

Standardised Pump

# Etachrom L

Fixed Speed / Variable Speed  
50 Hz / 60 Hz

## Type Series Booklet



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Type Series Booklet Etachrom L

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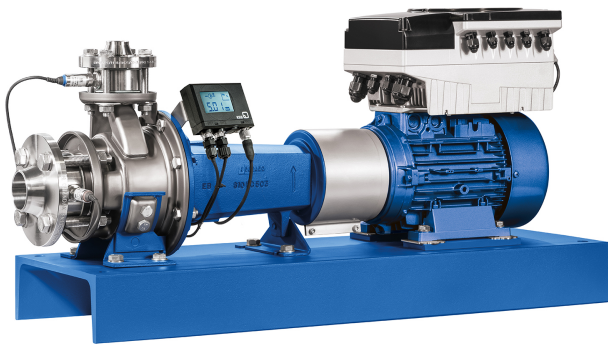
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## Standardised Pumps / Close-coupled Pumps

Standardised Pumps to EN 733

### Etachrom L



**i** The product illustrated as an example may include options incurring a surcharge.

#### Main applications

- Cleaning systems (bottle rinsing, crate washing and similar systems)
- Water treatment systems
- Water supply systems
- Fire-fighting systems
- Spray irrigation systems
- General irrigation systems
- Drainage systems
- Hot-water heating systems
- Air-conditioning systems
- Industrial washing machines
- General industry
- Disposal of paint sludge
- Surface treatment systems

#### Fluids handled

- Service water
- Drinking water
- Hot water
- Cooling water
- Swimming pool water<sup>1)</sup>
- Process water

- Fire-fighting water
- Condensate
- Oil

#### Related documents

Table 1: Information/documents

Document	Reference number
Characteristic curves booklet (50 Hz/60 Hz)	1212.56
Fixed speed version	
Characteristic curves booklet	1212.57
Variable speed version	
Type series booklet	4074.5
PumpDrive 2 / PumpDrive 2 Eco	

#### Operating data

Table 2: Operating properties

Characteristic		Value	
		50 Hz	60 Hz
Flow rate	Q [m <sup>3</sup> /h]	≤ 260	≤ 210
	Q [l/s]	≤ 72,2	≤ 58,3
Head	H [m]	≤ 105	≤ 104
Fluid temperature	T [°C]	≥ -30	≥ -30
		≤ +110	≤ +110
Operating pressure	p [bar]	≤ 12 <sup>2)</sup>	≤ 12 <sup>2)</sup>

<sup>1</sup> Swimming pool water (0.4 to 1.4 mg/l free chlorine, combined chlorine ≤ 0.6 mg/l, pH 6.9 to 7.7, water hardness 10 to 30 °dH, salt content ≤ 7 g/l)

<sup>2</sup> The sum of inlet pressure and shut-off head must not exceed the value indicated.

## Design details

### Design

- Design with materials to Regulation (EC) No. 1935/2004 can be provided.
- Design to ATEX

### Design

- Circular casing pumps
- Back pull-out design
- Flanges to EN 1092-1
- Horizontal installation
- Single-stage
- Dimensions and ratings to EN 733
- Pump and motor connected by shaft coupling
- Fixed speed version (without PumpDrive 2 / PumpDrive 2 Eco / PumpDrive R) / variable speed version (with PumpDrive 2 / PumpDrive 2 Eco / PumpDrive R)

### Pump casing

- Circular casing with welded-on or bolted-on pump feet
- Replaceable casing wear rings

### Drive (fixed speed version)

#### Standard design:

- KSB/Siemens surface-cooled IEC frame three-phase squirrel-cage motor
- Efficiency class IE2 (size 71/80) / IE3 (from size 90) to IEC 60034-30
- Rated voltage (50 Hz) 230 V / 400 V  $\leq$  2.20 kW
- Rated voltage (50 Hz) 400 V / 690 V  $\geq$  3.00 kW
- Rated voltage (60 Hz) - / 460 V  $\leq$  2.20 kW
- Rated voltage (60 Hz) 460 V / -  $\geq$  3.00 kW
- Type of construction IM B3
- Enclosure IP55
- Duty type: continuous duty S1
- Thermal class F with temperature sensor, 1 PTC thermistor (size 80/90) / 3 PTC thermistors (from size 100)

#### Explosion-proof design:

- KSB surface-cooled IEC three-phase current squirrel-cage motor
- Efficiency class IE2 / IE3 to IEC 60034-30
- Rated voltage (50 Hz) 230 V / 400 V  $\leq$  2.50 kW
- Rated voltage (50 Hz) 400 V / 690 V  $\geq$  3.30 kW
- Rated voltage (60 Hz) - / 460 V  $\leq$  2.50 kW
- Rated voltage (60 Hz) 460 V / -  $\geq$  3.30 kW
- Type of construction IM B3
- Enclosure IP55
- Duty type: continuous duty S1
- Type of protection EEx eb II
- Temperature class T3

### Drive (variable speed version)

#### KSB SuPremE motor:

- Surface-cooled KSB SuPremE motor, IEC-compatible, magnetless synchronous reluctance motor<sup>3)</sup> (PumpDrive required)
- Efficiency class IE4 / IE5 to IEC TS 60034-30-2:2016
- Mounting points to EN 50347:2001
- Envelope dimensions to DIN VDE 42673-4:2011-07
- Type of construction IM B3
- Enclosure IP55
- Duty type: continuous duty S1
- Thermal class F with temperature sensor, 3 PTC thermistors
- Shaft centreline height 71 to 225 mm
- Rated power 0.55 kW to 45 kW
- Rated speed 1500 rpm or 3000 rpm
- Frequency 50 Hz / 60 Hz (PumpDrive input)
- Voltage 380 V to 480 V (PumpDrive input)

#### KSB SuPremE C1/D1:

- With terminal box for connecting to PumpDrive 2 or PumpDrive R for mounting on walls and in control cabinets

#### KSB SuPremE C2/D2:

- Equipped for being fitted with a motor-mounted PumpDrive 2

#### PumpDrive 2 / PumpDrive 2 Eco:

- Self-cooling frequency inverter of modular design for the continuously variable speed control of asynchronous motors and synchronous reluctance motors by means of analog standard signals, a field bus or the control panel
- Identical design of frequency inverter for motor mounting, wall mounting and cabinet mounting
- Mains voltage 3~ 380 V AC -10 % to 480 V AC +10 %
- Mains frequency 50 Hz to 60 Hz  $\pm$  2 %

#### PumpDrive R:

- Self-cooling frequency inverter of modular design for the continuously variable speed control of asynchronous motors and synchronous reluctance motors, such as KSB SuPremE motors or permanent magnet synchronous motors, by means of analog standard signals, a field bus or the control panel
- Identical design of frequency inverter for the mounting types wall mounting and cabinet mounting
- Mains voltage 3~ 380 V AC -10 % to 480 V AC +10 %
- Extended mains voltage range (on request)
- Mains frequency 50 Hz to 60 Hz  $\pm$  2 %
- Extended power range with a nominal power of 110 kW (standard) or 1400 kW (on request)

#### PumpMeter:

- Intelligent pressure transmitter for pumps, with on-site display of measured values and operating data
- For recording the load profile of the pump
- Supplied completely assembled and parameterised for the individual pump

#### KSB Guard

- System for monitoring the pump's condition by means of temperature and vibration sensors
- Measured values and operating data may be retrieved via the KSB Guard app and the web portal at any time.

<sup>3)</sup> Motor sizes 0.55 kW / 0.75 kW with 1500 rpm are designed with permanent magnets.

#### Shaft seal

- Single mechanical seal to EN 12756
- The shaft is fitted with a replaceable shaft sleeve in the shaft seal area (sizes 080-065-250, 100-080-200, 100-080-250)

#### Impeller type

- Closed radial impeller with multiply curved vanes

#### Bearings

- Grease-packed radial ball bearing

## Designation

Table 3: Designation example

Position																																											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
E	T	C	L	0	5	0	-	0	2	5	-	1	2	5		C	C	S	A	A	0	7	D	1	0	1	0	0	2	e	x	B	P	D	2		M	K	S	B	I	E	4
See name plate and data sheet																						See data sheet																					

Table 4: Designation key


Position	Code	Description
1-4	Pump type	
	ETCL	Etachrom L
5-16	Size, e.g.	
	050	Nominal suction nozzle diameter [mm]
	025	Nominal discharge nozzle diameter [mm]
	125	Nominal impeller diameter [mm]
17	Pump casing material	
	C	Stainless steel 1.4571
18	Impeller material	
	C	Stainless steel 1.4571/1.4408
19	Design	
	E	Materials in contact with food to Regulation (EC) 1935/2005
	F	Bottle rinser variant
	H	Approved for drinking water to ACS
	K	Approved for drinking water to KSB standard
	S	Standard
	U	Approved for drinking water to UBA
	W	Approved for drinking water to WRAS
X	Non-standard (BT3D, BT3)	
20-21	Casing cover	
	AA	Internal circulation (seal chamber only)
	AS	Internal circulation (seal chamber only), casing cover with anti-swirl baffles
22-23	Seal code, single mechanical seal	
	01	Q1Q1VGG 1A (ZN1181)
	07	Q1Q1EGG 1A (ZN1181)
	09	U3U3VGG MG13G60
	10	Q1Q1X4GG 1 (ZN1181)
	11	BQ1EGG-WA (WA = drinking water) 1 (ZN1181)
	12	Q12Q1M1GG1 M37GN83
	17	Q1BVGG M7N
	26	XYHY2VY Roten Uniten 3
	45	BQ7E1GG/Y10 KU 022 S0 - eMG12G6
	46	Q7Q7E1GG/Y10 KU 022 S0 - eMG12G6
	66	Q7Q7EGG/Y10-WA eMG13G6
	67	Q6Q6X4GG MG13G60
	68	BQ7V16GG/Y10 KU 022 S0 - eMG12G6
69	Q7Q7V16GG/Y10 KU 022 S0 - eMG12G6	
24	Scope of supply	
	A	Pump, without motor (figure 0 bare-shaft pump)
	B	Pump, baseplate, without motor
	C	Pump, baseplate, coupling, coupling guard, without motor
	D	Pump, baseplate, coupling, coupling guard, motor
25	Shaft unit	
	1	Shaft unit 25.1
	2	Shaft unit 25.2
	3	Shaft unit 35
26-29	Motor rating P <sub>N</sub> [kW]	
	0750	7,50
	...	...
	0110	11,00

Position	Code	Description
30	Number of motor poles	
31-32	Explosion protection	
	ex	With explosion-proof motor
	--	Without explosion-proof motor
33	Product generation	
	B	Etachrom L 08/2015
34-37	PumpDrive	
	PD2	PumpDrive 2
	PD2E	PumpDrive 2 Eco
38	PumpMeter	
	M	PumpMeter
39-41	Motor manufacturer	
	KSB	KSB
	SIE	Siemens
	LOH	Loher
	HAL	Halter
42-44	Efficiency class	

## Materials

**Table 5:** Overview of available materials

Part No.	Description	Material	Fluid temperature [°C]	
			T <sub>min</sub>	T <sub>max</sub>
101	Pump casing	CrNiMo steel 1.4571	-30	+110
132.01	Intermediate piece	Grey cast iron EN-GJL-250 / cataphoresis	-30	+110
163	Discharge cover	CrNiMo steel 1.4571	-30	+110
183	Foot	S235 JR	-30	+110
210	Shaft	CrNiMo steel 1.4571	-30	+110
230	Impeller	CrNiMo steel 1.4571	-30	+110
		CrNi steel 1.4308	-30	+110
		CrNiMo steel 1.4408	-30	+110
330	Bearing bracket	Grey cast iron EN-GJL-250 / A 48 Cl. 35B	-30	+110
		Grey cast iron EN-GJL-250 / cataphoresis	-30	+110
412.35	O-ring	EPDM 70/ 80	-30	+110
		ENM-Therban	-30	+110
		FKM80	-30	+110
502.01	Casing wear ring	CrNiMo steel 1.4571	-30	+110
502.02	Casing wear ring	CrNiMo steel 1.4571	-30	+110
523	Shaft sleeve	CrNiMo steel 1.4571	-30	+110
901.99	Hexagon head bolt	Steel 8.8 A2A	-30	+110
903.01	Screw plug	CrNiMo steel A4	-30	+110
920.01	Nut	CrNiMo steel A4	-30	+110

 The pumps are free from substances impairing the adhesive strength of the paint, such as silicone.



### Coating and preservation

- Coating and preservation to KSB standard AN 1897/54-09
- Pump casing without coating
- Drive lantern, intermediate piece with cathoretic coating

Table 6: Primer

Type	Primer
A1	<ul style="list-style-type: none"> <li>Hydro-dip primer for steel and cast components</li> <li>Spray-coating with compressed air possible</li> <li>Water-thinned hydro dip primer with good anti-corrosive properties</li> <li>Dry film thickness: 40-50 µm</li> </ul>

Table 7: Top coat

Type	Top coat <sup>4)</sup>
A1	<ul style="list-style-type: none"> <li>Quick drying, water-thinned paint (acrylate alkyd combination) with anti-corrosive properties and lead-free pigmentation</li> <li>T up to 140 °C</li> <li>Dry film thickness: 60 µm</li> </ul>

### Product benefits

- Maintenance-free mechanical seal ensures operating reliability
- Easy to dismantle due to back pull-out design; no need to remove the pump casing from the piping
- Optimised hydraulic components for high efficiency help reduce energy consumption
- Corrosion-resistant: wetted components made of stainless steel (1.4571)
- Long service life, maintenance-free with high-quality standardised mechanical seal to EN 12756

### Product information as per Regulation No. 547/2012 (for water pumps with a maximum shaft power of 150 kW) implementing "Ecodesign" Directive 2009/125/EC

- Minimum efficiency index: see data sheet
- The benchmark for the most efficient water pumps is MEI  $\geq 0.70$ .
- Year of construction: see data sheet
- Manufacturer's name or trade mark, commercial registration number and place of manufacture: see data sheet or order documentation
- Product's type and size identifier: see data sheet
- Hydraulic pump efficiency (%) with trimmed impeller: see data sheet
- Pump performance curves, including efficiency characteristics: see documented characteristic curve
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. Trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- Operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

- Information relevant for disassembly, recycling or disposal at end of life: see installation/operating manual
- Information on benchmark efficiency or benchmark efficiency graph for MEI = 0.70 (0.40) for the pump based on the model shown in the Figure are available at: <http://www.europump.org/efficiencycharts>

### Certifications

Table 8: Overview

Label	Effective in:	Comment
	All countries	Certified quality management to ISO 9001
	France	Approved in accordance with the French drinking water regulation

### Acceptance tests and warranty

- Materials inspection and testing**
  - Test report 2.2 on request
- Final inspection**
  - Inspection certificate 3.1 to EN 10204 on request
- Hydraulic test**
  - The duty point of each pump with a delivery address or final destination in Europe is guaranteed to ISO 9906/2A.
  - The duty point of each pump with a delivery address or final destination outside of Europe is guaranteed to ISO 9906/3.
- The following **acceptance tests** can be performed and certified at **extra charge**:
  - Performance test to ISO 9006
  - NPSH test
- Other inspections/tests on request
- Warranty**  
Warranties are given within the scope of the valid terms and conditions of sale and delivery.

