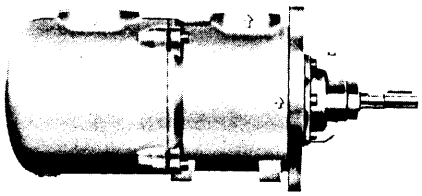
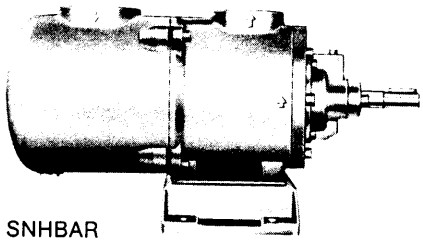
Screw pumps

Series SNHBA, SNHBAR, SNHBAN, SNFBA, SNFBAR, SNFBAN



SNFBAR



SNHBAR

Use
For handling hydraulic oils on the basis of mineral oils, or of synthetic hydraulic liquids as well as other lubricating fluids. The fluids to be pumped must not contain any abrasive substances nor chemically attack the pump materials.

Main fields of application
In hydraulic plants of all kinds, e.g. in marine hydraulics, mobil hydraulics, industrial hydraulics and hydraulic elevator systems.

Moreover, as lube-oil pumps in general machine construction, e.g. for turbines, gearings and motors.

Design
Self-priming three-screw pump with internal bearing.

The hardened and ground spindles run in a replaceable casing insert.

The axial thrust acting on the flanks of the screw threads is compensated by balance pistons which – with all three spindles – are arranged in the delivery chamber.

The idler spindles are turned hydraulically. The thread flanks merely transmit the torque resulting from the liquid friction and are consequently practically free of stress and not subject to any wear.

A groove ball bearing lubricated by the fluid to be pumped serves for fixing the driving spindle.

A maintenance-free unbalanced mechanical seal is used as shaft sealing. By means of a return pipe, the sealing chamber is connected with the suction chamber. Therefore, irrespectively of the delivery pressure, only the suction/inlet pressure always becomes effective at the shaft sealing.

Function
Owing to a special profiling of the flanks of the screw threads, the three spindles form sealed chambers, the contents of which are axially and completely continuously shifted from the suction to the delivery side of the pump. There is no turbulence despite the rotational movement, and squeezing stresses are avoided by the constant volume in the chambers.

Noise/pulsation
The structural design and mode of operation of the screw pump ensure a very low noise level and a nearly pulsation-free delivery.

Temperature and pressure limits

admissible temperature of fluid to be pumped 100°C ①

admissible suction lift
see NPSH values, page 2

admissible supply pressure 7 bar ②

admissible pump outlet pressure ③ 70/100 bar

whereby the admissible load of the pump casing (delivery casing) is a function of the material:

Pump size	Pump casing material	adm. outlet press. (bar)
40, 80, 120	c.i. (GG-25)	100
210	c.i. (GG-25) s.g.c.i. (GGG-40)	80 100
280	c.i. (GG-25) s.g.c.i. (GGG-40)	70 100

① with higher temperatures inquiry at our works necessary.
② with higher supply pressures inquiry at our works necessary.
③ for the attainable delivery pressure related to a viscosity of 40 mm^2/s please refer to the performance tables.
For delivery pressures up to 120 bar, please refer to series SMFBA (pamphlet VM 664 E/...)

Kinematic viscosity/Performance data
As a rule, hydraulic oils/hydraulic liquids are in the viscosity range between 20 mm^2/s (3E) and 75 mm^2/s (10E). For the performance tables, page 4 and 5, 40 mm^2 (5E) with the speeds of 1450, 1750, 2900 and 3500 1/min were taken as a basis. With different viscosities, the performance data are to be taken from the individual characteristics.

Speed of rotation
Based on the small dimensions of the rotating screw spindles and according to pump size and design rotational speeds up to 11000 1/min are possible. With very high speeds respectively for determining the speed limit the suction/inlet pressure conditions, the design of the shaft sealing and of the bearing as well as the running speed of the thread flanks have to be considered.

The performance tables were established for the normal speeds of 1450, 1750, 2900 and 3500 1/min. The pumps being used for other speed ranges, please inquire.

Shaft sealing
By an uncooled, maintenance-free mechanical seal of the unbalanced type.

Materials
Rotary seal ring: Hard carbon, metal-impregnated
Stationary seal ring: Alloyed cast iron
Auxiliary sealings: Viton
Spring: CrNiMo steel
Metal parts: CrNiMo steel

An incorporated control valve serves for a slight excess pressure within the area of the shaft sealing. As a result hereof, during suction operation, air intake through the shaft sealing is avoided and dry operation of the mechanical seal prevented.

Bearing
In an internal groove ball bearing lubricated by the fluid to be pumped.

Connections/Branch position
The suction and delivery connections for both pump series are to be optionally provided with a SAE flange connection, a threaded pipe connection or with a NPT pipe connection.

Suction and delivery branch: normally radially upwards. Suction and delivery casings being separate, the suction casing and thus the suction branch can also be arranged, according to the hole spacing, turned through 90°.

Installation
The pumps can be mounted in any position. For safety purposes, the arrangement with "motor downwards" is not admissible.

Materials

Part No.	Denomination	Material design ① W1	W2	W3
1	Pump casing	c.i.(GG)	c.i.(GG)	s.g.c.i.(GGG)
2	Casing insert	c.i.(GG)	silafont	silafont
3	Pump cover, drive side	c.i.(GG)	c.i.(GG)	c.i.(GG)
4	Suction casing	c.i.(GG)	c.i.(GG)	c.i.(GG)
5	Shaft sealing housing	c.i.(GG)	c.i.(GG)	c.i.(GG)
8	Balance bush	silafont	silafont	silafont
12	Driving spindle	nitride steel	nitride steel	nitride steel
13	Idler spindle	nitride steel	nitride steel	nitride steel

With synthetic hydraulic fluids, other material combinations are to be provided (inquiry at our works necessary).

① For the required material combination as a function of viscosity, speed and delivery pressure, please refer to the performance tables, page 4 and 5.

