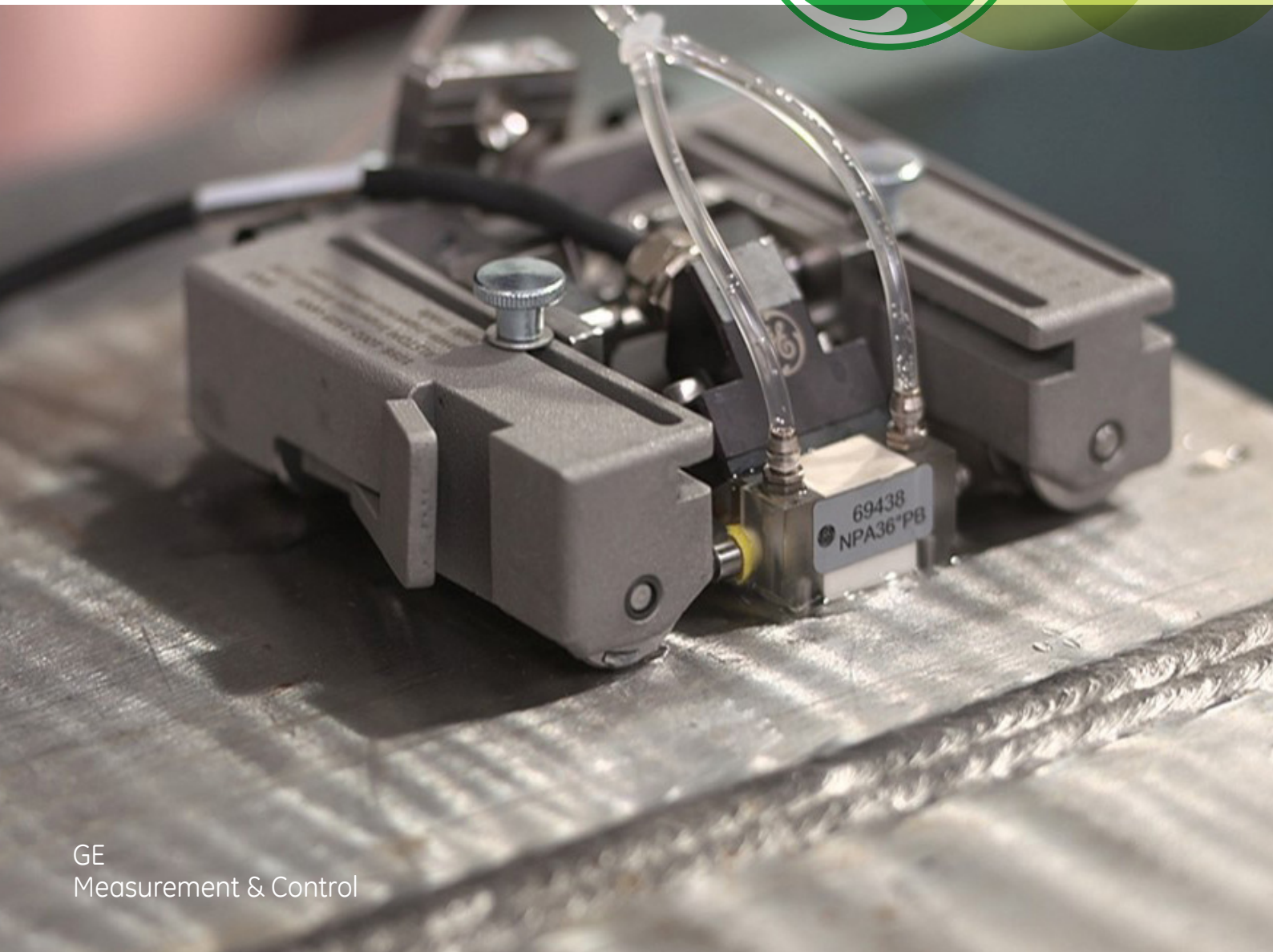


PALM Flat Scanner

for general weld inspection



Weld inspections are crucial during the manufacturing process, as well as on a regular basis to ensure weld integrity. Inspections with conventional ultrasonic angle beam probes are time consuming and provide limited

documentation. Probability of detection is reduced due to the limited amount of angles used, which could result in missed indications. GE Inspection Technologies now offers the PALM Flat Scanner to perform more accurate and efficient weld inspections.

