

# Ultrasonic Testing (UT) Accessories

Ultrasonic transducers/probes are the heart of any ultrasonic test. Inappropriate transducer selection or poorly manufactured or malfunctioning transducer can severely affect test results regardless of instrumentation capability.

We manufacture full range of general-purpose probes like straight beam, angle beam and TR probes. These probes are available in 2 or 4 MHz and the customer can choose from either BNC female or Lemo 00 connectors on the probe side.

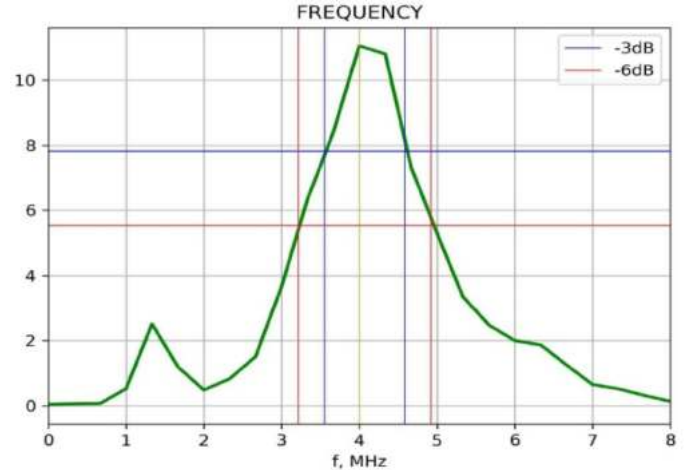
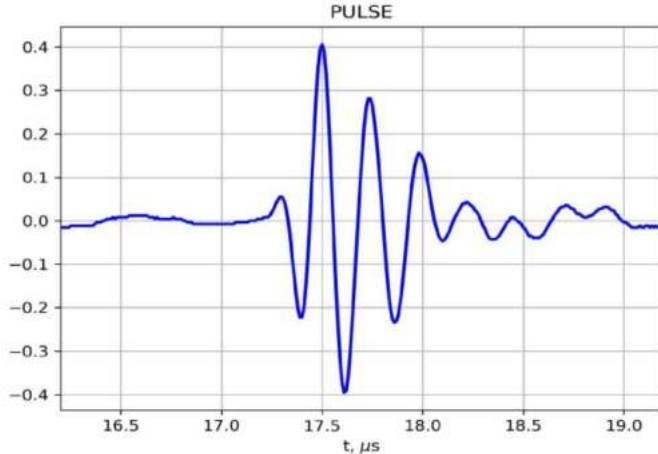
## Normal Probes



### Salient Features:

- Sturdy and rugged housing for all types of industrial environment.
- Extended transducer life with wear cap and membrane.
- Improved coupling with membrane on rough or uneven surface.
- Miniature probes suitable for small jobs.
- High penetration and resolving power.

### Frequency Spectrum:



### Probe Details:

Part No.	Description	Frequency, MHz	Size, mm
SB-210	Miniature Normal Beam Probe	2	10
SB-410		4	10
SB-224	Large Normal Beam Probe	2	24
SB-424		4	24

### Membrane Details:

Part No.	Description
PM-10	Probe Membrane (10 mm), Pack of 10 Nos.
PM-24	Probe Membrane (24 mm), Pack of 10 Nos.

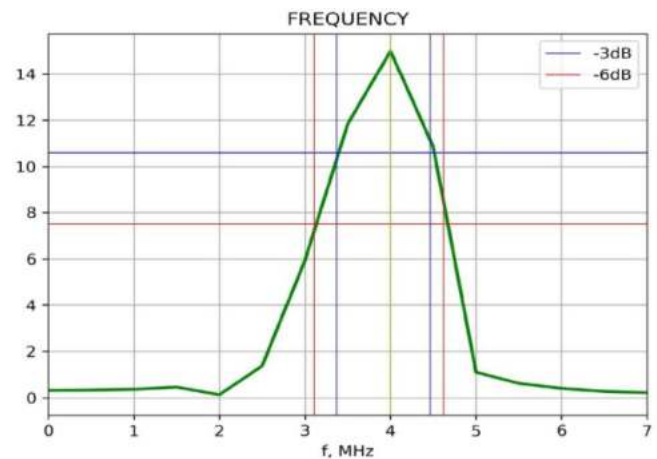
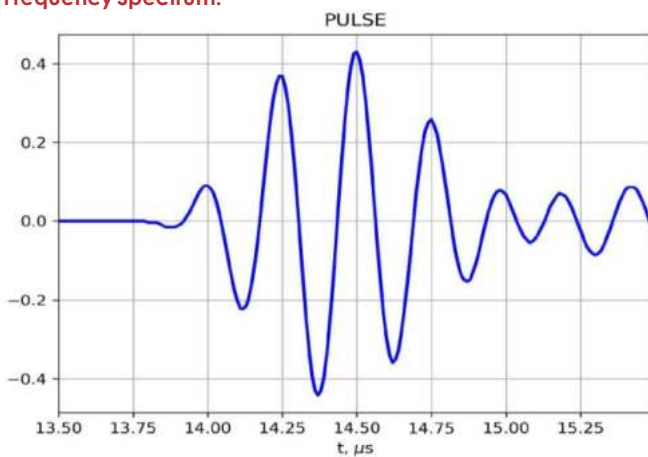
## TR Probes



