

IOM manual

tapflo®

# Pneumixer operation manual

edition 2016 rev 3



This manual is an appendix. Use it together with AODD pump IOM manual !!!

Read AODD pump IOM manual carefully, before installation and operation of the pump.

» All about your flow

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# CONTENTS

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<b>0. GENERAL</b> .....	3
<b>0.1. Introduction</b> .....	3
<b>0.2. Warning symbols</b> .....	3
<b>0.3. Qualification and training of the personnel</b> .....	3
<b>1. INSTALLATION</b> .....	4
<b>1.1. Receiving inspection</b> .....	4
<b>1.2. Storage</b> .....	4
<b>1.3. Foundation</b> .....	4
<b>1.4. Discharge piping</b> .....	4
<b>1.4.1. Rotary connections</b> .....	4
<b>1.4.2. Connection of discharge pipe</b> .....	4
<b>1.5. Health and safety</b> .....	5
<b>1.5.1. Protection</b> .....	5
<b>1.5.2. Explosion hazardous environments – ATEX</b> .....	5
<b>1.5.3. Temperature hazards</b> .....	5
<b>1.5.4. Air treatment system</b> .....	6
<b>2. OPERATION</b> .....	7
<b>2.1. Pneumixer operation principle</b> .....	7
<b>2.1.1. Operating – Transfer mode</b> .....	7
<b>2.1.2. Operating – Mixing mode</b> .....	8
<b>2.2. Before starting the pump</b> .....	8
<b>2.3. Starting and operation</b> .....	8
<b>2.3.1. Dry running</b> .....	9
<b>2.4. Pump stopping</b> .....	9
<b>3. SPARE PARTS</b> .....	10
<b>3.1. How to order parts</b> .....	10
<b>3.2. Pneumixer code</b> .....	10

# 0. GENERAL

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## 0. GENERAL

### 0.1. Introduction

The Tapflo Air Operated Diaphragm Pump and the Pneumixer range is a complete set for industrial applications. The pumps and the Pneumixer are designed to be safe, simple and easy to use and maintain. The construction has no rotating parts. The pump and Pneumixer are suitable for almost all different chemicals used by the industry today.

With proper attention to maintenance, Tapflo Pneumixer and the pump will give efficient and trouble free operation. This instruction manual will familiarise operators with detailed information about installing, operating of the pump and the Pneumixer.

### 0.2. Warning symbols

The following warning symbols are present in this instruction manual. This is what they say:



This symbol stands next to all safety instructions in this instruction manual where danger to life and limb may occur. Observe these instructions and proceed with utmost caution in these situations. Inform also other users of all safety instructions. In addition to the instructions in this instruction manual, the general safety and accident prevention regulations must be observed.



This signal stands at points in this instruction manual of particular importance for compliance with regulations and directives, for correct work flow and for the prevention of damage to and destruction of the complete pump or its subassemblies.

### 0.3. Qualification and training of the personnel



The personnel in charge of installation, operation and maintenance of the pumps we produce must be qualified to carry out the operations described in this manual. Tapflo shall not be held responsible for the training level of personnel and for the fact that they are not fully aware of the contents of this manual.

# 1. INSTALLATION

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## 1. INSTALLATION

### 1.1. Receiving inspection

Although precaution is taken by us when packing and shipping, we urge you to carefully check the shipment on receipt. Make sure that all parts and accessories listed on the packing list are accounted for. Immediately report any damage or shortage to the transport company and to us.

### 1.2. Storage



If the equipment is to be stored prior to installation, place it in a clean location. The Pneumixer and the pump should be stored in an ambient temperature of 15°C (59°F) to 25°C (77°F) and relative humidity below 65%. It should not be exposed to any heat source e.g. radiator, sun as this could result in a negative way on the tightness of the pump. Do not remove the protective covers from the suction, discharge and air connections which have been fastened to keep pump internals free of debris. Clean the pump and the Pneumixer thoroughly before installation.

