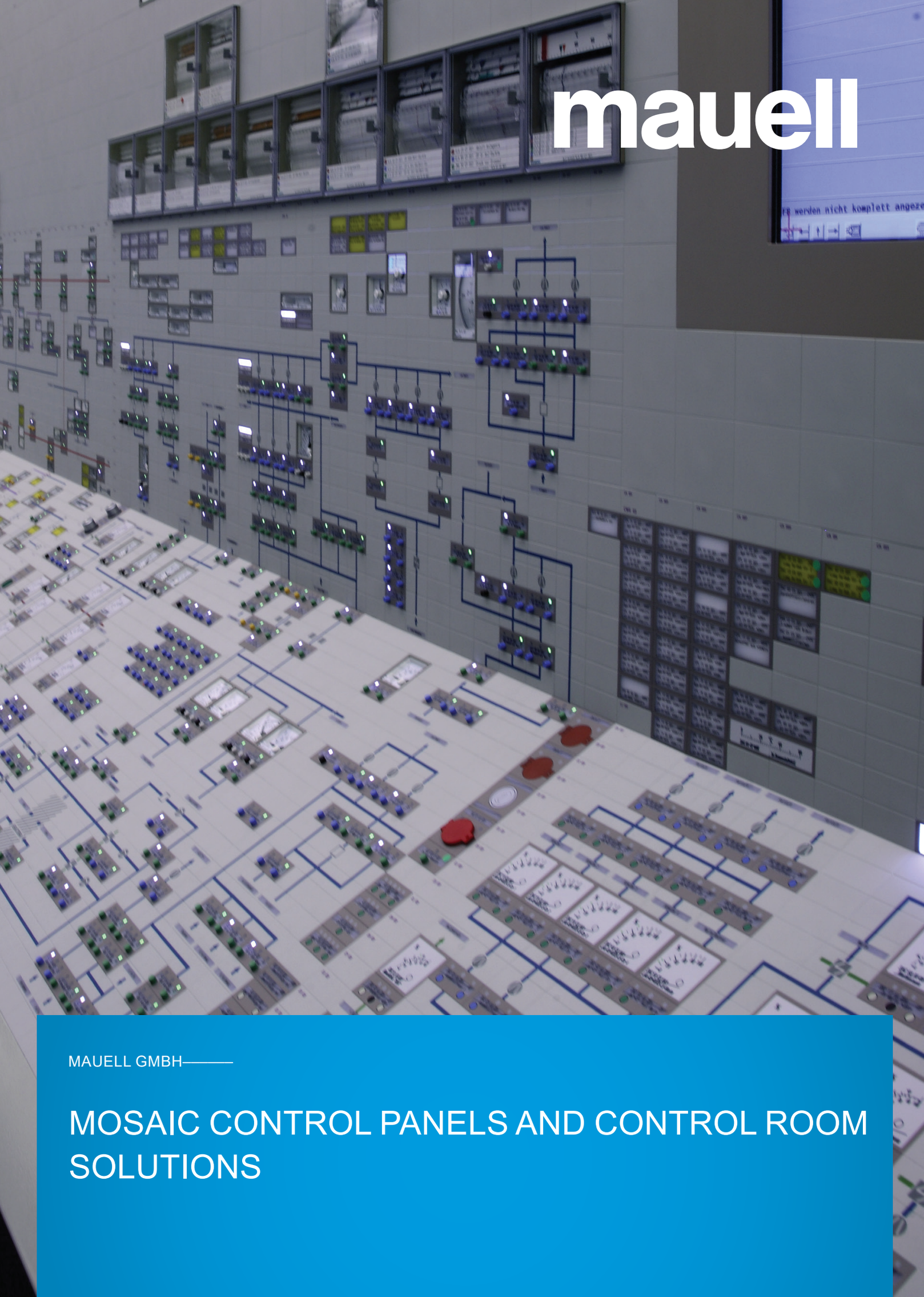
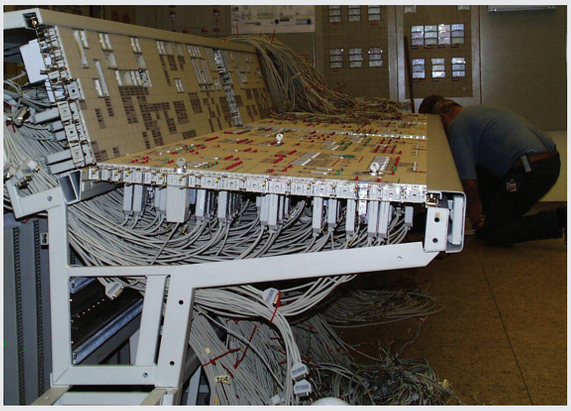


MAUELL GMBH———

MOSAIC CONTROL PANELS AND CONTROL ROOM SOLUTIONS



CONTENT

MAUELL GMBH

MAUELL GMBH

Secure and clean energy, delivered at the time when it is needed, is in great demand today and a key factor associated with quality of life. Mauell components and systems are designed to help achieve this goal: with our innovative control room technology, state-of-the-art mosaic and display systems as well as our maintenance and retrofit service for existing power stations, we provide the means that enable you to transmit and control energy sustainably both today and in the future. Always focused on the needs of the energy market, Mauell develops tailored solutions that uniquely meet our clients' high standards for safety and functional design. We carry out a thorough analysis of the workflow to provide you with the most appropriate measures for enhancing your plant's processes. Our team of professionals will install the purpose-built solutions ensuring compliance with modern standards for ergonomics and intuitive operation and strict adherence to the quality management system.

