

# PNEUMATIC PUMPS

## TF SERIES

The full flow pneumatic pumps for pumping wells manufactured by DIMACO allow operation without any need for external controls or sensors.

The pumps are in fact able to internally control the fluid level, starting and stopping according to it, without timers, electrical connections, immersed sensors or anything else.

They are recommended for working in the presence of solids in high quantities in highly corrosive environments.

The TF series pumps are ideal for installation in remediation sites or MSW landfills and have demonstrated their reliability and robustness over the years in the hundreds of sites where they are installed.

The materials used for the construction of TF-TOP DIMACO pumps are suitable for pumping hydrocarbons, solvents, other corrosive supernatants and TF-BOTTOM for leachate and DNAPL. For some specific applications, they can have customized components and accessories, for better performance and durability.



II 1G EX h IIC T6 Ga Tamb=+1° +100 °C

### Strengths:

ATEX certificate for zone 0 (1G)  
on all the range

Every pump is tested  
before shipment

Hundreds of installations and  
important references

### TOP CONFIGURATION



### BOTTOM CONFIGURATION



model

Ø body (mm)

TF2 TOP | TF2-BOTTOM 48,3

TF70-TOP | TF70-BOTTOM 70,0

TF4-TOP | TF4-BOTTOM 88,9



# TF SERIES PNEUMATIC PUMPS

## Characteristics

- Pump head turned from SS bar
- Body pump in Stainless Steel
- Float made from special foam

**Hydrocarbons allowed:**  
specific weight from 0,7 e 1,2

**Solvents allowed:** the majority (ask DIMACO technical department before use)

Operating temperature: 0 - 90 °C

The TF series pumps are designed and built to operate in potentially explosive atmospheres and in contact with aggressive substances.

The main applications for which they are used are: the remediation of contaminated aquifers and the recovery of leachate from MSW landfills.

For specific projects the pumps can be customized in terms of accessories and choice of materials.



Compliance with Machinery Directive 2006/42/ EC. during the design and construction phase, compliance with the Essential Health and Safety Requirements was considered and obtained. In particular, it is highlighted that during operation the moving parts are not accessible and that during adjustment and maintenance operations, carried out according to established procedures, they do not expose the operators to risks.

## materials and accessories standard versions

head	stainless steel
body	stainless steel
valve	stainless steel
ball	PTFE / SS/ ceramic
oring seals	viton
valve oring	NBR / viton
inlet filter	brass / ss
inlet air fittings	brass / plastic / ss
vent fittings	brass / plastic / ss

# TF SERIES

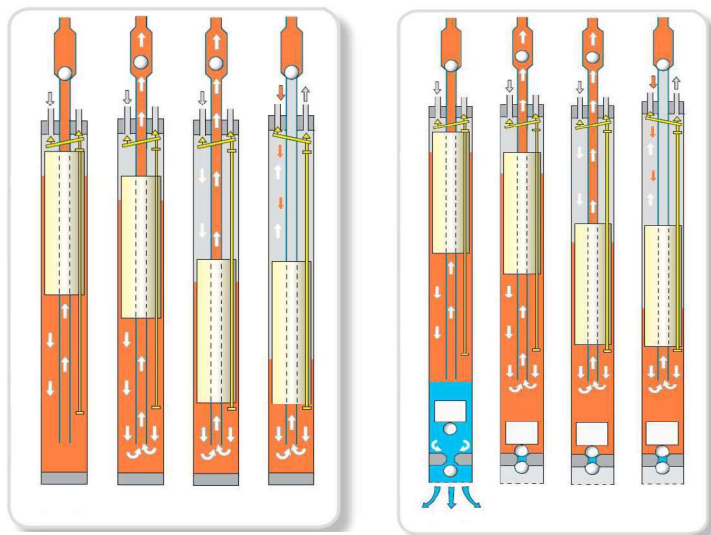
## TOP CONFIGURATION



The "TOP" configuration, thanks to the introduction of fluid in the body from above it is particularly suitable for the recovery of supernatant product (LNAPL).



### Working principle



**With SEPA KIT  
for bottom water drain**

#### Filling cycle

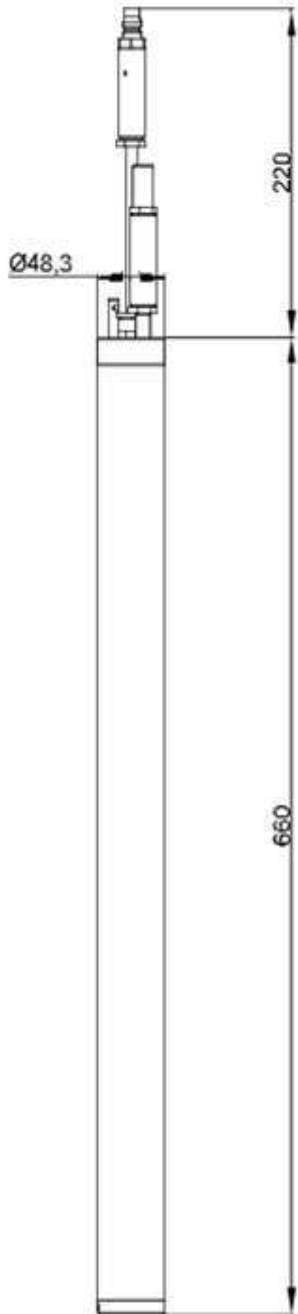
The supernatant enters the pump through the inlet valve. As the fluid level rises in the reservoir, the air is expelled through the vent and the internal float rises to the stop point. When the float reaches the upper limit stop, a mechanism closes the vent valve and opens the air inlet, favoring the pressurization of the pump.