### 1.3. Foundation



Make sure that weight of the pump does not rest on the Pneumixer. The pump will operate properly without being fixed to a foundation. If fixation is needed for installation purposes, make sure the foundation is able to absorb vibrations. It is essential for the operation of the pump to mount the pump with the feet in a downward direction.

### 1.4. Discharge piping

Discharge piping should be fully supported and anchored near to the Pneumixer, but independent of the Pneumixer. The piping connected to the Pneumixer should be a hose, to prevent undue stress and strain on the Pneumixer connections and the piping.

#### 1.4.1. Rotary connections

The suction and discharge connections of the pump can be rotated 180°. This simplifies the assembly with the Pneumixer. If you wish to rotate the connections, screw a threaded nipple into the connection and rotate it.

#### 1.4.2. Connection of discharge pipe

For this connection it is only recommended to have a simple connection. Use a hose or flexible piping (minimum one meter) between the discharge connection and any rigid fixed piping. Coil the hose at least one turn. All components (hose, pipe, valves etc.) on the discharge piping must be designed for minimum PN 10.

# 1. INSTALLATION

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## 1.5. Health and safety

The pump must be installed according to local and national safety rules.



**The Pneumixer and the pump are constructed for particular applications. Do not use the Pneumixer and the pump on applications different from that for which it was sold without consulting us to ascertain its suitability.**

### 1.5.1. Protection



In the interest of health and safety it is essential to wear protective clothing and safety goggles when operating, and/or working in the vicinity of Tapflo pumps.

### 1.5.2. Explosion hazardous environments – ATEX



Metal series Pneumixer is allowed to operate in environments where there is danger of explosion ONLY together with pump with special conductive execution. Static electricity may occur in the Pneumixer and the pump under operation, which may cause explosion and injury. Read AODD pump IOM manual to get more information.

### 1.5.3. Temperature hazards

- Raised temperature can cause damage on the set of pump and Pneumixer and/or the piping and may also be hazardous for personnel in the vicinity of the pump/piping. Avoid quick temperature changes and do not exceed the maximum temperature specified when the pump was ordered.



- When the set of the pump and the Pneumixer is exposed to ambient temperature variations or if there is big difference between the temperature of the product and the surrounding, the tightening torques of the housing nuts should be checked periodically as part of preventive maintenance.

- If a hot product is pumped, the pump should not stand still when filled for a longer period of time. This could cause leakage from the valves and contamination and/or damage of the air valve.

- Below 0°C (32°F) plastic materials become more fragile what can cause accelerated wear of parts made of these materials. This is a hazard that has to be accepted when pumping such cold products. Also in such case, when a pump is not operational it should be drained of all liquid.



- Bear in mind that the viscosity of the product changes with temperature. This has to be taken into consideration when selecting the pump.

# 1. INSTALLATION

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## 1.5.4. Air treatment system



The air valve is designed for oil-free air. Lubrication of the air is **not allowed**. However, if the air is **very dry** (laboratory air), the air may be lubricated with water. Maximum air pressure is 8 bar. As prevention purpose, a filtration of the air by means of a 5 micron filter or finer is recommended. Recommended air quality according to PN-ISO8573-1:2010 is particles class 6, water class 7 and oil class 4. Dirt in the air can under unfortunate circumstances be the cause of a breakdown.

To facilitate the operation of the pump we recommend an air treatment system connected to the air supply. These components should be included:

- 1) Regulator to adjust the air pressure;
- 2) Manometer to read the actual pressure;
- 3) Needle valve to adjust the air flow (especially when operating the pump in the lower range of performance);
- 4) Filter.

These components are included in Tapflo's **Air treatment system** which can be ordered from us.



### **NOTE!**

Do not exceed 0,7 bar suction pressure! Higher pressure may cause premature diaphragm failure and irregular pump operation.

