

PRE-INSTALLATION MANUAL

FNDX 5HS

Automatic NDT Industrial
X-Ray Film Processor



NDT Film Processors type: *FNDX 5 HS*
to be used for sheet and roll film production

Processing capacity : 33cm/min - 13 in/min at 8min Dry to Dry



07/2011 AN

FNDX 5HS Automatic NDT Industrial X-Ray Film Processor

The processor is designed in such a way that only a cold water supply, drain and power connection are necessary. The plumbing is carried out according to DIN 1986/1988 and must comply with local plumbing codes. The cold water supply must have a shut-off valve / tap system connected with a ¾" outlet (washing machine connection) to the processor.

Make sure that the water supply tap is always accessible as it must be opened before work and closed after work. By means of the pressure/flow regulator (integrated into the water solenoid valve of the processor) the flow rate is controlled to 2.5Lt/min assuming a water supply pressure of 0.3-10 bar. It is recommended to install a second water supply outlet (with shut-off tap) and with approx. 2.5 mtr/8ft of hose for rack cleaning purposes.

The drain tubes of the processor can be drained separately or together, according to local regulations and health/safety requirements. The hose connections from the processor to the outlet (drain) are enclosed. The **fixer** can be collected separately in a plastic container (storage tank) or directly connected to a silverrecovery unit. The **developer** overflow can be collected in a plastic container. In order to avoid a backwash of the drained, used chemicals, the drain hoses should be free of bends and with a constant fall. The drain must be correctly ventilated!

A floor or wall drain may be used which should include an anti syphon system.

Note: Do not use brass or copper in the drain lines.

The minimum diameter of the drain lines should be 40 mm.

Electrical:

For operation, a separate 16 Amp fused socket with earth leakage protection is required. (for further information, consult the processor datasheet)

Replenishment:

Each replenisher storage tank has a 30 litre capacity and should be located on ground level with easy access - please take notice of the required minimum wall clearance for servicing and cleaning

Automatic Cooling: The processor electronics will automatically detect over temperature developer conditions and then activate a cold water cooling system. The temperature of the incoming cold water supply should be between 7 - 15 C in order for the system to operate efficiently. If not available and in cases where the processor is required to operate in warm ambient conditions a chiller system should be used on the developer tank solution. A chiller unit is available as an optional accessory for either self installation or factory fitted if ordered with the processor.

Processor ventilation: The FNDX 5HS processor is supplied with an exhaust port located at the feed end of the processor. During installation this port must be connected to an external ventilation system provided at the installation site (sufficient power to ventilate the warm exhaust air away and out of the processing area).

Where the processor is installed in a „through wall“ location whereby an auto feeder or feed table is positioned in a darkroom and the main body of the processor is in daylight, it is important that the darkroom is pressurised to ensure a positive airflow from feed to dryer thus avoiding condensation related problems.

FNDX 5HS

Environment Requirements

Room Temperature:	15 - 30°C (59 - 86°F)
Relative Humidity:	40 - 76% RH (noncondensing over operating temperature range)
Altitude:	Maximum altitude 2424 m (8000 ft) above sea level.
Ambient Light:	Room lighting should not exceed 450 lux (150 ft-candles) at the PROCESSOR. The room must be capable of going completely dark when loading film into the PROCESSOR.
Heat Output:	2200 Btu/hour

Ventilation:

- Volume - full load, 2,100 L/min (75 ft³/min), maximum, 24 hours per day
- 66°C (150°F) maximum
- EXHAUST DUCT from the building with an Adjustable Air Gap - 0.76 - 2.54 mm (0.03- 0.10 in.) of water
- 10.2 cm (4 in.) DUCT 0.25 - 1.02 mm

Check local codes for venting requirements.

- If venting is not correct, fumes will corrode the equipment. Do not install the PROCESSOR or ACCESSORIES if the venting is not correct.
- If the PROCESSOR is installed with an AUTOFEEDER or FEED TABLE is located in the darkroom and the PROCESSOR is installed in a daylight location, the darkroom must have adequate pressure to ensure a positive airflow from the FEED to the DRYER. This should avoid condensation problems.
- The airflow is correct when the fumes are flowing out the PROCESSOR through the EXHAUST HOSE.
- If the ventilation is to be connected to the PROCESSOR, measure negative static pressure in the EXHAUST DUCT. See on the page x.