PALM Flat Scanner

Encoded Phased-Array inspection of welds offers the benefits of a reduced inspection time, while increasing the probability of detection and providing a comprehensive documentation of the inspection results directly on the instrument. The PALM Flat Scanner is a versatile and ergonomic inspection tool featuring an integrated encoder and magnetic wheels, allowing vertical and overhead operation. The scanner can be used on diameters larger than 90 mm for circumferential scanning and 200 mm for axial scanning.

Features

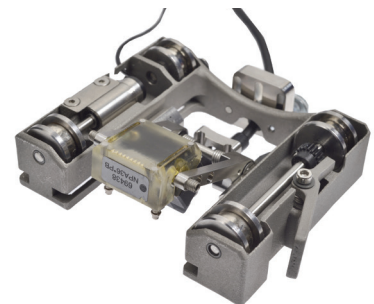
- Compact, rigid, lightweight and robust (IP67, stainless)
- Low profile to pass clearances as low as 30 mm (1.2") dependent on probe
- Reproducible adjustment of the probe position based on an integrated ruler
- Adaptive to various probes and wedges
- Integrated robust encoder, which can easily be replaced by the operator
- Spring-loading and gimbaling of probes
- Magnetic wheels to stick to tube and for straight guiding
- Manual brake for hand-free locking at any position
- Easy switching from axial to circumferential direction and back
- Operatable by a single person
- Easy to set up
- CE compliant



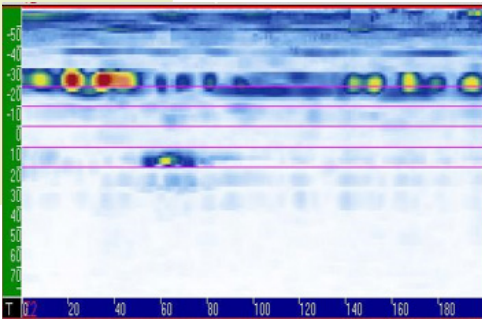
Operating Information

The PALM Flat Scanner – part of the PALM Scanner family – circumferentially inspects pipes of diameters from 90 mm (3.5") outer diameter to flat and inner diameters down to 250 mm (10"). The minimum diameter of axial scanning is 200 mm. The tools can carry probes up to the size of 70 mm (length) x 50 mm (width) to suit any inspection procedure regardless of tube thickness, material or acceptance criteria.

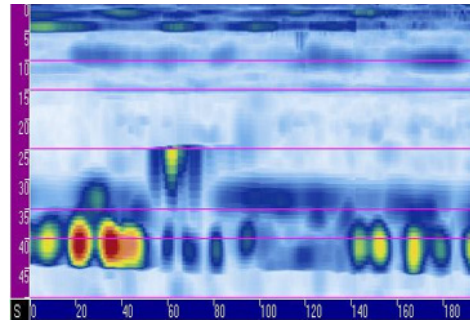
The PALM Flat Scanner is delivered with a wide selection of accessories in order to make inspection and/or equipment handling even simpler. With other types of probes, the PALM Flat Scanner has the potential to solve many other applications as well. Our solution teams in USA and Europe would be pleased to assist you with special application requests.



UT Scanning Results

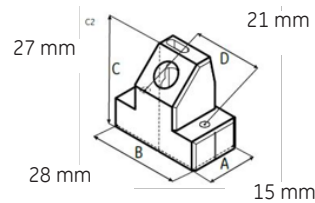


C-scan of weld displaying indications as high reflection signals (red and yellow amplitudes). The weld geometry is displayed in the C-Scan for localization. Cursors are available after the scan for determining the position of indications with respect to the weld geometry.



B-scan of weld displaying the depths of indications. The double V weld geometry of a 25 mm thick part is shown. Indications are detected between 1st and 2nd skip in the upper part of the weld at a depth of about 10 mm.

Phased Array Probes



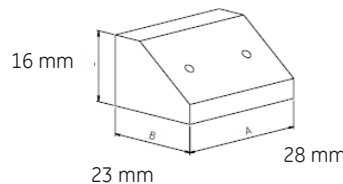
Inspection of welds with a typical material thickness of up to 25 mm

| Part Number | Connector type | Frequency (MHz) | Element | Pitch (mm) | Aperture (mm) | Elevation (mm) |
|-------------|----------------------------|-----------------|---------|------------|---------------|----------------|
| 115-100-001 | Tyco (USM Vision+; Phasor) | 2 | 8 | 1 | 8x9 | 9 |
| 115-100-002 | Tyco (USM Vision+; Phasor) | 4 | 16 | 0.5 | 8x9 | 9 |
| 115-130-001 | IPEX (Omniscan)* | 2 | 8 | 1 | 8x9 | 9 |
| 115-130-002 | IPEX (Omniscan)* | 4 | 16 | 0.5 | 8x9 | 9 |



