



INDUSTRIAL POWER SYSTEMS

Systems and solutions
for modern production
processes

DANIELI AUTOMATION

DANIELI AUTOMATION POWER SYSTEM SOLUTIONS

Wide vision in industrial applications:

- > **Steel and metal process**
- > **Energy**
- > **Chemical**
- > **Oil & Gas**
- > **Pulp and paper**
- > **Crane**
- > **Water treatment & pumping**
- > **Air pollution and filtering process**
- > **Mining and recycling**
- > **Cement and lime**
- > **Plastic and rubber**
- > **Metal and plastic extruder process**
- > **Glass industry**





HIGH VOLTAGE POWER CONNECTION AND TRANSFORMATION

- > Grid interconnection and transmission lines
- > Air & Gas insulated substation
- > Step down conversion
- > Neutral ground system
- > Conventional control for substation
- > HV protection & automation system
- > Remote control system
- > Aux system for substation (UPS, MCC, aux generator, fire fighting system etc..)
- > Engineering
- > Spare parts
- > Preventive maintenance and services

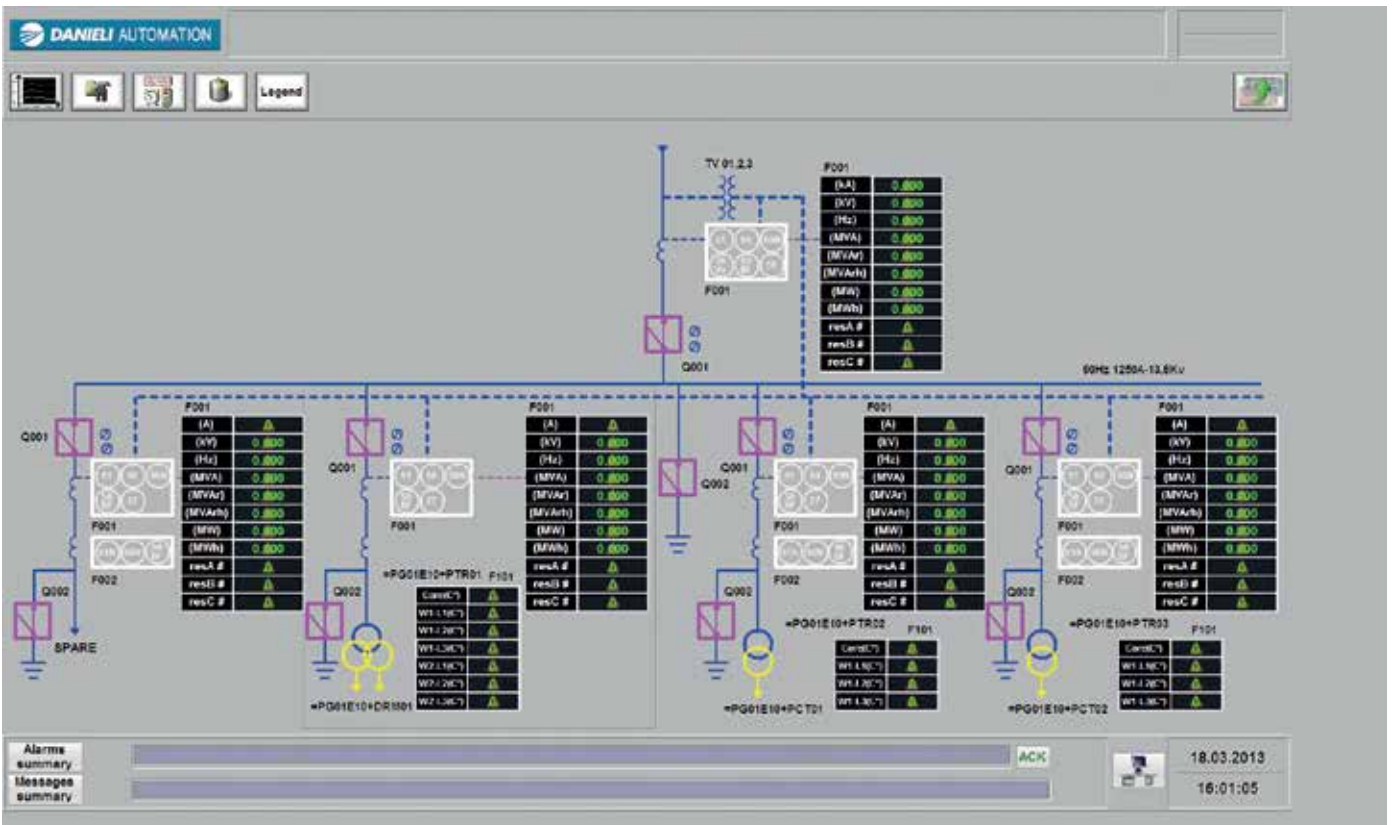
HV substations are the combination of many electrical equipment and systems like major components (HV equipment and power transformers), control metering and protection system, communication system, gantries and supports, building and foundations and auxiliary systems.

