

DISTRIBUTE POWER NOT CO₂

MODULAR
ELSTEEL
ENCLOSURES

CO₂

ENVIRONMENT FRIENDLY PANEL TECHNOLOGY



**26% CO2 reduction
when distributing power
is achievable today !**



You're holding a top of the line
quality product in your hands.
Made with love and excellence!
I hope you will enjoy assembling and
using Elsteel products as much as
I enjoy manufacturing it for you.

A handwritten signature in black ink, appearing to be "Fang Logstrup".

Fang Logstrup
Managing Director



In our eagerness to be competitive we have been designing electrical panels using the **smallest** possible breakers, busbars, cables etc. thereby generating enormous watt losses.

Designing a panel in accordance with IEC 61439 is not enough as this standard allows temperature rises up to 105 - 120 centigrade.

In order to reduce carbon emissions, and the consequent global warming, we as engineers must offer “green panels” rather than cheap panels!

The green panel will save the end-user money in the long run. Investment in the initially more expensive green panel could easily be paid back in just one year!

You just need to follow these 4 simple steps to go eco on your panel.

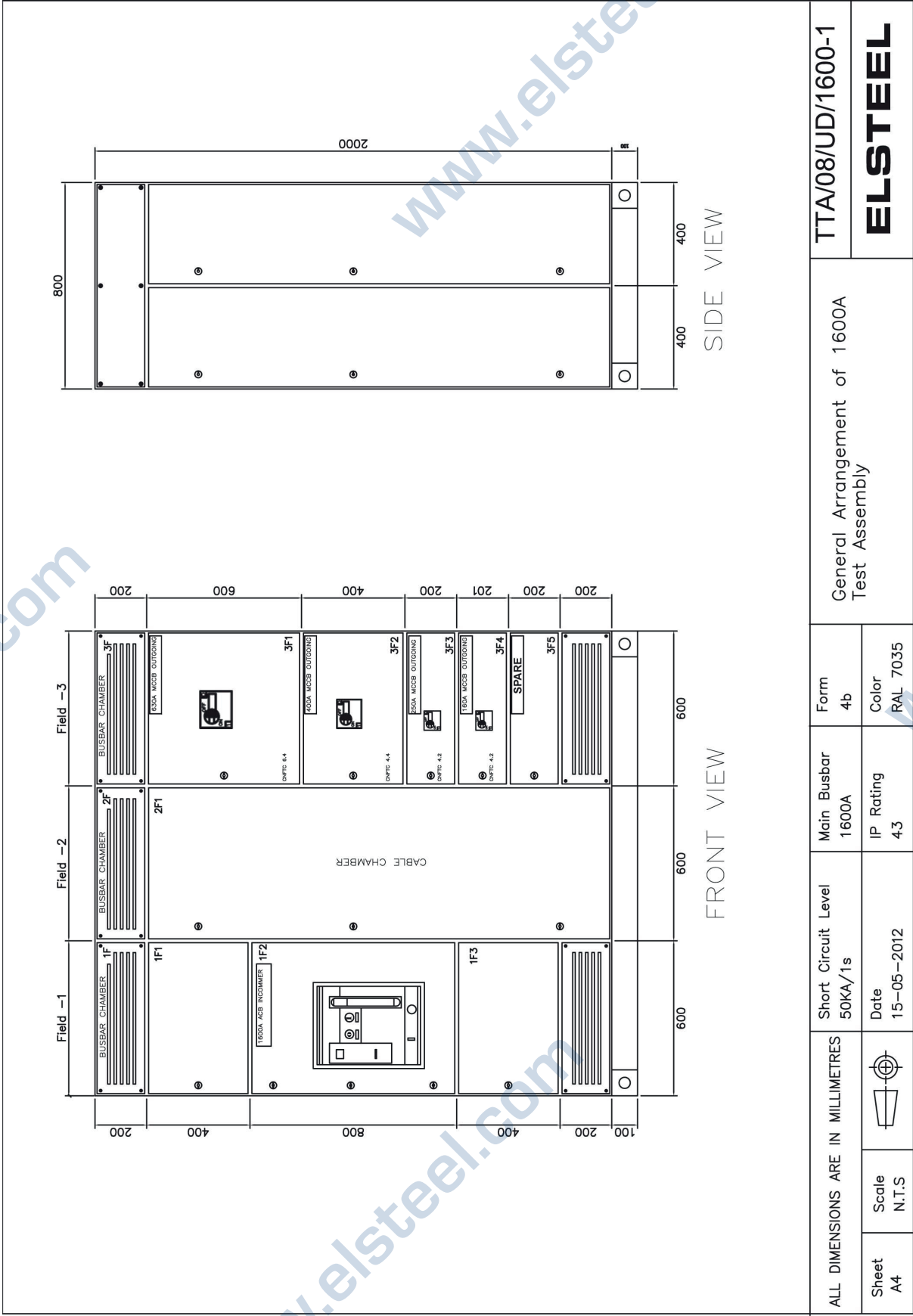
- 1. Increase breaker sizes “one step up”**
- 2. Increase busbar sizes “one step up”**
- 3. Avoid fuses, use MCCB and MCB.**
- 4. Use breakers with minimum watt loss.**

