

# FILLING & DOSING



# Manual filling systems

## FLUX pump kits



**For fast and safe filling of various media from drums and IBCs**

**Manual filling systems from FLUX offer everything you need to empty containers quickly and safely. They are a cost-effective alternative to conventional automatic filling systems and stations.**

A FLUX filling system consists of a combination of drum pump, drive motor designed specifically for the application, hose line and an outlet fitting. Dosing is carried out manually using a hand nozzle or via the discharge spout.



Here you can see the FLUX pump kits in use:



Compilation of a simple filling system.

Pre-assembled pump kits are available, consisting of the components drum pump, drive motor, hose and hand nozzle. These are available for: Acids and alkalis, concentrated acids, AdBlue<sup>®</sup>\*\*\*, mineral oil products, highly flammable liquids, universal applications, 99.98 % drum emptying, food applications, viscous media. In addition, all pumps can be combined with individually selectable accessories to create a set customised to the application. For example, with a flow meter for better dosing.



Pump kit in use for pumping a particularly high-grade lubricant.

#### Advantages/characteristics:

- ▶ Easy filling via hand nozzle
- ▶ Cost-effective alternative
- ▶ Customised solutions possible for all applications
- ▶ Consisting of drum pump, drive motor, hose and FLUX hand nozzle/discharge spout
- ▶ Filling with up to 80 litres/minute possible
- ▶ Also available for ATEX applications
- ▶ Also available for hygiene applications



Miniflux pump kit, the ideal solution for IBCs.

#### Technical data

|                              | Pump kits series 300         | Pump kits series 400                                                                | Pump kits series 500                                                                |
|------------------------------|------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Container/application</b> | Canister, ~ 200-l drums, IBC | Canister, ~ 200-l drums, IBC, tanks > 1,000 l                                       | Canister, ~ 200-l drums, IBC, tanks > 1,000 l                                       |
| <b>Flow rate max.</b>        | 21 l/min*                    | 80 l/min*                                                                           | 21 l/min**                                                                          |
| <b>Head max.</b>             | 5.6 mwc*                     | 12 mwc*                                                                             | 40 mwc**                                                                            |
| <b>Viscosity max.</b>        | 250 mPas*                    | 1,000 mPas*                                                                         | 30,000 mPas**                                                                       |
| <b>Drive options</b>         | Electric, battery-powered    | Electric, pneumatic                                                                 | Electric, pneumatic                                                                 |
| <b>Certificates</b>          |                              |  |  |



Pump kit with battery motor – the solution when cable laying is undesirable or problematic.

\* The maximum flow rate is a test bench value, measured with water at 20 °C at the pressure port of the pump, without accessories (hose, nozzle, flow meter)

\*\* The max. flow rate is achieved in the configuration stated with a measuring oil medium of 3,000 mPas at 20 °C and a backpressure of 3–4 bar

\*\*\* AdBlue<sup>®</sup> is a registered trademark of: Verband der Automobilindustrie e.V. (VDA)

# Semi-automatic filling systems

FLUX pump kits with switching amplifier



**Quickly and safely dispense the preset quantity at the touch of a button**

In combination with a switching amplifier (FSV) and a flow meter, the FLUX pump kit can be used to create a semi-automatic filling system. The desired filling quantity can be precisely set via the FLUXTRONIC® evaluation electronics and is delivered at the touch of a button. Optionally, the filling process can also be triggered via an external start/stop switch.



Compilation of a semi-automatic filling system with switching amplifier.

Video of the semi-automatic filling system from FLUX:





#### Advantages/characteristics:

- ▶ Quantity to be filled can be set via FLUXTRONIC®
- ▶ Cost-effective alternative to conventional filling systems and stations
- ▶ Consisting of drum pump, drive motor, hose, flow meter, switching amplifier and FLUX filling unit
- ▶ Filling accuracy  $\pm 1\%$  to  $2\%$
- ▶ Repeat accuracy  $0.5\%$  to  $1\%$
- ▶ Discharge unit – semi-automatic; the filling process is controlled by a start/stop button
- ▶ Semi-automatic filling systems also available for hazardous areas 
- ▶ Semi-automatic filling systems also available for food and FDA (on request)  



Semi-automatic filling units from FLUX; also available for ATEX applications.

