

# NETZSCH Pumps North America

## Why NETZSCH PC Pumps ?

Progressive cavity pumping systems possess unique characteristics which can make them preferable over other pumping systems.

Their most important characteristic is high overall system efficiency. PC pumping systems typically exhibit overall efficiencies of 80 to 95%, which is higher than many of the other pump types.

Some additional advantages of PC pumping systems include:

- the ability to produce high viscosity fluids, large solids concentrations and moderate percentages of free gas;
- low internal shear rates which limit fluid emulsification by agitation;
- no valves or reciprocating parts to clog, gas lock or wear;
- low capital and power costs;
- relatively simple installation and operation as well as low maintenance;
- low profile and low noise surface equipment.

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Why NETZSCH PC Pumps ?

The most prominent limitations of the PCP are related with pump volume, pressure and elastomer compatibility with produced fluids.

The list below summarizes the current application limitations:

- limited production rates: maximum = 5,000 bpd;
- limited lift: maximum=7,850 ft;
- limited temperature capability: maximum = 260 F;
- sensitivity to fluid environment; elastomer may swell or deteriorate upon exposure to certain elements (i.e., H<sub>2</sub>S, CO<sub>2</sub>, Aromatic carbons)
- tendency of pump stator to sustain permanent damage if pumped dry even for short periods;

Regardless of the above limitations, NETZSCH has over 3,000 pumps producing water from shallow gas reservoirs.

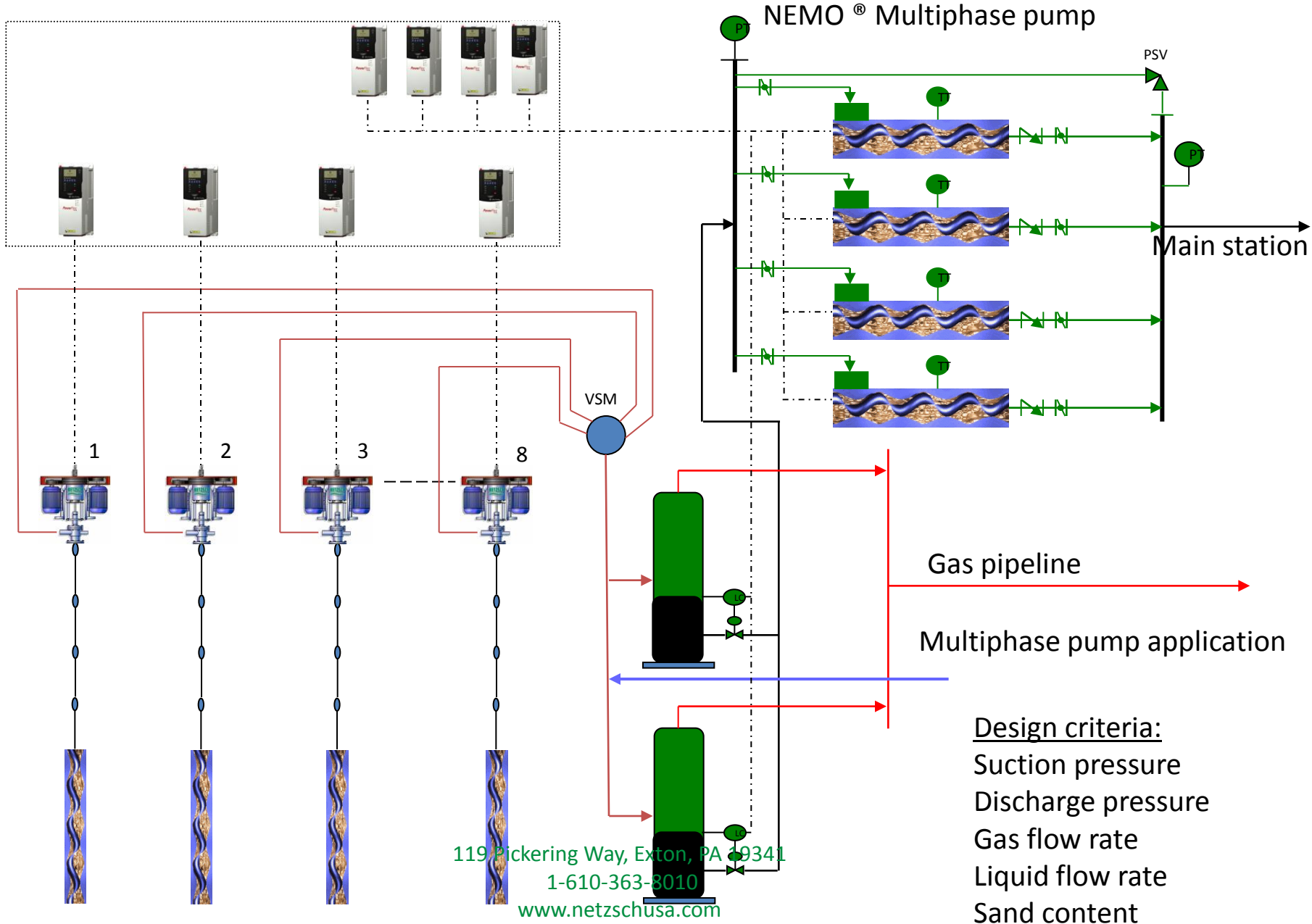
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# NETZSCH Pumps North America

