

# Universal cargo pump for high- and low-viscosity products

**LEISTRITZ** | Standard cargo screw pumps are typically unable to satisfactorily unload the full range of cargo viscosities in tanks deeper than 7 to 8m, the German pump manufacturer Leistrizt Pumpen GmbH points out. Deck installations of the pumps cannot provide the operating and suction conditions necessary to avoid cavitation effects during unloading and stripping, it says, adding that standard submerged pump types are normally unable to provide proper stripping and draining of the tank and suction lines.

To overcome this challenge, Leistrizt has developed a submerged cargo pump that is installed in a separate barrel usually hanging from the deck in the aft cargo tank. The installation does away with the need for a pump room. The barrel works as a large suction cham-

ber, providing the pump with additional suction ability.

Leistrizt cargo pumps have only one shaft seal (stuffing box or mechanical seal) to the atmosphere. They are suitable for handling hydrocarbon products and other viscous liquids, including slightly abrasive and corrosive fluids. Their special screw profile allows continuous, almost pulsation-free pumping of cargo liquids at low power consumption, Leistrizt says. When the barrel installation with the suction line flange connection is placed above the inlet to the pump, the entire pump is flooded by the pumped liquid even without tank filling levels. Due to this configuration, the pump handles entrained air and gases without vapour locking or losing prime.

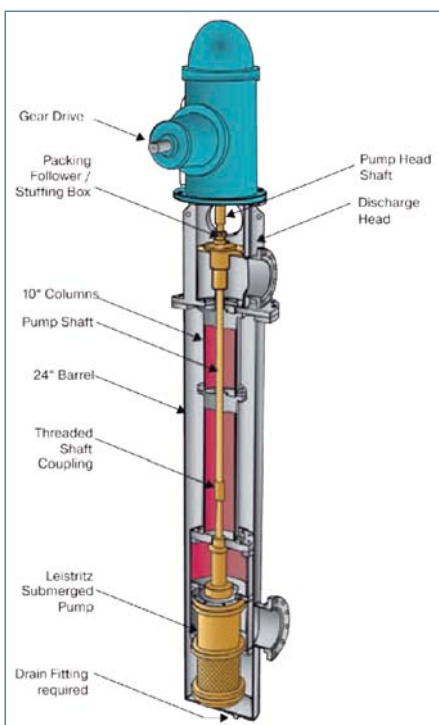
Leistrizt recommends that heating be provided for the

> OPERATING DATA	
Differential pressure range L2 pumps	max 16 bar (232 psi)
Differential pressure range L5 pumps	max 10 bar (145 psi)
Capacity L2 pump	max 900 m <sup>3</sup> /h (3,960 GPM)
Capacity L5 pump	max 1,700m <sup>3</sup> /h (7,500 GPM)
Viscosity	max 100,000mm <sup>2</sup> /s
Temperature	max 280°C (536°F)

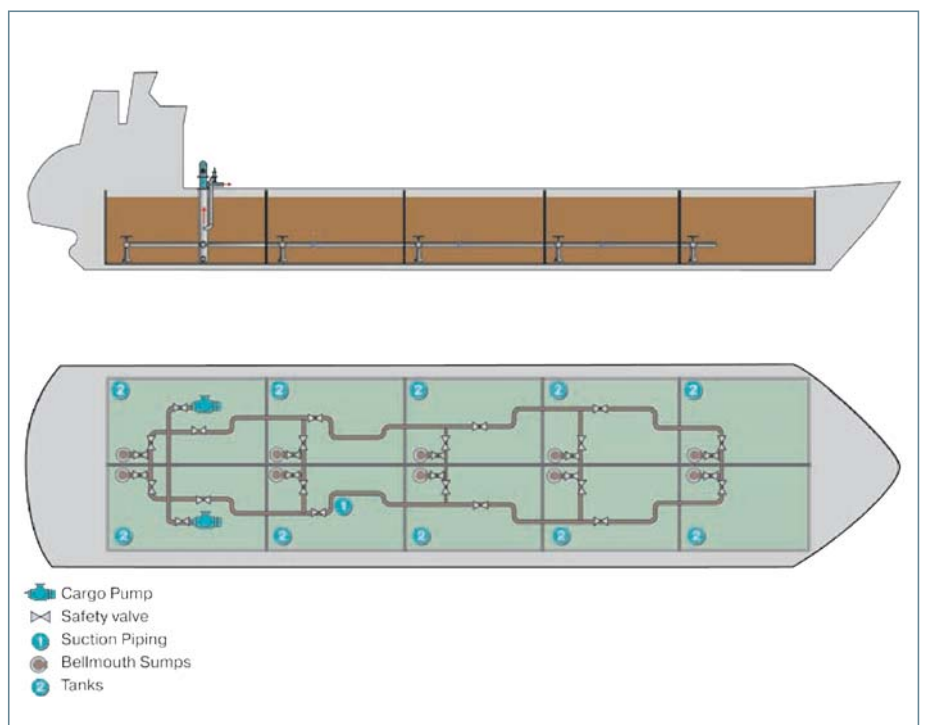
pump in asphalt operation using heating coils in the pump suction area in the barrel, and a heating jacket for the stuffing box. With at least two pumps normally installed in a barge, each can be designed with full unloading capacity to achieve system redundancy. Thanks to the layout of the suction piping system, each pump can service any of the cargo tanks. The pumps can be driven either by a diesel engine through a right-angle gear connected to the ver-

tical drive shaft or by an electric motor. The pump flow can be controlled by varying the pump speed. This helps strip the line and tanks to optimise the total cargo discharge time. An electric motor with frequency control can also be used.

Leistrizt says its cargo pump is up to 40% more efficient than a centrifugal pump. It can be supplied for both retrofits and newbuilds and is suitable for several viscosities ranging from kerosene to asphalts.



Drawing of the L5NT



Typical suction piping arrangement