### Salient Features:

- Sturdy and rugged housing for all types of industrial environment.
- For better near surface resolution.
- Low dead-zone allows detection of near surface flaws even in low frequency.
- Can be focused from 3–25 mm.

### Frequency Spectrum:



### Probe Details:

Part No.	Description	Frequency, MHz	Size, mm
TR-210	Miniature Dual Beam Probe	2	10
TR-410		4	10
TR-224	Large Dual Beam Probe	2	24
TR-424		4	24

## N 30 Probe

The N-30 is an integrally attached calibration block to verify Vertical, Horizontal & Amplitude Control Linearity. It can be used for routine calibration of ultrasonic flaw detectors using conventional pulse echo method. N-30 is an aluminum block of 48 mm long and 38.5 mm diameter (Solid cylindrical shape) attached to a 24 mm diameter 2 MHz longitudinal transducer.

### Salient Features:

- It can directly be connected to flaw detector.
- Very easy to handle and carry.
- Produces multiple echoes.
- Checks instrument gain over long period of time.
- It verifies horizontal, vertical and amplitude control linearity.



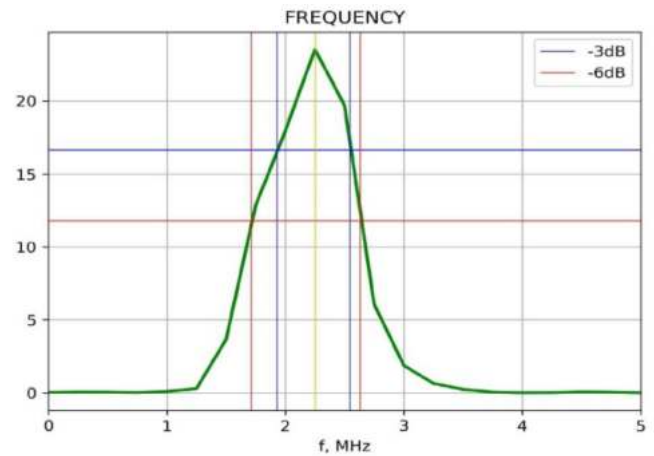
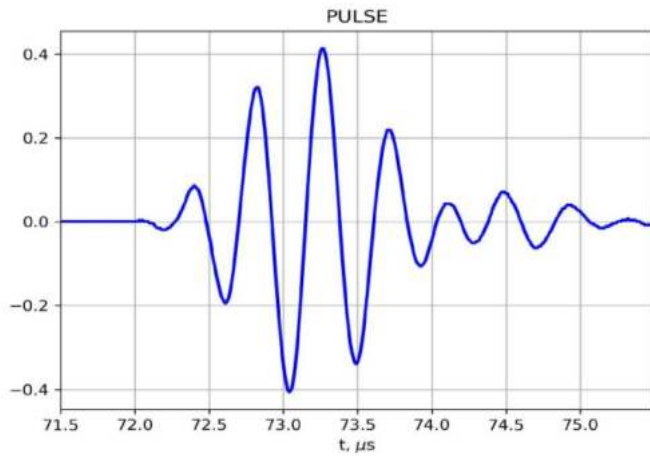
## Angle Probes



### Salient Features:

- Sturdy and rugged housing for all types of industrial environment.
- For flaw detection and sizing.
- Miniature angle beam probes for small pipes and tubes
- For inspection of weld defects & cracks.
- Wear shoe for extended probe life.

