








**GERMAN LEGACY**, a Joint Venture between BOREX Consult, Germany and Fluid Science Dynamics, Singapore (FSD). We combine the successful expertise of a group of German engineers, with the global presence and financial strength for large projects of FSD.

Our company is based near Obernkirchen also known as the home of Bornemann\* and the Twin Screw Pump Technology. Looking back to our history and with 150+ years of experience, we now build something special for you and your needs: **GERMAN LEGACY PUMPS**.






**GERMAN LEGACY** provides products, services and overall solutions for Twin Screw Pumps, Multiphase Boosting as well as engineered solutions for the Oil & Gas production. We offer reliable pumps and systems developed, engineered, and made in Germany.

Our solutions offer the most economical way to produce oil and gas from reservoirs, based on lifecycle costs. With local partners we reduce cost and localize service and operation, our vision of successful partnership! Our financing models eliminate CAPEX entirely.

### German Legacy at a Glance:

-  150+ years of experience in positive Twin Screw Pumps
-  Familiar with pump installations in virtually all branches from marine up to upstream oil field equipment
-  Single source supplier for pumps and artificial lifting equipment
-  Manufacturer of Twin Screw Pumps and engineered pump packages
-  Pump solutions MADE in GERMANY

### Our Mission:

-  Provide state of the art Twin Screw Pumps and solutions
-  Make multiphase technology a commonly used technology
-  Success by partnership, clients pay by produced oil!
-  Become the world leading multiphase solutions supplier
-  Maximize total recovery from Oil and Gas fields for future generations







## PRODUCTS-Overview

We provide pump solutions with our own pumps or as pump packages, made in Germany, by using components from well-known OEMs only. Whatever your task is, we find a viable solution.






For Twin Screw and progressive cavity pumps we provide drop-fit pumps for all Bornemann\* types.

German Legacy drop-fit pumps cover the requirements of a wide range of applications in:



-  Marine vessels
-  On- and off loading in tank farms
-  In refineries and process pumps of high temperature or viscosity
-  API conform installations in oil & gas industry

### DROP-Fit Solution for Bornemann\* Pumps

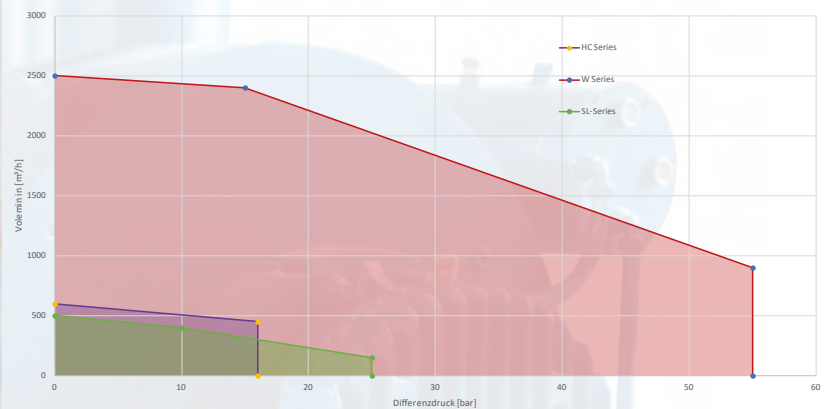
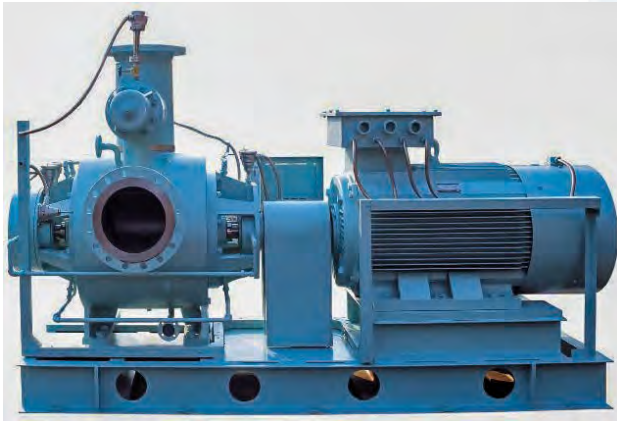
#### Twin Screw Pumps

-  W- and V-Series Sizes 5...10
-  HC-Series, sizes 147...232
-  SL-Series, sizes 80...125
-  MW-Series, sizes 7T...10
-  MPC- Series, sizes 208...400

#### Progressive Cavity Pumps




-  EH and EL-Series, sizes 164...6300
-  EU Series, sizes 164...1500

## Twin Screw Pumps



## Pump Solutions Water Re-injection

**GERMAN LEGACY** provides a various number of water reinjection pump packages. Depending on differential pressure and capacity we use different pump types:

-  Progressive Cavity Pumps
-  Piston Pumps
-  Multistage centrifugal pumps (similar to REDA\*)








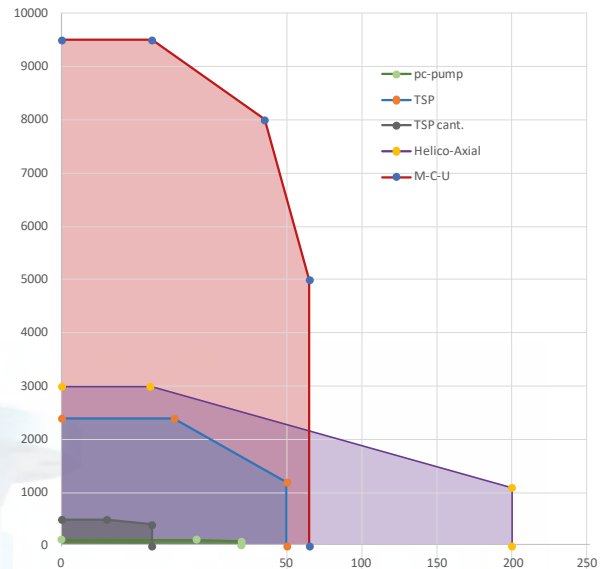
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## Multiphase Solutions

**GERMAN LEGACY** offers the widest range of Multiphase Solutions to meet any production figures available. We own the core technology of Twin screw and pc-pumps and provide most efficient solutions for:







-  Single well booster, based on pc-pumps or Twin Screw Pumps
-  Twin Screw Multiphase Pumps for production of clusters, satellite and marginal fields
-  Pump stations and Multiphase-Compression-Units for boosting of entire field production > 120.000 Am<sup>3</sup>/day (>4 MMACFD) per unit
-  Suitable for oil fields and wet gas compression (average GVF > 98 %)
-  Suitable for offshore wellhead platforms of limited space

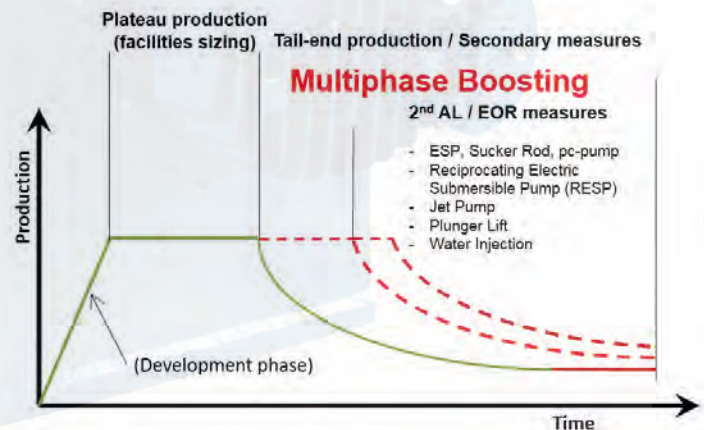


### Turn Key Supply

-  Multiphase Pump with driver on common baseplate
-  Piping with integrated liquid management
-  Instrumentation and local control panel on skid
-  Multicore cabling and power cables for connection to control cabinet / VFD
-  PLC based control system
-  Control cabinets

### Multiphase Systems supports 2<sup>nd</sup> AL-Solutions:

-  Sucker Rod Pumps
-  Electrical Submersible Pumps (ESP)
-  Reciprocating Electric Submersible Pumps (RESP)
-  Downhole PC-Pumps
-  Jet Pumps
-  Gaslift, preferable with M-C-U










## Multiphase Aided Field Development







**GERMAN LEGACY** targets a breakthrough in Multiphase Technology as it is the key technology to enhance the oil production either by itself or in combinations with secondary artificial lifting systems. Multiphase, as a primary technology enhances as well as extends the plateau production of a well.

With increasing lifetime and depleting reservoir pressure the production declines. At a certain level a 2<sup>ndary</sup> artificial lifting system for these now current production figures is required. This way each well receives an optimized support for maximized production and, even more important, maximized recovery rates.

### Benefits

-  Maximized oil production
-  Maximized recovery from reservoir
-  Optimization of each well possible
-  Suitable for new field and brown field developments
-  Higher uptime of installed equipment
-  Power requirements reduced by 50 %
-  Reduction of CAPEX and OPEX compared to pump manufacturer solutions

**GERMAN LEGACY**'s MAFD relies on a model where we take into account:

-  Production data from fields, clusters and single wells
-  Design of existing flowlines, connection points and well locations
-  Geographic data of fields
-  Well and well head design
-  Availability of utilities
-  Future demand of Artificial Lifting solutions

