Product catalogue

Pump test rigs

Trolley-mounted valve test rigs

Oil separator

100% FLADT
THE ORIGINAL!
SINCE 1988

FLADT
Engineering GmbH
30 YEARS OF INNOVATION & SERVICE

Pump test rigs from FLADT Engineering

Fire pumps are standardised throughout Europe. The basic standards are DIN EN 1028-1, DIN EN 14710-1 and DIN EN 14466. In DIN EN, pumps are classified according to their size and also grouped in tables based on their nominal delivery pressures.

More stringent requirements for extinguishing agent delivery, e.g. in airports and in certain branches of industry, require pumps that go far beyond the types covered by the relevant standards. These have been in use in special vehicles operated by fire and rescue services for years.

The test setup and the range of tests to be performed are adequately described in DIN EN 1028-2. The guarantee points to be verified require geodetic suction heads of 3 m and 7.5 m, taking into account air pressure and water temperature, and a defined pump speed. Additional tests, such as a leak test by performing a dry suction test, testing the suction capacity of the deaeration device, and finally testing the changeover from suction to pressure mode, should also be the subject of a comprehensive test procedure.

At the beginning of every planning schedule, the range of pumps to be tested must be determined. This subsequently results in a recommendation on the quantity of test water needed. Local conditions will ultimately determine the feasibility of obtaining the suction heads required and the setup of the system to be used.

Different suction heads can be obtained using elaborate underground concrete structures or by installing a patented steel structure in a conventional manner. Alternatively, physically accurate suction heads can be obtained in the choice of either above-ground or underground tank test rigs. The above-ground version offers maximum flexibility when adapting to local conditions. The design of the above-ground version also makes it suitable as a mobile test rig, installed in an enclosed trailer or roll-off container. When determining the type of pump required, including the efficiency level, test rigs equipped with electric motors having a rated output of 400 kW have been supplied to industry.

The range of test rigs, over 100 of which have already been produced, extends from flow rates of 30 l/min to 17,000 l/min. Tank sizes range from between 100 litres and 100,000 litres. Larger versions are also possible. An extensive range of sophisticated and proven accessories is available for all test rigs.

Contents

FLADT Engineering GmbH
30 YEARS OF INNOVATION & SERVICE

Pump test rig as a vertical shaft system

in accordance with DIN EN 1028

Pump test hall from the inside with ideal connection possibilities for suction and pressure hoses

FLADT vertical shaft system

Our patented shaft system only requires a shaft. Lowered into this shaft is a steel structure, which, in addition to the test tank, which can have a volume of up to approx. 25m3, contains all the required piping and compensation pumps. Since the geodetic suction head only needs to be changed in the pipes, this can be performed very quickly due to the relatively small volume, and the test water reservoir remains unaffected, unlike with other shaft systems.

This method, with a natural physical suction head is the most convenient and practicable process on the market today.

The steel structure alone ensures leak tightness from the outside to the inside and from inside to the outside. Little effort is required to install the system.

Except for the proof of leak tightness, the same criteria apply to the civil engineering work involved as for conventional shaft systems, albeit only for a vertical shaft.

Pump test rig as a vacuum system

Save costs with the original vacuum test process

Container variant in upright design as a space-optimised solution

Tank test rigs and shaft test rigs

Simulation of the suction head with the aid of a vacuum in a special tank.

Physically, this method can be seen as a genuine alternative to systems with suction shafts. The tank can also be located in an adjoining room or basement, or designed as an underground tank.

Test rigs with suction shafts.

By lowering the water level in the suction shaft, the required geodetic suction heads of 3 m and 7.5 m can be reached. The counter pressure is adjusted by means of the control valve.

We upgrade all existing systems in accordance with the current state of the art and our own extensive experience.

Underground vacuum system
NEW 8,000 to 30,000 litres capacity
Geodesic suction head 3 to 7.5 m

View inside pump test room with ideal connection options for suction and pressure hoses

Operating unit variants

1 Mobile workstation/operating unit (see page 4 top)
2 Operating unit on support arm
3 Waterproof tablet
4 Robust laptop
5 Large display

The control technology is based on a SIEMENS control system. Operation and visualisation are carried out on an industrial PC running SIEMENS systems and MS ACCESS. This means that all data formats are available for communicating with any higher-level management software.

