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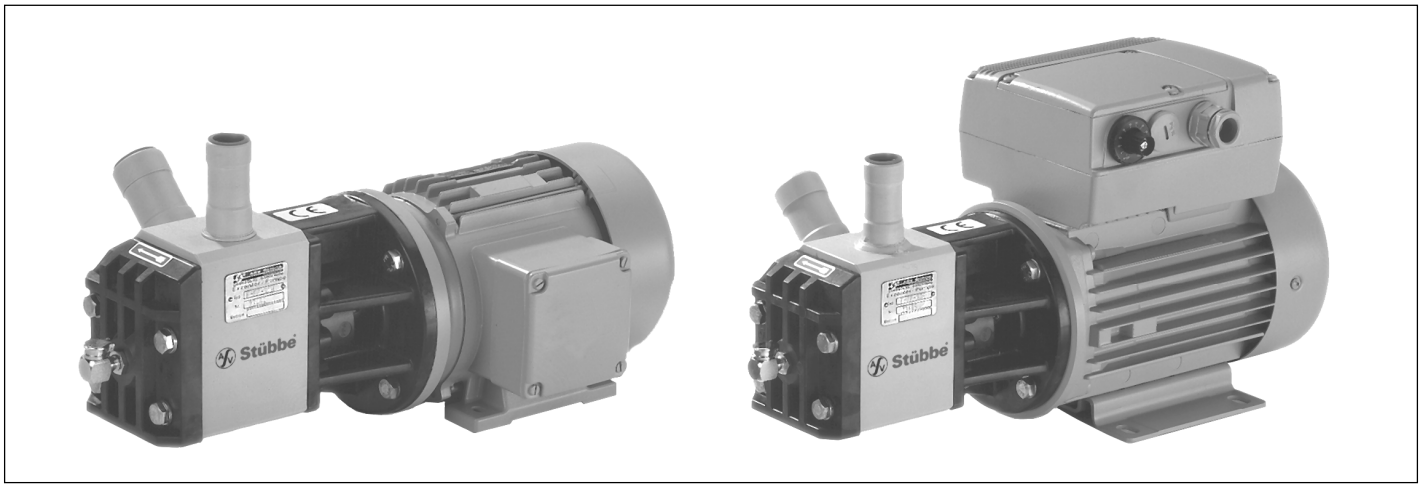
ASV Eccentric Pumps

Eccentric pumps deliver ”almost” everything:
- **Inert media, aggressive acids and alkalines,**
- **low and medium viscosity media as well as**
- **abrasive liquids.**

Eccentric pumps:
- **are selfpriming**
- **can operate dry**
- **require little maintenance**

Eccentric pumps are also suitable for your applications:
- **Type series F and L - with a constant rotational speed,**
- **Type series FF and LF - with variable rotational speed, frequency regulated for requirement based controlled delivery rates, low energy consumption and optimum efficiency.**



ASV eccentric pumps offer:
- high degree of reliability,
- wide range of application possibilities
- low maintenance operation and long operating life.

Eccentric pumps are rotating, positiv displace-ment pumps, self priming and dry run capable.
An eccentric rotor is turning inside the liner and the pump housing. By these rotating movements the fluid being enclosed between the liner and the housing is pressed from the suction to the pressure side.
The motor equipment with frequency changers offers a controlled, automatic adaptation of the delivery rate to the operating requirements.
Eccentric pumps deliver mostly inert or aggressive fluids reliably and trouble free.
Please refer to the comprehensive ASV resistance list covering plastics (housing) and elastomers (liner).
Observe the ASV resistance guide.

ASV eccentric pumps deliver:
- alkaline or acidic fluids,
- solvents, paints and coating media,
- water in many purity grades,
- sewage, precipitation or flocculation media,
- chemicals and pharmaceuticals
- galvanic electrolytes as well photo and film industry media,
- media for the paper, textile and leather industries.

Further areas of application are the electro-technical or electronic industry as well as in environmental protection, e.g. for sampling applications.

