

ENGINEERING
TOMORROW

Danfoss

Brochure | PAHT G pumps for Gas Turbines

Optimize the **TCO** of
gas turbines with **PAHT G**
high-pressure water pumps

Reduce

your complexity and
costs with Danfoss
PAHT G pumps

hpp.danfoss.com

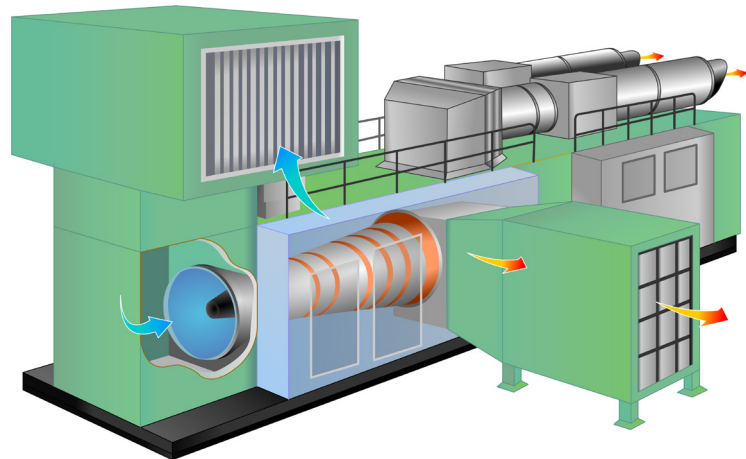
From **design to operation** of gas turbines - PAHT G pumps fit the purpose

Danfoss PAHT G axial piston pumps are tailored for use in gas turbines. From power augmentation to emission control, Danfoss PAHT G pumps deliver flawless operation and eliminate the need for expensive components in auxiliary systems.

Modular systems based on PAHT G pumps reduce the costs for redundancy and spare pumps. Furthermore, the design of the axial piston pumps is optimized for DI water, lowering service costs and downtime. The compact and lightweight pumps operate without oil to minimize maintenance costs and prevent contamination.



PAHT G pumps can be used to **optimize** the following **vital turbine processes**:



Cost-effective power augmentation

The PAHT G pump is a cost-effective choice for wet compression systems, which increase the turbine outputs by injecting water mist into the turbine compressor.

For wet compression systems with large flows, a modular system layout with PAHT G pumps improve the turn-down ratio. Furthermore, the modular layout reduces the costs for redundancy pumps and spare pumps.

Highly reliable NOx reduction

The PAHT G pump offers superior reliability and low system design costs of NOx systems, which lower the combustion temperature by injecting a fuel/water emulsion into the combustor at high pressure.

The water flow is controlled simply by regulating the shaft speed of the PAHT G pump; in addition, the linear flow output of the axial piston pump makes expensive control valves obsolete.

Boost power output by inlet fogging

Running thousands of hours without service, PAHT G pumps are designed to reduce the service cost and downtime of the inlet fogging process, in which a fine water mist in front of the turbine air filter augments the power output. The axial piston PAHT G pumps are optimized for operation with DI water.

Efficient fuel purge in dual-fuel systems

When switching from liquid to gaseous fuel, the fuel pipe and nozzle must be flushed with DI water to ensure that the fuel nozzle is clean. By using a Danfoss PAHT G pump, the flushing flow can be kept constant independent of the hydraulic resistance in the piping and valves.

Furthermore, the compact design of the PAHT G pump reduces the footprint of the purge water skid.

Low cost and high reliability with axial piston pumps

The axial piston PAHT G pumps present a number of advantages for turbine builders and operators. Among others:

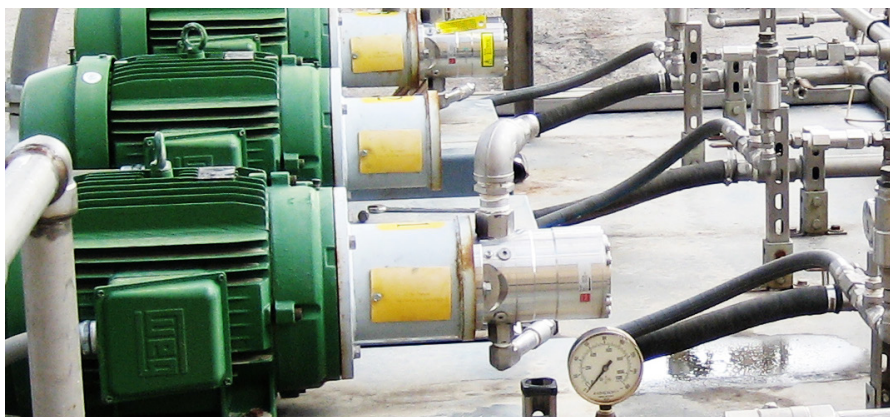
- Long service intervals - up to 20 times longer than other positive displacement pumps.
- Simple flow control by adjusting the pump's shaft speed due to the high volumetric efficiency of the pump.
- Low flow pulsations due to the high number of pistons inside the pump (5 to 9 pistons).

