



REMOTE VALVE INSPECTION

Remote Witness Technology for online Service Support

Bewi Energy introduces an innovative remote support solution powered by latest technology and service platform. It help your service and Inspection Departments to significantly speed up reaction times, while simultaneously reducing travel time and overall cost. With the Remote Witness Technology your on-site field team can share real time videos to connect with our online Service Center for support.



Safety

Increase frontline
worker safety



Support

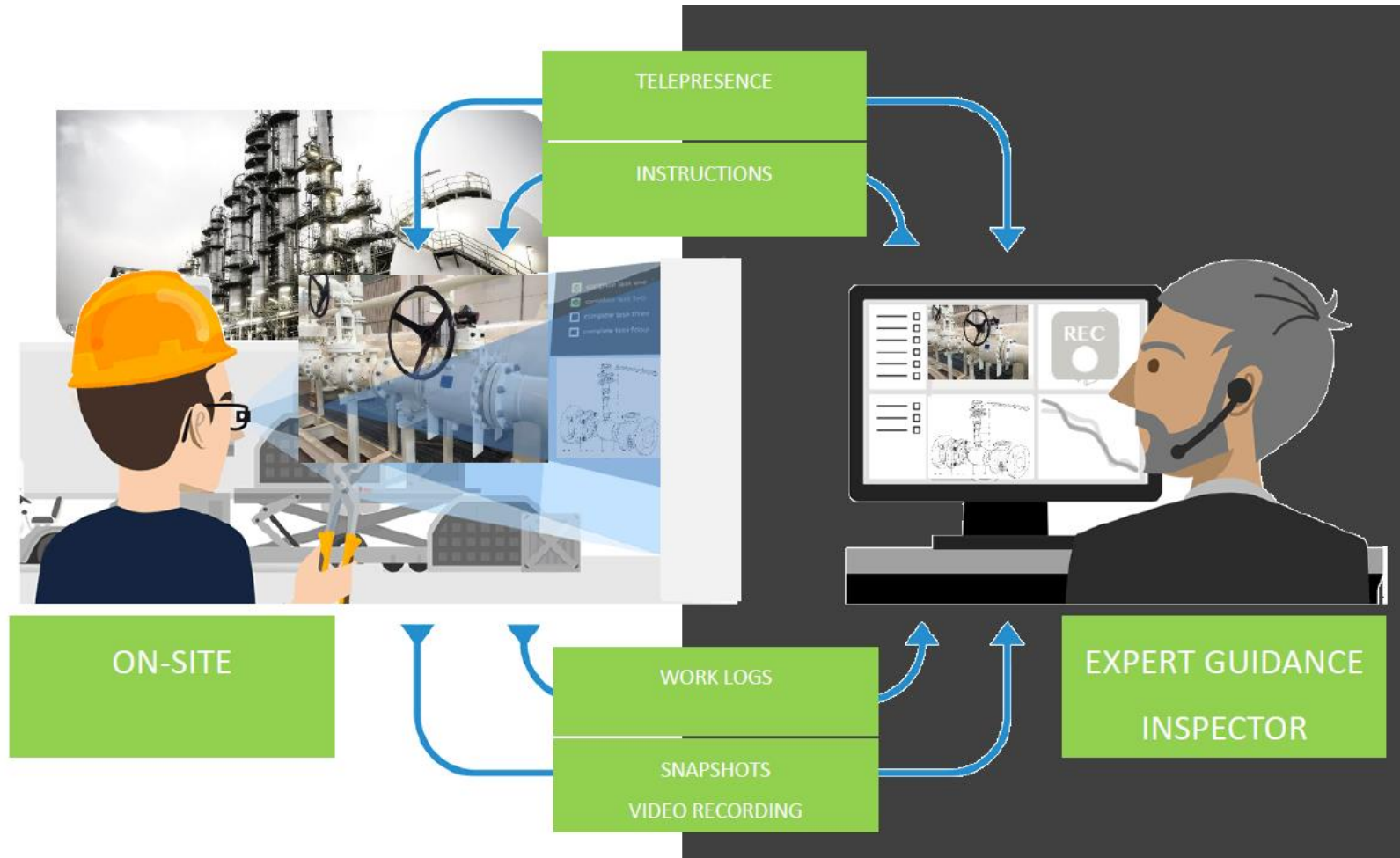
Speed up
reaction times
and support
call fix rate



Savings

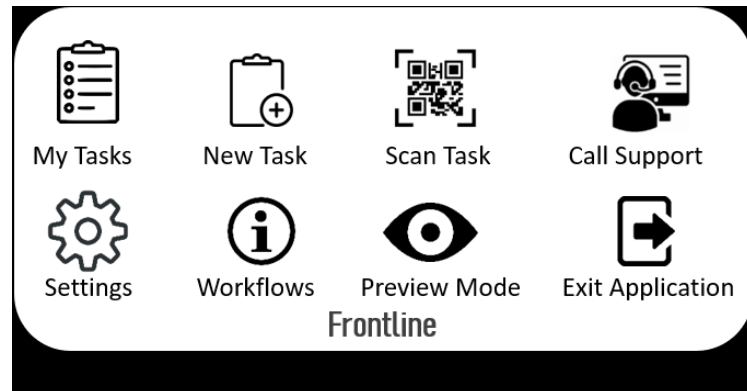
Reduce costs,
risks and
travelling for
experts