<sup>4</sup> The top coats are suitable for indoor and outdoor installation in slightly aggressive atmospheres.

Overview of product features / selection tables

Overview of fluids handled

Table 9: Symbols key

Symbol	Description
X	Standard
-	Version not available / not feasible

The table of fluids handled is a selection aid for different applications. It serves as guidance and is based on long-standing experience. The data are reference values and are not to be considered generally binding recommendations. They shall not be the basis for warranty claims. Please contact your nearest sales branch for in-depth advice.

**Example:** Pure water 15 °C, Q = 40 m<sup>3</sup>/h, H = 51 m

**Selection:** Etachrom L 065-040-200 CC A11D2

065-040-200 Size (as per characteristic curve for 2900 rpm)

11 Variant code (according to selection table)

Motor rating required: 11 kW

Table 10: Selection table

Fluids handled	Fluid	Variant	Application limits		Shaft seal (mechanical seal)													
			Percentage	Temperature	Q1Q1VGG	Q1Q1EGG	U3U3VGG	Q1Q1X4GG	BQ1EGG-WA <sup>5)</sup>	Q12Q1M1GG1	Q1BVGG	BQ7E1GG/Y10 <sup>6)</sup>	Q7Q7E1GG/Y10 <sup>6)</sup>	Q7Q7EGG/Y10-WA	Q6Q6X4GG	BQ7V16GG/Y10 <sup>6)</sup>	Q7Q7V16GG/Y10 <sup>6)</sup>	
					Design code													
			[%]	[°C]	01	07	09	10	11	12	17	45	46	66	67	68	69	
Alkaline cleaning agents	10120	50120	-	-	-	X	-	X	-	X	-	-	-	-	-	-	-	
Alkaline degreasing solution	10120	51134	≤ 10 NaOH	80	-	X	-	-	-	-	-	-	-	-	-	-	-	
Alcohol (ethanol)	10171	50171	-	-	-	-	-	-	X	-	-	X	X	-	-	-	-	
Ammonia water (ammonia solution)	10113	50113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ammonium bicarbonate	10116	50116	≤ 10	≤ 40	-	-	-	-	X	-	-	-	-	-	-	-	-	
Cider	10327	50338	-	-	-	-	-	X	-	-	X	X	-	-	-	-	-	
Ethanol (alcohol)	10171	50171	-	-	-	-	-	X	-	-	X	X	-	-	-	-	-	
Ethylene glycol <sup>7)</sup>	10205	50207	-	-	-	X	-	-	X	-	-	-	X	-	-	-	-	
Petrol	10301	50301	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	
Beer mash	10328	50328	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
Beer wort	10329	50329	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
Spirits	10327	50330	-	-	-	-	-	X	-	-	X	X	-	-	-	-	-	
Butanol	10170	50170	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
Butanoic acid	10436	50436	100	≤ 30	-	-	-	-	X	X	-	-	-	-	-	-	-	
Calcium acetate	10386	50386	10	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
Calcium nitrate	10389	50389	≤ 10	≤ 30	-	-	-	X	-	-	-	-	-	-	-	-	-	
Cleaning in place (CIP) without further specifications	10861	50861	-	-	-	X	-	-	-	X	-	-	-	-	-	-	-	
Deionised water (fully desalinated) <sup>8)</sup>	10669	50669	-	≤ 110	-	-	-	-	X	-	-	-	-	-	X	-	-	
Distilled water	10669	50669	-	≤ 60	-	-	-	-	X	-	-	-	-	-	-	-	-	
Diesel oil	10304	50304	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	
Decarbonised water <sup>9)</sup>	10669	50673	-	≤ 60	-	-	-	-	X	-	-	-	-	-	-	-	-	
Peanut oil	10350	50364	-	≤ 90	-	-	-	X	-	-	X	-	-	-	-	-	X	
Vinegar (= 5 % acetic acid)	10439	50439	≤ 5	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
Ethanol	10171	51987	-	-	-	-	-	-	X	-	-	X	X	-	-	-	-	

<sup>5)</sup> Combinations of soft/hard seal face materials (BQ1) can only be used for fluids up to a total solids content of 50 mg/l. Higher total solids contents will result in leakage and a shorter service life.  
<sup>6)</sup> FDA-approved  
<sup>7)</sup> Antifreeze agent on ethylene glycol basis with inhibitors. Content: > 20 % to 50 % (e.g. Antifrogen N)  
<sup>8)</sup> Conductivity at 25 °C: < 250 µS/cm, SiO<sub>2</sub> silicate content ≤ 10 mg/l  
<sup>9)</sup> Chloride content ≤ 300 mg/l; if the value is exceeded, water analysis is required.

Fluids handled	Fluid	Variant	Application limits		Shaft seal (mechanical seal)													
			Percentage	Temperature	Q1Q1VGG	Q1Q1EGG	U3U3VGG	Q1Q1X4GG	BQ1EGG-WA <sup>5)</sup>	Q1Q2Q1M1GG1	Q1BVGG	BQ7E1GG/Y10 <sup>6)</sup>	Q7Q7E1GG/Y10 <sup>6)</sup>	Q7Q7EGG/Y10-WA	Q6Q6X4GG	BQ7V16GG/Y10 <sup>6)</sup>	Q7Q7V16GG/Y10 <sup>6)</sup>	
					Design code													
			[%]	[°C]	01	07	09	10	11	12	17	45	46	66	67	68	69	
Condenser water (sugar production)	10332	50332	-	-	-	-	-	-	-	-	X	X	-	-	-	-		
Fire-fighting water <sup>9)</sup>	10199	50204	-	≤ 25 <sup>10)</sup>	-	-	X	-	-	X	-	-	-	-	-	-		
Lye for bottle rinsers	10111	Var. <sup>11)</sup>	≤ 10	≤ 80	-	X	-	-	-	X	-	-	-	-	-	-		
Antifreeze agent (ethylene glycol) <sup>7)</sup>	10214	Var. <sup>11)</sup>	See <sup>7)</sup>	≤ 110	-	X	-	-	X	-	-	-	-	X	-	-		
Ethylene glycol base anti-freeze, inhibited	10270	Var. <sup>11)</sup>	See <sup>7)</sup>	≤ 110	-	X	-	-	X	-	-	-	-	X	-	-		
Antifreeze agent (propylene glycol) <sup>7)</sup>	10962	Var. <sup>11)</sup>	See <sup>7)</sup>	≤ 110	-	X	-	-	X	-	-	-	-	X	-	-		
Propylene glycol base anti-freeze, inhibited	10963	Var. <sup>11)</sup>	See <sup>7)</sup>	≤ 110	-	X	-	-	X	-	-	-	-	X	-	-		
Tannic acid	10445	Var. <sup>11)</sup>	≤ 50	-	-	-	-	-	-	-	X	-	-	-	-	-		
Beverages containing carbon dioxide	10846	50846	≤ 00	-	-	-	-	-	-	-	X	X	-	-	-	-		
Glycerine	10311	Var. <sup>11)</sup>	≤ 90	-	-	-	-	-	-	X	-	-	-	-	-	-		
Fuel oil, light	10308	50308	-	≤ 60	-	-	-	X	-	X	-	-	-	-	-	-		
Heating water <sup>12)</sup>	10499	50499	-	≤ 110	-	-	-	X	X	-	-	-	-	-	-	-		
Hydraulic oil	10346	50351	-	-	-	-	-	X	-	X	-	-	-	-	-	-		
Potassium hydroxide	10121	Var. <sup>11)</sup>	≤ 10	≤ 80	-	X	-	X	-	-	-	-	-	-	-	-		
Potassium carbonate	10123	50122	≤ 10	≤ 80	-	X	-	-	X	-	-	-	-	-	-	-		
Aluminium potassium sulphate	10381	50381	≤ 3	≤ 20	X	-	-	-	-	-	-	-	-	-	-	-		
Potassium sulphate	10401	50402	≤ 3	-	-	-	-	-	-	X	-	-	-	-	-	-		
Kerosene (jet fuel)	10317	51168	-	≤ 60	-	-	-	X	-	X	-	-	-	-	-	-		
Condensate <sup>8)</sup>	10495	50660	-	≤ 110	-	-	-	-	X	-	-	-	-	-	-	-		
Cooling water (without antifreeze)	10668	Var. <sup>11)</sup>	-	≤ 90 <sup>10)</sup>	-	-	-	X	-	-	-	-	-	-	-	-		
Cooling water pH ≥ 7.5 (with antifreeze) <sup>7)</sup>	10214	Var. <sup>11)</sup>	-	≤ 110	-	X	-	-	X	-	-	-	-	X	-	-		
Cooling lubricant (Cimcool)	10188	50188	-	≤ 60	-	-	X	-	-	-	-	-	-	-	-	-		
Copper sulphate	10407	50407	≤ 5	RT <sup>13)</sup>	-	-	-	-	X	-	-	-	-	-	-	-		
Slightly contaminated water <sup>9)</sup>	10484	50696	-	≤ 60 <sup>10)</sup>	-	-	-	X	-	-	-	-	-	-	-	-		
Linseed oil	10350	50368	-	≤ 90	-	-	-	X	-	-	X	-	-	-	-	X	X	
Corn oil	10350	50369	-	≤ 90	-	-	-	X	-	-	X	-	-	-	-	X	X	
Maleic acid	10445	51684	≤ 10	-	-	-	-	-	-	X	-	-	-	-	-	-		
Methyl alcohol (methanol)	10174	50174	-	-	-	-	-	-	X	-	-	-	-	-	-	-		
Lactic acid	10449	Var. <sup>11)</sup>	≤ 50	-	-	-	-	-	-	X	-	-	-	-	-	-		
Mineral oil	10346	50352	-	-	-	-	-	X	-	X	-	-	-	-	-	-		
Sodium hydrogen carbonate	10151	50151	≤ 6	≤ 20	-	-	-	X	-	-	-	-	-	-	-	-		
Sodium hydroxide (caustic soda)	10111	51673	≤ 10	≤ 80	X	-	-	-	-	X	-	-	-	-	-	-		
Sodium carbonate	10146	50146	≤ 6	≤ 60	-	-	-	-	X	-	-	-	-	-	-	-		
Sodium nitrate	10423	50423	≤ 10	≤ 90	-	-	-	-	X	-	-	-	-	-	-	-		
Sodium sulphate	10395	50395	≤ 5	≤ 60	-	-	-	-	X	-	-	-	-	-	-	-		
Caustic soda (sodium hydroxide)	10158	50158	≤ 20	≤ 60	-	-	-	-	X	-	-	-	-	-	-	-		
Paraffin	10319	51687	-	-	-	-	-	-	-	X	-	-	-	-	-	-		
Kerosene	10310	50310	-	-	-	-	-	X	-	X	-	-	-	-	-	-		
Vegetable oil, pure	10350	Var. <sup>11)</sup>	-	≤ 90	-	-	-	X	-	X	-	-	-	-	X	X		

<sup>10</sup> Mechanical seal suitable for  $t \leq 110$  °C  
<sup>11</sup> Var. = various  
<sup>12</sup> Conductivity at 25 °C: 100 to 800 µS/cm  
<sup>13</sup> RT = room temperature

Fluids handled	Fluid	Variant	Application limits		Shaft seal (mechanical seal)													
			Percentage	Temperature	Q1Q1VGG	Q1Q1EGG	U3U3VGG	Q1Q1X4GG	BQ1EGG-WA <sup>5)</sup>	Q12Q1M1GG1	Q1BVGG	BQ7E1GG/Y10 <sup>6)</sup>	Q7Q7E1GG/Y10 <sup>6)</sup>	Q7Q7EGG/Y10-WA	Q6Q6X4GG	BQ7V16GG/Y10 <sup>6)</sup>	Q7Q7V16GG/Y10 <sup>6)</sup>	
					Design code													
			[%]	[°C]	01	07	09	10	11	12	17	45	46	66	67	68	69	
Phosphoric acid	10452	50947	≤ 5	≤ 40	X	-	-	-	-	-	X	-	-	-	-	-	-	
Phosphoric acid	10452	50452	≤ 10	≤ 40	X	-	-	-	-	-	X	-	-	-	-	-	-	
Propanol (propyl alcohol)	10170	51096	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	
Rapeseed oil	10350	50370	-	≤ 90	-	-	-	X	-	-	X	-	-	-	-	X	X	
Raw water <sup>9)</sup>	10658	50658	-	≤ 60 <sup>10)</sup>	-	-	-	X	-	-	-	-	-	-	-	-	-	
Lubricating oil	10347	Var. <sup>11)</sup>	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	
Cutting oil	10346	50356	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	
Sulphuric acid	10455	50455	≤ 5	20	X	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphuric acid	10455	50456	≤ 2,5	≤ 50	X	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphurous acid	10456	51129	≤ 10	25	X	-	-	-	-	-	-	-	-	-	-	-	-	
Swimming pool water (fresh water)	10655	50725	-	≤ 60	-	-	-	X	-	-	-	-	-	-	-	-	-	
Silicone oil	10346	50357	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	
Soy-bean oil	10350	50371	-	≤ 90	-	-	-	X	-	-	X	-	-	-	-	X	X	
Edible oil	10350	Var. <sup>11)</sup>	-	≤ 90	-	-	-	X	-	-	X	-	-	-	-	-	-	
Surface water	10683	Var. <sup>11)</sup>	-	≤ 60 <sup>10)</sup>	-	-	-	X	-	-	-	-	-	-	-	-	-	
Partly desalinated water	10669	50736	-	≤ 110	-	-	-	-	X	-	-	-	-	-	-	-	-	
Drinking water <sup>9)</sup>	10665	Var. <sup>11)</sup>	-	≤ 60 <sup>10)</sup>	-	-	-	-	X	-	-	-	-	-	-	-	-	
Turbine oil (does not apply to SFD oils)	10347	50347	-	≤ 80	-	-	-	X	-	-	X	-	-	-	-	-	-	
Water / bathing water (fresh water) <sup>9)</sup>	10665	50725	-	≤ 60	-	-	-	-	X	-	-	-	-	-	-	-	-	
Water, desalinated <sup>14)</sup>	10669	50837	-	-	-	-	-	-	X	-	-	-	-	-	X	-	-	
Water/oil emulsion	10192	51166	95%/5%	≤ 60	-	-	X	-	-	-	X	-	-	-	-	-	-	
Tartaric acid	10460	50460	≤ 50	-	-	-	-	-	-	-	X	-	-	-	-	-	-	
Citric acid	10438	50438	≤ 50	RT <sup>13)</sup>	-	-	-	-	X	-	X	-	-	-	-	-	-	
Sugar juice (sugar production)	19005	50333	20	≤ 100	-	-	-	-	-	X	X	-	-	-	-	-	-	

<sup>14)</sup> Conductivity > 2 µS/cm < 10 µS/cm, SiO<sub>2</sub> < 10 mg/l, solids max. 5 mg/l

## Impellers

- Closed radial impeller with multiply curved vanes

Table 11: Machining type, materials

Closed radial impeller		
Stainless steel 1.4571		Stainless steel 1.4408
Projection-welded	Laser-welded	Cast
050-025-125	050-032-200	050-025-250
050-025-125.1	065-040-200	050-032-250
050-025-160	065-050-160	065-040-250
050-025-200	-	065-050-200
050-032-125	-	065-050-250
050-032-125.1	-	080-065-200
050-032-160	-	080-065-250
065-040-125	-	100-080-200
065-040-160	-	100-080-250
065-050-125	-	-

## Pressure limits and temperature limits

Table 12: Pressure limits and temperature limits

Material variant	Fluid temperature	Operating pressure <sup>15)</sup>	Test pressure <sup>16)</sup>
	[°C]	[bar]	[bar]
C	-30 to +110	≤ 12	≤ 16

<sup>15</sup> The sum of inlet pressure and shut-off head must not exceed the value indicated.

