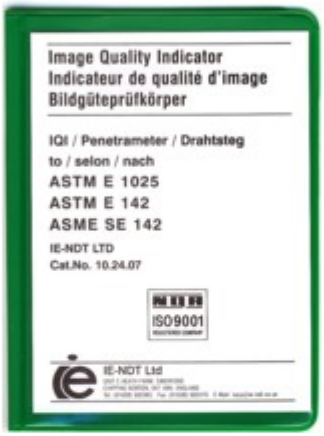
ASME/ASTM E-1025 Plaque type IQIs (penetrameters)



Over the last fifteen years and more, there has been a rationalisation of American standards for IQIs. For all practical purposes, plaque type penetrameters manufactured in accordance with ASTM E 1025 are now acceptable when working to: ASME V, ASTM E 142, ASME SE-142, ASME section VIII, API 650 and API 1104.

The penetrameters are characterised by having three holes: 1x, 2x and 4x the thickness (T) of the material from which the penetrameter is made, with minimum diameters of 0.01, 0.02 and 0.04in.

They are available in a wide variety of materials: stainless steel, aluminium, aluminium-bronze, brass, copper, cupro-nickel, inconel, magnesium, monel, nickel, phosphor bronze, titanium, hastelloy, Haynes 25 (cobalt) and waspaloy.

Each penetrameter is identified by a batch number etched into the rear face and is supplied complete with a declaration of conformity in a plastic wallet.

Size/ Number	Minimum specimen thickness at 2-2T			
5	0,25	in	6,35	mm
7	0,35	in	8,89	mm
10	0,50	in	12,70	mm
12	0,625	in	15,87	mm
15	0,75	in	19,05	mm
17	0,85	in	21,59	mm
20	1,00	in	25,40	mm
25	1,25	in	31,75	mm
30	1,50	in	38,10	mm
35	1,75	in	44,45	mm
40	2,00	in	50,80	mm
50	2,50	in	63,50	mm
60	3,00	in	76,20	mm
80	4,00	in	101,60	mm
100	5,00	in	127,00	mm
120	6,00	in	152,40	mm
140	7,00	in	177,80	mm
160	8,00	in	203,20	mm
200	10,00	in	254,00	mm
240	12,00	in	304,80	mm
280	14,00	in	355,60	mm

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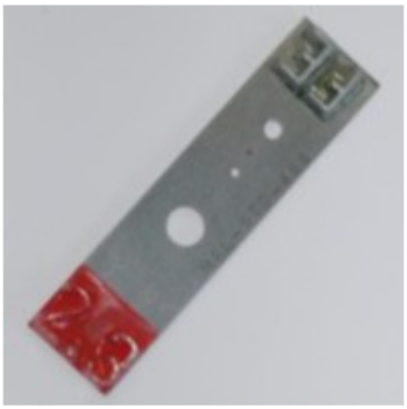
Peneterameters (IQIs) to ASTM E-1742 (MIL-STD)



These penetrameters were formerly the subject of MIL-STD-453. In common with the cost cutting measures of many governments, the US military has delegated most standardisation activities to a civilian/commercial body. So, MIL-STD-453 has now become ASTM E-1742. The penetrameter design and numbering system remain the same.

The penetrameters have three holes: 1x, 2x and 4x the plaque thickness, a material identification (e.g. FE) and the penetrameter number in lead. The overall length is slightly greater than the ASTM E 1025 types.

The penetrameter number is 50x the penetrameter thickness and indicates, in inches, the specimen thickness for which it is intended.

Penetrameter No.	Penetrameter Thickness (in)	Specimen thickness	
		inch	mm
.25	0,005	1/4	6,35
.37	0,0075	3/8	9,53
.50	0,01	1/2	12,7
.62	0,0125	5/8	15,87
.75	0,015	3/4	19,05
.87	0,0175	7/8	22,22
1.0	0,02	1	25,4
1.2	0,025	1 1/4	31,75
1.5	0,03	1 1/2	37,5
1.7	0,035	1 3/4	44,45
2.0	0,04	2	50,8
2.2	0,045	2 1/4	57,15
2.5	0,05	2 1/2	63,5
3.0	0,06	3	76,2
3.5	0,07	3 1/2	88,9
4.0	0,08	4	101,6
4.5	0,09	4 1/2	114,3
5.0	0,10	5	127

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