THE COMPANY AND ITS PEOPLE

Our people are our greatest asset: it is their expertise, commitment and team spirit that enables us to deliver the services you need to maintain your competitive advantage in a changing market. Mauell continues to follow its decade-long tradition of encouraging its staff members to think creatively, learn new skills and knowledge and take initiative.

THE MAUELL HISTORY

1957 Establishment of “Relais- und Feinwerkbau Essen Helmut Mauell”

1961 Patenting and Market Launch of mosaic type control panels

1972 Change of company name to “Helmut Mauell GmbH”

2002 First delivery of control desks and panels to NP Tianwan 1&2

In the following years deliveries to various NPPs worldwide: Ling Ao (China), Ringhals, Forsmark, Oskarshamn (Sweden), Olkiluoto, Loviisa (Finland), Leibstadt, Beznau, Gösgen (CH), Simulator Control Rooms for all German NPPs,

2013 Take over by Bilfinger SE and change of company name to “Bilfinger Mauell GmbH”

2016 MBO by Bernhard Mecking and change of company name to “Mauell GmbH”

MOSAIC CONTROL PANELS AND CONTROL ROOM SOLUTIONS

MAUELL GMBH MOSAIC CONTROL PANELS HAVE BEEN A LONG-STANDING PREFERENCE FOR SYSTEM OVERVIEW DISPLAYS AND ACTIVE SWITCH BOARDS FOR ONE BIG REASON.

The entire system can be observed at any time without extra steps. Operators instantly know where to look when a change in the system occurs, and with the use of mosaic tiles, they can easily replace or change an existing layout of the map board. Mauell's custom-designed map boards provide the best return on investment as a situational awareness tool due to their extremely low cost of ownership and easy upkeep. Since its inception, Mauell GmbH has been the leader in mosaic tile control panels, with thousands of boards installed throughout the world.

Greater Visual Acuity – We use high-contrast imagery, making our mosaic panels easily viewable from all areas of the control room. By painting or printing the mosaic tiles, the ink is embedded into the surface, eliminating fading and peeling.

Customized Imagery – Mauell provides an expansive selection of graphics including legends, engravings and lines customized to customer specifications. Custom artwork can be produced by hand or using our large-format UV-curable ink-jet printer capable of photographic quality.

Bring Your Mosaic Panel to Life – Mauell can create panel cutouts in various sizes at any location within the mosaic mimic board. This enables us to install a variety of components, including LED and BCD displays, DLRs, clocks, etc.

Expandability is Easy – Mauell's square and rectangular plastic tiles snugly snap into a plastic or metal grid system and can be changed on the-fly with minimal downtime. Layouts can be quickly modified to match updated system information by adding additional grid sections, tiles or dynamics.

Low Cost of Ownership after the initial installation – Maintenance and general upkeep of a mosaic map board is minimal. Dynamic components such as LED's have a 100,000-hour life span and consume very little electric power compared to a video display systems.

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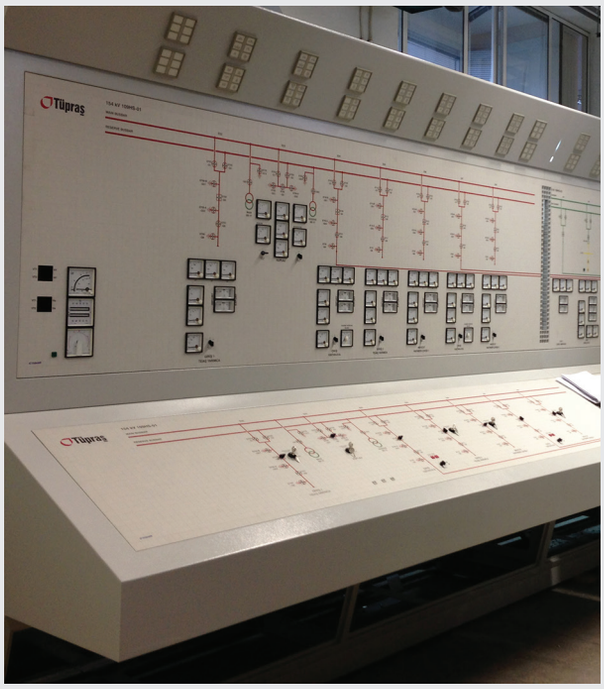
Not only Mauell Mosaic Systems –

Mauell GmbH has not been the only player on the mosaic panel market. Various other companies had also manufactured mosaic control panels but unfortunately seized production some years ago.

Mauell GmbH has developed an adapter system to install nearly any Mauell manufactured switch, indicator or other device into most, long obsolete mosaic control panels.

Our Unbeatable Experience – Mauell has been manufacturing mosaic map boards since 1961. Our highly-trained engineers and skilled craftsmen have the expertise and knowledge that can only come from being in the business for more than 50 years. Therefore, we are sure, we have a solution for you.



NUCLEAR POWER PLANTS CONTROL ROOMS

WE HAVE THE EXPERTISE AND KNOWLEDGE TO DESIGN AND MANUFACTURE CUSTOM CONTROL ROOMS FOR NUCLEAR POWER PLANTS FOR MORE THAN 20 YEARS.