<sup>16</sup> The casing components are checked for leakage by means of internal pressure tests to AN 1897/75-03D00 with water.

**Technical data**
**Etachrom L**

Size	Shaft unit	Impeller				Balancing hole	Discharge-side casing wear ring
		$\varnothing_{\min}$	$\varnothing_{\max}$	Outlet width	Free passage		
		[mm]	[mm]	[mm]	[mm]		
050-025-125.1	WS 25.1	110	136	6,0	5,0	-	-
050-025-125	WS 25.1	110	136	11,7	11,0	-	-
050-025-160	WS 25.1	135	166	9,8	9,0	-	-
050-025-200	WS 25.1	166	196	8,0	7,0	✓	✓
050-025-250	WS 25.2	212	260	8,0	7,5	✓	✓
050-032-125.1	WS 25.1	110	136	6,0	5,0	-	-
050-032-125	WS 25.1	110	136	11,7	11,0	-	-
050-032-160	WS 25.1	135	166	9,8	9,0	-	-
050-032-200	WS 25.1	166	196	8,0	7,0	✓	✓
050-032-250	WS 25.2	212	260	8,0	7,5	✓	✓
065-040-125	WS 25.1	110	136	16,8	11,5	-	-
065-040-160	WS 25.1	135	166	14,4	12,0	✓	✓
065-040-200	WS 25.1	166	196	12,0	11,0	✓	✓
065-040-250	WS 25.2	214	260	8,0	8,0	✓	✓
065-050-125	WS 25.1	110	142	20,0	15,0	-	-
065-050-160	WS 25.1	142	170	17,0	16,0	✓	✓
065-050-200	WS 25.2	170	220	11,5	11,0	✓	✓
065-050-250	WS 25.2	220	260	12,0	12,0	✓	✓
080-065-200	WS 25.2	180	219	17,0	16,0	✓	✓
080-065-250	WS 35	220	260	13,9	13,0	✓	✓
100-080-200	WS 35	180	219	23,5	20,0	✓	✓
100-080-250	WS 35	220	269	19,0	19,0	✓	✓

**Maximum permissible P/n value / maximum permissible speed**

Size	Maximum permissible P/n value				Maximum permissible speed			
	Nominal impeller diameter				Nominal impeller diameter			
	[mm]				[mm]			
	125	160	200	250	125	160	200	250
050-025	0,006	0,006	0,006	0,0142	3600	3600	3600	3000
050-032	0,006	0,006	0,006	0,0142	3600	3600	3600	3000
065-040	0,006	0,006	0,006	0,0142	3600	3600	3600	3000
065-050	0,006	0,006	0,0142	0,0142	3600	3600	3600	3000
080-065	-	-	0,0142	0,0256	-	-	3600	3000
100-080	-	-	0,0256	0,0256	-	-	3000	1800

**Axial mass moment of inertia**

Size	Impeller diameter $Q_{\min}$	Mass moment of inertia <sup>17)</sup> J
	[mm]	[kgm <sup>2</sup> ]
050-025-125.1	136	0,0015
050-025-125.1	123	0,0012
050-025-125.1	110	0,0010
050-025-125	136	0,0010
050-025-125	123	0,0010
050-025-125	110	0,0012
050-025-160	166	0,0031
050-025-160	151	0,0022
050-025-160	135	0,0015

<sup>17)</sup> With water fill

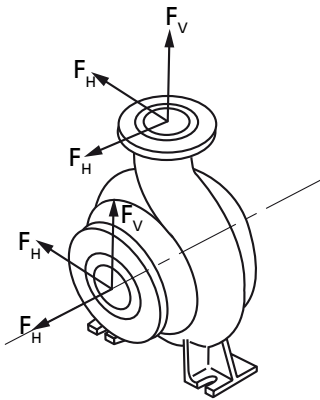
Size	Impeller diameter $Q_{min}$	Mass moment of inertia <sup>17)</sup> J
	[mm]	[kgm <sup>2</sup> ]
050-025-200	196	0,0056
050-025-200	181	0,0045
050-025-200	166	0,0031
050-025-250	260	0,0421
050-025-250	229	0,0258
050-025-250	198	0,0171
050-032-125.1	136	0,0015
050-032-125.1	123	0,0012
050-032-125.1	110	0,0010
050-032-125	136	0,0010
050-032-125	123	0,0010
050-032-125	110	0,0012
050-032-160	166	0,0031
050-032-160	151	0,0022
050-032-160	135	0,0015
050-032-200	196	0,0056
050-032-200	181	0,0045
050-032-200	166	0,0031
050-032-250	260	0,0421
050-032-250	229	0,0258
050-032-250	198	0,0171
065-040-125	136	0,0020
065-040-125	123	0,0015
065-040-125	110	0,0012
065-040-160	166	0,0037
065-040-160	151	0,0027
065-040-160	135	0,0019
065-040-200	196	0,0080
065-040-200	181	0,0052
065-040-200	166	0,0037
065-040-250	260	0,0436
065-040-250	230	0,0264
065-040-250	200	0,0155
065-050-125	142	0,0026
065-050-125	126	0,0018
065-050-125	110	0,0014
065-050-160	170	0,0052
065-050-160	156	0,0036
065-050-160	142	0,0026
065-050-200	220	0,0219
065-050-200	195	0,0147
065-050-200	170	0,0098
065-050-250	260	0,0456
065-050-250	235	0,0288
065-050-250	210	0,0197
080-065-200	219	0,0287
080-065-200	200	0,0215
080-065-200	180	0,0167
080-065-250	255	0,0515
080-065-250	233	0,0369
080-065-250	210	0,0282
100-080-200	219	0,0412
100-080-200	200	0,0329
100-080-200	180	0,0265
100-080-250	169	0,0802
100-080-250	240	0,0581
100-080-250	210	0,0429

Liquid fill of pump

Size	Fill
	[l]
050-025-125.1	1,2
050-025-125	1,2
050-025-160	1,6
050-025-200	1,7
050-025-250	3,8
050-032-125.1	1,2
050-032-125	1,2
050-032-160	1,6
050-032-200	1,7
050-032-250	3,8
065-040-125	1,3
065-040-160	2,0
065-040-200	2,3
065-040-250	4,0
065-050-125	2,3
065-050-160	2,4
065-050-200	3,3
065-050-250	4,0
080-065-200	4,3
080-065-250	4,9
100-080-200	6,5
100-080-250	6,5



Permissible forces and moments at the pump nozzles



$$\left[ \frac{\sum |F_V|}{|F_{Vmax}|} \right]^2 + \left[ \frac{\sum |F_H|}{|F_{Hmax}|} \right]^2 + \left[ \frac{\sum |M_t|}{|M_{tmax}|} \right]^2 \leq 1$$

Fig. 1: Forces and moments at the pump nozzles

The following condition must be met:

$\sum |F_V|$ ,  $\sum |F_H|$ , and  $\sum |M_t|$  are the sums of the absolute values of the respective loads acting on the nozzles. Neither the load direction nor the load distribution among the nozzles are taken into account in these sums.

Table 13: Forces and moments at the pump nozzles<sup>18)</sup>

Size	$F_{Vmax}$	$F_{Hmax}$	$M_{tmax}$
	[kN]	[kN]	[kNm]
050-025-125.1	2,6	1,8	0,55
050-025-125	2,6	1,8	0,55
050-025-160	2,5	1,7	0,5
050-025-200	2,5	1,7	0,5
050-025-250	2,5	1,7	0,5
050-032-125.1	2,6	1,8	0,55
050-032-125	2,6	1,8	0,55
050-032-160	2,5	1,7	0,5
050-032-200	2,5	1,7	0,5
050-032-250	2,5	1,7	0,5
065-040-125	2,6	1,8	0,6
065-040-160	2,6	1,8	0,6
065-040-200	2,6	1,8	0,6
065-040-250	2,6	1,8	0,6
065-050-125	2,7	2,0	0,75
065-050-160	2,7	1,9	0,7
065-050-200	2,7	1,9	0,7
065-050-250	2,7	1,9	0,7
080-065-200	3,0	2,2	0,85
080-065-250	3,2	2,4	1,05
100-080-200	4,0	2,9	1,45
100-080-250	4,0	2,9	1,45

<sup>18)</sup> The indicated values apply to pumps made of chrome nickel molybdenum steel 1.4571 on non-grouted baseplates.

**Noise characteristics**
**Table 14:** Surface sound pressure level  $L_{pA}$ <sup>19) 20)</sup>

Rated power input $P_N$ [kW]	Pump		Pump set	
	1450 rpm [dB]	2900 rpm [dB]	1450 rpm [dB]	2900 rpm [dB]
0,55	47	48	55	64
0,75	48	50	57	64
1,1	50	52	60	64
1,5	52	54	60	69
2,2	54	56	64	69
3	55	57	64	71
4	57	59	62	73
5,5	59	61	68	72
7,5	60	62	68	72
11	62	64	69	75
15	-	66	-	75
18,5	-	67	-	75
22	-	68	-	78
30	-	70	-	79
37	-	71	-	79
45	-	72	-	79
55	-	73	-	79
75	-	75	-	82

**Bearing design**
**Table 15:** Overview of radial ball bearings to DIN 625 used

Size	Drive end	Pump end	Nominal impeller diameter [mm]			
			125	160	200	250
			Bearing code			
050-025	<b>X</b>	-	6305 2Z C3	6305 2Z C3	6305 2Z C3	6305 2Z C3
	-	<b>X</b>	6305 2Z C3	6305 2Z C3	6305 2Z C3	6306 2Z C3
050-032	<b>X</b>	-	6305 2Z C3	6305 2Z C3	6305 2Z C3	6305 2Z C3
	-	<b>X</b>	6305 2Z C3	6305 2Z C3	6305 2Z C3	6306 2Z C3
065-040	<b>X</b>	-	6305 2Z C3	6305 2Z C3	6305 2Z C3	6305 2Z C3
	-	<b>X</b>	6305 2Z C3	6305 2Z C3	6305 2Z C3	6306 2Z C3
065-050	<b>X</b>	-	6305 2Z C3	6305 2Z C3	6305 2Z C3	6305 2Z C3
	-	<b>X</b>	6305 2Z C3	6305 2Z C3	6306 2Z C3	6306 2Z C3
080-065	<b>X</b>	-	-	-	6305 2Z C3	6307 2Z C3
	-	<b>X</b>	-	-	6306 2Z C3	6307 2Z C3
100-080	<b>X</b>	-	-	-	6307 2Z C3	6307 2Z C3
	-	<b>X</b>	-	-	6307 2Z C3	6307 2Z C3

<sup>19)</sup> Surface sound pressure level as per ISO 3744 and DIN EN ISO 20361 ; valid for a pump operating range of  $Q/Q_{BEP} = 0.8 - 1.1$  and non-cavitating operation. If noise levels are to be guaranteed: Add +3 dB for measuring and constructional tolerance.

<sup>20)</sup> Increase for 60 Hz operation: 3500 rpm +3 dB, 1750 rpm +1 dB

### Mechanical seal design

Installation dimensions to EN 12756

#### Example: KU022SO

Table 16: Designation

Code	Description
K	Design
	K Short design
U	Type
	U Unbalanced
022	Nominal diameter of the mechanical seal
S	Direction of rotation of the mechanical seal
	S Bi-directional
O	Anti-twist lock
	O Without lock

Table 17: Mechanical seal sizes

Size	Nominal impeller diameter [mm]			
	125	160	200	250
050-025	KU022SO	KU022SO	KU022SO	KU028SO
050-032	KU022SO	KU022SO	KU022SO	KU028SO
065-040	KU022SO	KU022SO	KU022SO	KU028SO
065-050	KU022SO	KU022SO	KU028SO	KU028SO
080-065	-	-	KU028SO	NU038SO
100-080	-	-	NU038SO	NU038SO

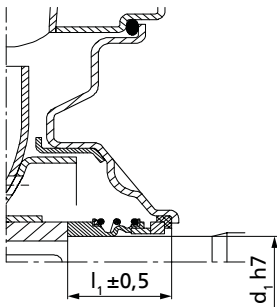


Fig. 2: Mechanical seal dimensions

Table 18: Mechanical seal dimensions

Code	d <sub>1</sub>	l <sub>1</sub>
	[mm]	[mm]
KU022SO	22	37,5
KU028SO	28	42,5
NU038SO	38	55,0

Table 19: Design code<sup>21)</sup>

Design code	Description				
	Primary ring	Mating ring	Secondary seal	Spring	Other parts
01	Q1	Q1	V	G	G
07	Q1	Q1	E	G	G
09	U3	U3	V	G	G
10	Q1	Q1	X4	G	G
11	B	Q1	E	G	G
12	Q12	Q1	M1	G	G
17	Q1	B	V	G	G
26	2	V	Y	X	X

Design code	Description				
	Primary ring	Mating ring	Secondary seal	Spring	Other parts
45	B	Q7	E1	G	G/Y10
46	Q7	Q7	E1	G	G/Y10
66	Q7	Q7	E	G	G/Y10
67	Q6	Q6	X4	G	G
68	B	Q7	V16	G	G/Y10
69	Q7	Q7	V16	G	G/Y10

Table 20: Material designation

Code	Material
2	Ceramics
B	Carbon, resin-impregnated
E	EPDM
E1	EPDM (to FDA, Regulation (EC) 1935/2004, Commission Regulation (EC) 2023/2006 - GMP)
G	CrNiMo steel
M1	FKM, double PTFE-coated
Q1	Silicon carbide
Q6	Silicon carbide with carbon
Q7	Silicon carbide, porous
Q12	Silicon carbide
U3	Tungsten carbide
V	Carbon (mating ring)
V	FKM (secondary seal)
V16	FKM (to FDA, Regulation (EC) 1935/2004, Commission Regulation (EC) 2023/2006 - GMP)
X	CrNiMo steel
X4	HNBR, e.g. Therban
Y	Viton

<sup>21)</sup> Code to EN 12756

### Additional information

- **Discharge cover with anti-swirl baffles**
  - For applications with a risk of wear by erosion.

