VisiConsult GmbH

X-ray Systems & Solutions

Pipe inspection systems

Typical setup

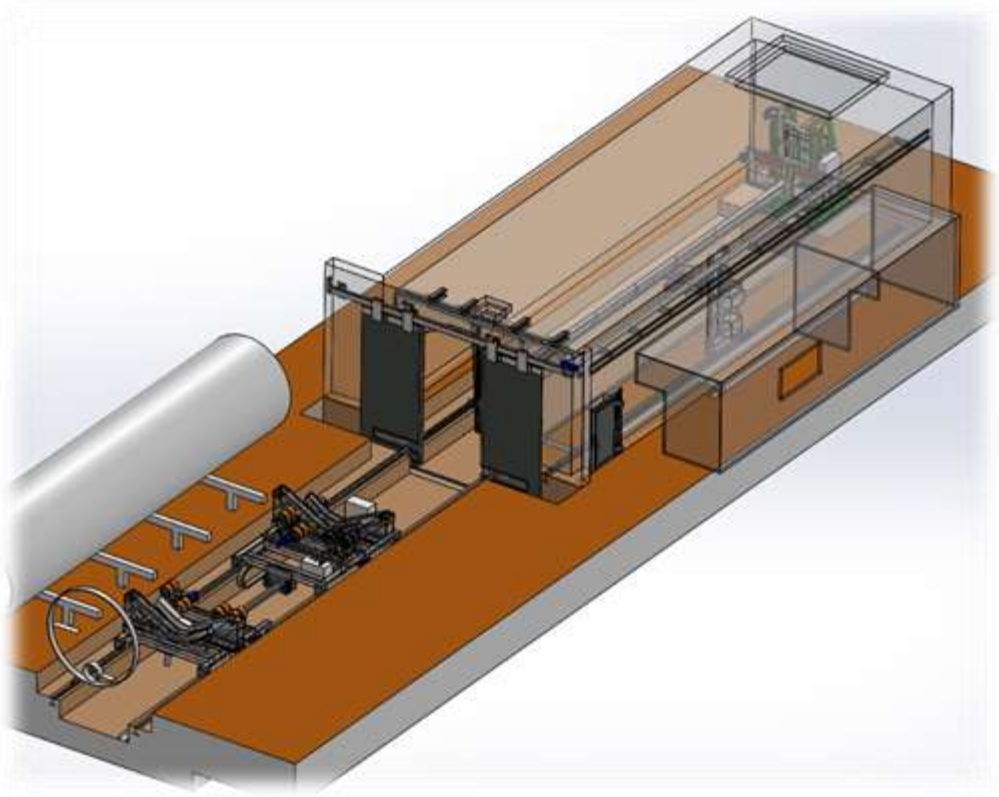
Specifications

Weld types

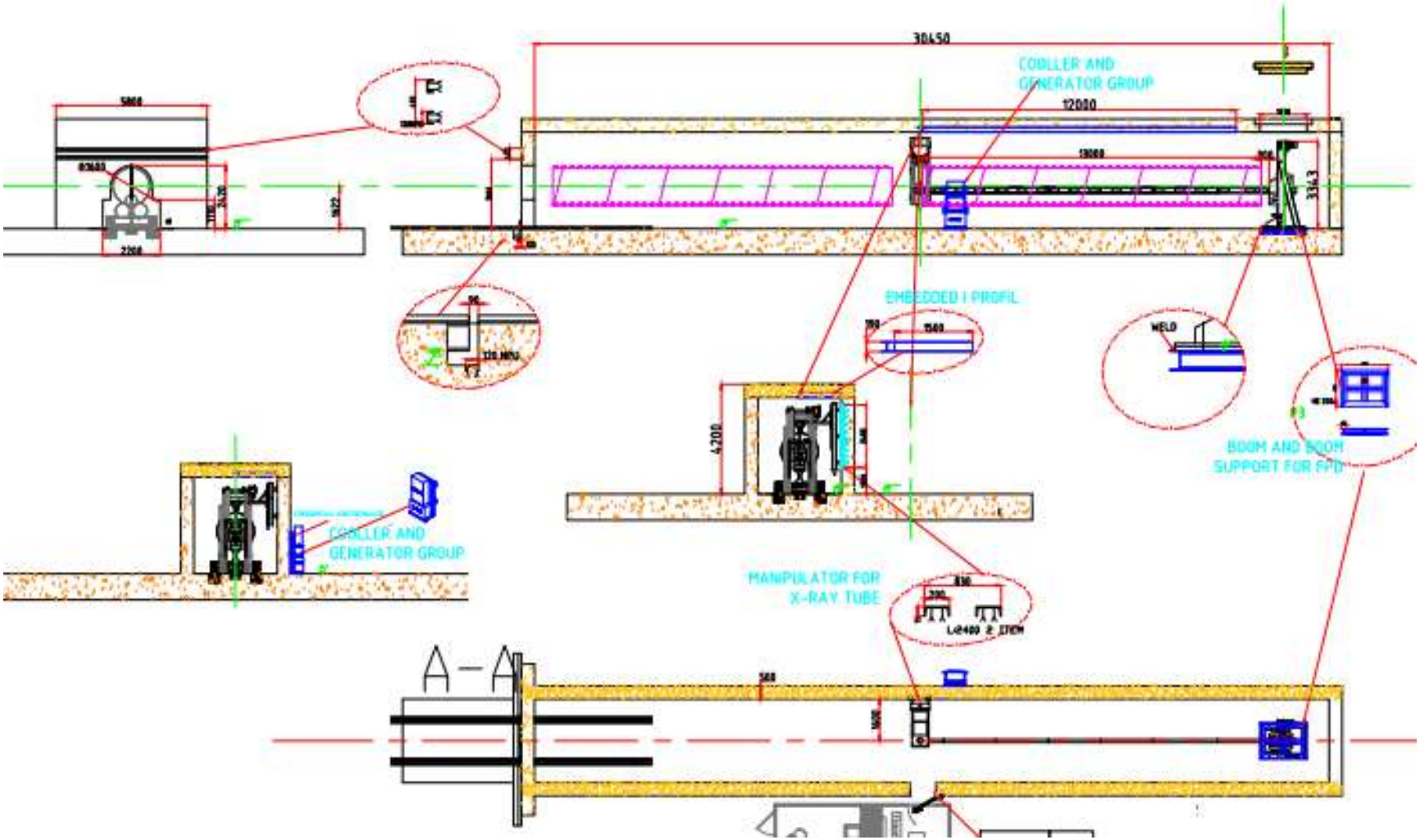
- ✓ Longitudinal welds
- ✓ Spiral welds
- ✓ Circumferential/planar welds

Dimensions

Pipe length	: up to 20 m
Diameter	: 10“ – 60“
Wall thickness	: 5mm-75 mm
Material	: (Stainless) steel