#### Emptying cycle

Through the entry of air, the pressure inside the pump body increases. This causes the vent valve to close and the air inlet valve to open, forcing the fluid to pass through the central pipe and then flow out of the delivery pipe. As the fluid level decreases, the float drops again. Once it reaches the bottom, the mechanism switches again by closing the air inlet and opening the vent, starting a new cycle.

## TF2 - TOP

Pneumatic top loading automatic pump for minimum  $\varnothing$  2" wells

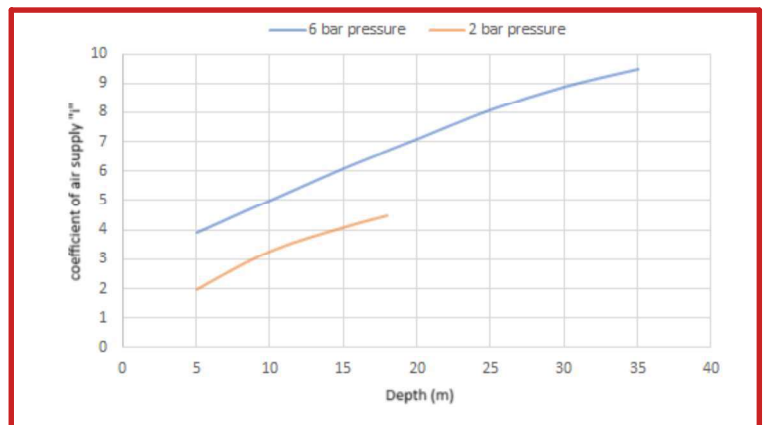


configurations:  
**TF2-TOP** (automatic)  
**TF2-TOP-T** (with timer  
 and external pneumatic  
 control panel)

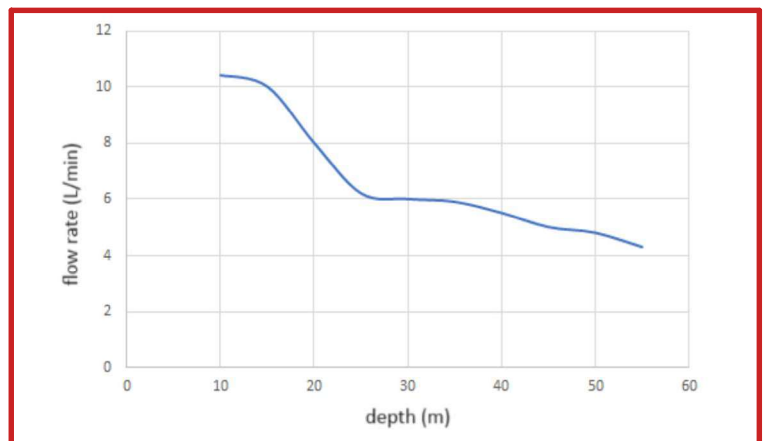
## Technical features

body material	stainless steel AISI 304
ball material	PTFE/ SS on req.
fittings material	brass / plastic / SS
type of float	foam
air supply pipe size	6x1 mm or 1/8" F GAS
outlet size	3/8" F GAS
air working pressure	2-8 bar
max flow rate	7 L / min
flow rate per cycle	0,25 l
air consumption / cycle	0,60 l

Air consumption (Normal liters) for each liter of product pumped, according to depth (m)



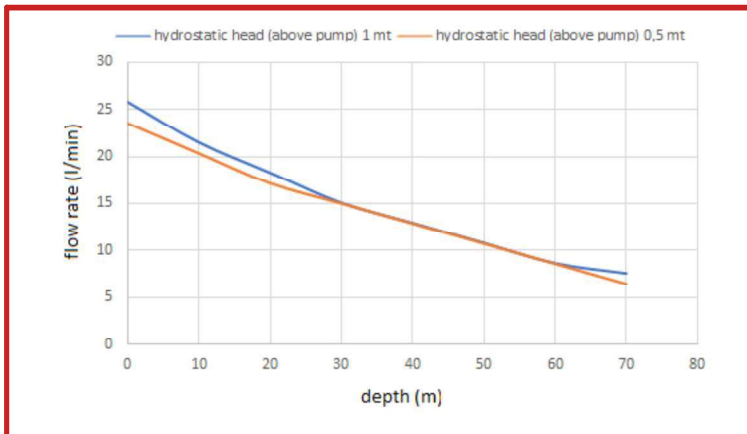
Variation in the pump flow rate according to the operation depth. This graph is referred to 2 m hydrostatic head and 6 bar pressure of compressed air supply