Construction features

The thermoplastic pump housing accommodates the liner which is secured, liquid sealed, between the housing and the cover plate, motor lantern or pillow block; the web of the liner separates suction and pressure space. A seal between the enclosed pumping liquid and the atmosphere is not required. The pump does without seals, is almost leak free and thus particularly environmentally sound!

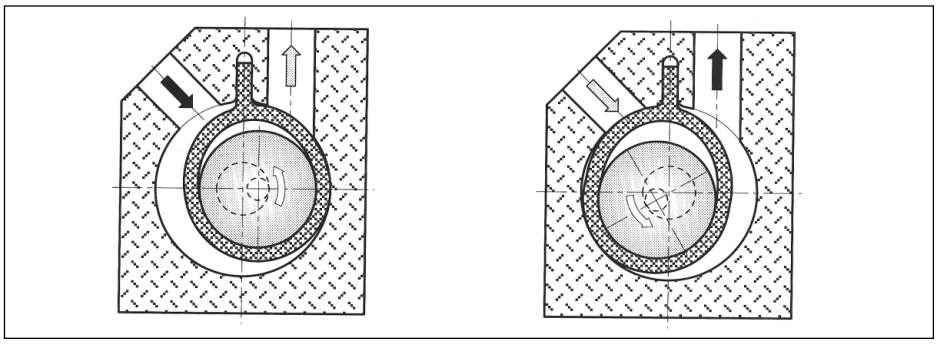
The rotor turns in roller bearings on a cam arranged on the centred drive shaft. An oil film is formed between the rotor and liner. A simple axial face seal separates this film from the large, regreasable roller bearings.

Drive motor

Three phase and alternating current motors with a constant rotational speed or with operationally required variable rotational speed (regulatable delivery flow), as a motor with an integrated micro frequency changer integrated in the terminal box.

Type series and sizes

Type series »F« as a flange pump with a directly coupled drive motor or as type series »FF« with a frequency changer, in the sizes 4 ... 30 (refer to the illustration on the title page);
Type series >>L<< or >>LF<< as a foot mounted pump in the sizes 4 ... 100, mounted on the base plate with drive motor, elastic coupling and contact protection (DIN 294/DIN 31 001).



Technical data

Refer to the characteristic curves in the technical data, page 4, dimensions and weights on pages 5 - 8.
Connections: For pump sockets refer to the dimension tables; optional PVC or FPM (Viton ®) hoses; execution:

- **A -** Hose, standard length 1.0 m, with two V4A hose clips
- **B -** Hose, standard length 1.0 m, with two PVC flanges, connection dimension in accordance with DIN 2501;

Suction height[1]: max. 5.0 m

Pressure stage: PN 10

Operating temperature: Matched to the application conditions (system pressure, load situation etc.), the values are applicable taking into consideration the material creep strength, the guide values in the following table should be considered as maximum permissible temperatures. Please contact us for temperatures below 0° C.

Medium density[1]/medium viscosity[1]:
1.0 kg/dm³ 800 mPas
1.3 kg/dm³ 860 mPas
1.6 kg/dm³ 920 mPas

Drive motor:
Design: IM B 34/35, IM B 3
Nominal voltage: 230 V, 50 Hz (1 Ph); 230/400 V, 50 Hz (3 Ph)
Type of protection: IP 54, IP 55,
Insulation class: F
Perm. ambient conditions: temperature -20 ... + 40° C; max. 95% rel. humidity

Noise emission: The noise emission of the pump remains < 70 dB (A), prerequisite being a correct pump selection under constant operating conditions.

