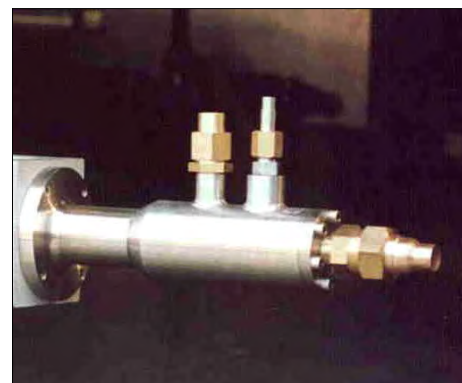
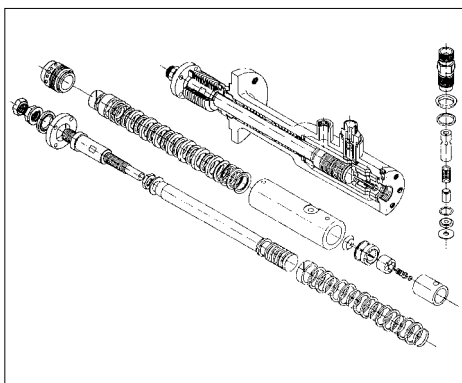
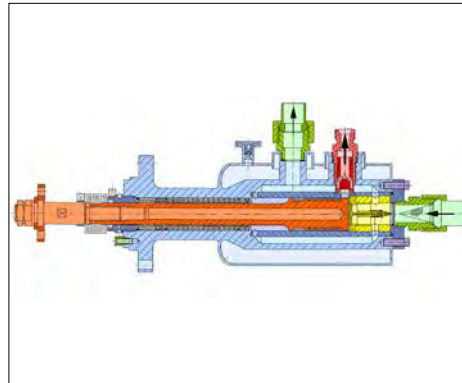
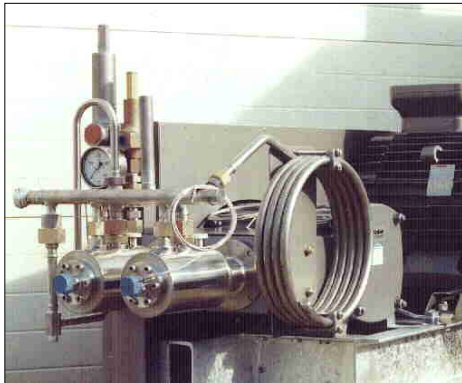
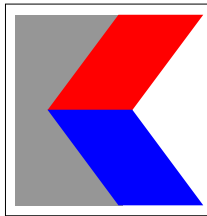


# TLC / TLA - High Pressure Pumps For Cylinder Filling

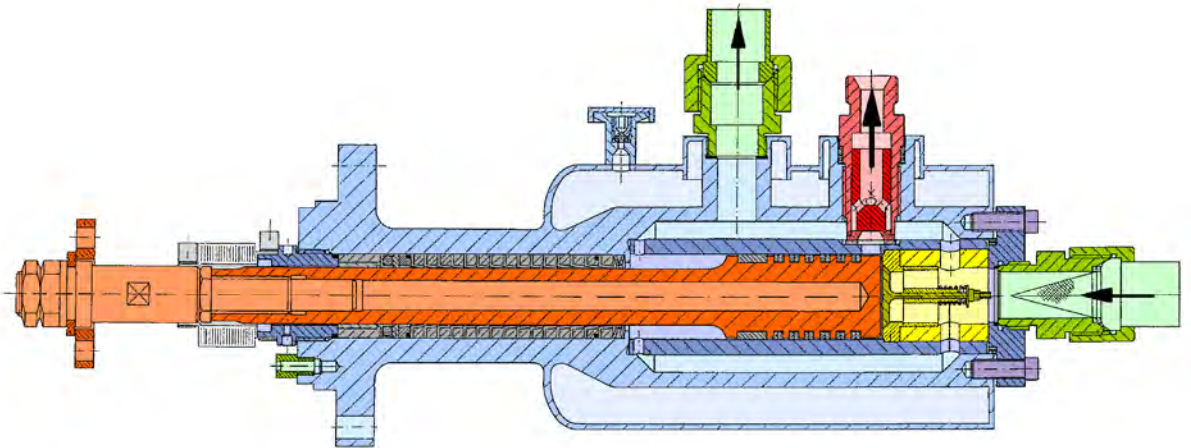


**KRYTEM**



## Krytem-TL- high pressure pumps

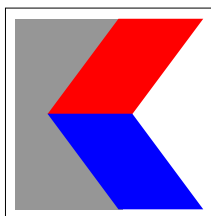
TL pumps are mainly used for high-pressure cylinder filling. A wide range of pump capacities is available corresponding to the usual filling pressures of 150, 200 and 300 bar and the most frequently required flow rates. Models for ultimate pressures up to 700 bar are available in the standard range. The non-insulated TLA models are intended for media such as CO<sub>2</sub> or N<sub>2</sub>O with transfer temperatures above -50°C; TLC pumps with fully effective vacuum insulation are used at low temperatures.