Plumbing Requirements

- All plumbing requirements must comply with local and national codes. Do not use IRON PIPES.
- All DRAIN material must be made of chemically resistant, non-corrosive material. Use PVC or the equivalent.

Water Supply • Temperature

– 10° - 60°C (64° - 140°F)

– If the temperature of the water supply is higher than 60°C (140°F), install a WATER CHILLER.

– A tempered water supply is recommended for cleaning the PROCESSOR and for mixing chemicals manually.

• Filtered

– 50-micron WATER FILTERED is recommended in the input water line

• Flow Volume

– 2.5 L/min

• Pressure

– 3 - 10 bars

• Location:

– Accessible to both the PROCESSOR and the REPLENISHMENT TANKS

HOSES 2-way magnetic VALVE with 3/4" HOSE connection using a DVGW system device or PIPE device

DRAIN • Size: 32 mm (5.4 in.) HOSE connection

• Minimum Diameter - 7.6 cm (3 in.) with no obstructions

• Distance from PROCESSOR - 1.5 m (60 in.)

• Height from floor - Top of the DRAIN or DRAIN CONTAINERS must be lower than the bottom of the PROCESSOR.

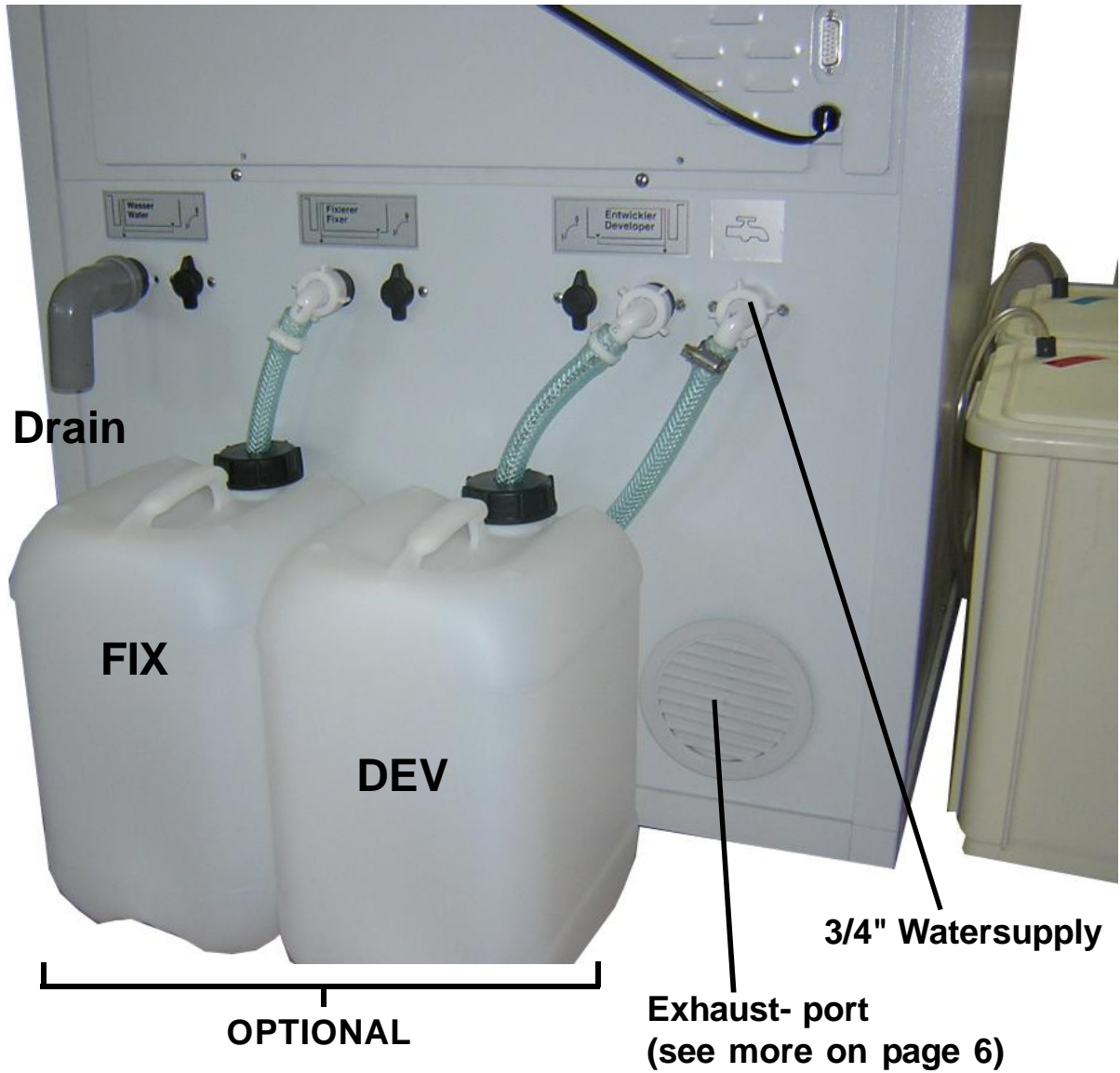
• Capacity

– 1 L/min (1/4 gal/min) during normal operation

– 2.85 L/min (3/4 gal/min) for draining all three solutions together

– 0.95 L/min (1/4 gal/min) if each solution is drained separately

Water Supply, Drain connection and Replenishment:

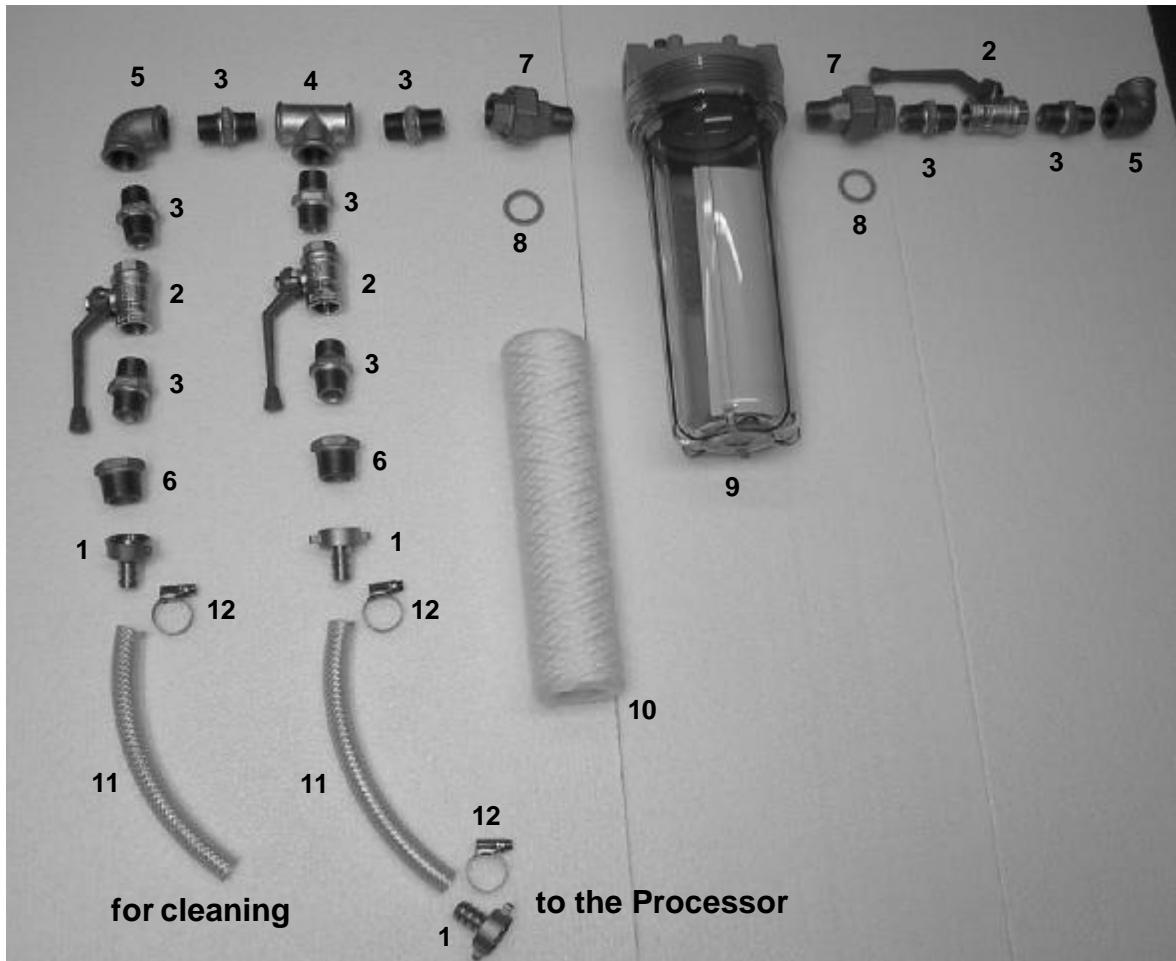


2x30L Replenishment containers are supplied with the processor.

Water supply-kit assy:

Order No.:90 60 008

Water IN



Pos. No.	Part No.	Beschreibung	Description	Quantity
1	90 45 000	Schlauchholländer 3/4"	Hose connector - 3/4in	3
2	90 45 001	Kugelhahn 3/4"	In Line Tap	3
3	90 45 002	Doppelnippel 3/4"	3/4in straight fitting	8
4	90 45 003	T-Stück 3/4"	T-Fitting 3/4in	1
5	90 45 004	Bogen 3/4"-90°	3/4in Elbow - 90°	2
6	90 45 005	Reduzierung	Male/Female fitting	2
7	90 45 007	Holländer	Filter inlet/outlet fitting	2
8	90 45 009	Dichtung	Flat washer	2
9	90 45 027	Filtergehäuse	Fiter Housing	1