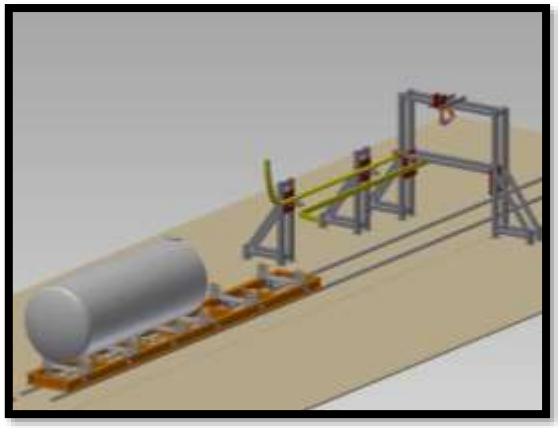


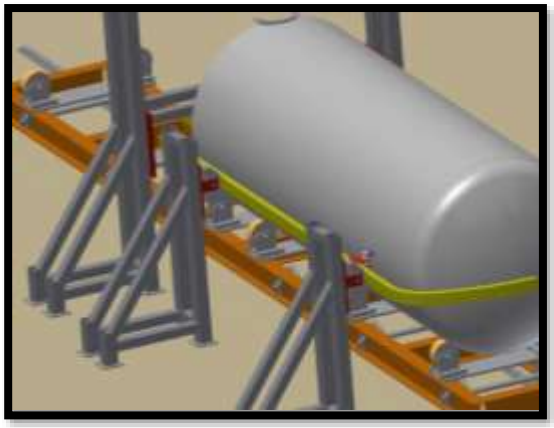
Typical setup

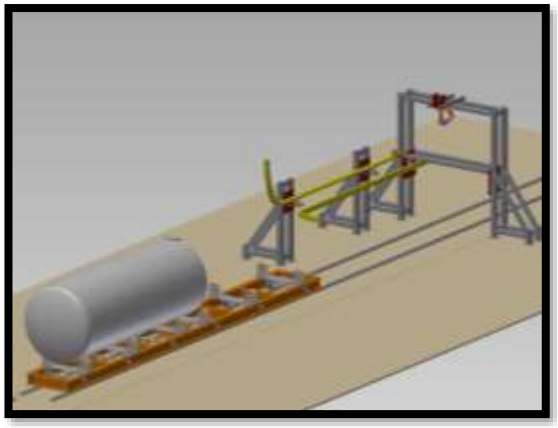


Typical setup

Standard Testcycle







Start of testcycle	Test position reached	End of Testcyle
✓ Pipe moves in	✓ Step-wise inspection of all welds	✓ Doors open
✓ Parallel pipe length maesurement	✓ Images stored for every position	✓ Pipe moves out
✓ Doors close automatically	✓ Optional: Faulty positions are marked on the tube	

Mechanical options

Moving Pipe carrier:

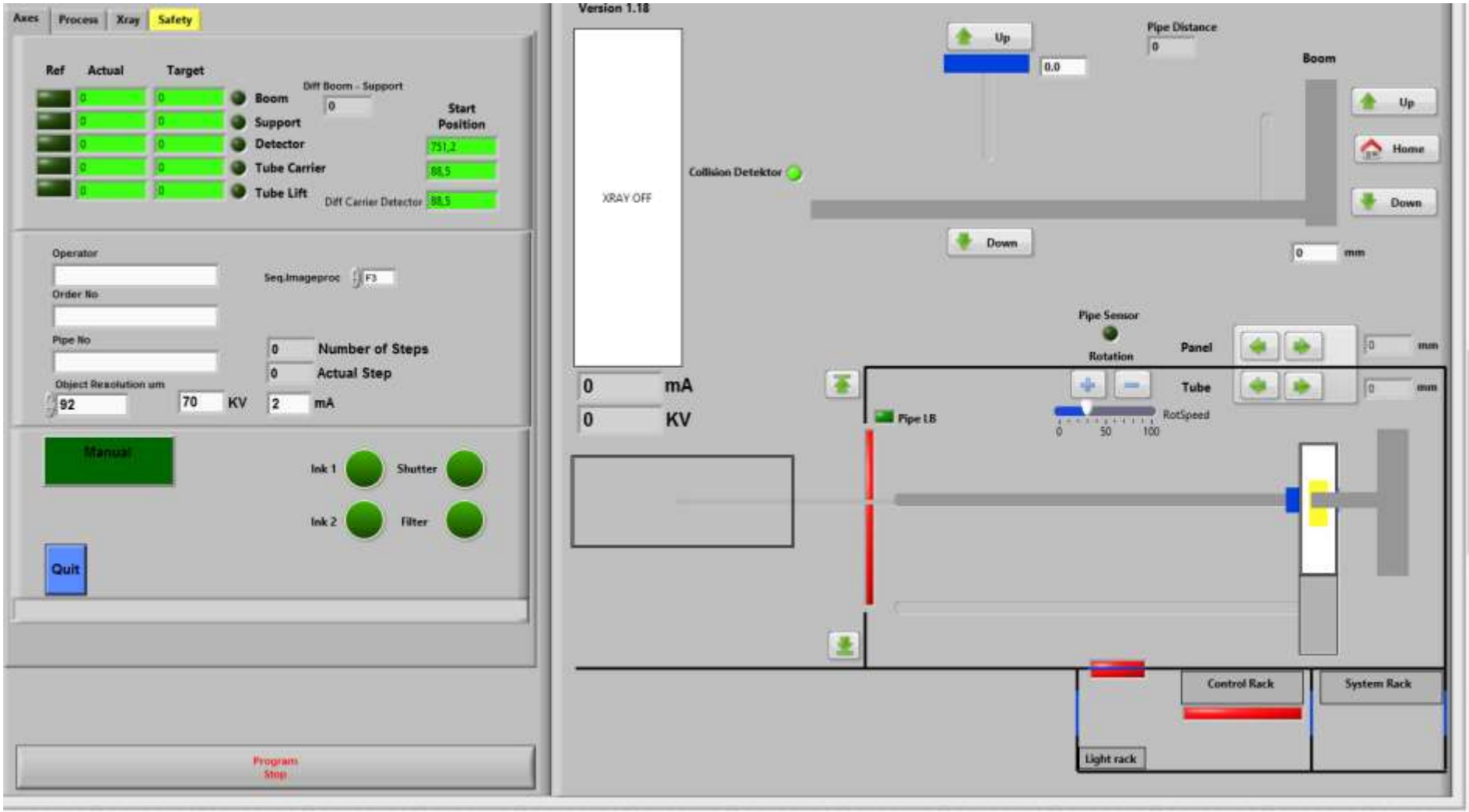
- Detector and tube have a fixed position
+ Lower costs
- Longer bunker (2* max tube length)

