



MwStop[®] Hybrid Bypass Shaft

Energy-efficient backflow protection for rainwater and wastewater

Pumps only when necessary

What is MwStop® Bypass?

A hybrid bypass shaft combines a backwater valve and a pumping station in one energy-efficient solution.

During normal operation, rainwater and wastewater are discharged by gravity.
In the event of backflow, the backwater valve closes and the pumps divert the water around the closed valve.

1 Gravity drainage first

Uses natural gravity flow during daily operation.

2 Automatic protection

Closes in the event of backflow from the sewer system or receiving water body.

3 Bypass pumps

Only pumps when the shut-off device is closed.

4 Return to gravity drainage

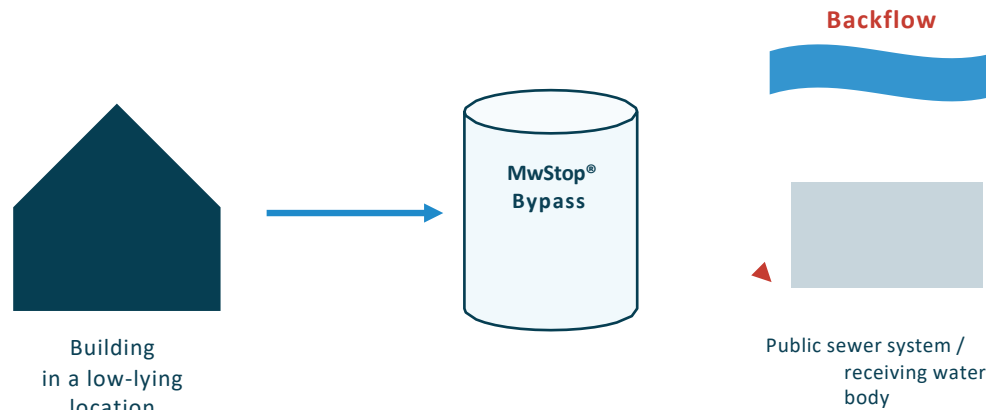
Automatically opens again as soon as normal conditions are restored.



Why a hybrid bypass solution?

Sewer systems and receiving water bodies can become overloaded during heavy rainfall, storm surges and high water levels.

Risk situation



If the drainage system cannot accommodate the water, water may be forced back towards the building.

Reduced operation without compromising safety

- Pumps remain on standby during normal operation
- Automatic closing in the event of backflow
- Continued discharge during the event
- Lower energy consumption and reduced wear

Traditional pumping station vs. MwStop® Bypass

Uses gravity drainage during normal operation and activates the pumps only in backflow situations.

Traditional pumping station

- Continuously pumps the incoming water
- Longer pump operating time, higher energy consumption and increased wear
- Often dimensioned for continuous operation



Pumping as standard operation

MwStop® Bypass

- Gravity operation in everyday use
- Pumps only in the event of surcharge or backflow
- Protects the building while water continues to be discharged



Gravity drainage



Pumping during an event

Illustration of pump operating time

Traditional pumping station

Pumping during every discharge

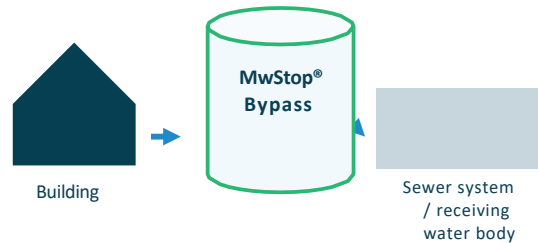
Bypass

Only during events

How MwStop® Bypass works

The operating cycle is simple: gravity drainage during normal operation, closing and bypass pumping in the event of backflow, followed by an automatic return to gravity drainage.

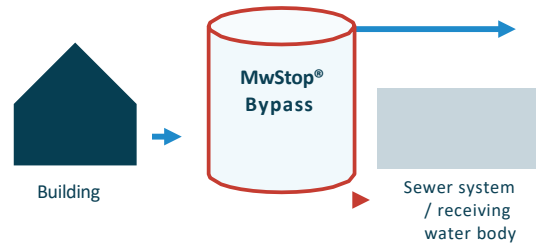
1



The backwater valve is open. Water flows freely through the shaft by gravity.

Gravity drainage

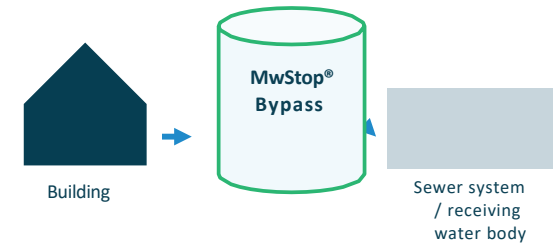
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The backwater valve closes towards the sewer system/receiving water body. The pumps divert the water around the closed valve.