Danieli automation with proven worldwide experience in the heavy industry application can provide engineering and equipment for all the necessity of an HV substation.

Several air insulated substations and gas insulated substation with different circuit configuration (mainly single busbar, double busbars and one circuit breaker and an half scheme) up to 400kV has been successfully designed, delivered, erected and commissioned worldwide.

Energy automation and supervision of installation solution mainly based on IEC 61850 communication protocol are commonly provided for the HV substations.





MV & LV POWER DISTRIBUTION AND CONDITONING

- > Air & gas insulated MV switchgear for primary and secondary distribution level
- > Metal enclosed switchgear
- > MV switchgear for Electric Arc Furnace application
- > MV/LV transformers
- > MV/LV Bus Ducts
- > LV switchboard
- > Harmonic filters
- > Static and dynamic power factor compensator
- > UPS and diesel generators power unit
- > Automation and energy management system
- > Engineering
- > Spare parts
- > Preventive maintenance and services

MV switchgear are engineered for distribution system up to 40.5kV rated voltage and manufactured according to international standard IEC 62271-200. Available with FLR internal arc classification.

MV switchgear for Electric Arc Furnace application are equipped with high frequency operated furnace circuit breaker in withdrawable execution,

disconnectors and earthing switch with several arrangement that allow Danieli Automation to satisfy all steel making client requests.

LV switchgear are engineered for distribution system up to 1000V rated insulating voltage and manufactured according to international standard IEC 61439-1.



Acquired experience in several years of heavy industry application allow Danieli Automation to offer engineering, procurement and commissioning of a large range of needed equipment. Danieli Automation provides equipment design for MV direct on line motor starting, reduced voltage motor starting, variable speed drives and many other required applications.



MV & LV POWER CONVERSION

- > 3L-NPC MV drive for 4 quadrants high dynamic synchronous & induction motors AC drives up to 30 MVA;
- > MV Multi-Level 4 quadrants drives at 3.3 - 4.16 - 6.6 - 11kV up to 15 MVA;
- > LV drive, single or multi drive structure in AD/SD/DC up to 5 MVA;
- > High current converter, for welding, melting, cleaning & tinning application;
- > Converters and resonant circuit for induction heating;
- > MCS and MCC, MV/LV direct starter and with soft-starter;
- > Revamping of drive systems and existing MV cyclo-converters;
- > Power converters assembled in "container" solution;
- > Motors and gearmotors;
- > AC, DC and generator maintenance, repair and testing;
- > Spare parts;
- > Preventive maintenance activities.

Thanks to consolidated experience in power & drive system design, Danieli Automation can offer advanced power solutions to enhance the performance of the modern production process.

In the field of industrial power converters, the production range covers standard and customized solutions using QDrive family, a converter line entirely developed in-house and ready to be adapted to any process where drives & static converters are required, with relevant benefit in terms of reliability and operational maintenance.





