

Q3MET MES
MANUFACTURING
EXECUTION SYSTEM
SUCCESS STORY
MMK METALURJI



DANIELI AUTOMATION





THE CUSTOMER

ISKENDERUN PLANT
 Integrated mini-mill (meltshop, slab caster, HRM), cold mill complex (continuous pickling line, cold reversing mill, HDGL, coating line) & service center

ISTANBUL PLANT
 Cold mill complex and service center

MMK Group is made up of various related companies under common management, whose activities are joined and unified to achieve common strategic goals of long-term competitiveness

and sustainable growth. MMK Metalurji is Turkey's largest private one-time investment in iron & steel production and includes two production sites located in the industrial zones

of Dortyol (close to Iskenderun) and Gebze (close to Istanbul). The integrated plants are designed to produce annually 2.3 million tons of steel products.



THE CHALLENGE

MMK Metalurji turned to the experience of Danieli Automation for this challenging MES (Manufacturing Execution System) project for their multi-site production facility. These state-of-the-art plants has a production of 2.3 million tons of hot rolled coil, cold rolled coil, coated coil and sheet products. The plant's size and complexity forced MMK Metalurji to seek the best available solutions for achieving excellence in manufacturing and data transparency from the shop floor to management. Full support of optimization and tracking of production, quality and storage is vital for efficient management and ensure optimum visibility of numerous plant processes.



Web Report System

A complete set of reports that allows MMK Metalurji to have an up to date overview of the production at any area of the plant and summarized business reports involving scheduling, production, inventory and quality.

Key Benefits

- > Security group based reporting system
- > Compatibility with web browsers
- > Easily extendable with new reports
- > Easily configurable

Software and Hardware Platform

Web-Report is installed on a Microsoft Windows Server running native IIS (internet information services). It is accessible to all clients connected to the publishing network. Information is provided based on users access rights.

SPI-Dispatcher, PPI & API

SPI (Site Performance Indicator) Dispatcher, PPI (Plant Performance Indicator) and API (Area Performance Indicator) are visual tools that allow the supervisors to follow the plant situation, the melt shop behaviour and each line's process status. SPI-Dispatcher, PPI and API collect real time information from Q3MET and the numerous Level 2 process control systems.

Main functions

- > SPI-Dispatcher: gives an overview of the whole plant situation using colours to highlight each area's status. It is possible to have an overview of the nearest production history

(shift and day) and the next production schedule to have an overview of coming work. Going in the detail of the stockyards, it is possible to see the storage map with the box occupation and an overview of the stock summaries. Dispatcher is installed in a "dispatcher room" where the operator use the information to report directly to the top management 24 hour per day.

- > PPI: gives an overview of plant process areas (i.e. meltshop) with summary information on the productivity, production steps and timing of each single area. The aim is to inform the shift managers and operators in advance about any unforeseen situation (delay, production stoppage, loss of productivity) that can lead to a breaking of the casting sequence. It is installed in each pulpit of the meltshop plant to allow the shift managers to always stay informed on the status of the whole process.
- > API: gives the actual information of each process area (i.e. electric arc furnace, ladle furnace, vacuum degasser, continuous casting macking), summarizing the main parameters through KPI or showing graphically the process with the forecast for the remaining processing. API is installed in the pulpit of each area to allow the process engineers to have a summary of actual process status and to promptly react to process deviations.

THE BENEFITS

Software and Hardware Platform Q3MET run on server platform using Oracle RDBMS on Microsoft Windows Server. Oracle is installed on two servers and configured using Oracle RAC (Real Application Cluster), a cluster database with shared cache architecture to provide high scalability and availability for business applications. The Servers use fibre channel disk RAID to ensure high availability and performance.

