

# FORTE

## VENTILATED FAÇADE SYSTEM

MAR/2010



## VENTILATED FAÇADE SYSTEM FORTE IS DESIGNED TO MOUNT HEAVY FAÇADE MATERIALS - STONE, MARBLE, GRANITE, WITH THICKNESS MORE THAN 20 MM.

The profiles and accessories are constructed to bear extreme pressures caused by façade materials with weights up to 90 kg per sq.m.

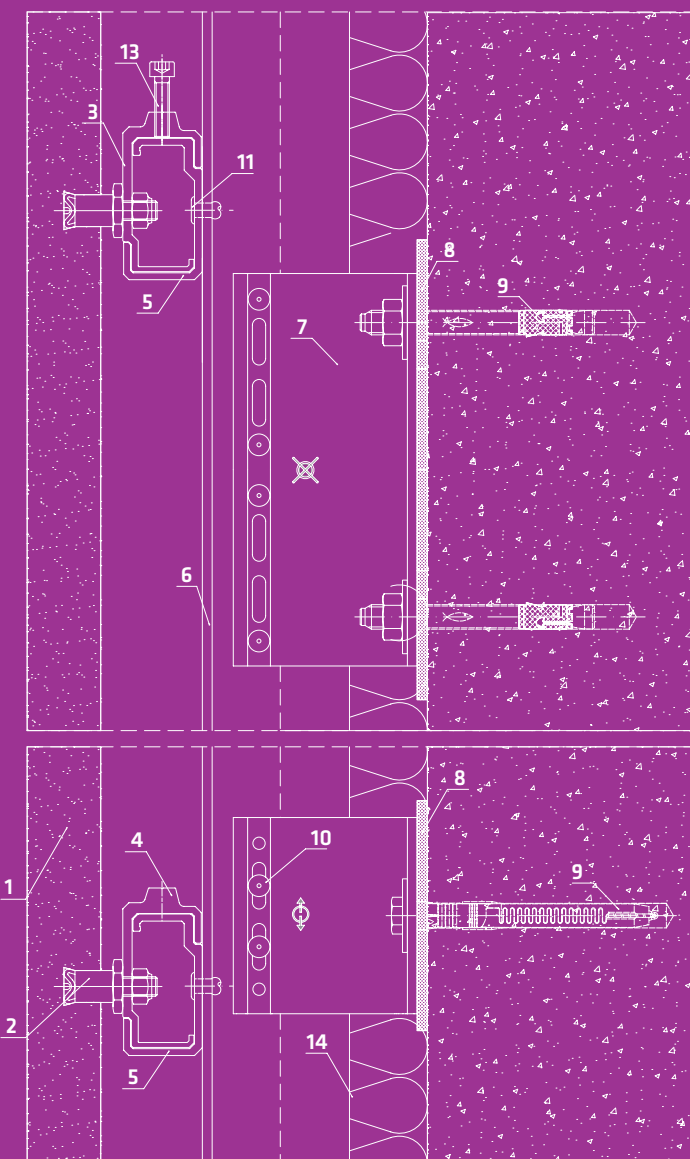
ETEM Building Systems has developed two ways of mounting heavy façade materials - with the help of pins (for plate thickness of more than 30 mm) and undercut anchors.

FORTE system is created based on leading standards (UNI7965, DIN18516) and European regulations, which are applied by ETEM Building Systems.