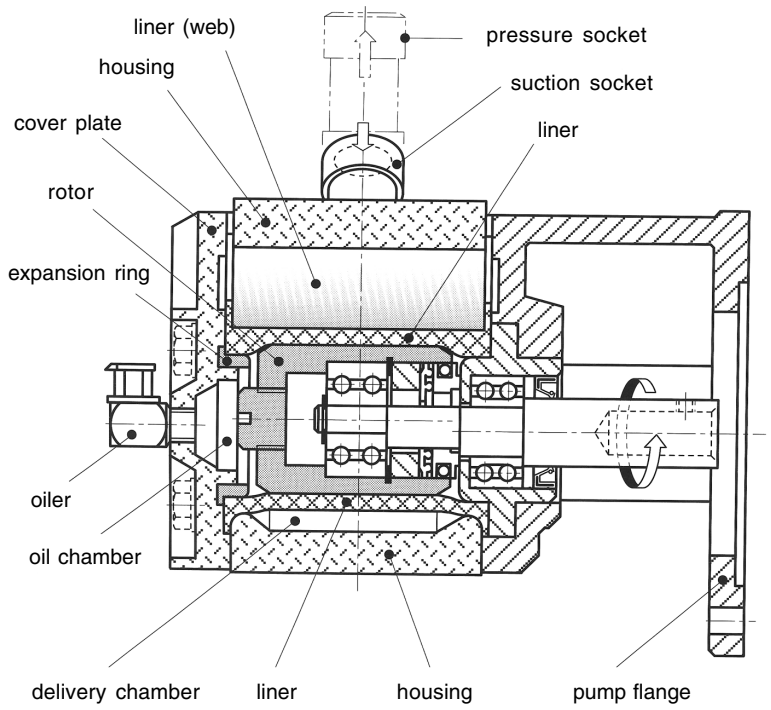
Other technical data, e.g. for 60 Hz drives, available upon request.

Material

The housing components coming into contact with the delivery media are made of high quality, solid thermoplastic, the liner of a special highly elastic elastomere quality.

- **Pump housing:** PVC, HD-PE, PVDF
- **Liner**
  CR - Neoprene ®
  NBR - Perbunan ®
  CSM - Hypalon ®
  EPDM - APTK rubber
  FPM - Viton ®
- **Screws:** stainless steel (1.4301)
- **Shaft:** stainless steel (1.4104)

Other materials, material combinations as well as additional information is available on request.



Sectional drawing of an eccentric pump, design »F« with motor/flange lantern.

[1] depends on fluids

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Maximum perm. material temperature

Housing	PP	up to	+ 80 °C
	PE-HD	up to	+ 60 °C
	PVDF	up to	+100 °C
	PTFE	up to	+100 °C
Liner	CR	up to	+ 70 °C
	NBR	up to	+ 70 °C
	CSM	up to	+ 90 °C
	EPDM	up to	+100 °C
	FPM	up to	+150 °C

Values below 0°C on request with exact data of operation.

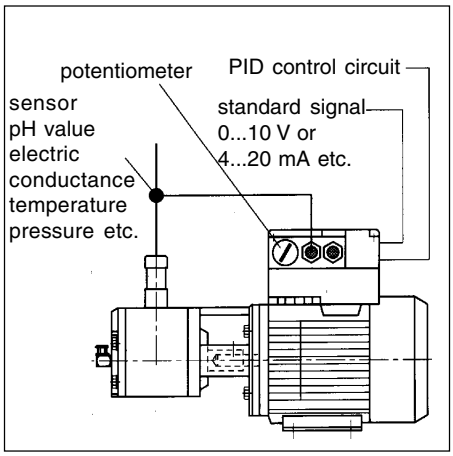
Operating conditions

Refer to the characteristic curve (Q-H curve, page 4) for the delivery height H to assess the dependence upon the delivery flow Q.

- **The standard characteristic curves are determined with water (at RT ≈ 20 °C) in supply operation (suction height $H_s \geq 0$ m) and with a CR (Neoprene ®) liner.**

The delivery flow or the characteristic curves vary slightly if other liner materials are used and, as is normal for rotating displacement pump, are influenced by:
- Suction heights $H_S > 2$ m,
- Medium properties such as temperature, density, viscosity, air/gas share in delivery media etc.
- Operating mode, i.e. constant or discontinuous intermittent operation.

