

# ADCO, UNITED ARAB EMIRATES

Efficient operation in series



In September 2002 a Multiphase Pump System was commissioned in a remote satellite oil field in the south of Abu Dhabi. The pump system is used to boost the production from Huwaila HU-44 well to a crude oil gathering station in Bu Hasa over a distance of 27 km. Huwaila Field is an undeveloped oil reservoir, located in a harsh desert environment with a maximum ambient temperature of 55°C.

Due to the customer's **high differential pressure requirement** the pump skids contain two pumps in series. Next to higher differential pressure this allows for some 30 % less power than would be achieved by one pump only.

The Multiphase Pumps have been successfully used in pumping low viscosity crude oil. Multiphase Boosting with Twin Screw Pumps is a variable and cost-effective solution in developing smaller fields in the Middle East

#### TECHNICAL DATA:

Size of equipment:	2 MPC 208 in series
Uptime:	99 %
GVF:	up to 100 %
Volume of mix:	107 m <sup>3</sup> /h
△ pressure:	70 bar
Installed power:	2 x 250 kW

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# SAUDI ARAMCO, SAUDI ARABIA

A safe solution – with easy handling

In June 2008 Bornemann delivered a Multiphase Pump System to the Haradh Oil Field in Saudi Arabia.

The customer ordered a complete system including control container, drive train and double acting mechanical seals.

The Mobile Unit is powered by a diesel genset. As to ease handling for the customer Bornemann connected the skid and the control containers with plug connecting cables.

In order to ensure the highest level of safety the pump was completely manufactured out of Super Duplex, the perfect solution against corrosion and for the protection against hydrogen sulfide (H<sub>2</sub>S).



#### TECHNICAL DATA:

Size of equipment:	1 MPC 208
GVF:	up to 100 %
Volume of mix:	343 m <sup>3</sup> /h
△ pressure:	70 bar
Installed power:	160 kW

**Bornemann**  
**Pumps**

#### Joh. Heinr. Bornemann GmbH

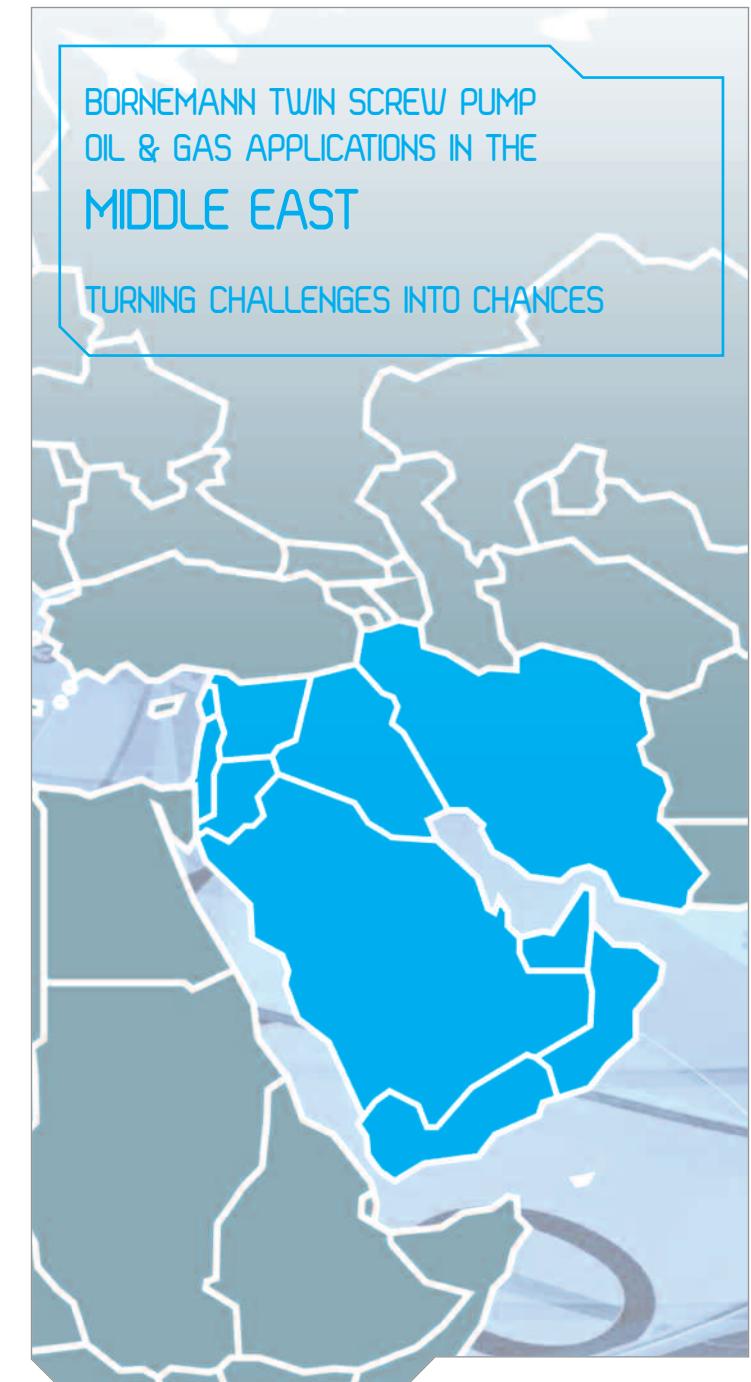
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BORNEMANN TWIN SCREW PUMP  
OIL & GAS APPLICATIONS IN THE  
MIDDLE EAST