Data backup onto your server and remote service and maintenance via the Internet are standard.

We offer you every possible option, whether this be support arm components, flexible roller containers or user-defined workstation solutions.

Example of how to use the optional large screen display.

Mobile pump test rigs

various applications for open waters, cisterns, wells or tanks

Mobile test rig A

Mobile solution with Storz-B-couplings

Optionally available with corresponding wye valves for attaching two type B hoses.

Trolley dimensions: approx. 100 cm long x 40 wide x 30 cm high (horizontal), Storz B connections, with DN 80 meter run:

> Control valve for setting discharge pressure
> Max. temperature 40° C
> Max. flow rate 2,000 litres/min
> Max. pressure 24 bar

Mobile test rig B

Mobile solution with Storz A-couplings

Optionally available with corresponding wye valves for attaching two to four type B hoses.

Trolley dimensions: approx. 140 cm long x 80 wide x 100 cm high
Storz A couplings, with DN 100 meter run:

> Waterproof table top (doubles as desk)
> Large castors for ease of movement
> Max. flow rate 4,500 litres/min
> Space for accessories, e.g. wye pieces, coupling spanner or hose rolls

Mobile test rig C

Mobile solution installed in a 2.6-tonne enclosed trailer

Test rig for testing pumps in accordance with DIN 14420, EN 1028 to max. FPN 10-3000, tank capacity 4,000 litres, incl. submersible pump tests

Mobile test rig D

Test rig for testing pumps in accordance with DIN 14220 and EN 1028

Mobile solution on an open roll-off platform for transport on a swap-body truck

> Dimensions: approx. 6,500 x 2,300 x 2,500 mm
> Entire test rig designed for testing with vacuum technology
> Max. tank capacity 8,000 litres
> Pump tests to max. FPN 10-6000
> All options as with test rig E are possible

Mobile test rig E

Mobile test rig installed in a roll-off container

Tank capacity: 7,000 to 14,000 litres, max. geodetic suction head 7.5 m

Static and dynamic pressure testing, incl. proportioning rate

Test rig testing pumps in accordance with DIN 14220 and EN 1028

Mobile solution in a roll-off container with splash-proof PC, Fully equipped model

> Dimensions: max. 6.5 x 2.6 x 2.55 m, tank capacity 7,000 to 14,000 litres
> Meter run for normal pressure to max. 10,000 litres/min
> Geodetic suction head to max. 7.5 m (temperature compensated)
> Static and dynamic pressure testing
> Graphical representation of the throttling curve
> Database containing data on all DIN and EN pumps, in addition to fire-fighting vehicles
> Self-explanatory software and operation

Accessories for pump test rigs

compatible with all FLADT test rigs due to optimally designed modular system

Testing submersible pumps – stand-alone system or as supplement to test rigs

PATENTED

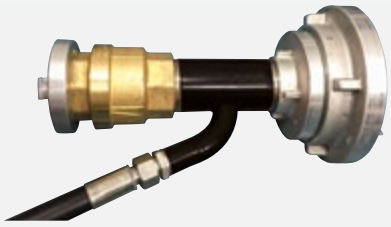
Stand-alone test rig for submersible pumps up to and including TP 15-1. With manual control valve and manometer to adjust delivery pressure. Electronic flow meter. Power supply 230V/50Hz.

500 litre tank capacity
> Flow control valve for level control
> Level probe for level control
> Storz 125 hose attached to the suction connection

Static/dynamic pressure test

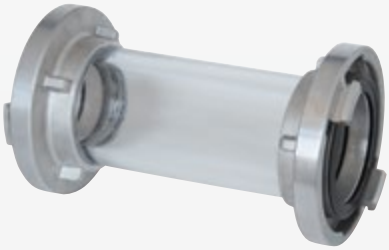
Scope of delivery:
> Hydraulic hose
> Booster pump
> Solenoid valve to flood the pump or trolley-mounted valve test rig
> Adapter

Booster pump for performing static/dynamic pressure tests and valve tests.