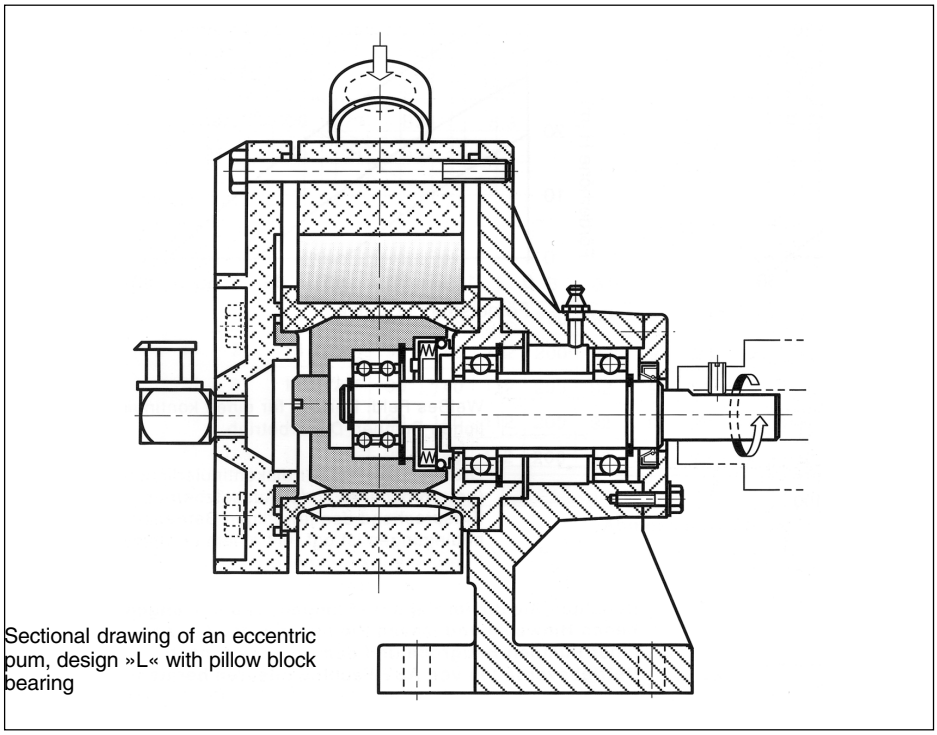
Eccentric pumps deliver liquids, even with gas/air inclusions and, once filled with the media, are self priming without additional equipment.



Eccentric pump with drive motor and integrated micro-frequency changer for infinite delivery flow control.

Due to the venting of medium and longer suction lines the delivered liquid, i.e. the delivery flow Q, drops at a suction height $H_S > 2.0$ m depending upon the operating circumstances.

The designs FF and LF with integrated micro-frequency changer permit a rotational speed control of approx. 400 ... 1500 rpm, with larger pumps up to 1000 rpm. The rotational speed can be infinitely set on the potentiometer or fully automatically regulated in the PID control circuit via the standard signal (0... 10 V, 4 ... 20 mA etc.).



Sectional drawing of an eccentric pum, design »L« with pillow block bearing

Medium properties such as, for example, electrical conductance, temperature etc. can be determined via sensors. In addition, the rotational speed can be controlled via measured values such as flow rate, pressure, suction height etc. permitting the operation point to be adapted to actual requirements.

- **Eccentric pumps are displacement machines.**
  Never operate the pumps when the pressure valves are closed.

Eccentric pumps require little maintenance and offer a high degree of operational reliability. If, for example, the liner should become worn after a longer operating time, it can be changed easily and quickly without special tools.

Pump selection

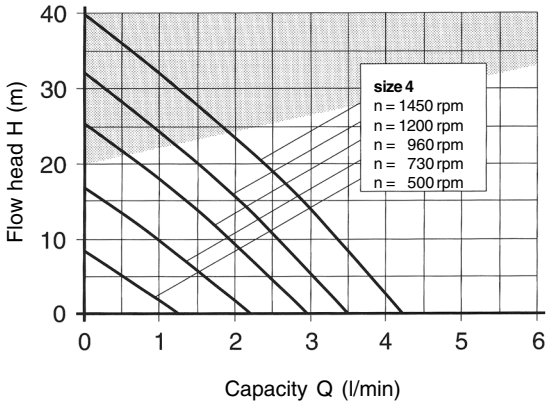
The correct pump selection is only possible if all medium properties and details of the plant concerned (installation height, pipeline routing, fittings etc.) are known.
Please contact us for the »ASV Pump Questionnaire«.