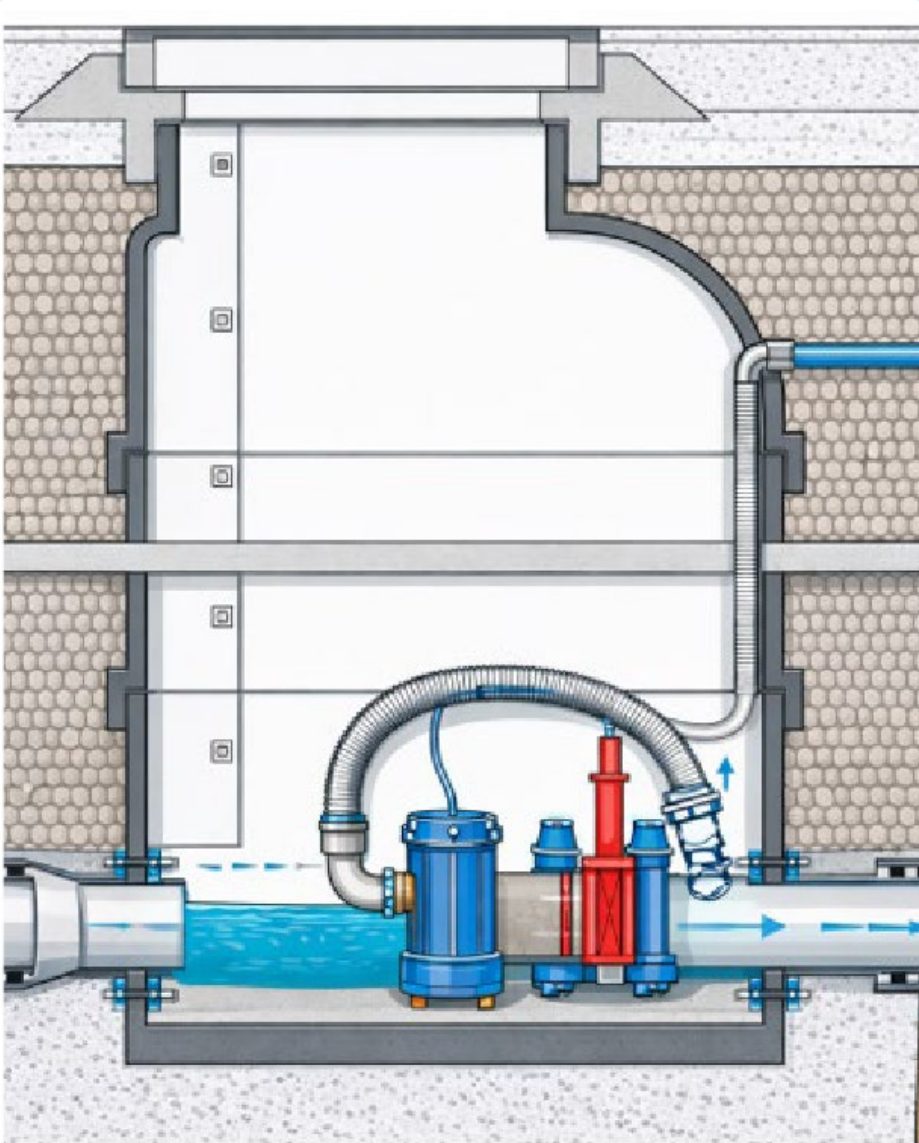
Bypass

3



When the backwater level decreases, the system automatically opens and the pumps stop.

Gravity drainage



System configuration

The system is dimensioned according to the specific installation and can be adapted to rainwater, wastewater and combined sewer systems.

- 1 **Durchlaufschacht**
Tägliche Ableitung über Gefälleleitungen.
- 2 **Absperreinheit**
Automatische Schließung gegen Rückstau aus Kanalisation oder Vorfluter.
- 3 **Selbsttest**
Pumpen und Rückstauverschluss, automatischer Selbsttest
- 4 **Pumpeneinheit**
Typischerweise zwei Pumpen für betriebssicheres Bypass-Pumpen während eines Ereignisses.
- 5 **Steuerung und Alarm**
Automatischer Betrieb, Alarm und klare Bedienungsanleitung.

EN 12056 & EN 1610 as well as Danish Standard DS 432 and functional requirements

Planned as a combination of a backwater valve and pumping system,
with requirements for closing, alarm, access and safe operation.

Bypass system

= Backwater valve +
pumping system

The aim is to avoid unnecessary energy
consumption caused by continuous
pumping when gravity drainage can be
used during normal operation.