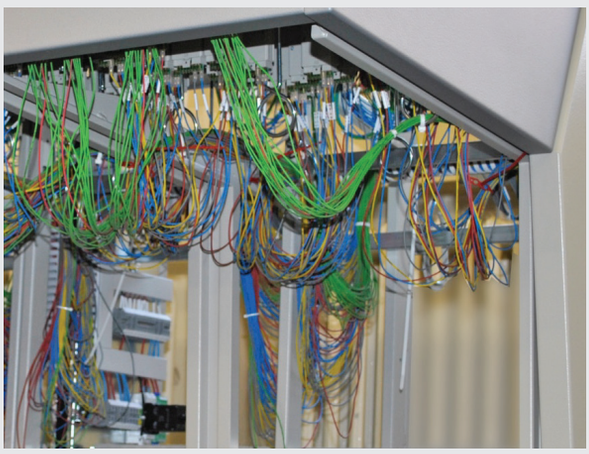
Every new nuclear power plant project has to meet specific seismic criteria's depending on geographical location. Mauell GmbH has a database from previously manufactured control room components that can be used for seismic analysis. If sufficient data is not available a actual seismic tests will be conducted using full size sheet metal control panels or control desks for evaluation and verification.

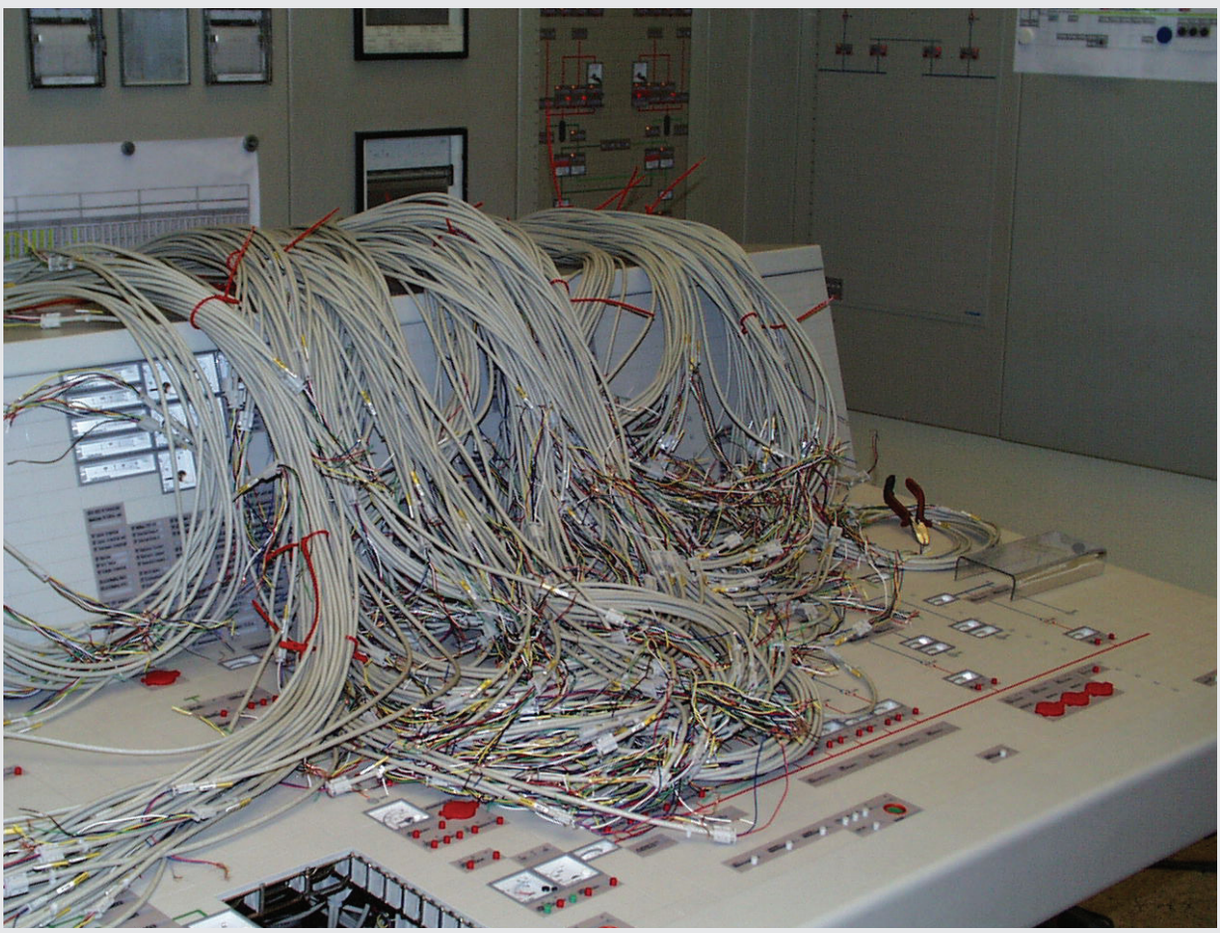
While nuclear power plants are very reliable and designed to operate for many years without incidents, nobody can ever predict the unforeseen. The accident or natural disaster at Fukushima, Japan, was a shocking example! Due to this unfortunate event, Mauell GmbH has manufactured numerous emergency generator diesel control panels for many clients.

In April 1986, a catastrophic melt down occurred at the Chernobyl No. 4 nuclear reactor in the Ukraine. It is considered the worst nuclear disaster in history!

