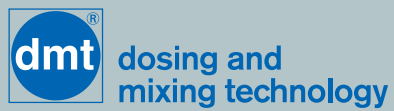


BIS E.M.S. GmbH



Gas odorizing units
Odorizing technology



Odorizing units for Natural gas, Liquid gas, Biogas

Complete solutions for odorizing units that meet your requirements

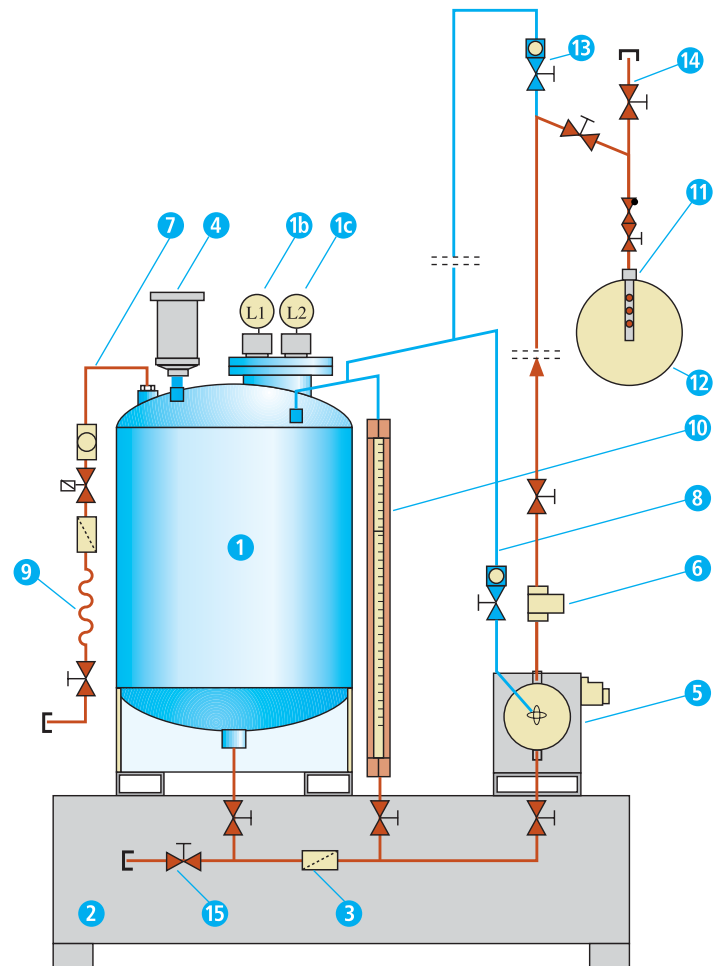
With your decision to install a **dmt**-Odorizing Unit you want to ensure a specific amount of odorant is continuously and reliably added to the gas flowing by dependent on its actual flow rate.

dmt-Odorizing Units meet these requirements.

Based on our development activities and experience collected over several decades, we can offer a wide range of odorizing units perfectly designed to fulfil any of the individual requirements our customers might have with respect to size, model and technology applied.

Concerning the aspects of safety, accuracy, and reliability our odorizing units assume an essential role in your installation as a whole. All **dmt**-Odorizing Units are designed and manufactured state-of-the-art. The high quality standards applied throughout all our manufacturing processes as well as our reliably short delivery times are only some examples of our strengths you can benefit from.

Moreover, **BIS E.M.S. GmbH** is your competent partner when it comes to retrofitting and modernizing already existing units or when your target is to find and develop customized solutions for all components. Benefit from the high degree of flexibility **BIS E.M.S. GmbH** is able to provide with their individually engineered solutions on the basis of modular design. All tank sizes, spillage trays and metering pumps are compatible with one another to allow for utmost flexibility, so that the whole system may be ideally adapted to suit almost any spatial requirements you might have.