Remote Witness Technology for online Service Support



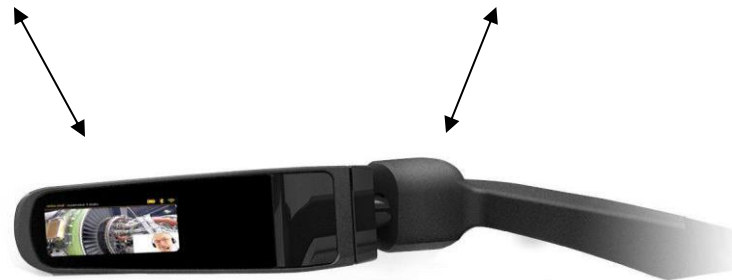
Remote Witness Technology for online Service Support

It is the world's first head-mounted wearable computer that meets Class 1 Division 1 and ATEX & IECEx Zone 1 certifications.



Features:

- ✓ SaaS Solution
- ✓ iOS / Android
- ✓ ERP interface



The Remote Witness Technology - Workforce Wearable



RealWear HMT-1 - Free your hands

The HMT-1 has a completely hands-free voice-controlled user interface allowing workers to operate the tools and equipment needed for the job, even while climbing a scaffold or tower. Allowing the worker to maintain full situational awareness and maximum productivity, HMT-1 is faster, safer and smarter than either a tablet or smart glasses.

Onboarding Validation Kit

HMT-1 Onboarding Validation Kit is available to ensure successful deployment out-of-the-box. Including: Spare Battery (3250 mAh Li-Ion), Ball Cap w/Clips, Ear Bud Hearing Protection Headphones, Semi-Rigid Carrying Case, 64GB MicroSD Card (SanDisk Extreme®).

RealWear HMT-1Z1™ *Intrinsically Safe*

The intrinsically safe version of the HMT-1 for sectors such as oil & gas, chemical, milling and more. It is the world's first intrinsically safe head-mounted wearable computer that meets Class 1 Division 1 and ATEX & IECEx Zone 1 certifications.



Features:

- ✓ SaaS Solution
- ✓ iOS / Android
- ✓ ERP interface



The Remote Witness Technology



Supported processes:

- *Real-time expert assistance
- *Remote 3rd party inspections (FAT. Test Reports++)
- *Customer support
- *Step-by-step digital workflows
- *Smart glasses, smartphones and tablets

Customer Benefits:

- *Reduction in overall lead time
- *Less need for 3rd party personell offshore
- *Customer support and overall planning real-time
- *Better control of support when needed
- *Reduction in footprint due to less travelling
- *Real-time training of personnel



FAT and Inspection Reports



Together with our manufacturer partner for ball valves, we can run remote FAT directly connected to the manufacturing plant whilst our customers witness the test directly.



API 6D, API 6A &
API 6DSS Ball Valves



Remote Witness Technology



Save time and money by
(co)witnessing or
inspecting your valve test
assessments

Reports made by video- and
audio recording for better
overview of the completed
service.

Remote Witness documentation report

<p>Date : 21 November 2019</p> <p>Case : 725272730706</p> <p>User : Ola Dunk</p> <p>Device : BEWI ENERGY Witness</p>	<p>Date : 21 November 2019</p> <p>Case : 725272730706</p> <p>User : Ola Dunk</p> <p>Device : BEWI ENERGY Witness</p>
<p>Service type : API STD 598 Valve Inspection and Testing</p> <p>Asset/Product ID : S/N 33031-210-1</p> <p>Description : Neway Ball Valve Type 2B1R V2 C00/1N112 2" 150 lbs</p>	<p>Scope (API STD 598)</p> <p>Shell Hydrostatic test</p> <ul style="list-style-type: none"> • Testing pressure 30 bar • Testing time 60 sec • Acceptance criteria 0 <p>Hydrostatic testing seats (both directions)</p> <ul style="list-style-type: none"> • Testing pressure 22 bar • Testing time 60 sec • Acceptance criteria 0 <p>Pneumatic testing of tightness seats (both directions)</p> <ul style="list-style-type: none"> • Testing pressure 6 bar • Testing time 60 sec • Acceptance criteria 0 <p>Notes: n/a</p>
<p>Asset/product image(s):</p> 	<p>Executed by Ola Dunk</p> <p>Start 21/11/2019_11.17am</p> <p>Finish 21/11/2019_11.45am</p> <p>Distributed to: MV,AB,RJ</p> <p>#record: 2cf24dba5fb0a30e26e83b2ac5b9e29e1b161e5c1fa7425e730</p>
<p>Job : 3rd party witness inspection</p> <p>Equipment : BEWI ENERGY Witness</p> <p>Equipment ID: 54tf4769nvv56e3</p> <p>Calibration valid until: 12/03/201</p> <p>: BEWI ENERGY Witness</p>	<p>Signature: </p> <p>BUREAU VERITAS 1828</p>

BEWi

ENERGY

REPAIR

Delprodukt AS established in 1966, large modernized machine park, high end & high complexity solutions to demanding customers



Machining, Welding, Surface Treatment, Measuring Machine, Production Partner

Remote Witness documentation report



NDT Level 3:

- Visual Control (VC)
- Magnetic Particle Testing (MT)
- Penetrant Testing (PT)
- Ultrasonic Testing (US)
- X-ray Testing (XT)
- Eddy Current Testing (EDT)
- Radiographic Testing (RT)
- Ultrasonic Thickness Measurement (UMT)

Sheet Metal:

- CNC plasma cutting table 3000 x 9000 x 200mm
- All types of buckling & rolling
- Water jet / laser cutting through partners

Welding:

- Certified welders for
- Carbon Steel
- Stainless
- Acid Proof
- Inconel cladding *
- Duplex
- Super Duplex
- Aluminium
- 30+ automatic welding machines
- WPS & WPO

Training & Certification:

- Certified to train and certify internal (and external) employees

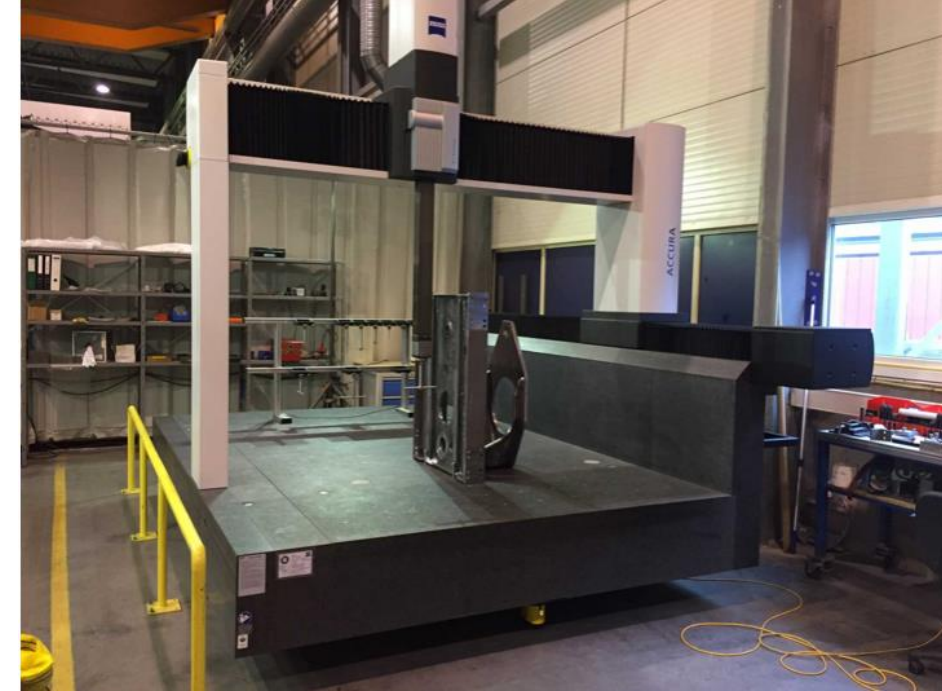
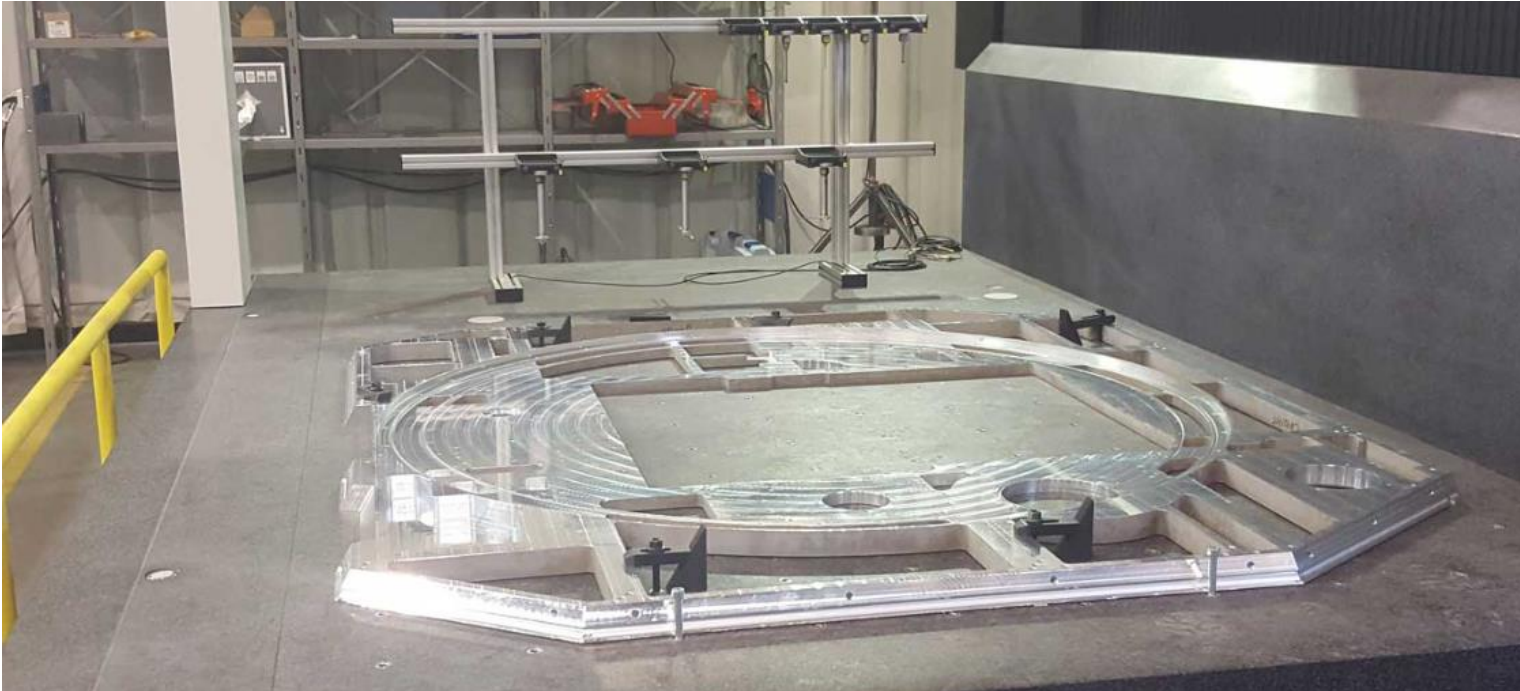