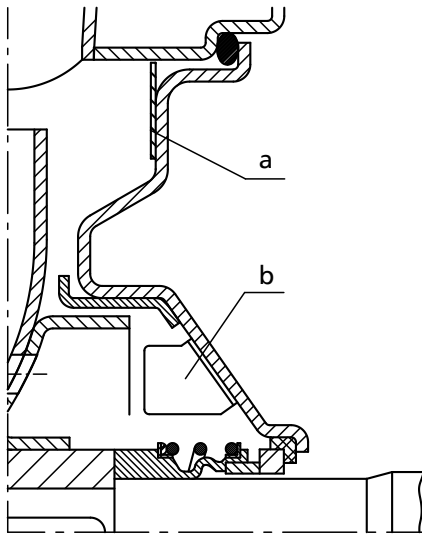


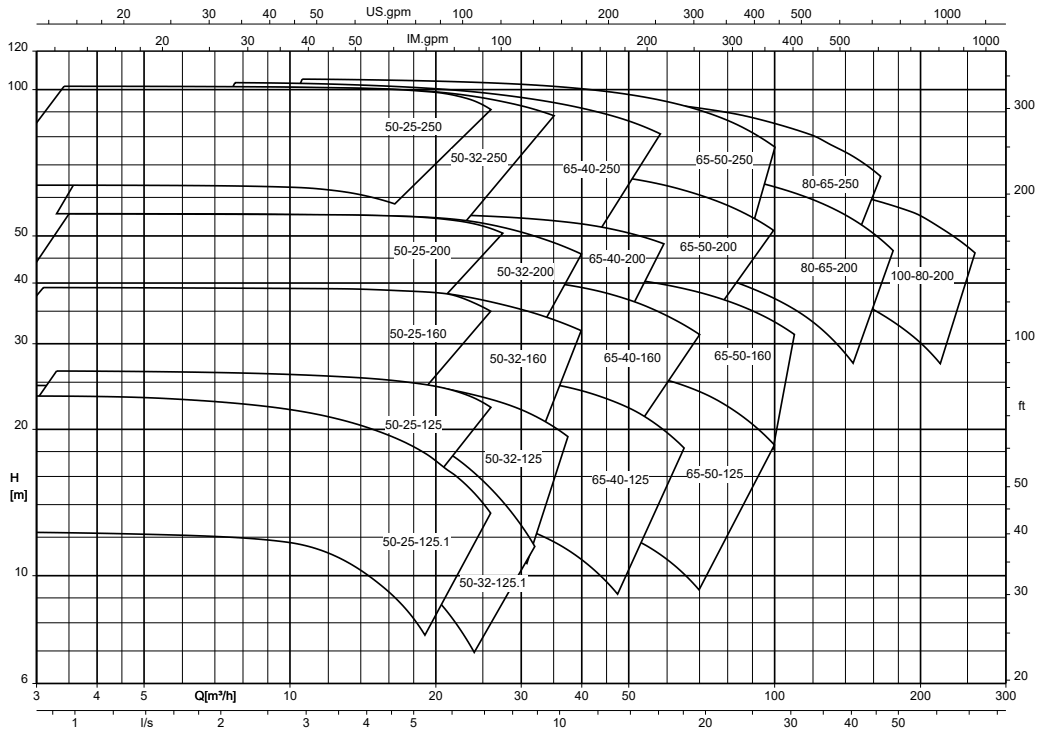
Fig. 3: Discharge cover with anti-swirl baffles

a	Ring
b	2 anti-swirl baffles at the circumference

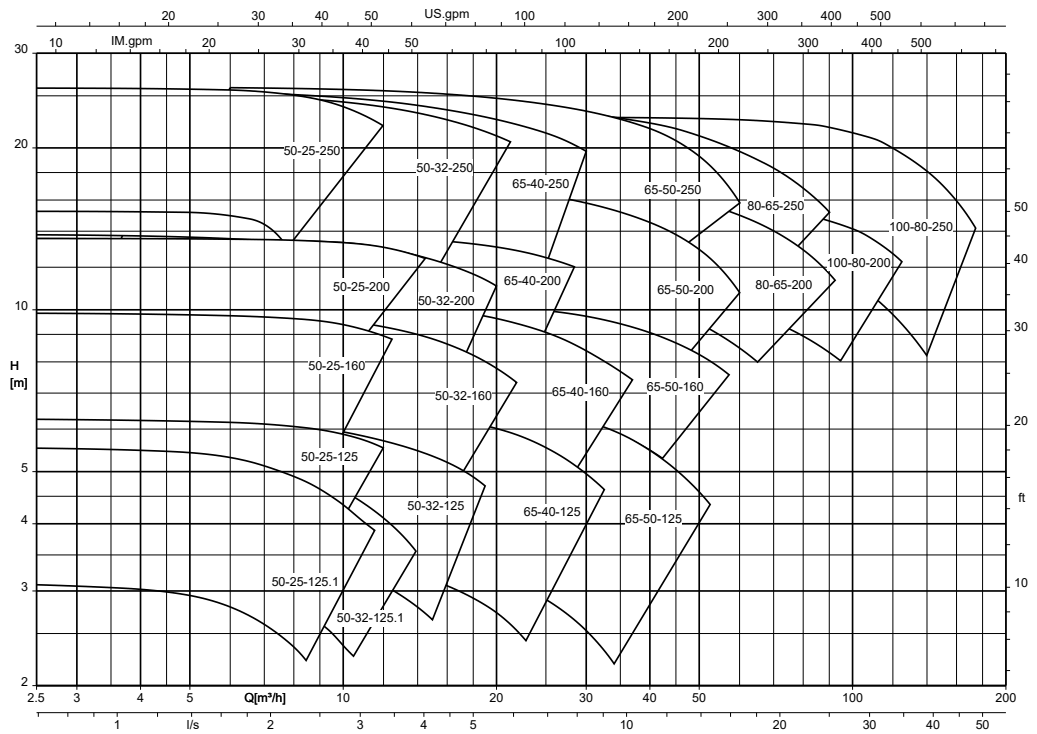
- **Contact guard**
  - Coupling guard to ZN 79, made of sheet steel, without support piece, not tread-proof
  - **Tread-proof version:**  
Coupling guard to ZN 79, guard/ring made of galvanised unperforated sheet metal, without support piece,  
footboard to ZN 3218 made of galvanised sheet steel, mounted on baseplate
- **Coupling**
  - Flexible coupling
  - Design N, without spacer sleeve, as per ZN 3207.
  - Design N-H with spacer sleeve, as per ZN 3208.
- **Baseplates**
  - Sectional steel for the complete pump set in torsion-resistant design
  - Cast iron to ZN 24259 (ISO 3661) for installation without foundation, torsion-resistant
  - Differences in height between the pump and the motor shafts are adjusted:  
< 28 mm with shims  
≥ 28 mm with adjusting screws to ZN 763
- **Foundation bolts**
  - Including hexagon nut and washer
  - 4 × M16 × 250, ident. number 00 150 399 for baseplates made of sectional steel, width up to 400 mm
  - 6 × M16 × 250, ident. number 00 150 403 for baseplates made of folded sheet steel, width > 400 mm

Selection charts

Etachrom L, n = 2900 rpm

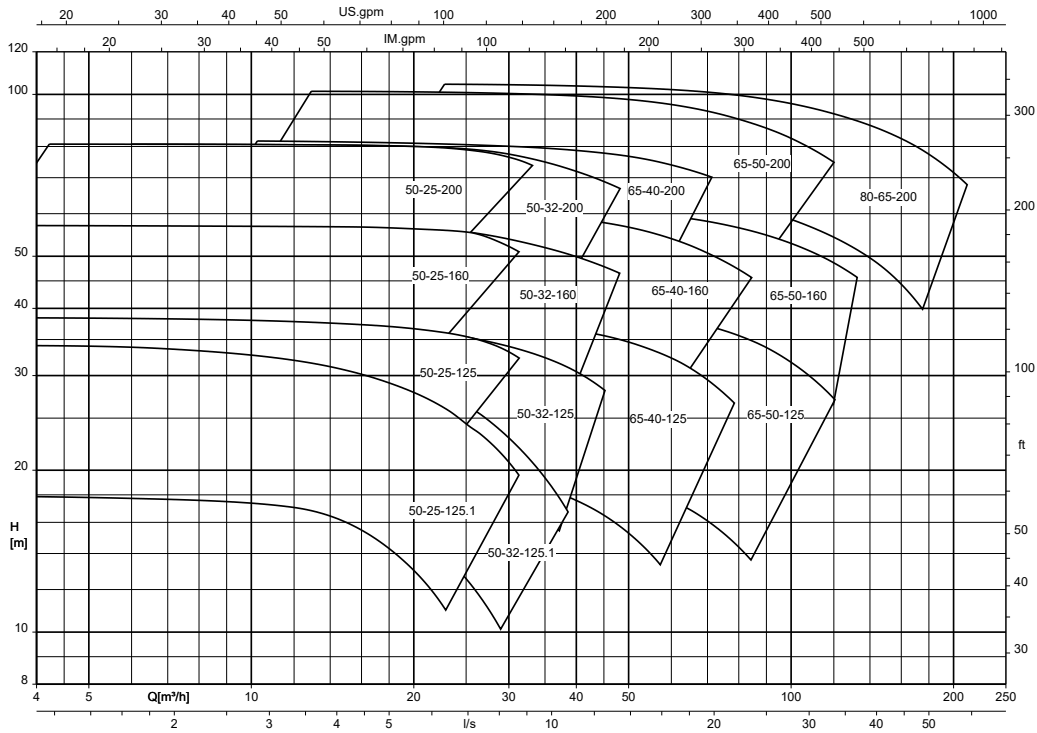


Etachrom L, n = 1450 rpm

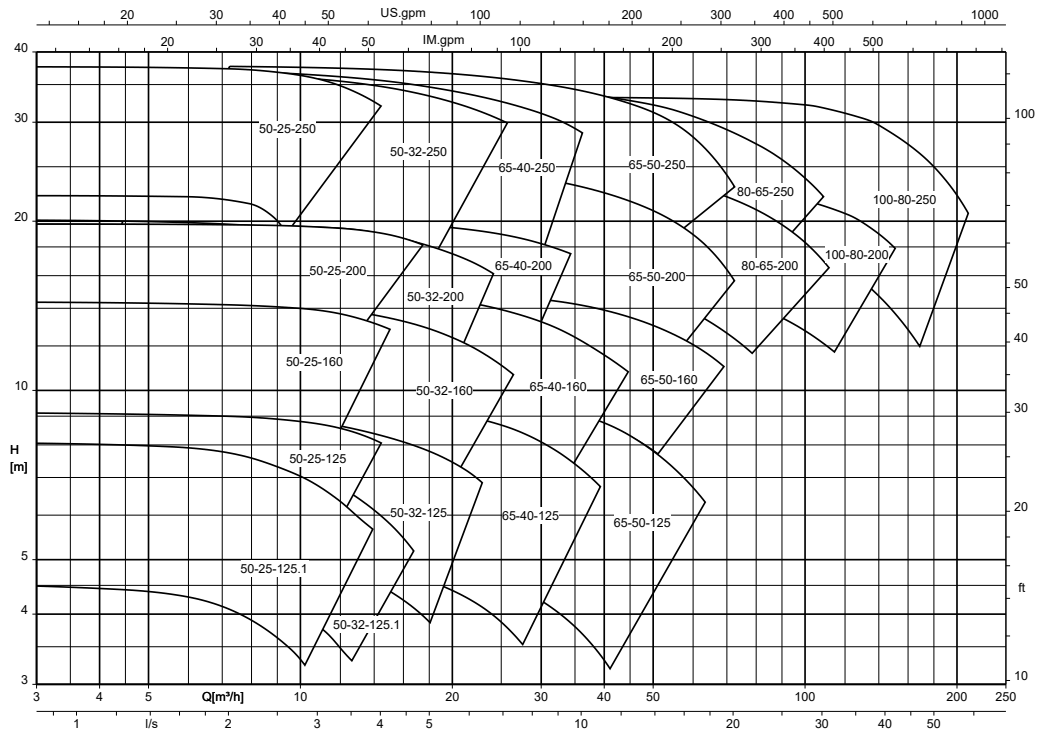


1212.5/17-EN

Etachrom L, n = 3500 rpm



Etachrom L, n = 1750 rpm



Dimensions and weights

Etachrom L, pump figure 0

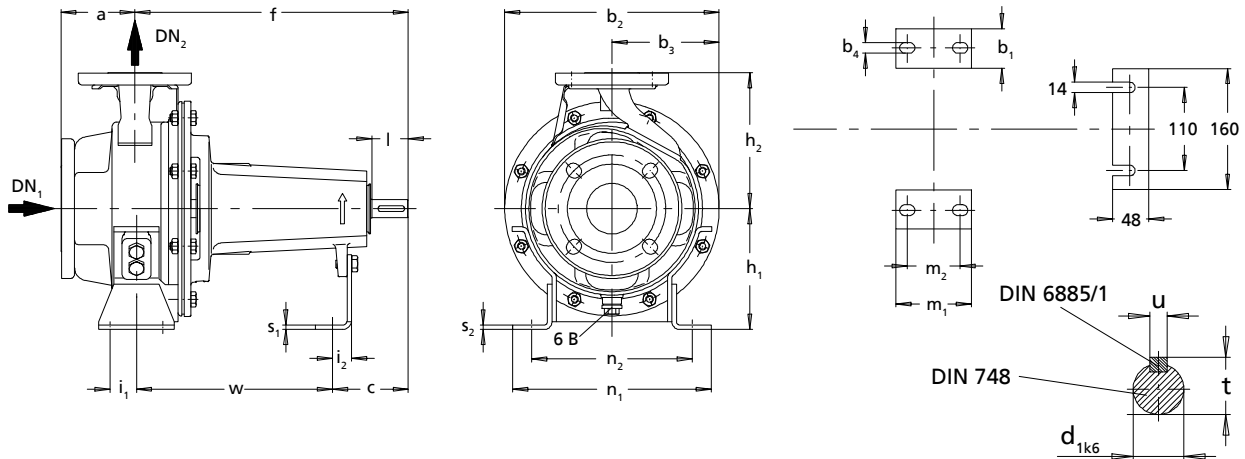


Fig. 4: Etachrom L, pump figure 0 (bare-shaft pump) [mm]