## Typical Layout With Gas Separation



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Surface Pumping System

## NEMO<sup>®</sup> Multiphase Pump

Technical specification:

3500 b/d @ 1300 psi @ 95HP

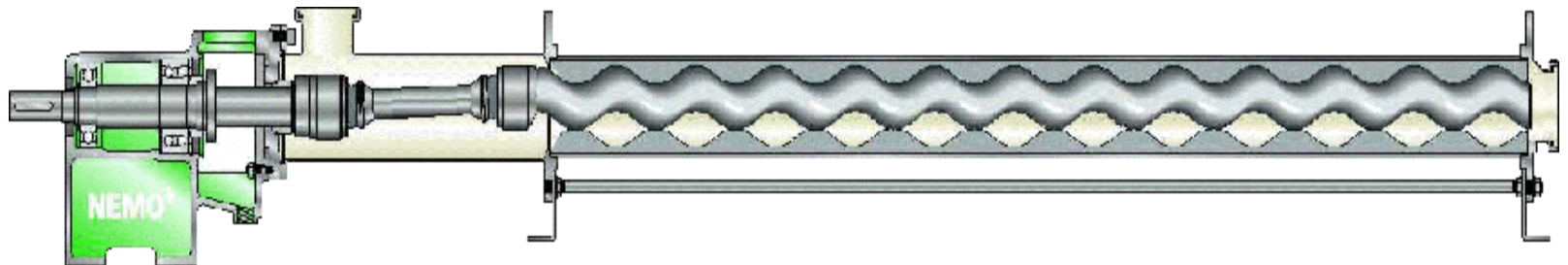
2000 b/d @ 2000 psi @ 100HP

1500 b/d @ 2600 psi @ 110HP

1000 b/d @ 3200 psi @ 75HP

Sealing system: Mechanical seal

Auxiliary system: Lubricating pump



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**NETZSCH Pumps North America**  
Surface Pumping System