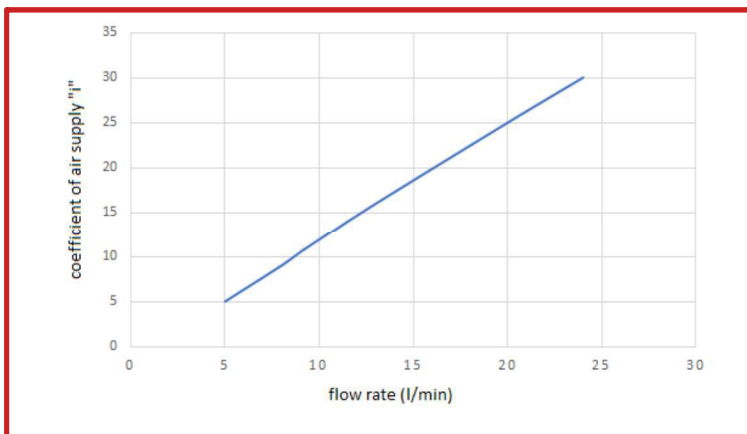
## Technical features

body material	stainless steel AISI 304
ball material	PTFE/ SS on req.
fittings material	brass / plastic / SS
type of float	foam
air supply pipe size	8x1 mm
outlet size	3/8" F GAS
air working pressure	2-8 bar
max flow rate	26 L / min
flow rate per cycle	1,08 l
air consumption / cycle	1,3 l

Variation in the pump flow rate according to the operating depth.  
This graph is referred to 7.5 bar pressure of compressed air supply.



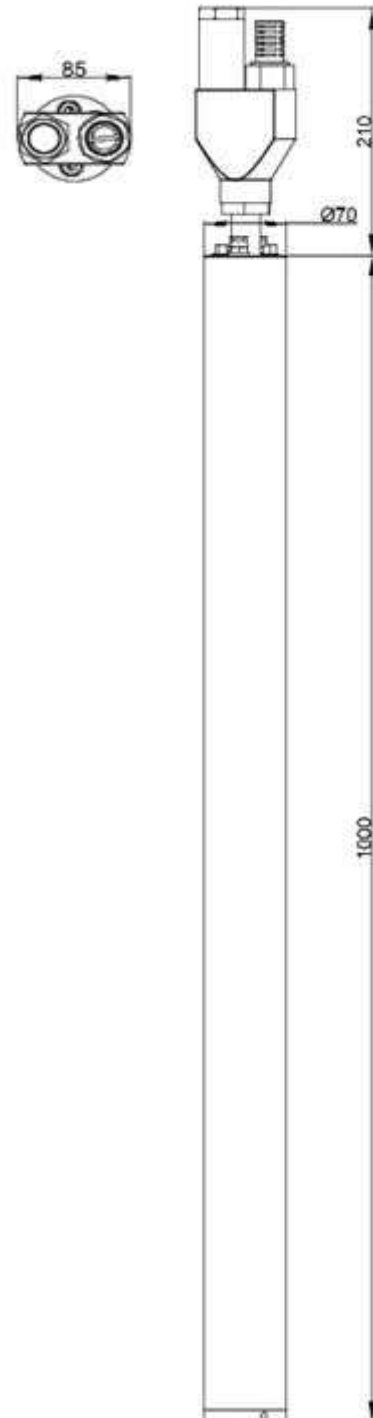
Variation of "i" multiplying coefficient of air supply according to the flow rate of LNAPL



$$\text{air flow rate (NL/min)} = i * \text{inlet working pressure (bar)}$$

## TF70 - TOP

Pneumatic top loading automatic pump for minimum  $\phi$  4" wells

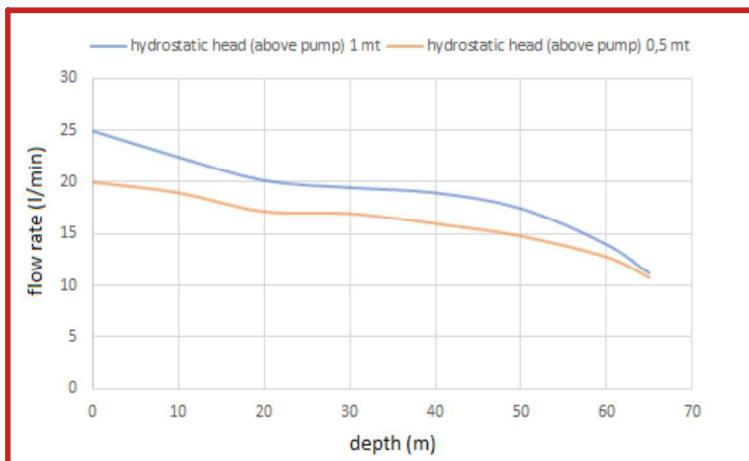


configurations:  
**TF70-TOP** (automatic)  
**TF70-TOP-T** (with timer and external pneumatic control panel)