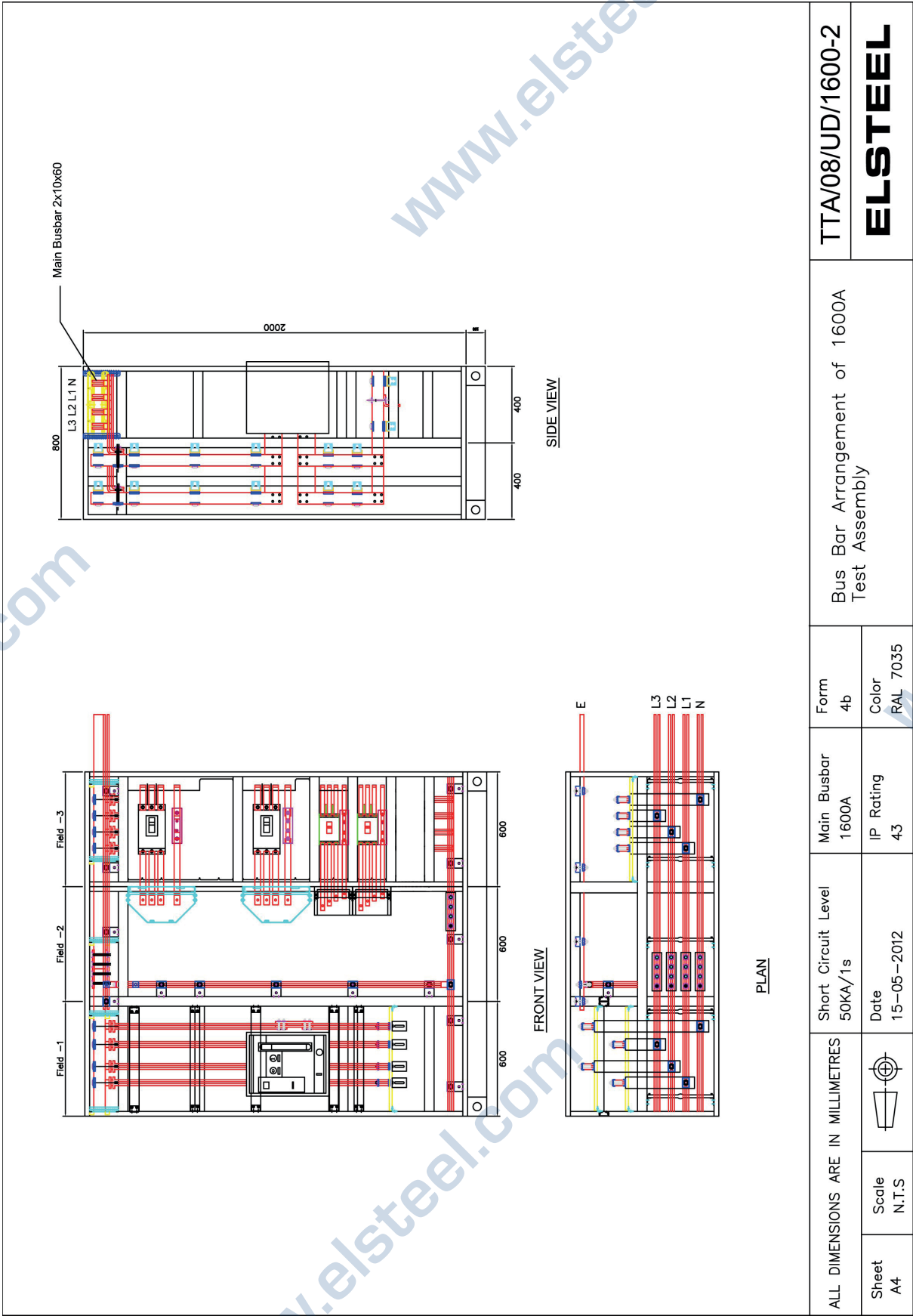
**The EU has agreed to reduce
carbon emission with 20% by 2020.**