Pump model: NM148SY03S18Z

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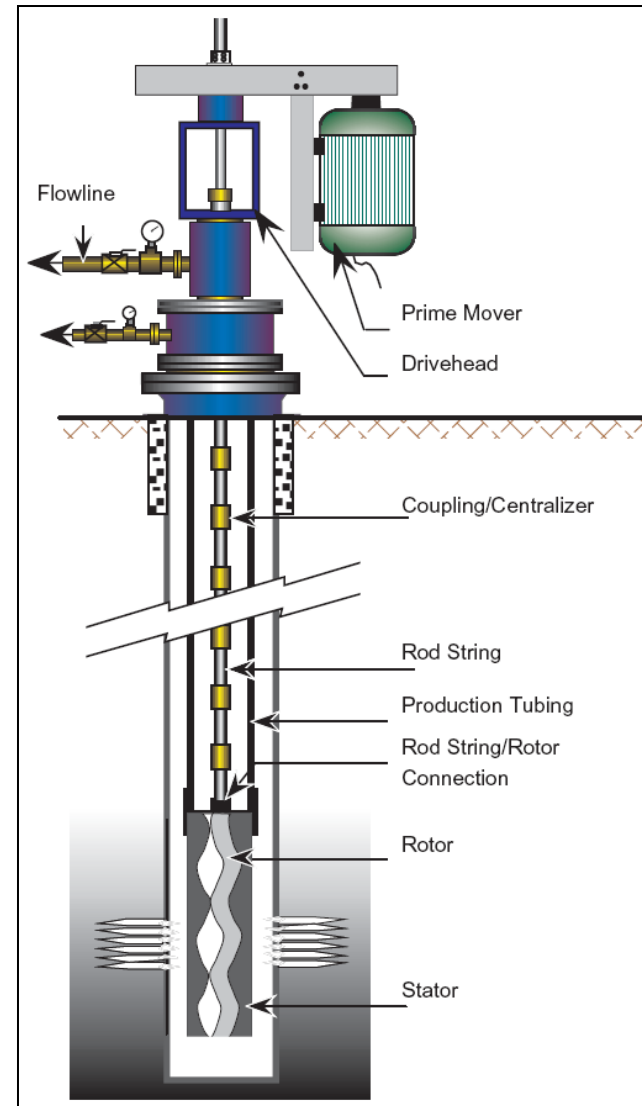
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## Downhole Pumping System

Top drive system: conventional PCP

Most PC pumping systems are rod-driven with the stator run into the well on the bottom of the production tubing, and the rotor connected to the bottom of the rod string.

To turn the rotor downhole, the rod string is rotated at surface by means of a hydraulic or direct drive power transmission.



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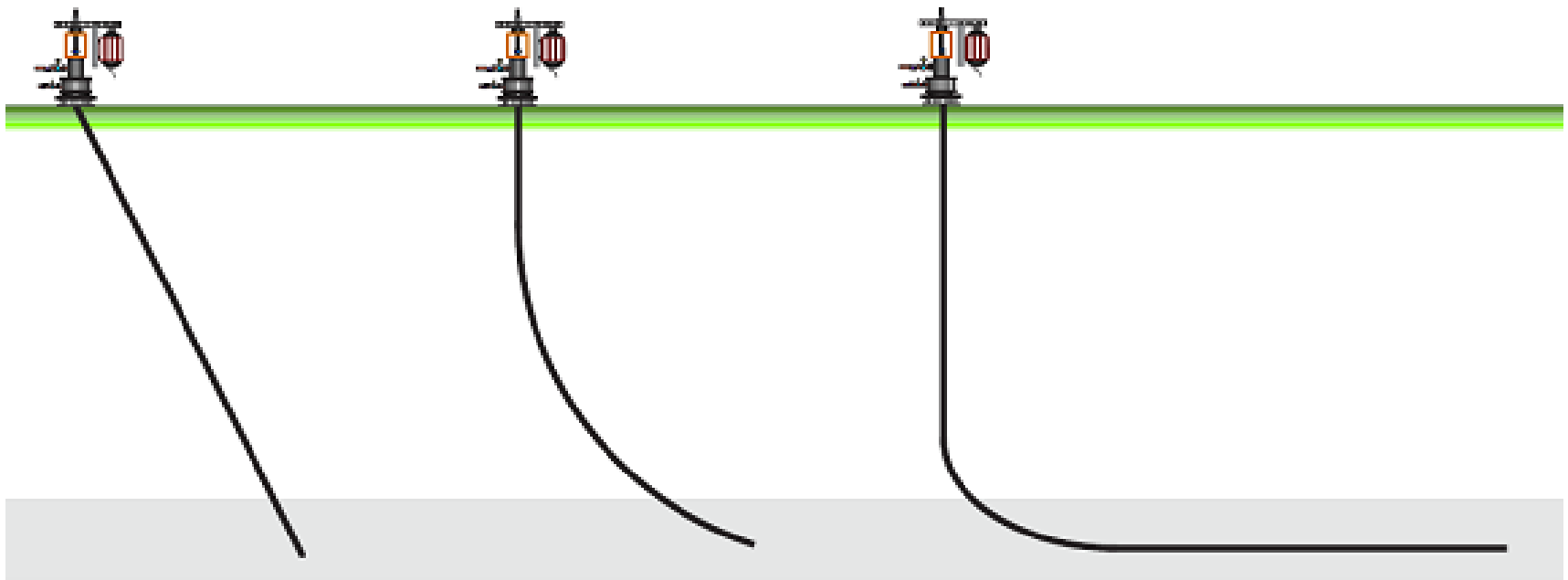
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Downhole Pumping System