### Frequency Spectrum:



### Probe Details:

Part No.	Description	Frequency, MHz	Size, mm
ABS-245	Miniature Angle Beam Probe	2	8 x 9
ABS-260			
ABS-270			
ABS-445	Miniature Angle Beam Probe	4	8 x 9
ABS-460			
ABS-470			
ABM-245	Medium Angle Beam Probe	2	14 x 14
ABM-260			
ABM-270			
ABM-445	Medium Angle Beam Probe	4	14 x 14
ABM-460			
ABM-470			
ABL-245	Large Angle Beam Probe	2	20 X 22
ABL-260			
ABL-270			
ABL-445	Large Angle Beam Probe	4	20 X 22
ABL-460			
ABL-470			

### Membrane Details:

Part No.	Description
PSSM-10	Probe shoe (8 x 9) or (14 x 14), Pack of 10 Nos.
PSM-24	Probe shoe (20 x 22), Pack of 10 Nos.

## Cables

We manufacture full range of ultrasonic testing cables. These cables are manufactured with reinforced junctions between the cable & the connector. Cables are available in single, dual with Lemo, Mini Lemo, BNC, Microdot or Subvis connector. We can also offer customized cable depending upon your needs or application.



### Probe Details:

Part No.	Description
LL-2	Lemo to Lemo
LML-2	Lemo to Mini Lemo
LMD-2	Lemo to Microdot
LSU-2	Lemo to Subvis
LBN-2	Lemo to BNC
MLML-2	Mini Lemo to Mini Lemo
MLMD-2	Mini Lemo to Microdot
MLSU-2	Mini Lemo to Subvis
MLB-2	Mini Lemo to BNC
BNB-2	BNC to BNC
BSU-2	BNC to Subvis

Part No.	Description
BMD-2	BNC to Microdot
DLML-2	Dual Lemo to Dual Mini Lemo
DLDSU-2	Dual Lemo to Dual Subvis
DLDDMD-2	Dual Lemo to Dual Microdot
DMLML-2	Dual Mini Lemo to Dual Mini Lemo
DMLDSU-2	Dual Mini Lemo to Dual Subvis
DMLDMD-2	Dual Mini Lemo to Dual Microdot
DBDB-2	Dual BNC to Dual BNC
DBDS-2	Dual BNC to Dual Subvis
DBDM-2	Dual BNC to Dual Microdot

## Couplant

FlawGel is a white powder in its dry state, which, upon mixing with water, transforms into a yellow fluorescent gel. One of the notable advantages of FlawGel is its ability to be swiftly spread across expansive areas. Moreover, its unique consistency prevents dripping or running, making it particularly advantageous for inspecting overhead surfaces or vertical walls. Additionally, FlawGel is non-corrosive, rendering it suitable for use on various metal surfaces without causing damage.

### Salient Features:

- Ultrasonic Couplant - Powder to be mixed with water to obtain a Yellow Fluorescent gel
- Typical concentration: 40 grams per liter, but a thinner gel can be obtained by reducing the powder content to a minimum of 10 grams per liter.
- Temperature Operating Range : 0°C to 50°C
- Can be used for all surface
- Non-toxic and safe for the environment
- FlawGel is a mixture of polymers, rust inhibitor, surfactant and tracer.
- Low in Sulphur & Halogens



