

AN AMERICAN NATIONAL STANDARD

GAGING FOR DRYSEAL PIPE THREADS (INCH)

ASME B1.20.5-1991
(REVISION OF ANSI B1.20.5-1978)



The American Society of
Mechanical Engineers

345 East 47th Street, New York, N.Y. 10017 —

CONTENTS

Foreword	iii
Standards Committee Roster	v
 1 Gaging	 1
1.1 Scope	1
1.2 How Dryseal Works	1
1.3 Limitations	1
1.4 Product Thread Designations	1
1.5 Inspection of Product Threads	2
1.6 Methods of Gaging Product Threads	2
1.7 Coordination of Gages	3
1.8 Use of Gages	3
1.9 Direct Measurement of Crest and Root Truncation	5
1.10 Inspection of Gages	5
 2 Gages	 7
2.1 Types and Functions of Gages	7
2.2 Taper Thread Gages	8
2.3 Thread Form	8
2.4 Gage Tolerance	8
2.5 Working Gage Dimensions	9
2.6 Master Gage Dimensions	9
 Figures	
1 Classification of NPTF Product Thread Size Using 4-Step Gages	4
2 Identification of Steps on 6-Step Crest or Root Check Gage	4
3 Relative Position Plus and Minus Standoff	6
4 Relative Position of Master Plugs and Rings to Working Gages	10
 Tables	
1 Gages and Tolerances	2
2 Function and Application of Gages Covered in ASME B1.20.5-1991	7
3 Tolerances for Working Plug and Ring Gages	11
4 Tolerances for Master Plug and Ring Gages	12
5 Diameter Equivalent of Variation in Load for Tools and Gages	13
6 Diameter Equivalent of Variation in Half Included Angle for Tools and Gages	14
7 Basic Dimensions for L_1 Ring Gages	16
8 Basic Dimensions for L_1 Short Ring Gages	18
9 Basic Dimensions for L_2 Ring Gages	20
10 Basic Dimensions for L_2 Short Ring Gages	22
11 Basic Dimensions for Crest Check Ring Gages	24

12	Basic Dimensions for Root Check Ring Gages	26
13	Basic Dimensions for L_1 Plug Gages, NPTF	28
14	Basic Dimensions for L_1 Short Plug Gages	30
15	Basic Dimensions for L_1 Plug Gages, NPSI	32
16	Basic Dimensions for L_3 Plug Gages	34
17	Basic Dimensions for L_3 Short Plug Gages	36
18	Basic Dimensions for Crest Check Plug Gages	37
19	Basic Dimensions for Root Check Plug Gages	38
20	Basic Dimensions of Master Ring Gages for L_1 and L_3 Taper Plug Gages	39
21	Basic Dimensions of Master Plug Gages for L_1 and L_2 Taper Ring Gages	40
22	Basic Dimensions of Master Gages for 6-Step Crest Ring and 6-Step Crest Plug Gages	41
23	Basic Dimensions of Master Gages for 6-Step Root Ring Gages and 6-Step Root Plug Gages	42
 Appendices		
A	3-Step Gages for Checking NPTF Threads	43
A1	Working Gage Dimensions	43
B	Measurement of Pitch Diameter of Taper Threads Having an Included Taper of 0.0625 Inch per Inch	49
B1	Measurement of Pitch Diameter of Taper Thread Plug Gage	49
B2	Measurement of Pitch Diameter of Taper Thread Ring Gage	53
C	Formulas For Calculating 6-Step Taper Plug and Ring Gage Dimensions	57
D	The Turns Engagement Method of Gaging Product Threads	59
 Figures		
B1	Measurement of Pitch Diameter of Taper Thread Gages by the 2-Wire Method	50
B2	Horizontal Measurement of Pitch Diameter of Taper Thread Gages by the 3-Wire Method Using Sine Block	51
B3	Vertical Measurement of Pitch Diameter of Taper Thread Gages by the 3-Wire Method Using a Sine Fixture	52
B4	Measurement of Pitch Diameter E_o of Taper Thread Gages by the 4-Wire Method	53
B5	Measurement of Pitch Diameter E_m of Taper Thread Gages by the 4-Wire Method	54
B6	Measurement of Pitch Diameter of Taper Thread Ring Gage on Coordinate Measuring Machine With Ball Probe	55
 Tables		
A1	Basic Dimensions for L_1 3-Step Ring Gages	44
A2	Basic Dimensions for L_2 3-Step Ring Gages	45
A3	Basic Dimensions for L_1 3-Step Plug Gages, NPTF	46
A4	Basic Dimensions for L_3 3-Step Plug Gages	48
D1	Basic Turns Engagement	59