#### Technical data

|                              | Pump kits series 400                                                                                                                                                                                                                                        | Pump kits series 500                                                                                                                                                                                                                                        |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Container/application</b> | Canister, ~ 200-l drums, IBC, tanks > 1,000 l                                                                                                                                                                                                               | Canister, ~ 200-l drums, IBC, tanks > 1,000 l                                                                                                                                                                                                               |
| <b>Flow rate max.</b>        | 80 l/min*                                                                                                                                                                                                                                                   | 21 l/min**                                                                                                                                                                                                                                                  |
| <b>Head max.</b>             | 12 mwc*                                                                                                                                                                                                                                                     | 40 mwc**                                                                                                                                                                                                                                                    |
| <b>Viscosity max.</b>        | 1,000 mPas*                                                                                                                                                                                                                                                 | 30,000 mPas**                                                                                                                                                                                                                                               |
| <b>Drive options</b>         | Electric, pneumatic                                                                                                                                                                                                                                         | Electric, pneumatic                                                                                                                                                                                                                                         |
| <b>Certificates</b>          |    |    |

#### FLUXTRONIC®

Two operating modes are available thanks to the FLUXTRONIC® evaluation electronics built into the FMC and FMO flow meters. While in "normal mode" only the volume that has flowed through is displayed, in automatic mode it is possible to fill pre-programmed quantities of liquid semi-automatically – at the touch of a button. As soon as the desired quantity has been filled, it is possible to output two signals. For example, a valve or a drive motor can be controlled or the signal can be forwarded to a PLC.



FLUXTRONIC® evaluation electronics can be mounted on flow meters or directly on nozzles, for example.

\* The maximum flow rate is a test bench value, measured with water at  $20\text{ }^{\circ}\text{C}$  at the pressure port of the pump, without accessories (hose, nozzle, flow meter)

\*\* The max. flow rate is achieved in the configuration stated with a measuring oil medium of  $3,000\text{ mPas}$  at  $20\text{ }^{\circ}\text{C}$  and a backpressure of 3–4 bar

# Semi-automatic filling systems

Pump kit SAFETEC – stationary and mobile



To empty full containment re-usable IBCs and drums, compatible with CDS/QC couplings

Sealed containers cannot be emptied using conventional drum or container pumps, as there are no longer any openings for inserting a drum pump. Instead, the containers must be emptied through the immersion pipe using the suction method with selfpriming pumps. FLUX has developed the SAFETEC pump kit for this purpose. The pump set contains all the necessary components required for safe emptying of the container.

## Advantages/characteristics:

- ▶ All components of the pump kit are combined in a compact console. The console is supplied with a wall bracket, but can also be mounted on a trolley as an option
- ▶ An integrated sensor detects and signals when the tank is empty and switches off the pump
- ▶ With integrated volume measurement, the SAFETEC pump kit is suitable for filling containers or for batch dosing\*
- ▶ Convenient operation via a graphic touch panel (can also be operated with chemical gloves)\*
- ▶ Maximum safety thanks to hermetically sealed selfpriming magnetic centrifugal pump and additional leakage tray
- ▶ The leakage tray can be equipped with a leakage sensor\*

## Procedure:

The pump kit is connected to the tank with a hose that has an appropriate coupling. On the other side, the pump is connected to your system or tapping point with another hose. The pump kit empties the container, signals automatically when the container is empty (optional) and switches itself off. If you use a hand nozzle on the pressure side of the pump kit, you can also use the Comfort D version of the pump kit to dose or fill the medium from the container into a smaller container. Simply preset the desired quantity via the touch panel and fill at the dispensing nozzle. The pump kit switches off automatically once the desired quantity has been reached.



Safe filling with the SAFETEC pump kit.

### Flow meter (option)

Included in the SAFETEC Comfort D pump set, records the flow rate and enables dosing and filling.

### IBC Level Sensor

Protects the pump from running dry. This sensor detects when air bubbles appear in the pipeline. As soon as the container is empty and air is sucked in, the sensor detects this and switches the pump off.

### Tray Level sensor (option)

This sensor detects any liquid that may collect in the leakage tray. The pump is switched off and the fault is shown on the display.

### Welded console made of PP with removable Acrylic glass pane

The console accommodates all components required for emptying the container and the pump, including any control components. A hinged acrylic glass cover is attached to the front. This is for added security, as a splash guard and access guard that is hinged to the console. Inside, the console is designed as a drip pan for dripping. The console is supplied with a wall bracket or alternatively with a bracket for hanging on standard IBCs.