You can achieve 26% today!

(See the sample calculation given in pg. 05)

In these following pages you will find the in-house test results.





GREEN PANEL CALCULATION SHEET

Standard panel configuration

Current rating	1600.00 A
Main busbar and dropper busbar size	2x10x60 mm
Main busbar and dropper busbar length	7.30 m
Watt loss of the busbar system (according to table-1)	909.22 W
Watt loss of standard breakers fitted in the panel (according to table-2)	673.75 W
Total watt loss due to heating (busbars and breakers)	1582.97 W
Energy loss per year (at full load 24 hours per day)	13866.77 kWh
CO2 emission when generating above energy per year	13034.77 kg

One step up Cu busbar size and breaker rating

Current rating	1600 A
The next available higher size of main and dropper busbar	2x10x80 mm
Watt loss of the busbar system (according to table-1)	691.31 W
Watt loss of breakers of next available higher size frames (according to table-2)	475.36 W
Total watt loss due to heating (busbars and breakers)	1166.67 W
Energy loss per year (at full load 24 hours per day)	10220.03 kWh
CO2 emission when generating above energy per year	9606.83 kg

Savings due to one step up busbar system and breakers rating

Power saving	416.30 W
Energy saving per year	3646.74 kWh
Cost of 1kWh energy	0.33 EUR
Saving in Euro per year	1203.43 EUR
CO2 saving per year	3427.94 kg
CO2 saving percentage	26.3 %

Additional investment cost due to one step up busbar system and breakers

Additional Cu weight needed to step up the busbar system (according to table-1)	78.11 kg
Cu cost per 1 Tonne	6.31 EUR
Additional investment cost for Cu	492.87 EUR
Additional investment cost for one step higher breakers	1003.78 EUR
Total investment cost to one step up	1496.65 EUR
Payback period of investment	15 Months

Above shall be treated as guidance only as this is an example.



CALCULATION TABLE FOR Cu BUSBARS

Rated Current (A)	Standard 3P busbar system		One step-up busbar system			Saving for 3P busbar system		
	Busbar size (mm)	Watt loss (W/200mm)	Busbar size (mm)	Watt loss (W/200mm)	Additional Cu weight (kg/200mm)	Power saving (W/200mm)	Energy saving per year (kWh/200mm)	CO ₂ saving per year (kg/200mm)
250	2-10×5	6.53	2-10×10	3.16	0.53	3.37	29.52	27.75
400	2-10×10	8.30	2-10×15	5.43	0.53	2.87	25.14	23.63
630	2-10×15	13.86	2-10×20	10.41	0.53	3.45	30.22	28.41
800	2-10×20	17.2	2-10×30	11.34	1.07	5.86	51.33	48.25
1000	2-10×30	18.16	2-10×40	13.44	1.07	4.72	41.35	38.87
1250	2-10×40	21.45	2-10×50	17.62	1.07	3.83	33.55	31.54
1600	2-10×60	24.91	2-10×80	18.94	2.14	5.97	52.30	49.16
2000	2-10×80	30.42	2-10×100	24.6	2.14	5.82	50.98	47.92
2500	2-10×100	39.64	3-10×80	28.84	2.14	10.80	94.61	88.93
3200	3-10×100	39.55	4-10×80	34.14	1.07	5.41	47.39	44.55
4000	4-10×100	44.34	6-10×80	36.53	4.28	7.81	68.42	64.31
5000	6-10×80	58.88	6-10×100	47.46	6.42	11.22	98.29	92.39
6300	6-10×100	77.69	8-10×80	71.02	2.14	6.67	58.43	54.92

