

- Brief description:** Aerosol booster with piston pumps and PRO-CYCLON[®] technology to produce fine oil-air mixtures.
- Main application range:** Internal MQL for single channel rotary union, middle and upper rpm.
- Operating principle:** A piston pump sprays the oil from the supply reservoir into a spray chamber. Coarse drops are filtered out in the upper separation chamber to produce a fine, homogenous aerosol mixture. This is transported via the feed tube to the rotary union.



- Adjustability:** Pump swept volume and frequency (manual), quantity of spray air (manual), quantity of additional air (manual)
- At basic version C30/1:** Simultaneously switch on/off of the spray nozzle and the additional air (machine-controlled)
- At full version C30/1 V7:** Separated switch on/off of the spray nozzle1, the spray nozzle2 and the additional air (each machine-controlled)



In the case of internal lubrication only the finest drops are able to get through as the centrifugal forces inside the spindle eject the bigger oil droplets. The Centermat[®] C30 utilizes this effect through its use of PRO CYCLON[®] technology. Coarse droplets are separated in the Centermat[®] C30 early on and transported back to the supply reservoir. The smallest droplets in the μ -range that remain form a fine, stable aerosol Mixture which is transported to the drill holes in the machine tool all the way through the feed tube, rotary union and spindle.

The basic version C30/1 provides one spray nozzle in the spray chamber and is designed for tools with a total channel cross section of **1.0 to 10 mm²**. Suitable for applications where the tools have similar channel cross sections in the above mentioned range.

The full version C30/1 V7 provides two independent spray nozzles in the spray chamber and is designed for tools with a total channel cross section of **1.0 to 10 mm²**. Suitable for applications where the tools have a wide range of total channel cross sections. The additional air can also be switched on/off separately and this can be used for particularly large tools or for blowing-out.

Querschnitt in mm ²	Ø der Kanäle (mm) bei Anzahl:			Empfehlung		
	1 Kanal	2 Kanäle	3 Kanäle	C30/1	C30/1V7	Minidüse
0,2	0,5	0,4	0,3	-	-	+
1,0	1,1	0,8	0,7	+	+	+
2,0	1,6	1,1	0,9	+	+	+
3,0	2,0	1,4	1,1	+	+	+
5,0	2,5	1,8	1,5	+	+	-
10	3,6	2,5	2,1	+	+	-
60	8,7	6,2	5,0	-	+	-
120	12,4	8,7	7,1	-	+	-

Tabelle: Empfehlung abhängig vom Werkzeugkanal-Querschnitt

For applications with a total channel cross section of 0.2 to 3.0 mm² a special mini spray nozzle is available on demand.

Technical Data:

Operating pressure	bar	5 - 8
Typical air consumption	NI/min (at 5bar)	C30/1: 40 – 130 / C30/1 V7: 40 - 160
Typical oil consumption	ml/h	10 – 30 ml/h ¹⁾
Lubricoolant		Lubrimax [®] and others
Recommended viscosity	mm ² /s (at 40°C)	1 - 50
Housing Dimensions (HxWxD)	mm	500 x 300 x 210
Feedtube diameter	mm	Ø 12

¹⁾ depending on application, medium used, viscosity and temperature

System components:

1. Base / Base addition

At basic version C30/1: One pneumatically driven, finely meterable piston pump to feed one spray nozzle in the spray chamber.

At full version C30/1 V7: Two pneumatically driven, finely meterable piston pumps to feed two spray nozzles in the spray chamber.