### Control panel with touch panel – Comfort D

Control panel with touch panel including dosing. Display of the operating states ON/OFF; container empty/dry running fault; leakage fault (optional) as well as an emergency stop button and a main switch. Dosing is controlled via the graphic user interface. In manual mode, manual switching on/off via touch panel. For automatic operation, various filling quantities can be stored and selected. Once

filling has started, the pump starts and stops automatically as soon as the desired filling quantity is reached. When the container is empty and the pump draws in air, it is also switched off automatically and the operating status is displayed on the touch panel.



### Self-priming centrifugal pump MAGSON MAS

Due to the magnetic coupling, there is no shaft seal to the motor and the pump is hermetically sealed. Therefore no leakage is possible and the pump is almost maintenance-free. Manufactured with PP or ETFE body, the resistance of the pump can be selected to suit the chemicals on site. The pump is self-priming up to a suction height of 5 m, produces strong suction and runs quietly and smoothly.

### Pump set SAFETEC MOBILE

As an option for hanging on an IBC, the pump set can also be made mobile using a trolley. This gives you full flexibility to use the pump set exactly where you need it. And everything moves with you, including cables and hoses which can be hung on the back. Any drips from the hose are caught by the trough of the trolley. The supplied touch panel (optional) is then attached to the top of the control unit for ease of use.



# Semi-automatic filling systems

## FLUX FILL-GT



### The compact, semi-automatic filling system with weighing technology

With the semi-automatic FLUX FILL GT filling system, low-viscosity and slightly foaming fluids can be filled quickly, efficiently and safely. The system works with calibrated weighing technology and thus enables filling in accordance with the Prepackaging Ordinance (FPackV). The integrated filling programme management allows the fluids to be easily filled into a wide variety of containers using the over-level method. The system is therefore particularly suitable for filling small and medium-sized container batches, with and without container changeover – for internal use as well as for sales.

Drive via hermetically sealed, self-priming magnetic pumps or many other pump systems possible.

Combined with other products from the FLUX range of pumps and accessories, the feed side can also be optimised for the application. In this way, a compact, semi-automatic filling system can be configured from the filling system and feed components.

### Advantages/characteristics:

#### High process reliability

- ▶ Exact, calibrated filling according pre-packaging regulation (FPackV) depending on the system configuration from 0.5 up to 50 kg
- ▶ Safe filling of low viscosity media up to 150 mPas
- ▶ One-person operation of the adjustable filling process with integrated safety functions
- ▶ Automated on and off switching of the feeding pump via the system
- ▶ No start of the filling process without container
- ▶ High level of operation safety thanks to password protection and retrievable filling programs
- ▶ No unwanted under- or overfilling
- ▶ Safe filling also with slightly foaming media
- ▶ Requirement-specific parametrization via operating terminal
- ▶ Filling table made of stainless steel
- ▶ Adjustable number of containers to be filled
- ▶ Different Pumps and Drives matching the system available
- ▶ The system is dispatched calibrated



### Application example:

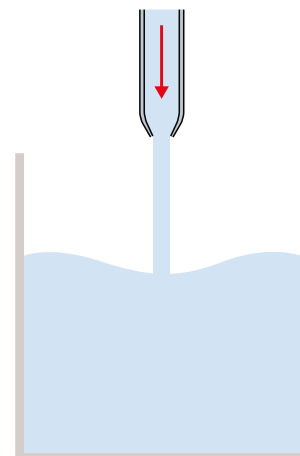
Accurately calibrated filling of 5 kg of a low-viscosity liquid in a canister.

Filling method: above-surface

Filling cycle (without container handling): < 1 minute

### Filling method above-surface:

The special outlet nozzle with internal labyrinth structure ensures a splash-free and low-foam filling in open containers.





# Semi-automatic filling systems

FLUX FILL-GT + FLUX FILL-VM



## Functional description

The FLUX FILL GT semi-automatic filling system is suitable for use in a wide range of industries. It essentially consists of a stainless steel table, a control cabinet with system control and operating terminal, a dosing valve with height-adjustable filling lance and a calibrated scale.

The system can be calibrated so that containers intended for sale can be filled in accordance with the Prepackaging Ordinance (FPackV). Depending on the system variant, containers up to a height of 520 mm with a bunghole diameter of at least 36 mm can be filled.

The core of the system is the control cabinet with the scale electronics. The operator can store different filling programmes by entering various parameters. Among other things, he can enter the tare weights of the containers to be filled.

## Strong focus also on operating safety

The limit stop for the container, which can be adjusted without tools, can be used for easy placement of the containers. If the operator has accidentally placed a container that is too small or no container at all under the filling lance, the tare control prevents the filling process from starting. An error message is displayed.



Limit stop for easy positioning of the container.