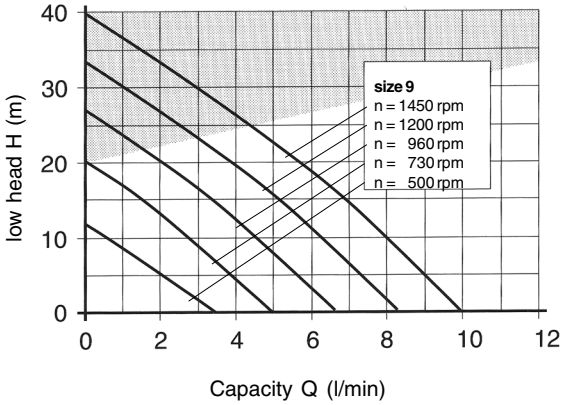
The pump materials are selected in accordance with the precise chemical composition of your medium and its temperature. Please note that the selection of the pump material is pressure and temperature dependent, the table at the top left and the »ASV resistance list«, which we will provide upon request.

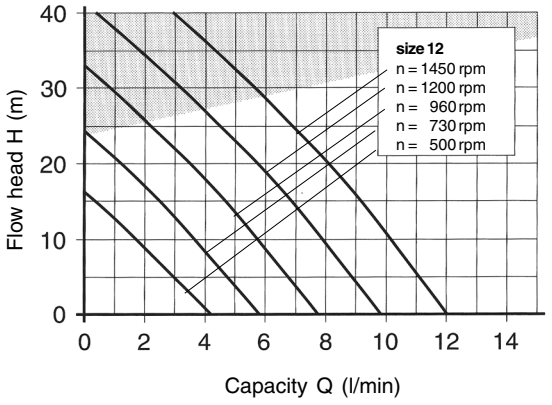
We strongly recommend that you consult our qualified ASV engineers for the following applications:
- Delivery of viscous or pasty media.
- Delivery of abrasive liquids.
- Intended operating rotational speeds in the lower range at approx. 400 rpm and in the upper range of approx. 1500 (1000) rpm.
- For suction operation with suction heights of Hs ≥ 2...5 m as well as all questions concerning suction times, system venting etc.

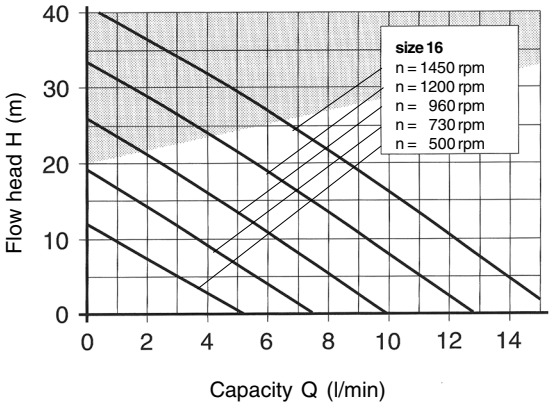
Pump accessories

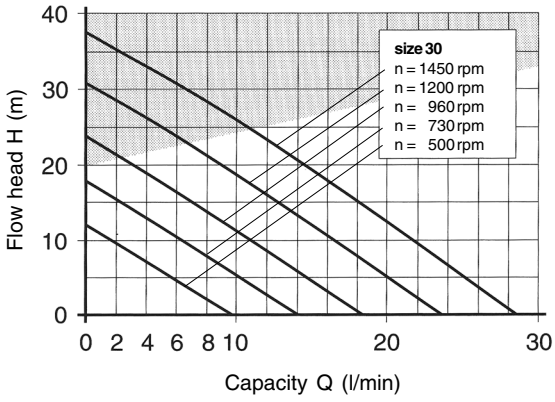
- Flexible hose lines (PVC or FPM see page 2) of ≥ 1.0 m length can be connected to the pump sockets.
- Vented vibration or pulsation dampers are required for a smooth, low vibration pump operation for delivery heights above approx. 15 m.
- We recommend the fitting of a suction basket to protect the pump from the ingress of coarse soiling conveyed with the medium.