Even if all above safety instructions are met and complied with, there still exists a minor danger in the event of a leakage or mechanical damage of the pump. In such case the pumped product can emerge on sealing areas and connections.

## 2. OPERATION

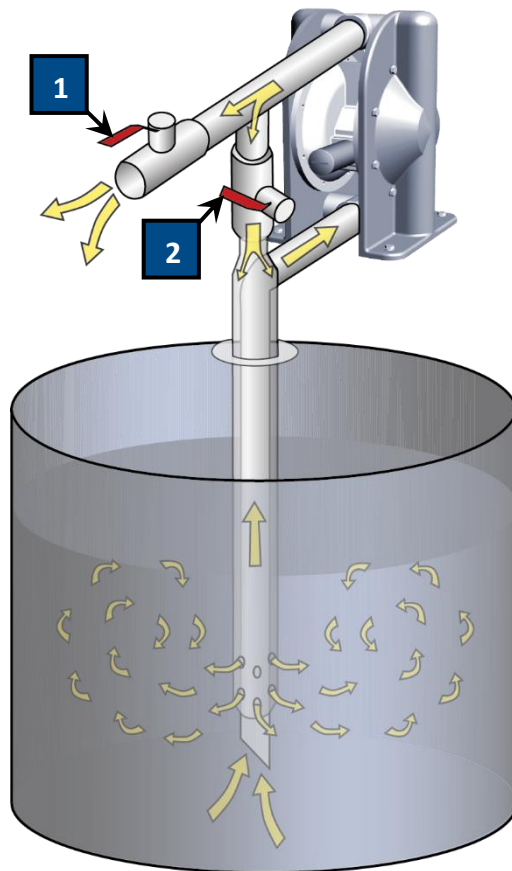
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### 2. OPERATION

#### 2.1. Pneumixer operation principle

The Pneumixer was mainly developed for the paint and ink industry where most raw materials in drums or containers settle out over time and need to be mixed or blended prior to use. The Tapflo Pneumixer is a piece of equipment designed to work with the Tapflo AODD pump, in which the control breaks down to setting the correct position of the valves.

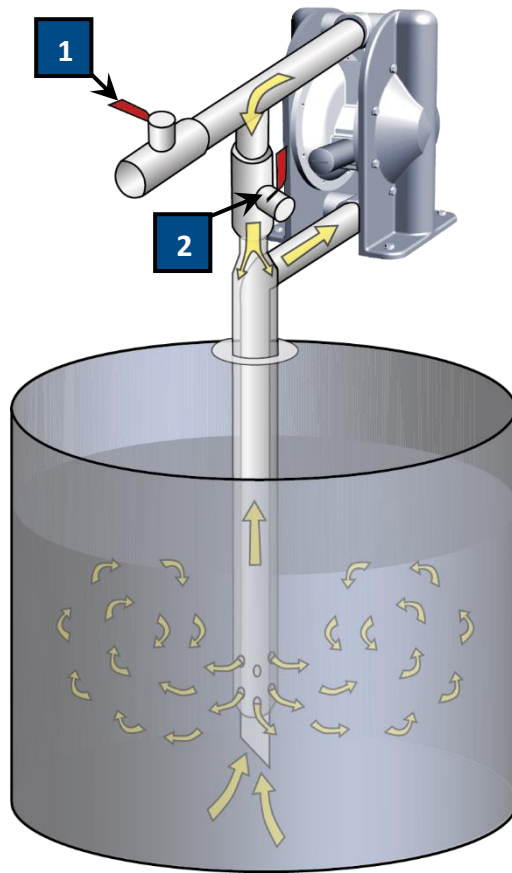
##### 2.1.1. Operating – Transfer mode



The discharge valve [1] is open and the recirculation [2] valve is partially open, to both mix and to transfer the product out of the Pneumixer.

