

# 8 *Technical Reference*

---

## Contents

<b>8.1</b>	<b>Technical data</b>	122
<b>8.2</b>	<b>Connection list</b>	125
<b>8.3</b>	<b>Interface description</b>	126
8.3.1	General	126
8.3.2	Definitions	126
8.3.3	Component description and signal processing	127
8.3.4	Function graph and running limitations	127
<b>8.4</b>	<b>Lubricants</b>	128
8.4.1	Lubrication chart	128
8.4.2	Recommended lubricants	131
8.4.3	Recommended lubricating oils	133
8.4.4	Recommended oil brands	134
<b>8.5</b>	<b>Drawings</b>	136
8.5.1	Basic size drawing	136
8.5.2	Foundation plan	137
8.5.3	Dimensions of connections	138
8.5.4	Electric motor	140
8.5.5	Machine plates and safety labels	144
8.5.6	Gravity disc nomogram	146
<b>8.6</b>	<b>Storage and installation</b>	147
8.6.1	Storage and transport of goods	147
8.6.2	Planning of installation	150
8.6.3	Foundations	152

# 8.1 Technical data

Alfa Laval ref. 556410, 557397

Units according to ISO Standard.

The manufacturer reserves the right to change specifications without notice.

<b>Product number</b>	881151-01-02
<b>Separator type</b>	MMB 304S-11
<b>Purpose</b>	<ul style="list-style-type: none"><li>– Continuous purification of fuel oil or lubricating oil from solid particles and water.</li><li>– Continuous clarification of fuel oil or lubricating oil from solid particles.</li></ul> <p>The flash point of the oil to be separated must be &gt;60 °C.</p>
<b>Hydraulic capacity</b>	Maximum 3,2 m <sup>3</sup> /h
<b>Process capacity<sup>1)</sup></b>	Maximum oil flow: <i>Fuel oils, diesel engine</i> <ul style="list-style-type: none"><li>- Distillate: viscosity 2,5 m<sup>3</sup>/h 1,5-5,5 cSt/40 °C</li><li>- Marine Diesel Oil: viscosity 13 cSt/40 °C 2,1 m<sup>3</sup>/h</li></ul> <i>Lubricating oils, by-pass treatment, optimum</i> <ul style="list-style-type: none"><li>- R &amp; O type: Crosshead diesel 1,1 m<sup>3</sup>/h</li><li>- Detergent: Crosshead diesel 1,1 m<sup>3</sup>/h Trunk piston diesel 0,7 m<sup>3</sup>/h</li><li>- Steam turbine: 55 °C 1,3 m<sup>3</sup>/h 70 °C 2,1 m<sup>3</sup>/h</li></ul>
<b>Maximum density</b>	feed 1100 kg/m <sup>3</sup> sediment 1600 kg/m <sup>3</sup>

1) At the maximum permissible oil density, 991 kg/m<sup>3</sup> at +15 °C. Density preferably measured at +50 °C and according to ASTM method D 1298-80, corrected to +15 °C according to ASTM tables D 1250-80.

<b>Feed temperature</b>	Minimum 0 °C Maximum +100 °C										
<b>Ambient temperature</b>	Minimum +5 °C Maximum +55 °C										
<b>Motor</b>	2-pole 2,2 kW standard motor for 3-phase 50 or 60 Hz. Direct on-line start. Y/D-start: maximum 5 seconds in Y position.										
<b>Power consumption</b>	idling	0,6 kW									
	running (at max. capacity)	1,7 kW									
	max. power consumption	2,4 kW (at starting-up)									
<b>Speed</b>	The prescribed speed of the bowl spindle is stamped on the name plate of the machine. The speed must not be exceeded. Gear ratio (pulleys): 130:41 (50 Hz), 106:41 (60 Hz)										
	<table border="1"> <thead> <tr> <th><i>Maximum speed of rotation, rpm</i></th> <th><i>50 Hz</i></th> <th><i>60 Hz</i></th> </tr> </thead> <tbody> <tr> <td>Motor shaft</td> <td>3000</td> <td>3600</td> </tr> <tr> <td>Bowl</td> <td>9510</td> <td>9510</td> </tr> </tbody> </table>		<i>Maximum speed of rotation, rpm</i>	<i>50 Hz</i>	<i>60 Hz</i>	Motor shaft	3000	3600	Bowl	9510	9510
<i>Maximum speed of rotation, rpm</i>	<i>50 Hz</i>	<i>60 Hz</i>									
Motor shaft	3000	3600									
Bowl	9510	9510									
<b>Starting time</b>	1,4 - 1,6 minutes										
<b>Stopping time</b>	Running down with brake applied	min. 3 max. 4 minutes									
	without brake	15 minutes (average)									
<b>Maximum running time without flow</b>	empty bowl	480 minutes									
	filled bowl	480 minutes									
<b>Sludge and water space volume</b>	0,82 litres net										
<b>Required water quality</b>	Fresh water										
<b>Lubrication</b>	See "8.4 Lubricants" on page 128										
<b>Lubricating oil volume</b>	0,5 litre										
<b>Weight</b>	Separator without motor	Net weight approx. 147 kg									
	Motor	Net weight, approx. 16 kg									
	Complete bowl	Approx. 27 kg									
	Overhead hoist for 300 kp is required										

<b>Shipping data</b>	According to "Basic equipment"	
	Weight	Net 185 kg, gross 235 kg
	Volume	1,06 m <sup>3</sup>
<b>Sound power level</b>	8,6 bel(A) ISO 3744, at product flow rate 2 m <sup>3</sup> /h	
<b>Sound pressure level</b>	72 dB(A) ISO 3744, at product flow rate 2 m <sup>3</sup> /h	
<b>Vibration level</b>	Separator in use	9 mm/s (RMS)
<b>Materials</b>	Bowl spindle	steel
	Frame, lower and upper parts	cast iron ("Centriblue" finish <sup>1)</sup> )
	Frame hood	silumin (grey finish <sup>1)</sup> )
	Bowl body and hood, disc stack, gravity discs, sludge basket	stainless steel
	Other bowl parts	brass
	Oil paring disc	brass
	Other inlet and outlet parts	stainless steel, brass, cast iron
		<sup>1)</sup> An epoxy enamel

## NOTE

The separator is a component operating in an integrated system including a monitoring system. If the technical data in the system description does not agree with the technical data in this instruction manual, the data in the system description is the valid one.

## 8.2 Connection list

Alfa Laval ref. 557433

Connection No.	Description	Requirements/limit
201	Inlet for process liquid Permitted temperatures	Maximum +100 °C minimum 0 °C
206	Inlet for liquid seal and displacement liquid Liquid seal water flow Liquid seal water period Quality requirements	5,5 ±0,6 litres/minute 30 seconds Fresh water
220	Outlet for light phase (oil) Pressure	Maximum 280 kPa
221	Outlet for heavy phase (water)	No counterpressure
701	Motor for separator Allowed deviation from nominal frequency (momentarily during maximum 5 seconds)	Maximum ±5% ±10%)

“8.5.1 Basic size drawing” on page 136, and  
“8.5.3 Dimensions of connections” on page 138.