### Technical data for Ultrasonic Couplant:

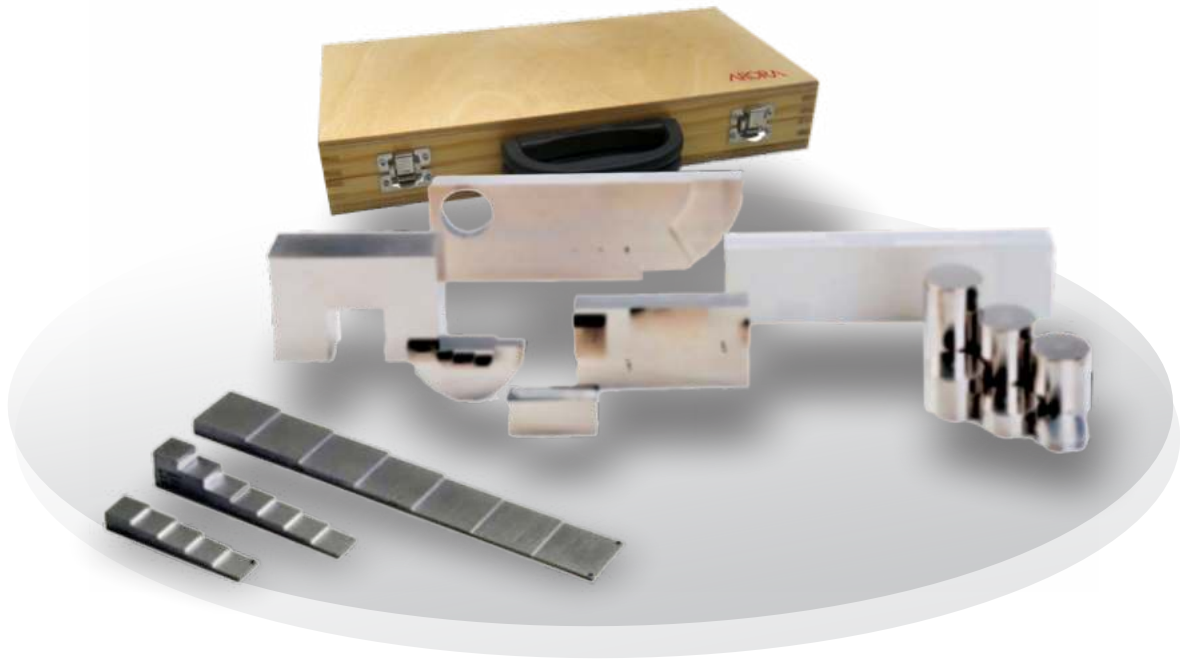
Part No.	Description	Approval & Specifications	Standard Packaging
FlawGe - PF	Powder Form	ISO 9934-2	Pack of 1kg
FlawGel - GF	Yellow Fluorescent gel	ISO 9934-2	Pack of 500 ml



## Ultrasonic Test Blocks

We manufacture a wide range of Ultrasonic Test blocks which are precisely machined, and quality tested as per specified ASTM, ASME and ISO standards. Standard Test Blocks are available in steel, stainless steel, and aluminum. Test Blocks in alloys are also available, like alloy steel, inconel, titanium, copper-nickel, Duplex steel and others. All Test Blocks are permanently engraved with the part no and serial number.

All test blocks are offered with wooden case and test certificate which include dimensional report and positive material identification report. Carbon steel blocks are Ni coated for rust protection.



### IIW-Type 1 Block

Used for calibration of shear and longitudinal transducers, and verification of shear wedge exit point and refracted angle. Can also be used for resolution and sensitivity checking. Includes a 100 mm radius on one end and a 25 mm radius by 1.5 mm deep. Also includes a 1.5 mm diameter and a 50 mm diameter hole. In accordance with International Institute of Welding and ASTM E164 specifications. Dimensions: 300mm x 100mm x 25mm. Imperial version available.



### IIW-Type 2 Block

This is a modified version of the original IIW-Type 1 design. Includes a 50mm radius x 5.0mm deep cut-out superposed on the 100mm radius for distance calibration. Also includes 1.0mm, 2.0mm and 3.0mm through holes for sensitivity testing or surface wave inspection, and distance calibration marks to the 50mm hole. In accordance with International Institute of Welding and ASTM E164 specifications. Dimensions: 300mm x 100mm x 25mm. Imperial version available.



### V2 (A4) Calibration Block

Small calibration block for on-site checking of miniature shear wave probe index, time base, beam angle and gain. Includes a 25 mm and 50 mm radius, 1.5mm hole (or 5mm), engraved reference mark scales from 35 to 75 degrees. In accordance with British Standard BS 2704 block A4, Fig. 4, ASTM E164 and ISO 7963 Cal block No. 2, Fig. 1. Dimensions: 75mm x 43mm x 12.5mm. Imperial version available.



### DC Block

AWS-type block used for shear wave distance calibration. Contains a 25 mm radius overlaying a 50 mm radius on a 180° segment. In accordance with ASTM E164. Dimensions: 50 mm radius section is 12.5 mm thick, 25 mm radius section is 25 mm thick. Imperial version available.



### SC Block

AWS-type block used for shear wave sensitivity calibration. Contains two 1.6 mm diameter through holes. In accordance with ASTM E164. Dimensions: 75 mm x 32 mm x 22.6 mm. Imperial version available.