6B	Fluid drain	G <sup>3</sup> / <sub>8</sub> = ISO 228/1
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DN = EN 1092-1/DN.../PN 16/B

Table 21: Dimensions

Etachrom L	DN <sub>1</sub>	DN <sub>2</sub>	[mm]																					
			a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	c	d <sub>1k6</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i <sub>1</sub>	i <sub>2</sub>	l	m <sub>1</sub>	m <sub>2</sub>	n <sub>1</sub>	n <sub>2</sub>	s <sub>1</sub>	s <sub>2</sub>	t	u	w
050-025-125.1	50	25	80	50	220	110	14	100	24	360	112	140	35	23	50	100	70	190	140	4	5	26,9	8	260
050-025-125	50	25	80	50	220	110	14	100	24	360	112	140	35	23	50	100	70	190	140	4	5	26,9	8	260
050-025-160	50	25	80	50	256	128	14	100	24	360	132	160	35	23	50	100	70	240	190	4	6	26,9	8	260
050-025-200	50	25	80	50	286	143	14	100	24	360	160	180	35	25	50	100	70	240	190	6	6	26,9	8	260
050-025-250	50	25	100	65	346	173	14	100	24	360	180	225	47,5	25	50	125	95	320	250	6	5	26,9	8	260
050-032-125.1	50	32	80	50	220	110	14	100	24	360	112	140	35	23	50	100	70	190	140	4	5	26,9	8	260
050-032-125	50	32	80	50	220	110	14	100	24	360	112	140	35	23	50	100	70	190	140	4	5	26,9	8	260
050-032-160	50	32	80	50	256	128	14	100	24	360	132	160	35	23	50	100	70	240	190	4	6	26,9	8	260
050-032-200	50	32	80	50	286	143	14	100	24	360	160	180	35	25	50	100	70	240	190	6	6	26,9	8	260
050-032-250	50	32	100	65	346	173	14	100	24	360	180	225	47,5	25	50	125	95	320	250	6	5	26,9	8	260
065-040-125	65	40	80	50	220	110	14	100	24	360	112	140	35	23	50	100	70	210	160	4	5	26,9	8	260
065-040-160	65	40	80	50	256	128	14	100	24	360	132	160	35	23	50	100	70	240	190	4	6	26,9	8	260
065-040-200	65	40	100	50	286	143	14	100	24	360	160	180	35	25	50	100	70	265	212	6	6	26,9	8	260
065-040-250	65	40	100	65	346	173	14	100	24	360	180	225	47,5	25	50	125	95	320	250	6	5	26,9	8	260
065-050-125	65	50	100	50	256	128	14	100	24	360	132	160	35	23	50	100	70	240	190	4	6	26,9	8	260
065-050-160	65	50	100	50	256	128	14	100	24	360	160	180	35	25	50	100	70	265	212	6	6	26,9	8	260
065-050-200	65	50	100	50	310	155	14	100	24	360	160	200	35	25	50	100	70	265	212	4	4	26,9	8	260
065-050-250	65	50	100	65	346	173	14	100	24	360	180	225	47,5	25	50	125	95	320	250	6	5	26,9	8	260
080-065-200	80	65	100	65	348	174	14	100	24	360	180	225	47,5	25	50	125	95	320	250	6	5	26,9	8	260
080-065-250	80	65	100	80	348	174	14	130	32	470	200	250	60	24	80	160	120	360	280	6	5	35	10	340
100-080-200	100	80	125	65	348	174	14	130	32	470	180	250	47,5	24	80	125	95	345	280	6	5	35	10	340
100-080-250	100	80	125	80	348	174	18	130	32	470	200	280	60	24	80	160	120	400	315	6	5	35	10	340

Etachrom L 25, pump set

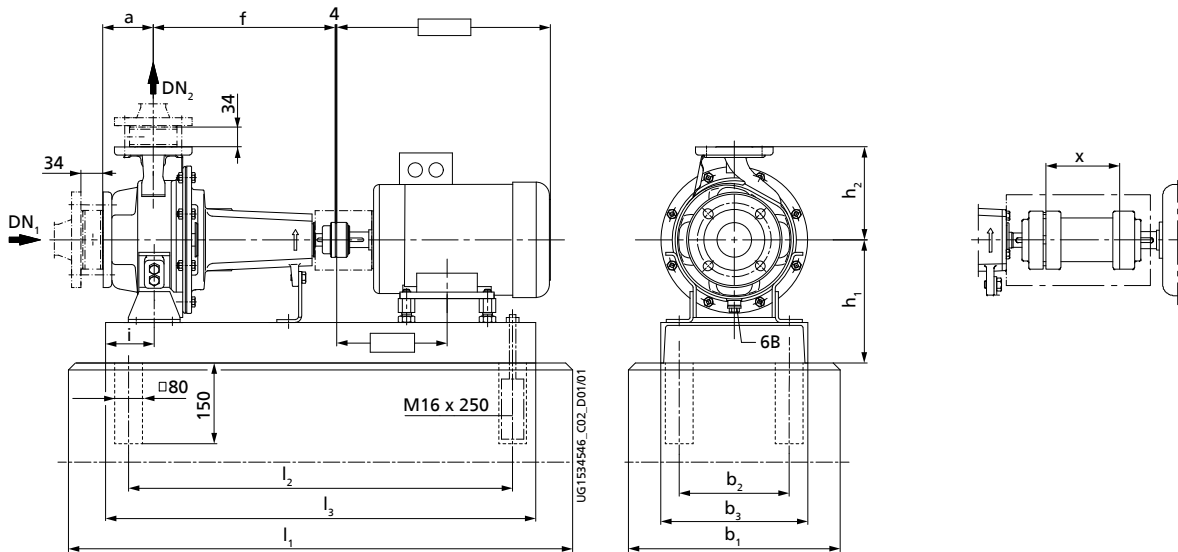




Fig. 5: Etachrom L, pump set, [mm]

6B	Fluid drain	G <sup>3/8</sup> = ISO 228/1
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DN = EN 1092-1/DN.../PN 16/B

Table 22: Dimensions

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
															l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	x
															[kW]						
050-025-125.1	0,55	0,63	-	-	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125.1	-	-	0,75	-	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125.1	-	-	1,10	1,27	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125.1	-	-	1,50	1,75	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125.1	-	-	2,20	2,55	50	25	80	450	240	300	360	212	140	100	950	740	800	1050	840	900	100
050-025-125.1	-	-	-	3,45	50	25	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-025-125.1	-	-	-	4,55	50	25	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-025-125	0,55	0,63	-	-	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125	-	-	1,10	-	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125	-	-	1,50	1,75	50	25	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-025-125	-	-	2,20	2,55	50	25	80	450	240	300	360	212	140	100	950	740	800	1050	840	900	100
050-025-125	-	-	3,00	3,45	50	25	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-025-125	-	-	-	4,55	50	25	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-025-125	-	-	-	6,30	50	25	80	450	240	300	360	232	140	100	1050	840	900	1150	940	1000	100
050-025-160	0,55	0,63	-	-	50	25	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-025-160	-	0,86	-	-	50	25	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-025-160	-	1,27	-	-	50	25	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-025-160	-	-	1,50	-	50	25	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-025-160	-	-	2,20	2,55	50	25	80	450	240	300	360	232	160	100	950	740	800	1050	840	900	100
050-025-160	-	-	3,00	3,45	50	25	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-025-160	-	-	4,00	4,55	50	25	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-025-160	-	-	5,50	6,30	50	25	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-025-160	-	-	-	8,60	50	25	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-025-200	0,55	0,63	-	-	50	25	80	450	240	300	360	260	180	100	860	650	710	950	740	800	100
050-025-200	0,75	0,86	-	-	50	25	80	450	240	300	360	260	180	100	860	650	710	950	740	800	100
050-025-200	1,10	1,27	-	-	50	25	80	450	240	300	360	260	180	100	860	650	710	950	740	800	100
050-025-200	-	1,75	-	-	50	25	80	450	240	300	360	260	180	100	950	740	800	1050	840	900	100
050-025-200	-	2,55	-	-	50	25	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-025-200	-	-	3,00	-	50	25	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-025-200	-	-	4,00	-	50	25	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-025-200	-	-	5,50	6,30	50	25	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100



Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
	[kW]				[mm]																
050-025-200	-	-	7,50	8,60	50	25	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-025-200	-	-	-	12,60	50	25	80	450	240	300	360	260	180	100	1270	1060	1120	1270	1060	1120	100
050-025-200	-	-	-	17,30	50	25	80	450	240	300	360	260	180	100	1270	1060	1120	1270	1060	1120	100
050-025-250	0,75	-	-	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-025-250	1,10	1,27	-	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-025-250	1,50	1,75	-	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-025-250	2,20	2,55	-	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-025-250	-	3,45	-	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-025-250	-	-	5,50	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100
050-025-250	-	-	7,50	-	50	25	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100
050-025-250	-	-	11,00	-	50	25	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100
050-025-250	-	-	15,00	-	50	25	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100

Etachrom L 32, pump set

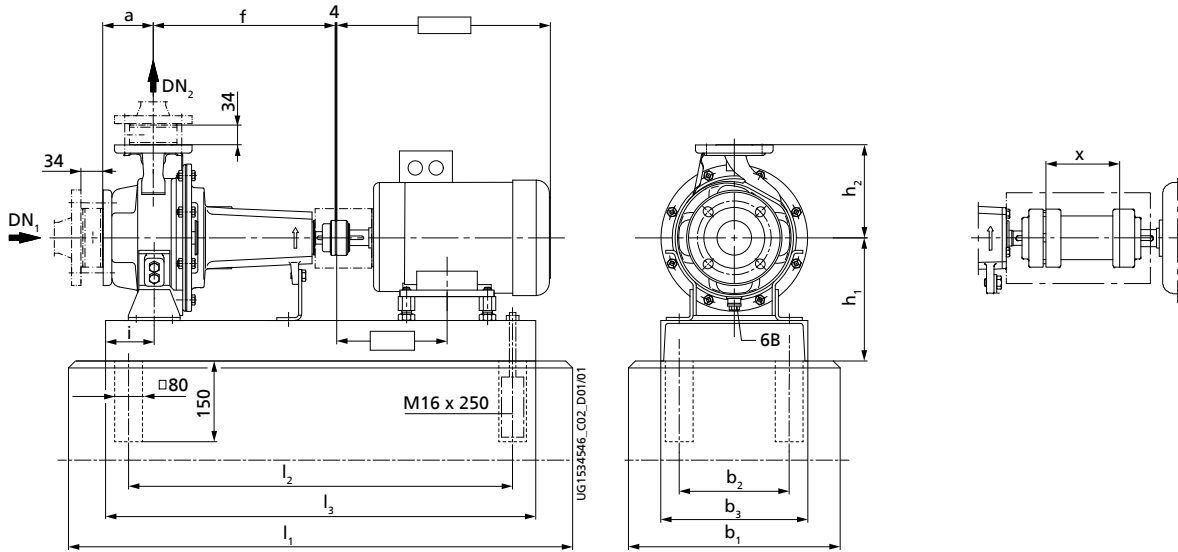






Fig. 6: Etachrom L, pump set, [mm]

6B	Fluid drain	G <sup>3/8</sup> = ISO 228/1
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DN = EN 1092-1/DN.../PN 16/B

Table 23: Dimensions

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
															l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	x
															[kW]						
050-032-125.1	0,55	0,63	-	-	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125.1	-	-	0,75	-	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125.1	-	-	1,10	1,27	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125.1	-	-	1,50	1,75	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125.1	-	-	2,20	2,55	50	32	80	450	240	300	360	212	140	100	950	740	800	1050	840	900	100
050-032-125.1	-	-	-	3,45	50	32	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-032-125.1	-	-	-	4,55	50	32	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-032-125	0,55	0,63	-	-	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125	-	0,86	-	-	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125	-	-	1,10	-	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125	-	-	1,50	1,75	50	32	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
050-032-125	-	-	2,20	2,55	50	32	80	450	240	300	360	212	140	100	950	740	800	1050	840	900	100
050-032-125	-	-	3,00	3,45	50	32	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-032-125	-	-	-	4,55	50	32	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
050-032-125	-	-	-	6,30	50	32	80	450	240	300	360	232	140	100	1050	840	900	1150	940	1000	100
050-032-160	0,55	0,63	-	-	50	32	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-032-160	0,75	0,86	-	-	50	32	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-032-160	-	1,27	-	-	50	32	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
050-032-160	-	1,75	-	-	50	32	80	450	240	300	360	232	160	100	950	740	800	1050	840	900	100
050-032-160	-	-	2,20	2,55	50	32	80	450	240	300	360	232	160	100	950	740	800	1050	840	900	100
050-032-160	-	-	3,00	3,45	50	32	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-032-160	-	-	4,00	4,55	50	32	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-032-160	-	-	5,50	6,30	50	32	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-032-160	-	-	-	8,60	50	32	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
050-032-160	-	-	-	12,60	50	32	80	500	280	350	360	260	160	100	1270	1060	1120	1270	1060	1120	100
050-032-200	0,55	0,63	-	-	50	32	80	450	240	300	360	260	180	100	860	650	710	950	740	800	100
050-032-200	0,75	0,86	-	-	50	32	80	450	240	300	360	260	180	100	860	650	710	950	740	800	100
050-032-200	1,10	1,27	-	-	50	32	80	450	240	300	360	260	180	100	860	650	710	950	740	800	100
050-032-200	-	1,75	-	-	50	32	80	450	240	300	360	260	180	100	950	740	800	1050	840	900	100
050-032-200	-	2,55	-	-	50	32	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-032-200	-	-	3,00	-	50	32	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
	[kW]				[mm]																
050-032-200	-	-	4,00	4,55	50	32	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-032-200	-	-	5,50	6,30	50	32	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-032-200	-	-	7,50	8,60	50	32	80	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
050-032-200	-	-	11,00	12,60	50	32	80	500	280	350	360	260	180	100	1270	1060	1120	1270	1060	1120	100
050-032-200	-	-	-	17,30	50	32	80	500	280	350	360	260	180	100	1270	1060	1120	1270	1060	1120	100
050-032-250	0,75	-	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-032-250	1,10	1,27	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-032-250	1,50	1,75	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-032-250	2,20	2,55	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-032-250	3,00	3,45	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100
050-032-250	-	4,55	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100
050-032-250	-	6,30	-	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100
050-032-250	-	-	5,50	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100
050-032-250	-	-	7,50	-	50	32	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100
050-032-250	-	-	11,00	-	50	32	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100
050-032-250	-	-	15,00	-	50	32	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100
050-032-250	-	-	18,50	-	50	32	100	500	280	350	360	280	225	112	1270	1060	1120	1400	1190	1250	100