Shaft coupling and protection against accidental contact
Shaft coupling according to DIN 740

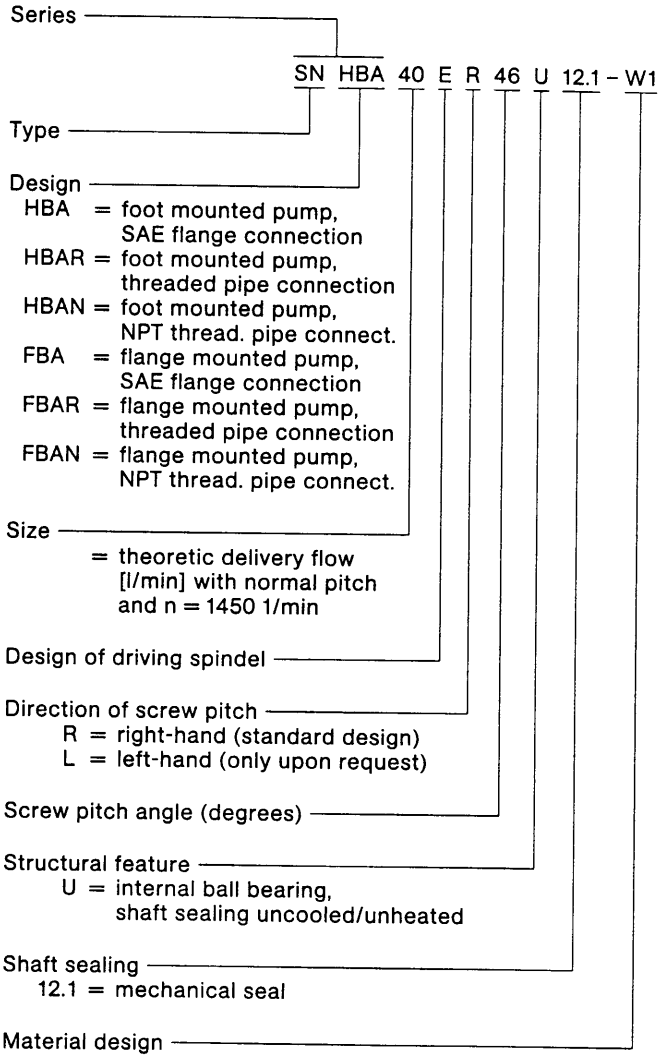
A protection according to DIN 31001 against accidental contact also is supplied as soon as the scope of supply includes pump, base plate and shaft coupling or when a bracket with feet is included in the delivery volume.

Drive
The pumps will be coupled either directly (Series SNHBA) or by means of a bracket with feet for floor or wall mounting (Series SNFBA) with electric motors of the most varied kinds or with other driving engines.

In most cases, surface cooled, three phase A.C. short circuit motors, construction B3 and IM B5 or V1 are provided; enclosure IP 54 according to IEC Standards, class B insulation, motor windings for 400 V△, 50 or 60 Hz.

Pressure relief valves
The pumps have no pressure relief valves. Therefore, the overload protection is to be provided in the control system or as a pipeline valve.

Abbreviations

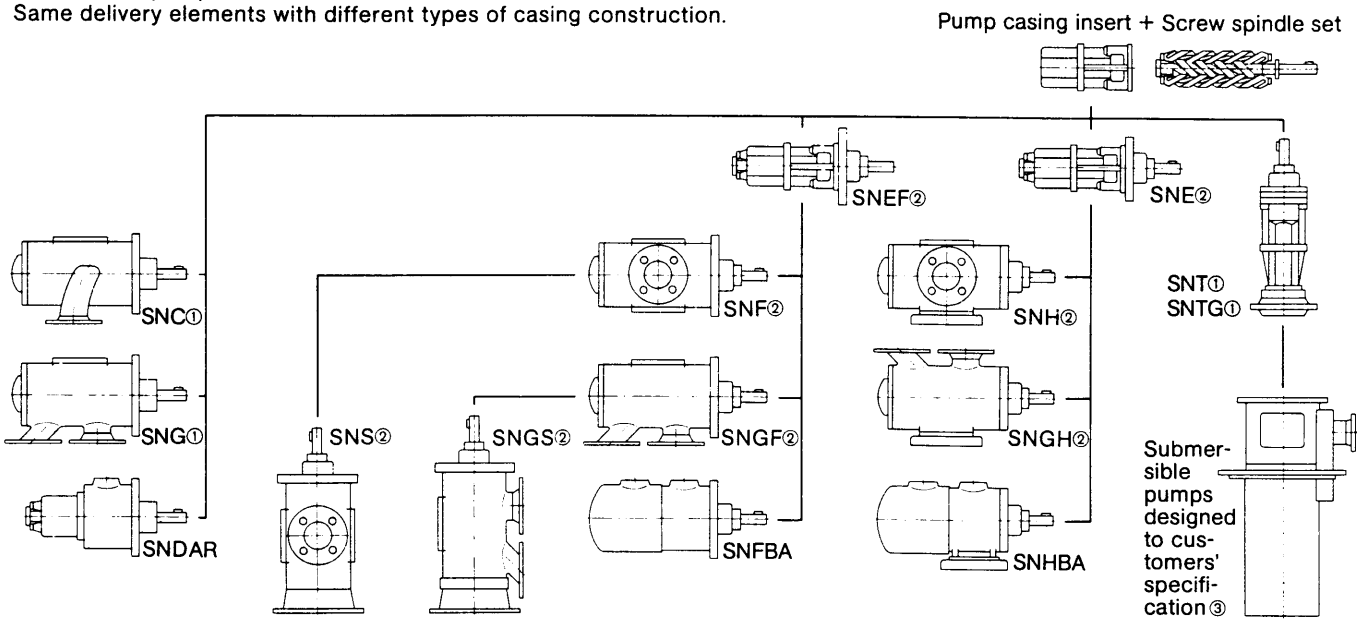


NPSH req. (m) for fluids to be pumped with a kinematic viscosity $\nu = 40$ mm²/s.

Pump Size	Speed 1/min 1450	1750	2900	3500
40-38	3,0	3,0	3,0	3,0
40-46	3,0	3,0	3,0	3,0
80-36	3,0	3,0	3,0	3,0
80-42	3,0	3,0	3,0	3,1
80-46	3,0	3,0	3,0	3,8
120-42	3,0	3,0	3,0	3,6
120-46	3,0	3,0	3,4	4,5
210-40	3,0	3,0	3,2	4,2
210-46	3,0	3,0	4,5	6,0
280-43	3,0	3,0	4,3	5,8
280-46	3,0	3,0	5,3	7,5