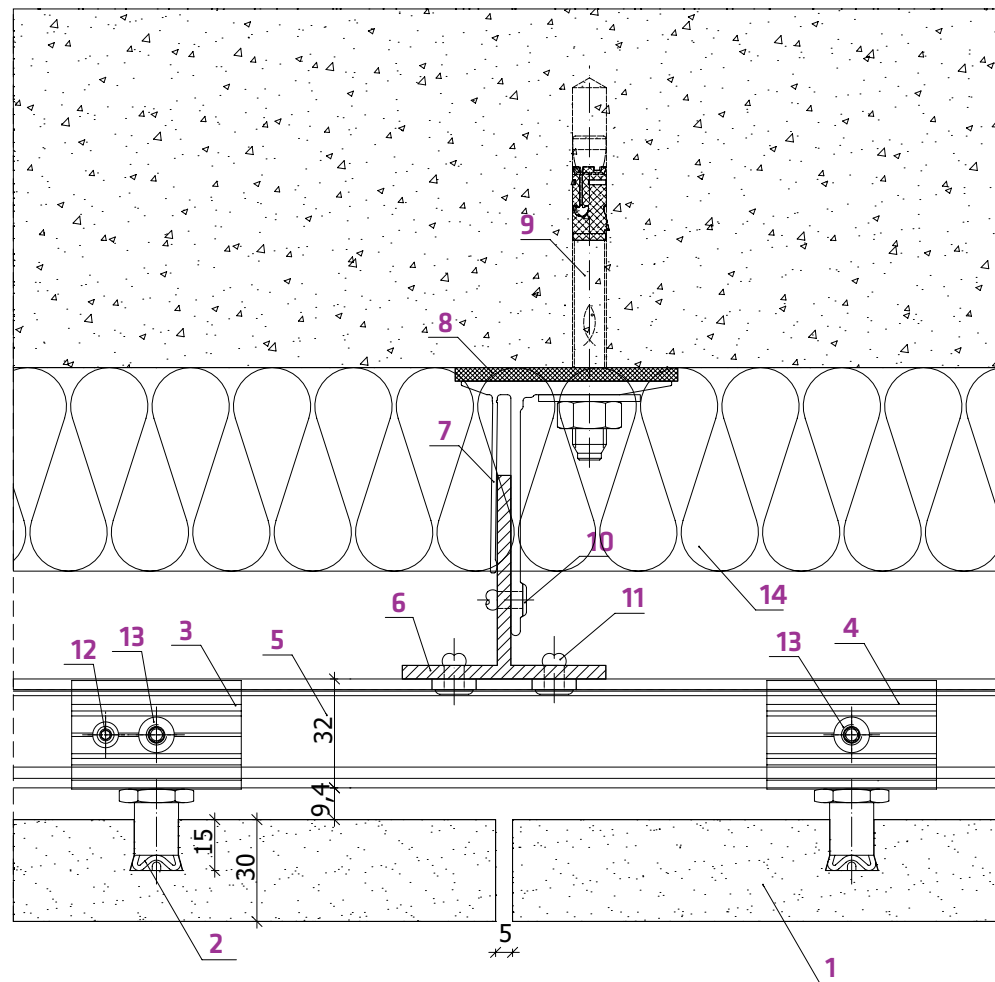
FORTE is designed based on EIS (ETEM INTEGRATED SOLUTION). EIS is a complex of procedures and regulations for construction, whose goal is the creation of architectural systems with the highest level of security, optimal design and ease of usage.

