

### FEATURES

- > Dual spring-loaded occlusion for maximum tube lifetime and accuracy
- > Easy tube loading with one movement
- > Usage of bridged tubing
- > Stepper motor
- > Controller board available

### TYPICAL APPLICATIONS

- > Transfer of fluids in analytical and biopharma processes
- > Dispensing of reagents in in-vitro diagnostics (IVD)

### BASE MODEL

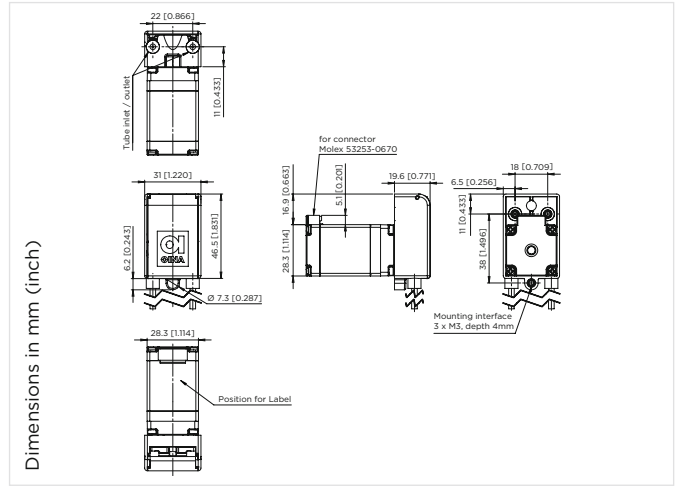


Peristaltic

# ETL200

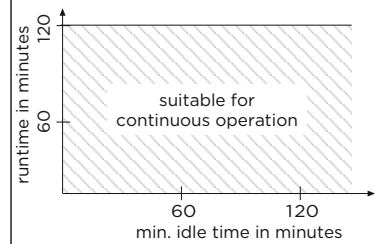
**24 V DC with stepper motor**  
**Circuit board recommended for test purposes**

**Flow** **0 - 60 ml/min**



Hydraulic performance & order numbers	Flow/revolution ml/rev	Min. Flow @ 0.15 rpm ml/min	Max. Flow @ 400 rpm ml/min
Pharm-A-Line™ 1.0 x 1.05 mm Part number 59005820	0.04 ml/rev	0.006	16
Pharm-A-Line™ 2.0 x 1.05 mm Part number 59005810	0.12 ml/rev	0.018	48
Pharm-A-Line™ 2.5 x 1.05 mm Part number 59005800	0.15 ml/rev	0.0225	60

## Drive: Stepper motor



Electrical Data	
Motor type	Stepper motor, stepping angle 1.8°
Nominal voltage	24 V DC
Motor speed	0.15 - 480 rpm
Max. recommended motor speed intermittent operation	400 rpm
Max. recommended motor speed continuous operation	200 rpm
Max. current consumption	1100 mA (with optional controller board)
Motor insulation class	B
Inductance at 1 kHz, 1 V	5.1 mH
Winding resistance	7.2 Ω

General Data	
Max. suction height	9 m H <sub>2</sub> O
Max. pressure height	20 m H <sub>2</sub> O
Max. ambient temperature	40 °C
Media temperature	50 °C (short t. 90 °C)
Ambient temperature	5 - 40 °C
Media temperature	5 - 80 °C
Weight	250 g

Duty cycles	
Tube lifetime	
Pharm-A-Line™	3500 h <sup>1)</sup>
Drive	
Stepper motor	10000 h

<sup>1)</sup> tested at 100 rpm

Options	
6 roller configuration for low pulsation	
Silicone tubing	
Drive kit (incl. controller board, motor connection cable, power cable, manual) - part number 39999800	
Manual potentiometer with cable - part number 39999890	

## Spare parts ETL200

### Tubing



Tubing	Inner diameter (ID) x wall thickness	Part number	Stopper colour
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Pharm-A-Line™	1.0 x 1.05 mm	59999020	White
Pharm-A-Line™	2.0 x 1.05 mm	59999010	Purple
Pharm-A-Line™	2.5 x 1.05 mm	59999000	Purple/Orange

# General Tubing Information

Tubing Properties	
Tube	Characteristics
Pharm-A-Line™	High quality for medical, laboratory and research use Homogeneous structure and therefore comparatively better chem. resistance Autoclavable Biocompatible Long lifetime

Choice of tubing depending on flow medium		
Pharm-A-Line™		
Acids	weak medium strong	very good good not recommended
Alkaline solution	weak medium strong	very good very good good
Hydrocarbons	aliphatic aromatized halogenated	not recommended
Standards/physiological behaviour		USP, class VI ISO 10993 Parts 4, 5 FDA (21 CFR 177.2600)
Chemical structure		thermoplastic elastomer on PP-Basis

