

Flow Transmitter DW-FS/AV

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1. General Information

- Keep the operating instructions on getting your device.
- This equipment has to be used according to specifications developed for this purpose. Other applications as well as changes to the device are not allowed
- Full compliance with the safety instructions are part of the intended use of the device
- Other applications as well as changes to the device are not allowed.
- A liability or guarantee for damage or injury resulting from use or purpose other breaches of safety regulations, HSW assumes no liability or warranty.
- The rules for the application of the device accident prevention and safety regulations must be observed.

1.1 Disposal

Dispose of Electrical Appliances not in the trash but to suitable collection or approved specialist dealers.

1.2. Safety Instructions

1.2.1 General Information

- The device is built at the time of its development and manufacturing according to current, accepted rules of technology and is safe to operate.
- It may, however, arise from the unit dangers if it is not used by suitably trained personnel improperly. Any person who is entrusted with work on or with the equipment must read before starting work the manual and must have understood.
- Changes to the device as well as additions and modifications are prohibited.

1.2.2 Responsibility of the operator

- Always store operating instructions ready to hand
- Only operate the device in perfect technical condition.
- The safety instructions in this manual as well as the for the working area valid general public applicable safety-, accident prevention - and environmental regulations must be observed.

1.2.3 Intended Use

- Safe operation is only guaranteed when scope is intended used according to the instruction manual.
- The use and maintenance of the device must always be in accordance with national provisions.
- The device is used for flow detection and supervising
- The device is oil and water resistant (The protection classes mentioned are to be considered).
- Do not expose the device to strong impacts or shocks.
- Any claims against the manufacturer and / or his authorized representative due to damage from improper use of the device are excluded.

1.3. Safety instructions

- Before each use, the device must be checked for full functionality. If the function is not guaranteed or damage is found, the device may not be used.
- In case of failure do not try to repair the device.
- Send the device back for repairs to us if necessary.
- Changes to the device are prohibited for safety reasons. Changes result in the immediate exclusion of liability.

2. Description of the Instrument

The DW-FS detects flow in pipe system and supplies a 4-20mA signal which is related to the flow rate. A paddle wheel is driven by flow in the pipe. Rotation relates to the flow speed and is detected by a magnet/hall sensor system.

There are 2 types available. DW-FS-15...50 is the inline version with T-section available in different sizes. DW-FS-AV comes with welding socket for welding on existing pipe.

Advice!

DW-FS may not be used as exclusive security relevant component up to DGR 97/23/EG

3. Technical Data/Dimensions

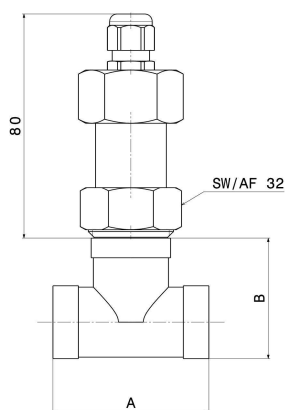
Technical data

Measuring principle:	Paddle wheel
Mechanical connection:	Welding socket (AV Version) or T-section
Housing:	Stainless steel (parts in touch with liquid)
Paddle wheel:	POM
Bearing:	Sapphire/Ruby
Axle:	Carbide
Protection class:	IP 65
Signal transfer system:	Hall sensor/magnet
Accuracy:	± 2% from end range
Power supply:	24V ± 20% DC
Analogue output flow:	4-20 mA
Working temperature:	-40° - 100°C
Max. pressure:	25 bar
Power consumption:	50 mA max.
Connection cable:	3,2 m length

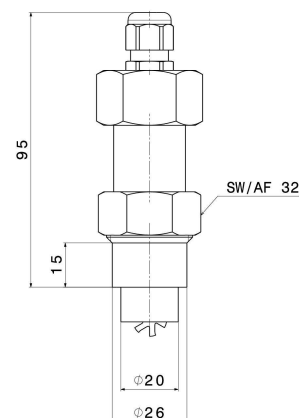
Types and Ranges

Type	DN	R"	Range min. l/min	Range max. l/min
DW-FS-15	15	1/2"	2,5	50
DW-FS-20	20	3/4"	5,5	92
DW-FS-25	25	1"	8	145
DW-FS-32	32	1 1/4"	14	240
DW-FS-40	40	1 1/2"	22	375
DW-FS-50	50	2"	35	580

DW-FS-AV	Range 0,3 - 5 m/s
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Type	Dim. A	Dim. B
DW-FS-15	80	43
DW-FS-20	55	43
DW-FS-25	58	51
DW-FS-32	65	62
DW-FS-40	67	68
DW-FS-50	78	81



4. Position of mounting

4.1 Mounting position on hydraulic view

It is advantageous to install the unit in a straight piece of pipe and to choose a place of mounting which has the biggest possible distance from elbows, valves etc.

