High-energy Radiographic Testing

High-energy X-ray systems provide high-resolution inspection capabilities for heavy-wall casting sections. Large irregular objects that would take hours to radiograph with conventional gamma-isotope equipment take a matter of minutes using the high-energy method.

THE Applus+ SOLUTION

With its high-energy X-ray systems, Applus+ can provide fast, sharp, precise radiographs of cast steel or equivalent materials up to 28cm (11”) thick, with a material weight of up to 10 tonnes. Two per cent sensitivity can be demonstrated on material with a thickness of as little as 1.9cm (.75”).

Our Varian linear accelerators can image 15cm (6 inches) of cast steel on medium-grain film in five minutes, whereas a 100-curie Cobalt 60 source exposure would take 10 times longer for the same application.

2mm focal spot sizes allow for greater definition at shorter source-to-film distances, while a higher radiation intensity permits longer source-to-film distances, covering up to six 35cm x 43cm (14” x 17”) films in a single exposure.

With seven different high-energy systems (2 x 2MeV, 1 x 3MeV, 4 x 4MeV), Applus+ has the greatest high-energy, industrial X-ray service capacity in the US.

Target customers

Typical applications for high-energy X-ray systems include:

• High-pressure steel valves for the oil and gas industry
Blade and vane segments for industrial gas turbines
Nickel alloy aircraft engine castings
Stainless steel aircraft engine castings
Cast blade hubs for wind turbines

Key customer benefits

Clients using Applus+ high-resolution radiography will benefit from:

• A significant reduction in NDT inspection-cycle time – particularly in the case of large, irregular objects – and subsequent cost efficiencies
• An environmentally friendly process, with no chemicals required
• Reduced quantities of film scraps
• Extremely high-quality results and analysis