**The FORTE ventilated system for invisible mounting through undercut anchors has the following advantages:**

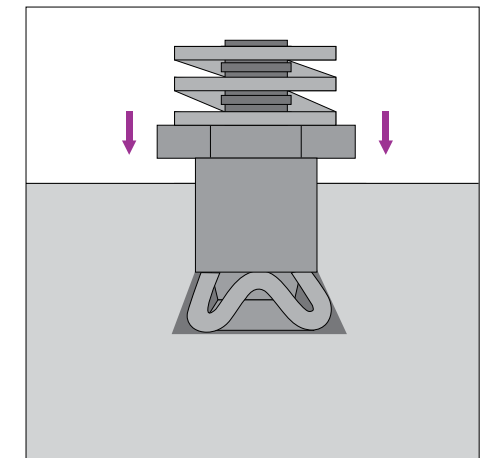
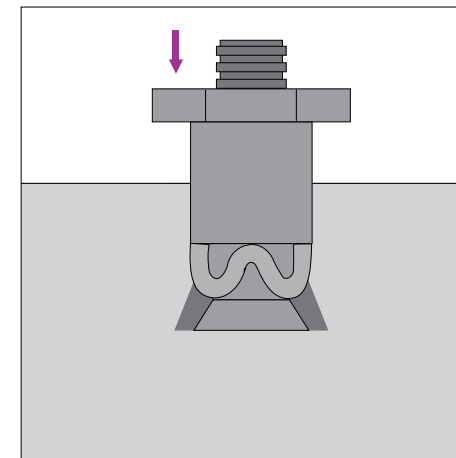
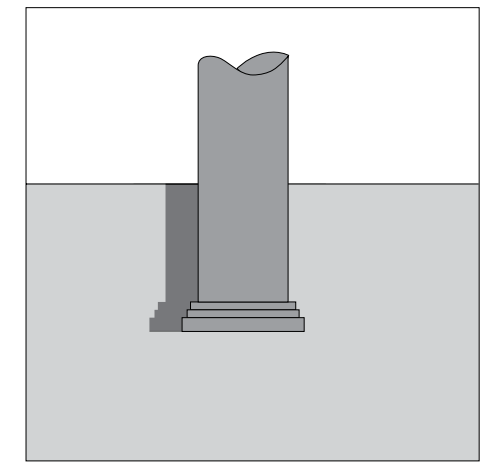
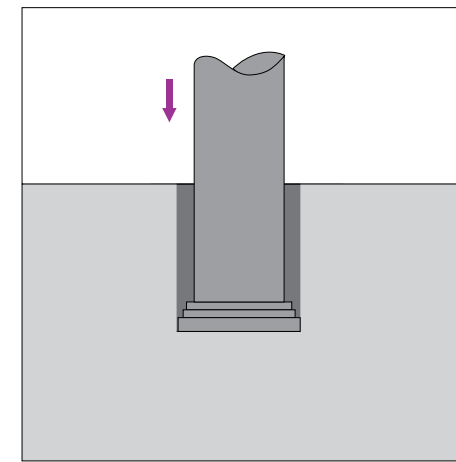
- 1** Perfect vision of the façade with no visible holding elements;
- 2** Large variety of sizes and designs of the facade materials;
- 3** Highest level of security when fixing the plates due to the FISCHER® and KEIL® undercut anchors;
- 4** Possibility to use façade materials with thickness ranging from 8 mm to more than 35 mm;
- 5** Fast and easy installation - 1.5 sq.m. per person per hour;
- 6** EIS provides an extremely secure and fully engineered work which covers the entire project, and guarantees a complete system solution.



1. stone, 2. undercut anchors, 3. hanger adjustable fixed support, 4. hanger adjustable flexible support, 5. horizontal profile, 6. main vertical profile, 7. fixing bracket 75/160 mm, 8. thermal insulation pad, 9. anchor /plug, 10. rivet 5.0x12, 11. rivet 5.9x12, 12. self drilling screw 4.8x22, 13. bolt M6x25, 14. thermal insulation



## Mounting of "undercut" anchors in the façade tile

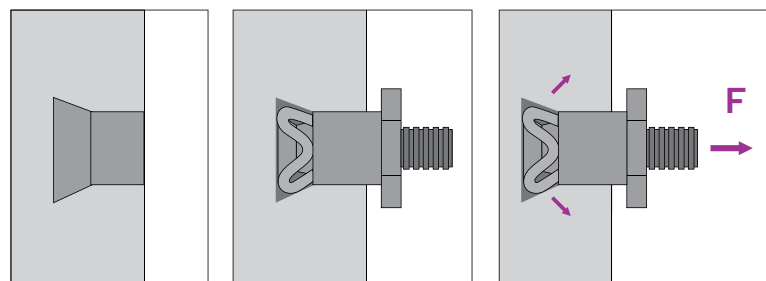




FORTE Ventilated System uses FISCHER® and KEIL® fixing anchors to guarantee the connections between the façade material and the main bearing structure of the system.

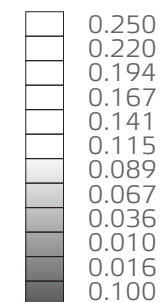
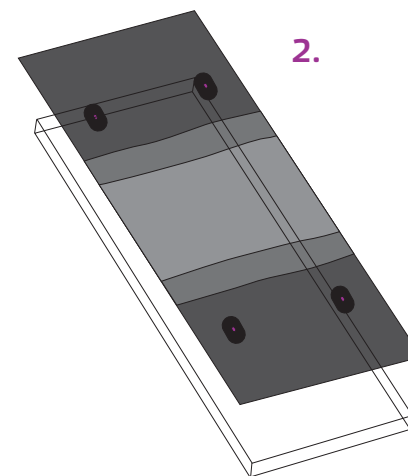
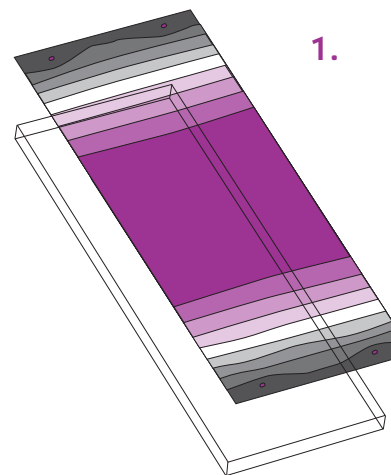
is unique undercut technology for drilling and mounting of the anchor on the back (invisible) section of the façade material allows for:

- Usage of façade materials with thickness less than 30 mm;
- 50% more load in comparison to standard methods of mounting heavy façade materials (marble, granite);
- 73% less internal stresses in the panel.



### Difference in the stresses of the tile:

1. by means of pins
2. by means of "undercut" anchors



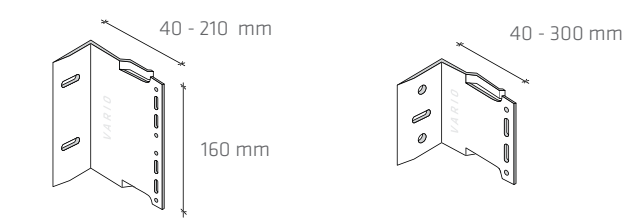
max: 0.246  
min: 0.042



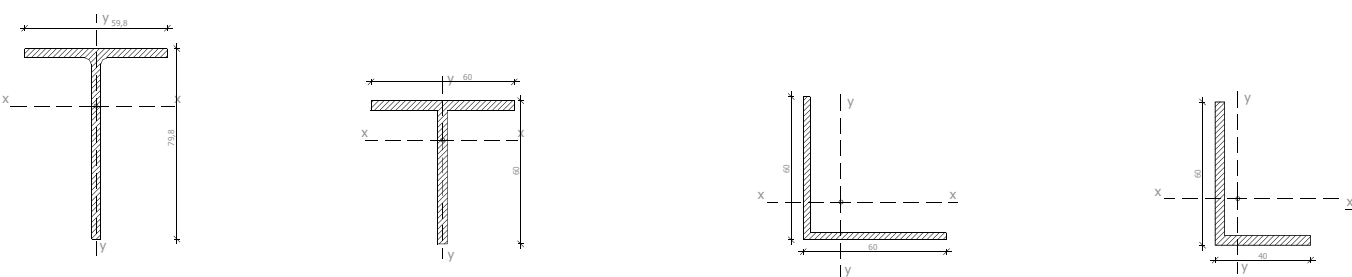
# SYSTEM PROFILES AND ACCESSORIES

The system is equipped with finishing profiles and special accessories, allowing the accomplishment of unique details, finishing and transition to other cladding materials.