# Chemical Compatibility

Chemical Resistance of Tubing Materials								
N = Novoprene    Nor = Norprene*    Ph = PharMed BPT / Pharm-A-Line™    S = Silicone								
	N	Ph/Nor	S		N	Ph/Nor	S	
Acetaldehyde	C	C	C	Hydrogen peroxide	A	A	C	
Acetate	C	B	D	Hydrogen sulphide	A	A	C	
Acetic acid	A	A	A	Isopropyl alcohol	A	B	A	
Acetic anhydride	A	A	C	Jodine	A	A	C	
Acetone	C	C	A	Kaliumhydroxyde	A	A	C	
Aluminium chloride	A	A	D	Ketones	C	C	-	
Aluminium sulfate	A	A	A	Lactic acid	A	A	C	
Ammonia	A	A	C	Magnesium chloride solution	A	A	A	
Amyl acetate	C	B	C	Mercury salts	A	A	C	
Amyl alcohol	A	C	C	Methanol	A	A	A	
Amyl chloride	C	C	C	Methyl ethyl ketone	B	C	C	
Aniline	A	B	C	Nitrous acid 10 %	B	A	C	
Aqua regia	C	C	C	Oil, animal	B	B	B	
Arsenic acid	C	C	A	Oil, hydraulic	C	C	D	
Barium hydroxide	A	A	A	Oil, linseed	B	B	A	
Benzaldehyde	C	C	C	Oil, mineral	C	C	C	
Benzene	C	C	C	Oil, vegetable	C	B	A	
Benzoic acid	A	B	B	Oleic acid	C	C	C	
Benzylalcohol	-	A	B	Oxalic acid	B	B	B	
Bleaching agent	B	A	A	Paraffins	C	C	-	
Boric acid	A	A	A	Perchloric acid	C	C	C	
Break liquid	A	A	A	Perchloroethylene	C	C	C	
Bromine	C	C	C	Petrol	C	C	C	
Butane	A	A	C	Phenol	A	A	C	
Butanol	B	C	C	Phosphoric acid, 25 %	A	A	C	
Calcium hypochlorite	A	A	B	Photographic solutions	B	B	A	
Carbon disulphide	C	C	C	Phtalic acid, 9 %	-	A	A	
Chloracetic acid	A	B	-	Potassium salts	A	A	A	
Chlorine, liquid	C	C	C	Pyridine	C	C	C	
Chlorobenzene	C	C	C	Soap solution	A	A	A	
Chloroform	C	C	C	Sodium carbonate	A	A	A	
Chromic acid 50 %	C	C	C	Sodium chloride	A	A	A	
Chromium salts	A	A	C	Sodium hydroxide 40 %	A	A	B	
Citric acid	B	B	A	Sodium hypochlorite <5%	A	A	B	
Cyclohexane	C	C	C	Sodium hypochlorite 12 %	A	A	B	
Diesel fuel	C	C	C	Sodium salt	A	A	A	
Ethanol	A	A	C	Stearic acid, 5 %	B	A	B	
Ether	C	C	C	Sulphurdioxide, wet gas	A	A	B	
Ethyl alcohol	A	A	A	Sulphuric acid, 30 %	A	A	C	
Ethyl chloride	A	A	C	Sulphuric acid, 75-100%	C	C	C	
Ethylene glycol	-	A	A	Sulphurtrioxide	-	B	-	
Ferric sulfate	A	A	A	Tannic acid	A	B	A	
Fluor silicium acid	C	C	-	Tetrahydrofurane	C	C	C	
Fluoroboric acid, 48 %	B	B	-	Toluole	C	C	C	
Formaldehyde	B	C	B	Trichloroethylene	B	B	C	
Formamide	A	B	-	Turpentine	C	C	C	
Formic acid	A	B	A	Urea	A	A	A	
Furfural	C	C	-	Uric Acid	A	A	-	
Hydrochloric acid	A	A	C	Xylene	C	C	C	
Hydrocyanic acid	A	A	C	Zinc chloride	B	B	B	

A = small or no effect

B = minor or moderate effect

C = severe effect

D = no reliable data, please test before use

- = no available data

Norprene®, PharMed BPT®, Norton Co. Reg. TM's,

The material resistance is influenced by temperature and concentration of the medium.  
The data have to be seen as indications and do not guarantee the material properties.



PUMP AND COMPRESSOR SOLUTIONS FOR OEMS WORLDWIDE



The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of Thomas products. It is the responsibility of the user to determine the suitability of the product for the intended use and the user assumes all risk and liability in connection therewith. Thomas does not warrant, guarantee or assume any obligation or liability in connection with this information.

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