

- Brief description:** Piston pump system with special nozzle design for fine oil-air mixtures.
- Main application range:** Internal MQL for single channel rotary union, lower and middle rpm
- Operating principle:** The piston pumps transport the liquid from the supply reservoir to the hybrid nozzle which sprays the air-oil mixture through the rotary transmission leadthrough. If requested, the hybrid nozzle can extend into the rotary transmission leadthrough and the spindle.
- Adjustability:** Swept volume (manual), clock frequency of the pump (manual), quantity of spray air (manual), quantity of casing air (manual), switch on/off via actuation control device/ drive (electric, pneumatic or manual)



With Toolmat<sup>®</sup> T70 the proven piston pumps provide for an exactly selectable flow rate. The spray grade can be determined via the spray air. The saturation of the mixture can be adjusted via the casing air. In the Vario3 and Vario7 versions, 3 or 7 pre-settable oil quantities can be selected.

The hybrid nozzle is principally delivered flush-mounted to the 3/8" thread connection at the end of the feed tube. So it is possible to mount the Toolmat<sup>®</sup> T70 at any appropriate connection.

If possible, the hybrid nozzle may project out of the 3/8" external thread connection for a certain length so that the body (Ø5mm) of the hybrid nozzle extends through the axial rotary transmission leadthrough into the spindle. This more complex installation pays off by better spraying results thanks to the shorter distance to the cooling channel outlet.



## System components:

### 1. Base / Base addition

- Pneumatically driven, finely meterable **piston pump** ① with double flow volume (2DF) with FPM seals, manually adjustable volume dial ③ (0 - 0.06 ml per stroke). Vario3 and Vario7 variations have piston pumps with simple flow (0 - 0.03 ml per stroke), individually adjustable.
- **Ventilation unit** ② integrated underneath the pump module.
- **Frequency generator** for pump pulses, manually adjustable 0 - 90 stroke min<sup>-1</sup>.
- Dedicated **air valve** to determine spray air quantity.
- Dedicated **air valve** to determine casing air quantity.
- **Manometer** (0 – 10 bar) in the door front to indicate spray air pressure.
- Coupler plug for compressed air supply on left side of housing.
- **Air filter** / water separator with drainage opening on underside of housing.
- High grade push in/screw fittings / pneumatic tubes.
- Stable, compact **metal housing** (250x250x210 or 300x250x210) with robust metal closer and door seal for dust protection and noise reduction, earthing pin.
- Connection for feed tube on the left side of housing.
- **Component labelling** in accordance with the designations in the pneumatic connection diagram.



Fig.: Pump module T70

2. **Reservoirs** from 2.0 to 27 litres available (details, variations and data: see **Lubrimat<sup>®</sup>**, on page 9).

### 3. Drive electric, pneumatic or manual option:

- Solenoid valve 3/2 way (1300 NI/min) with auxiliary actuation (for occasional manual switching on/off). Coil with plug in 24V DC, 24V AC, 110V AC or 230V AC. Cable bushing on left side of housing. Vario3 and Vario7 also offer separate actuation control of each pump via a solenoid valve.
- Pneumatic valve 3/2 way (1300 NI/min). With push in connection Ø6 for control air on the left side of housing.
- Hand valve 3/2 way (600 NI/min) as valve rocker on the right outer side of housing.

### 4. Feed tube

- Feed tube with Ø16 external tube with robust metal sleeve, two internal tubes for lubricant and air supply, constructed of PTFE Ø3. Standard length 3,000, non-standard lengths up to 20,000 available on request.

### 5. Nozzle

- HY: hybrid nozzle flush with the 3/8" external thread connection at the end of the feed tube.
- HY...: hybrid nozzle projects ...mm out of the 3/8" external thread connection at the end of the feed tube.

### 6. Option

- 4 x round magnet Ø80 (mounted on the reverse side) for easy installation of the housing.
- 4 x mounting straps (mounted on the reverse side) for fixed installation of the housing.

### Technical Data:

Operating pressure	bar	5 - 8
Liquid throughput	ml/h	0 - 300 <sup>1)</sup>
Typical consumption	ml/h	20 - 50 <sup>1)</sup>
Lubricoolant		Lubrimax® and others
Recommended viscosity	mm <sup>2</sup> /s (at 40°C)	1 - 50
Dimensions (HxWxD)		
Housing (without reservoir)	mm	250 x 250 x 210 (Standard and Vario3) 300 x 250 x 210 (Vario7)

<sup>1)</sup> depending on application, medium used, viscosity and temperature

### Order codes:

<b>0. Base</b>	T70	MQL for internal lubrication, hybrid nozzle on feed tube
<b>1. Base addition</b>	/1 /1V3 /1V7	(for 1 nozzle, standard) (for 1 nozzle, Vario 3 = 3 pre-adjustable settings for the oil quantity) (for 1 nozzle, Vario 7 = 7 pre-adjustable settings for the oil quantity)
<b>2. Reservoir</b>		(2.0 to 27 litres available, for order code see Lubrimat, page 12)
<b>3. Drive</b>	E...V.. PV3 H3	electric (24V DC, 24V AC, 110V AC oder 230V AC) pneumatic hand actuated
<b>4. Feed tube</b>	ZM3000 ZM.....	feed tube, metal outer Ø16 / inner 2 x PTFE Ø3, L=3,000 (standard) feed tube, L=.... (non-standard length, min. 500, in increments of 500)
<b>5. Nozzle</b>	HY HY...	hybrid nozzle flush (standard) with the 3/8" external thread connection hybrid nozzle projects ...mm out of the 3/8" external thread connection
<b>6. Option</b>	RG MG	housing mounting 4 x round magnet Ø80 housing mounting 4 x mounting straps

**Sample order code:** T70/1 - P2NC - E24VDC - ZM3000 - HY - RG