Wellbore geometry:



**Slant**

**Deviated**

**Horizontal**

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Downhole Pumping System

NETZSCH Downhole Pumps

Technical specification:

10 b/d @ 1000 feet @ 0.5HP

100 b/d @ 1500 feet @ 1.75HP

500 b/d @ 2000 feet @ 11.0HP

1500 b/d @ 3000 feet @ 32.5HP

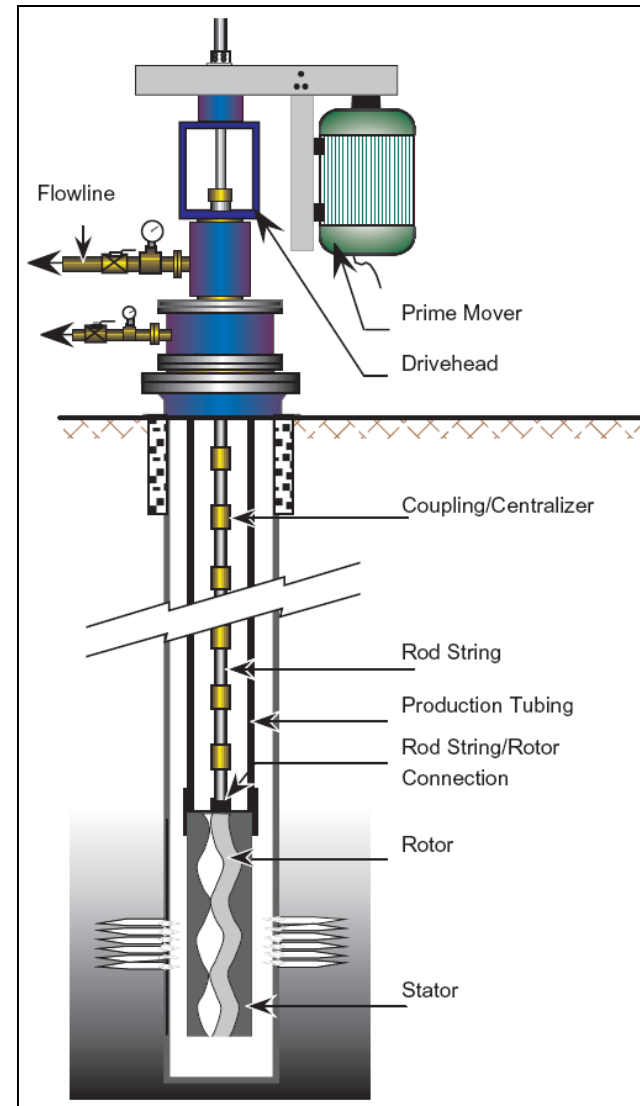
Accessories:

Surface Drivehead with Electric Motor

Flow Tee for Production Tubing

Rod Centralizers

Torque Anchors



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Downhole Pumping System



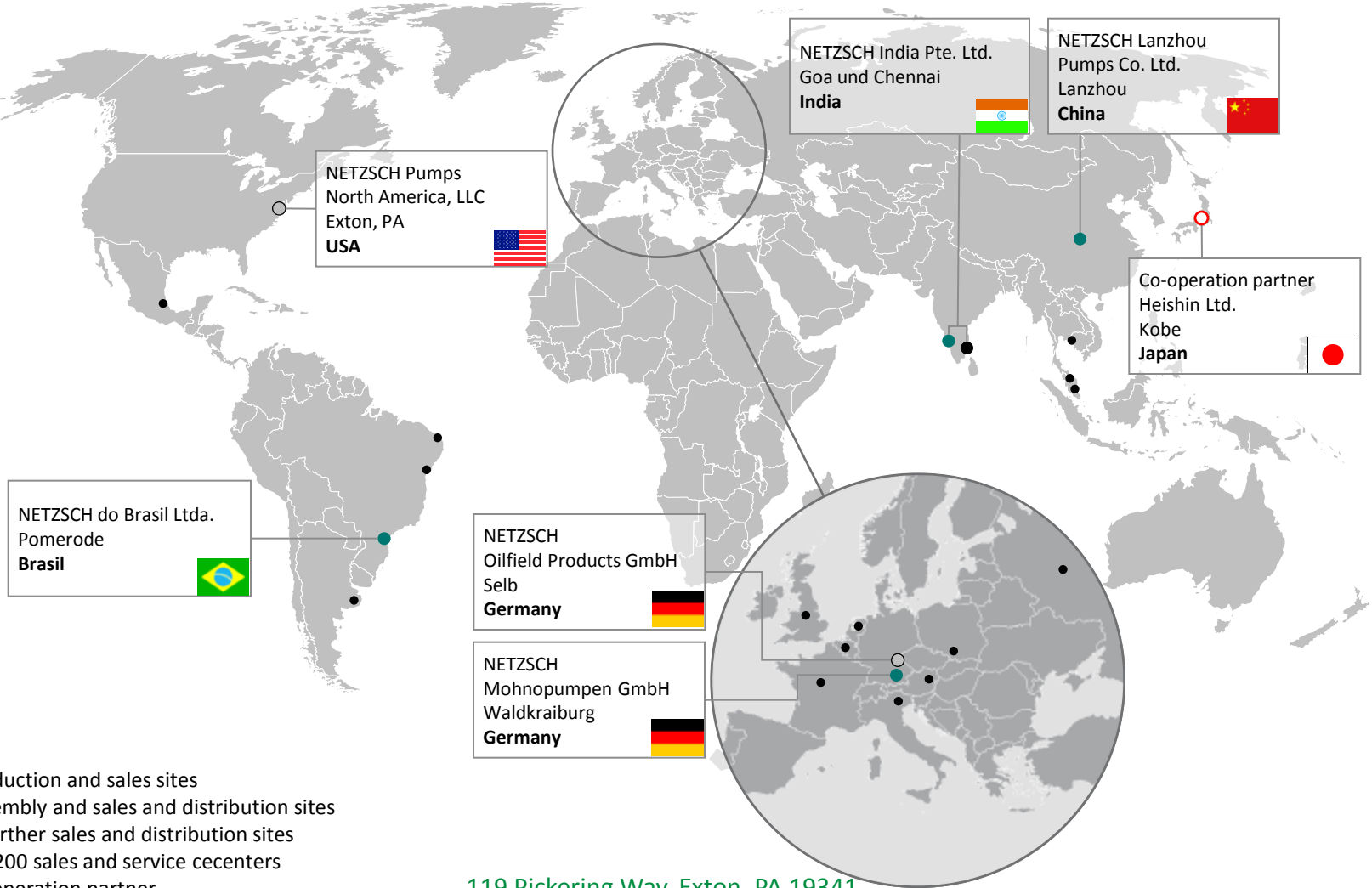
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# NETZSCH Pumps North America

## Production, Assembly and Sales Companies



- 4 Production and sales sites
- 2 Assembly and sales and distribution sites
- 16 Further sales and distribution sites
- Over 200 sales and service centers
- 1 Co-operation partner

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