

Pipe threads for tubes and fittings

Parallel internal thread and taper external thread
Thread dimensions

DIN
2999
Part 1

Whitworth-Rohrgewinde für Gewinderohre und Fittings; zylindrisches Innengewinde und kegeliges Aussengewinde; Gewindemasse

Supersedes November 1975 edition

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

For connection with International Standard ISO 7/1 – 1982 published by the International Organization for Standardization (ISO), see Explanatory notes.

Dimensions in mm

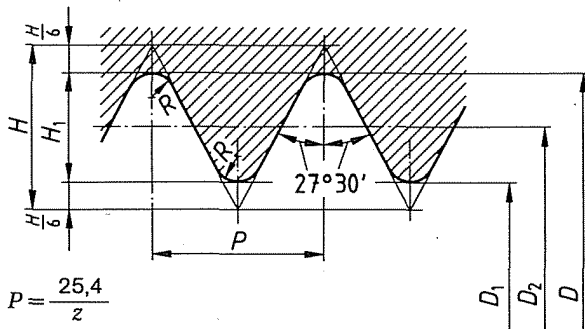
1 Field of application

This standard applies to joints between parallel internal threads on valves, fittings, threaded flanges, etc. and taper external threads.

If necessary, a suitable jointing medium may be used on the thread to ensure a tight joint.

2 Dimensions, designation

2.1 Parallel internal thread (letter symbol Rp)



$$P = \frac{25,4}{z}$$

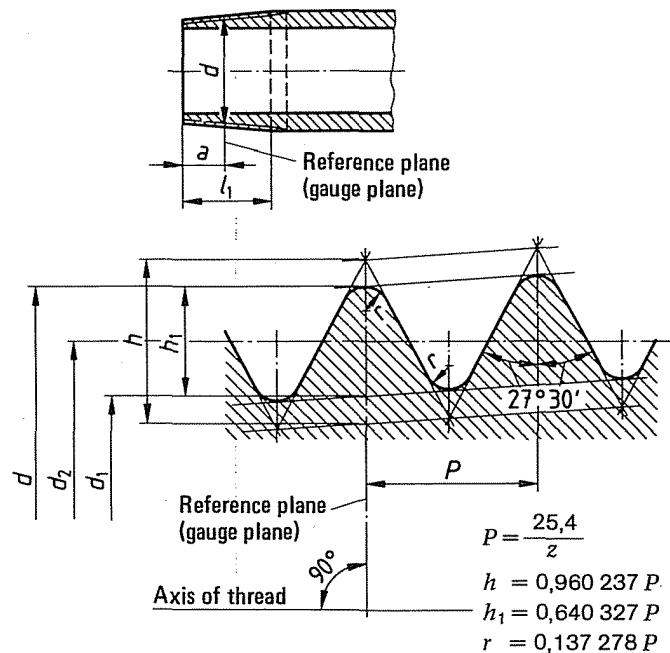
$$H = 0,960\,491\,P$$

$$H_1 = 0,640\,327\,P$$

$$R = 0,137\,329\,P$$

The profile of the parallel internal thread conforms to that of DIN ISO 228 Part 1.

2.2 Taper external thread (letter symbol R) (taper 1 : 16)



$$P = \frac{25,4}{z}$$

$$h = 0,960\,237\,P$$

$$h_1 = 0,640\,327\,P$$

$$r = 0,137\,278\,P$$

Designation of an R 1/2 taper external pipe thread:

Pipe thread DIN 2999 – R 1/2

Designation of an Rp 1/2 parallel internal pipe thread:

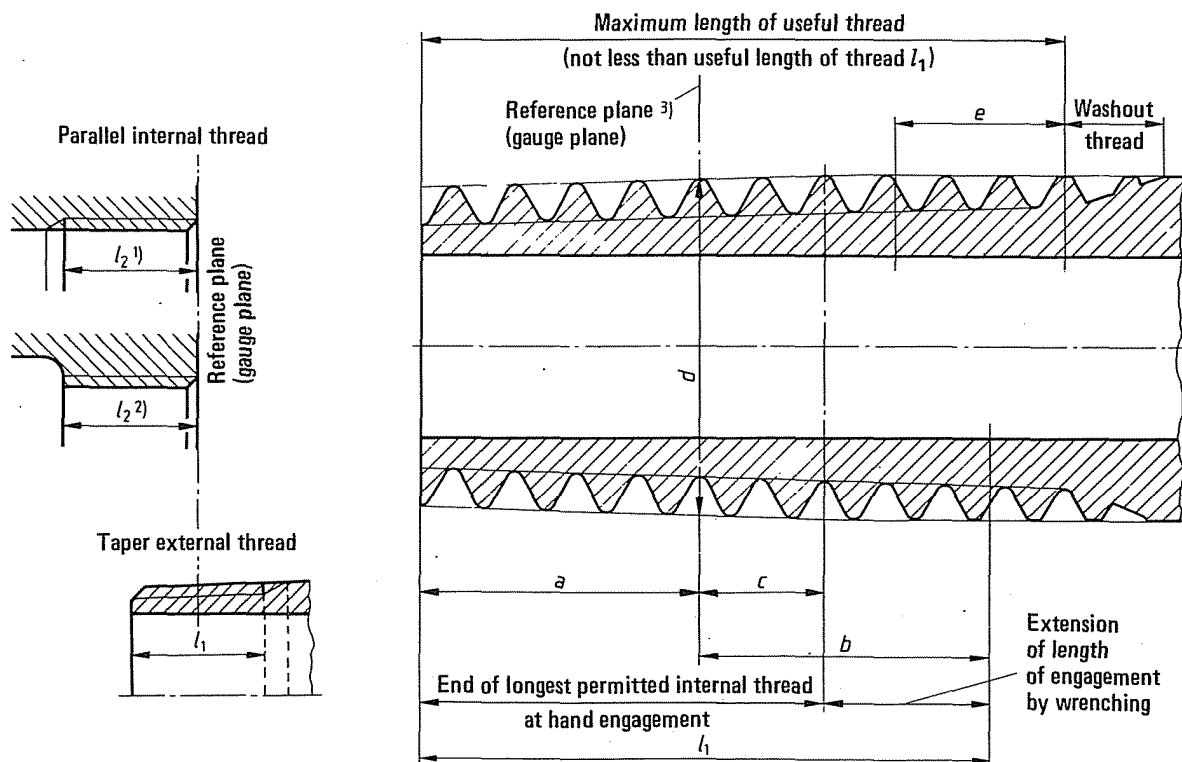
Pipe thread DIN 2999 – Rp 1/2

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Table 1. Nominal dimensions

Thread size		Nominal size of pipe	Gauge length a	Outside diameter $d = D$	Pitch diameter $d_2 = D_2$	Minor diameter $d_1 = D_1$	Pitch P	Number of threads in 25,4 mm Z	Depth of thread $h_1 = H_1$	Radius $r = R \approx$	Length of useful thread l_1
External thread	Internal thread										
R 1/16	Rp 1/16	3	4,0	7,723	7,142	6,561	0,907	28	0,581	0,125	6,5
R 1/8	Rp 1/8	6	4,0	9,728	9,147	8,566	0,907	28	0,581	0,125	6,5
R 1/4	Rp 1/4	8	6,0	13,157	12,301	11,445	1,337	19	0,856	0,184	9,7
R 3/8	Rp 3/8	10	6,4	16,662	15,806	14,950	1,337	19	0,856	0,184	10,1
R 1/2	Rp 1/2	15	8,2	20,955	19,793	18,631	1,814	14	1,162	0,249	13,2
R 3/4	Rp 3/4	20	9,5	26,441	25,279	24,117	1,814	14	1,162	0,249	14,5
R 1	Rp 1	25	10,4	33,249	31,770	30,291	2,309	11	1,479	0,317	16,8
R 1 1/4	Rp 1 1/4	32	12,7	41,910	40,431	38,952	2,309	11	1,479	0,317	19,1
R 1 1/2	Rp 1 1/2	40	12,7	47,803	46,324	44,845	2,309	11	1,479	0,317	19,1
R 2	Rp 2	50	15,9	59,614	58,135	56,656	2,309	11	1,479	0,317	23,4
R 2 1/2	Rp 2 1/2	65	17,5	75,184	73,705	72,226	2,309	11	1,479	0,317	26,7
R 3	Rp 3	80	20,6	87,884	86,405	84,926	2,309	11	1,479	0,317	29,8
R 4	Rp 4	100	25,4	113,030	111,551	110,072	2,309	11	1,479	0,317	35,8
R 5	Rp 5	125	28,6	138,430	136,951	135,472	2,309	11	1,479	0,317	40,1
R 6	Rp 6	150	28,6	163,830	162,351	160,872	2,309	11	1,479	0,317	40,1

Lengths of thread, permissible deviations, limits of sizes



a = distance of gauge plane from start of thread
 b = mean fitting allowance when using tool

c = extension of length of engagement caused by plus deviation of internal thread
 e = imperfect thread at tip of thread, due to the minus deviation of the semi-finished product

- 1) An internally threaded part shall make allowance for accommodating a pipe thread up to thread length l_1 for a at maximum.
- 2) With a free run-out, the length l_2 of useful internal thread shall not be less than 80 % of l_1 for a at minimum.
- 3) The dimensions in the reference plane (gauge plane) conform to the nominal dimensions given in table 1.