10	90 45 035	Filterpatrone	Filter Cartridge	11
11	90 70 420	Schlauch 1/2"	Hose 1/2"	4meters
12	90 81 826	Schlauchklemme	Hoseclamp	3

FNDX 5HS

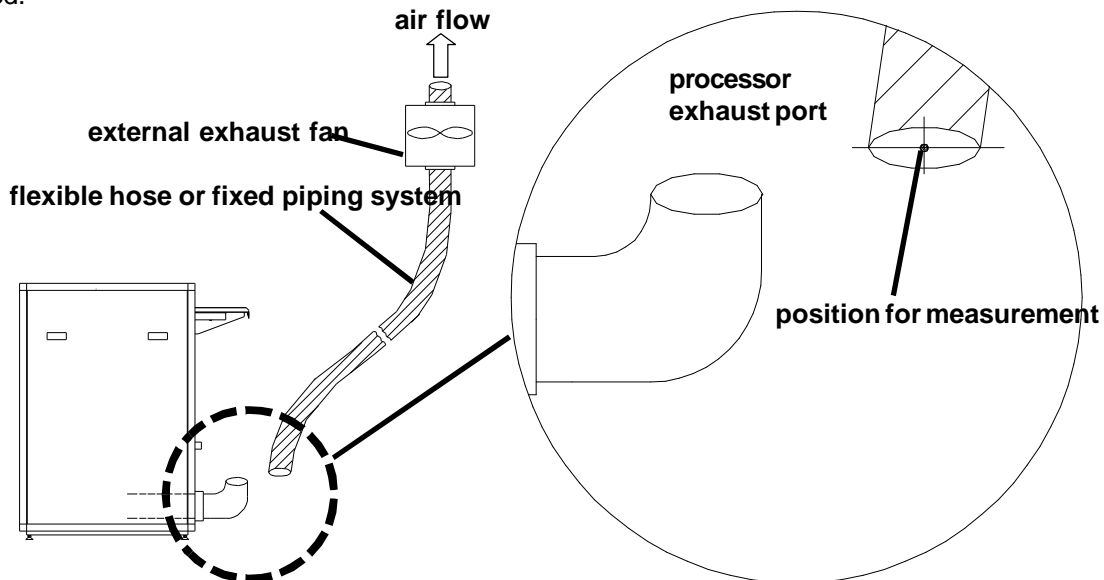
To protect the processor as well as any equipment that may be directly interfaced to or with the processor, the processor must be connected to an external exhaust system. (failure to correctly ventilate the processor and dryer exhaust will result in corrosion within the processor and interfaced equipment - in addition, the probability of processor-related film artifacts is increased). The exhaust system provided at the installation site should comply as follows:

- 1) The disposal of the effluent air must comply with all local environmental safety codes and regulations.
- 2) The following calculation should be used to determine the efficiency of the system provided and that the correct amount of end to be connected to the processor. To prevent venturi effect at the duct opening, all measurements should be made at a point 30cm from the open end of the duct to be attached to the processor.

Negative Static Pressure - Water head
at 100mm tube size: min 0,76mm - max. 1.02mm

3) Measurement can be made typically using a Dwyer Air Meter (see the image below) If such a device is not available, contact your local representative for further information.

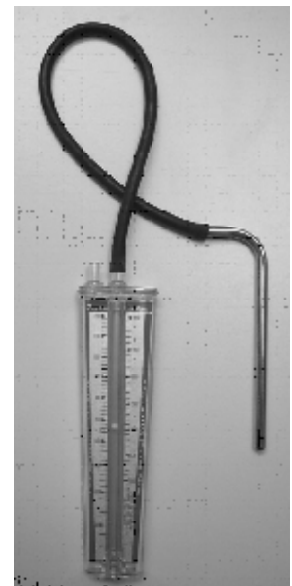
4) If solid metal or rigid plastic ducting is attached to the processor in a manner which would prevent easy removal, a small hole may be created at a point approximately 30 cm from the processor ventilation port. The „L“ shaped metal tube provided with the Dwyer Air Meter can then be inserted through the opening. When measuring negative air, the tube tip opening should be pointed in the direction of airflow away from the processor. The processor must be de-energized when making air measurements. The air meter should be held in the vertical position to assure the greatest accuracy. The meter tubing must not be kinked.



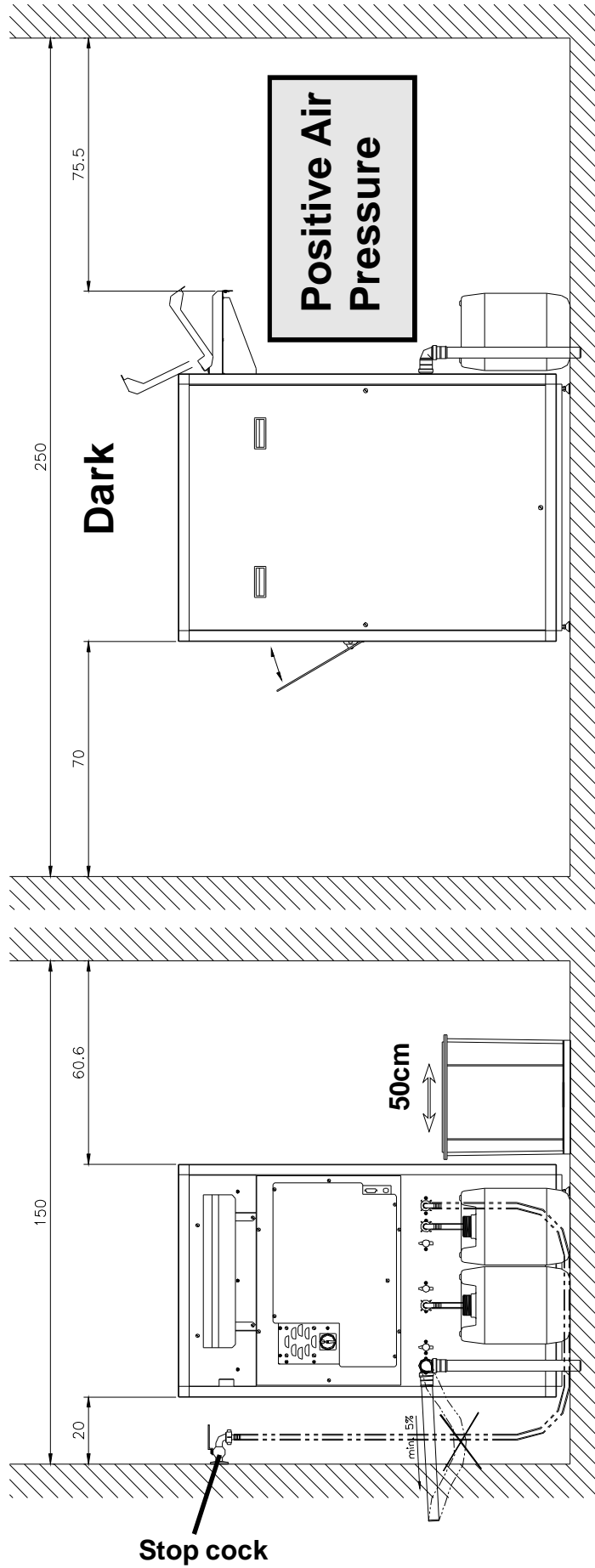
NOTE: If the ventilation tubing is connectet to house-internal exhaust system, an air-gap of 5cm (2 inch) has to be provided accordingly.