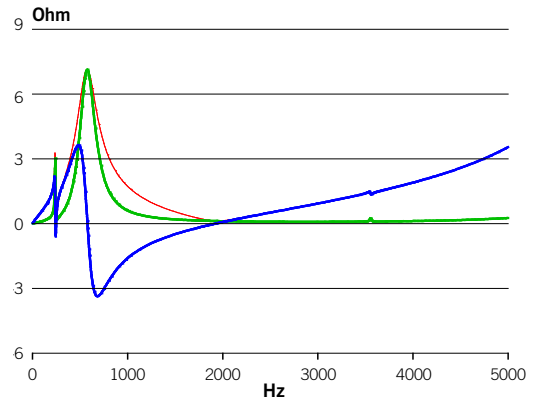
NETWORK MEASURING AND ANALYSIS

- > Network short circuit calculation
- > Network load flow analysis
- > Harmonic and power quality analysis
- > Protection coordination study
- > Transient motor starting

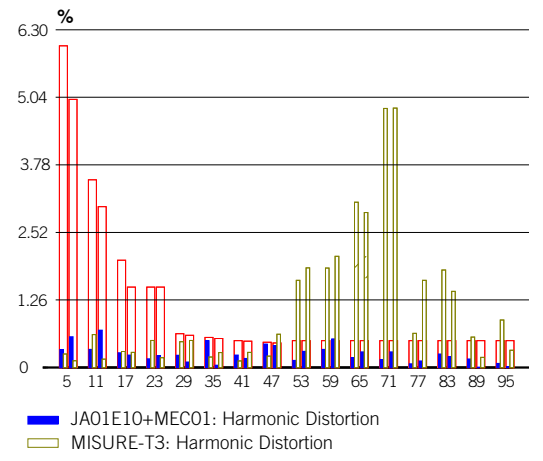
Non-linear loads (variable speed drives and other power electronic equipment) massively uses in heavy industry and special loads like electric arc furnaces cause harmonics on the supply network that need to be mitigated to respect limits required by electricity company.

Qualified personnel with suitable instruments can measure electrical quantities of electricity networks (currents and voltages, energy consumption and power, individual current/voltage harmonics) for assessment of the power quality in accordance with required standard (EN 50160, IEC 61000-2-4, IEEE 519) and waveform recording allowing analysis of power quality phenomena.

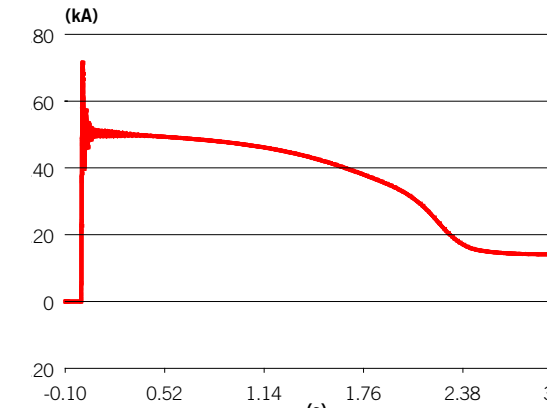
Danieli Automation can thus cover all the required actions for a complete network analysis including power quality measuring campaign, network modelling, reactive power compensating (power factor correction) and network filters design and supply as well.



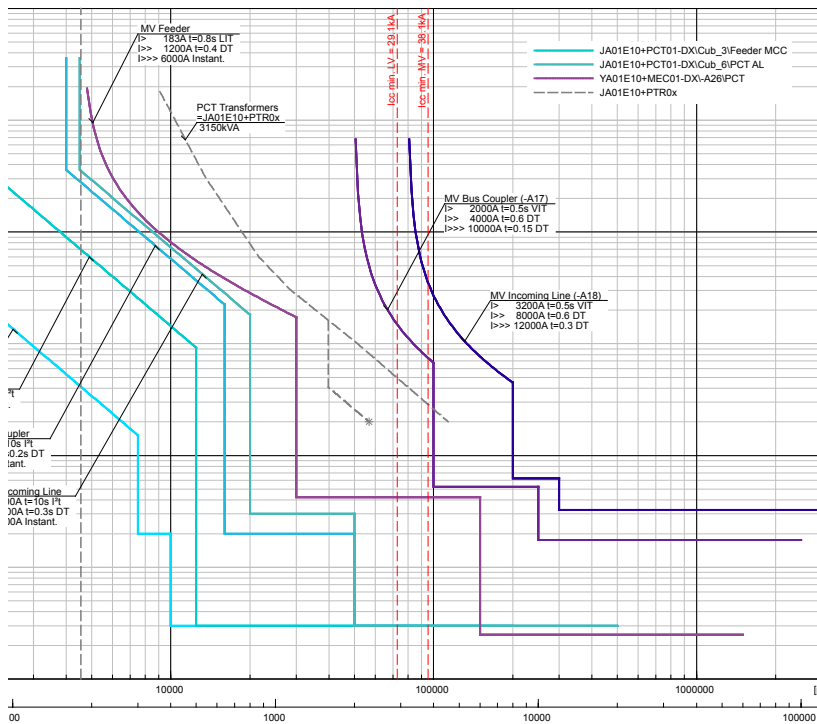
— BUS-B: Network Impedance, Magnitude
 — BUS-B: Network Resistance
 — BUS-B: Network Reactance