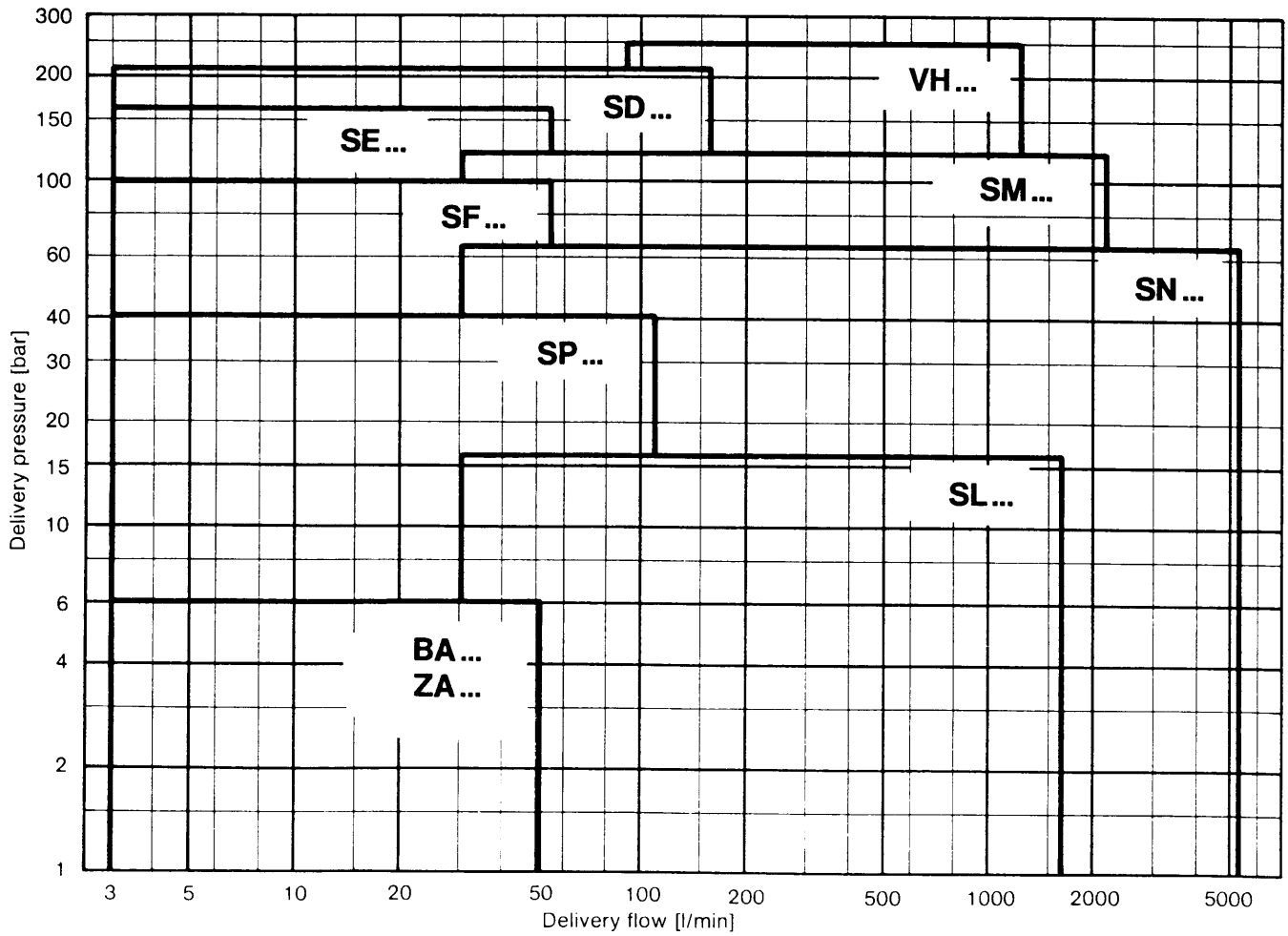
The values as indicated apply to airless fluids to be pumped (a safety allowances of 0.5 m is already included). In case of fluids to be pumped with air pockets (unsolved air), either the pump must be adapted or allowances on the stated NPSH values are necessary. For theses purposes, by all means inquire at our works.

Unit-assembly principle
Three-screw pumps, SN series.
Same delivery elements with different types of casing construction.



① For series SNC, SNG, SNT and SNTG pump dimensions and sectional drawings are available upon request.
② For series SNH, SNGH, SNF, SNGF, SNS, SNGS, SNE and SNEF please refer to pamphlet VM 617 GB/...
③ For submersible pumps designed to customers' specification dimension drawings will be prepared per order.

Performance survey
For nominal pump outputs not covered by the series SNHBA and SNFBA further pump series of single entry three-screw pumps are available according to the following survey (stated performances refer to 50-Hz speeds).



Performance tables

Data for kinematic viscosity $\nu = 40$ mm ^{2}/s (5E) and **1450 1/min**

Pump size	Delivery pressure Δp [bar]																	
	20		30		40		50		60		70		80		90		100	
	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW
40-38	28,0	1,21	26,3	1,75	24,8	2,28	23,3	2,81	21,8	3,34	20,4	3,88	19,0	4,41	–	–	–	–
40-46	37,2	1,57	34,9	2,28	32,8	2,99	30,8	3,70	28,8	4,41	–	–	–	–	–	–	–	–
40-54	48,6	2,06	45,0	3,01	41,6	3,96	–	–	–	–	–	–	–	–	–	–	–	–
80-36	51,7	2,15	49,0	3,12	46,5	4,09	44,1	5,06	41,7	6,03	39,4	7,00	37,1	7,97	34,9	8,94	–	–
80-42	61,8	2,57	58,2	3,74	54,8	4,92	51,4	6,10	48,2	7,28	45,1	8,46	–	–	–	–	–	–
80-46	74,3	2,98	70,7	4,37	67,2	5,75	63,9	7,14	60,7	8,53	–	–	–	–	–	–	–	–
80-54	96,1	3,88	90,3	5,72	84,8	7,55	–	–	–	–	–	–	–	–	–	–	–	–
120-42	88,6	3,69	83,9	5,36	79,5	7,02	75,2	8,69	71,1	10,4	67,0	12,0	–	–	–	–	–	–
120-46	107	4,31	102	6,28	97,9	8,25	93,6	10,2	89,5	12,2	–	–	–	–	–	–	–	–
120-54	140	5,62	132	8,25	125	10,9	–	–	–	–	–	–	–	–	–	–	–	–
210-40	156	6,19	151	9,01	146	11,8	141	14,6	136	17,5	131	20,3	127	23,1	–	–	–	–
210-46	195	7,63	187	11,2	180	14,7	174	18,2	167	21,8	–	–	–	–	–	–	–	–
210-54	255	9,99	243	14,7	232	19,4	–	–	–	–	–	–	–	–	–	–	–	–
280-43	227	9,11	218	13,2	210	17,4	202	21,5	194	25,6	186	29,8	–	–	–	–	–	–
280-46	259	10,2	251	14,9	242	19,6	234	24,2	227	28,9	–	–	–	–	–	–	–	–
280-54	340	13,3	326	19,6	313	25,8	–	–	–	–	–	–	–	–	–	–	–	–