Note : Emission Factor = 0.94kg of CO₂ / kWh (source - International Energy Agency)

Table - 1

BREAKERS USED IN THE PANEL

	Standard breaker size		One step up frame size of breakers		Additional cost to one step up breaker (EUR)
	Breaker type	Watt loss (W)	Breaker type	Watt loss (W)	
160	FE160 (Fixed version)	48.00	FE250 (Fixed version)	40.70	28.83
250	FE250 (Fixed version)	61.88	FG400 (Fixed version)	20.63	124.69
400	FG400 (Fixed version)	52.80	FG630 (Fixed version)	52.80	50.66
630	FG630 (Fixed version)	119.07	FK800 (Fixed version)	47.63	489.42
1600	MPACT PLUS ACB-1600A	392.00	PACT PLUS ACB-2000A	313.60	310.18
Total		673.75		475.36	1003.78

Table - 2

EUROPE

Cebco Limited - Czech Republic
Tel: +420 604 645 648
Mail: info@cebco.cz
Mail: cebco@seznam.cz

Culic Elektro Centar - Croatia
Tel: +38 5 2120 4333
Fax: +38 5 2120 4343
Mail: veleprodaja@culic.net

EFA Elektro AS - Norway
Tel: +47 6 681 2400
Mail: post@efa.no

Elektra-Bree-Bordenbouw nv - Belgium
Tel: +32 8941 0041
Fax: +32 8941 0049
Mail: kg@ebbnv.be

Elsteel - Ireland
Tel: +353 1 456 8566
Fax: +353 1 450 6104
Mail: debbie@elsteel.ie

Elsteel NI - Ireland
Tel: +44 289 077 4041
Fax: +44 289 078 3197
Mail: ghavlin@parkelect.co.uk

Elsteel Ltd. - Poland
Tel: +48 77 465 4666
Fax: +48 77 465 4674
Mail: elsteel@elsteel.pl

Elsteel UK Ltd. - United Kingdom
Tel: +44 197 885 5909
Fax: +44 197 885 5824
Mail: sales@elsteel.co.uk

Envolventes Elsteel - Spain
Tel: +34 95 567 5988
Fax: +34 95 567 5987
Mail: josemanuel@cenazarenos.com

Montakon - Netherlands (Box Items)
Tel: +31 73 599 6000
Fax: +31 73 599 6060
Mail: info@montakon.nl

N. N. Control Panels Ltd. - Cyprus
Tel: +357 25 71 4816
Fax: +357 25 71 4415
Mail: info@nncontrolpanels.com

NTI GmbH- Germany
Tel: +49 5181 85 530
Fax: +49 5181 85 535 55
Mail: info@nti-group.de

Rafmidlun hf - Iceland
Tel: +354 540 3500
Fax: +354 540 3501
Mail: kolbeinn@rafmidlun.is

RS Components Ltd. - England
Tel: +44 1536 20 1234
Fax: +44 1536 20 1501
Web: www.rswww.com

EUROPE - Contd.