Odorizing unit with stationary tank

- | | |
|---------------------------------------|---|
| 1 stationary tank | 8 metering pump vent pipe |
| 1b level sensor | 9 flexible hose connection |
| 1c level sensor overcharge protection | 10 measuring burette |
| 2 spillage tray | 11 injection nozzle |
| 3 fine mesh strainer | 12 gas pipe |
| 4 activated carbon filter | 13 vent pipe injection nozzle |
| 5 metering pump | 14 cleaning connection for injection nozzle |
| 6 flow transmitter | 15 cleaning connection |
| 7 filling pipe | |

Note: With standard installations featuring a stationary tank the tank sizes available include capacities of 25, 50, 100, 200, 400, 600 and 1.000 litres. Other tank capacities available on request.

The odorizing process

The use of dosing pumps for the addition of odorant to the gas in the gas pipe represents the latest and safest method to be applied in odorizing technology.

In this so-called injection technology the odorant is added to the gas in the pipe in proportion to the flow rate, where it is then absorbed by the gas. The metering pump is controlled on the basis of output signals provided by a gas flow translator.

This odorizing technique ensures the odor intensity of the gas is constant and the odorant is used in an efficient and thus economical way.

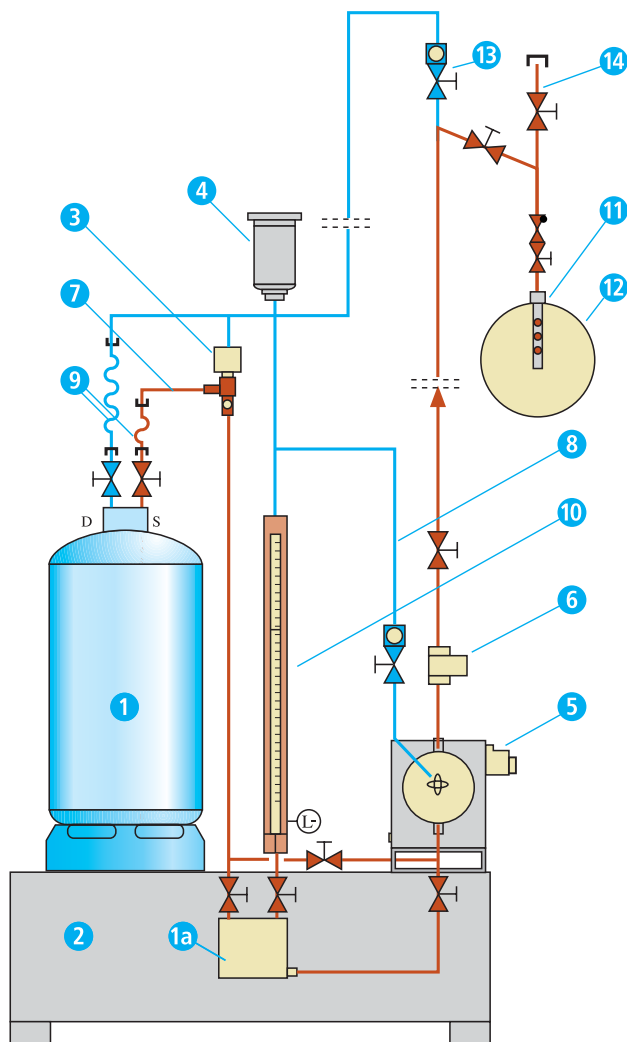
Purpose of odorization

Natural gas and liquefied gases are usually odourless or have only a very light odor.

Detecting a gas leakage by way of smelling is therefore absolutely essential for safety, especially since burnable gases tend to form explosive mixtures with air and may pose suffocation hazards.

Odorizing the gas thus serves the purpose of adding a penetrating and characteristic smell to it, which facilitates and ensures perception and detection of any gas leak far below explosibility limit.

Odorization is performed to the main flow of the gas and is in most cases integrated in the gas train or gas distribution units. Liquefied gases are best odorized during the loading of tank vehicles with the gas.



Odorizing unit interchangeable containers

- | | |
|-----------------------------|---|
| 1 interchangeable container | 8 metering pump vent pipe |
| 1a reservoir | 9 flexible hose connection |
| 2 spillage tray | 10 measuring burette |
| 3 feed pump with filter | 11 injection nozzle |
| 4 activated carbon filter | 12 gas pipe |
| 5 metering pump | 13 vent pipe injection nozzle |
| 6 flow transmitter | 14 cleaning connection for injection nozzle |
| 7 suction pipe | |

The odorants

Today, the most commonly used odorants are sulfurous organic compounds belonging to the following groups:

Thio-ethers (sulfides): A typical odorant of this group is THT (tetrahydrothiophen).