## 2. OPERATION

### 2.1.2. Operating – Mixing mode



The discharge valve [1] is closed and the recirculation valve [2] is open, to allow the product to circulate in the container.

### 2.2. Before starting the pump



- Make sure the pump is installed according to the installation instruction (chapter 1).
- Filling of the pump with liquid before start is not necessary.
- When installation is new or reinstalled, a test run of the pump with water should be conducted to make sure that the pump operates normally and does not leak.



- When installation is new or reinstalled, check the pump housing nuts tightening torque (see AODD pump IOM manual). After approximately one week of operation, the torque should be checked again. This is important to prevent possible leakage.

### 2.3. Starting and operation

- Set the Pneumixer valves in correct position according to required mode.
- **Note! Considering the suction capacity when air is still in the suction pipe, it is recommended to start with low air pressure/flow (slowly) at the beginning. This is not necessary if the pump is filled with liquid before start.**
- When the pump has been filled with liquid, the air pressure/flow may be raised in order to increase the suction capacity of the pump.
- The performance of the pump can be adjusted through the air supply by using a needle valve and a pressure regulator. The performance can also be adjusted by normal flow control on the discharge side of the system.



## 2. OPERATION

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### 2.3.1. Dry running

Although the pump is prepared for dry running it is important to have in mind that long periods of dry run may cause damage to the air valve and circlips. Also an empty pump should operate at low speeds – controlled by a needle-valve.

### 2.4. Pump stopping

The pump with Pneumixer mounted can be stopped in two ways:

- 1) By closing of the discharge valve and the recirculation valve the pressure from the system will stop the pump automatically. The pump restarts easily when the valve is opened again.

**NOTE!** When using this method keep in mind that air must be supplied to the pump. This is essential to keep the diaphragms in balance what protects them from premature failure.

- 2) By cutting off the air supply.

**NOTE!** When using this method make sure that the discharge valve is opened to relief the pumps pressure.

# 3. Spare parts

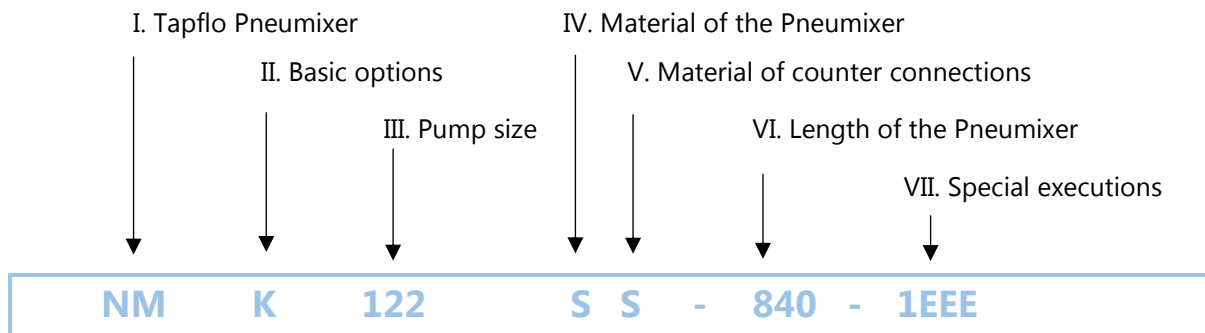
## 3. SPARE PARTS

### 3.1. How to order parts

When ordering spare parts for Tapflo Pneumixer and pump, please let us know what is the **model number** and **serial number** from the nameplate of the Pneumixer.

### 3.2. Pneumixer code

The model number on the Pneumixer tells the pump size and materials of the pump.