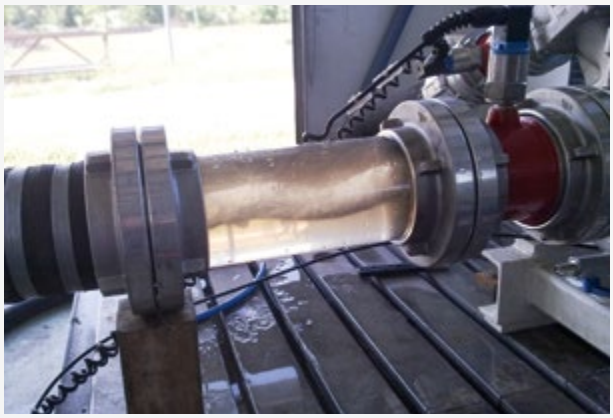


Adapter for pressure testing
For pumps fitted with a dual free piston deaeration system. With a connection for the booster pump.

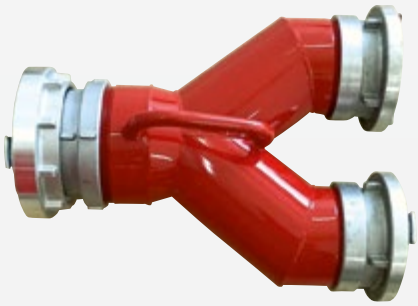
Sight glass/cavitation tube



For visualising vapour bubble formation during cavitation of the pump, we supply a specially designed sight glass tube milled from a solid piece of material with a transparent section 200 mm in length and a wall thickness of 15 mm. The tube has a fixed A-coupling at each end.



Storz F wye valve with 2 Storz A-110 couplings



Stainless steel **wye valve** with Storz A-150 rotating coupling, two parallel outlets with Storz A-110 fixed couplings, alternatively Storz-125

WLAN sensor box

Inlet and outlet pressure, in addition to tachometer are connected directly to the wireless box

Sensor trolley with operating panel
identical functionality and handling of all accessories.
Signals are transmitted to the pump test rig via WLAN.

Pump and valve testing at customer's premises

Tests are performed in accordance with DGUV 305-002

Our on-site service has been available since April 2019 as follows:

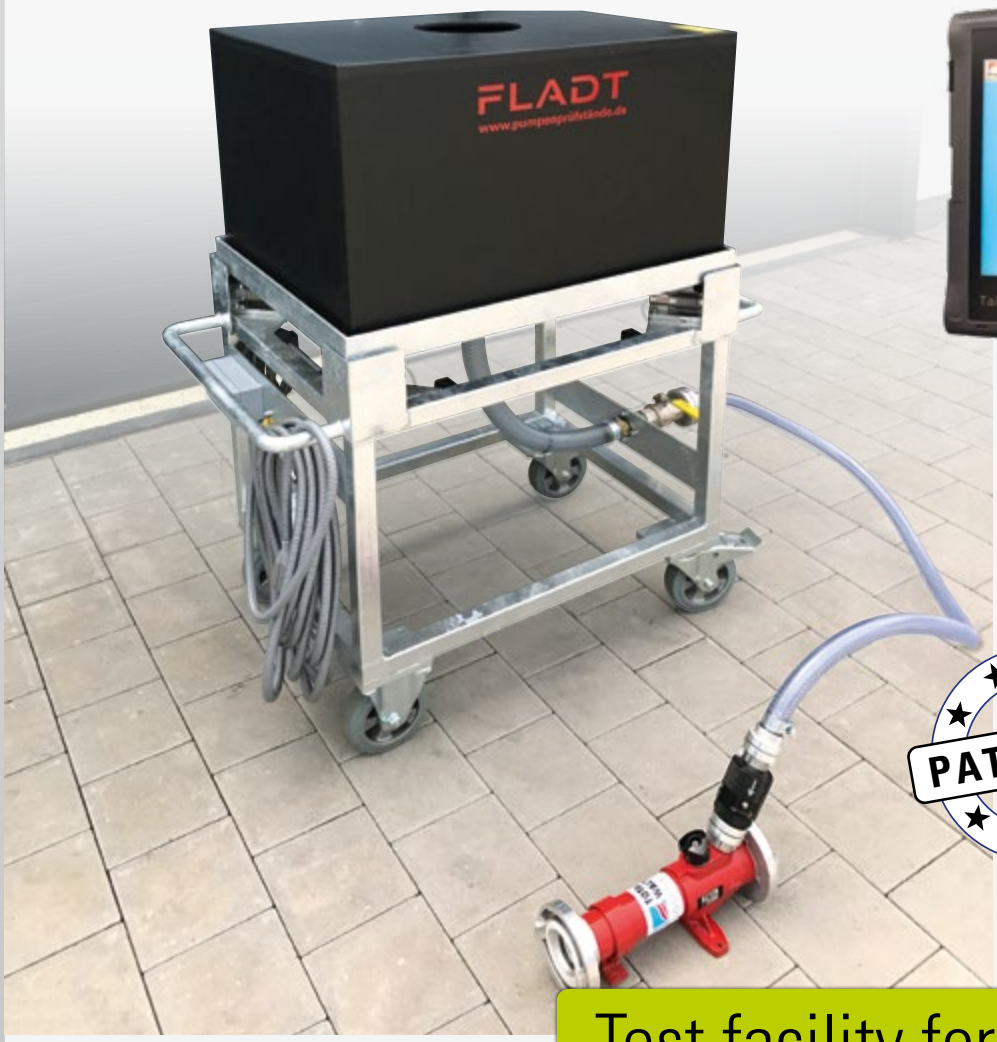
> Centrifugal fire pumps to max. FPN 10-3000

> All water-bearing valves/fittings incl. system separator

> Submersible pumps

http://www.fladt-gmbh.de/feuerwehrtechnik/dienstleistungen/

und http://www.fladt-gmbh.de/feuerwehrtechnik/armaturenprufung/



PATENTED

Test facility for foam production systems

For measuring the flow rate and evaluating the proportioning rate, a meter run with the corresponding electronics may be used as an alternative to the FLADT pump test rig

Available as a stand-alone system or supplement to all FLADT test rigs

This newly developed and patented test procedure enables foam production systems to be tested regardless of type or manufacturer. This applies to direct injection proportioners, foam premixing systems and balanced pressure proportioning systems.

In the standard version, this applies to flow rates ranging from 130 litres/min to 3,000 litres/min. The proportioning rates can be measured accurately above 0.1%.

Operation is possible only when carried out with a FLADT pump test rig

Dimensions: 110 cm x 65 cm x 135 cm (LxWxH)

Tachometer

compatible with all FLADT pump test rigs

The measured and, if necessary, converted pump speed is displayed directly on the PC screen and included in the log. We recommend that such measurements be taken, since deviations in the speed can result in significant differences in performance and are thus essential elements of pump tests performed in accordance with the relevant standards.

All four electrical tachometers we have available are connected to the FLADT pump test rig via a single socket and are automatically recognised by the system. No modifications to the test rig are necessary!

OBD-2 tachometer

NEW!

RPM is measured directly at the vehicle's OBD2 interface.

Compatible with all Euro 5 and Euro 6 engines of all major fire-fighting vehicle manufacturers.

Vibration tachometer

Determines the rpm from vibrations transmitted via the frame of the vehicle or the oil drain plug of the engine.

Well suited to vehicles up to and including Euro 4 and portable fire pumps (PFP). Only limited compatibility with Euro 5 emission class vehicles or higher, due to the lower vibrations.

Electronic tachometer

Ideal alternative to the vibration tachometer for portable fire pumps with a 2-stroke engine. Determines the rpm via the engine's electronic ignition system.

Optical tachometer

For optically measuring the rpm of rotating components, such as drive shaft of the pump or belt pulley of the engine attached to the crankshaft.