Mauell GmbH has lately provided several mosaic display panels to monitor the ongoing plant status.

Mauell GmbH is dedicated to provide the technology and service when ever needed





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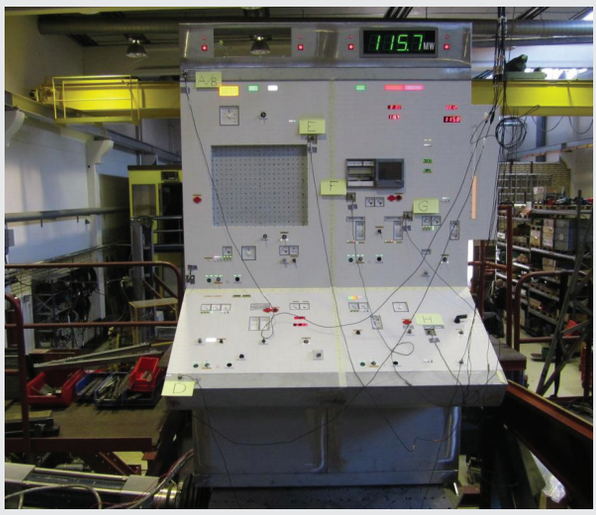
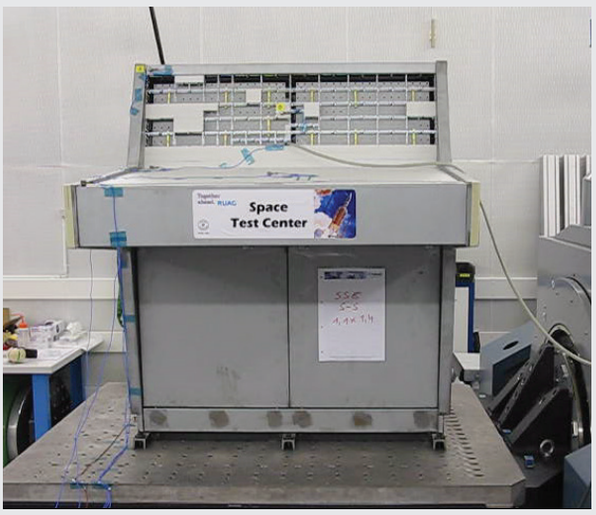
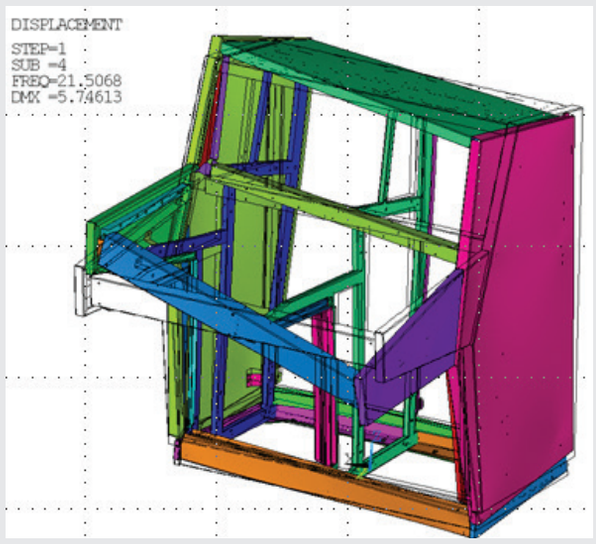
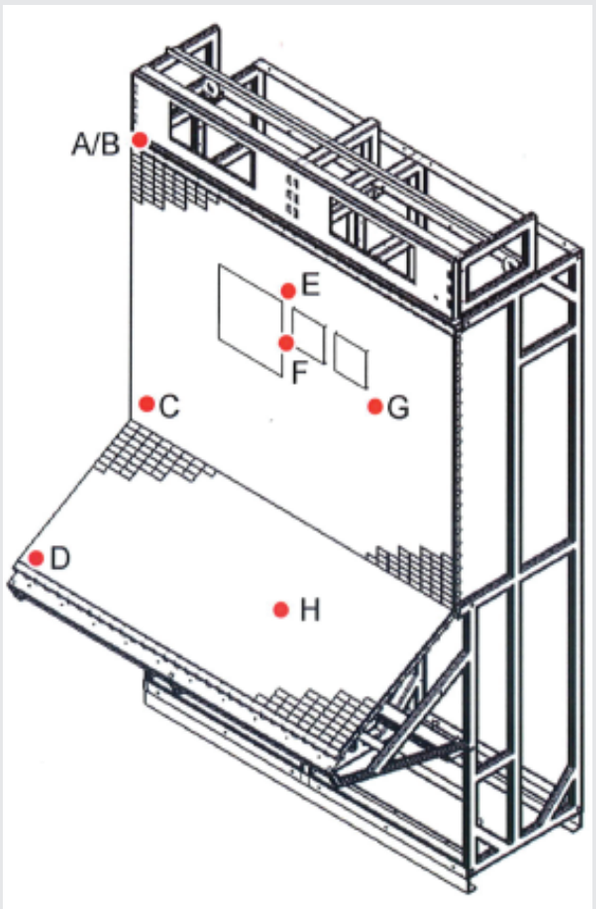
QUALIFICATION OF MOSAIC PANELS WITH SEISMIC TESTS

