000	111,000	97,000	98,000
			20	100,000	112,000	88,000	90,000
		115	6	112,000	116,000	108,000	109,000
			14	108,000	117,000	99,000	101,000
			22	104,000	117,000	91,000	93,000
120			6	117,000	121,000	113,000	114,000
			14	113,000	122,000	104,000	106,000
			22	109,000	122,000	96,000	98,000
		125	6	122,000	126,000	118,000	119,000
			14	118,000	127,000	109,000	111,000
			22	114,000	127,000	101,000	103,000
	130		6	127,000	131,000	123,000	124,000
			14	123,000	132,000	114,000	116,000
			22	119,000	132,000	106,000	108,000
		135	6	132,000	136,000	128,000	129,000
			14	128,000	137,000	119,000	121,000
			24	123,000	137,000	109,000	111,000
140			6	137,000	141,000	133,000	134,000
			14	133,000	142,000	124,000	126,000
			24	128,000	142,000	114,000	116,000
		145	6	142,000	146,000	138,000	139,000
			14	138,000	147,000	129,000	131,000
			24	133,000	147,000	119,000	121,000

Tabelle 2. (Fortsetzung)

Gewinde- Nenndurchmesser d			Steigung P	Flanken- durchmesser $d_2 = D_2$	Außen- durchmesser D_4	Kerndurchmesser	
Reihe 1	Reihe 2	Reihe 3				d_3	D_1
	150		6	147,000	151,000	143,000	144,000
			16	142,000	152,000	132,000	134,000
			24	138,000	152,000	124,000	126,000
		155	6	152,000	156,000	148,000	149,000
			16	147,000	157,000	137,000	139,000
			24	143,000	157,000	129,000	131,000
160			6	157,000	161,000	153,000	154,000
			16	152,000	162,000	142,000	144,000
			28	146,000	162,000	130,000	132,000
		165	6	162,000	166,000	158,000	159,000
			16	157,000	167,000	147,000	149,000
			28	151,000	167,000	135,000	137,000
	170		6	167,000	171,000	163,000	164,000
			16	162,000	172,000	152,000	154,000
			28	156,000	172,000	140,000	142,000
		175	8	171,000	176,000	166,000	167,000
			16	167,000	177,000	157,000	159,000
			28	161,000	177,000	145,000	147,000
180			8	176,000	181,000	171,000	172,000
			18	171,000	182,000	160,000	162,000
			28	166,000	182,000	150,000	152,000
		185	8	181,000	186,000	176,000	177,000
			18	176,000	187,000	165,000	167,000
			32	169,000	187,000	151,000	153,000
	190		8	186,000	191,000	181,000	182,000
			18	181,000	192,000	170,000	172,000
			32	174,000	192,000	156,000	158,000
		195	8	191,000	196,000	186,000	187,000
			18	186,000	197,000	175,000	177,000
			32	179,000	197,000	161,000	163,000
200			8	196,000	201,000	191,000	192,000
			18	191,000	202,000	180,000	182,000
			32	184,000	202,000	166,000	168,000
	210		8	206,000	211,000	201,000	202,000
			20	200,000	212,000	188,000	190,000
			36	192,000	212,000	172,000	174,000
220			8	216,000	221,000	211,000	212,000
			20	210,000	222,000	198,000	200,000
			36	202,000	222,000	182,000	184,000
	230		8	226,000	231,000	221,000	222,000
			20	220,000	232,000	208,000	210,000
			36	212,000	232,000	192,000	194,000
240			8	236,000	241,000	231,000	232,000
			22	229,000	242,000	216,000	218,000
			36	222,000	242,000	202,000	204,000
	250		12	244,000	251,000	237,000	238,000
			22	239,000	252,000	226,000	228,000
			40	230,000	252,000	208,000	210,000
260			12	254,000	261,000	247,000	248,000
			22	249,000	262,000	236,000	238,000
			40	240,000	262,000	218,000	220,000
	270		12	264,000	271,000	257,000	258,000
			24	258,000	272,000	244,000	246,000
			40	250,000	272,000	228,000	230,000
280			12	274,000	281,000	267,000	268,000
			24	268,000	282,000	254,000	256,000
			40	260,000	282,000	238,000	240,000
	290		12	284,000	291,000	277,000	278,000
			24	278,000	292,000	264,000	266,000
			44	268,000	292,000	244,000	246,000
300			12	294,000	301,000	287,000	288,000
			24	288,000	302,000	274,000	276,000
			44	278,000	302,000	254,000	256,000