RPM measurement using a vibrating reed tachometer

For measuring rpm by detecting the rotational vibrations of the pump or engine by holding the tachometer against the casing or suction tube at the pump inlet.

Compatible with all engines and pumps. Requires results to be recorded by hand.

Technical seminar on pump testing

Testing of DIN and EN pumps for professionals employed by fire and rescue services or fire and rescue technical centres

2-day technical seminar with extension option (advanced seminar),
incl. hotel accommodation, dinner and catering service

Participants:		7-15 persons
Costs:		Days 1 + 2: EUR 800.00 (net) per participant incl. catering and hotel accommodation
	optional:	Days 2 / advanced seminar: EUR 300.00 (net) per participant incl. catering and hotel accommodation (1 night)
Location:		Max-Planck-Straße 14, 77694 Kehl-Auenheim, Germany
Conducted by:		Rüdiger Fladt (Managing Director) Dipl.-Ing. (FH) Günter Bechtold (Chief Fire Officer retd.)



Programme

Day 1	09:00–09:30	Reception
	09:30–12:00	Seminar (theory)
	12:00–13:30	Lunch break
	12:30–15:00	Seminar (theory)
	15:00–17:30	Hands-on pump tests
	18:00	Hotel check-in
	18:30	Drive to Strasbourg with sightseeing tour of the old town and Munster (cathedral)
	20:00	Joint dinner, exchange of views and experience
Day 2	08:30	Brief review and summary of theory
	09:00–11:00	Hands-on pump tests on company's own test rig
	11:00–12:00	Feedback and farewell
	12:00–13:30	Lunch break
	13:30–18:00	Consolidation session, hands-on exercises
	20:00	Joint dinner, exchange of views and experience

Advanced seminar
optional

Seminar topics:

Day 1
- Components of a pump
- Component functions
- Assessment of damage to components
- Background to the discharge range of jet pipes
- Explanation of selected terms from DIN EN 1028
- Performance values of pumps according to DIN 14420
- Static pressure test
- Performance values of pumps according to EN 102B
- Pump curves and their evaluation
- Physical properties of water
- Cavitation criteria
- Cavitation and its evaluation
- Maximum suction hose lengths
- Suction hose sizes
- Individual hands-on pump tests
- Pump operation, parallel and in series
- Evaluation of performance losses on pumps, incl. troubleshooting and technical background

Day 2 (until 12:00)
Repeat of main topics
Hands-on pump tests
Test runs
Throttle curves at different speeds
Throttle curves at different suction heads
Guarantee points
Dry suction trial
Static pressure test
Dynamic pressure test
Testing of submersible pumps and valves/fittings
Feedback and farewell
Seminar participation certificate

Day 2 (12:00–20:00 Uhr)
Individual pump tests
Troubleshooting
Consolidation session
Exercises
Exchange of experiences



NEW:
now also for valves with a backflow preventer and system separator in acc. with DIN 14346

Special stainless-steel version

Standard powder-coated model

Trolley-mounted test rig for valves and hoses

Now includes PC documentation

e.g. Standpipe

e.g. System separator

Our trolley-mounted test rig for valves is used for the testing of DIN-standard fire-fighting valves with nominal pressures of up to 25 bar.

These include, for example, standpipes and pressure-side valves, such as such as jet pipes, manifolds, pressure relief valves and hose shutoffs. Designed for use as a stand-alone system or in conjunction with our static/dynamic pressure test rigs.

gfd Art.: 151440 | FLADT Art.: 20.01.010

Optional:
Pressure testing of suction and pressure hoses, testing of lifting bags.

Connections:
¾" drinking water supply and 230 V power socket

Connection options:
Standpipe 80mm, Storz A. Storz B, Storz C.

