

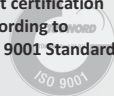

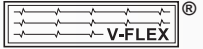



# Company Profile

- 1989**  

- 1990**  
**APEX® Product Line**  
 The 2nd generation plate-type heat exchanger product line. Patented solution.
- 1993**  
**APEX® Free-flow Technology**  
 Unique design with minimum obstruction in the flow path.
- 1996**  
**CORPEX® Product Line**  
 The 3rd generation of plate-type heat exchanger product line. Patented solution and registered trademark.
- 
- 2000**  

**APEX HEAT TRANSFER®**  
 Registered trademark in use since 2000.
- 2007**  
**AIR-CURTAIN® Technology**  
 To prevent condensation on the heat transfer plate. Patented solution.
- 
- 2008**  
**Valachia Apex S.R.L.**  
 Second manufacturing facility, in Braşov, Romania.
- 2010**  
**Furnace in Valachia-Apex**  
 Installation of furnace for glass-enameling plates and tubes, for A-CORREX® products.
- 
- 2010**  
**Czechia-Apex B.V.**  
 Contracting company in The Netherlands.
- 2015**  
**A-CORREX® Trademark**  
 Anti-Corrosion Technology applied to our Product lines.
- 
- 2015**  
**APEX-delfino® Technology**  
 To increase effectiveness and lifetime of our Product lines. Registered trademark.
- 
- 2016**  
**Valachia-Apex Extension**  
 Including advanced grit/glass blasting & painting booths.
- 
- 2017**  
**APEX-delfino® Flow-Conditioner**  
 Novel technology applied to improve the flow inlet conditions.
- 
- 2019**  
**APEX-delfino® Temperature-Equalizer**  
 Improves the temperature distribution for downstream equipment.
- 
- 2020**  
**Fully Corrosion Resistant Heat Exchanger**  
 A-CORREX® Technology expanded to include polymer composite materials, for highly corrosive applications.
- 2020**  
**CORTEX®**  
 Trademark for non-pressurised tubular product line.
- 



- 1992**  
**Moravia-Apex, spol. s r.o.**  
 First manufacturing facility opens in The Czech Republic.
- 1999**  
**ISO 9001**  
 Introduction of QMS. First certification according to ISO 9001 Standard.
- 
- 2006**  
**Silesia-Apex Sp. z o.o.**  
 Contracting company in Poland.
- 2008**  
**Romania-Apex S.R.L.**  
 IT & software support to the group companies.
- 2009**  
**R&D Department**  
 Opened at the Romanian premises.
- 2012**  
**Apex-Supply spol. s r.o.**  
 Material Service Center in The Czech Republic.
- 2012**  
**Valachia-Apex**  
 The completion of new facility in Braşov, Romania.
- 2012**  
**Finned tubes**  
 Apex-Supply produces finned tubes for in-house supply and 3rd party.
- 
- 2014**  
**Apex-Research B.V.**  
 R&D Company in The Netherlands.
- 2017**  
**CORRO-EYE®**  
 Device for early detection of cold-end corrosion.
- 2018**  
**V-FLEX® Product Line**  
 New generation of Vortical-Flow Heat Exchangers, comprising of VORTI-FLEX® Technology.
- 
- 
- 2018**  
**C-PEX® Trademark**  
 Trademark for our coil pressurised product line.
- 
- 2019**  
**Moravia-Apex & Apex-Supply**  
 Opening of newly built premises in Pohořelice, The Czech Republic.
- 
- 2021**  
**APEX® Varia-Flow**  
 Technology to ensure uniform flow-field temperature profile at the outlet of the heat exchanger.
- 2023**  
**APEX® Suite**  
 Launch of our proprietary software under The Premium Software Platform.

APEX Group



## APEX Group - The Key to Efficient Heat Transfer

**APEX Group** is a pioneer and leader on the market of plate-type heat exchangers. Our *proprietary* heat exchangers are heavy-duty, *custom-designed* engineering solutions, able to bear extreme requirements of a wide range of gas-to-gas heat transfer applications, such as *air preheating, heat recovery, emissions control or gas cooling*.