Data for kinematic viscosity $\nu = 40$ mm ^{2}/s (5E) and **1750 1/min**

Pump size	Delivery pressure Δp [bar]																	
	20		30		40		50		60		70		80		90		100	
	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW
40-38	34,6	1,50	32,9	2,15	31,4	2,79	29,9	3,43	28,4	4,07	27,0	4,71	25,7	5,36	24,3	6,00	–	–
40-46	46,0	1,93	43,7	2,79	41,6	3,64	39,6	4,50	37,6	5,36	35,7	6,21	–	–	–	–	–	–
40-54	60,4	2,52	56,8	3,67	53,5	4,82	50,2	5,97	–	–	–	–	–	–	–	–	–	–
80-36	63,8	2,65	61,1	3,82	58,5	4,99	56,1	6,16	53,7	7,33	51,4	8,5	49,2	9,67	46,9	10,8	44,8	12,0
80-42	76,5	3,15	72,8	4,57	69,4	5,99	66,1	7,41	62,8	8,84	59,7	10,3	56,6	11,7	–	–	–	–
80-46	91,5	3,65	87,9	5,32	84,4	7,00	81,1	8,67	77,9	10,3	74,7	12,0	–	–	–	–	–	–
80-54	119	4,74	113	6,95	108	9,17	102	11,4	–	–	–	–	–	–	–	–	–	–
120-42	109	4,55	105	6,56	100	8,57	95,9	10,6	91,8	12,6	87,7	14,6	83,8	16,6	–	–	–	–
120-46	132	5,29	127	7,67	122	10,1	118	12,4	114	14,8	110	17,2	–	–	–	–	–	–
120-54	172	6,87	165	10,0	158	13,2	151	16,4	–	–	–	–	–	–	–	–	–	–
210-40	191	7,61	186	11,0	181	14,4	176	17,8	171	21,2	166	24,6	162	28,0	–	–	–	–
210-46	238	9,35	231	13,6	224	17,9	218	22,2	211	26,4	205	30,7	–	–	–	–	–	–
210-54	313	12,2	302	17,9	291	23,6	280	29,3	–	–	–	–	–	–	–	–	–	–
280-43	278	11,2	269	16,2	261	21,2	253	26,2	245	31,2	237	36,1	230	41,1	–	–	–	–
280-46	317	12,5	309	18,2	300	23,8	292	29,5	285	35,1	277	40,8	–	–	–	–	–	–
280-54	418	16,3	403	23,8	390	31,3	377	38,9	–	–	–	–	–	–	–	–	–	–

Observe admissible load of casing insert and pump casing (delivery casing) as a function of the material.

Casing insert
Material (cast iron [GG-25] or silafont) according to pressure limitation.

Pump casing (delivery casing)
Pump sizes 40, 80, 120 pump casing of c.i. (GG-25) up to 100 bar pump outlet pressure
Pump size 210 pump casing of c.i. (GG-25) up to 80 bar outlet pressure, above s.g.c.i. (GGG-40)
Pump size 280 pump casing of c.i. (GG-25) up to 70 bar outlet pressure, above s.g.c.i. (GGG-40)

Performance data for other viscosity ranges to be taken from the individual characteristics.

Δp = delivery pressure [bar] (Differential pressure between suction and delivery branch)
Q = effective delivery flow [l/min]
P = power consumption at pump shaft [kW]

Performance tables

Data for kinematic viscosity $\nu = 40$ mm ^{2}/s (5E) and **2900 1/min**

Pump size	Delivery pressure Δp [bar]																	
	20		30		40		50		60		70		80		90		100	
	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW
40-38	59,9	2,73	58,3	3,79	56,7	4,86	55,2	5,92	53,8	6,99	52,4	8,05	51,0	9,11	49,6	10,2	48,3	11,2
40-46	79,7	3,44	77,5	4,86	75,4	6,28	73,4	7,70	71,4	9,11	69,5	10,5	67,6	12,0	65,7	13,4	–	–
40-54	106	4,41	102	6,32	98,8	8,23	95,6	10,1	92,4	12,0	89,3	13,9	–	–	–	–	–	–
80-36	110	4,72	107	6,66	105	8,60	102	10,5	99,9	12,5	97,6	14,4	95,3	16,4	93,1	18,3	90,9	20,2
80-42	133	5,55	129	7,91	125	10,3	122	12,6	119	15,0	116	17,3	113	19,7	110	22,0	107	24,4
80-46	157	6,38	154	9,16	150	11,9	147	14,7	144	17,5	141	20,2	138	23,0	135	25,8	–	–
80-54	206	8,18	200	11,9	195	15,5	190	19,2	185	22,9	180	26,5	–	–	–	–	–	–
120-42	189	8,10	184	11,4	179	14,8	175	18,1	171	21,4	167	24,8	163	28,1	159	31,4	155	34,8
120-46	225	9,33	221	13,3	216	17,2	212	21,2	208	25,1	204	29,1	200	33,0	196	37,0	–	–
120-54	297	12,0	290	17,2	283	22,5	276	27,7	269	33,0	263	38,3	–	–	–	–	–	–
210-40	325	13,5	320	19,1	315	24,8	310	30,4	305	36,0	300	41,7	296	47,3	291	52,9	287	58,6
210-46	407	16,40	400	23,5	393	30,5	386	37,6	379	44,7	373	51,8	367	58,8	361	65,9	–	–
210-54	538	21,1	526	30,5	515	40,0	504	49,4	494	58,8	484	68,3	–	–	–	–	–	–
280-43	475	19,9	466	28,2	457	36,5	449	44,7	442	53,0	434	61,2	427	69,5	419	77,8	412	86,0
280-46	540	22,1	531	31,5	523	40,8	515	50,2	507	59,5	500	68,9	492	78,2	485	87,6	–	–
280-54	714	28,3	700	40,8	687	53,3	674	65,8	662	78,2	650	90,7	–	–	–	–	–	–

Data for kinematic viscosity $\nu = 40$ mm ^{2}/s (5E) and **3500 1/min**

Pump size	Delivery pressure Δp [bar]																	
	20		30		40		50		60		70		80		90		100	
	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW	Q l/min	P kW
40-38	73,1	3,44	71,5	4,73	69,9	6,01	68,4	7,30	67,0	8,58	65,6	9,87	64,2	11,2	62,8	12,4	61,5	13,7
40-46	97,3	4,30	95,1	6,01	93,0	7,72	91,0	9,44	89,0	11,1	87,1	12,9	85,2	14,6	83,3	16,3	81,5	18,0
40-54	129	5,48	126	7,78	122	10,1	119	12,4	116	14,7	113	17,0	–	–	–	–	–	–
80-36	134	5,91	131	8,25	129	10,6	126	12,9	124	15,3	122	17,6	119	20,0	117	22,3	115	24,6
80-42	162	6,91	158	9,75	155	12,6	151	15,4	148	18,3	145	21,1	142	24,0	139	26,8	136	29,7
80-46	192	7,91	188	11,3	185	14,6	181	17,9	178	21,3	175	24,6	172	28,0	169	31,3	166	34,7
80-54	252	10,1	246	14,5	241	19,0	235	23,4	230	27,8	225	32,2	–	–	–	–	–	–
120-42	230	10,1	225	14,2	221	18,2	217	22,2	212	26,2	208	30,2	204	34,3	201	38,3	197	42,3
120-46	274	11,6	270	16,4	265	21,1	261	25,9	257	30,7	253	35,4	249	40,2	245	45,0	241	49,7
120-54	363	14,8	355	21,1	348	27,5	341	33,8	335	40,2	328	46,5	–	–	–	–	–	–
210-40	395	16,9	390	23,7	385	30,5	380	37,3	375	44,1	370	50,9	366	57,7	361	64,4	357	71,2
210-46	495	20,3	487	28,9	480	37,4	474	46,0	467	54,5	461	63,0	455	71,6	449	80,1	443	88,6
210-54	655	26,0	643	37,4	632	48,8	621	60,2	611	71,6	601	82,9	–	–	–	–	–	–
280-43	577	24,9	568	34,9	560	44,8	552	54,8	544	64,8	537	74,8	529	84,7	522	94,7	515	105
280-46	656	27,5	647	38,8	639	50,1	631	61,4	623	72,7	616	84,0	608	95,3	601	107	594	118
280-54	869	35,1	855	50,1	842	65,2	829	80,2	816	95,3	804	110	–	–	–	–	–	–

Observe admissible load of casing insert and pump casing (delivery casing) as a function of the material.