Fixed pipe position:

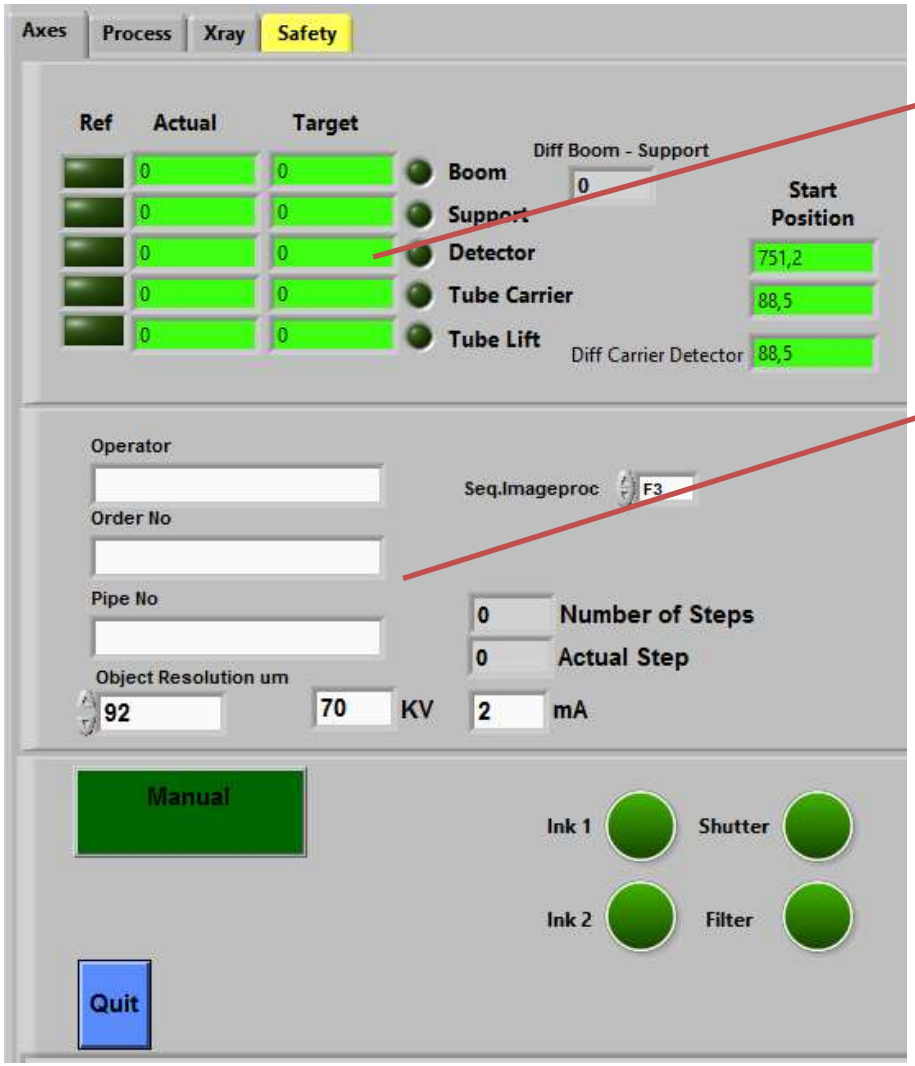
- Detector and tube have a variable and syncronised position
+ Higher costs due o complex mechanics
- Short bunker (1* max tube length)

