

## Application

Centrifugal submersible sewage pumps fitted with the MultiCut cutting system are used as stationary appliances in pressurised drainage systems for discharge in sparsely populated areas or of detached houses. They are suitable for pumping domestic wastewater with the usual additions (as specified in German standard DIN 1986, Part 3).

For pumping from ducts which are connected to the public sewer system, explosion-proof submersible pumps of the UFK series have to be used. On account of the upstream cutting system, the pressurised line as from DN 32 - as from DN 80 minimum without cutting system - may be routed parallel to the terrain.

Operating conditions up to a temperature of the material to be transported of 40° Celsius

Submerged motor: Continuous operation (S1)

Emerged motor: Intermittent operation (S3)

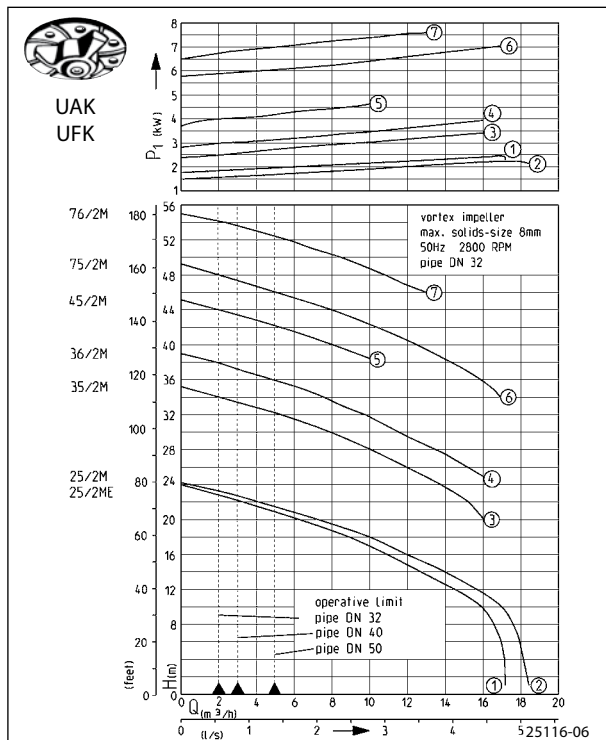
(e.g. 20% = 2 min. operation, 8 min. break)

## MultiCut cutting system

The unique MultiCut cutting system ensures a maximum of operational safety at outstanding delivery characteristics. Fitted with a cutter plate made of hardened stainless steel and a three-bladed knife, it disintegrates coarse additions in the wastewater with more than 62,000 cutting processes per minute before they can get into the pump hydraulics. Solids which cannot be transported are rejected outside of the pump by the cutting rotor as the cutting system is located upstream from the pump hydraulics. Specifically arranged grooves on the cutter plate ensure additional safety as the cutting unit is permanently cleaned automatically during the delivery.



## Performance



- Cutting rotor with stirring effect
- Plug-in cable connection
- External adjustable cutting mechanism
- Controllable oil chamber
- SiC mechanical seal independent of sense of rotation
- Moisture-sealed cable inlet
- Installed motor protection

We reserve the right to change specifications without notice  
Pump performance is subject to ISO 9906 tolerances  
The minimum flow velocity in the pressure piping must be 0.7 m/s according to EN 12056.  
This data is represented in the performance curve as a limit of application.



**Sewage pumps**

Type	Code No.	Type	CodeNo.	Largest height x width	Cable length	Pressure connection	Weight approx.
UAK 25/2 ME*	JP 09843	UFK 25/2 ME*	JP 09742	390 x 330 mm	10 m	DN 32	37 kg
UAK 25/2 M	JP 09809	UFK 25/2 M	JP 09810	355 x 330 mm	10 m	DN 32	37 kg
UAK 35/2 M	JP 09806	UFK 35/2 M	JP 09807	390 x 330 mm	10 m	DN 32	41 kg
UAK 36/2 M	JP 09907	UFK 36/2 M	JP 09908	390 x 330 mm	10 m	DN 32	41 kg
UAK 45/2 M	JP 09430	UFK 45/2 M	JP 09431	390 x 330 mm	10 m	DN 32	42 kg
UAK 75/2 M	JP 09912	UFK 75/2 M	JP 09913	520 x 430 mm	10 m	DN 32	90 kg
UAK 76/2 M	JP 09262	UFK 76/2 M	JP 09263	520 x 430 mm	10 m	DN 32	90 kg

\* See special technical notes in the chapter on "Technical data".