The inlet valve of TL pumps is located centrally in the direction of flow in front of the piston. The valve opens after the push stroke allowing the fluid standing behind it to flow into the cylinder. By carefully adjusting the inertial and reset forces on the pump components only slight pressure differences occur when the medium flows into the cylinder. Thus the danger of cavitation is reduced to a minimum.

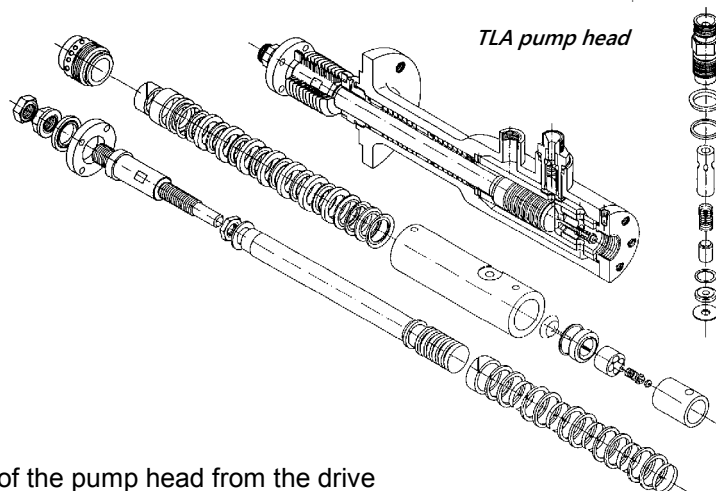
The transfer medium, heated by the absorption of frictional energy inside the pump, is circulated back to the tank without hindrance via the gas return located at the back. The extremely robust and wear-resistant design of the pressure valves makes for low maintenance costs and high operational reliability.

In the standard pattern, TL pumps are equipped with 45 or 60 mm stroke Type F-01 and DF-01 belt-transmission eccentric-drive units and are mounted, with the accessories, ready for connection, on a galvanised



steel frame. The design, consisting of two or three headed pumps coupled to DF-02 or triplex drive units, makes it possible to pump very large flow volumes even in the face of high ultimate pressures. The 30 mm stroke Typ LDE integrated transmission units can be used for smaller flow rates and/or reduced ultimate pressures.

TL pumps are available with speed controllers with or without explosion-protection construction for flammable or explosive discharge media.



### Design features:

- Structural separation of the pump head from the drive prevents any unacceptable contact between lubricant and discharge medium.
- Shear-ring coupling between the pump head and the drive protects the pump against unacceptable mechanical loading.
- The piston-rod seals are heated (TLC-type only) thus making it possible to stop without having to relieve the pressure and heating the suction side.
- PTFE bellow acts as additional protection for the piston rods against contamination from the outside and moisture from the atmosphere.
- Temperature-controlled warning system integrated in the pump head to protect against the unacceptable dispersion of cold due to leaks.
- Supervision of flow by means of a flow monitor on the pressure side.