→ Choice depending on space and budget considerations!

Xplus[Pipe] Software



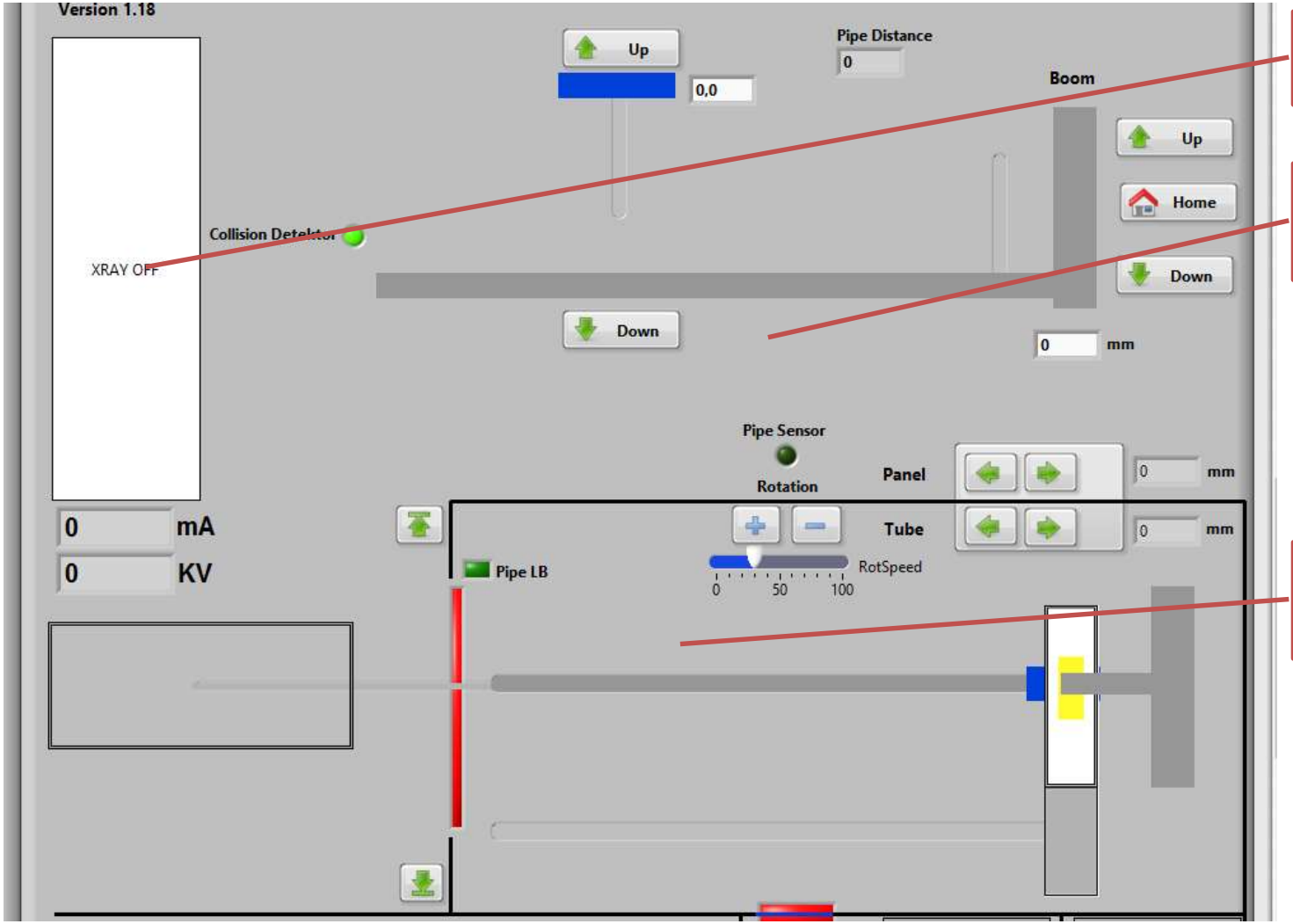
Xplus[Pipe] Software



Positioning control and safety indicators

Pipe meta data for automatic image overlay

Xplus[Pipe] Software



X-ray conrol

Collision detection

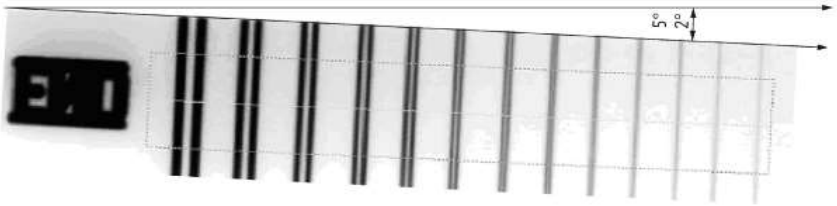
System status

Inspection Standards

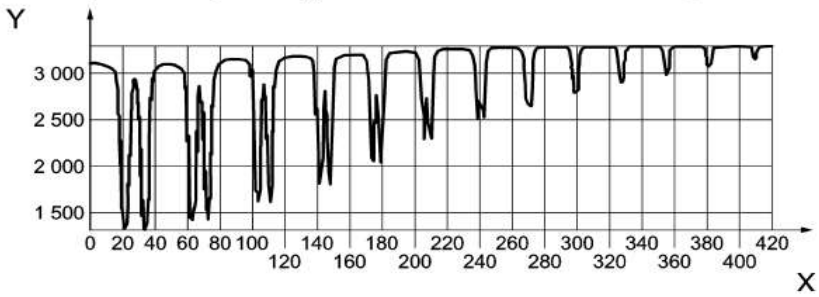
- ✓ Meets international standards (EN/ISO 17636-2-2013, ASTM etc.)
- ✓ Class B is fullfilled (proof trough IQI)

Tabelle B.14 — Maximale Bildunschärfe für alle Techniken der Klasse B

Bildgüteklasse B, Doppel-Draht-BPK nach ISO 19232-5		
Durchstrahlte Dicke w [a] mm	Mindest-BPK-Wert und maximale Unschärfe (ISO 19232-5) [b] mm	Maximale Basis-Ortsauflösung in mm (äquivalent zur Drahtstärke und zum Drahtabstand) [b]
$w \leq 1{,}5$	D 13+ 0,08	0,04
$1{,}5 < w \leq 4$	D 13 0,10	0,050
$4 < w \leq 8$	D 12 0,125	0,063
$8 < w \leq 12$	D 11 0,16	0,08
$12 < w \leq 40$	D 10 0,20	0,10
$40 < w \leq 120$	D 9 0,26	0,13
$120 < w \leq 200$	D 8 0,32	0,16
$w > 200$	D 7 0,40	0,20