The following components are for both version identical:

- Piston pumps with FPM seals, manually adjustable with scale indicator, volume 0 - 0.03 ml per stroke.
- Spray nozzles with dedicated **air valve** with manometer (0 – 10 bar) to set spray air quantity.
- Dedicated air valve with manometer (0 – 10 bar) to set quantity of additional air.
- **Ventilation unit** integrated on the side of the pump block.
- **Frequency generator** for pump pulse, manually adjustable 0 - 90 stroke min⁻¹.
- **Manometer** (0 – 10 bar) in the door front to indicate reservoir pressure.
- Pneumatic **pressure switch** to switch off nozzles in case of pressure build up including **visual display unit** in the door front. Automatic **ventilation valve** with hand actuation.
- Coupler plug NG8 for compressed air supply to left side of housing.
- **Air filter** with integrated water separator and drainage opening on underside of housing.
- Robust, compact **metal housing** 500x300x210 with robust metal closer and door seal for dust protection and noise reduction, earthing pin, 4 mounting straps for wall mounting of the housing.
- Connection for feed tube with push-in coupler Ø12 on the upper side of housing.

2. Reservoirs

- Aluminium reservoir, 1.5 litre inside housing with float switch min (potential-free either NC or NO).
- Hand pump for filling the reservoir and funnel tube.
- Visual fill level display in door front.

3. Drive

At basic version C30/1: One solenoid valve for the spray nozzle and the additional air together.

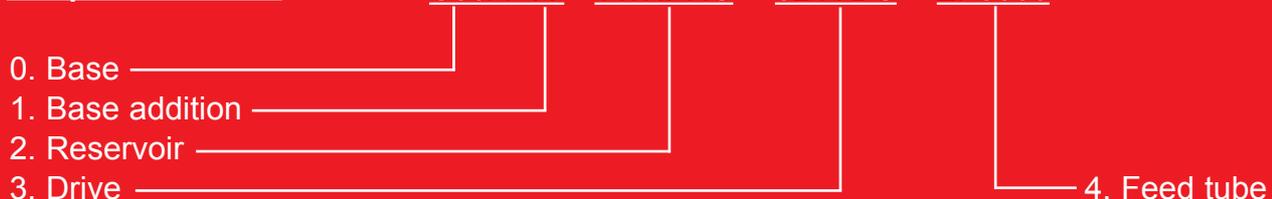
At full version C30/1 V7: Two solenoid valves for the two spray nozzles, one for the additional air. Each solenoid valve is 3/2 way (120 NI/min) with auxiliary actuation (for occasional manual switching on/off). Coil with plug in 24V DC, 24V AC, 110V AC or 230V AC and cable bushing.

4. Feed tube (PUN Ø12) Standard length 3,000, non-standard lengths up to 15,000 available on request.

Order codes:

0. Base	C30	MQL for internal lubrication
1. Base addition	/1	basic version with 1 spray nozzle (cross section of 1.0 to 10 mm ²)
	/1 V7	full version with 2 spray nozzles (cross section of 1.0 to 120 mm ²)
2. Reservoir	A1HPNC	1.5 litre aluminium with hand pump and float switch min NC
	A1HPNO	1.5 litre aluminium with hand pump and float switch min NO
3. Drive	e...V..	electric (24VDC, 24VAC, 110VAC oder 230VAC)
4. Feed tube	ZP3000	feed tube PUN Ø12, L=3,000 (standard length)
	ZP.....	feed tube, L=.....(non-standard length, min. 500, in increments of 500)

Sample order code: C30/1 V7 - A1HPNC - e24VDC - ZP3000



- 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® 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® 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⁻¹.
- 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®**, 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 ¹⁾
Typical consumption	ml/h	20 – 50 ¹⁾
Lubricoolant		Lubrimax® and others
Recommended viscosity	mm ² /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)

¹⁾ depending on application, medium used, viscosity and temperature

Order codes:

0. Base	T70	MQL for internal lubrication, hybrid nozzle on feed tube
1. Base addition	/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)
2. Reservoir		(2.0 to 27 litres available, for order code see Lubrimat, page 12)
3. Drive	E...V.. PV3 H3	electric (24V DC, 24V AC, 110V AC oder 230V AC) pneumatic hand actuated
4. Feed tube	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)
5. Nozzle	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
6. Option	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