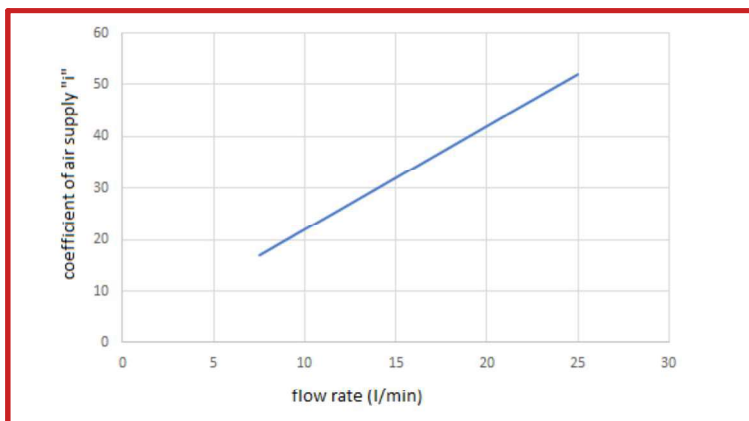
## Technical features

body material	stainless steel AISI 304
ball material	PTFE/ SS on req.
fittings material	brass / plastic / SS
type of float	foam
air supply pipe size	8x1 mm
outlet size	3/8" F GAS
air working pressure	2-8 bar
max flow rate	26 L / min
flow rate per cycle	2,02 l
air consumption / cycle	4,57 l

Variation in the pump flow rate according to the operating depth.  
This graph is referred to 7.5 bar pressure of compressed air supply.



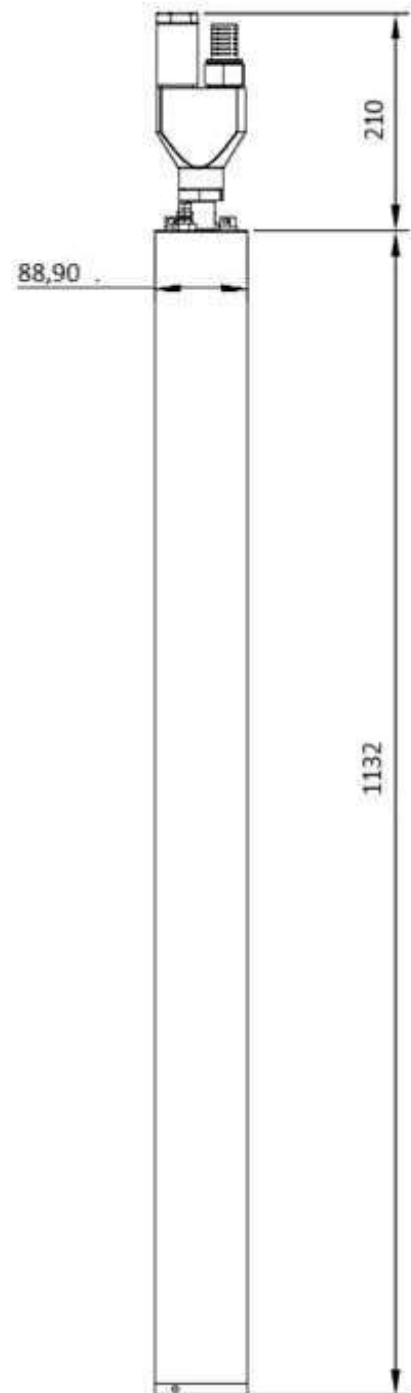
Variation of "i" multiplying coefficient of air supply according to the flow rate of LNAPL



air flow rate (NL/min) = i \* inlet working pressure (bar)

## TF4 - TOP

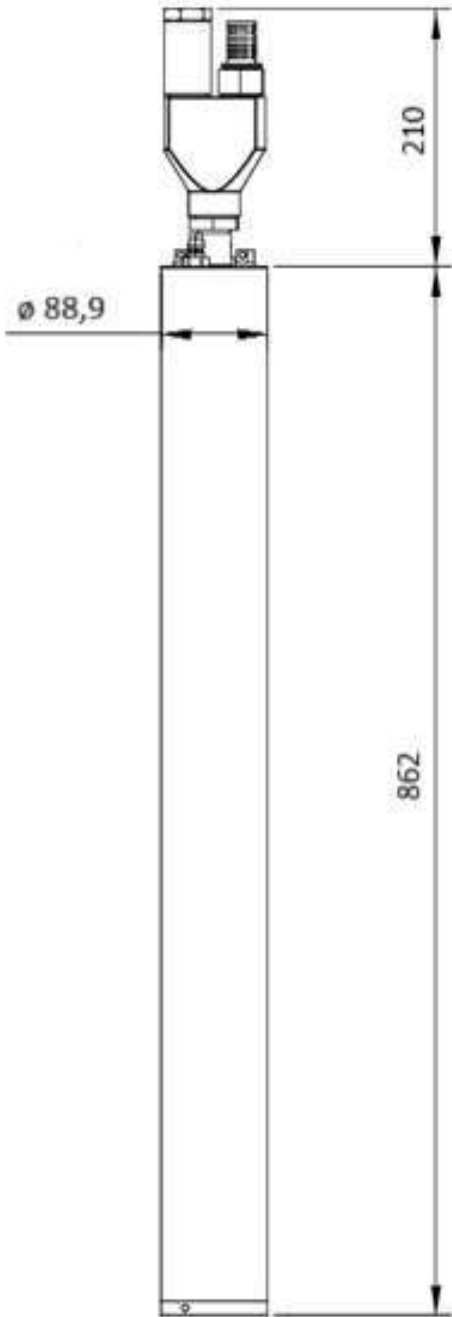
Pneumatic top loading automatic pump for minimum  $\phi$  4" wells