a) Abbildung des Doppeldraht-BPK in einem Durchstrahlungsbild



b) Aus mindestens 21 Zeilen gemitteltes Profil des Doppeldraht-BPK

Inspection Standards

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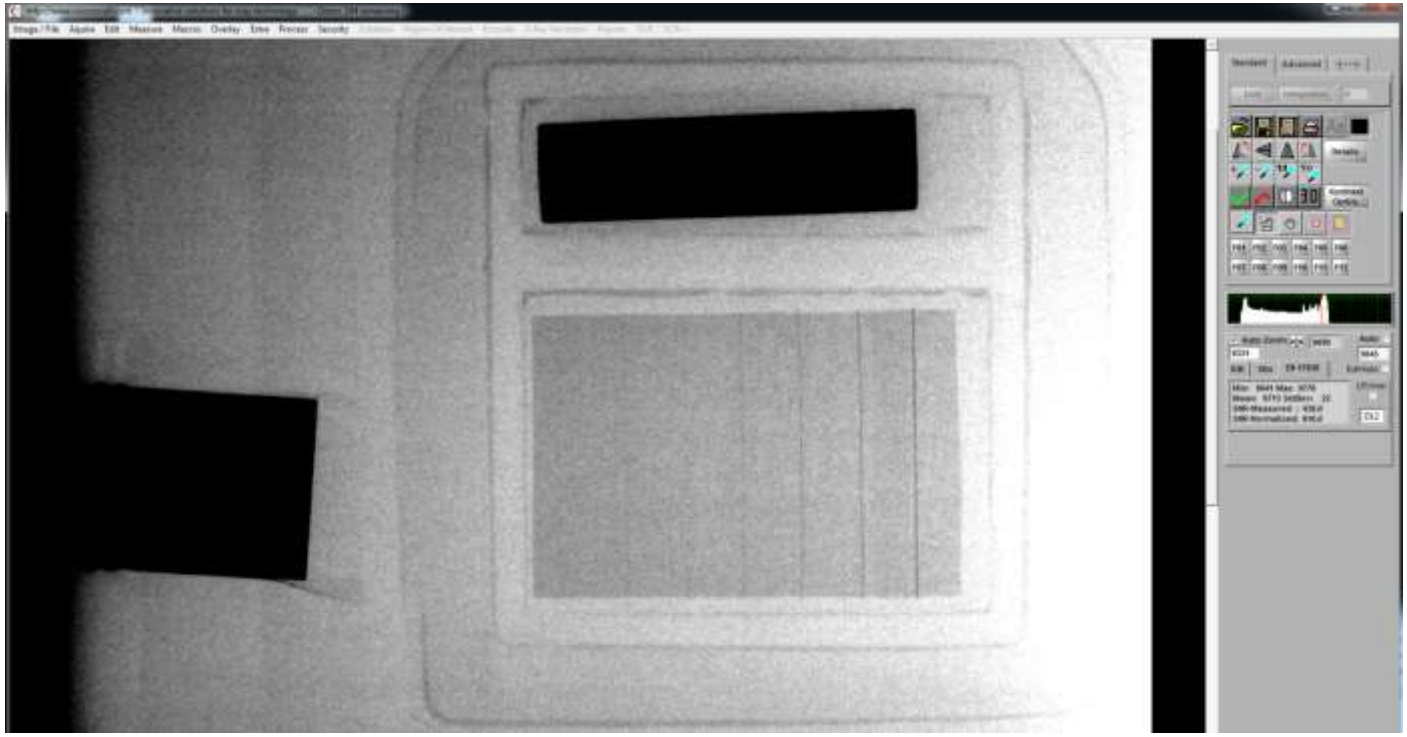
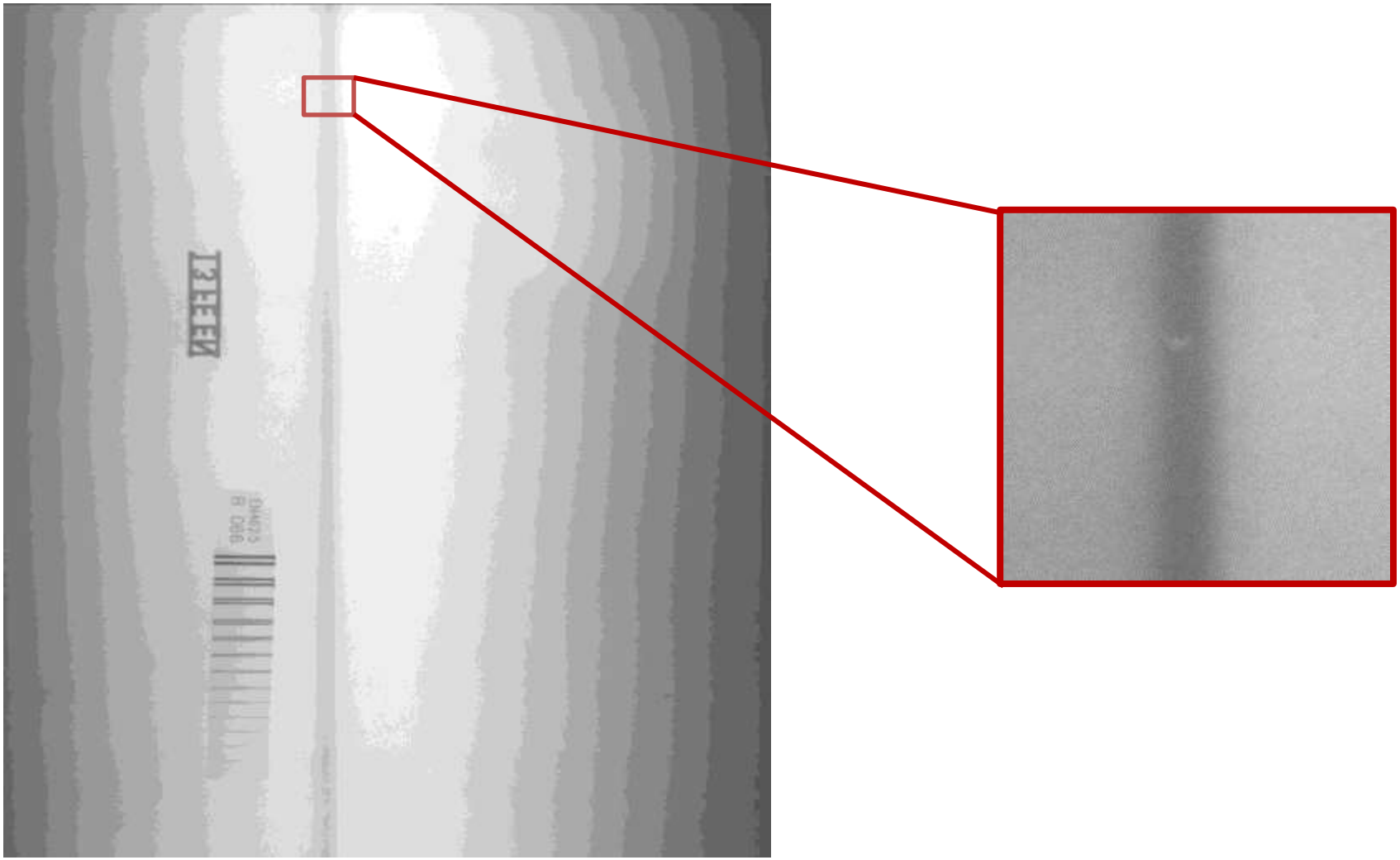