### Experience and Vision

We encompass 50+ years of experience and expertise of our founder, Mr. Mircea Dinulescu, and share his vision: **to research, create and provide engineering solutions** for heat transfer industrial applications. To this day, our *Credo* remains unchanged, creating the strong foundation for APEX Group's position in a global market:

*Started in 1990 as a small independent business, APEX GROUP will grow into a reputable designer and manufacturer of high quality low-priced industrial heat transfer and combustion equipment for the international market, operating according to the quality principles laid out by international standard ISO 9001. (M. Dinulescu, 1991)*

### Quality and Innovation

APEX Group's strength consists of know-how, patented technology, professionalism and leading-edge engineering. The in-house Research and Development Department provides new solutions for continuously upgrading our products and guaranteeing efficient heat transfer, long lifetime, trouble-free and user friendly operation.

### Customers Worldwide

APEX Group enjoys a high degree of recognition by a large number of reputable customers, in such fields as Oil & Gas, Energy, Petrochemicals, Waste-to-Energy, Biomass and Environmental. Our company is renowned world-wide and, naturally, we deliver to every corner of the world.

We take pride in being a family-owned company, which allows us to build close connections with our customers and ensures a personal approach to each project. We strive to support our customers by engaging in dialogue and developing long-term partnerships.

### Broadening Horizons

By encouraging feedback from customers, APEX Group develops solutions and products that anticipate market needs. To materialize our concepts, we have expanded our Engineering, Research and Fabrication facilities. Our engineers are motivated to keep up to date with the newest industrial developments in order to provide optimum design solutions for our customers.