■ JA01E10+MEC01: Harmonic Distortion
 ■ MISURE-T3: Harmonic Distortion

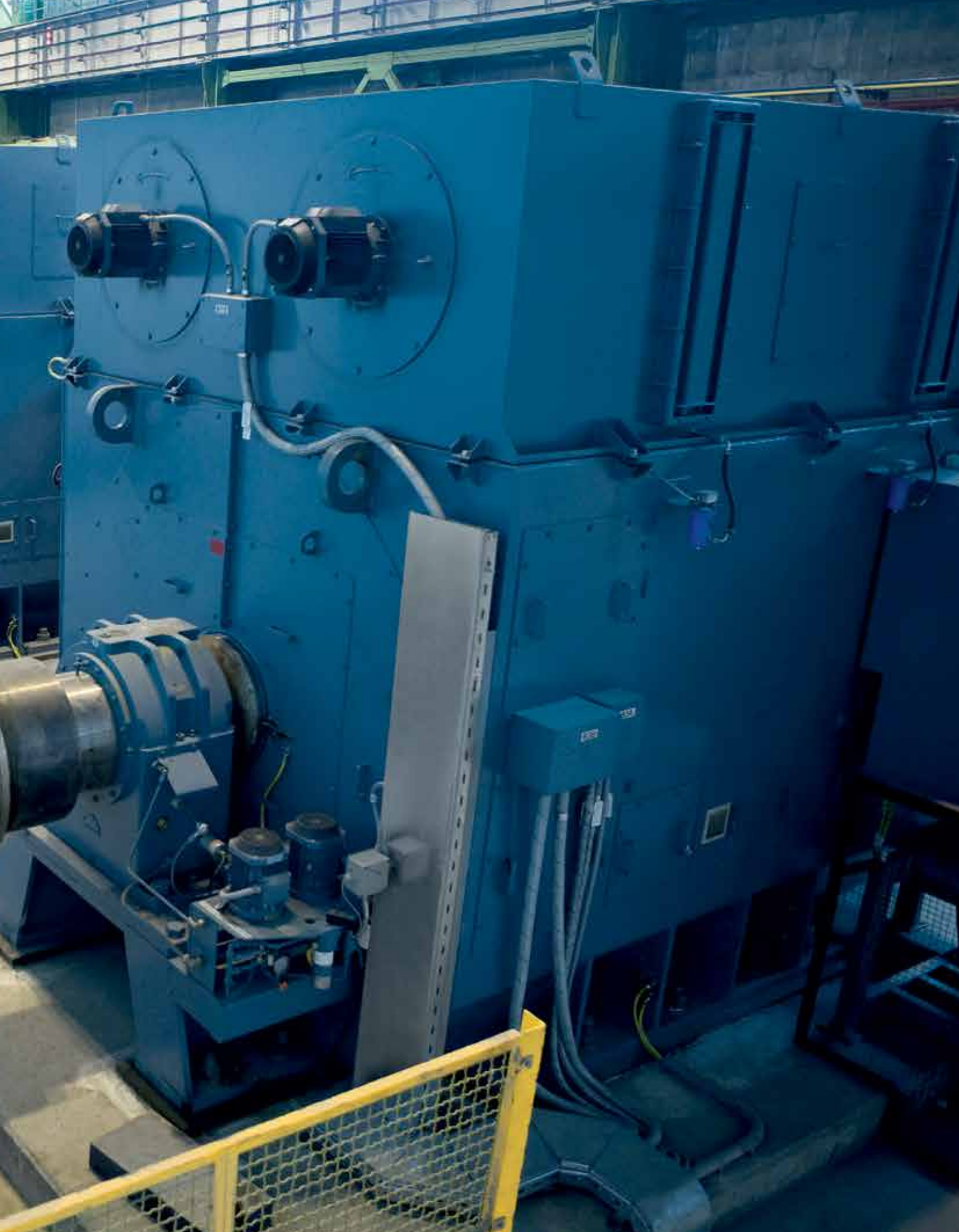


— 1050kW Shredder Motor: Current Phasor, Magnitude



Danieli automation engineering portfolio include also network modelling, short circuit calculation, load flow and protection relay coordination study complete of curves and settings table, fault investigation and transient motor starting analysis.