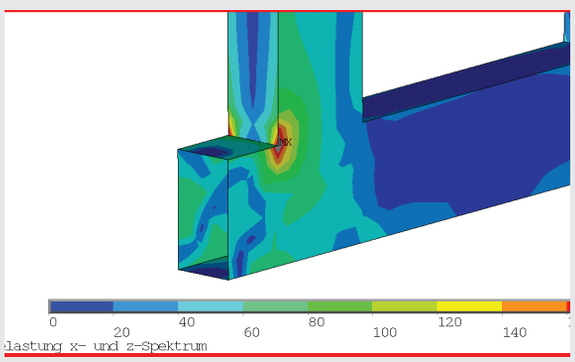
Watch the video; ***https://www.mosaiksysteme.de/panels/***







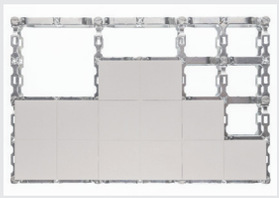




MOSAIC SYSTEMS

Mosaic System MTS 24

Self-supporting grid system of very high rigidity and low weight for desk plates and mosaic panels of all sizes and with high component density.
The grid system consists of cross-shaped and T-shaped elements, bolted together by means of spacers and screws. The grid segments are covered with tiles of 3 mm thickness or shaped tiles of 6.5 mm thickness.
The grid system can be mounted into a circular or curved mosaic structures.
The mosaic system is flexible and various structures can be made from the individual elements. The installation of various built-in devices is possible. Existing systems can be modified without any problems.



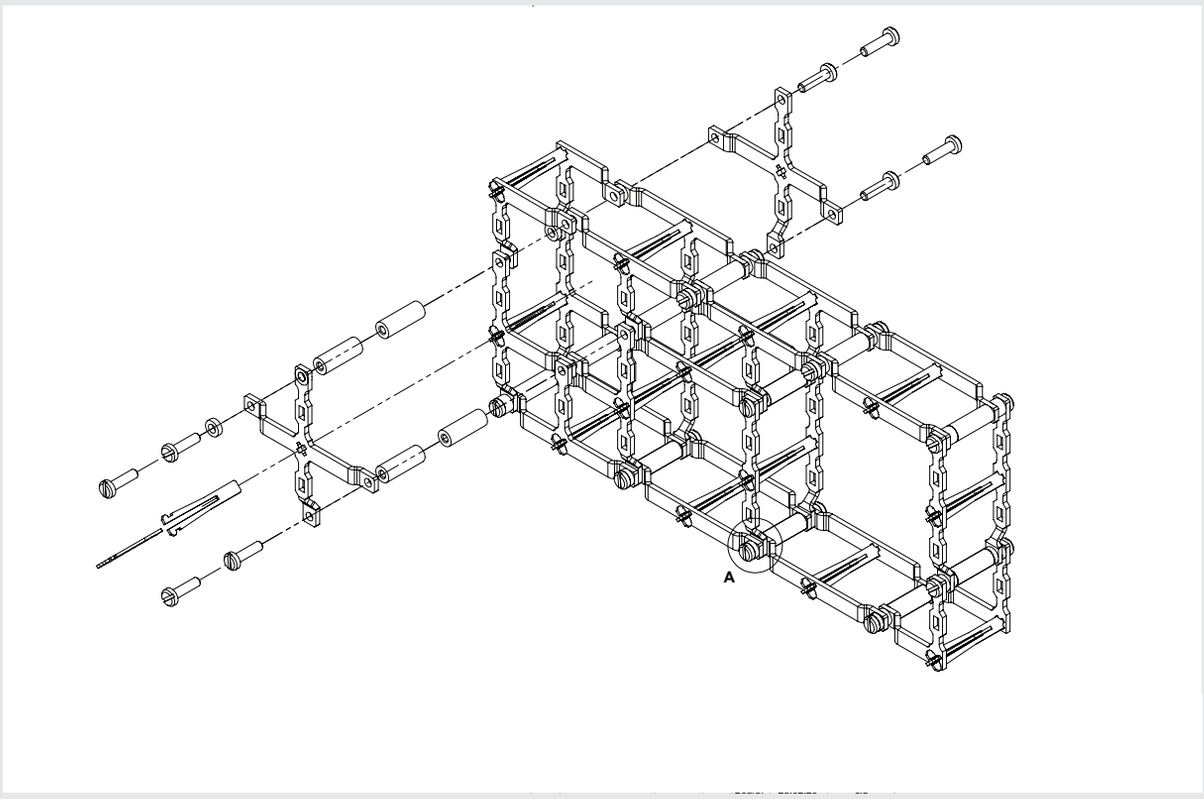
Mosaic System T

Self-supporting grid system of high rigidity and low weight for medium and large size mosaic panels with high component density.

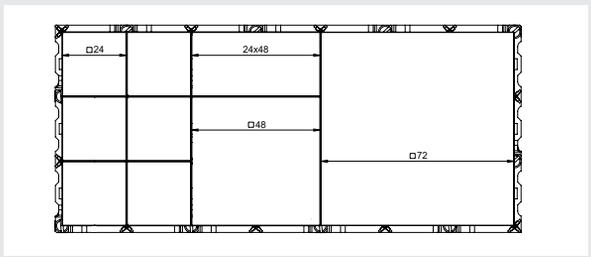
The grid segments are covered with tiles of 3 mm thickness or shaped tiles of 6.5 mm thickness.