**“Conquer the Market Through Knowledge”**

*Mircea Dinulescu*



Headquarters, Voorburg, The Netherlands



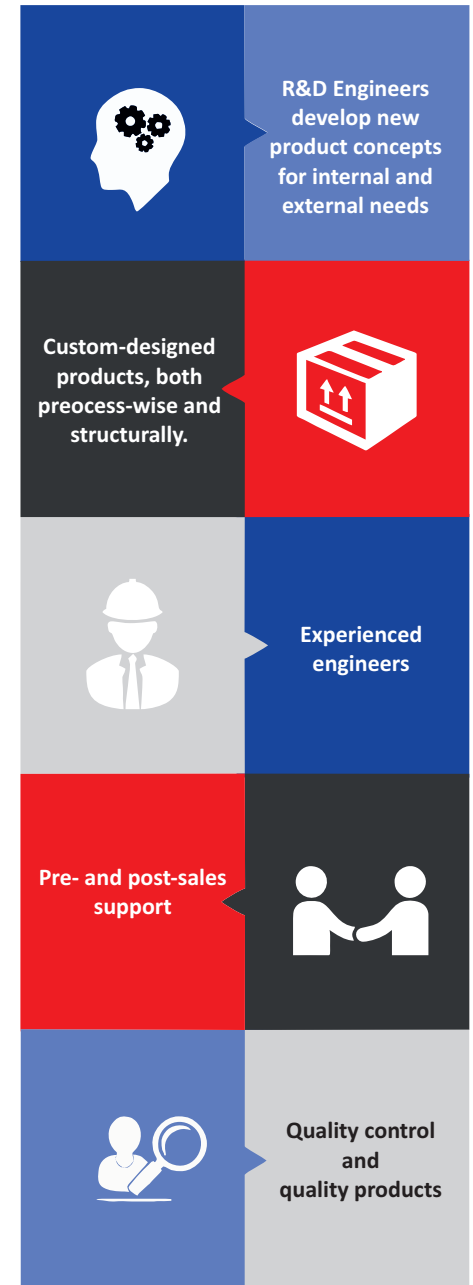
Silesia-Apex, Gliwice, Poland



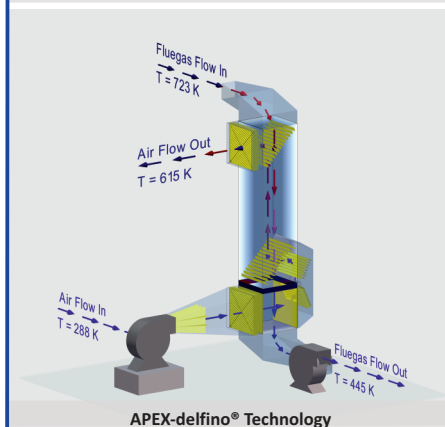
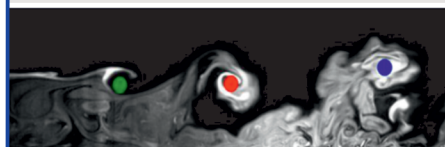
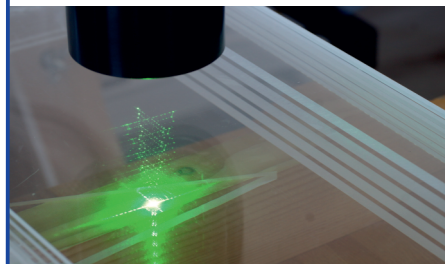
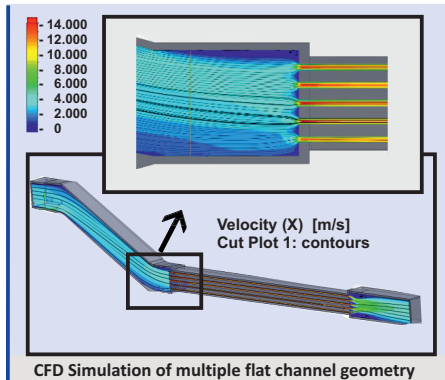
Valachia-Apex, Brasov, Romania



Moravia-Apex, Pohořelice, The Czech Republic







## Research and Development

### In-house R&D Department

Our R&D Department is dedicated to broaden our knowledge in heat and mass transfer, fluids mechanics and construction materials' properties, to continuously improve our products and to deliver the best possible engineering solution to our customers.

Their area of expertise comprises in internal flows and heat transfer, covering a wide range of engineering applications like diffuser flows, heat exchanger flows, filtration systems or complex ducting systems.

### Computational Fluid Dynamics

- Commercial FloEFD using advanced k-ε model for simulation of turbulent flow fields and heat transfer;
- Simulation of customer's duct design;
- Simulation of concepts to be validated by model experiments.

### Experimental Fluid Dynamics

- Laser Doppler Anemometry (LDA) for most accurate velocity measurements;
- Particle Image Velocimetry (PIV) for flow structure analysis;
- Static and dynamic pressure measurements for pressure drop analysis;
- Hot Wire Anemometry for turbulence and heat transfer analysis;
- Thermo-element measurements.

## APEX® Technology

### Solutions for Flow Optimization

**APEX-delfino® Technology** provides solutions for the optimization and control of the process stream's flow field characteristics at the inlet and/or outlet face of the heat exchanger, or any other process equipment, with the lowest possible pressure drop influence on the complete process system.

This new technology increases the effectiveness and the lifetime of the unit, due to optimal flow distribution and reduced pressure drop at high heat transfer rates.

### Solutions for Cold-End Protection

**Air Curtain® Technology** controls the heat transfer surface temperature to avoid condensation and "cold corner" corrosion.

**A-CORREX® Technology** is used for heat exchangers in service with heat transfer surface temperature below the acid dew point or the water dew point, ensuring corrosion free operation.

### Solutions for Enhanced Heat Transfer

**VORTI-FLEX® Technology** enhances the heat transfer coefficient between the two fluids in laminar or transient flow.

### Solutions for Uniform Flow-field Temperature

**APEX® VariaFlow Technology** ensures uniform flow-field temperature profile at the outlet of the heat exchanger. In many applications, this may be critical for optimal operation of the downstream equipment.

## Products

### High Quality Heat Exchangers

**APEX Group** offers high quality heat exchangers, custom-designed according to client's needs, both process-wise and structurally. They are tailored to specific requirements of each application. The products are continuously developed based on in-house research and feedback from customers.