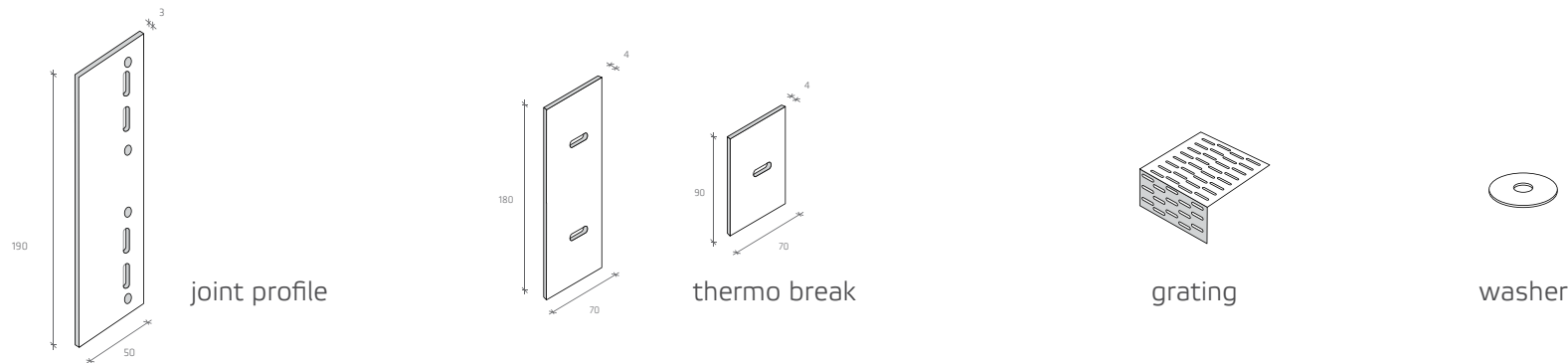
fixing  
bracket



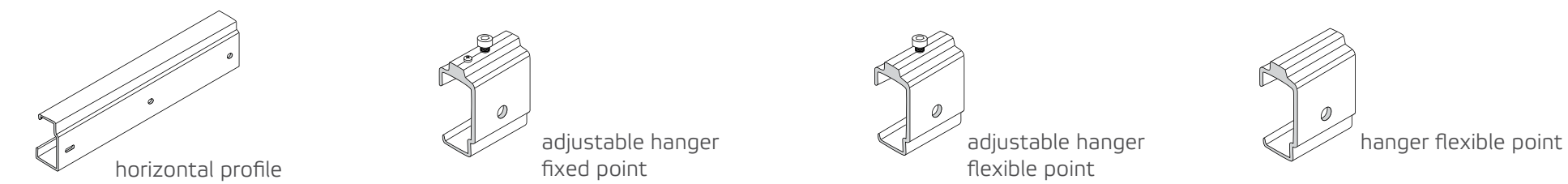
main  
profiles



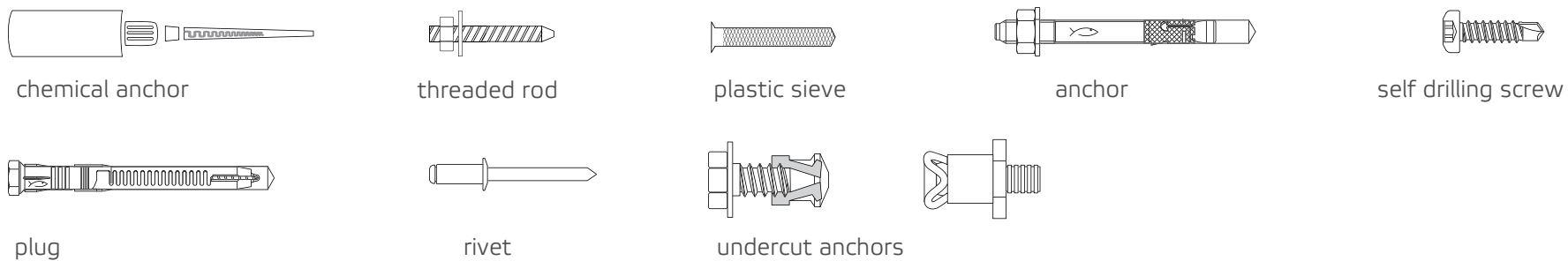
accessories



system  
accessories



fastening  
elements



## VENTILATED FAÇADE SYSTEMS ARE CONSTRUCTED TO ALLOW SECURE MOUNTING OF DIFFERENT FAÇADE MATERIALS TO THE CONSTRUCTION BASES OF BUILDINGS.

Ventilated systems are based on the principle of natural ventilation, which is achieved through an air gap (4-8cm) between the façade material and the thermal insulation.

Ventilated façade systems are constructed to allow secure mounting of different façade materials to the construction base of the buildings. All ETEM elements designed under EIS are dimensioned using a finite element method with the ANSYS program. Maximum stresses and creeps are pre-simulated. In this way the optimal shape of the profiles and accessories is achieved assuring the highest reliability.