New product:
Paperless documentation with PC and database, upload e.g. using Drägerware and MP-Feuer possible

Lifting bag testing

gfd Art.: 151444 | FLADT Art.: 20.01.013

Testing of lifting bags

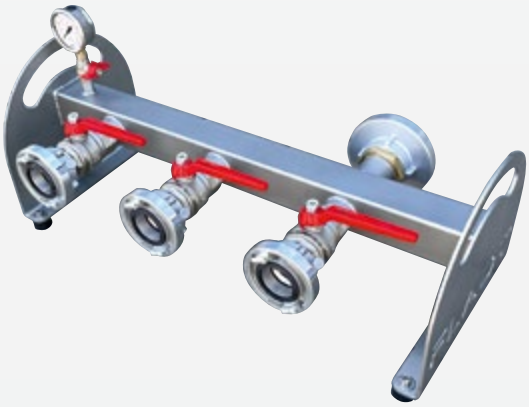
for FLADT trolley-mounted valve test rig (Art. no. 151440). Stainless steel support for 1 lifting bag attached to the trolley-mounted valve test rig, with corresponding test valve and test hose for testing all lifting bags to max. 16 bar.

Can also be retrofitted to an existing trolley-mounted valve test rig.

Explainer video on Youtube:

Pressure hose testing

gfd Art.: 151442 | FLADT Art.: 20.01.012



Test device for pressure hoses

This stainless-steel test unit can be connected to pressure hoses of all sizes and the corresponding pressure applied. The test unit is available in all special sizes and can be supplied with a variety of couplings.

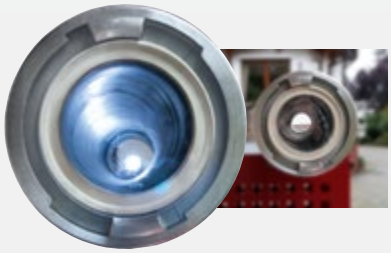
The pressure is applied via the test unit's pressure pump.

Connections:

> Inlet: Storz B
> Outlets: 3 x Storz C
> Pressure relief filling and pressure connection

Suction hose testing

gfd Art.: 151443 | FLADT Art.: 20.01.011



Support for suction hoses on trolley-mounted test rig

The suction hoses to be tested can be placed at an optimum height on the trolley-mounted test rig. After connecting the A-coupling, a 90% vacuum can be applied to the suction hose with the vacuum pump, which the associated vacuum pump installed in the test rig.

A view of the inside of the hose is provided via a plexiglass disc with an optional built-in or separate LED light.

Sales and distribution via:

gfd® Gemeinschaft Feuerwehrfachhandel Deutschland

Löwenbrucher Ring 36
14974 Ludwigsfelde, Germany
Phone: +49 (0) 33 78/20 469-0
Fax: +49 (0) 33 78/20 469-50
info@gfd-zentrale.de
www.gfd-zentrale.de
https://www.gfd-zentrale.de/de/gfd-verbund/mitglieder.php

This new type of mobile oil separator was used with great success during the flooding of the River Elbe!

Mobile oil separator

For removing oils from water surfaces

PATENTED

A specially designed mobile oil separator has been developed for the recovery of oil from water surfaces and its subsequent collection. The system can be seamlessly integrated into the ELRO products used by fire and rescue services in their hazmat vehicles and oil spill response equipment.

Alternatively available as a fully equipped trailer unit or on a roll container.

The oil separator consists of an upright cylindrical vacuum-proof container, which has a freely suspended skimmer inside, the vertical position of which can be adjusted from the outside by a handwheel. The optimum setting of the skimmer, i.e. at the interface between oil and water, can be seen from the outside using an inspection glass.

The special feature of the system is that the oil-water mixture is not pumped through the separator, with the result that no emulsion is formed, which is very difficult and also time-consuming to separate.

The oil that has been siphoned off is collected in a vacuum-proof oil collection drum, which can be emptied as needed using a drum pump. An ELRO peristaltic pump is connected to the other end of the separator to remove the air and the excess clean water from the separator, which are then discharged outside the system.

