

Pipe Threads

Whitworth Pipe Threads

Using Whitworth pipe threads it has to be distinguished between those threads which are thought to be sealing on the thread and those which produce a mechanical connection without sealing function.

Those threads which are sealing on the thread are specified in various national and international standards. Basic thread dimensions are common for all threads mentioned below. ISO 7/1 and BS 21 do not only specify the connection of cylindrical internal and taper external thread as DIN 2999 does, but in addition define a taper internal thread (taper 1 : 16). Gauging systems for all three threads differ and may lead to different results and decisions.

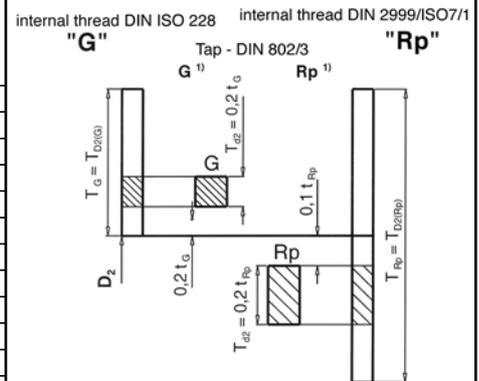
The thread connection given in DIN ISO 228 is not meant to be sealing on the thread. Basic thread dimensions and pitch is common to the sealing threads.

1	standard	4	internal-/external thread
2	title of standard	5	short sign for thread
3	kind of connection	6	kind of gauges

1	ISO 7/1		DIN 2999		BS 21		DIN ISO 228 part 1 ²⁾	
2	Pipe threads where pressure tight joints are made on the threads		Whitworth pipe threads for threaded pipes and fittings		Pipe threads for tubes and fittings where pressure tight joints are made on the threads		Pipe threads where pressure-tight joints are not made on the threads	
3	sealing on the thread		sealing on the thread		sealing on the thread		not sealing on the thread	
4	internal thread cylind.	taper	external thread taper	internal thread cylindrical	external thread taper	internal thread cylind.	taper	external thread taper
5	Rp	Rc	R	Rp	R	Rp	Rc	R
6	taper limit plug gauge - ISO 7/2 ¹⁾		taper limit ring gauge - ISO 7/2 ¹⁾	taper limit plug gauge - DIN 2999-4	cylindrical limit ring gauge - DIN 2999-5	taper limit plug gauge - BS 21	taper limit ring gauge - BS 21	cylindrical Go / No Go plug gauge cyl. Go ring gauge tolerance A or B DIN ISO 228 part 2

- Standard ISO 7/2 specifying the appropriate gauges is subject to general revision.
- DIN ISO 228 has replaced **DIN 259** (Whitworth pipe threads - cylindrical internal and external threads). For the cylindrical internal and external thread short sign "R" has been applied, which could have led to confusion, because the same short sign is used for the taper external thread of DIN 2999 or ISO 7/1. Compared to DIN ISO 228 there are no differences between the threads but some minor differences between the gauges.

G	P [TPI]	p [mm]	Out.-Ø d = D	Pitch-Ø d ₂ = D ₂	Minor-Ø d ₁ = D ₁	Rp / Rc R	a	Tolerances of internal thread pitch-Ø [mm]	turns	Toleran. of external thr. turns	mm
1/16	28	0,907	7,723	7,142	6,561	1/16	4	±0,071	±1.1/4	±1	±0,9
1/8	28	0,907	9,728	9,147	8,566	1/8	4	±0,071	±1.1/4	±1	±0,9
1/4	19	1,337	13,157	12,301	11,445	1/4	6	±0,104	±1.1/4	±1	±1,3
3/8	19	1,337	16,662	15,806	14,950	3/8	6,4	±0,104	±1.1/4	±1	±1,3
1/2	14	1,814	20,955	19,793	18,631	1/2	8,2	±0,142	±1.1/4	±1	±1,8
5/8	14	1,814	22,911	21,749	20,587						
3/4	14	1,814	26,441	25,279	24,117	3/4	9,5	±0,142	±1.1/4	±1	±1,8
7/8	14	1,814	30,201	29,039	27,877						
1	11	2,309	33,249	31,770	30,291	1	10,4	±0,18	±1.1/4	±1	±2,3
1.1/8	11	2,309	37,897	36,418	34,939						
1.1/4	11	2,309	41,910	40,431	38,952	1.1/4	12,7	±0,18	±1.1/4	±1	±2,3
1.1/2	11	2,309	47,803	46,324	44,845	1.1/2	12,7	±0,18	±1.1/4	±1	±2,3
1.3/4	11	2,309	53,746	52,267	50,788						
2	11	2,309	59,614	58,135	56,656	2	15,9	±0,18	±1.1/4	±1	±2,3
2.1/4	11	2,309	65,710	64,231	62,752						
2.1/2	11	2,309	75,184	73,705	72,226	2.1/2	17,5	±0,217	±1.1/2	±1.1/2	±3,5
2.3/4	11	2,309	81,534	80,055	78,576						
3	11	2,309	87,884	86,405	84,926	3	20,6	±0,217	±1.1/2	±1.1/2	±3,5
3.1/2	11	2,309	100,330	98,851	97,372						
4	11	2,309	113,030	111,551	110,072	4	25,4	±0,217	±1.1/2	±1.1/2	±3,5



Tolerances for internal Whitworth pipe threads and taps.

1) Hahnreiter taps are being produced with closer tolerance band