- > Complete plant integration.
- > On-the-fly production schedule re-adaption.
- > Barcode support for storage and shipping operations.
- > Web based production reports, cross-area reports, actual vs foreseen production.
- > Plant Performance Indicator, Area Performance Indicator and Site Performance Indicator Dispatcher provide real-time visualization of processes, storages and dispatching activities with the status of all facilities
- > Minimize sales order processing time for checking and accepting customer order.
- > Products defined using a fully configurable attribute catalogue which prevents typing errors while accepting orders.
- > Tight integration and alignment with the SAP ERP System for having material purchasing and delivering information, and providing heat production with

- chemical specifications, scrap consumption and detailed information on each piece produced on each production line.
- > Planning starting from fully feasible accepted orders using a rule-based planning sequencing tool which also allows booking of any available material in stock.
- > Optimal plant utilization of production scheduling as a result of coordinated scheduling and tighter control of operations across complex areas.
- > Cut plan tool support users in optimizing cutting plans for material repair, sheets and slits production.
- > Real-time data availability with production tracking from all lines of the two sites automatically from the various Process Control Systems or, as used for the Service Center, directly by Q3MET and with support of manual data entry.

- > Definition and scheduling of tests. Evaluation of the collected mechanical and chemical test results, allowing automatic generation of Quality Certificates based on delivery notes.
- > Handling deviation due to quality laboratory result failure, defects or dimensions outside of order tolerance ranges.
- > Stockyard management using crane terminals with touchscreen and wireless hand held terminals with bar code reader ensuring error-free material identification.



DANIELI HEADQUARTERS**DANIELI**

Via Nazionale, 41
33042 Buttrio (UD) Italy
Phone +39 0432 195 8111
www.danieli.com
info@danieli.com

DANIELI AUTOMATION

Via Bonaldo Stringher, 4
33042 Buttrio (UD) Italy
Phone +39 0432 518 111
www.dca.it
info@dca.it

WORLDWIDE DANIELI COMPANIES**AUSTRIA**

Max Planck Strasse, 5
A - 9100 Völkermarkt
Tel (43) 4232.51440.6101
info@austria.danieli.com

UNITED KINGDOM

4 Ignite, Magna Way
Rotherham S60 1FD
Tel (44) 1709.724300
info@uk.danieli.com

SPAIN

Poligono Sondikalde
Calle Portu Bidea, 2
48150 Sondika - Vizcaya
Tel (34) 94.4872800
info@spain.danieli.com

INDIA

Technopolis Building
Plot 4, Block - BP, 5th Floor
Wing - B, Sector - V, Salt Lake
700 091 Kolkata - West Bengal
Tel (91) 33.39847777
info@india.danieli.com

GERMANY

Brunshofstrasse, 12
D-45470 Mülheim - Ruhr
Tel (49) 208.3780000
info@germany.danieli.com

THE NETHERLANDS

Rooswijkweg 291, 1951
ME Velsen-Noord
T +31 (0)251 500 500
F +31 (0)251 500 501
info@danieli-corus.com

TURKEY

1. OSB Istiklal Mahallesi
1. Cadde No. 15
Beykoy - Duzce
Tel (90) 380.5537110
info@turkey.danieli.com

INDIA

7000 Central Expressway,
Sri City
517588 Andhra Pradesh
Tel (91) 8576.304000
info@india.danieli.com

GERMANY

Scherl 12
D-58540 Meinerzhagen
Tel (49) 2354.70820
info@germany.danieli.com

SWEDEN

Nya Ågatan, 23
SE-77782 Smedjebacken
Tel (46) 240.668500
info@sweden.danieli.com

RUSSIA

Avtozavodskoe shosse 48
Nizhny Novgorod Region
606000 Dzerzhinsk
Tel (7) 8313.310310
info@russia.danieli.com

THAILAND

Land Plot N. K11
The Eastern Seaboard Ind. Estate
Tambol Pluakdaeng, Amphur
Pluakdaeng, 21140 Rayong
Tel (66) 38.929000
info@thailand.danieli.com

FRANCE

Les Mercuriales
F-93176 Bagnolet Cedex
Tel (33) 1.49722269
info@france.danieli.com