**Performance**

Type	Delivery head H [m]	6	9	12	15	18	21	25	28	32	34	36	38	40	44	46	48	50	52	54	
UAK/UFK 25/2 ME	Flow rate Q [m³/h]	17	16	15	12	9	5														
UAK/UFK 25/2 M		18	17	16	13	10	6														
UAK/UFK 35/2 M							16	13	10	5											
UAK/UFK 36/2 M								16	14	10	7	5	2								
UAK/UFK 45/2 M													10	8	2						
UAK/UFK 75/2 M											17	16	15	13	8	5	2				
UAK/UFK 76/2 M																	13	11	9	6	3

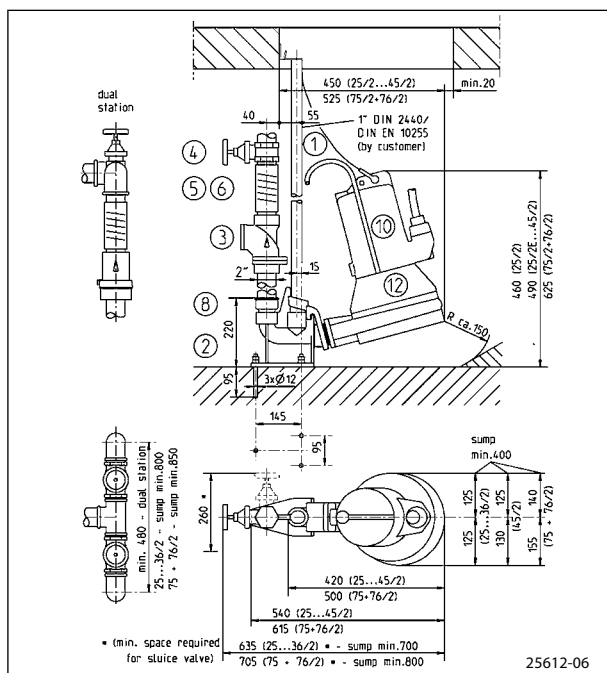
**Electrical data**

Type	Voltage Volt	Motor rating kW P <sub>1</sub>	P <sub>2</sub>	S3 %	Current Ampere	Built-in motor protection	RPM min. <sup>-1</sup>	Cable pluggable	Device Fuse min.
UAK/UFK 25/2 ME**	1/N/PE~230	2.70	2.04	35	12.0	Thermostat	2776	H07 RN-F 6G 1.5	16 A
UAK/UFK 25/2 M	3/PE~230/400	2.60	2.10	40	7.6/4.4	Thermostat	2860	H07 RN-F 6G 1.5	10 A
UAK/UFK 35/2 M	3/PE~230/400	3.70	3.04	40	11.5/6.6	Thermostat	2895	H07 RN-F 6G 1.5	10 A
UAK/UFK 36/2 M	3/PE~230/400	4.20	3.42	30	12.7/7.3	Thermostat	2880	H07 RN-F 6G 1.5	10 A
UAK/UFK 45/2 M	3/PE~230/400	4.84	3.93	25	13.7/7.9	Thermostat	2857	H07 RN-F 6G 1.5	10 A
UAK/UFK 75/2 M	3/PE~400/690	7.70	6.60	30	13.2/7.7	Thermostat	2920	H07 RN-F 10G 2.5	20 A***
UAK/UFK 76/2 M	3/PE~400/690	7.70	6.60	30	13.2/7.7	Thermostat	2920	H07 RN-F 10G 2.5	20 A***

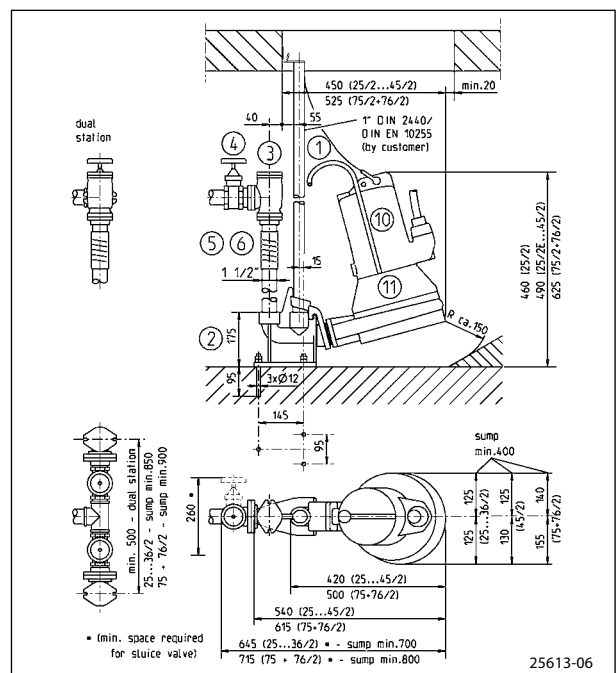
\*\* Operation possible only with control AD 12 ExME!