The grid system consists of modules connected by means of dovetail joints on the four exterior sides. The grid system can be mounted into a circular or curved mosaic structures.

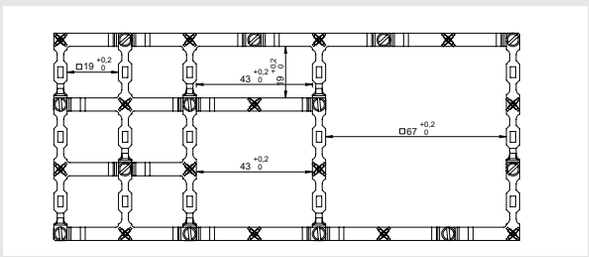
MOSAIC SYSTEM MTS 24



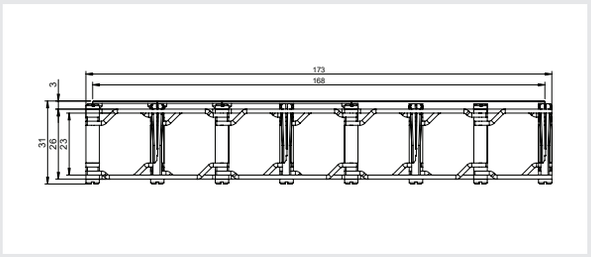
Grid System



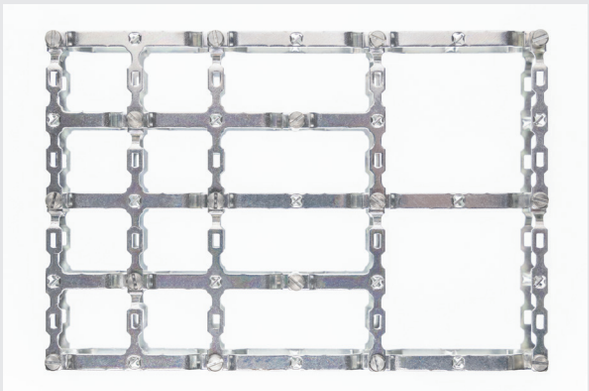
Grid System with tiles



Grid System without tiles

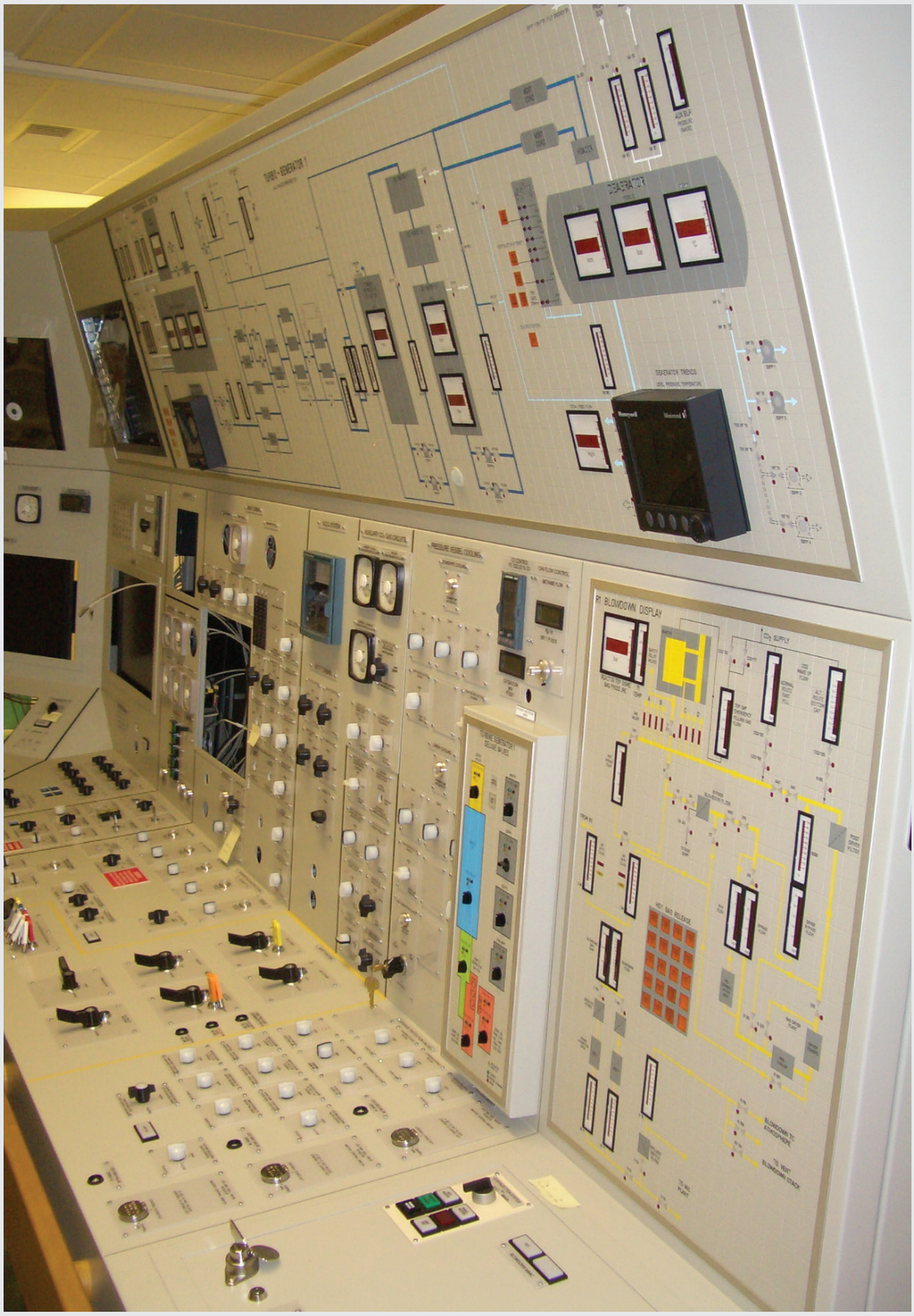


Grid System with tiles



Grid System without tiles

MOSAIC SYSTEMS



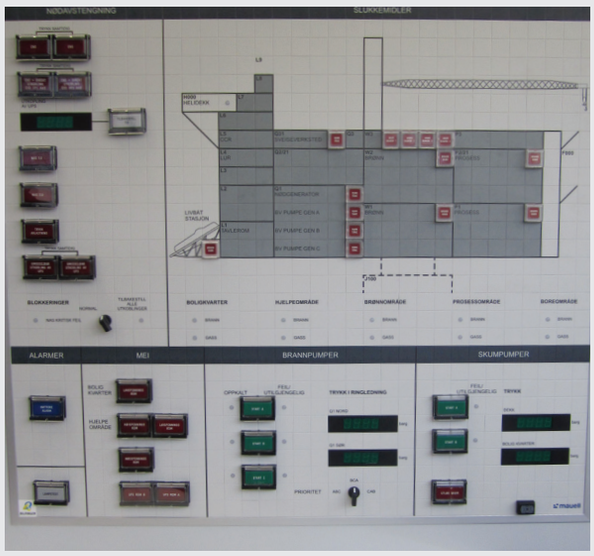
CAP PANELS

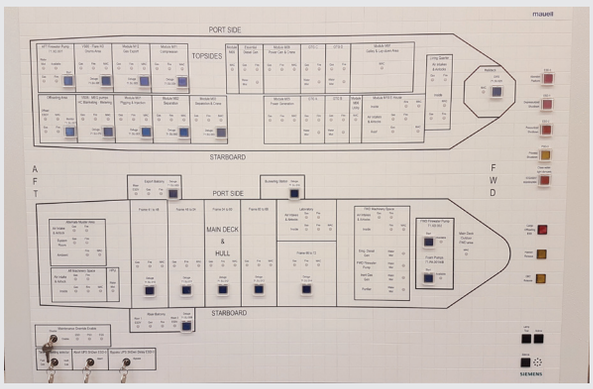
CRITICAL ACTION PANELS – CAP'S

are hardwired safety panels installed in control rooms of oil and gas platforms. They are used as redundant backup for safe shutdown in cases where software systems could fail.