It is most important that negative airflow in the processor exhaust duct remains constant when the processor is in the run, standby, and shut-down modes. When processors are installed in darkroom wall openings, it is most important that darkroom air pressure exceeds the air pressure of the area surrounding the darkroom. This is intended to prevent air cascading through the processor into the darkroom area. Proper balancing of dark/lighted room air in addition to correct dryer venting will not only maximize containment of chemical fumes and vapors within the processor and its dryer exhausting system, but the incidence of film artifacts occurring in the out-of-solution transport roller sections will be greatly reduced. To prevent positive airflow from flowing back into the processor from the building exhaust there should be an air gap not exceeding more than 5.08 cm (2.0 in.) between the processor exhaust hose and the building exhaust. this will benefit the site in two ways:

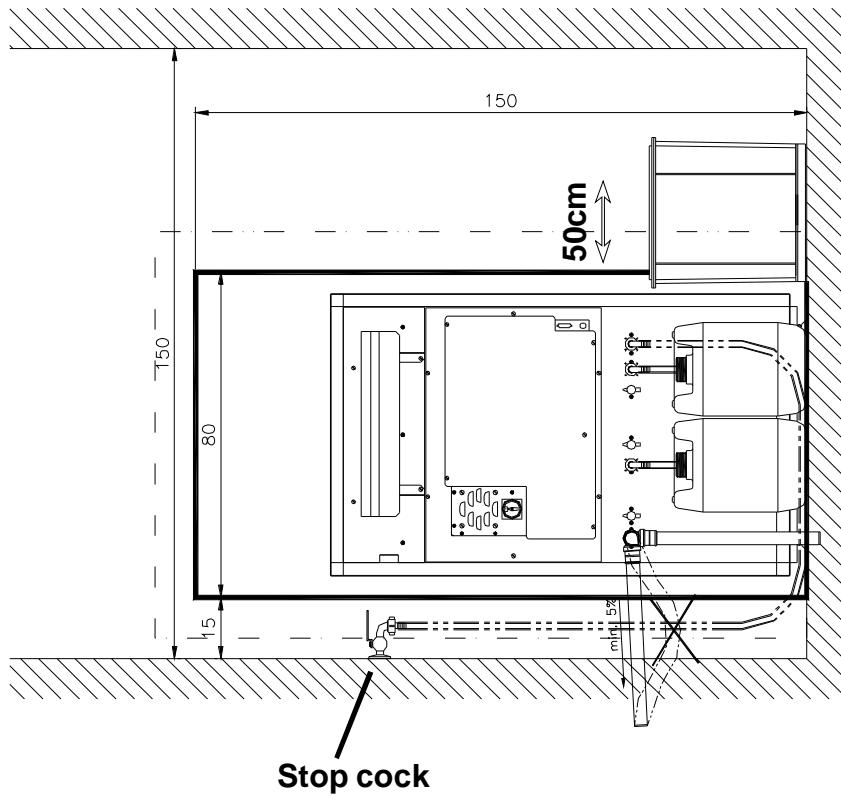
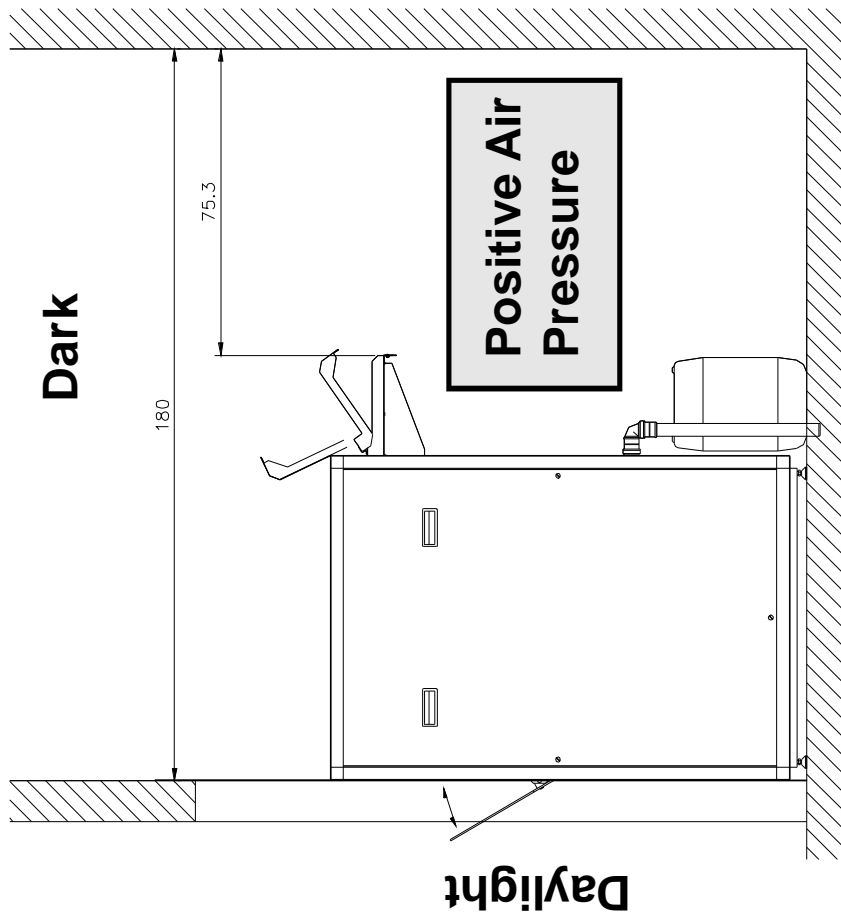
1. The gap can be adjusted to provide correct negative flow in cases where building exhaust exceeds requirements.
2. Prevent positive flow returning to the processor.