Thioles (mercaptans): Chemicals of this group include methyl, butyl, propyl, isopropyl and ethyl mercaptans as well as mixtures of these.

Gasodor™ S-Free™: As a sulphurous-free organic compound Gasodor™ S-Free™ is available as odorant.

For the odorizing of liquefied gases, mercaptans are preferably used. The type of odorant used may in some cases come to bear on the design of the unit. In case of odorants with a low boiling point and depending on the actual site conditions, it is recommended to pressurize the odorant supply tank with nitrogen.

Safety first

dmt-Odorizing Units apply injection technology. The quantity of odorant to be added is metered by a metering pump and added to the gas volume flow in proportion to the flow rate.

Our installations are designed to meet highest safety standards and comply with all relevant rules, regulations, directives and recommendations. The manufacture of **dmt**-Odorizing Units is subject to highest quality standards and regular inspections and surveillance. Our many years of experience in this field ensure the technology applied is safe, reliable and efficient.



dmt: verified safety

- DIN EN ISO 9001
- SCC**
- Specialized enterprise according to §19l German WHG
- Spillage trays according to "Bauregelliste A", part 1, no. 15.22
- Containers according to Directive for Pressurized - Vessels 97/23/EC available as option
- Material test certificates 3.1 EN 10204, available as option





- Metering Pumps... in use all over the world

dmT-Metering Pumps are completely sealed high-precision metering pumps equipped with a hydraulically acting supporting diaphragm made of stainless steel. Our metering pumps show extremely little wear and are characterized by their extraordinarily long service life. The pump drive consists of a lifting magnet manufactured according to protection system Ex II 2G EEx e II T4. All our model series feature linear stroke adjustment. In combination with the **dmT**-Metering Pump Control the optimum odorant quantity is added in proportion to the current gas volume flow.



PERFORMANCE CHARACTERISTICS of dmT Metering Pumps

Model	Max. capacity per stroke in [mm ³]	Max. stroke frequency [strokes/min]	Qmax [l/h]	Pmax [bar]	Suction/connections EO [mm]
MLEx 026.4/6	80,00	120	0,576	20	8L/8L
MLEx 040.5/8	251,33	120	1,809	70	8L/8L
MLEx 040.5/11	475,17	120	3,421	40	12L/8L
MLEx 040.5/14	769,69	120	5,541	25	12L/8L
MTV 1.05/11	245,43	120	1,762	80	8S/8S
MTV 1.07/11	494,90	120	3,563	40	8S/8S
MTV 1.09/11	795,21	120	5,725	25	12L/8S
MTV 1.11/11	1187,91	120	8,552	20	12L/12L
MTV 2.08/16	1005,31	70	4,222	100	12L/12L
MTV 2.09/16	1272,35	70	5,344	80	12L/12L
MTV 2.10/16	1570,80	70	6,597	70	12L/12L
MTV 2.12/16	2261,95	70	9,500	40	15L/12L

IDENTIFICATION TABLE of required pump sizes

Model	Max. odorizable gas flow [Nm ³ /h] with an odorant concentration of 20 mm ³ /Nm ³ , depending on gas pressure [bar]						
	6	20	25	40	70	80	100
MLEx 026.4/6	25.000						
MLEx 040.5/8	85.000	79.900	77.350	69.700	54.400		
MLEx 040.5/11	165.000	156.750	152.625	140.250			
MLEx 040.5/14	265.000	256.166	238.500				
MTV 1.05/11	85.000	82.572	81.358	77.715	70.429	68.000	
MTV 1.07/11	170.000	162.067	158.100	146.200			
MTV 1.09/11	270.000	252.000	243.000				
MTV 1.11/11	410.000	369.000					
MTV 2.08/16	200.000	194.667	192.000	184.000	168.000	162.667	152.000
MTV 2.09/16	255.000	246.986	242.978	230.957	206.914	198.900	
MTV 2.10/16	310.000	299.667	294.500	279.000	248.000		
MTV 2.12/16	450.000	427.500	416.250	382.500			

Note: The metering pumps may only be operated in combination with control devices PROSYS-ODS or PROSYS-ODS II. The controller supplies the direct current needed for the lifting magnet of the electro-magnetic linear drive.
Supply voltage from mains: 250V AC, 50/60 Hz, single-phase.