It is especially important to have the biggest possible distance from magnet valves and ball valves and that the valves are mounted behind the DW-FS. Please make sure that they are opened as slow as possible, especially if the pipe after the valve is empty. These measures prevent the measuring system from flow shocks which can cause damages.

We recommend a straight length of $10 \times d$ at input side and $5 \times d$ at the output side (d = diameter of pipe).

The apparatus provides a stable signal when installed at closer distances, but depending on flow conditions it may be less accurate

4.2 Mounting position on electronic view

Please take in consideration that the mounting has to be done EMI conform in order to avoid interruption of operation.

Especially the following points have to be attended:

Cable of the DW-F may not directly taken close to high voltage wiring. The device should not be installed close to inductance, switching loads, engines or similar sources of inductive fields.

4.3 Direction of Flow

It is essential that the unit is mounted so that flow is as indicated by the arrow on the body. The unit will not operate accurate unless installed correctly in this way and the possibility of damage to the unit cannot be excluded.

4.4 Mounting Orientation

The devices can be mounted in any orientation without any influence in function

5. Mechanical Mounting

5.1 Mechanical Mounting thread version

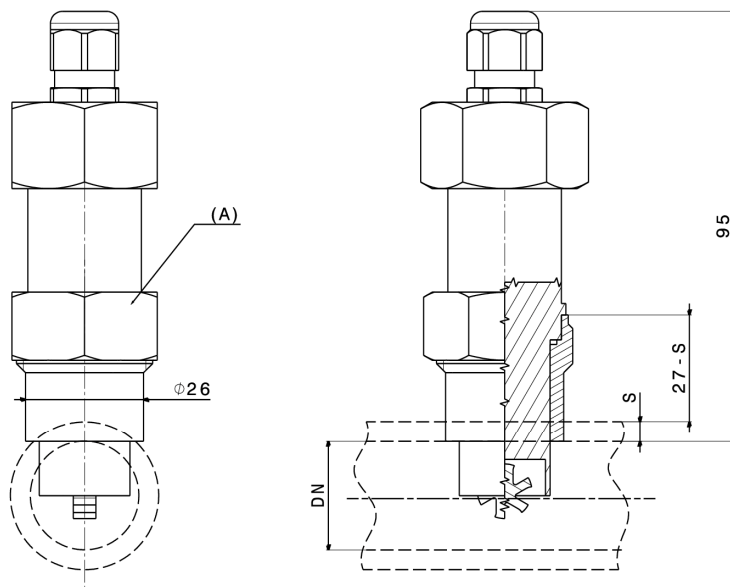
DW-FS must be mounted in the pipe related to the connection size. For sealing please use teflon tape.

Take care that no tape protrude in the pipe. Otherwise tape remains can influence paddle wheel function.

5.2 Mechanical Mounting Weld On Version

The welding socket is included in the delivery. Remove by loosening union nut. The dimensions shown in the drawing (bellow) must be adhered to strictly to. Drill a ridge less hole in the pipe. Weld the socket to the pipe. Mount the flow transmitter to the socket ensuring that the pendulum is not damaged during this procedure. Align the transmitter into the final desired position before tightening the union nut . Please do not forget to keep the flow direction in consideration before weld on the socket (groove).

Please take care on dimensions mentioned at following drawing.



6. Electrical connection

Connection is made at the wire end. There are 4 cables have to be connected as follows:

- White = Power supply 24V DC +
- Brown = Power supply 24V DC -
- Green = Analogue output 4-20mA -
- Yellow = Analogue output 4-20mA +

Attention! Please don't mix connection. This can cause male function or damage of the unit.