Alarm

Bypass systems are equipped with an alarm
for high water levels and operational faults.

Metal components = no rat damage

Industrial-grade quality and high operational
reliability.

Safe elevation level

Adjustable level measurement for the
correct height clearance from
vulnerable floors/surfaces.

Service access

The shaft and components must be
accessible for inspection and
maintenance.

Service & maintenance

Small number of users: at least
once a year. Large number of
users: at least twice a year

Sizing and planning

The right solution depends on flow rate, type of water, backwater level and the building's risk profile.

1

Flow rate and pipe dimensions

Incoming rainwater/wastewater flow, pipe dimensions and required discharge capacity.

2

New or existing shaft?

Available as a prefabricated concrete or PE shaft. Retrofitting in an existing shaft is possible.

3

Backwater level

The highest backwater level of the drainage system is taken into account.

4

Pump selection

Pumps are selected for low delivery head/back pressure and the required free passage.

5

Rainfall intensity

Return periods (T5, T10, T50, T100)

6

Robustness

Industrial-grade quality. Metal instead of plastic



Can be integrated into larger control shafts with backwater flap, rat barrier, bypass and pump unit.

Control, alarm and service

Operational reliability requires clear control, alarm notification and regular maintenance.



Frost-protected control system

The control panel is installed in the technical room or in a frost-protected outdoor cabinet.



Alarm and monitoring

Acoustic/visual alarm with the option of GSM, SMS and remote alarm notification.



Service contract

Annual service and maintenance inspections as well as functional testing.

Where is MwStop® Bypass used?

The solution is relevant wherever a building must be able to discharge rainwater and wastewater during backflow conditions – without continuous pumping.

Typical installations

- Combined and separate sewer systems
- Rainwater and wastewater with gravity drainage during normal operation
- Commercial properties, hotels, housing associations and municipal facilities
- Private homes and low-lying properties
- Large user groups where high operational reliability is essential

Underground
car parks

Technical rooms

Hotels

Housing associations

Facilities

Low-lying locations

Coastal areas /
receiving water bodies

Rainwater shafts

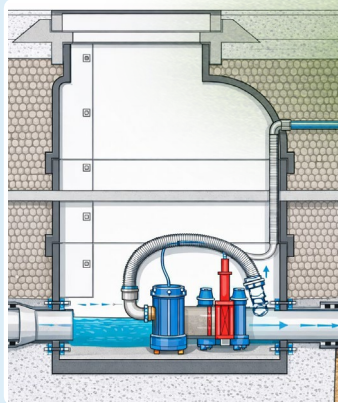
Combined
sewer systems

Rainwater sewer for park areas

The system is dimensioned for
the project – not the other way around.

MwStop Bypass in practice

Examples from material provided by Skybrudskompagniet show shaft installation, technical room, commissioning and service.



From design proposal and planning through to installation, testing, handover and service contract.



Examples
National Museum
of Natural History
Hotel Villa
Copenhagen

Reference photo: Commissioning, adjustment, testing, handover and service contract.



MwStop® Bypass

Safe discharge – lower energy consumption

- Protects against backflow from the public sewer system or receiving water body
- Maintains discharge from the building and connected areas during an event
- Reduces unnecessary energy consumption by using gravity drainage during normal operation

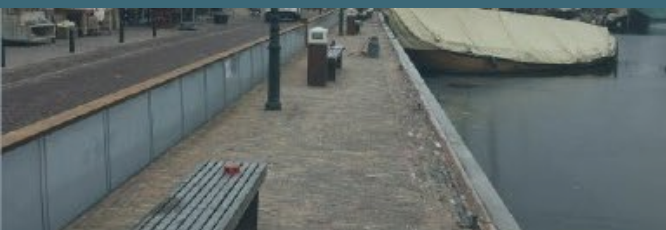
Contact

MTA Messtechnik GmbH

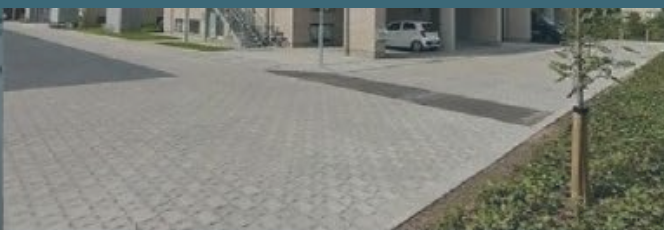
Tel. +43 4212 714 91-0
office@mta-messtechnik.at

Pumpt nur, wenn es notwendig ist

Examples of MwStop® Bypass projects carried out by Skybrudskompagniet



NOVO Værløse



SILO-1 Roskilde



Hotel Kong Arthur



Ny Carlsberg Glyptotek