### Typical Services

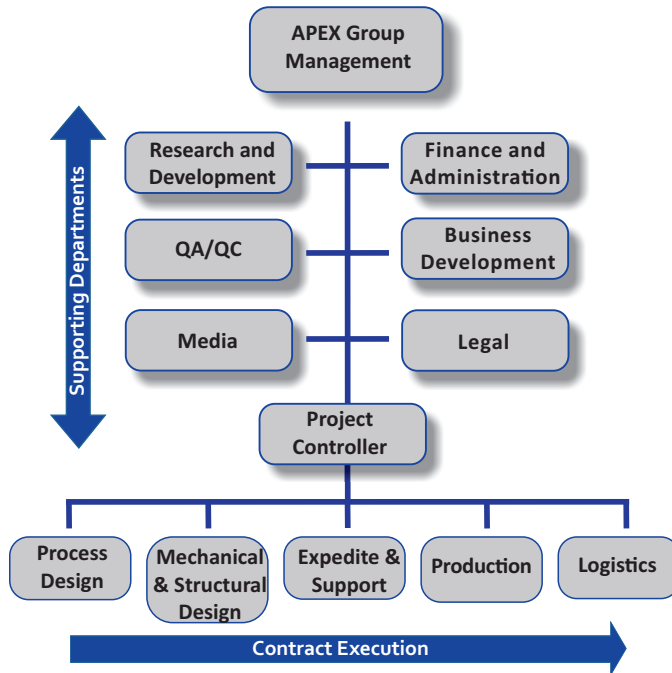
- Air Preheater
- Gas/Gas Heater / Cooler
- Water/Gas Cooler
- Boiler Feedwater Preheater
- Steam Generator
- Steam Gas Heater
- Steam Air Preheater
- Water Air Preheater
- Thermal Oil Air Preheater
- Thermal Oil Heater
- Flue Gas Condenser
- Water Condenser

### Main Application

- Fired heaters
- Steam reformers
- Cracking furnaces
- Industrial / Power boilers
- Biomass boilers
- Gas Turbines
- Incinerators
- Thermal Oxidizers
- Dryers
- DeNOx SCR Units
- Bag filtering systems
- Electrostatic Precipitators
- Flue Gas Desulfurization (FGD)
- Carbon Capture and Storage (CCS)



## Company Organizational Chart



### Process Design

- **First contact** with customers
- Technical and commercial **offers**
- **Flexible** in approach and design
- **Alternative** design options
- **Optimal design** to best suit your requests
- **Creative** approach to increase performance
- Exclusive **proprietary** software
- **Timely response**
- **Support** for site issues
- Invites **dialogue** with customers & end-users



### Mechanical and Structural Design

- Creates **modern and reliable designs**
- **Mechanical design concept** for inquires, projects and 3rd parties
- **Structural analysis and structural design**
- **Liaison** with production
- Invites **dialogue** with customers & end-users
- **Software:** APEX® Termic, ASPEN, AutoCAD, Inventor, Advance Design, RFEM
- **Engineering Codes and Standards:** ASME, ASTM, API, ASCE, AISC, IBC, Eurocode, EN, JIS, TR CU, PED and more



### Expedite and Support

- **Document control**
- Ensures **smooth** document handling
- **Support** throughout project execution
- **Mitigation** skills
- **Attentive** to details
- Maintains **deadlines**
- Develops strong **business relations**
- Invites **dialogue** with customers & end-users



#### 1. Professionalism

"APEX were key in helping to define the solution required and suggesting improvements to ensure deficiencies were permanently removed. I was very impressed with their professionalism and drive."  
(Terry Phipps - HyCO SMR Operations, ROC Head)

#### 2. Quality & Design

"Tianjin Bohua Petrochemical CO., LTD. is proud to present this certificate to APEX Group, regarding your high quality product and superb performance of CORPEX plate type Combustion Air Preheater (...). The superior mechanical design engineering and production execution guaranteed successful operation of equipment withstanding very large Combustion Air flows at 2.5 barg design pressure, bearing high seismic and external loads, all fitted into restricting site plot space." (Tianjin Bohua Petrochemical CO., LTD.)

## TESTIMONIALS

#### 3. Support

"APEX Group provided excellent support throughout the whole project. We are very satisfied with the installation, operation and the overall performance of the equipment."  
(Tianjin Bohua Petrochemical CO., LTD.)

#### 4. Expertise

"We appreciate APEX Group's design, engineering and fabrication expertise for delivering a heat exchanger able to meet the demanding operating [conditions]. (...) APEX was available and eager to tackle challenges presented to them and delivered good quality product, service and documentation."  
(Dr. Martin Pogoreutz - Andritz, Kraft and Paper Mill Services)

#### 5. Cooperation

"We were pleased with your execution of this order including on time document submittals in proper accord to our requirements, easy communication through both email and phone calls direct to your offices and excellent coordination when it came to arranging the shipment (...). Your professionalism is noted and we would have no problem in recommending APEX for future work."  
(Mario Hidalgo - TechnipFMC)

#### 6. Proactive

"APEX were very proactive in offering advice and formed a core part of our team in planning the upgrade. (...) APEX visited our location during the shutdown itself to inspect the modules and help implement the improvements."  
(Terry Phipps - HyCO SMR Operations, ROC Head)



## Sharing our Technology Excellence

### NEW: Solutions for Operators

APEX Group offers **APEX® Suite** - a package of proprietary software on its **Premium Software Platform**.

