

## Data Sheet

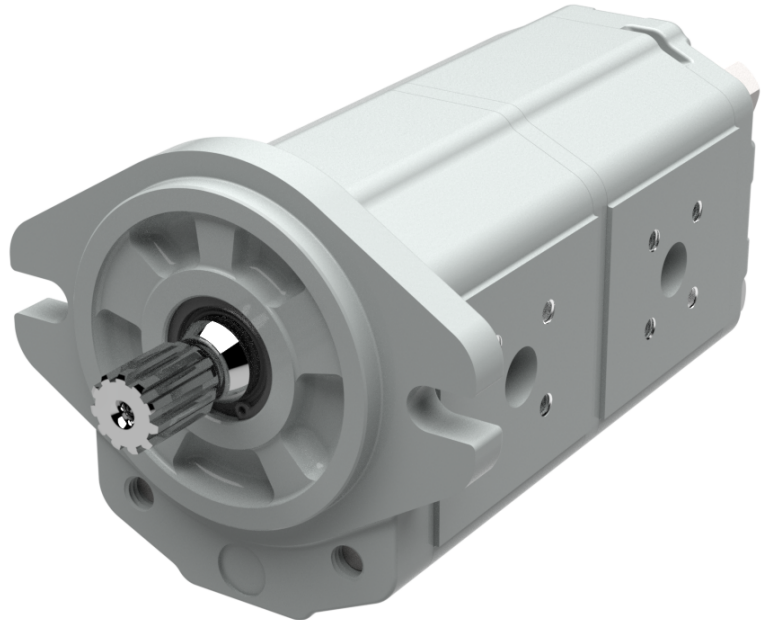
# Gear Pump

## shhark<sup>®</sup> Low Noise

In the mobile market, the requirement for low noise cabs is increasing for a variety of reasons:

- Noise regulations are becoming more demanding all over the globe to protect operator health and comfort
- Noise emitted is one of the key buying factors for end-users
- Electrification trend: as drivetrains in general get quieter, the noise emitted by gear pumps becomes more noticeable

Apart from the combustion engine and fan drive system, the steering pump is the most important source of noise in the cab. Low noise gear pumps are becoming an important tool for achieving operator noise requirements in off-highway mobile application. shhark<sup>®</sup> is the answer of Danfoss to this requirement.



### Features

The gears of the shhark<sup>®</sup> pump are covered by multiple Danfoss patents. shhark<sup>®</sup> innovative technology has almost twice the number of teeth of a standard gear pump of the same frame size and it has also a small helix angle, so that shhark<sup>®</sup> pumps are able to do the following:

- reduce the flow pulsation by a stunning 78%
- reduce the noise emissions by up to 10 dB(A) on average compared to standard gear pumps
- produce better sound quality than dual contact flank gear pump technologies because the frequency of noise emission is lower
  - The human ear is more sensitive to noise emitted at high frequencies, therefore the lower the noise frequency, the higher the sound quality
- achieve low noise and efficiency performance even after thousands of

hours of heavy duty operation in the field

- achieve higher efficiency than a standard gear pump due to a higher number of sealing teeth
- for the same external dimensions, shhark<sup>®</sup> pumps have a higher, more consistent output flow than a standard gear pump due to a higher average flow by 2.7%

### Advantages

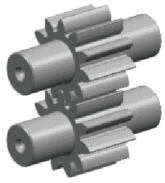
1. Higher sound quality than other low noise gear pump technologies → **better comfort for the operator**
2. Cost, weight and bulk savings by eliminating secondary noise reduction measures → **cost saving**
3. Helps meet legal NVH (noise, vibration, harshness) requirements → **noise regulation compliance**
4. Drop in compatibility with all Danfoss external gear pumps → **compactness**

5. For electric mobile machines, the noise emitted by the steering gear pump becomes more noticeable than for diesel engine machines, thus increasing the need for low noise gear pumps → **suitable for electric machines**

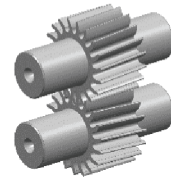
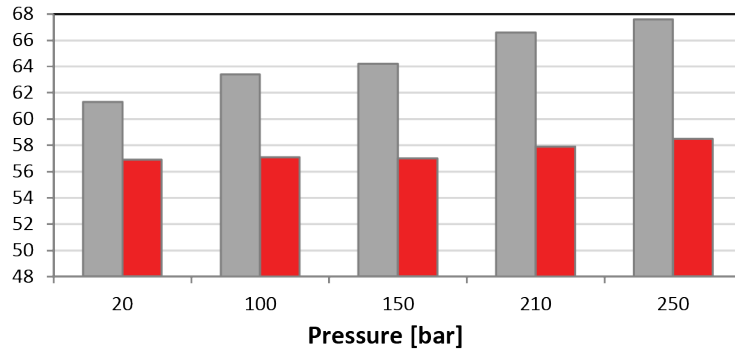
Comprehensive technical literature is online at [www.danfoss.com](http://www.danfoss.com)

**Noise level @ 3000 rpm 50°C**

Sound pressure [dB(A)]



standard



shhark®

■ Standard gear pump 11 cc    ■ shhark® 11 cc

**Typical applications**

- Tractors
- Wheel loaders
- Forklifts
- Telehandlers
- Indoor lift trucks
- Aerial work platforms
- Waste compactors
- Combines and harvesters
- Cab equipped mobile machines
- Hydraulic steering systems
- Hydraulic power packs



Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.