Etachrom L 40, pump set

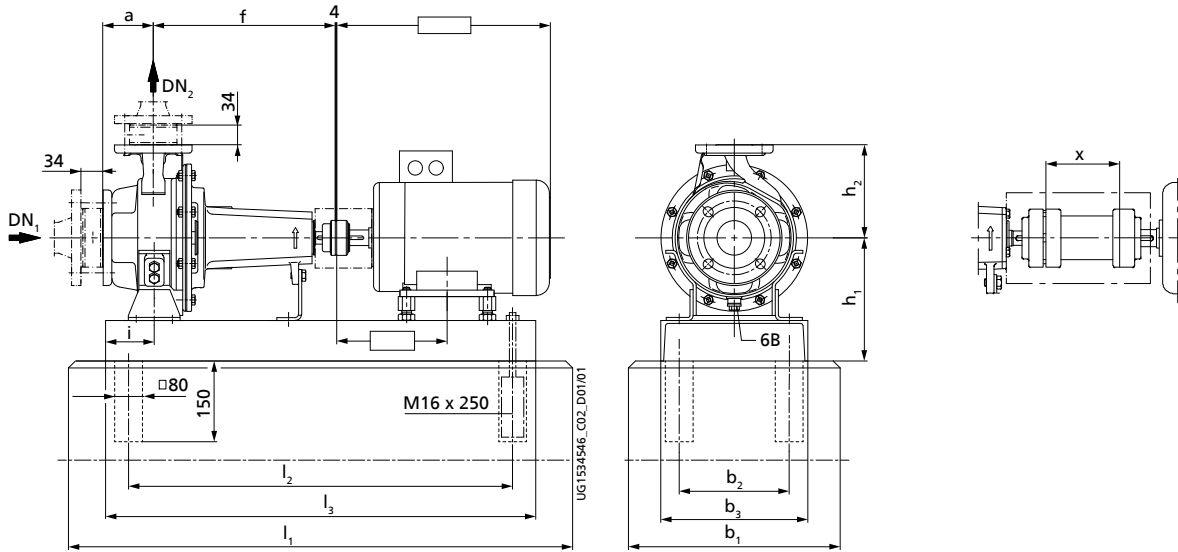






Fig. 7: Etachrom L, pump set, [mm]

6B	Fluid drain	$G^{3/8}$ = ISO 228/1
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DN = EN 1092-1/DN.../PN 16/B

Table 24: Dimensions

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
															l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	x
															[kW]						
065-040-125	0,55	0,63	-	-	65	40	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
065-040-125	-	0,86	-	-	65	40	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
065-040-125	-	1,27	-	-	65	40	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
065-040-125	-	-	1,50	1,75	65	40	80	450	240	300	360	212	140	100	860	650	710	950	740	800	100
065-040-125	-	-	2,20	2,55	65	40	80	450	240	300	360	212	140	100	950	740	800	1050	840	900	100
065-040-125	-	-	3,00	3,45	65	40	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
065-040-125	-	-	4,00	4,55	65	40	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
065-040-125	-	-	5,50	-	65	40	80	450	240	300	360	212	140	100	1050	840	900	1150	940	1000	100
065-040-125	-	-	-	6,30	65	40	80	450	240	300	360	232	140	100	1050	840	900	1150	940	1000	100
065-040-125	-	-	-	8,60	65	40	80	450	240	300	360	232	140	100	1050	840	900	1150	940	1000	100
065-040-125	-	-	-	12,60	65	40	80	500	280	350	360	260	140	100	1270	1060	1120	1270	1060	1120	100
065-040-160	0,55	0,63	-	-	65	40	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
065-040-160	0,75	0,86	-	-	65	40	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
065-040-160	1,10	1,27	-	-	65	40	80	450	240	300	360	232	160	100	860	650	710	950	740	800	100
065-040-160	1,50	1,75	-	-	65	40	80	450	240	300	360	232	160	100	950	740	800	1050	840	900	100
065-040-160	-	2,55	-	-	65	40	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-040-160	-	-	3,00	3,45	65	40	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-040-160	-	-	4,00	4,55	65	40	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-040-160	-	-	5,50	6,30	65	40	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-040-160	-	-	7,50	8,60	65	40	80	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-040-160	-	-	11,00	-	65	40	80	500	280	350	360	232	160	100	1270	1060	1120	1270	1060	1120	100
065-040-160	-	-	-	12,60	65	40	80	500	280	350	360	260	160	100	1270	1060	1120	1270	1060	1120	100
065-040-160	-	-	-	17,30	65	40	80	500	280	350	360	260	160	100	1270	1060	1120	1270	1060	1120	100
065-040-200	0,75	-	-	-	65	40	100	450	240	300	360	260	180	100	860	650	710	950	740	800	100
065-040-200	1,10	1,27	-	-	65	40	100	450	240	300	360	260	180	100	860	650	710	950	740	800	100
065-040-200	1,50	1,75	-	-	65	40	100	450	240	300	360	260	180	100	950	740	800	1050	840	900	100
065-040-200	-	2,55	-	-	65	40	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-040-200	-	3,45	-	-	65	40	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-040-200	-	-	5,50	6,30	65	40	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-040-200	-	-	7,50	8,60	65	40	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-040-200	-	-	11,00	12,60	65	40	100	500	280	350	360	260	180	100	1270	1060	1120	1270	1060	1120	100
065-040-200	-	-	-	17,30	65	40	100	500	280	350	360	260	180	100	1270	1060	1120	1270	1060	1120	100

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i									
	[kW]				[mm]																		
																		l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
065-040-200	-	-	-	21,30	65	40	100	500	280	350	360	260	180	100	1270	1060	1120	1400	1190	1250	100		
065-040-200	-	-	-	24,50	65	40	100	550	320	400	360	290	180	100	1400	1190	1250	1400	1190	1250	100		
065-040-250	1,10	1,27	-	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100		
065-040-250	1,50	1,75	-	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100		
065-040-250	2,20	2,55	-	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100		
065-040-250	3,00	3,45	-	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100		
065-040-250	-	4,55	-	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100		
065-040-250	-	6,30	-	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100		
065-040-250	-	-	7,50	-	65	40	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100		
065-040-250	-	-	11,00	-	65	40	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100		
065-040-250	-	-	15,00	-	65	40	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100		
065-040-250	-	-	18,50	-	65	40	100	500	280	350	360	280	225	112	1270	1060	1120	1400	1190	1250	100		
065-040-250	-	-	22,00	-	65	40	100	550	320	400	360	280	225	112	1400	1190	1250	1400	1190	1250	100		

Etachrom L 50, pump set

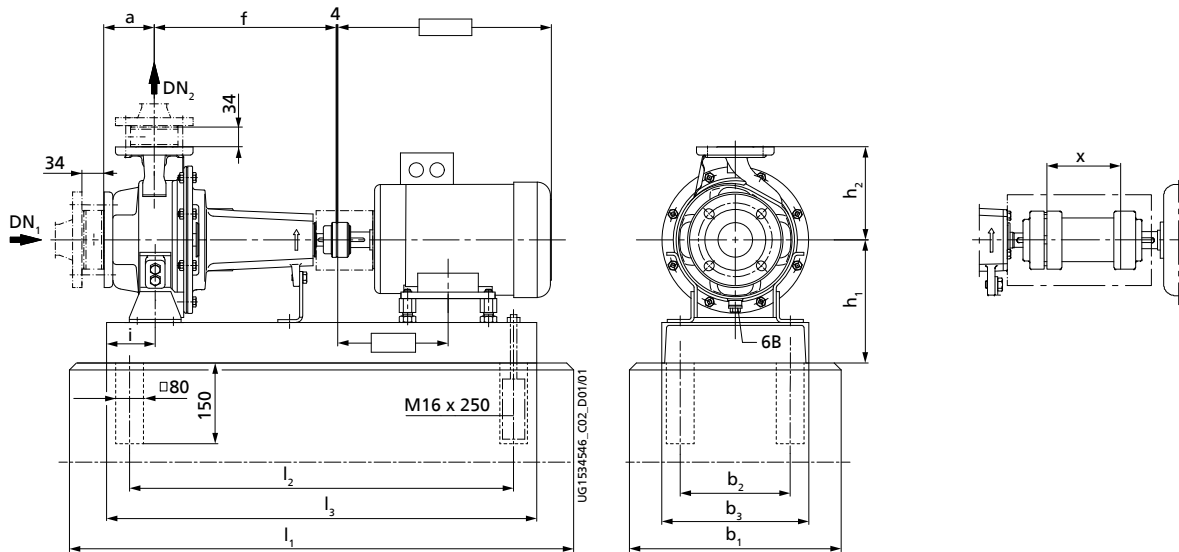




Fig. 8: Etachrom L, pump set, [mm]

6B	Fluid drain	G <sup>3/8</sup> = ISO 228/1
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DN = EN 1092-1/DN.../PN 16/B

Table 25: Dimensions

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
															l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	x
															[kW]						
065-050-125	0,55	0,63	-	-	65	50	100	450	240	300	360	232	160	100	860	650	710	950	740	800	100
065-050-125	0,75	0,86	-	-	65	50	100	450	240	300	360	232	160	100	860	650	710	950	740	800	100
065-050-125	1,10	1,27	-	-	65	50	100	450	240	300	360	232	160	100	860	650	710	950	740	800	100
065-050-125	-	1,75	-	-	65	50	100	450	240	300	360	232	160	100	950	740	800	1050	840	900	100
065-050-125	-	2,55	-	-	65	50	100	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-050-125	-	-	3,00	3,45	65	50	100	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-050-125	-	-	4,00	4,55	65	50	100	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-050-125	-	-	5,50	6,30	65	50	100	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-050-125	-	-	7,50	8,60	65	50	100	450	240	300	360	232	160	100	1050	840	900	1150	940	1000	100
065-050-125	-	-	-	12,60	65	50	100	500	280	350	360	260	160	100	1270	1060	1120	1270	1060	1120	100
065-050-125	-	-	-	17,30	65	50	100	500	280	350	360	260	160	100	1270	1060	1120	1270	1060	1120	100
065-050-160	0,75	0,86	-	-	65	50	100	450	240	300	360	260	180	100	860	650	710	950	740	800	100
065-050-160	1,10	1,27	-	-	65	50	100	450	240	300	360	260	180	100	860	650	710	950	740	800	100
065-050-160	1,50	1,75	-	-	65	50	100	450	240	300	360	260	180	100	950	740	800	1050	840	900	100
065-050-160	2,20	2,55	-	-	65	50	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-050-160	-	3,45	-	-	65	50	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-050-160	-	-	5,50	6,30	65	50	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-050-160	-	-	7,50	8,60	65	50	100	450	240	300	360	260	180	100	1050	840	900	1150	940	1000	100
065-050-160	-	-	11,00	12,60	65	50	100	500	280	350	360	260	180	100	1270	1060	1120	1270	1060	1120	100
065-050-160	-	-	15,00	17,30	65	50	100	500	280	350	360	260	180	100	1270	1060	1120	1270	1060	1120	100
065-050-160	-	-	-	21,30	65	50	100	500	280	350	360	260	180	100	1270	1060	1120	1400	1190	1250	100
065-050-160	-	-	-	24,50	65	50	100	550	320	400	360	290	180	100	1400	1190	1250	1400	1190	1250	100
065-050-200	0,75	-	-	-	65	50	100	450	240	300	360	260	200	100	860	650	710	950	740	800	100
065-050-200	1,10	1,27	-	-	65	50	100	450	240	300	360	260	200	100	860	650	710	950	740	800	100
065-050-200	1,50	1,75	-	-	65	50	100	450	240	300	360	260	200	100	950	740	800	1050	840	900	100
065-050-200	2,20	2,55	-	-	65	50	100	450	240	300	360	260	200	100	1050	840	900	1150	940	1000	100
065-050-200	3,00	3,45	-	-	65	50	100	450	240	300	360	260	200	100	1050	840	900	1150	940	1000	100
065-050-200	-	4,55	-	-	65	50	100	450	240	300	360	260	200	100	1050	840	900	1150	940	1000	100
065-050-200	-	6,30	-	-	65	50	100	450	240	300	360	260	200	100	1050	840	900	1150	940	1000	100
065-050-200	-	-	7,50	8,60	65	50	100	450	240	300	360	260	200	100	1050	840	900	1150	940	1000	100
065-050-200	-	-	11,00	-	65	50	100	500	280	350	360	260	200	100	1270	1060	1120	1270	1060	1120	100
065-050-200	-	-	-	12,60	65	50	100	500	280	350	360	290	200	100	1270	1060	1120	1270	1060	1120	100

