THE CHALLENGE
Primetals Technologies and consortium partner Midrex Technologies, Inc. received an order from the Austrian voestalpine group to build a direct reduction plant in the United States. The Midrex plant is constructed near the city of Corpus Christi, Texas. It is designed to produce two million metric tons of hot briquetted iron (HBI) per year, making it the largest single module of this type worldwide. The order value for the consortium is in the three digit million Euro range. Operation of the plant started in September 2016.

VIRTUAL REALITY EXPERIENCE
Primetals Technologies has developed an app for iOS and Android devices with which you can inspect the Corpus Christi plant in a three-dimensional environment. For the full experience, please use the app with Google Cardboard glasses or a comparable 3D viewer.

THE SOLUTION
The direct-reduction process removes the bonded oxygen from pelletized iron ore at elevated temperatures by means of a reducing gas that is generated from natural gas. Reduction takes place in a low-pressure reduction shaft by reduction gas that was generated by natural gas reformation and heating in a natural gas reformer. The iron ore pellets that are charged into the reduction shaft through feed pipes, are reduced to metallic iron by the reduction gas in counterflow, are discharged and finally briquetted to high-quality HBI. Due to the utilization of natural gas (and not coke as reducing agent as in the traditional blast furnace route), the process is considered to be environmentally friendly. As a result also carbon dioxide emissions are considerably reduced.

THE CUSTOMER
voestalpine Texas LLC is the local presence of the voestalpine group in the south of Texas and a 100% subsidiary of voestalpine AG.

With an annual steel production of 7.8 mtpy, voestalpine is the biggest steel producer in Austria. Headquartered in Linz/Austria, voestalpine has over 500 companies in 50 countries on 5 continents. The group itself has around 47000 employees and stands out for its high quality products and high sense of responsibility for the environment. It is one of the leading partners for Europe’s automotive sector and for oil and gas industries worldwide.

SCOPE OF SUPPLY
• Mechanics
  - Furnace feed conveyor
  - Hot briquetting system
  - Hot fines recycling system
  - Cooling conveyors and vapor removal system
  - Seal gas system
  - Utilities and water treatment plant
  - Natural gas reducing station
  - Air compressor station
  - Water treatment plant incl. sea water cooling towers
  - Raw water treatment (reverse osmosis)
  - Electric power distribution and emergency power supply
  - Medium voltage motors
  - Level 1 and Level 2 systems including material handling
  - Instrumentation
  - Motor control centers
  - Metallurgical services
  - Laboratory
  - Balance of plant
  - Maintenance cranes/hoists
  - Basic engineering buildings

PLANT DATA
Input | DR grade oxide pellets
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Annual capacity | 2 mtpy HBI
Reduction furnace inner diameter | 7.15 m
Number of reformer bays | 20
7 briquetting presses including DRI hot fines recycling | 2
HBI cooling conveyors | Sea water cooling circuit
Oxide coating system | Ferrous material briquetting system

Project specifics and advantages for the local community
- Jobs: 150
- Berberstone concrete: 1.6 million cu. ft. (45,300 m³)
- Mechanical equipment: 13,000 long tons (11,800 metric tons)
- Structural steel: 20,600 short tons (18,150 metric tons)
- Lab jobs: 800
- Construction jobs: 800
- Houses: 540,000 sq. ft. (50,200 m²)
- Neighborhood concrete: 1.6 million cu. ft. (45,300 m³)
- Mechanical equipment: 13,000 short tons (11,800 metric tons)
- Structural steel: 20,600 short tons (18,150 metric tons)
The information (including, e.g., figures and numbers) provided in this document contains merely general descriptions or characteristics of performance based on estimates and assumptions which have not been verified. It is no representation, does not constitute and/or evidence a contract or an offer to enter into a contract to any extent and is not binding upon the parties. Any obligation to provide and/or demonstrate respective characteristics shall only exist if expressly agreed in the terms of the contract. These estimates and assumptions have to be analyzed on a case-to-case basis and might change as a result of further product development. Primetals Technologies excludes any liability whatsoever under or in connection with any provided information, estimates and assumptions. The provided information, estimates and assumptions shall be without prejudice to any possible future offer and/or contract. Any use of information provided by Primetals Technologies to the recipient shall be subject to applicable confidentiality obligations and for the own convenience of and of the sole risk of the recipient.