Casing insert
Material (cast iron [GG-25] or silafont) according to pressure limitation.

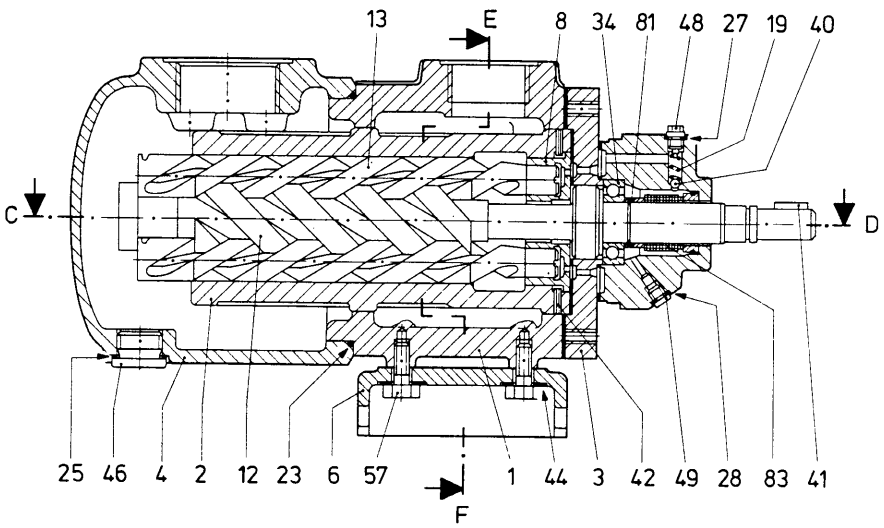
Pump casing (delivery casing)
Pump sizes 40, 80, 120 pump casing of c.i. (GG-25) up to 100 bar pump outlet pressure
Pump size 210 pump casing of c.i. (GG-25) up to 80 bar outlet pressure, above s.g.c.i. (GGG-40)
Pump size 280 pump casing of c.i. (GG-25) up to 70 bar outlet pressure, above s.g.c.i. (GGG-40)

Performance data for other viscosity ranges to be taken from the individual characteristics.

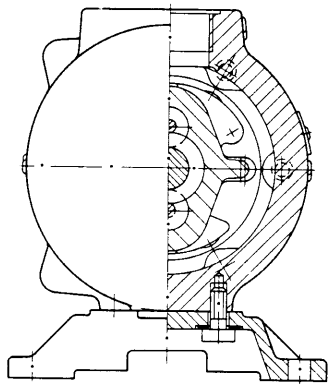
Δp = delivery pressure [bar] (Differential pressure between suction and delivery branch)
Q = effective delivery flow [l/min]
P = power consumption at pump shaft [kW]

Sectional drawing
Horizontal foot mounted pump, internal bearing, with mechanical seal, design U...
SNHBAR - with threaded pipe connection

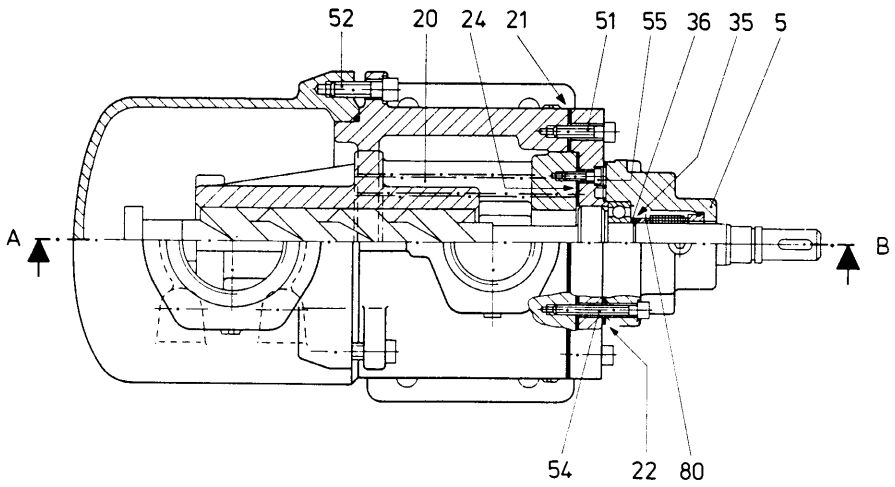
Section A-B



Section E-F



Section C-D



Part No.	Denomination
1	Pump casing
2 ①	Pump casing insert
3	Pump cover, drive side
4	Suction casing
5	Shaft sealing housing
6	Pump foot
8 ①	Balance bush
12 ①	Driving spindle
13 ①	Idler spindle
19	Valve spring
20	Balance pipe
21 ①	Gasket
22 ①	Gasket

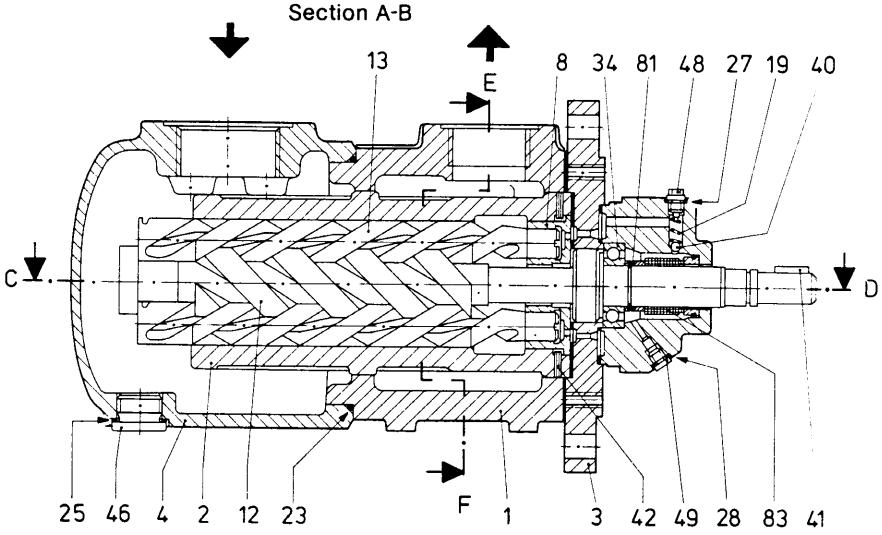
Part No.	Denomination
23 ①	O-ring
24 ①	Gasket
25 ①	Joint washer
27 ①	Joint washer
28 ①	Joint washer
34 ①	Groove ball bearing
35	Circlip
36	Supporting washer
40	Ball valve
41	Key
42	Spring dowel
44	Lock washer
46	Screw plug