#### APEX® Suite - Digital H-Ex Twin

From design and installation of product at site, to digital performance verifications during operation:

- simulate your heat exchanger in various operating cases;
- check its performance and impact on plant efficiency due to changing operating parameters;
- gain insight into your heat exchanger performance, with APEX Group support team.



#### APEX® Suite - Original

Design your own **CORPEX®** gas/gas heat exchangers (i.e. combustion air preheaters, gas/gas heaters) for feasibility studies, revamp projects, efficiency improvement or heat recovery projects.



### Manufacturing Facilities

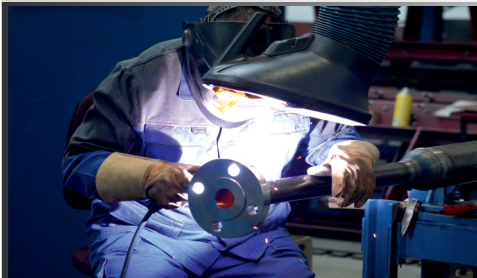
#### Shop Floor Area:

- 2 manufacturing facilities, 100% owned
- Newly build facility in The Czech Republic
- 13,000 m<sup>2</sup> covered working floor area
- 3,900 m<sup>2</sup> storage and trial assembly area

**Fabrication Codes:** EN ISO 1090, EN ISO 3834-2, ASME Section IX

#### Pressurised Equipment:

- ASME section I (S designator)



- ASME Section VIII Division 1 (U Designator)
- AD 2000 (AD-MERKBLATTER)
- ASME B31.1 and ASME B31.3
- EN 13445-1 and EN 12952-1

#### Equipment:

- Aluminum Finning Machine: McElroy
- Furnace for Glass-Enameling
- Robotic Welding Arm
- Blasting Booths: glass-beads, steel grit and heavy duty carriages
- Painting Booths: airless painting, automatic drying and heavy duty carriages

#### Capacities:

- Output Capacity: 800 large blocks/year
- Cranes Lifting Capacity: 63 tons
- Truck Loading/Unloading: 10 trucks/day



### Inspection & Quality Control

#### Inspection and testing Codes:

- EN ISO 5817
- EN ISO 23277
- EN ISO 23278
- EN ISO 5579
- ASME Section V

**ISO 9001:2015** - Since 1990, APEX Group complies with the requirements of consecutive generations of ISO 9001 standard.



ISO 9001: 2015

ISO 45001:2018

ISO 14001:2015

#### In-house specialists:

- Quality Inspectors
- Painting Specialists
- NDT Specialists (Visual testing for welds and Penetrant testing of welds, acc. EN ISO 9712)
- Welding Engineers

#### N.D.T. Equipment:

- Dye Penetrant
- Magnetic Particle Examination
- Pneumatic/Hydrotest Leak Detection
- VT, RT and UT Examination

#### 3rd Party Inspection for Pressure Vessels by:

- TÜV, Germany



### Transport & Post-Sales Services

#### Transport:

- **In-house** Logistics Department
- Deliveries according to **INCOTERMS 2020**
- **International** deliveries
- **Clear communication**
- Various transport **options**



#### Post-Sales Support:

- Storage instructions
- Procedures for **erection**
- **Support** for erection & operational issues
- Follow-up on inspection and performance of the equipment at site
- Product **life-time support**



# APEX GROUP

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## Leaders in heavy-duty plate-type and tubular gas/gas exchangers

APEX Group logo, APEX Heat Transfer®, APEX Heat Transfer logo, A-CORREX®, A-CORREX logo, Air Curtain®, Air Curtain logo, APEX®, APEX logo, APEX-delfino®, APEX-delfino logo, CORPEX®, CORPEX logo, CORTEX®, CORTEX logo, CORRO-EYE®, C-PEX logo, V-FLEX®, V-FLEX logo, VORTI-FLEX® and VORTI-FLEX logo are registered trademarks of APEX Group Companies. All rights reserved.

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