Surface treatment



Surface Treatment: Approved for offshore Top Side and Sub Sea installations
FROSIO level 3 inspection
2 Lacquer Boxes with cranes

Example Production



Measuring Machines:

CCM – Coordinate Measuring Machines

Zeiss Accura 20/30/15 – accuracy 4 μ m

Max size: 2000x3000x1500mm

Machine park

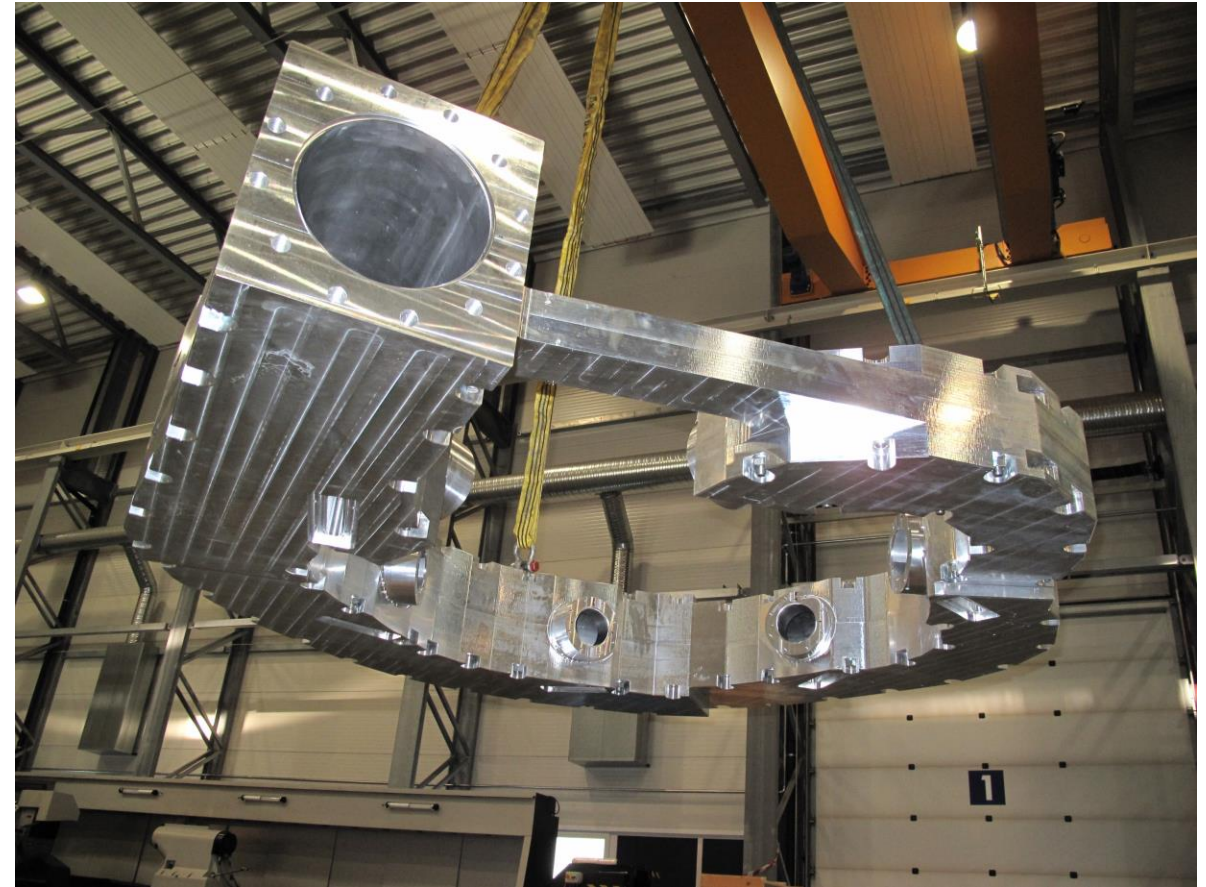
ID	Type	Brand	X - Y - Z	Model	Size
1	Mill	Union 100	1600-1250-1600	1985	Medium
2	Turnmill	Supermax YCM-V168B	1650-760-700	2002	Medium
3	Turnmill	FIL FCM 600 Speed	6000-1200-2800	2002	Large
4	Machining Centre	Okuma MA-600HB	1000-900-1000	2004	Medium
5	Machining Centre	Okuma MA-400HA	560-610-625	2006	Small
6	Machining Centre	Matec 30HV-3000	3000-600-800	2006	Small
7	Turnmill	Supermax NSV	1020-600-600	2008	Small
8	Turnmill	FPT M-Arx Five	20000-1500-5000	2008	Major
9	Turnmill	Supermax DCV3016B	3060-1600-1016	2009	Medium