configurations:  
**TF4-TOP LONG** (automatic)  
**TF4-TOP LONG T** (timer + control panel)  
**TF4-SEPA** (automatic with SEPA kit)  
**TF4-TOP LONG HT** (automatic for high temp.)

## TF4 - TOP SHORT

Pneumatic top loading automatic pump for minimum  $\phi$  4" wells



configurations:

**TF4-TOP SHORT** (automatic)

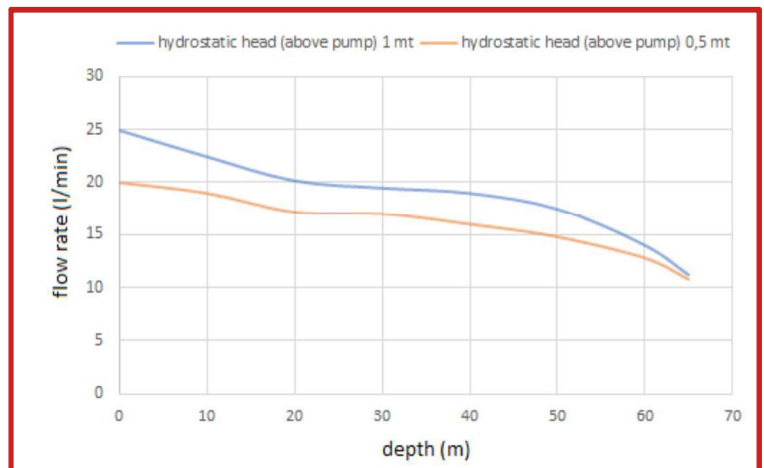
**TF4-TOP SHORT T** (timer + control panel)

**TF4-TOP SHORT HT** (automatic for high temp.)

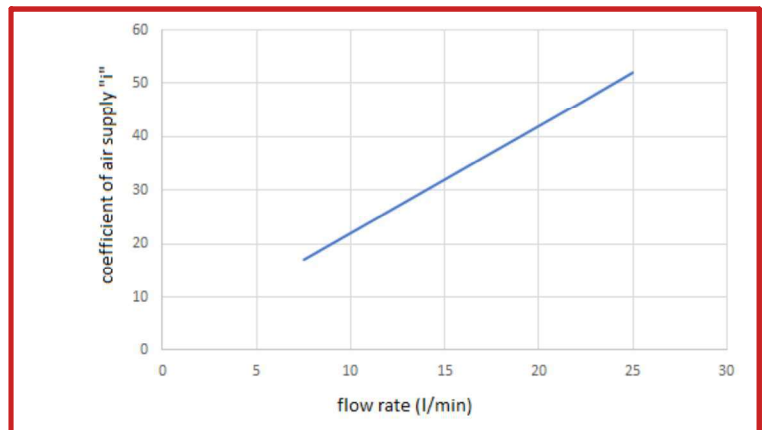
## Technical features

body material	stainless steel AISI 304
ball material	PTFE/ SS on req.
fittings material	brass / plastic / SS
type of float	foam
air supply pipe size	8x1 mm (10x1 on. req.)
outlet size	3/4" F GAS
air working pressure	2-8 bar
max flow rate	26 L / min
flow rate per cycle	0,60 l
air consumption / cycle	1,20 l

Variation in the pump flow rate according to the operating depth. This graph is referred to 7.5 bar pressure of compressed air supply.



Variation of "i" multiplying coefficient of air supply according to the flow rate of LNAPL



air flow rate (NL/min) =  $i \cdot$  inlet working pressure (bar)

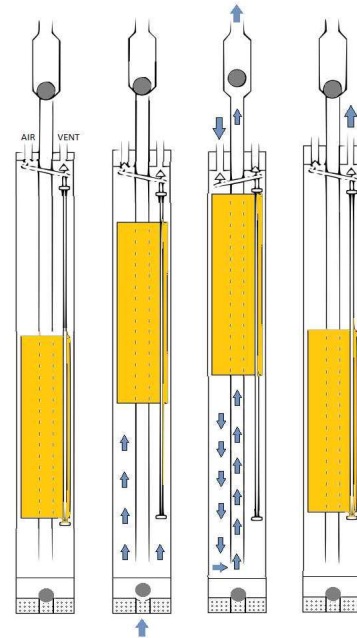
# TF SERIES

## BOTTOM CONFIGURATION



In the Bottom configuration, the entry of the fluid into the pump body from the bottom allows the recovery of heavy product (DNAPL) and allows obtaining a higher flow rate.