X-ray images



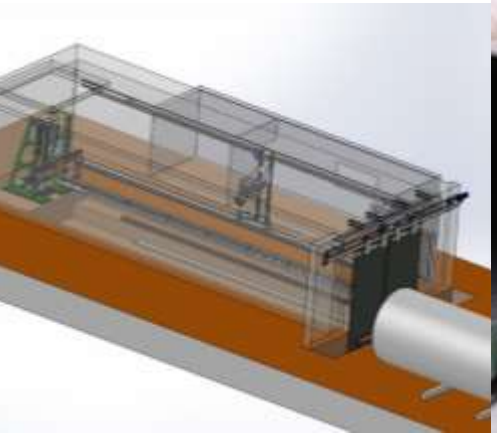
The X-ray setup

The wall thickness range is influencing the choice of the detector and the X-ray setup:

Max. Wall thickness	→	Energy (Max. kV)
Min. Wall thickness	→	Detector resolution (pixel size
Min diameter of pipe	→	Fitting of the detector for single wall

References

Company	Country	Material
Sosta	Germany	Stainless Steel
Butting	Germany	Stainless Steel
Corinth Pipe Works	Greece	Steel
SMS Meer	Germany, South Korea, Malaysia, Saudi Arabia	Steel
PFW	Germany	Titanium



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Thanks for your attention!