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i																
	[kW]														[mm]															
	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>											l <sub>2</sub>	l <sub>3</sub>	x													
065-050-200	-	-	15,00	-	65	50	100	500	280	350	360	260	200	100	1270	1060	1120	1270	1060	1120	100									
065-050-200	-	-	-	17,30	65	50	100	500	280	350	360	290	200	100	1270	1060	1120	1270	1060	1120	100									
065-050-200	-	-	18,50	-	65	50	100	500	280	350	360	260	200	100	1270	1060	1120	1400	1190	1250	100									
065-050-200	-	-	-	21,30	65	50	100	500	280	350	360	290	200	100	1270	1060	1120	1400	1190	1250	100									
065-050-200	-	-	22,00	-	65	50	100	550	320	400	360	290	200	100	1400	1060	1120	1400	1190	1250	100									
065-050-200	-	-	-	24,50	65	50	100	550	320	400	360	310	200	100	1400	1190	1250	1400	1190	1250	100									
065-050-200	-	-	-	33,50	65	50	100	550	320	400	360	310	200	100	1400	1190	1250	1400	1190	1250	100									
065-050-200	-	-	-	41,50	65	50	100	550	320	400	360	310	200	100	1400	1190	1250	1400	1190	1250	100									
065-050-250	1,50	-	-	-	65	50	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100									
065-050-250	2,20	2,55	-	-	65	50	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100									
065-050-250	3,00	3,45	-	-	65	50	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100									
065-050-250	4,00	4,55	-	-	65	50	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100									
065-050-250	5,50	-	-	-	65	50	100	500	280	350	360	280	225	112	1050	840	900	1050	840	900	100									
065-050-250	-	6,30	-	-	65	50	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	100									
065-050-250	-	8,60	-	-	65	50	100	500	280	350	360	280	225	112	1150	940	1000	1270	1060	1120	100									
065-050-250	-	12,60	-	-	65	50	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100									
065-050-250	-	-	11,00	-	65	50	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100									
065-050-250	-	-	15,00	-	65	50	100	500	280	350	360	280	225	112	1270	1060	1120	1270	1060	1120	100									
065-050-250	-	-	18,50	-	65	50	100	500	280	350	360	280	225	112	1270	1060	1120	1400	1190	1250	100									
065-050-250	-	-	22,00	-	65	50	100	550	320	400	360	290	225	112	1400	1190	1250	1400	1190	1250	100									
065-050-250	-	-	30,00	-	65	50	100	550	320	400	360	310	225	112	1400	1190	1250	1400	1190	1250	100									
065-050-250	-	-	37,00	-	65	50	100	550	320	400	360	310	225	112	1400	1190	1250	1400	1190	1250	100									

Etachrom L 65, pump set

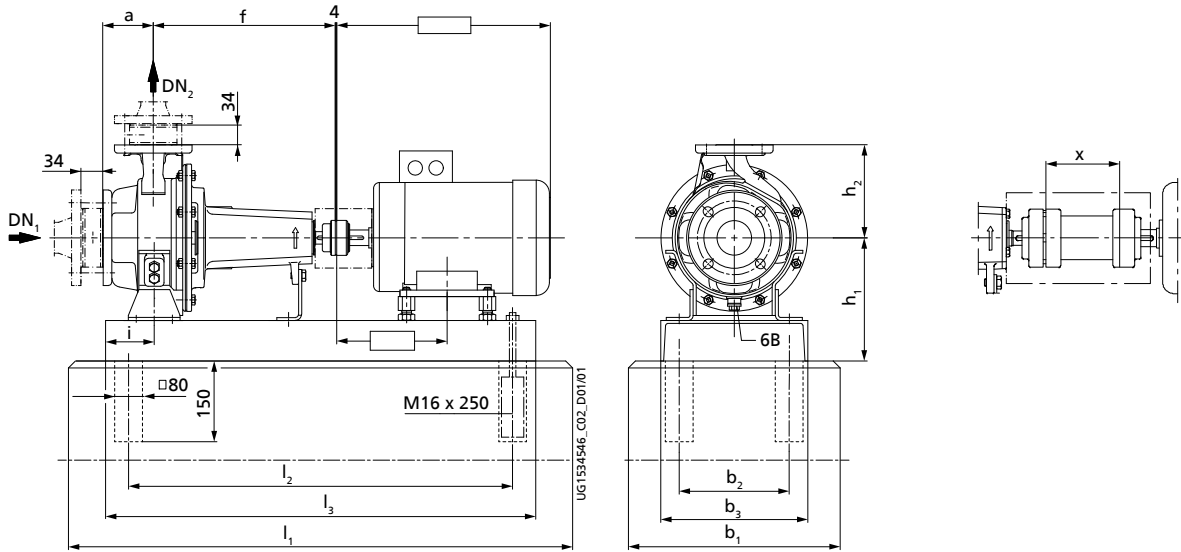


Fig. 9: Etachrom L, pump set, [mm]

Figure 1

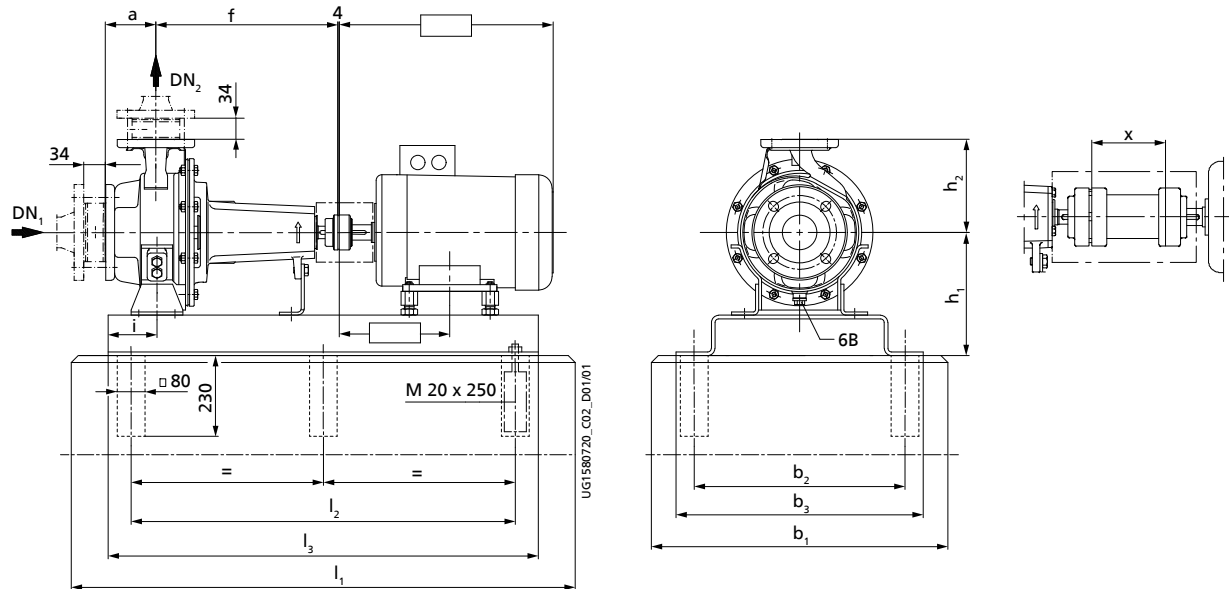


Fig. 10: Etachrom L, pump set, [mm]

Figure 2

6B	Fluid drain	$G^{3/8} = \text{ISO 228/1}$
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DN = EN 1092-1/DN.../PN 16/B



Table 26: Dimensions

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i																
	[kW]														[mm]															
															l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	x									
080-065-200 <sup>22)</sup>	1,50	-	-	-	80	65	100	500	280	350	360	280	225	112	950	740	800	1050	840	900	140									
080-065-200 <sup>22)</sup>	2,20	2,55	-	-	80	65	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	140									
080-065-200 <sup>22)</sup>	3,00	3,45	-	-	80	65	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	140									
080-065-200 <sup>22)</sup>	4,00	4,55	-	-	80	65	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	140									
080-065-200 <sup>22)</sup>	-	6,30	-	-	80	65	100	500	280	350	360	280	225	112	1050	840	900	1150	940	1000	140									
080-065-200 <sup>22)</sup>	-	8,60	-	-	80	65	100	500	280	350	360	280	225	112	1150	940	1000	1270	1060	1120	140									
080-065-200 <sup>22)</sup>	-	-	11,00	12,60	80	65	100	500	280	350	360	280	225	112	1270	1060	1120	1400	1190	1250	140									
080-065-200 <sup>22)</sup>	-	-	15,00	17,30	80	65	100	500	280	350	360	280	225	112	1270	1060	1120	1400	1190	1250	140									
080-065-200 <sup>22)</sup>	-	-	18,50	21,30	80	65	100	500	280	350	360	280	225	112	1270	1060	1120	1400	1190	1250	140									
080-065-200 <sup>22)</sup>	-	-	22,00	24,50	80	65	100	550	320	400	360	290	225	112	1400	1190	1250	1400	1190	1250	140									
080-065-200 <sup>22)</sup>	-	-	30,00	33,50	80	65	100	550	320	400	360	310	225	112	1400	1190	1250	1400	1190	1250	140									
080-065-200 <sup>22)</sup>	-	-	37,00	41,50	80	65	100	550	320	400	360	310	225	112	1400	1190	1250	1400	1190	1250	140									
080-065-200 <sup>23)</sup>	-	-	-	51,00	80	65	100	750	550	590	360	365	225	112	1550	940	1400	1550	940	1400	140									
080-065-250 <sup>22)</sup>	2,20	-	-	-	80	65	100	550	320	400	470	310	250	130	1150	940	1000	1400	1190	1250	140									
080-065-250 <sup>22)</sup>	3,00	3,45	-	-	80	65	100	550	320	400	470	310	250	130	1150	940	1000	1400	1190	1250	140									
080-065-250 <sup>22)</sup>	4,00	4,55	-	-	80	65	100	550	320	400	470	310	250	130	1150	940	1000	1400	1190	1250	140									
080-065-250 <sup>22)</sup>	5,50	6,30	-	-	80	65	100	550	320	400	470	310	250	130	1150	940	1000	1400	1190	1250	140									
080-065-250 <sup>22)</sup>	7,50	8,60	-	-	80	65	100	550	320	400	470	310	250	130	1150	940	1000	1400	1190	1250	140									
080-065-250 <sup>22)</sup>	-	12,6	-	-	80	65	100	550	320	400	470	310	250	130	1400	1190	1250	1570	1360	1420	140									
080-065-250 <sup>22)</sup>	-	-	15,00	-	80	65	100	550	320	400	470	310	250	130	1400	1190	1250	1570	1360	1420	140									
080-065-250 <sup>22)</sup>	-	-	18,50	-	80	65	100	550	320	400	470	310	250	130	1400	1190	1250	1570	1360	1420	140									
080-065-250 <sup>22)</sup>	-	-	22,00	-	80	65	100	550	320	400	470	310	250	130	1400	1190	1250	1570	1360	1420	140									
080-065-250 <sup>22)</sup>	-	-	30,00	-	80	65	100	550	320	400	470	310	250	130	1400	1190	1250	1570	1360	1420	140									
080-065-250 <sup>22)</sup>	-	-	37,00	-	80	65	100	550	320	400	470	310	250	130	1400	1190	1250	1570	1360	1420	140									
080-065-250 <sup>23)</sup>	-	-	45,00	-	80	65	100	750	550	590	470	365	250	130	1550	940	1400	1550	940	1400	140									

1212.5/17-EN

<sup>22)</sup> Figure 1

<sup>23)</sup> Figure 2

Etachrom L 80, pump set

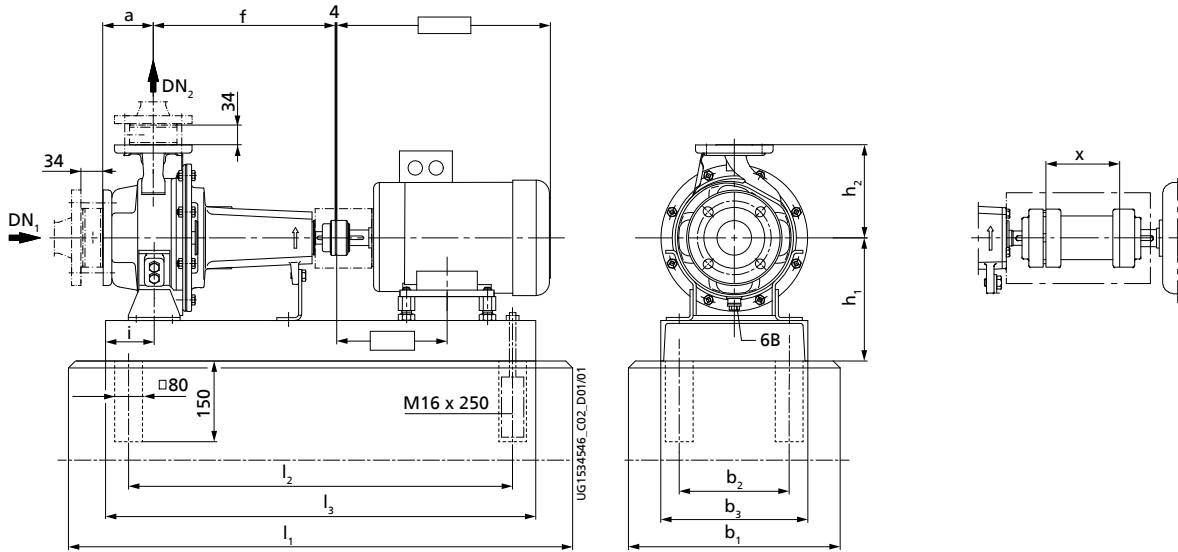


Fig. 11: Etachrom L, pump set, [mm]

Figure 1

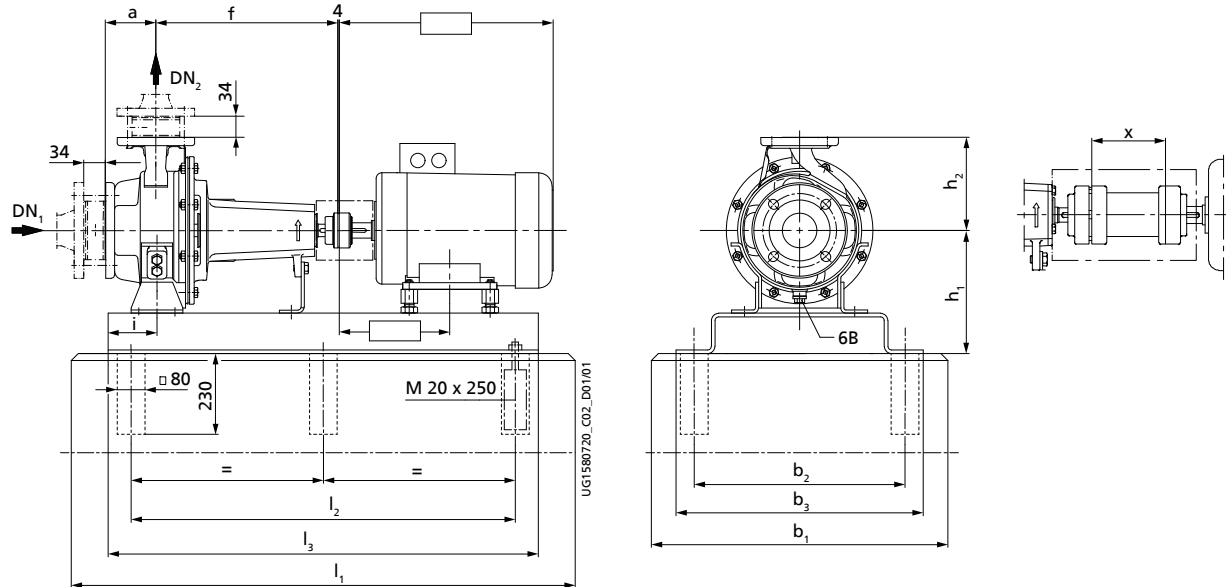


Fig. 12: Etachrom L, pump set, [mm]