\*\*\* Value for Y/Δstart

**Mounting arrangement with ball check valve**



**Mounting arrangement with elbow ball check valve**



Accessories

			Code No.	25/2 ME	25/2 M	35/2 M	36/2 M	45/2 M	75/2 M	76/2 M
	① Chain with eyelets DIN 766	Load-bearing capacity								
		5 x 18.5, 2.5 m, 2 eyelets	320 kg	JP 19189	•	•	•	•	•	•
		5 x 18.5, 5.0 m, 2 eyelets	320 kg	JP 00423	•	•	•	•	•	•
		Stainless steel (1.4401), 4 x 16, 2.5 m, 5 eyelets + 1 shackle	200 kg	JP 23986	•	•	•	•	•	•
		Stainless steel (1.4401), 4 x 16, 5.0 m, 8 eyelets + 2 shackle	200 kg	JP 24934	•	•	•	•	•	•
	Hoist (not for stainless steel chains)		JP 21394	•	•	•	•	•	•	
	② Guide rail system GR 35, 1 1/2" female thread (see mounting arrangement)		JP 14094	•	•	•	•	•	•	•
	Shift of centre of gravity		JP 29857						•	•
	③ Swing-type check valve	H B D								
	DIN EN 12050-4	1 1/2" (DN 40), PN 4	150 120 1 1/2"	JP 00317	•	•	•	•		
	Ball check valve	2" (DN 50), PN 4	150 120 2"	JP 00326	•	•	•	•		
	DIN EN 12050-4 (without illustration)	2" (DN 50), PN 6	185 155 2"	JP 09857	•	•	•	•	•	•
	Elbow ball check valve KE	1 1/2" (DN 40), PN 6	170 125 1 1/2"	JP 22442	•	•	•	•	•	•
	④ Stop-off valve	H B D								
		1 1/2" (DN 40), PN 16	125max. 60 1 1/2"	JP 11837	•	•	•	•	•	•
		2" (DN 50), PN 16	140 max. 67 2"	JP 11838	•	•	•	•	•	•
	⑤ Elastic connection	H D inside								
		1 1/2" (DN 40), PN 4	120 50	JP 20368	•	•	•	•		
		2" (DN 50), PN 4	150 63	JP 17194	•	•	•	•		
	⑥ Clamp									
		1 1/2"		JP 03571	•	•	•	•		
		2"		JP 03572	•	•	•	•		
	⑦ Pump base M (without illustration)			JP 20980	•	•	•	•		
	Pump base M 220			JP 22302					•	•
	Retaining plate in connection with static air level control			JP 23100	•	•	•	•	•	•
	⑧ Reducing socket			JP 18388	•	•	•	•	•	•
		1 1/2"-2" for guide rail system GR 35		JP 10152	•	•	•	•	•	•
		1 1/4"-1 1/2" for pipe connection		JP 14274	•	•	•	•	•	•
	⑨ Pipe connection	1 1/4" (inside thread), for transportable application		JP 16870	•	•	•	•	•	•
	Coupling connection	size C, for transportable application		JP 14076	•	•	•	•	•	•
	Hose connection	Ø 42, for transportable application		JP 14077	•	•	•	•		
	⑩ Flushing tube, type I			JP 28221	•	•	•	•		
	Flushing tube, type II			JP 28222					•	•
	⑪ Electrical connection									
	Single unit	AD 12 ExME, DRP		JP 43163	•					
		+ soft starting device		JP 24138	•					
		AD 46 ExM, DRP		JP 43160		•				
		AD 46 MP SM*		JP 27119		•				
		AD 610 ExM, DRP		JP 43161			•	•	•	
		AD 610 MP SM*		JP 27120			•	•	•	
		AS 610 ExM, DRP		JP 43164					•	•
	Duplex unit	BD 46 ExM, DRP		JP 43166		•				
		BD 46 MP SM*		JP 27153		•				
		BD 610 ExM, DRP		JP 43167			•	•	•	
	BD 610 MP SM*		JP 27154			•	•	•		
	BS 610 with accessories - see controls								•	•
	All control units mentioned above including static air level controls (except BS 610)									
	* Control panels for pumps in explosion hazardous locations require a dry run protection		JP 41463							
	Rechargeable battery for mains-independent alarm (for MP SM control order article No. JP 28603)		JP 07562	•	•	•	•	•	•	•
	⑫ Seal leak detector DKG (for UAK)		JP 00252	•	•	•	•	•	•	•
	Seal leak detector DKG-Ex (for UFK)		JP 00249	•	•	•	•	•	•	•

For additional accessories, please refer to controls.