HEADQUARTERS



DANIELI

Via Nazionale, 41
33042 Buttrio (UD) Italy
Phone +39 0432 195 8111
Fax +39 0432 195 82 89
www.danieli.com
info@danieli.com



DANIELI AUTOMATION

Via Bonaldo Stringher, 4
33042 Buttrio (UD) Italy
Phone +39 0432 518 111
Fax +39 0432 673 177
www.dca.it
info@dca.it

WORLDWIDE DANIELI COMPANIES

GERMANY

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

UNITED KINGDOM

722 Prince of Wales Road
Sheffield S9 4EU
Phone (44) 114.2800300
info@uk.danieli.com

SWEDEN

Nya Ägatan, 23
S-77782 Smedjebacken
Phone (46) 240.668500
info@sweden.danieli.com

SPAIN

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

AUSTRIA

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

FRANCE

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

USA

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

CHINA

Jingyuan Street, 8, BDA
Beijing, 100176
Phone (86) 10.58082828
infodme@china.danieli.com

CHINA

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

INDIA

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

THAILAND

Land Plot N. K11
The Eastern Seaboard Ind. Estate
Tambol Pluakdaeng, Amphur
Pluakdaeng, 21140 Rayong
Phone (66) 38 929000
infodfe@thailand.danieli.com

WORLDWIDE OFFICES AND SERVICE CENTERS

USA

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

CANADA

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

BRAZIL

Rua Georg Rexroth, 609
Jardim Padre Anchieta
CEP 09951 270 Diadema, SP
Phone (55) 11.35085900
info@brazil.danieli.com

MEXICO

Edificio Sierra Madre
Ave. Vasconcelos Oriente 310
Colonia del Valle
66250 Garza Garcia, N.L.
Phone (52) 81.83781055
Fax (52) 81.83781058
info@mexico.danieli.com

SWITZERLAND

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

RUSSIA

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

RUSSIA

Lenin avenue 130, office 109
Chelyabinsk region
455038 Magnitogorsk
Phone (7) 963.4768886
info@russia.danieli.com

RUSSIA

Business Center Vysotskiy
Malyshev street 51, floor 42
Office 43/07
620075 Ekaterinburg
Phone (7) 343.3784517
info@russia.danieli.com

RUSSIA

Avtozavodskoye Shosse 48
Nizhniy Novgorod region
606000 Dzerzhinsk
Phone (7) 8313.310310
info@russia.danieli.com

UKRAINE

Most Citi Business Center
Glinky Street, 2, 3rd Floor
49000 Dnepropetrovsk
Phone (380) 56.7904301
Fax (380) 56.7904304
info@ukraine.danieli.com

EGYPT

Mohamed Farid Street, 37
11351 Heliopolis West-Cairo
Phone (20) 2.26379229
info@egypt.danieli.com

UAE

Etihad Towers 5 - Flat 5104
P.O. Box 127231 Abu Dhabi
Phone (971) 2.6812268
info@uae.danieli.com

KSA

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

TAIWAN

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

THAILAND

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

INDIA

271 Business Park, 5th floor
Model Industrial Colony
Off Aarey road
Goregaon (E) Mumbai 400 063
Phone (91) 22.39917100
info@india.danieli.com

KOREA

#602 6th floor, Yeondang Building
439 Teheran-Ro
Gangnam-Gu, 06158, Seoul
Phone (82) 2.5626622
info@korea.danieli.com

JAPAN

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

VIETNAM

Sang Tao Road, E-Office Park
Tan Thuan Exp. Pro. Zone
Tan Thuan Dong Ward, Dist. 7
Ho Chi Minh City, Vietnam
Phone (84) 08.62999130
info@vietnam.danieli.com