### Working principle



#### Filling cycle

The denser product enters the pump through the intake valve at its bottom. As the fluid level rises in the tank, the air is expelled through the vent and the float rises to the stop point. When the float is closed, another mechanism closes the vent valve and opens the air inlet, allowing it to enter the pump and pressurize it.

#### Emptying cycle

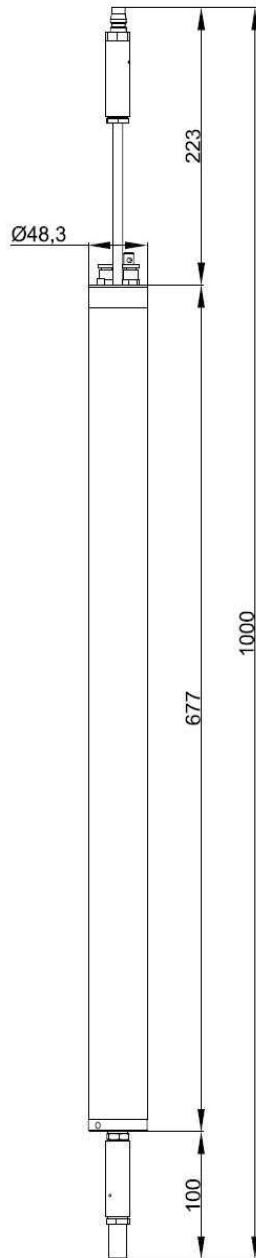
The pressure inside the body increases due to the entry of air, allowing the vent valve to close and the air inlet valve to open.

This allows the fluid to flow towards the central part and the delivery pipe. When the fluid level decreases, the float returns to the bottom and the mechanism switches again, closing the air inlet and opening the vent, starting a new cycle.



## TF2 - BOTTOM

Pneumatic bottom loading automatic pump for the recovery of DNAPL or leachate in min.  $\varnothing$  2" pumping wells

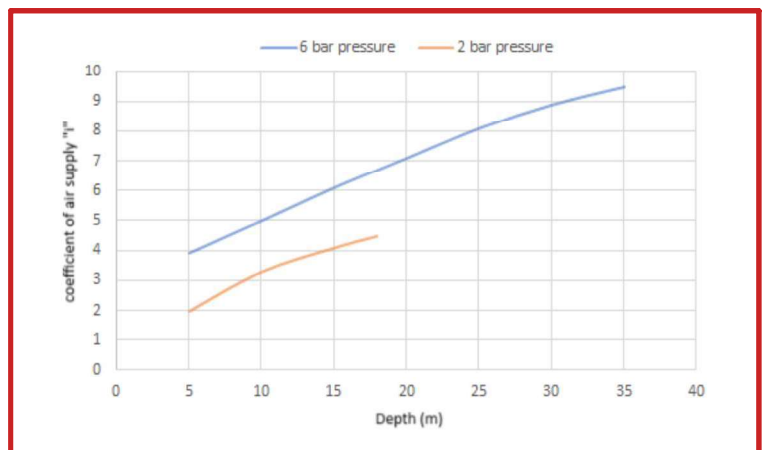


configurations:  
**TF2-BOTTOM** (automatic)  
**TF2-BOTTOM T** (with timer  
 and external pneumatic  
 control panel)

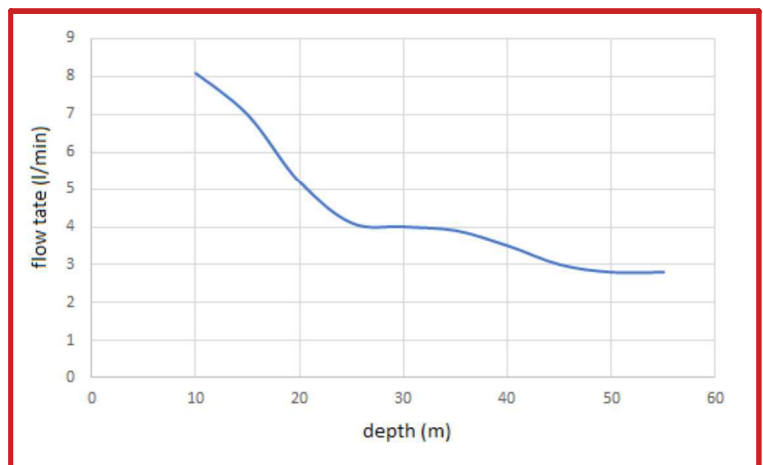
## Technical features

body material	stainless steel AISI 304
ball material	PTFE/ SS on req.
fittings material	brass / plastic / SS
type of float	foam
air supply pipe size	6x1 mm
outlet size	3/8" F GAS
air working pressure	2-8 bar
max flow rate	13 L / min
flow rate per cycle	0,25 l
air consumption / cycle	1,60 l