I. NM = Tapflo Pneumixer

II. Basic options:

K = Camlock connections

X = Mixer with not drilled syphon

III. Pump size:

Plastic pumps: 20, 50, 100, 200

Pharma pumps: 53, 103, 203

Aluminium/cast iron pumps: 25, 70, 120, 220

SS industrial pumps: 77,122, 222

Sanitary pumps: 80, 125, 225

IV. Material of the Pneumixer:

P = PP

S = AISI 316L

V. Material of counter connections:

P = PP

S = AISI 316L

A = Aluminium

VI. Length (measured from the top of the barrel downwards)

VII. Special executions:

1 = Optional material of sealing

## Sweden

Filaregatan 4 | S-442 34 Kungälv

Tel: +46 303 63390

Fax: +46 303 19916

E-mail addresses:

Commercial questions: sales@tapflo.com

Orders: order@tapflo.com

Tech support: support@tapflo.com

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## Tapflo Group Companies

### Austria

Tapflo Austria  
Tel: +43 732 27292910  
sales@tapflo.at

### Azerbaijan

Tapflo Azerbaijan LLC  
Tel: +994 502660799  
sales@tapflo.az

### Baltic States

Tapflo Latvia  
Tel: +371 67472205  
sales@tapflo.lv

### Belarus

Tapflo Belarus  
Tel: +375 17 3934609  
sales@tapflo.by

### Bulgaria

Tapflo EOOD  
Tel: +359 (2) 974 18 54  
office@tapflo.org

### Canada

Tapflo Canada  
Tel: +1 514 813 5754  
canada@tapflo.com

### Croatia

Tapflo GmbH  
Tel: +385 91 4884 666  
sales@tapflo.hr

### Czech Republic

Tapflo s.r.o.  
Tel: +420 513033924  
tapflo@tapflo.cz

### China

Tapflo (Wuxi)  
Tel: +86 510 8241 7602  
sales@tapflo.cn

### Denmark

Tapflo Danmark  
Tel: +45 36 454600  
info@tapflo.dk

### France

Tapflo France  
Tel: +33 1 34 78 82 40  
info@tapflo.fr

### Georgia

Tapflo Georgia  
Tel: +995 577 463010  
sales@tapflo.ge

### India

Tapflo Fluid Handling India  
Pvt Ltd  
Tel: +91 20 65000215  
ad@tapflo.in

### Ireland

Tapflo Ireland Ltd  
Tel: +353 1 2011911  
info@tapflo.ie

### Italy

Tapflo Italia  
Tel: +39 0362307698  
info@tapfloitalia.com

### Japan

Tapflo Japan K.K.  
Tel: +81-3-6240-3510  
tapflojp@tapflo.co.jp

### Kazakhstan

Tapflo Kazakstan  
Tel: +7 727 3278347  
sales@tapflo.kz

### Poland

Tapflo Sp. z o.o.  
Tel: +48 58 530 42 00  
info@tapflo.pl

### Romania

S.C. Tapflo Rom. S.r.l.  
Tel: +40 21 3451255  
sales@tapflo.ro

### Russia

Tapflo Company  
Tel: +7 495 232 18 28  
sales@tapflo.com.ru

### Serbia

Tapflo d.o.o.  
Tel: +381 21 44 58 08  
sales@tapflo.rs

### Slovakia

Tapflo s.r.o.  
Tel: +421 911 137 883  
tapflo@tapflo.sk

### Slovenia

Tapflo GmbH  
Tel: +386 68 613 474  
sales@tapflo.hr

### Spain

Tapflo Iberica  
Tel: +34 91 8093182  
avives@tapfloiberica.es

### South Africa

Tapflo (Pty) Ltd  
Tel: +27 31 701 5255  
sales@tapflo.co.za

### Turkey

Tapflo Makina Ltd  
Tel: +90 216 467 33 11  
sales@tapflo.com.tr

### Ukraine

TOB Tapflo  
Tel: +380 44 222 68 44  
sales@tapflo.com.ua

### Uzbekistan

Tapflo Uzbekistan  
Tel: +998 712340940  
sales@tapflo.uz

### United Kingdom

Tapflo (UK) Ltd  
Tel: +44 2380 252325  
sales@tapflo pumps.co.uk