Wedges

| Part Number | |
|-------------|--------------------|
| 0600218 | NPA36°M (flat) |
| 0600183 | NPA36°M R. (A-D)** |



** How to order custom wedge curvatures (see back page)

Instrument specific wedge parameters for 0600218 and 0600183 type „A“ and „B“

| Instrument | Material | Soundvelocity | | Incident Angle (deg) | Primary Offset | | Hight of Reference Element | |
|--------------------|------------|---------------|---------|----------------------|----------------|-------|----------------------------|-------|
| | | (m/s) | (in/us) | | (mm) | (in) | (mm) | (in) |
| Phasor/USM Vision+ | Polystyrol | 2380 | 0.0937 | 36 | 17 | 0.669 | 10.5 | 0.413 |
| Omniscan* | Polystyrol | 2380 | 0.0937 | 36 | 20 | 0.787 | 8.3 | 0.327 |



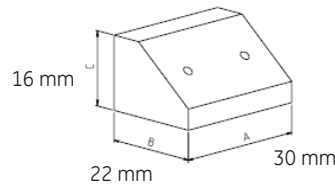


High Frequency Focused Phased Array Probes

Inspection of welds with thin material thickness less than 8 mm

| Part Number | Connector type | Frequency (MHz) | Element | Pitch (mm) | Aperture (mm) | Elevation (mm) | Internal Focus (mm) |
|-------------|----------------------------|-----------------|---------|------------|---------------|----------------|---------------------|
| 115-100-047 | Tyco (USM Vision+; Phasor) | 7.5 | 16 | 0.5 | 8x10 | 10 | 35 |
| 115-100-048 | Tyco (USM Vision+; Phasor) | 10 | 16 | 0.4 | 6.5x7 | 7 | 35 |
| 115-130-047 | IPEX (Omniscan)* | 7.5 | 16 | 0.5 | 8x10 | 10 | 35 |
| 115-130-048 | IPEX (Omniscan)* | 10 | 32 | 0.3 | 9x7 | 7 | 35 |

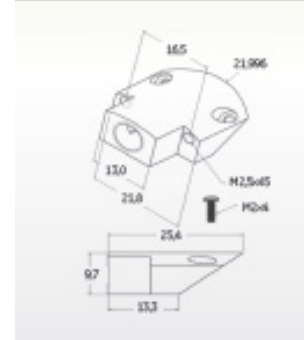
| Wedges | |
|---------|---------------------|
| 0600219 | NPA38°M (flat) |
| 0600220 | NPA38°M R.. (A-D)** |



Instrument specific wedge parameters for 0600219 and 0600220 type 'A' and 'B'

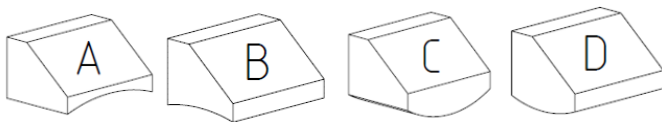
| Instrument | Material | Soundvelocity | | Incident Angle (deg) | Primary Offset | | Height of Reference Element | |
|--------------------|----------|---------------|---------|----------------------|----------------|-------|-----------------------------|-------|
| | | (m/s) | (in/us) | | (mm) | (in) | (mm) | (in) |
| Phasor/USM Vision+ | Rexolite | 2337 | 0.092 | 38.5 | 15.6 | 0.614 | 7.6 | 0.299 |
| Omniscan* | Rexolite | 2337 | 0.092 | 38.5 | 18.52 | 0.729 | 5.27 | 0.207 |

* Omniscan is a trademark of Olympus



** How to order custom wedge curvatures

Applies only to part numbers 0600183 and 0600220
Choose letter specifying the curvature geometry according to below pictures



When placing the order use the curvature specification and radius of the curvature to specify the wedge.
Example: ordering 0600183 NPA36°M R.. (A-D) in curvature geometry "A" with 60 mm radius.

Use the following identifier when ordering
0600183 NPA36°M R60 A

Scanner Packages

| Scanner Packages | |
|-----------------------------|---------|
| PALM Flat Scanner with Case | 0600176 |
| Encoder Adapter Phasor | 0600185 |
| Encoder Adapter MX1 | 0600135 |
| Encoder Adapter MX2 | 0600136 |

Imagination at work

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