## Technical data

### Pump

Vertical, single-stage, submersible, pump housing with horizontal discharge, open impeller, MultiCut cutting system - adjustable.

### Bearings

Common shaft for pump and motor, grease-packed ball bearing.

### Seal

Silicon-carbide mechanical seal independent of the sense of rotation, oil chamber and artificial carbon mechanical seal or duplex rotary shaft seal to motor compartment, safe to run dry.

### Motor

Submersible, insulation class F, type of protection IP 68, protected by winding thermostats, automatic activation by control only or - up to 3.2 kW three-phase current - by CEE plug with motor protection upon request, UFK types tested by German PTB Federal Agency, Ex designation  $\text{Ex II 2 G Ex d IIB T4}$

### Materials

Pump and motor housing as well as impeller made of grey cast iron GG (impeller 75/2 and 76/2 made of spheroidal graphite iron), completely covered shaft with no contact to the pumped liquid, stainless steel hardened (57 HRC) cutting system, special flexible rubber cable.

### Scope of supply

UAK sewage pump or explosion-proof UFK submersible pump in keeping with German / European standard DIN EN 12050 with shackle and 10 m cable, without plug, without base.

### Special technical note for UAK / UFK 25/2 ME

As the rated output of the motor exceeds 1.4 kW, the permission of the local power supply organisation has to be obtained prior to ordering and commissioning.

### Soft starting device (only for UAK/UFK 25/2 ME)

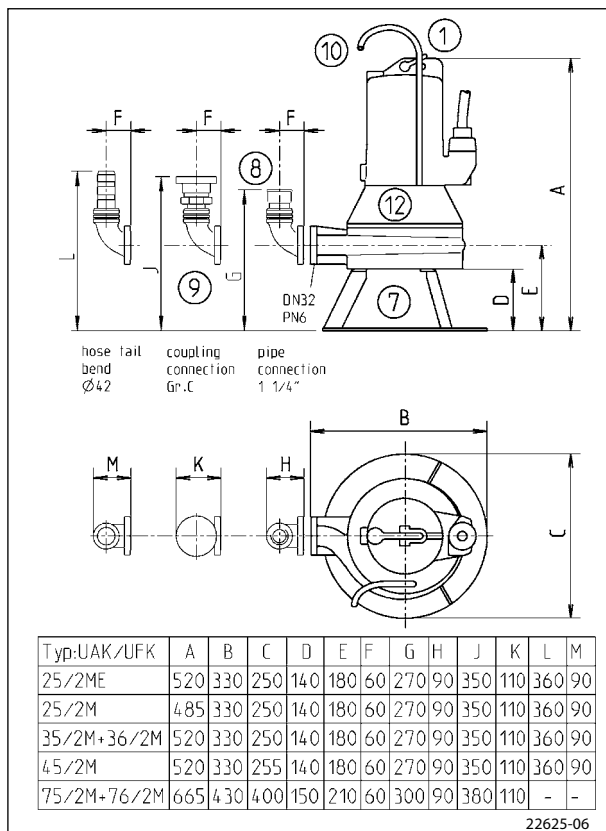
The soft starting device is a resistance starter with a built-in overheating protection in order to reduce the starting current to approx. 33 A. The maximum switching frequency is 10/switching action per hour (at an ambient temperature of 40° Celsius).

This assembly group is installed in the AD 12 ExME control in the factory when ordered. A subsequent installation is not possible.

### Flushing tube

The flushing tube is screwed into the annular casing of the pump instead of the venting screw. It vents the pump and at the same time cleans the chamber with a jet of water. This bypass causes a loss of performance of abt. 10%.

## Dimensions with pump base (mm)



## Minimum head

Some pumps require a minimum head to ensure a sufficient flushing effect (see table):

Pump type	Installation	Minimum head H <sub>man</sub> [m]
... 25/2 M	straight	15
... 25/2 M	inclined	4
... 35/2 M	straight	25
... 35/2 M	inclined	12
... 36/2 M	straight	25
... 36/2 M	inclined	12
... 45/2 M	straight	30
... 45/2 M	inclined	30