ID	Type	Brand	Swing/length	Model	Size
10	Lathe, man	M63-3000	600/3000	1988	Medium
11	Lathe, CNC	Okuma LB15	250/340	1995	Small
12	Lathe, CNC	Okuma LU 25	620/1250	1997	Small
13	Lathe, CNC	DMT CD480	450/1200	1998	Small
14	Lathe, CNC	Safop Cyberturn 900	1120/4000	2003	Large
15	Lathe, man	Mortonne FEL-40100	1020/2500	2007	Large
16	Lathe, CNC	Okuma Multus 300	630/900	2007	Small
17	Lathe, CNC	Doosan Puma 700LM	900/3200	2008	Medium
18	Lathe, CNC	FAT TUR 1550 MN	1550/8000	2009	Large
19	Lathe, CNC	DMG MORI NZX-2500/1000	370/1000	2015	Small

Example Production



Example Production



Example Production



Example Production



Example Production





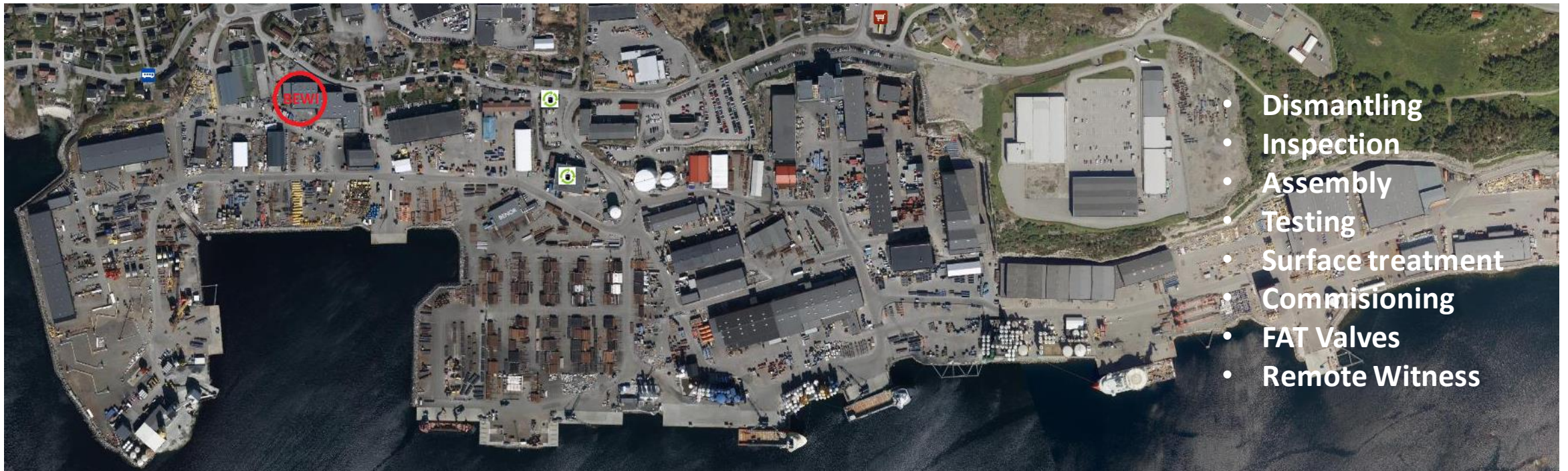
VALVE WORKSHOP

Vestbase Kristiansund

Workshop

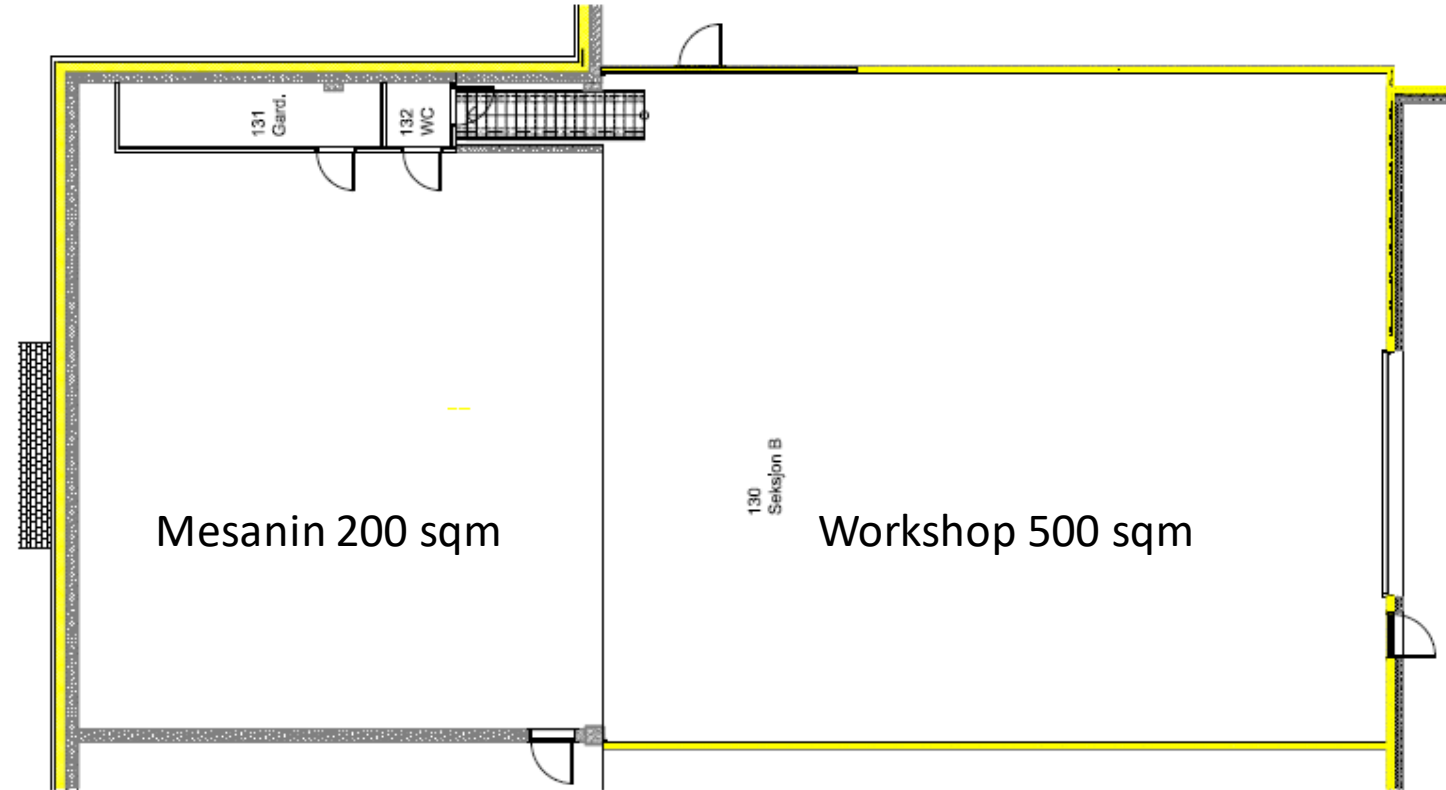
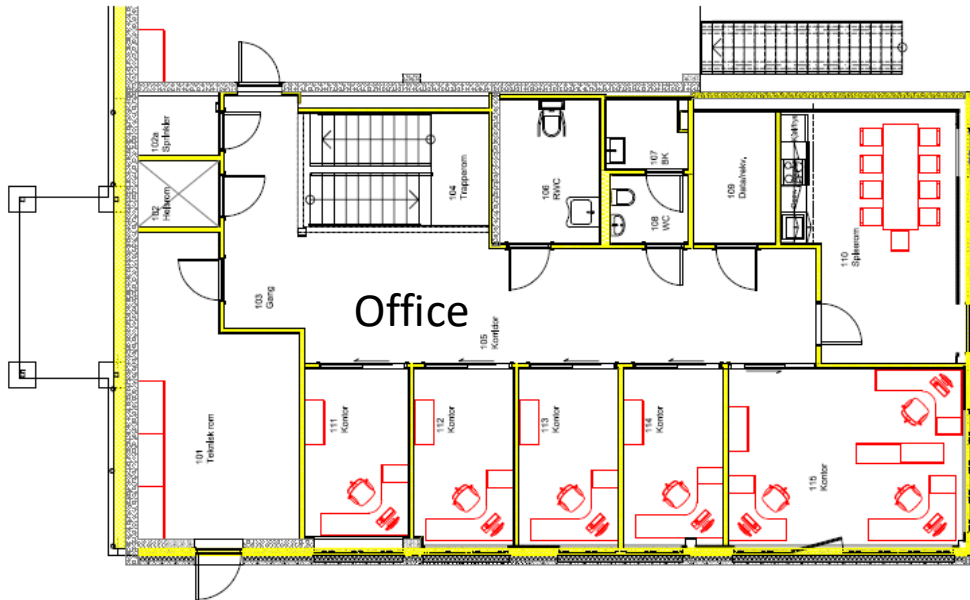
Workshop all equipment new April 2020

- 10 ton crane
- Manual lathe for small parts $\varnothing 80\text{mm}$
- Workshop press 50t
- Sand blasting small parts
- Lapping machine
- Milling bench
- Lifting tables
- Torque equipment
- Test bench clamping on/off valves (Flanges)
- PSV test bench



- Dismantling
- Inspection
- Assembly
- Testing
- Surface treatment
- Commissioning
- FAT Valves
- Remote Witness