*optional:*

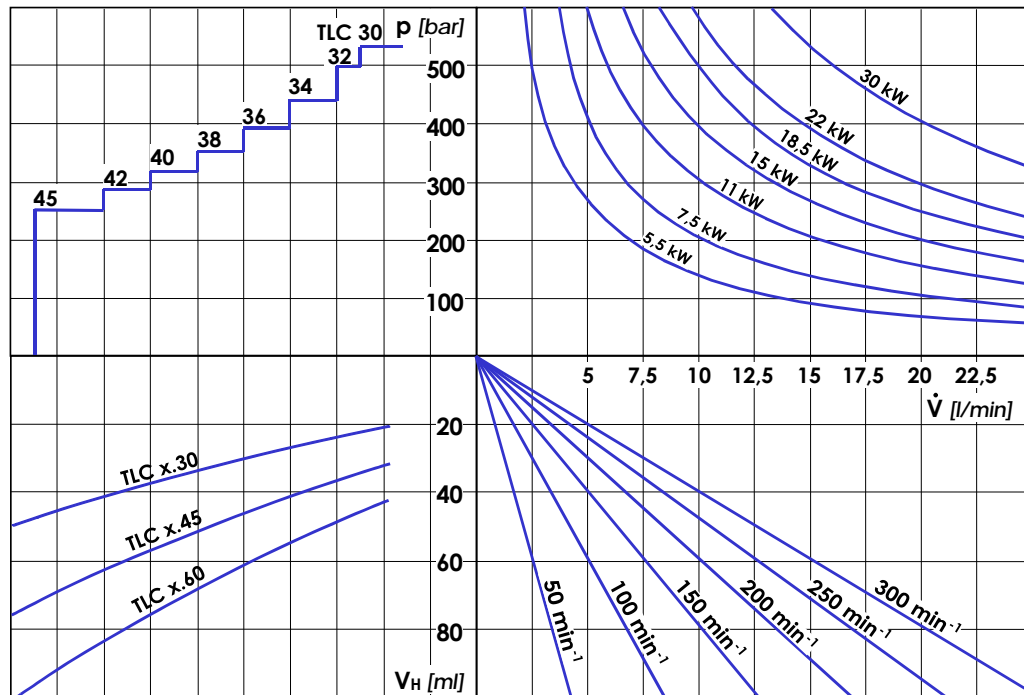
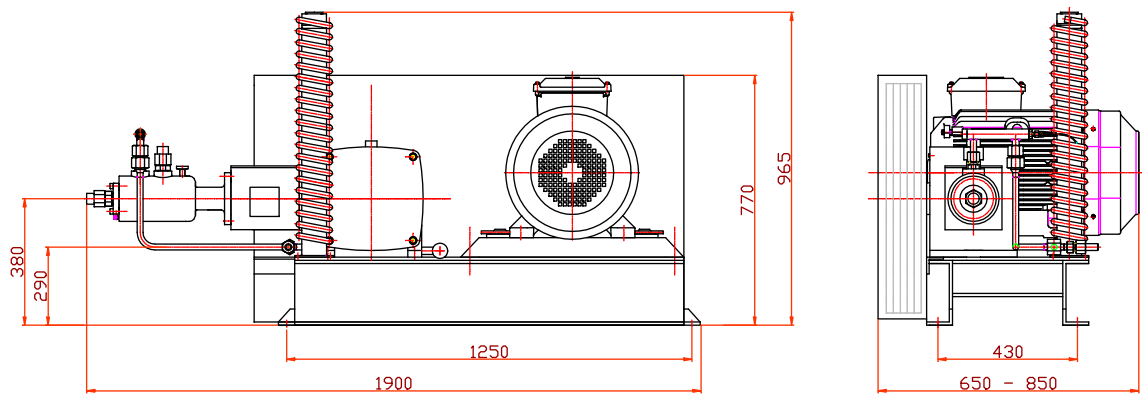
- Pulsation damping on the pressure side

Complete pump control set including automatic start routine (automatic valve control on suction side), stuffing box temperature control and dry running protection.



# Data sheet TLA / TLC

media	all cryogenic media		
temperature range	TLA: -80 ... -10°C, TLC(M): -200°C ... -50°C		
suction pressure	max. 25 bar		
$NPSH_{req}$	< 1 m @ 200 min <sup>-1</sup> (N <sub>2</sub> liquid, -196°C)		
crank drive gear type	LDE	F-01	DF-01
transmission	integr. worm wheel	V-belt drive SPA / SPB	
stroke	30 mm	45 mm	60 mm
max. piston force	20 kN	45 kN	
drive	squirrel cage TEFC-motor, ex-protection available		
type	B5	B3	
pump head design	single acting piston pump		
pump head materials	1.4301, 1.4541, 1.4571, PTFE / 2.4360 (monel)		
bore	26 / 31 / 32 / 34 / 36 / 38 / 40 / 42 / 45 / 48 / 68 mm		
max. discharge pressure	60 ... 300 bar	60 ... 700 bar	
capacity range	up to 5 l/min	5 ... 20 l/min	7 ... 27 l/min



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erstellt am / durch  
 12-11-12  
 bearbeitet am / durch  
 28-08-18 / mi - R04  
 Dateiname  
 KRYTEM TL pumps R04 08-18