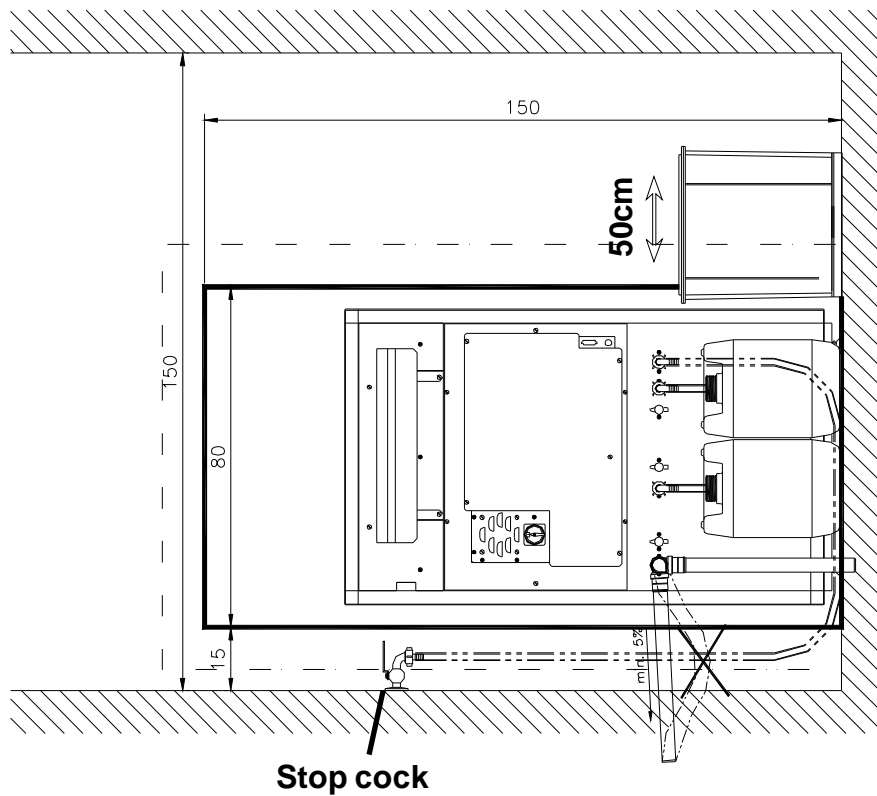
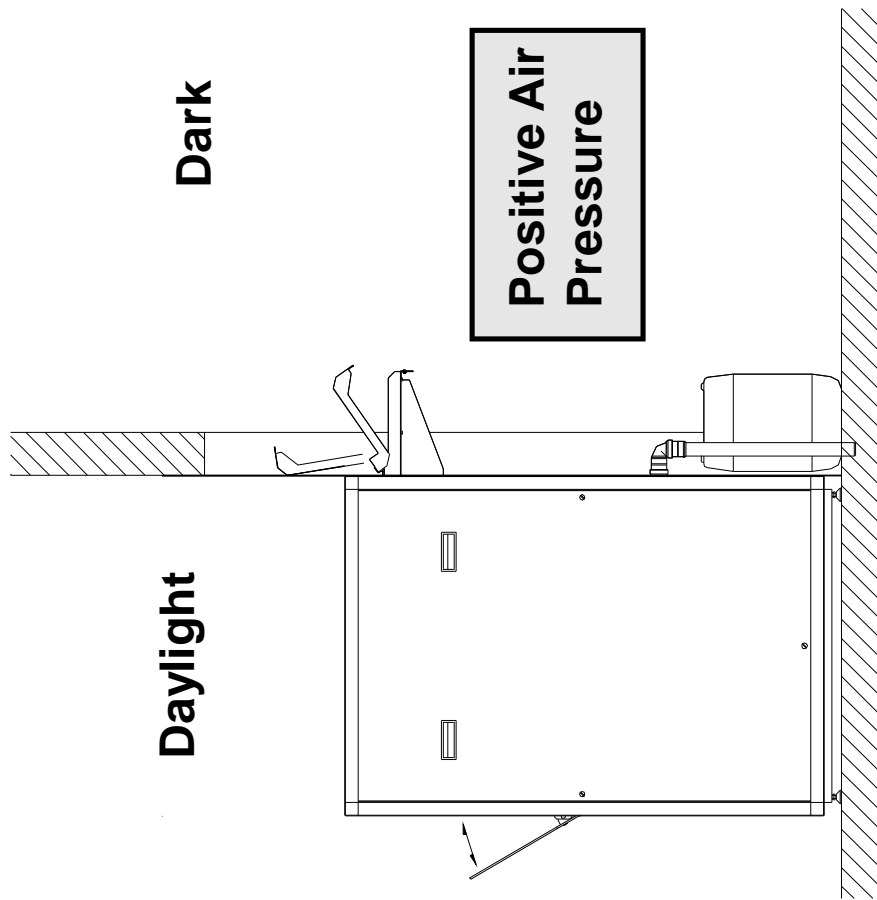
recommended Installation: "Free-standing"



recommended Installation: "Processor Darkroom - Exit to light"



recommended Installation:
"Infeed in Darkroom - processor in daylight"



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