



DNT INSPECTION SERVICE CO., LTD.

Weld Inspection Basics

Visual Examination of Welds

Visual examination is the observation of that portion of components, joints, and other elements that are or can be exposed for examination before, during or after fabrication, assembly, erection, or testing.

Visual examination includes verification of Code and engineering requirements for materials, components, dimensions, joint preparation, alignment, welding, and the performance of any required heat treatment and nondestructive testing.

Visual inspection is often the most cost-effective method, but it must take place prior to, during and after welding. Many standards require its use before other methods, because there is no point in submitting an obviously bad weld to sophisticated inspection techniques.

Visual inspection requires little equipment. Aside from good eyesight and sufficient light, all it takes is a pocket rule, a weld size gauge, a magnifying glass, and possibly a straight edge and square for checking straightness, alignment and perpendicularity.

An effective program of visual inspection will result in the discovery of the vast majority of those defects which would be found later using some other more expensive non-destructive test method.

Typically, 70 – 80% all weld defects are found through visual examination.

The only way visual inspection can be considered to effectively evaluate the quality of welds is to apply it at every step of the fabrication process.

This enables the problems to be discovered soon after they occur as possible so they can be corrected most efficiently.

Visual equipment (Direct)

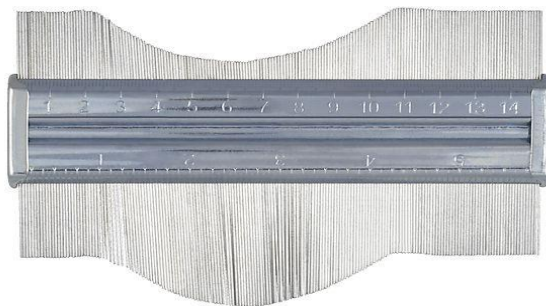
Welding gauge



It can measure the following:

- Angle of preparation from 0 to 60 deg
- Excess weld metal (capping size)
- Depth of undercut Depth of pitting
- Fillet weld throat size Fillet leg length
- Misalignment (high and low)

Contour gauge



- Checking the shape of a metal object surface before and after material loss due to corrosion or abrasion.
- Used with curve templates for metal shaping and bending
- Copying awkward shapes in various applications.
- Duplicate edge and corner contours.
- Used to get the exact contour of a repair area.
- Checking gears for wear and deviation from the original profile.

Welding Inspection Checklist: Before Welding

- Review applicable documentation.
- Check welding procedures.
- Check individual welder qualifications.
- Establish hold points (if required).
- Develop inspection plan (if required).
- Develop plan for recording inspection results and maintain those records.
- Develop system for identification of rejects.
- Check condition of welding equipment.
- Check quality and condition of base and filler materials to be used.
- Check welds preparations.
- Check joint fit-up.
- Check adequacy of alignment devices.
- Check welds joint cleanliness.
- Check preheats (when required).
- Check calibration (if required).
- Check gas and gas flow (when required).

Welding Inspection Checklist: During Welding

- Check welding variables for compliance with welding procedure.
- Check quality of root pass.
- Check quality of individual weld passes.
- Check interpass cleaning.
- Check interpass temperature.
- Check placement and sequencing of individual weld passes.
- Check back gouged surfaces (when required).
- Monitor in-process NDT (if required).

Welding Inspection Checklist: After Welding

- Check finished weld appearance.
- Check weld size.
- Check weld length (when required).
- Check dimensional accuracy of weldments.
- Monitor in-process NDT (if required).
- Monitor postweld heat treatment (if required).
- Prepare inspection reports (if required).

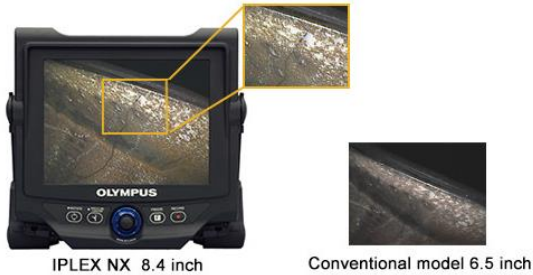
BORESCOPE

A bore scope is an optical tool used to view areas that would otherwise not be visible. A bore scope is inserted into the item being evaluated without destroying the item of interest.

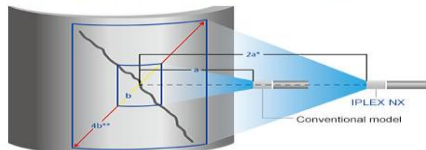
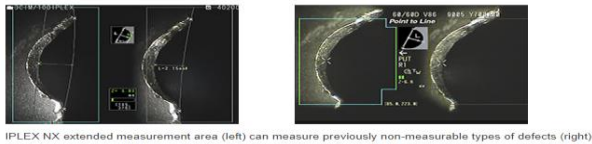
DNT EQUIPMENT

Olympus IPLEX NX BASE UNIT

View target areas clearer than ever before with IPLEX NX. A trio of enhancements - improved high-resolution CCD technology, intensely-bright laser diode illumination, and the innovative Pulsar Pic processor - achieve unprecedented image quality that is four times brighter than a conventional video scope. Inspection targets are brightly illuminated even in large, wide spaces.



Super Wide Field Stereo Measurement



ENDOFLASHER 800 PROBES

Video endoscopic probes with motorized articulation, interchangeable tips, and USB key image recording.



- Maximum length 3 m for diameters 4, 5 and 6 mm working channel
- Maximum length 8 m in standard and 15 m in special version for diameters 6 and 8 mm
- Optional 3DSIZER processor allowing three-dimensional "in situ" measurements
- Axial and lateral interchangeable tips with direct or stereo viewing
- Motorized orbital tip articulation with auto speed regulation 5 inch VGA screen
- Real time video processor with variable zoom and low speed shutter
- Distal temperature alarm
- JPEG and MPEG4 audio-video recording on USB key
- Integrated image processing device to manage several operational procedures, in particular "stereo" (optional) and "comparison" measurements
- 8-button keypad to set video functions, manage image processing and recording functions
- Probe connections: audio headset, VGA output, USB key
- Umbilical connection: AC or battery powering

DELLON D series Industrial video scope

Through a variety of easy operation and visual video menu, even first-time users can also quickly master the method to use the endoscope by variety of settings and options.

By high-resolution CCD image sensor, we can get fine, bright, high-quality images, because the objective lens is focusable and can swap, so the field of view, depth of focus and aperture value are variable, in this way it can adapt all View environment.

In case of no main power the battery belt could supply working for two hours electricity to the endoscope.

4-way control hand wheel, dismountable, replaceable, easily and quickly get ideal inspection result.

12.6 V-1A adapter power, could charge directly.

High Pixel: In high resolution, with better image, good sensitive CCD sensor, which ensures the ideal effect in less light circumstance.

High brightness: LCD high brightness, it can be adapted to work in direct sunlight conditions.

Equipment is made in the form of hand-pull box according to ergonomic design concept, with friendly interface and it is scientifically designed well, suitable for a wide range of work environments, light and portable.