### DSC Block

AWS-type block used for shear wave distance and sensitivity calibration. It consists 2 radius curves 25mm and 75mm with 3.2 mm dia hole and corresponding markings at 45°, 60° and 70° for measuring actual refracted angle. In accordance with ASTM E164. Dimensions: 100mm x 62.5mm x 25mm. Imperial version available.



### Type MAB Miniature Angle-Beam Calibration Block

Angle beam block is a substitute for the DSC block for distance, beam index, refracted angle and sensitivity calibration. Contains a 1" radius opposite a 2" radius, and a 0.078" diameter x 0.75" deep flat-bottom hole. In accordance with ASTM E164. Dimensions: 3" x 1.732" x 1".



### 4-Step wedge

Thickness and linearity calibration. Step wedge 4 imperial (0.25, 0.5, 0.75, 1.00 inches), Step wedge 4A (6.25, 12.50, 18.75, 25 mm) and Step wedge 4B (5, 10, 15, 20 mm) with face dimension (0.75 x 0.75 inches) for imperial and (20 x 20 mm) for metric. In accordance with ASTM E797.



### 5-Step wedge

Thickness and linearity calibration. 5 Step wedge imperial (0.1, 0.2, 0.3, 0.4, 0.5 inches), 5 step wedge 5A (2.5, 5, 7.5, 10, 12.5 mm) and 5 step wedge 5B (2, 4, 6, 8, 10 mm) with face dimension (0.75 x 0.75 inches) for imperial and (20 x 20 mm) for metric. In accordance with ASTM E797.



### 10-Step Block

Thickness and linearity calibration. 10 step wedge 10A (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 mm) and 10 step wedge 10B (2, 4, 6, 8, 10, 12, 14, 16, 18, 20 mm) and face dimension 20 mm x 20 mm. in accordance to ISO 16946.



### DS Block

AWS-type block used for longitudinal distance and sensitivity calibration. Contains a 50 mm high section between two 100 mm sections. In accordance with AWS requirements. Dimensions: 150 mm x 100 mm x 50 mm. imperial version available.



### IOW Beam Profile Block

Used for beam profile measurement of angle beam transducers and measurement of transducer angles. Contains nine 1.5 mm diameter x 22 mm deep side drilled holes. In accordance with British Standard 2704 requirements. Dimensions: 305mm x 75mm x 50mm.



### AWS Resolution Block

Used for checking resolution capabilities of angle beam transducers. Contains three sets of 0.062" diameter through holes for 45°, 60° and 70°. In accordance with AWS Welding Highway. Dimensions: 6.0" x 3.0" x 1.0".



### ASME Sec V Non-Piping Calibration Blocks (DAC Block)

Used for establishment of primary reference responses for UT examination of welds. The standard blocks are available in thickness (T) 0.75" (19mm), 1.5" (38mm) and 3" (75mm) which contains three side-drilled holes of diameter 3/32" (2.5mm), 1/8" (3mm) and 3/16" (5mm) respectively. The holes locations are at 0.25T, 0.5T and 0.75T and depth of each hole is 1.5" (38mm) Also contains two EDM notches measuring 2%T deep x 1/4" (6mm) max wide x 1.0" (25mm) long min. In accordance with ASME Sec V Art. 4 Fig. T-434.2.1. Dimensions: 3T x 6" (150mm) x T.

## Phased Array Type A Block



The Phased Array "Type A" Calibration Block is used during the initial setup and calibration of a phased array ultrasonic unit. This block can be used to perform tasks such as beam angle verification, calibration for wedge delay, sensitivity calibration, performing DAC/TCG, and more. This block has similar dimensions to an IIW-Type Block, but has been specially engineered for phased array applications. Blocks include both 50.0mm and 25.0mm radii, (19) through holes at 1.0mm diameter, (1) through hole at 2.0mm diameter, (4) FBHs at 2.0mm diameter x 2.0, 4.0, 6.0, and 8.0mm deep, (4) FBHs at 4.0mm diameter x 1.0, 3.0, 5.0, and 7.0mm deep, (3) FBHs at 2.0mm diameter x 3.0mm deep machined into the 25mm radius, and (4) EDM notches at 0.1, 0.2, 0.3, and 0.4mm deep x 0.5mm wide x 25.0mm long. Block dimensions: 300mm x 100mm x 25mm.