Part No.	Denomination
48	Stop screw
49	Screw plug
51	Socket head cap screw
52	Socket head cap screw
54	Socket head cap screw
55	Socket head cap screw
57	Hexagon screw
80	Spacer ring
81	Supporting washer
83 ①	Mechanical seal

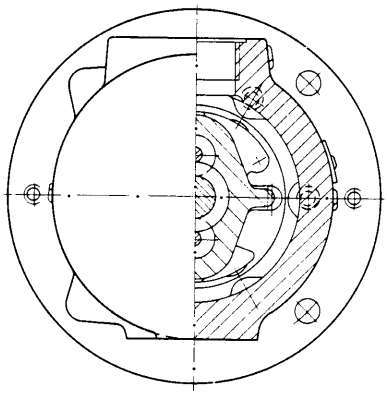
① Spare parts

Sectional drawing
Flange mounted pump, internal ball bearing, with mechanical seal, design U...
SNFBAR - with threaded pipe connection

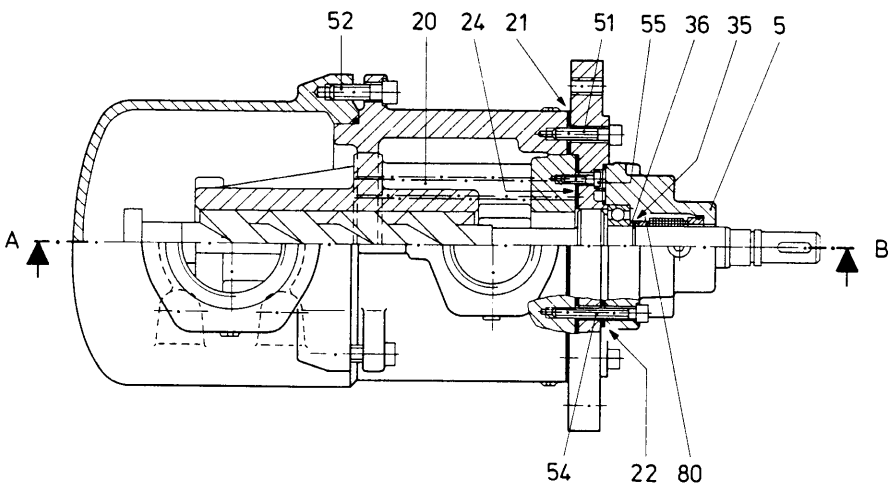
Section A-B



Section E-F



Section C-D



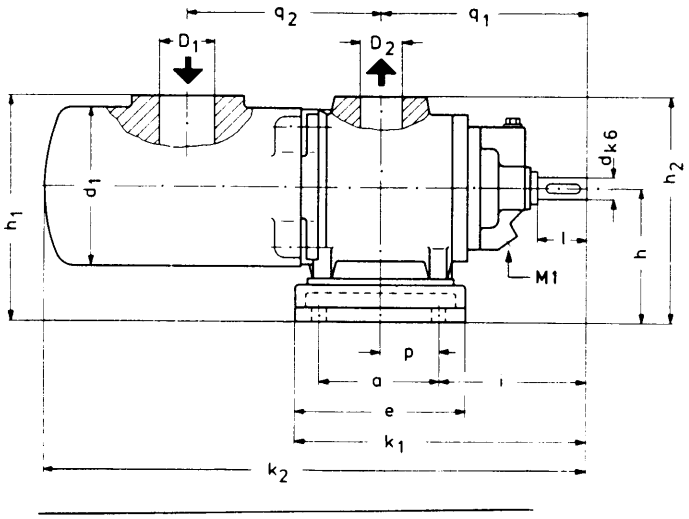
Part No.	Denomination
1	Pump casing
2 ①	Pump casing insert
3	Pump cover, drive side
4	Suction casing
5	Shaft sealing housing
8 ①	Balance bush
12 ①	Driving spindle
13 ①	Idler spindle
19	Valve spring
20	Balance pipe
21 ①	Gasket
22 ①	Gasket
23 ①	O-ring

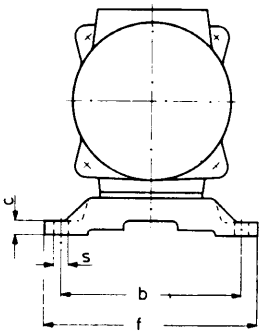
Part No.	Denomination
24 ①	Gasket
25 ①	Joint washer
27 ①	Joint washer
28 ①	Joint washer
34 ①	Groove ball bearing
35	Circlip
36	Supporting washer
40	Ball valve
41	Key
42	Spring dowel
46	Screw plug
48	Stop screw
49	Screw plug

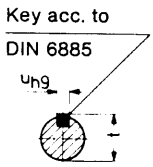
Part No.	Denomination
51	Socket head cap screw
52	Socket head cap screw
54	Socket head cap screw
55	Socket head cap screw
80	Spacer ring
81	Supporting washer
83 ①	Mechanical seal

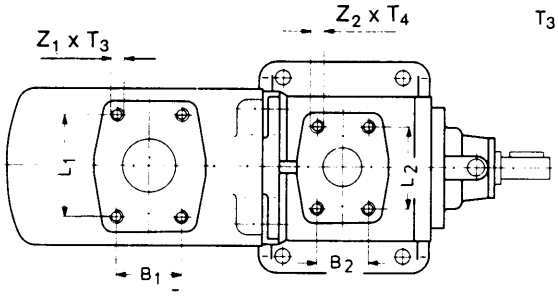
① Spare parts

Pump dimensions
Horizontal foot mounted pump, internal bearing, with mechanical seal, design U...
SNHBA - with SAE flange connection
SNHBAR - with threaded pipe connection
SNHBAN - with NPT threaded pipe connection



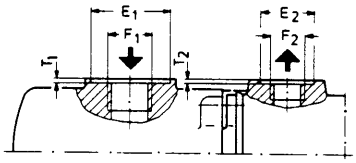




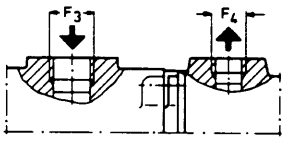


Pump with SAE flange connection

T_3 and T_4 useful depth of thread



Threaded pipe connection



NPT threaded pipe connection

Connections:

M1	Pressure gauge G 1/4

Dimensions in mm
Subject to alterations

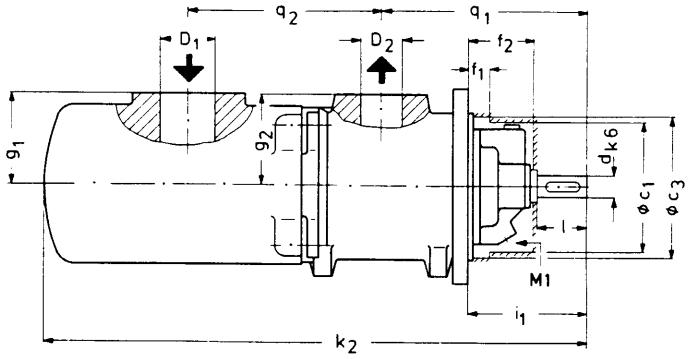
Sense of rotation: clockwise, as seen from the driving side