Air consumption (Normal liters) for each liter of product pumped, according to depth (m)



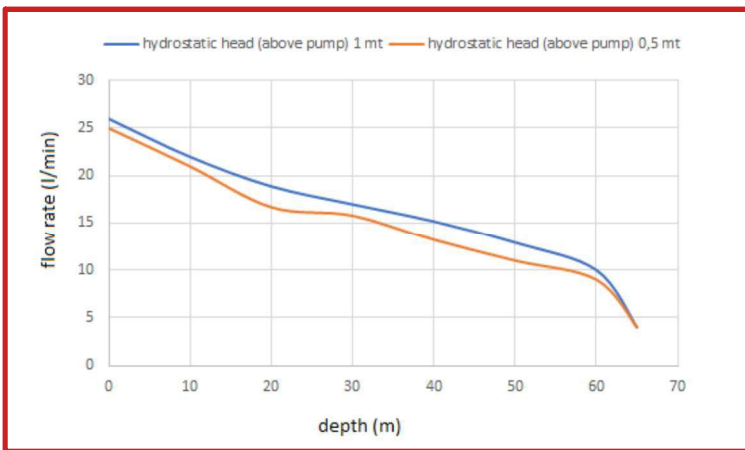
Variation in the pump flow rate according to the operation depth. This graph is referred to 2 m hydrostatic head and 6 bar pressure of compressed air supply



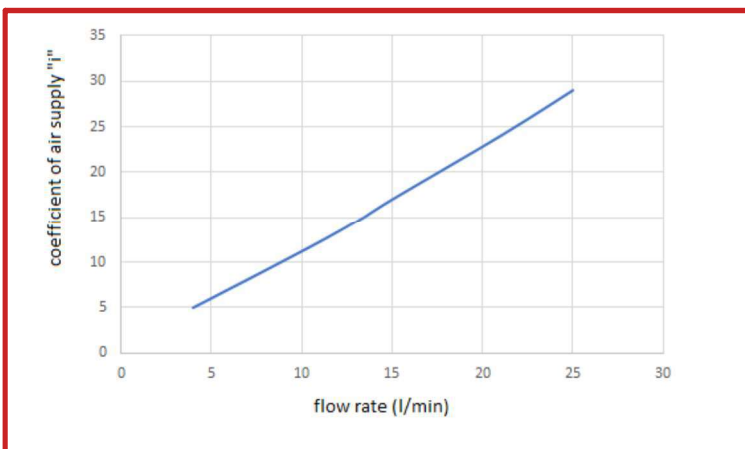
## Technical features

body material	stainless steel AISI 304
ball material	PTFE/ SS on req.
fittings material	brass / plastic / SS
type of float	foam
air supply pipe size	8x1 mm
outlet size	3/4" F GAS
air working pressure	2-8 bar
max flow rate	26 L / min
flow rate per cycle	1,08 l
air consumption / cycle	1,30 l

Variation in the pump flow rate according to the operating depth.  
This graph is referred to 7.5 bar pressure of compressed air supply



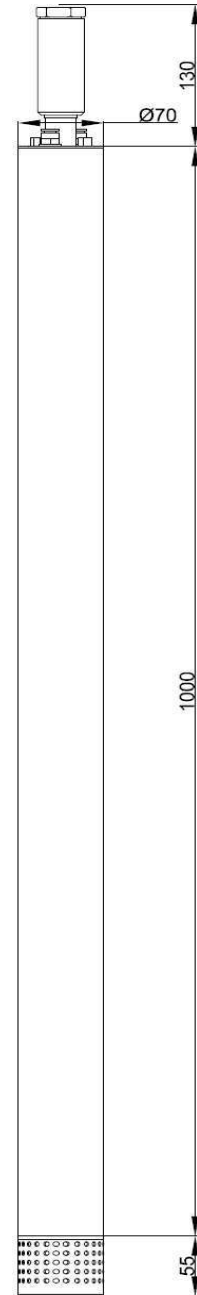
Variation of "i" multiplying coefficient of air supply according to the flow rate of LNAPL



$$\text{air flow rate (NL/min)} = i * \text{inlet working pressure (bar)}$$

## TF70 - BOTTOM

Pneumatic bottom loading automatic pump for the recovery of DNAPL or leachate in min.  $\phi$  3" pumping wells



configurations:

**TF70-BOTTOM**

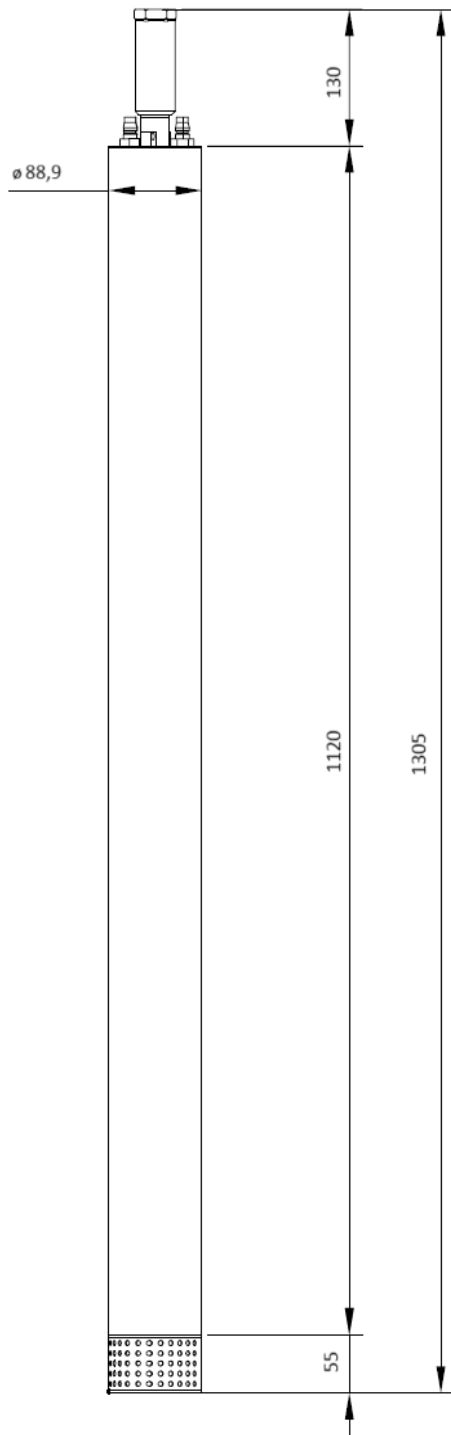
(automatic)

**TF70-BOTTOM T**

(with timer and external pneumatic control panel)

# TF4 - BOTTOM

Pneumatic bottom loading automatic pump for the recovery of DNAPL or leachate in min.  $\phi$  4" pumping wells

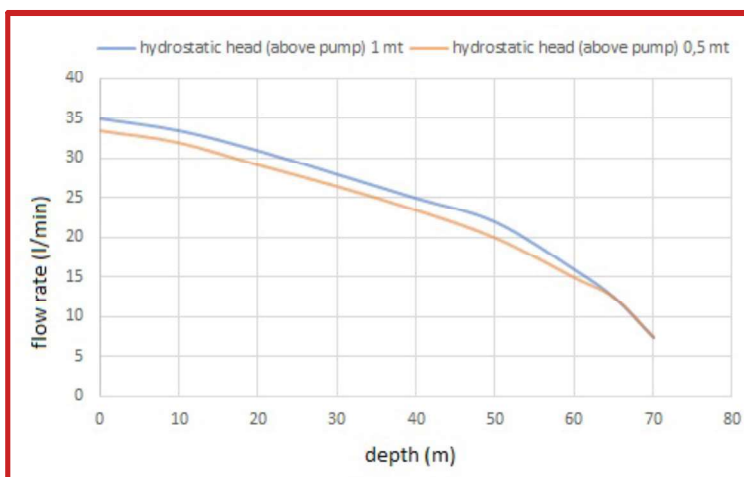


- configurations:
- TF-4 BOTTOM LONG
  - TF4-BOTTOM LONG T
  - TF4-BOTTOM LONG HT
  - TF4-BOTTOM LONG HT RSU

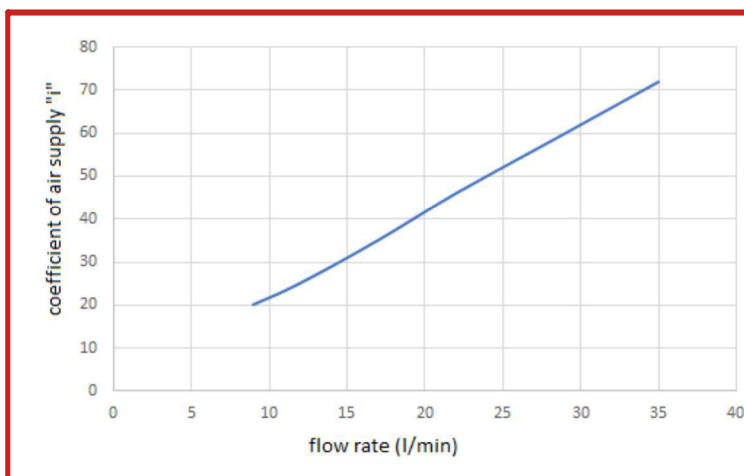
## Technical features

body material ball	stainless steel AISI 304
material fittings	PTFE/ SS on req.
material type of float	brass / plastic / SS
air supply pipe size	foam
outlet size air working	8x1 mm
pressure max flow	3/4" F GAS
rate flow rate per cycle	2-8 bar
air consumption / cycle	35 L / min
	2,20 l
	4,57 l

Variation in the pump flow rate according to the operating depth. This graph is referred to 7.5 bar pressure of compressed air supply



Variation of "i" multiplying coefficient of air supply according to the flow rate of LNAPL



$$\text{air flow rate (NL/min)} = i * \text{inlet working pressure (bar)}$$