## Phased Array Type B Block



ASTM E2491 Phased Array Assessment Block is a general purpose Phased Array calibration block used for beam characterization and evaluation of system performance characteristics. Use it as baseline block to determine long-term instrument performance changes, generate DAC curves, and evaluate linear/angular resolution, focusing ability and beam steering capability. With a variety of targets, this small, lightweight block is also perfect for customer demonstrations of phased array ultrasonic capabilities. Dimensions: 150mm x 100mm x 25mm. In accordance with ASTM E2491.

## ASTM E317 Horizontal and Vertical Linearity Block, Fig. 1



Used for evaluating the horizontal and vertical linearity characteristics of ultrasonic pulse-echo testing systems. Contains two 1.2 mm diameter side-drilled holes. In accordance with ASTM E317 Figure 1. Dimensions: 75 mm x 50 mm x 25 mm. Imperial version also available.

## ASTM E317 Resolution Block, Fig. 6



Used for evaluating the resolution characteristics of ultrasonic pulse echo testing systems. Contains six 1.2 mm diameter flat-bottom holes. In accordance with ASTM E317 Figure 6. Dimensions: 50 mm x 25, 82.5 mm x 200 mm. Imperial version also available.

## ASTM Area Amplitude Set of 8



Set of eight blocks used to determine the relationship between flaw size and echo amplitude by comparing signal responses. Metal travel distance is 3.000" for all blocks. In accordance with ASTM E127 and E428. Flat-bottom hole diameters for this set per E127 Table 3 are: 1/64", 2/64", 3/64", 4/64", 5/64", 6/64", 7/64" and 8/64".

## ASTM Distance/Area Amplitude Set of 10



Basic set of ten blocks used to determine dead zone, sensitivity, distance and area amplitude linearity measurements. In accordance with ASTM E127 and E428. Flat bottom hole diameters and metal travel distances for this set per E127 Table 1 are: 3/64" at 3.000" MTD; 5/64" at .125", .250", .500", .750", 1.500", 3.000" and 6.000" MTD; and 8/64" at 3.000" and 6.000" MTD (Metal travel distance).

## ASTM Distance Amplitude Set of 19



Set of nineteen blocks used to determine the relationship between metal distance and signal amplitude. All blocks have the same size flat-bottom hole. Hole diameter must be specified when ordering. (3/64", 5/64" or 8/64") In accordance with ASTM E127 and E428. Metal travel distances for this set per E127 Table 4 are: .063", .125", .250", .375", .500", .625", .750", .875", 1.000", 1.250", 1.750", 2.250", 2.750", 3.250", 3.750", 4.250", 4.750", 5.250" and 5.750".

**IIWT1-XX-Y**  
(Test Block)

Code (XX)	Material	Code (Y)	Unit System
CS	Carbon steel 101	M	Metric
SS	Stainless steel 304	I	Imperial
AL	Aluminium 6063		

Code (ZZ) – Thickness 19mm, 38mm or 75mm.

Part No.	Ultrasonic Test Block
IIWT1-XX-Y	IIW-Type 1 (V1) Block
IIWT2-XX-Y	IIW-Type 2 Block
V2-XX-Y	V2 (A4) Calibration Block
DC-XX-Y	DC Block
SC-XX-Y	SC Block
DSC-XX-Y	DSC Block
MAB-XX-Y	Type MAB Miniature Angle Beam Calibration Block
SW4-XX-I	4-Step wedge inches
SW4A-XX-M	4-Step wedge metric A
SW4B-XX-M	4-Step wedge metric B
SW5-XX-I	5-Step wedge inches
SW5A-XX-M	5-Step wedge metric A
SW5B-XX-M	5-Step wedge metric B
SW10A-XX-M	10-Step wedge metric A
SW10B-XX-M	10-Step wedge metric B
DC-XX-Y	DS Block
IOW-XX-Y	IOW Beam Profile Block
SWS-XX-Y	AWS Resolution Block
DAC-XX-ZZ	ASME Sec V Non-Piping Calibration Block T-434.2.1 (DAC Block)
PAA-XX-Y	Phased Array Type A Block
PHB-XX-Y	Phased Array Type B Block
HVL-XX-Y	ASTM E317 Horizontal and Vertical Linearity Block, Fig. 1
RA-XX-Y	ASTM E317 Resolution Block, Fig. 6
ASTM8-XX	ASTM Area Amplitude Set of 8
ASTM10-XX	ASTM Distance/Area Amplitude Set of 10
ASTM19-XX	ASTM Distance Amplitude Set of 19