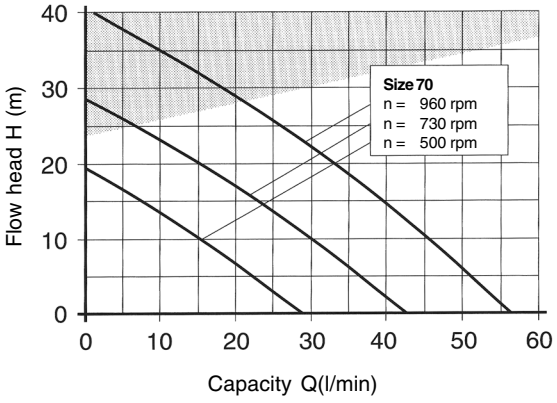


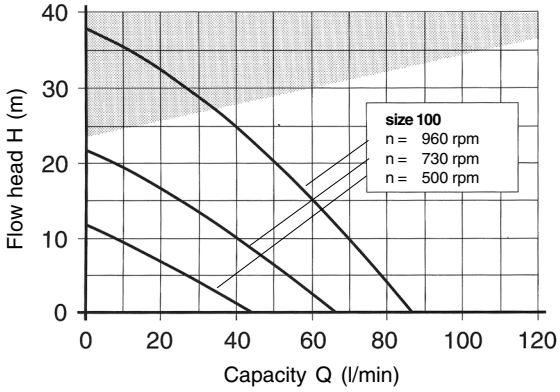












White field: Area for continuous pump operation

Grey field: Only for discontinuous (interrupted) or intermittent operation. According to the individual applications an unsmooth pump running can occur.

Please refer to the information contained in the chapter "Pump selection" and allow the qualified ASV engineers to assist you when selecting the suitable pump size in accordance with the operating conditions to be expected.

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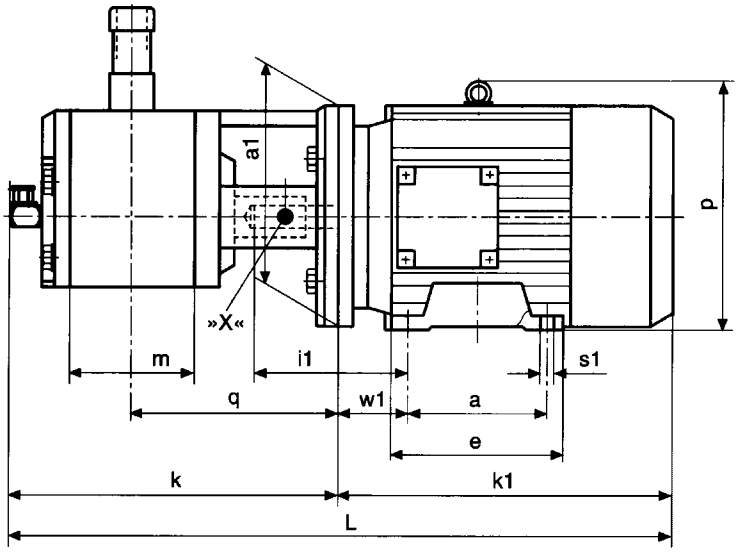
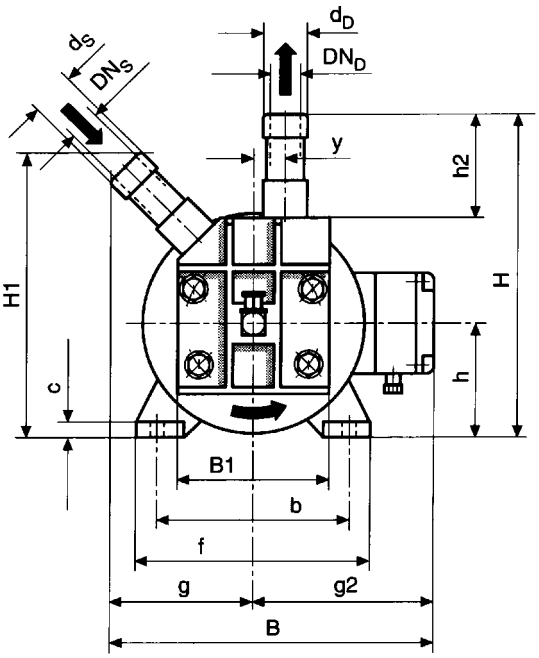
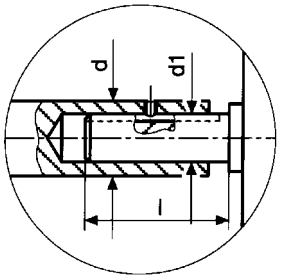
Dimensions - type series »F«