Optimal metering with WDK flow transmitter

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Measuring
technology

The WDK flow transmitter is an optional component for the measurement of the odorant quantity added.

Up-to-date odorization technology makes use of advanced computer-controlled measuring and control technology to provide for continuous process control with minimum effort. Guaranteed.

WDK Measuring system:

- Measures working capacity of metering pumps, accuracy $\pm 3\%$
- Sends alarm signals when set limit values are exceeded
- Records set dosing rate, actual dosing rate measured and odorant consumption

The advantage

- Simple and robust measuring system featuring a compact design
- Single-stroke measurement
- Calibration of operating point allowing the calibration of the system with the unit in operation

The Injection nozzle

consists of the injection tube with a large evaporation surface and is equipped with a ball valve and a non-return valve. The length of the injection nozzle depends on the nominal width of the gas pipe used.

WDK Flow transmitter

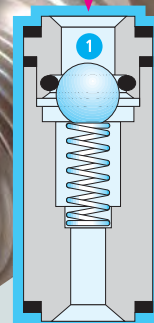
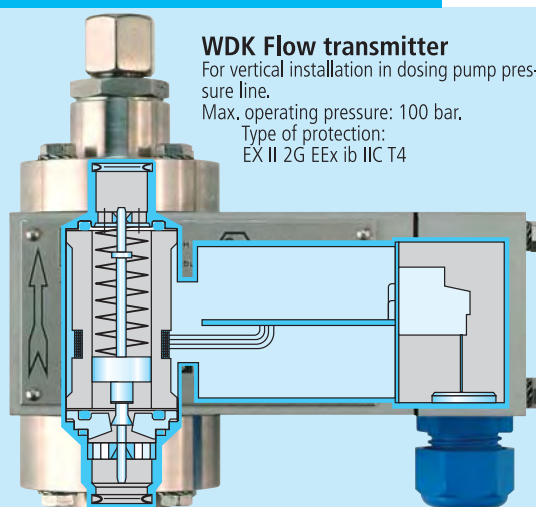
WDK Flow transmitter

For vertical installation in dosing pump pressure line.

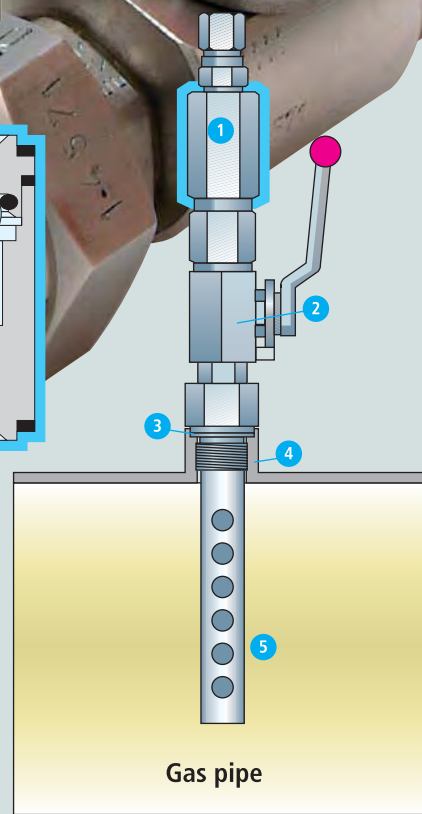
Max. operating pressure: 100 bar.

Type of protection:

EX II 2G EEx ib IIC T4



- 1 Non-return valve
- 2 Ball valve
- 3 Gasket
- 4 Weld-on sleeve
- 5 Injection tube



Gas pipe

Control devices for use in odorizing technology: PROSYS-ODS II

dmt-control devices of our PROSYS-ODS II series have been especially developed for their use in odorizing technology. All requirements of the proportional dosing of odorizing agent, including automatic control of the odorization, will be performed with these devices.