High quality switches, indicators and digital meters from well-known manufacturers are being implemented to achieve "SIL" certification if required. All cables are halogen free and flame retardant.
Since no two projects are alike; Mauell GmbH is specialized to manufacture custom made steel enclosures.

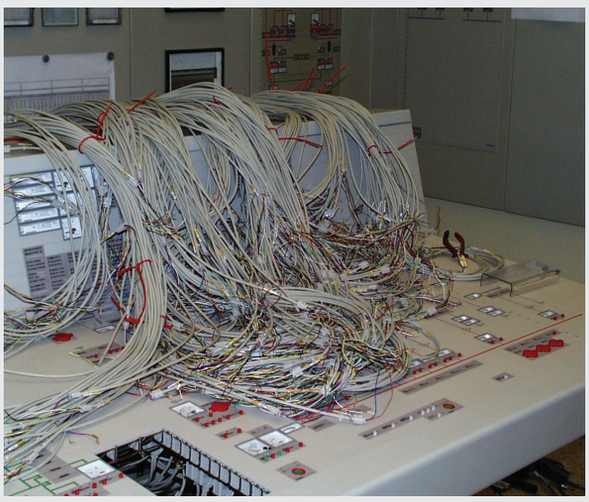
Critical action panels (CAPs) :
Turn-key solutions including all internal cabinet wiring can be provided.
Some of the Norwegian oil and gas platforms are in service since the mid 1970' and it became difficult to support those older CAP panels.
Mauell GmbH is capable to provide switches and indicators to be fitted into most obsolete Mosaic System CAP and F&G panels to extend the life time even further.

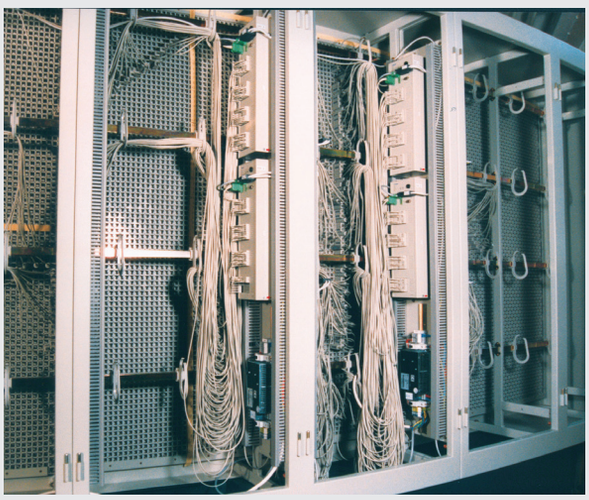
For more details regarding all products and services of Mauell GmbH send an email with your inquiry.