detail »X«



Size	Motor				Weight
	P_N	n_N	IEC	Design	(total)
	kW	rpm	Size		kg
F 4	0,25	1.450	71	B34	8,3
F 9	0,25	1.450	71	B34	8,3
F 12	0,25	1.450	71	B34	8,3
F 16	0,25	1.450	71	B34	8,3
F 30	0,37	1.450	71	B34	8,3

Size	Suction side		Pressure side		Dimensions (mm)															
	DN_S	d_S	DN_D	d_D	a	a1	b	B	B1	c	d	d1	e	f	g	g2	h	h2	H	H1
F 4	14	21	14	21	90	140	112	200	92	9	22	14	115	138	85	115	71	60	200	171
F 9	14	21	14	21	90	140	112	200	92	9	22	14	115	138	85	115	71	60	200	171
F 12	14	21	14	21	90	140	112	200	92	9	22	14	115	138	85	115	71	60	200	171
F 16	19	27	19	27	90	140	112	200	92	9	22	14	115	138	85	115	71	60	200	171
F 30	24	34	19	27	90	140	112	200	92	9	22	14	115	138	85	115	71	60	200	171

Size	Dimensions (mm)										
	i1	k	k1	l	L	m	p	q	s1	w1	y
F 4	75	175	200	30	375	51,5	143	107	7	53	18,5
F 9	75	175	200	30	375	51,5	143	107	7	53	18,5
F 12	75	175	200	30	375	51,5	143	107	7	53	18,5
F 16	75	175	200	30	375	51,5	143	107	7	53	18,5
F 30	75	200	200	30	400	77,0	143	119	7	53	19,5

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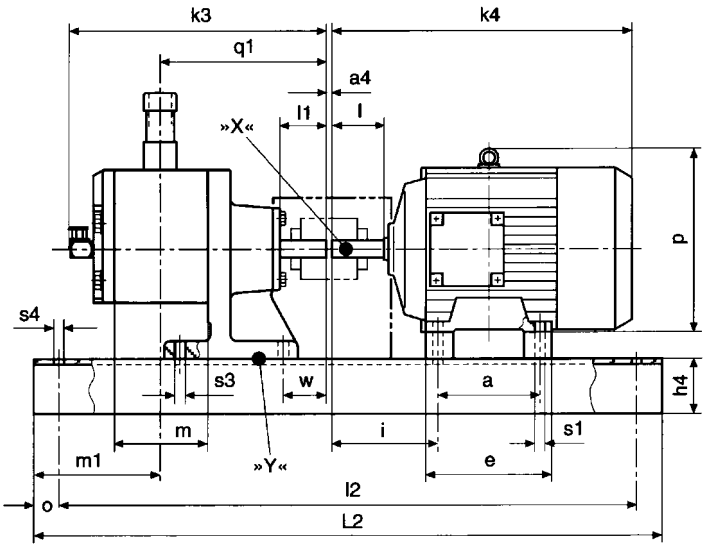
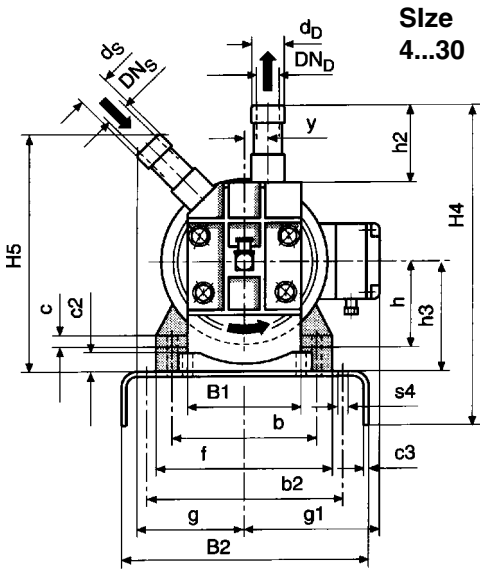
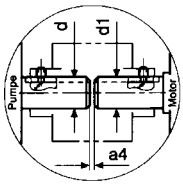
Dimensions - type series »L«