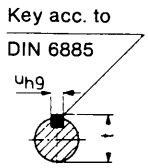
Pump size	Pump dimensions														Shaft end			
	a	b	c	d_1	e	f	h	i	k_1	k_2	p	q_1	q_2	s	d	l	t	u
40	70	144	10	138	114	170	106	155,0	247	399	31	186,0	124	12,0	19	29	21,5	6
80	70	144	10	165	114	170	112	177,0	269	445	22	199,0	150	12,0	19	31	21,5	6
120	100	180	15	195	160	210	150	204,5	335	524	26	230,5	180	14,5	24	45	27,0	8
210	100	180	15	210	160	210	160	232,5	363	607	35	267,5	197	14,5	28	53	31,0	8
280	100	180	15	230	160	210	170	255,0	385	673	60	315,0	203	14,5	32	48	35,0	10

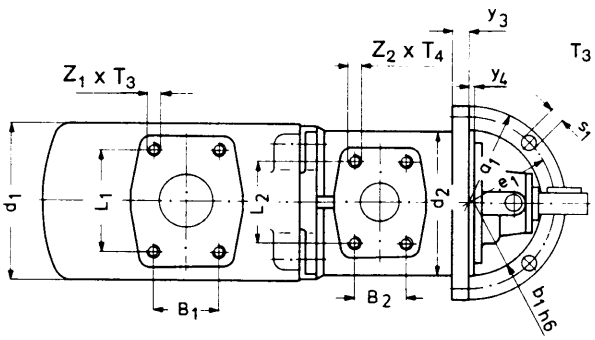
Pump size	SAE flange connection sizes											
	Suction side						Delivery side					
	SAE flange	D_1	B_1	L_1	h_1	$Z_1 \times T_3$	SAE flange	D_2	B_2	L_2	h_2	$Z_2 \times T_4$
40	1 1/2	38	36	70	189	M 12 x 24	1	25	26	52	189	M 10 x 20
80	2	50	43	78	202	M 12 x 24	1 1/4	32	30	59	202	M 10 x 20
120	2	50	43	78	254	M 12 x 24	1 1/2	38	36	70	254	M 12 x 24
210	2 1/2	63	51	89	276	M 12 x 24	2	50	43	78	276	M 12 x 24
280	3	78	62	107	288	M 16 x 32	2 1/2	63	51	89	288	M 12 x 24

Pump size	Threaded pipe connection sizes								NPT threaded pipe connection sizes			
	Suction side				Delivery side				Suction side		Delivery side	
	F_1	E_1	T_1	h_1	F_2	E_2	T_2	h_2	F_3	h_1	F_4	h_2
40	G 1 1/2	57	2,5	191	G 1	40	2,5	191	NPT 1 1/2	191	NPT 1	191
80	G 2	75	2,5	204	G 1 1/2	57	2,5	204	NPT 2	204	NPT 1 1/2	204
120	G 2	75	2,5	256	G 1 1/2	57	2,5	256	NPT 2	256	NPT 1 1/2	256
210	G 2 1/2	-	-	278	G 2	75	2,5	278	NPT 2 1/2	278	NPT 2	278
280	G 3	-	-	290	G 2	75	2,5	290	NPT 3	290	NPT 2 1/2	290

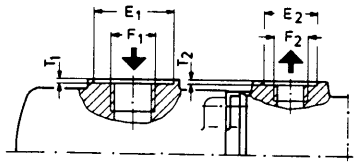
Pump dimensions
Flange mounted pump, internal ball bearing, with mechanical seal, design U...
SNFBA - with SAE flange connection
SNFBAR - with threaded pipe connection
SNFBAN - with NPT threaded pipe connection



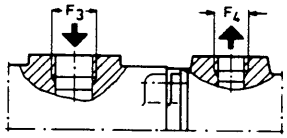




Pump with SAE flange connection



Threaded pipe connection



NPT threaded pipe connection

Connections:

M1	Pressure gauge G 1/4

Dimensions in mm
Subject to alterations

Sense of rotation: clockwise, as seen from the driving side

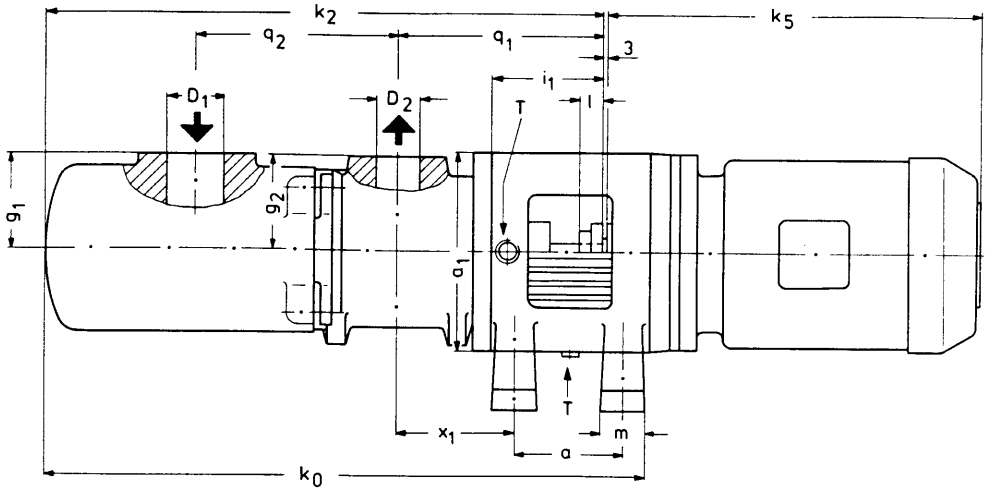
Pump size	Pump dimensions										Flange cover							Shaft end			
	① c_1	① c_3	d_1	d_2	i_1	k_2	q_1	q_2	① f_1	① f_2	a_1	b_1	e_1	s_1	y_3	y_4	z_3	d	l	t	u
40	130	130	138	130	130	399	186,0	124	20	100	190	130	160	13,5	14,5	5,0	4	19	29	21,5	6
80	153	153	165	155	138	445	199,0	150	21	106	230	155	190	17,5	16,5	6,0	4	19	31	21,5	6
120	163	175	195	185	168	524	230,5	180	23	122	260	185	220	17,5	18,0	6,0	4	24	45	27,0	8
210	172	198	210	205	181	607	267,5	197	23	127	290	205	250	17,5	20,5	5,5	4	28	53	31,0	8
280	175	209	230	220	195	673	315,0	203	27	146	310	220	260	22,0	21,5	6,0	4	32	48	35,0	10

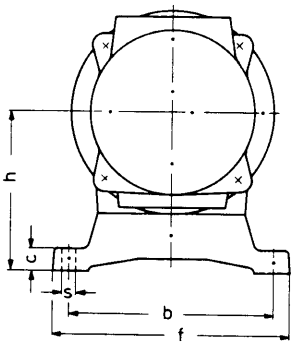
① Space to be kept for assembling.