REFERENCE LIST
NUCLEAR POWER PLANT SIMULATORS





Customer	Power Station
Trainingsinstitut Faisalabad	WAPDA, Pakistan
KWS-Essen	Stadtwerke Bremen, KW Hafen
Sultan Salahuddin Abdul Aziz	Kraftwerk Abdul Aziz, Malaysia
Kärnkraftsäkerhet och Utbildning AB - Studsvik	Vattenfall AB, Ringhals Block 1, Schweden
STN-Atlas Elektronik, Bremen	Escom, Matimba Block 1-6, Südafrika
STN-Atlas Elektronik, Bremen	Escom, Kendal Block 1-6, Südafrika
Leibstadt	KKW Leibstadt - Schweiz
Thomson, Frankreich	Pacific Power, KW Mount Piper, Australien
KSG - Essen	Kernkraftwerk Emsland
KSG - Essen	Kernkraftwerk Biblis
KSG - Essen	Kernkraftwerk Philippsburg 2
KSG - Essen	Kernkraftwerk Brokdorf
KSG - Essen	Kernkraftwerk Philippsburg 1
KSG - Essen	Kernkraftwerk Isar 1
KSG - Essen	Kernkraftwerk Isar 2
Kärnkraftsäkerhet och Utbildning AB-Studsvik	Vattenfall AB, Ringhals Block 2, Schweden
KSG - Essen	Kernkraftwerk Unterweser
KSG - Essen	Kernkraftwerk Neckarwestheim
KSG - Essen	Kernkraftwerk Obrigheim
KSG - Essen	Kernkraftwerk Borssele
Tenagu Nasional Berhadad	Kernkraftwerk Connaught Bridge, Malaysia
Kernkraftwerk Gösgen	KKW Gösgen, Schweiz
Kernkraftwerk Mühleberg	KKW Mühleberg, Schweiz
Siemens, Erlangen	KKW Tianwan Block 1 und 2, China
KSG - Essen	Kernkraftwerk Grohnde
Kärnkraftsäkerhet och Utbildning AB-Studsvik	KKW Oskarshamn Block 2/Schweden
Kärnkraftsäkerhet och Utbildning AB-Studsvik	KKW Oskarshamn Block 3/Schweden
CAE Electronics, Canada	KKW Beznau, Schweiz
Westingshouse, Pittsburgh	Ringhals, Schweden
CAE Electronics, Canada	Hartlepool, England
British Energy	Heysham, England
Siemens, Erlangen	Olkiluoto 3, Finnland
Southern California Edison	San Onofre Nuclear Genarating Station, USA
Soluziona Ing./Tecnatom	Trillo, Spanien
JG Processdesign, Balsta	Forsmark Block 3
Siemens, Erlangen	Loviiisa Block 1 und 2, Finnland
JG Processdesign, Balsta	Ringhals Block 3 und 4, Schweden
Siemens Erlangen / Efinor Beaumont-Hague	Flamanville Block 3
Siemens, Erlangen	KKW Tianwan Block 3 und 4, China
L3 Harris, Canada	Kraftwerk, Dungeness – United Kingdom
EDF Energy	Kraftwerk, Torness – United Kingdom

REFERENCE LIST
NUCLEAR POWER PLANT CONTROL ROOM

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Customer	Power Station
Kärnkraftsäkerhet och Utbildning AB - Studsvik	Vattenfall AB, Ringhals Block 1, Schweden
Leibstadt	KKW Leibstadt, Schweiz
Kärnkraftsäkerhet och Utbildning AB-Studsvik	Vattenfall AB, Ringhals Block 2, Schweden
EPZ-Borsselle	Kernkraftwerk Borsselle
RWE	KWB Biblis, Block B
Kernkraftwerk Gösgen	KKW Gösgen, Schweiz
RWE	KWB Biblis, Block A
Kernkraftwerk Mühleberg	KKW Mühleberg, Schweiz
Siemens, Erlangen	KKW Tianwan Block 1 und 2, China
Vattenfall	KKK Krümmel
KärnKraftsäkerhet och Uitbildning AB-Studsvik	KKW Oskarshamn Block 2/Schweden
RWE	KGG Gundremmingen
KärnKraftsäkerhet och Uitbildning AB-Studsvik	KKW Oskarshamn Block 3/Schweden
ENBW	KWO Obrigheim
Kernkraftwerk Beznau	KKW Beznau, Schweiz
Westingshouse, Pittsburgh	Ringhals, Schweden, Twice Project
RWE	KKE Emsland
British Energy	Hartlepool, England
Helmholtz-Gemeinschaft Deutscher Forschungszentren e. V.	Zentralwarte Berlin
British Energy	Heysham, England
Rheinsberg	KKR-Rückzentrale
Siemens, Erlangen	Olkiluoto 3, Finnland
Siemens Erlangen	KKW Ling Ao, China
Eon	KKU Unterweser
Electrabel S.A.	Tihange 3, Belgien (Turbine desk)
Miroslav Vyiskocil, Zruc	KKW Dukovany, Tschechische Republik
Siemens, Erlangen	Loviiisa Block 1 und 2, Finnland
Siemens Erlangen / Efinor Beaumont-Hague	Flamanville Block 3
Siemens, Erlangen	KKW Tianwan Block 3 und 4, China

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