Figure 2

6B	Fluid drain	$G^{3/8} = \text{ISO 228/1}$
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DN = EN 1092-1/DN.../PN 16/B

Table 27: Dimensions

Etachrom L	1450 rpm	1750 rpm	2900 rpm	3500 rpm	DN <sub>1</sub>	DN <sub>2</sub>	a	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	f	h <sub>1</sub>	h <sub>2</sub>	i							
	[kW]				[mm]																
100-080-200 <sup>24)</sup>	2,20	-	-	-	100	80	125	500	280	350	470	280	250	112	1150	940	1000	1270	1060	1120	140
100-080-200 <sup>24)</sup>	3,00	3,45	-	-	100	80	125	500	280	350	470	280	250	112	1150	940	1000	1270	1060	1120	140
100-080-200 <sup>24)</sup>	4,00	4,55	-	-	100	80	125	500	280	350	470	280	250	112	1150	940	1000	1270	1060	1120	140
100-080-200 <sup>24)</sup>	5,50	6,30	-	-	100	80	125	500	280	350	470	280	250	112	1150	940	1000	1270	1060	1120	140
100-080-200 <sup>24)</sup>	-	8,60	-	-	100	80	125	500	280	350	470	280	250	112	1270	1060	1120	1400	1190	1250	140
100-080-200 <sup>24)</sup>	-	12,60	-	-	100	80	125	500	280	350	470	280	250	112	1270	1060	1120	1400	1190	1250	140
100-080-200 <sup>24)</sup>	-	-	15,00	-	100	80	125	550	320	400	470	290	250	112	1400	1190	1250	1570	1360	1420	140
100-080-200 <sup>24)</sup>	-	-	18,50	-	100	80	125	550	320	400	470	290	250	112	1400	1190	1250	1570	1360	1420	140
100-080-200 <sup>24)</sup>	-	-	22,00	-	100	80	125	550	320	400	470	290	250	112	1400	1190	1250	1570	1360	1420	140
100-080-200 <sup>24)</sup>	-	-	30,00	-	100	80	125	550	320	400	470	310	250	112	1400	1190	1250	1570	1360	1420	140
100-080-200 <sup>24)</sup>	-	-	37,00	-	100	80	125	550	320	400	470	310	250	112	1400	1190	1250	1570	1360	1420	140
100-080-200 <sup>25)</sup>	-	-	45,00	-	100	80	125	750	550	590	470	365	250	112	1550	940	1400	1550	940	1400	140
100-080-250 <sup>24)</sup>	3,00	-	-	-	100	80	125	550	320	400	470	310	280	130	1150	940	1000	1400	1190	1250	140
100-080-250 <sup>24)</sup>	4,00	4,55	-	-	100	80	125	550	320	400	470	310	280	130	1150	940	1000	1400	1190	1250	140
100-080-250 <sup>24)</sup>	5,50	6,30	-	-	100	80	125	550	320	400	470	310	280	130	1150	940	1000	1400	1190	1250	140
100-080-250 <sup>24)</sup>	7,50	8,60	-	-	100	80	125	550	320	400	470	310	280	130	1150	940	1000	1400	1190	1250	140
100-080-250 <sup>24)</sup>	11,00	12,60	-	-	100	80	125	550	320	400	470	310	280	130	1400	1190	1250	1570	1360	1420	140
100-080-250 <sup>24)</sup>	-	17,30	-	-	100	80	125	550	320	400	470	310	280	130	1400	1190	1250	1570	1360	1420	140
100-080-250 <sup>24)</sup>	-	21,30	-	-	100	80	125	550	320	400	470	310	280	130	1400	1190	1250	1570	1360	1420	140

1212.5/17-EN

<sup>24</sup> Figure 1

<sup>25</sup> Figure 2

### Using PumpMeter

An accessories kit is required for using PumpMeter.  
Comprising:

- Pressure gauge connection (intermediate flange) 1.4571
- Hexagon head bolts: 8.8, ISO 4017
- Gasket: DPAF (asbestos-free), DIN 2690

As intermediate flanges need to be fitted, the dimensions differ.

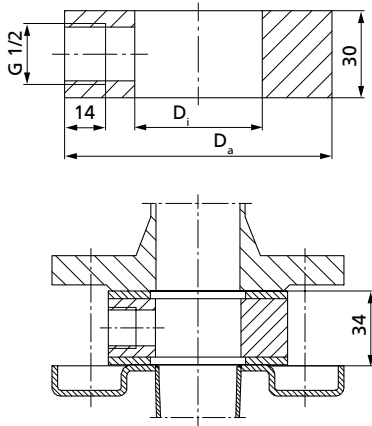


Fig. 13: Dimensions of the pressure gauge connection (intermediate flange) [mm]

Table 28: Selection table

DN	Pressure gauge connection		Hexagon head bolts	Gasket	Mat. No.
	D <sub>i</sub>	D <sub>a</sub>			
	[mm]				
25	29	70	4 × M12 × 80	1 × 25, PN 40	47064190
32	36	82	4 × M16 × 90	1 × 32, PN 40	47064192
40	44	92	4 × M16 × 90	1 × 40, PN 40	47064194
50	54	107	4 × M16 × 90	1 × 50, PN 40	47064196
65	69	127	4 × M16 × 90	1 × 65, PN 40	47064198
80	85	142	4 × M16 × 90	1 × 80, PN 40	47089653
100	105	162	4 × M16 × 90	1 × 100, PN 16	47089652

Pump component weights

Table 29: Selection table

Size	Pump	Pump casing with foot	Intermediate piece	Discharge cover	Support foot	Shaft	Impeller	Bearing bracket
		101/182	132	163	183	210	230	330
	[kg]							
050-025-125.1	19	3,6	-	0,3	0,3	1,8	0,9	11,0
050-025-125	19	3,6	-	0,3	0,3	1,8	0,9	11,0
050-025-160	22	4,3	-	0,6	0,4	1,8	1,2	13,0
050-025-200	27	5,9	-	0,8	0,5	1,8	1,8	15,2
050-025-250	40	7,3	12,4	1,5	0,9	2,1	5,5	8,8
050-032-125.1	19	3,7	-	0,3	0,3	1,8	0,9	11,0
050-032-125	19	3,7	-	0,3	0,3	1,8	0,9	11,0
050-032-160	22	4,4	-	0,6	0,4	1,8	1,2	13,0
050-032-200	27	6,0	-	0,8	0,5	1,8	1,8	15,2
050-032-250	40	7,4	12,4	1,5	0,9	2,1	5,5	8,8
065-040-125	19	4,2	-	0,3	0,3	1,8	0,9	11,0
065-040-160	23	5,1	-	0,6	0,4	1,8	1,2	13,0
065-040-200	27	6,8	-	0,8	0,5	1,8	1,8	15,2
065-040-250	40	7,8	12,4	1,5	0,9	2,1	5,1	8,8
065-050-125	24	5,9	-	0,6	0,4	1,8	1,0	13,8
065-050-160	26	6,8	-	0,7	0,5	1,8	1,6	13,8
065-050-200	35	7,8	8,7	1,1	0,5	2,1	4,9	8,8
065-050-250	42	8,2	12,4	1,5	0,9	2,1	6,6	8,8
080-065-200	42	9,0	12,4	1,5	0,9	2,1	5,6	8,8
080-065-250	55	9,6	12,7	1,5	1,0	4,0	7,8	16,8
100-080-200	56	11,3	12,7	1,5	0,6	4,0	7,5	16,8
100-080-250	59	11,9	12,7	1,5	1,0	4,0	9,6	16,8

Flange design (stainless steel to EN 1092-1)

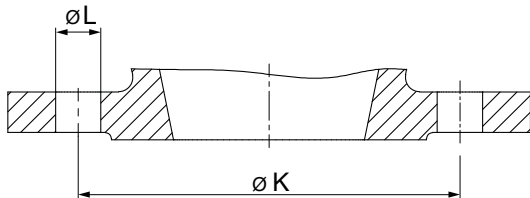


Fig. 14: Flange (example)

Table 30: Flange dimensions [mm]

Nominal size	PN 16 / 12 bar	
	Ø K	Number and Ø of holes (Ø L)
25	85	4 x Ø14
32	100	4 x Ø18
40	110	4 x Ø18
50	125	4 x Ø18
65	145	4 x Ø18
80	160	8 x Ø18
100	180	8 x Ø18

Interchangeability of Etachrom L and Etachrom B pump components

Table 31: Pump components<sup>26)</sup> Etachrom L

Size	Pump casing	Intermediate piece	Discharge cover	Foot	Support foot	Shaft	Impeller	Radial ball bearing Drive end	Radial ball bearing Pump end	Bearing bracket	Bearing cover Drive end	Bearing cover Pump end	Gasket	Joint ring	Joint ring	O-ring	Mechanical seal	Casing wear ring Suction side	Casing wear ring Discharge side	Shaft sleeve
	101	132.01	163	182	183	210	230	321.02	321.01	330	360.02	360.01	400.75	411.77	411.78	412.35	433	502.01	502.02	523
050-025-125.1	1	X	1*	1	1	1	1*	1	1	1	1	1	X	X	X	1*	1*	1*	X	X
050-025-125	1	X	1*	1	1	1	2*	1	1	1	1	1	X	X	X	1*	1*	1*	X	X
050-025-160	o	X	5*	2	2	1	3*	1	1	2	1	1	X	X	X	2*	1*	1*	X	X
050-025-200	o	X	2*	3	3	1	4*	1	1	3	1	1	X	X	X	3*	1*	7*	1*	X
050-025-250	o	1*	3*	X	4	2	5*	1	3	4	1	3	X	X	X	4*	2*	6*	2*	X
050-032-125.1	2	X	1*	1	1	1	1*	1	1	1	1	1	X	X	X	1*	1*	1*	X	X
050-032-125	2	X	1*	1	1	1	2*	1	1	1	1	1	X	X	X	1*	1*	1*	X	X
050-032-160	o	X	5*	2	2	1	3*	1	1	2	1	1	X	X	X	2*	1*	1*	X	X
050-032-200	o	X	2*	3	3	1	4*	1	1	3	1	1	X	X	X	3*	1*	7*	1*	X
050-032-250	o	1*	3*	X	4	2	5*	1	3	4	1	3	X	X	X	4*	2*	6*	2*	X
065-040-125	o	X	1*	o	1	1	o*	1	1	1	1	1	X	X	X	1*	1*	2*	X	X
065-040-160	o	X	o*	2	2	1	o*	1	1	2	1	1	X	X	X	2*	1*	8*	1*	X
065-040-200	o	X	2*	o	3	1	o*	1	1	3	1	1	X	X	X	3*	1*	8*	1*	X
065-040-250	o	1*	3*	X	4	2	o*	1	3	4	1	3	X	X	X	4*	2*	3*	2*	X
065-050-125	o	X	o*	2	2	1	o*	1	1	2	1	1	X	X	X	2*	1*	2*	X	X
065-050-160	o	X	o*	o	3	1	o*	1	1	2	1	1	X	X	X	2*	1*	8*	1*	X
065-050-200	o	o*	o*	X	3	2	o*	1	3	4	1	3	X	X	X	o*	2*	3*	2*	X
065-050-250	o	1*	3*	X	4	2	o*	1	3	4	1	3	X	X	X	4*	2*	3*	2*	X
080-065-200	o	1*	o*	X	4	2	o*	1	3	4	1	3	X	X	X	4*	2*	4*	o*	X
080-065-250	o	2*	4*	X	5	3	o*	2	2	5	2	2	1*	1	1	4*	3*	4*	3*	1*
100-080-200	o	2*	4*	X	o	3	o*	2	2	5	2	2	1*	1	1	4*	3*	5*	3*	1*
100-080-250	o	2*	4*	X	5	3	o*	2	2	5	2	2	1*	1	1	4*	3*	5*	3*	1*

Table 32: Symbols key

Symbol	Description
*	Component interchangeable with Etachrom B
o	Components differ
X	Component not fitted

<sup>26)</sup> Pump components featuring the same number in a column are interchangeable, i.e. same number = same component

Recommended spare parts stock for 2 years' operation to DIN 24296

Table 33: Quantity of spare parts for recommended spare parts stock

Part No.	Description	Number of pumps (including stand-by pumps)						
		2	3	4	5	6 and 7	8 and 9	10 and more
210	Shaft	1	1	1	2	2	2	20 %
230	Impeller	1	1	1	2	2	2	20 %
321.01/02	Radial ball bearing (set)	1	1	2	2	2	3	25 %
330	Bearing bracket	-	-	-	-	-	1	2 pcs.
400.75 <sup>27)</sup>	Gasket	4	6	8	8	9	10	100 %
412.35	O-ring	4	6	8	8	9	12	150 %
433	Mechanical seal	1	1	2	2	2	3	25 %
502.01	Casing wear ring, suction side	2	2	2	3	3	4	50 %
502.02 <sup>28)</sup>	Casing wear ring, discharge side	2	2	2	3	3	4	50 %
502.06 <sup>29)</sup>	Casing wear ring, impeller	2	2	2	3	3	4	50 %
523 <sup>27)</sup>	Shaft sleeve	2	2	2	3	3	4	50 %

<sup>27</sup> Only for Etachrom L 080-065-250, 100-080-200, 100-080-250

<sup>28</sup> Not for Etachrom L 050-025-125.1, 050-025-125, 050-025-160, 050-032-125.1, 050-032-125, 050-032-160, 065-040-125, 065-050-125

<sup>29</sup> Only for Etachrom L 080-065-250, 100-080-250

## Glossary

### ACS

French drinking water regulations (ACS = Attestation de Conformité Sanitaire)

### Back pull-out design

The complete back pull-out unit can be pulled out without having to remove the pump casing from the piping.

### IE2

Efficiency class to IEC 60034-30: 2 = High Efficiency (IE = International Efficiency)

### IE3

Efficiency class to IEC 60034-30: 3 = Premium Efficiency (IE = International Efficiency)

### IE4

Efficiency class to IEC TS 60034-30-2:2016 = Super Premium Efficiency (IE = International Efficiency)

### IE5

Efficiency class to IEC TS 60034-30-2:2016 = Ultra Premium Efficiency (IE = International Efficiency)

### UBA

German drinking water regulations to German Environment Agency

### WRAS

Approved by all water suppliers in the UK (WRAS = Water Regulations Advisory Scheme)







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