PAHT G pump range

| Pump | RPM | Flow | | | Outlet pressure | |
|------------------|-------------|--------------|-------------|-------------|-----------------|------------|
| | | l/min | kg/sec | gpm | barg | psig |
| PAHT G 2 - 6.3 | 1000 - 3000 | 0.7 - 8.6 | 0.01 - 0.14 | 0.3 - 2.7 | 30 - 100 | 435 - 1450 |
| PAHT G 10 - 12.5 | 1000 - 2400 | 7.6 - 16.5 | 0.13 - 0.28 | 2.5 - 5.3 | 30 - 140 | 435 - 2031 |
| PAHT G 20 - 32 | 700 - 2400 | 16.9 - 44.2 | 0.28 - 0.74 | 5.4 - 14.0 | 30 - 160 | 435 - 2320 |
| PAHT G 50 - 90 | 700 - 1800 | 43.7 - 122.6 | 0.73 - 2.04 | 14.0 - 38.9 | 30 - 160 | 435 - 2320 |
| PAHT G 256 - 380 | 450 - 1250 | 89.6 - 354.2 | 1.49 - 5.90 | 23.3 - 92.1 | 30 - 120 | 435 - 1740 |

Proven track-record in hundreds of turbines worldwide

The reliability and efficiency of Danfoss PAHT G pumps have been proven in hundreds of turbines around the world, optimizing the daily operation of power plants etc. The PAHT G pumps are applied in a wide range of turbine models from all major, turbine manufacturers.



Reduce Total Cost of Ownership



Before you configure your next water injection unit for a gas turbine, be sure to include a Danfoss PAHT G pump in your calculation of best total cost of ownership.



PAHT G benefits at a glance:

- Simple system design with few components improves turndown ratio, reduces downtime and lowers costs for redundancy and spare pumps.
- Linear flow output eliminates the need for control valves in auxiliary systems
- Optimized for operation with DI water, reducing the service costs and downtime of the PAHT G pumps
- Long service intervals and no oil change required due to the oil-free design of the pumps
- Proven track record of reliability
- ATEX approved pumps available

Danfoss High Pressure Pumps – we know your business

Danfoss High Pressure Pumps is a fast-growing division of the Danfoss Group. We work hard for our customers – from extensive presale solutions consultancy to ensuring on-time delivery and uncompromising after-sales service.

Customers benefit from Danfoss' industry-leading R&D resources and best-in-class quality systems, as well as its worldwide manufacturing, distribution and service networks. Based on Danfoss' decades of experience with developing pumps for critical applications, our division has pioneered the development of axial piston pump technology to bring all the advantages of positive displacement pumps to high-pressure applications like turbine inlet air cooling.

Global sales and service

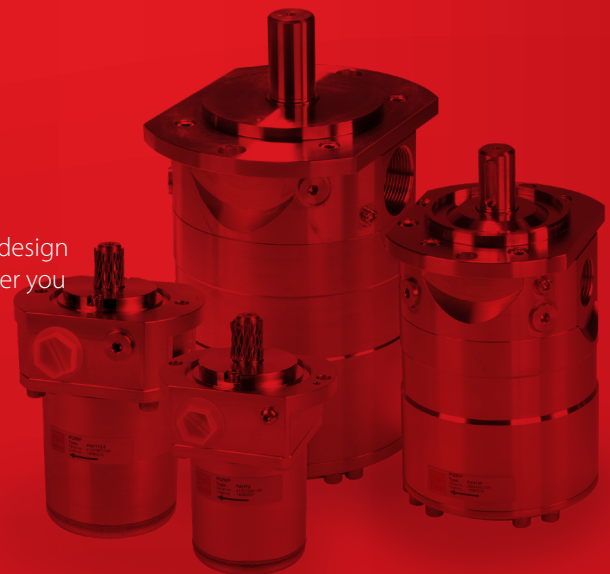
Danfoss High Pressure Pumps is a global pump supplier with sales and service offices throughout the world. We deliver and service our products and solutions quickly and reliably whether your application is fixed or mobile, on land or at sea. Wherever you are, we'll be there for you.



Ask the experts

Our dedicated team of experts are standing by to provide design support, technical expertise and customer service. Whatever you need to know about our solutions, we have the answers.

For more information, please visit hpp.danfoss.com



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