SWEDEN

Box 994
SE-85125 Sundsvall
Tel (46) 60.139400
info@sweden.danieli.com

CHINA

No. 19, Xing Gang Road, CEDZ
Changshu, Jiangsu 215513
Tel (86) 512 52267088
infodcs@china.danieli.com

USA

600 Cranberry Woods Drive
Suite 200
Cranberry Township, PA 16066
Tel (1) 724.7785400
info@usa.danieli.com

WORLDWIDE OFFICES AND SERVICE CENTERS**SWITZERLAND**

Olsbergerstrasse 2
4310 Rheinfelden
Tel (41) 61.8368310
info@switzerland.danieli.com

TURKEY

Adalet Mah. Manas Bulvari No. 47,
Folkart Towers, A Block, Ofis 3208,
35580 Bayrakli, Izmir
Tel (90) 232.4355577
info@turkey.danieli.com

INDIA

D-402 Lotus Corporate Park,
Ram Mandir Road,
Off Western Express Highway
Goregaon (E), Mumbai 400 063
Tel (91) 22.39917100
info@india.danieli.com

KOREA

Room 201, Daecheon Building
157-4 Samsung-dong
Gangnam-gu 135-090, Seoul
Tel (82) 2.5626622
info@korea.danieli.com

CANADA

P.O. Box 24062
Sault St. Marie
Ontario P6C 6G7
Phone (1) 705.9468779
info@canada.danieli.com

RUSSIA

Leningradskiy Prospekt 31A
Building 1, 24th Floor
125284 Moscow
Tel (7) 495.9819073
info@russia.danieli.com

EGYPT

76 Al-Moltaka Al-Arabi Dist.
11799 Sheraton Zone
Heliopolis, Cairo
Tel (20) 2.22699491
info@egypt.danieli.com

INDIA

Furnace Building
1, Taratala Road
Kolkata - 700024
Tel (91) 33.33013510
info@india.danieli.com

JAPAN

42F, Yokohama Landmark Tower
2-2-1, Minatomirai, Nishi-ku,
Yokohama-City
220-8142 Japan
Tel (81) 45.651.7077
info@japan.danieli.com

MEXICO

Edificio Sierra Madre
Ave. Vasconcelos Oriente 310
Colonia del Valle
66250 Garza Garcia, N.L.
Tel (52) 81.83781055
info@mexico.danieli.com

RUSSIA

Lenin str. 130, Office 109
Chelyabinsk Region
445038 Magnitogorsk
Tel (7) 3519.244043
info@russia.danieli.com

UAE

Najda Street, Old Nissan
Masaood Building, Flat 1003
P.O. Box 322 Abu Dhabi
Phone (971) 2.6812268
info@uae.danieli.com

THAILAND

Muang Thai-Phatra Office
16th Floor, Tower II
252-91 Rachadaphisek Road
Huaykwang - Bangkok 10310
Tel (66) 2.6933520
info@thailand.danieli.com

TAIWAN

26F-1, No. 31
Hai-Bian Road
Kaohsiung City, Taiwan 802
Tel (886) 7.3358655
info@taiwan.danieli.com

BRAZIL

Rua George Rexroth, 609
Diadema
CEP 09951-270 São Paulo
Tel (55) 11.35085900
info@brazil.danieli.com

UKRAINE

Glinky Street 2, Office 301
49000 Dnipropetrovsk
Tel (380) 56.7904301
info@ukraine.danieli.com

KSA

Silver Tower 6th floor
P.O. Box 4867
Al-Khobar 31952
Tel (966) 3.8993145
info@ksa.danieli.com

VIETNAM

Lot A4b Industrial Park
Tan Thuan EPZ (E-Office Park)
Tan Thuan Dong Ward, District 9
Ho Chi Minh City
Tel (84) 8.35287400
info@vietnam.danieli.com

USA

114 Chesser Crane Road
Chelsea, AL 35043
Phone (1) 205.6787451
info@usa.danieli.com