Toolless adjustment of the limit stop.



## FLUX FILL VM – The semi-automatic filling system with volumetric filling measurement

The FLUX FILL VM semi-automatic filling system enables fast, efficient and safe filling of low-viscosity and slightly foaming liquids. It uses volumetric flow meters to ensure precise dosing. The integrated filling programme management enables containers of various sizes to be filled easily using the overfill method. This system is particularly suitable for filling small and medium-sized batches, both with and without container changeover, for internal use. It can be operated with hermetically sealed, self-priming magnetic pumps or various other pump systems.

By combining it with other products from the FLUX range of pumps and accessories, the feed side can be optimally adapted to the respective application. In this way, a compact, semi-automatic filling system can be configured from the filling system and the feeding components.

# Customized all-in solutions

From pump kits to comprehensive systems

We develop suitable, customised special solutions for our customers: These include customer-specific complete solutions as well as customised designs that require solid manufacturer knowledge and engineering expertise. This enables us to design or construct the best possible system for each customer for each specific application. From development and optimisation to new installation and on-site service, our customers receive everything from a single source.

## FLUX practical examples of customised complete solutions:

### Task:

Filling of 10-, 20- and 60-l-cans and 200-l-drums from IBC stacked or on racking.

### Components:

- ▶ FLUX Drum pump F 430 S TR
- ▶ FLUX commutator motor F 457
- ▶ PVC-hose
- ▶ FLUX flow meter FMC 100 in stainless steel with electronic display unit FLUXTRONIC®
- ▶ 2-way valve
- ▶ Circuit amplifier FSV 100 for controlling the motor and 2-way valve
- ▶ Mineral oil hose integrated
- ▶ Wired in filling unit
- ▶ Stainless steel panel (mounted on the struts of the IBC)

### Advantages/characteristics:

- ▶ The quantity to be filled is preset via FLUXTRONIC®, filling starts at the touch of a button on the filling unit



Medium: Mineral oils and machining oils

### Task:

Suction of a cleaner from the basement and filling into different containers depending on the application

### Components:

- ▶ FLUX self-priming centrifugal pump MAS as pump set SAFETEC (not shown)
- ▶ Fixed piping between pump set and filling station
- ▶ FLUX SAFETEC control unit Comfort D (2-fold)
- ▶ Filling lance with FLUX SAE for low-foaming filling
- ▶ Adjustable limit stop for different containers
- ▶ Switchover from filling via lance to hose filling (also with FLUX SAE for low-foam filling)

### Advantages/characteristics:

- ▶ Relieving and protecting staff and the environment
- ▶ Medium is conveyed and filled safely and conveniently
- ▶ Stainless steel table for ergonomic working



Medium: Cleaning agents

# Additional products and accessories

Comprehensive range of accessories for all FLUX pump models



To supplement the diverse range of pumps, FLUX has a wide range of accessories. FLUX accessories provide smooth, safe running and make work easier. For example, lift a FLUX pump out of the drum without any exertion thanks to the carrying handle and spring balancer. Space saving storage equipment allows pumps to be easily stored. Furthermore for every application there is the right hose – pre-configured and integrated in the required length. For typical drum pump applications there are pre-configured pump sets available. Whether for mobile or static deployment – with the FLUX range of accessories a FLUX pump can be turned into a custom-made pumping system for any application.

## FLUX flow meter

Ideal for measuring applications in industry, petrochemicals, chemicals, pharmaceuticals, cosmetics, paints and varnishes. Flow measurement or measurement of liquids such as water, various oils, fuels (petrol, diesel, etc.), solvents, acids and alkalis can be realised with our devices.



## FLUX FAE plus discharge units

Discharge units with spring valve for media up to 300 mPas without solids content. For precise filling with overrun stop valve and start/stop button to carry out the filling process conveniently at the touch of a button.



## IBC Level sensor

The TLS dry-running sensors detect air bubbles in conductive media and can therefore protect the pump from running dry or empty. The TLS is available in two versions; the TLS-1 for installation in the pipework and the TLS-2 for mounting on existing pipework.



## Hose

Whether for use in the chemical, food, pharmaceutical, cosmetics or hazardous areas: FLUX has the right hose for every application – pre-assembled and integrated in the required length.





## The FLUX product range



**Drum and container pumps**



**Progressive cavity pumps**



**Drum emptying systems**



**Centrifugal immersion pumps**



**Air-operated diaphragm pumps**



**Flow meters**



**Mixers**



**Magnetically centrifugal pumps & filters**



**Filling and dosing solutions**

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