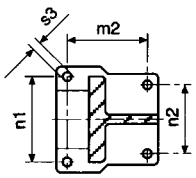


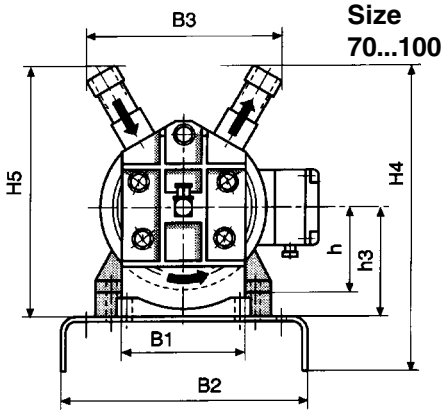


detail »X«



detail »Y«





Size	Motor				Weight
	P_N	n_N	IEC	Design	(total)
	kW	rpm	Size		kg
L 4	0,25	1.450	71	B3	12,5
L 9	0,25	1.450	71	B3	12,5
L 12	0,25	1.450	71	B3	12,5
L 16	0,25	1.450	71	B3	12,5
L 30	0,37	1.450	71	B3	14,0
L 70	0,75	960	90	B3	31,5
L 100	1,10	960	90	B3	34,5

Size	Suction side		Pressure side		Dimensions (mm)																
	DN_S	d_S	DN_D	d_D	a	a4	b	b2	B1	B2	B3	c	c2	c3	d	d1	e	f	g	g1	h
L 4	14	21	14	21	90	10	112	165	92	205	-	9	19	4	11	14	125	138	80	111	71
L 9	14	21	14	21	90	10	112	165	92	205	-	9	19	4	11	14	125	138	80	111	71
L 12	14	21	14	21	90	10	112	165	92	205	-	9	19	4	11	14	125	138	80	111	71
L 16	19	27	19	27	90	10	112	165	92	205	-	9	19	4	11	14	125	138	80	111	71
L 30	24	34	19	27	90	10	112	165	92	205	-	9	19	4	13	14	125	138	84	111	71
L 70	29	40	29	40	100	2	125	260	153	300	220	11	37	5	22	24	130	170	-	139	90
L 100	38	52	38	52	100	2	140	260	153	300	225	11	37	5	22	24	130	170	-	139	90

Size	Dimensions (mm)																			
	h2	h3	h4	H4	H5	i	k3	k4	l	l1	l2	L2	m	m1	o	p	q1	s1	s4	w	y
L 4	60	90	45	275	190	75	181	231	30	23	460	500	51,5	123	20	143	115	7	10,5	21	18,5
L 9	60	90	45	275	190	75	181	231	30	23	460	500	51,5	123	20	143	115	7	10,5	21	18,5
L 12	60	90	45	275	190	75	181	231	30	23	460	500	51,5	123	20	143	115	7	10,5	21	18,5
L 16	60	90	45	275	190	75	181	231	30	23	460	500	51,5	123	20	143	115	7	10,5	21	18,5
L 30	60	90	45	275	190	75	207	231	30	23	460	500	77,0	110	20	143	128	7	10,5	21	19,5
L 70	80	127	50	360	304	106	268	294	50	40	690	730	77,0	114	20	178	181	9	10,5	47	-
L 100	80	127	50	360	309	106	296	294	50	40	690	730	106,0	99	20	178	195	9	10,5	47	-

Technical alterations excepted

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