TURNING CHALLENGES INTO CHANCES



**Bornemann**  
**Pumps**

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## GENERAL INFORMATION MIDDLE EAST



The Middle East countries are in disposal of the largest oil resources worldwide. Saudi Arabia and Iran are the oil-richest countries at all. The countries around the Gulf are promising supplies for the growing future demand for oil.

Within the following explanations Bornemann would like to provide an impression of a few **successfull applications** in:

- Iran
- Oman
- Saudi Arabia
- United Arabian Emirates

### Bornemann solutions in Middle East

Due to the region's importance for the worldwide oil and gas industry Bornemann has gained a lot of experience with numerous **Twin Screw Pump Oil & Gas Applications** in Up and Mid-stream in the Middle East.

Harsh desert environment, sand storms and other local conditions posed challenges to Bornemann which were solved with fitted solutions, optimised for the customer's special requirements.

## NISOC, IRAN

### Full efficiency and safety

Bornemann delivered five Multiphase Boosting Systems which were installed at the multiphase pumping station facilities for the Bangestani wells in June 2005. The Ahwaz N°4 multiphase pumping station is located in the southwest of Iran, approximately 150 km from the Gulf waters.



Besides the Multiphase Pump skids with a **3.3 kV electrical driving system**, the Bornemann scope of supply contained: control cabinets, instrumentation, medium and low voltage switch boards, Scada system, **fire and gas detection/fighting system** to assure the customer the highest possible degree of safety and reliability.

Four of the five pumps are running in parallel and one is kept on stand-by.



#### TECHNICAL DATA:

Size of equipment:	5 MW 8.5
GVF:	up to 96 %
Volume of mix:	2,072 m <sup>3</sup> /h
△ pressure:	25 bar
Installed power:	5 x 450 kW

## OCCIDENTAL MUKHAIZNA, OMAN

### Optimisation of production capacities

At the beginning of 2008 Bornemann supplied Twin Screw Pumps to the Mukhaizna Field in Oman's south central interior.

Despite the oil field holding enormous resources the oil production is decreasing. In order to reverse this trend Bornemann has been called up to join a project which is supposed to increase production.

Bornemann delivered five Twin Screw Pumps including variable speed drive systems, suction strainers as well as other accessories. Due to the high content of chlorides, H<sub>2</sub>S as well as CO<sub>2</sub> in the crude and to avoid corrosion, the pumps are completely made of **Duplex stainless steel**. Furthermore the pumps are designed for desert environment with its rough sand storms.

The crude oil is first collected in three satellite stations and then transported to the central station by these Bornemann pumps.

Bornemann is pleased to provide the Mukhaizna Oil Field with further effective pump systems in the future and to contribute to a successful development.



#### TECHNICAL DATA:

Size of equipment:	5 W 9.5
Capacity:	750 m <sup>3</sup> /h
24-h-Operation	
△ pressure:	22 bar
Installed power:	940 kW