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ULTRAFLOW® 85
– The next generation of flow measurement

The evolution, types and dimensioning explained

The mechanical design of ULTRAFLOW® 85 is meticulously crafted to optimize measuring performance while maintaining a simple variant structure. To ensure optimal performance, especially under disturbed flow conditions, all flow sensors feature conical inlets and outlets. The high dynamic range, with an approved ratio of q_p:q_i = 250:1 for all types, demonstrates the success of this rational design concept.

Four sizes (DN150 x 500 mm, DN200 x 500 mm, DN250 x 600 mm, and DN300 x 500 mm) cover nominal flow rates from q_p 150 m³/h to q_p 1,000 m³/h.

For DN150, DN200, and DN250 flow sensors, flanges in PN16, PS16, or PN25, PS25 are attached to the same body, which is suitable for PS25. One installation dimension accommodates two sizes of nominal flow. However, DN300 is limited to PN16, PS16 (similar to ULTRAFLOW® 54).

The flanges are forged with four flat spots to provide roll protection for the flow sensors during transportation and commissioning.

In summary, ULTRAFLOW® 85 offers two sizes of nominal flow for all three dimensions, each in two pressure stages (plus two sizes of nominal flow for one dimension in PN16, PS16), resulting in a total of 14 meter types.

Table 1: Type overview ULTRAFLOW® 85 / ULTRAFLOW® 54, DN150-300

Nom. flow q_p [m³/h]	ULTRAFLOW® 85 installation dimension				ULTRAFLOW® 54 installation dimension			
	PN25, PS25 or PN16, PS16 [DN x mm]			PN16, PS16 [DN x mm]	PN25, PS25 [DN x mm]			PN16, PS16 [DN x mm]
150	150 x 500				150 x 500			
250	150 x 500	200 x 500			150 x 500			
400		200 x 500	250 x 600		150 x 500	200 x 500	250 x 600	
600			250 x 600	300 x 500		200 x 500	250 x 600	
1,000				300 x 500			250 x 600	300 x 500

Following the described design concept, new combinations of nominal flow (q_p) and installation dimensions have been created, compared to the ULTRAFLOW® 54 portfolio.

The addition of DN200 x 500 mm with q_p 250 m³/h introduces a type recommended by EN 1434-2:2022. Although EN 1434-1:2022 does not cover larger sizes, the design structure is extended by adding DN300 x 500 mm with qp 600 m³/h.

During the re-evaluation of the flow sensor portfolio for DN150-300, three types from the ULTRAFLOW® 54 program (highlighted in the table above) have been discontinued due to insufficient customer demand, as reflected by low sales figures. These specific combinations of connection size and nominal flow are no longer promoted for new installations, as the new combinations in ULTRAFLOW® 85 are considered to provide improved measuring performance.

Replacement of ULTRAFLOW® 54 in existing installations

ULTRAFLOW® 54 (DN150-300), which are already installed, can in most cases be easily replaced one-for-one with an ULTRAFLOW® 85 of the same dimension. However, customers with one of the three discontinued types should consider the following recommendations.

Option 1 - Downsizing in q_p

We strongly recommend, as an initial step, consulting logged values for flow in the installation. The existing ULTRAFLOW® 54 might have been dimensioned too large with respect to the nominal flow. Evaluate as an example for the dimension DN150 x 500 mm whether a nominal flow of q_p 250 m^3/h might be sufficient for that specific installation. According to EN 1434 and CEN TR 13582, the flow range between q_p and q_s is only to be used briefly, i.e., less than 1h/day or 200 h/year. However, for a static flow sensor like ULTRAFLOW® 85 operating in this flow range, the crucial issue is not the duration, but to maintain the recommended static pressure – minimum 1.5 bar at q_p and 2.5 bar at q_s – in the outlet of the flow sensor to avoid any kind of cavitation. Therefore, consider whether the installation can operate with the recommended static pressure. In that case, the existing ULTRAFLOW® 54 could be directly replaced with ULTRAFLOW® 85 of the same dimension but with a smaller nominal flow q_p. For new installations the maximum design flow shall not exceed the nominal flow of the flow sensor (see brochure).

Option 2 - Re-building installation and upsizing in dimension

In case that downsizing in q_p during replacement is not possible, because the existing nominal flow must be maintained or the operation pressure is already low and cannot be increased, the installation must be re-built, and a larger flow sensor must be considered. In general, consider the importance of flow sensor dimensioning (see brochure) before re-building the installation. Upsizing in dimension now enables an easy exchange from ULTRAFLOW® 54 to ULTRAFLOW® 85 for two sizes. Note that for q_p 1,000 m^3/h, the pressure stage must be considered in addition to the dimension size. In case the operation pressure always stays within PS = 16 bar, the exchange can be done with the indicated variant in Table 2.

Table 2: Suggested exchange meters after a re-built of the installation site.

Replacement after re-building installation site		
ULTRAFLOW® 54 in the installation		Possible ULTRAFLOW® 85 replacement
q_p 400 m^3/h; DN150 x 500 mm (PN25, PS25)	→	q_p 400 m^3/h; DN200 x 500 mm (PN25, PS25) [1]
q_p 600 m^3/h; DN200 x 500 mm (PN25, PS25)	→	q_p 600 m^3/h; DN250 x 600 mm (PN25, PS25) [1]
q_p 1,000 m^3/h; DN250 x 600 mm (PN25, PS25)	→	q_p 1,000 m^3/h; DN300 x 500 mm (PN16, PS16) [1], [2]

1) Requires re-building of the installation size.
2) Requires downsizing of the operation pressure to max 16 bar.

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