Office & workshop

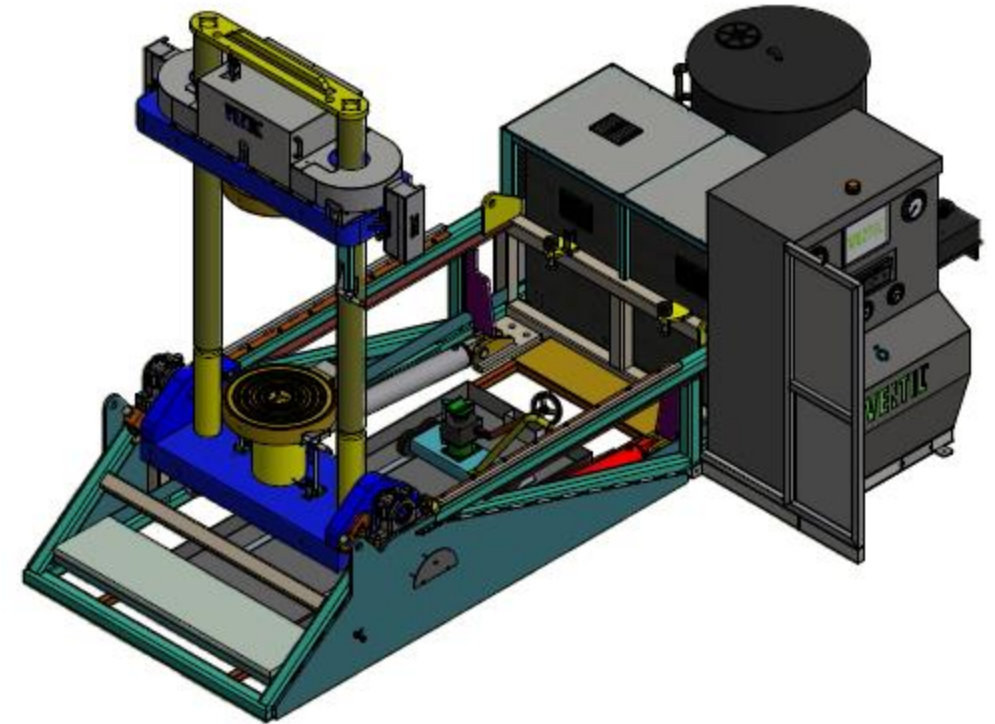
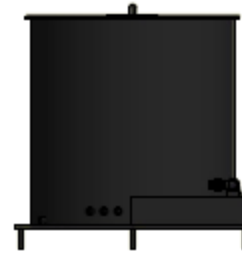
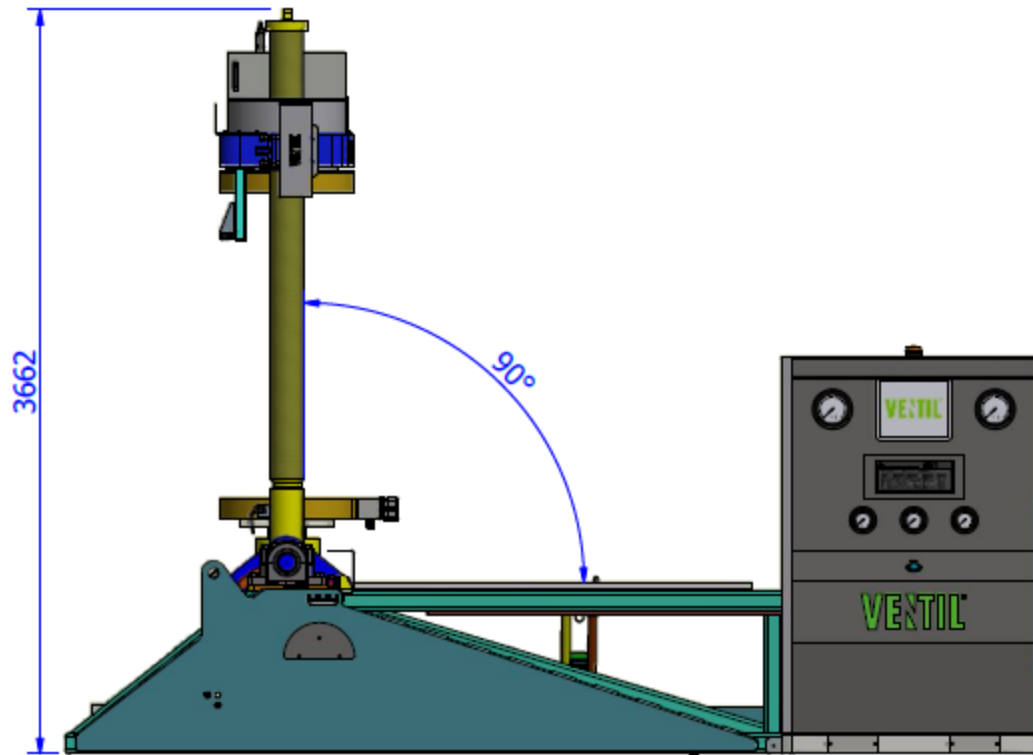


Visitor Address/Service Workshop:

Omagata 122
Bygg 38 (Vestbase)
6517 Kristiansund N

Passive house technology for low energy consumption

ON / OFF valve test



Range	2 - 24 inch / DN50 - 600 mm.
Gas testing	0 - 7 bar / 100 psi
Liquid testing	0 - 400 bar / 5,800 psi. (optional: 700 bar / 10,150 psi.)