Oil separator

Diameter: 56 cm/Height:150 cm, Weight empty 70 kg, separation efficiency 90%, Flow rate: 100 litres/min
gfd Art.: 378043
FLADT Art.: 30.01.002

Accessories

NW250 flange cover for ELRO shipping drum
gfd Art.: 378047
FLADT Art.: 30.01.003

ELRO shipping drum
gfd Art.: 377855
FLADT Art.: 30.01.005

Suction scoop with ELRO DN32 connection and extension to DN50
gfd Art.: 377837
FLADT Art.: 30.01.004

DN50 suction pressure hose 5 m, 4 pieces
gfd Art.: 377618
FLADT Art.: 30.01.006

DN32 suction pressure hose (DN50 can be used as an alternative), 5 m, 1 piece is required
gfd Art.: 377636
FLADT Art.: 30.01.007

ELRO GUP hazmat pump 3-1,5 RV
gfd Art.: 377801
FLADT Art.: 30.01.011

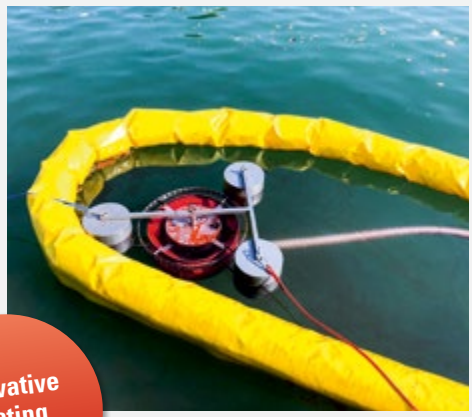
Complete system for use onboard a boat

This is the only compact mobile unit available on the market today.

> Trailer for trucks and cars
> Oil separator, collection drum
> ELRO pump
> Suction scoop (2 pieces)
> Hoses, adapters
> Roll container

gfd Art.: 377838
FLADT Art.: 30.01.008

Innovative floating skimmer!



Sales and distribution partner:

gfd® Gemeinschaft Feuerwehrfachhandel Deutschland

Löwenbrucher Ring 36
14974 Ludwigsfelde, Germany
Phone: +49 (0) 33 78/20 469-0
Fax: +49 (0) 33 78/20 469-50
info@gfd-zentrale.de
www.gfd-zentrale.de

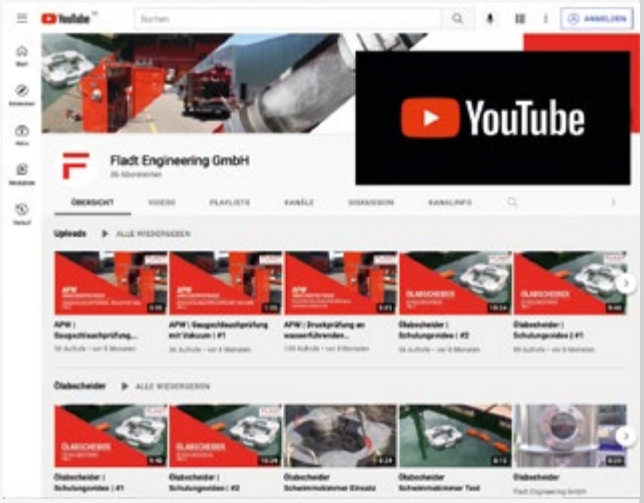
Fladt Webshop

Do you need an accessory or special parts?

Selected parts are now available in our webshop at www.fladt-gmbh.de/webshop.

The range of items will be constantly expanded.

Video



On our YouTube channel you will find explainer and demonstration videos. New videos are constantly being uploaded:
https://www.youtube.com/channel/UCWQjRLtujfqYPy-TiR-Futvw

Live video chat advice

We can also offer you the possibility of receiving advice via live video chat - simply make an appointment for a video chat (e-mail via info@fladt-engineering.de or call +49 7851.95 66 98-0)

We will be happy to advise you on any system or product enquiries you may have. It is important to remember that installation work needs to be taken into account at an early stage in the planning. If you should have any further questions, please don't hesitate to contact us. Simply make an appointment – we'd be delighted to visit you at your premises!

FLADT Engineering GmbH
30 YEARS OF INNOVATION & SERVICE

Fladt Engineering GmbH
Max-Planck-Straße 14
D-77694 Kehl-Auenheim

Phone +49 7851.95 66 98–0
info@fladt-engineering.de
www.fladt-engineering.de