Ray-Check Manufacturing fabricates a full line of Calibration Blocks used to calibrate test equipment and levels of sensitivity. They are manufactured to all American standards, as well as British and German standards. Standard Blocks are readily available fabricated from:

- Aluminum 7075-T6 (Clear Anodized)
- Steel A 36, 1018 or 4340 VM (Nickel Plated)
- Stainless Steel Type 304
- Other materials available

PDI Alternative ASME Calibration Blocks

PDI Alternative ASME blocks are manufactured in accordance with the requirements of the Performance Demonstration Initiative (PDI) Procedure No. PDI-UT-1, Rev. C, Fig. 4 (Ferritic) and PDI-UT-2, Rev. C, Fig. 4 (Austenitic).

These cover the generic procedures for the ultrasonic examination of both ferritic and austenitic pipe welds. The blocks offer an economical alternative to fabricating multiple curved calibration blocks (pipe sections) in numerous diameters and wall thicknesses.

The blocks are normally supplied in sets of 3 individual blocks. Materials for each blocks are A516 Grade 70 Steel, 304/304L Stainless Steel, and 316/316L Stainless Steel. Individual blocks of any one alloy are also available.

Overall block dimensions are 2.000" wide x 2.250" tall x 10.000" long. block design consists of steps simulating wall thicknesses measuring 0.500", 1.000", 1.500" and 2.000". Each step contains a .010" wide EDM notch machined across the width of the step at a depth of 10% of wall thickness. Scanning surfaces and reflecting surfaces are machined to simulate pipe and plate surfaces of 250 Ra max. finish. Each block is machine-engraved on one side with the Block description, Serial No., Alloy, and Heat No. All blocks are made from ultrasonically inspected, heat number traceable materials.

API RP 2X Reference Standards

Set of 4 blocks used for Level C Examination of offshore structural fabrication.

DSC Test Block

PER: AWS & ASTEM-E-164

Shearwave Distance & Sensitivity Calibration.

DS Test Block

PER: ANSI & AWS

Distance & Sensitivity.

DC Test Block

PER: AWS & ASTM-E-164

Distance Calibration (Shearwave).

Angle Beam Test Block

PER: ASTM-E-164 & USAF T.O. 33B-1-1 (6-1-84)

Angle Beam Calibration.

Metric versions are available. They are made in accordance with BS 2704; Din 54122.

AWS Resolution Block

PER: AWS & BPR

Checking resolution capabilities of angle beam transducers.

SC Sensitivity Reference Block

PER: AWS & ASTM-E-164

Sensitivity Calibration (Shearwave).

IIW Type 1

PER: International Institute of Welding (IIW) ASTM-E-164 & MIL-STD-2154

Beam Index; Angle Determination; Transverse Wave Distance & Sensitivity; Longitudinal Wave Distance Calibration; Depth Resolution; Sensitivity.

IIW Type 2

PER: IIW & USAF T.O. 33B-1-1 (6-1-84)

Modified version of Type 1 with a 2" radius 1/4" deep cutout test side for time based distance calibration and three extra side drilled holes which permit sensitivity level setting.

IIW V-1 (METRIC)

PER: BS-2704

Mini IIW

Miniature version of IIW blocks resembling the Type 2.

Geometry: 1"x2"x6". Contains 1" diameter hole, 2" radius 1/4" deep cutout test side, 3 side drilled holes, and a 3/4" sq. x .100" deep cutout.

ASME Basic Calibration Block

PER: ASME SEC V Articles 4 Fig. T-434.2.1; Article 5 Fig. T-534.2.1 (Previously designated Fig. T-542.2.1. Article 5 was revised in its entirety in October 2002).

Application: Angle Beam Calibration.

Geometry:

Material Thickness	Block Dimensions
1" or less	.750" x 6" x 7"
Over 1" through 2"	1.50" x 6" x 10"
Over 2" through 4"	3.00" x 6" x 12"

Contains 2 slots: one on each face, and three side drilled holes 1.5" deep. Diameter of holes is determined by block thickness.

ASME Basic Calibration Blocks for Pipe

PER: ASME SEC V Article 4 Fig. T-434.3.

The basic calibration block fabricated for customer supplied section of pipe of the same diameter, schedule, heat treatment and material type as the material being examined. Contains 4 nothces: longitudinal, and circumferential on both OD and ID at a depth of 10% of the wall thickness. Notches are 1/4" max. wide x 1" min. long. Block is fabricated in accordance with ASME SEC. V article 4 Fig. 434.3.

ASME-N-625 Reference Plate

PER: ASME Boiler and Pressure Vessel Code SEC. III for longitudinal shear & surface wave.

30 FBH Resolution Block

PER: ASTM-E-127 & ASTM-E-428.

Area / amplitude plots for normal beam transducer.

NAVSHIPS Test Block

PER: NAVSEA T 9074-AS-GIB-010/271.

Distance correction & sensitivity levels.

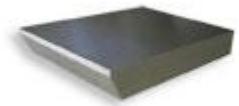
Custom Step Pipe Segment

RCM can manufacture step pipe segments per customer specification. Customer to supply material and specifications.

Specify whether steps are to be Machined on ID or OD:
A) ID or OD Dimensions
B) Number of Steps & Step Thicknesses
C) Step Length
D) ARC Segment Width
E) Overall Length

Boeing Angle Beam Block

P.S. 21211, Fig. 4



Application: Angle Beam Examination

Material Thickness	T	L MIN. (inches)
Up to and including 1"	3/4" or t	(3T Tan 0+1)
Over 1" to 2"	1.5" or t	(3T Tan 0+1)
Over 2" to 4"	3" or t	(3T Tan 0+1)
Over 4" to 6"	5" or t	(3T Tan 0+1)
Over 6"	t +/- 1"	(3T Tan 0+1)

IOW Beam Profile Block

PER: BS 2704 (British Standards).

Beam profile of angle beam transducer.

Step Blocks

PER: ASTM-E-797.

Thickness & linear calibration.

We can manufacture any number of step blocks for special applications.

Mini Resolution Block

To check resolution capabilities.

ASTM-A-609

Standard practice for UT Examination for castings, carbon, low alloy and martensitic stainless steels.

ASTM-E-317

FIG. 1: Suggested test block for Horizontal and Vertical Linearity & FIG 6: Suggested configuration for Resolution Test Block.

ASTM-E-127 or ASTM-E-428

A set of calibration blocks all with the same hole size and a series of metal travels ranging from .062" to 5.75".

A set of calibration blocks using the attributes of 8 & 19 piece sets. This set contains blocks used for distance amplitude as well as area amplitude.

A set of calibration blocks all the same length and having a series of hole diameters ranging from 1/64" to 8/64".

All raw material is ultrasonic-inspected and certified prior to manufacture of blocks. Many materials other than the standard materials listed before are kept on the shelf and are available for immediate fabrication to customer specifications. All blocks are available in metric dimensions.

Blocks are precision manufactured to tolerances well within the allowable limits of their respective codes. All blocks pass a comprehensive quality control inspection in accordance with ISO 9002 (formerly MIL I 45208 A), with instruments calibrated in accordance with ANSI/NCSL Z540 (formerly MIL C 45662A). All calibration blocks are serialized and certified to the National Institute of Standards and Technology