Pump size	SAE flange connection sizes											
	Suction side						Delivery side					
	SAE flange	D_1	B_1	g_1	L_1	$Z_1 \times T_3$	SAE flange	D_2	B_2	g_2	L_2	$Z_2 \times T_4$
40	1 1/2	38	36	83	70	M 12 x 24	1	25	26	83	52	M 10 x 20
80	2	50	43	90	78	M 12 x 24	1 1/4	32	30	90	59	M 10 x 20
120	2	50	43	104	78	M 12 x 24	1 1/2	38	36	104	70	M 12 x 24
210	2 1/2	63	51	116	89	M 12 x 24	2	50	43	116	78	M 12 x 24
280	3	76	62	118	107	M 16 x 32	2 1/2	63	51	118	89	M 12 x 24

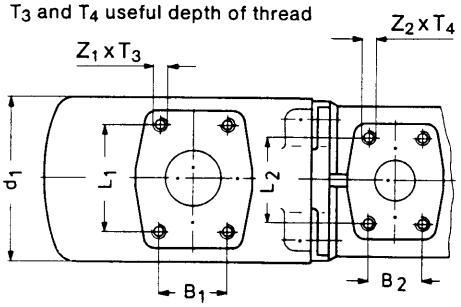
Pump size	Threaded pipe connection sizes								NPT threaded pipe connection sizes			
	Suction side				Delivery side				Suction side		Delivery side	
	F_1	E_1	T_1	g_1	F_2	E_2	T_2	g_2	F_3	g_1	F_4	g_2
40	G 1 1/2	57	2,5	85	G 1	40	2,5	85	NPT 1 1/2	85	NPT 1	85
80	G 2	75	2,5	92	G 1 1/2	57	2,5	92	NPT 2	92	NPT 1 1/2	92
120	G 2	75	2,5	106	G 1 1/2	57	2,5	106	NPT 2	106	NPT 1 1/2	106
210	G 2 1/2	-	-	118	G 2	75	2,5	118	NPT 2 1/2	118	NPT 2	118
280	G 3	-	-	120	G 2	75	2,5	120	NPT 3	120	NPT 2 1/2	120

Unit dimensions
Flange mounted pump, internal ball bearing, with mechanical seal, design U...
SNFBA - with SAE flange connection
SNFBAR - with threaded pipe connection
SNFBAN - with NPT threaded pipe connection

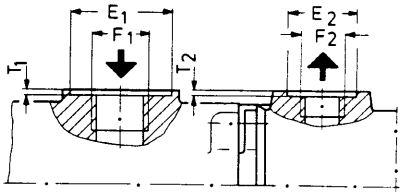




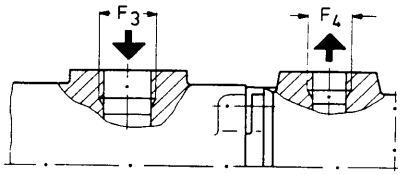
T3 and T4 useful depth of thread



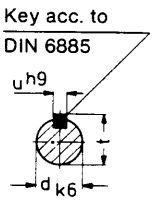
Pump with SAE flange connection



Threaded pipe connection



NPT threaded pipe connection



Sense of rotation:
clockwise, as seen
from the driving side

Dimensions in mm
Subject to alterations

Pump size	pump-/unit dimensions ①									foot dimensions						leakage oil connection	shaft end			
	a_1	d_1	h	i_1	k_0	k_2	q_1	q_2	x_1	a	b	c	f	m	s	T	d	l	t	u
40	190	138	180	130	466	399	186,0	124	84	140	170	33	207	57	11	G 1/4	19	29	21,5	6
80	230	165	180	138	508	445	199,0	150	92	140	250	40	315	60	18	G 1/4	19	31	21,5	6
120	260	195	195	168	579	524	230,5	180	96	160	250	40	315	60	18	G 3/8	24	45	27,0	8
210	290	210	210	181	660	607	267,5	197	111	180	250	40	315	60	18	G 3/8	28	53	31,0	8
280	310	230	220	195	724	673	315,0	203	150	185	250	40	315	60	18	G 3/8	32	48	35,0	10

Pump size	SAE flange connection sizes											
	Suction side						Delivery side					
	SAE-flange	D_1	B_1	g_1	L_1	$Z_1 \times T_3$	SAE-flange	D_2	B_2	g_2	L_2	$Z_2 \times T_4$
40	1 1/2	38	36	83	70	M 12 x 24	1	25	26	83	52	M 10 x 20
80	2	50	43	90	78	M 12 x 24	1 1/4	32	30	90	59	M 10 x 20
120	2	50	43	104	78	M 12 x 24	1 1/2	38	36	104	70	M 12 x 24
210	2 1/2	63	51	116	89	M 12 x 24	2	50	43	116	78	M 12 x 24
280	3	76	62	118	107	M 16 x 32	2 1/2	63	51	118	89	M 12 x 24

Pump size	Threaded pipe connection sizes								NPT threaded pipe connection sizes			
	Suction side				Delivery side				Suction side		Delivery side	
	F_1	E_1	T_1	g_1	F_2	E_2	T_2	g_2	F_3	g_1	F_4	g_2
40	G 1 1/2	57	2,5	85	G 1	40	2,5	85	NPT 1 1/2	85	NPT 1	85
80	G 2	75	2,5	92	G 1 1/2	57	2,5	92	NPT 2	92	NPT 1 1/2	92
120	G 2	75	2,5	106	G 1 1/2	57	2,5	106	NPT 2	106	NPT 1 1/2	106
210	G 2 1/2	-	-	118	G 2	75	2,5	118	NPT 2 1/2	118	NPT 2	118
280	G 3	-	-	120	G 2	75	2,5	120	NPT 3	120	NPT 2 1/2	120

① Only valid for three-phase A.C. standard motors with enclosure higher than IP 23. In case of three-phase A.C. standard motors with enclosure IP 23 and for D.C. motors dimensions upon request.

Three-phase A.C. motors ①			
IEC size	k_5 ca.	IEC size	k_5 ca.
71	240	160 L	630
80	275	180 M	650
90 S	305	180 L	690
90 L	330	200 L	735
100 L	365	225 S	810
112 M	380	225 M	835
132 S	445	250 M	940
132 M	485	280 S	1000
160 M	585	280 M	1050

Subject to technical alterations.

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The stated performance data are to be understood only as an outline of performance of our products. For exact limits of application please refer to the quotation and acceptance of order.

VM 639 GB/7.96 - Ident-No. 795620