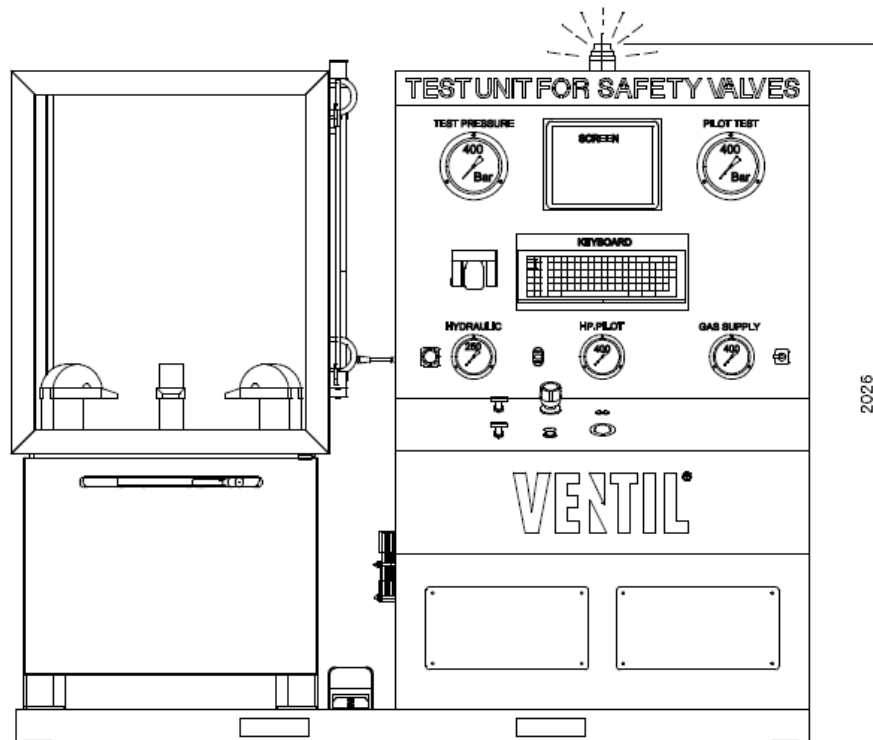
Product description

The HVC250 is the complete solution for testing Shut-off valves, in both horizontal and vertical position. This test bench features a proportionally controlled clamping system for full body and seat testing, according to all common international test standards. The versatile HVC250 is being used at valve repair and with small scale valve manufacturing.

The fully integrated, Windows operated Computer Registration System gives digital reading, verification against test standards, storing and printing of a customized test certificate.

PSV valve test

Range	1/2 - 12 inch / DN15 - 300 mm.
Gas testing	0 - 300 bar / 4,350 psi
Liquid testing	0 - 300 bar / 4,350 psi
Seat leakage testing	Full range, acc. to API 527



Machines



Dimensions in mm 1400x1300



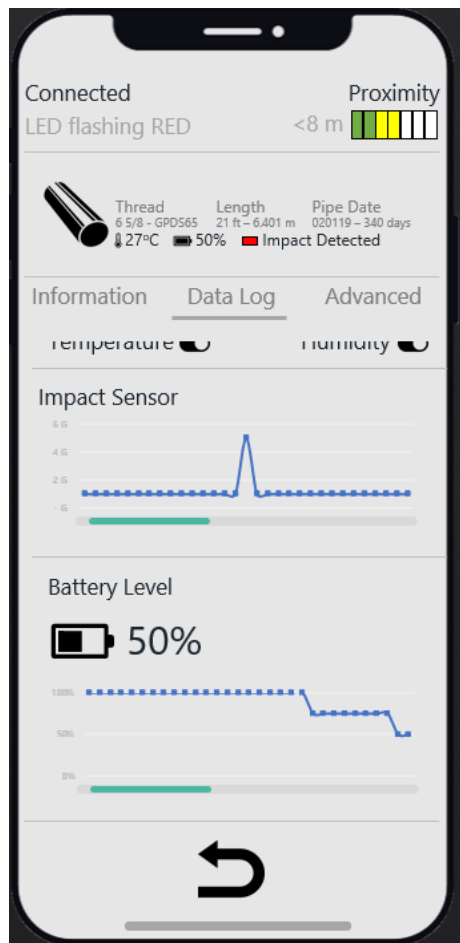
50t



Dimensions in mm 2720x1040x1370

BEWi Smart chip

Tracking and impact sensor for safety valves as an option.



~ 24mm



~ 41mm

~4-20mm LED-ekstender
(depending on wall thickness)

Total thickness: ~ 7,5mm
Casing wall thickness 1,5mm

NB: All dims may be adjusted & optimized

Test on-site



Gas test 0 – 300 bar
Liquid test 0 – 300 bar

Dimensions ½" - 10"



Test container for PSV & ON/OFF valves

Agreement of cooperation





Agreement of cooperation



Bewi Energy and IK Norway is entering the market with a total solution for valve maintenance in-between shut down, also for maintenance for systems under operations where applicable.

The Remote Witness Technology together with the Bewi driven Service Center, makes it possible to arrange actual planning more smoother and smarter, saving the overall lead time and cost.

Already at the survey level there will be less need for transport of personnel offshore, as Bewi Energy and IK Norway can co-witness and complete a survey through shared screens and the gear available in the Remote Witness equipment and set up.

During an actual survey the future planning will be taken to the next steps, whether it goes for booking time for spare part production in a work shop or the overall planning of a valve to be replaced.

<https://ik-worldwide.com/>

<https://www.youtube.com/watch?v=u5q81GO9tyE>



Some of our references:



KONGSBERG



Rolls-Royce



SIEMENS