UAB Electric Box - Lithuania
Tel: +370 68 697 304
Fax: +370 45 580 242
Mail: saulius@electricbox.lt

CANADA

Westshore Controls - Canada
Tel: +1 604 817 0987
Fax: +1 604 943 1661
Mail: westshorecontrols@gmail.com

AUSTRALIA

Eltech Australia Pty Ltd - Australia
Tel: +61 1800 007 458
Fax: +61 1300 885 122
Mail: anthony.arkcoll@eltech.au

MIDDLE EAST

Elsteel Middle East L.L.C - Dubai
Tel: +971 4 396 7033
Fax: +971 4 396 7023
Mail: info@elsteelme.com

Jawad Electric Switchgear Mfg. - Jordan
Tel: +962 6 488 5617
Fax: +962 6 489 1481
Mail: b.hindi@jawadswitchgear.com

Jaidah Electrical - Qatar
Tel: ++974 4463 8777
Fax: ++974 4460 4286
Mail: sadek@jaidah.com.qa

KG Switchgear - Qatar
Tel: +974 4416 5836
Fax: +974 4416 5837
Mail: kumar@kgswitchgear.com

National Electrical Industries Co. LLC. - Oman
Tel: +968 2 445 4951
Fax: +968 2 445 3721
Mail: tusharchavan@neioman.com

PAC International - Qatar
Tel: +974 4450 6084
Fax: +974 4683 021
Mail: mazen.harb@harbelectric.com

Pacific Ocean Elect. Switchgear Ind. - Sharjah
Tel: +971 653 45334
Fax: +971 653 47212
Mail: henry@pacificocean.ae

Power & Control Fzco - Dubai
Tel: +971 4 883 0391
Fax: +971 4 883 0392
Mail: khalil@pnc-ae.com

Schneider Electrical Engineering Ltd - Israel
Tel: +972 4 609 4433
Fax: +972 4 649 2216
Mail: sagi@sche.co.il

Sharikah Fanniyah Omaniya Ltd. - Oman
Tel: +968 2 481 5970
Fax: +968 2 481 0706
Mail: gm@sfomuscat.com

Voltamp Energy SAOG - Oman
Tel: +968 2 444 9140
Fax: +968 2 444 6584
Mail: chandru@voltampoman.com

MIDDLE EAST - Contd.

Zaki El-Sewedy Group - Egypt
Tel: +202 3816 4079
Fax: +202 3816 4080
Mail: wael.hasan@elsewedy.net

ASIA

Elsteel Ltd. - Sri Lanka
Tel: +94 11 225 2485
Fax: +94 11 225 2698
Mail: elsteel@elsteel.com

Elsteel Modular Products (Pvt) Ltd. - India
Tel: +91 832 661 1111
Fax: +91 832 661 1112
Mail: elsteel@elsteel.in

Elsteel Techno - Singapore & Malaysia
Tel: +65 645 546 98
Fax: +65 645 591 31
Mail: elsteel@singnet.com.sg

Fudo Automation Systems - Hyderabad, India
Tel: +91 40 2004 0814
Fax: +91 40 2754 4075
Mail: fudo@rediffmail.com

Neptune Systems (Pvt) Ltd. - India
Tel: +91 12 0420 5900
Fax: +91 12 0306 9042
Mail: dk@neptuneindia.com

Prakticheskaya Electrotehnika - Kazakhstan
Tel: +7 727 3783 294
Fax: +7 727 3783 487
Mail: pealmaty@mail.ru

Jubilee Corporation - Pakistan
Tel: ++92 2111 1000 520
Fax: ++92 2132 6022 11
Mail: jubilee.corp@cyber.net.pk

AFRICA

ATI Systems - South Africa
Tel: +27 11 383 8300
Fax: +27 11 824 1353
Mail: sales@atisystems.co.za

M & E Commercial Engineers Ltd.- Mauritius
Tel: +230 677 9838
Fax: +230 677 7200
Mail: mec.eng@intnet.mu

Specialised Power Systems Ltd. - Kenya
Tel: +254 20 207 7219
Fax: +254 20 353 2986
Mail: info@spsafrica.com

CIS

JSC Electronmash - Russia
Tel: +781 2 702 1262, Int 8000
Fax: +781 2 702 1262
Mail: sales@ru.elsteel.com