increased fire resistance



high level of noise insulation



water permeability



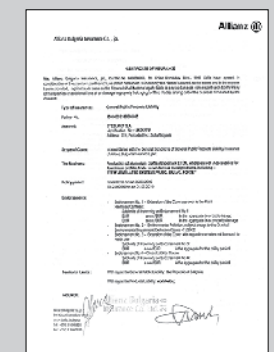
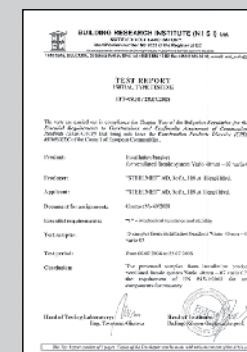
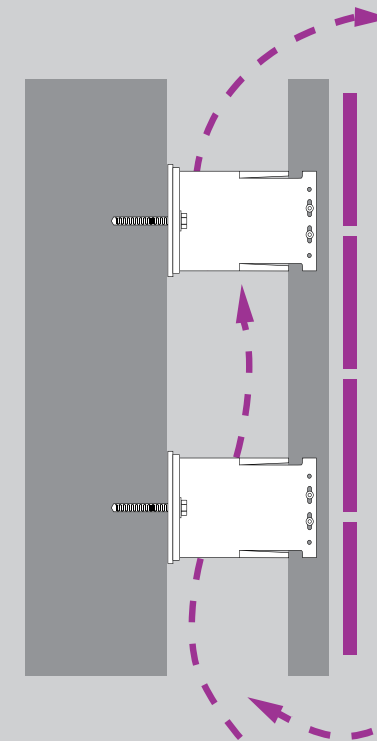
high energy efficiency



high energy efficiency



natural ventilation



Marginal eligible stresses, deformations, and security ratings of the system are lined with ENV 1999 -1-1:1998, Eurocode 9: Italian standard UNI 11018; DIN 4113

# ETEM. *Think* Adaptive

## OFFICES

### ETEM BUILDING SYSTEMS BULGARIA

T: +359 894 754 158, [ventilated@madeinetem.com](mailto:ventilated@madeinetem.com),  
[www.madeinetem.com](http://www.madeinetem.com)

### ETEM BUILDING SYSTEMS GREECE

T: +30 210 489 8605,  
[marketing@etem.vionet.gr](mailto:marketing@etem.vionet.gr), [www.etem.gr](http://www.etem.gr)

### ETEM BUILDING SYSTEMS ROMANIA

T: +40 21 209 09 70,  
[contact@etem.ro](mailto:contact@etem.ro), [www.etem.ro](http://www.etem.ro)

### ETEM BUILDING SYSTEMS SERBIA

T: +381 22 32 80 19, +381 22 32 80 20,  
[office@etemscg.rs](mailto:office@etemscg.rs), [www.etem.gr](http://www.etem.gr)

### ETEM BUILDING SYSTEMS UKRAINE

T: +38 (044) 499 07 87, [info@etem.com.ua](mailto:info@etem.com.ua),  
[www.etem.com.ua](http://www.etem.com.ua), [www.etalbond.com.ua](http://www.etalbond.com.ua),  
[www.ventfacade.com.ua](http://www.ventfacade.com.ua)

## INTERNATIONAL PARTNERS

### DOMUS FACADES, UK

T: + 4420 848 19 550,  
[info@domusfacades.com](mailto:info@domusfacades.com),  
[www.domusfacades.com](http://www.domusfacades.com)

### UKTOP ARCHITECTURAL LTD

T: + 4420 860 17 172,  
T: + 4479 908 65 543,  
[peter.hristov@uktop.eu](mailto:peter.hristov@uktop.eu),  
[www.uktop.eu](http://www.uktop.eu)

### ILTEGRO SPOL. S R.O., CZECH REPUBLIC

T: 00420 605 822 338,  
[iltegro@iltegro.cz](mailto:iltegro@iltegro.cz)

### ANTALIS POLAND SP. Z.O.O

T: + 48 (0) 693 921 048,  
[cezary.grzebski@antalis.pl](mailto:cezary.grzebski@antalis.pl),  
[www.antalis.pl](http://www.antalis.pl)

### INTERNA TRADING FZCO, UAE

T: + 9 71 44 226 727,  
[jerry@internagroup.ae](mailto:jerry@internagroup.ae),  
[www.internagroup.com](http://www.internagroup.com)

### MKN DOO, MACEDONIA

T/F: 0038 925 110 118,  
[mkn\\_doo@yahoo.com](mailto:mkn_doo@yahoo.com),  
[www.mkn-etem.com.mk](http://www.mkn-etem.com.mk)