In the display of the control unit all relevant operating data of metering pump, flow transmitter and odorant consumption is shown.

The new generation of our devices, PROSYS-ODS II, replaces our renowned PROSYS-ODS series.



Housing for wall mounting
Dimensions: B*H*T- 355*240*180 mm
Mains supply voltage: 230V, AC



19"-Built-in assembly unit
Dimensions: 3HE x 84TE
Mains supply voltage: 230V, AC

FEATURES of dmt-PROSYS-ODS II Control units

Basic version:

- Manual / Automatic mode
- Manual shock odorant injection
- Interchanging of odorant containers
- Power limitation of metering pump
- Power supply monitoring
- Input impulse monitoring
- Internal memory monitoring
- Error diagnosis
- Stroke frequency monitoring
- Digital output
- External control Start/Stop
- Gas meter input
- Release / General alarm
- Bleeding pump
- Adding counter: gas flow
- Adding counter: odorant flow
- Odorant quantity recording impulse
- Keyboard with sturdy micro-switches
- Function keys for important operating data
- Informative text for parameter and active states
- Alarm diagnosis and acknowledgement
- Consumption data power-failure-protected

Extension of basic version:

- "Odorant low" monitoring, for interchangeable container or stationary tank
- Overfill protection for stationary tank
- Gas meter with adding and subtracting feature
- Alternating operation of pumps (Redundancy)
- Dosage and stroke volume monitoring
- Metering pump readjustment (in connection with dosing control device only) WDK
- Remote control
- External setting of dosing rate
- Additional device
- Automatic shut-off valve in dosing line

Modell: 2MLeX 026.4/6-NS-T100
consists of

2 metering pumps model MLeX 026
(technical details see page 4)

odorizing tank size 100l

spillage tray made of stainless steel,
leak tested according to German gas
and water association (DVGW) rules



Consulting, service, spare parts... from one source

Finding a high-quality product is one thing. But who is going to take care of instructing and training your staff, who is going to perform the commissioning and the regular maintenance required for your odorizing unit? **dmT** offers to their customers competent and professional service and training as well as prompt supply of spare parts and accessories.



dmT-Accessories

for Odorizing Technology

Standard connections for injection nozzle

High-pressure sleeve G 1/2", G 3/4" or G 1" (Sealing: flat packing made of stainless steel).

Activated carbon filters

for THT, mercaptans or GasodorTM S-FreeTM

Standard sizes available: 0.1 kg, 0.5 kg, 1 kg, 5 kg and 10 kg

Fittings and connections for filling of tanks

For the filling of the tank from interchangeable containers.

Overcharge protections

For hazardous and combustible liquids according to TRbF 120, IEC zone 0.

"Odorant low" displays

- Solenoid switch with float for installation in stationary odorant tanks
- Continuous level measurement device with analogue output, Principle of measurement: guided radar / microwaves
- Capacitive probe in graduated burette of odorizing unit.

Insulation elements for gas lines

with cathode protection.

Rinse equipment

For the rinsing of dosing pumps and lines/pipes before the start of maintenance works.

Stainless steel cabinets

Complete, including spillage tray made of stainless steel; Optionally available: electric heating, thermal insulation, circulating air fan equipped with activated carbon filter, lighting, control switch box mounted on the side of cabinet and equipped with built-in control, completely wired

Container loading device

For easy replacement of odorant containers.

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Consulting
Service
Spare parts



Model: MRX 30.22-SC-T200

consists of

1 metering pump model MRX 30.22

odorizing tank size 200l

stainless steel cabinet with lighting, thermal isolation and heater

spillage tray made of stainless steel, leak tested according to German gas and water association (DVGW) rules



Modell: 2MLEx 040.5/8-NS-T200

consists of

2 metering pumps model MLEx 040 (technical datas see page 4)

odorizing tank size 200l

spillage tray made of stainless steel, leak tested according to German gas and water association (DVGW) rules

www.ems-clp.de

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