

Side Channel Pumps

self-priming, multi-stage type

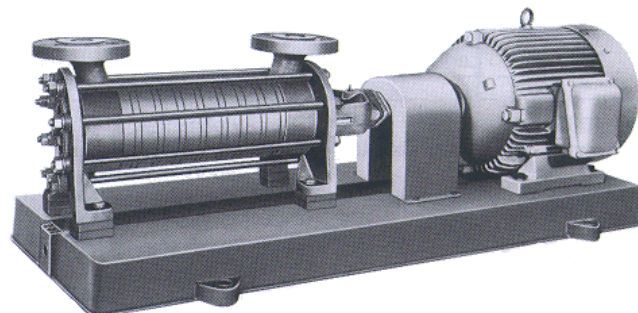


SIHI® Pumps

ASH 3105 . . . 4108

TECHNICAL DATA

Capacity:	max. 12 m ³ /h
Head:	max. 288 m
Speed:	max. 1800 rpm
Temperature:	max. 120 °C
Casing pressure:	PN 100
Shaft sealing:	stuffing box or mechanical seal
Flange connection size:	DIN 2501 PN 100
Sense of rotation:	clockwise when looking at the pump from the drive end



APPLICATION

Sterling SIHI side channel pumps

- self priming
- handling entrained gas
- low noise operation

Pumps of the series ASH were developed for handling liquid gases with vapour pressures of up to 80 bar. The high admissible nominal pressure and the optimum operation properties of the material combinations selected resulted in multiple application of this series, especially for handling

- carbon dioxide

They are successfully applied:

- in processes and installations for the production, storage and transportation of CO₂
- in supply plants, measuring, regulation and decanting equipments
- fire-extinguishing and inert installations
- in CO₂ drying and CO₂ cleaning plants
- for production of dry ice
- and neutralizing of alkaline waste waters

DESIGN

Horizontal, self-priming, multi-stage side channel pumps with open vane wheel impellers handling entrained gas during normal duty. A special bearing was developed for compensation of the axial forces occurring in case of high nominal pressures.

All components which provide the hydraulic effect of the machine are taken from our system of mechanical assembly technique (M.A.T.) for side channel pumps.

CONSTRUCTION

Casing pressure:

Max. 100 bar from -80 °C to + 120 °C

Please note:

Technical rules and safety regulations.
Casing pressure = inlet pressure + discharge head at minimum flow rate

Position of branches:

Suction and delivery branches point radially upwards.

Flanges:

The flanges correspond to DIN 2547 / PN 100.

Bearings:

One grease-lubricated deep-groove ball bearing according to DIN 625 and one grease-lubricated deep-groove thrust ball bearing to DIN 711. The initial filling with grease is done in the factory. One liquid-surrounded journal bearing.

The designation of this construction type: A[·].

Sense of rotation:

Clockwise when looking at the pump from the drive end.

The designation of this construction type: ·N

Shaft sealing:

Optionally either by stuffing box or by a mechanical seal.

Designation 005:	uncooled stuffing box with flushing from source. Temperature range: -80 °C to 120 °C
Designation 214:	uncooled, balanced single mechanical seal with flushing from internal source quench connection. Temperature range: -40 °C to 120 °C

Material design

Item	COMPONENTS		MATERIAL DESIGN
			25
1	suction casing		G-X 10 Cr Ni 18 8
2	discharge casing		
10	stage casing		G-SN Bz 16
11			
12			
30	vane wheel impeller		G-X 25 Cr 14
200	shaft		X 20 Cr 13 with wear layer
241	bearing bush		special carbon
400	shaft sealing	stuffing box	special packing
500		mechanical seal	tungsten carbide / carbon / epoxy caoutchouc

Casing seal:

The casing sealing of the casing is effected by a soft teflon. Designation of this construction type: 4

Drive:

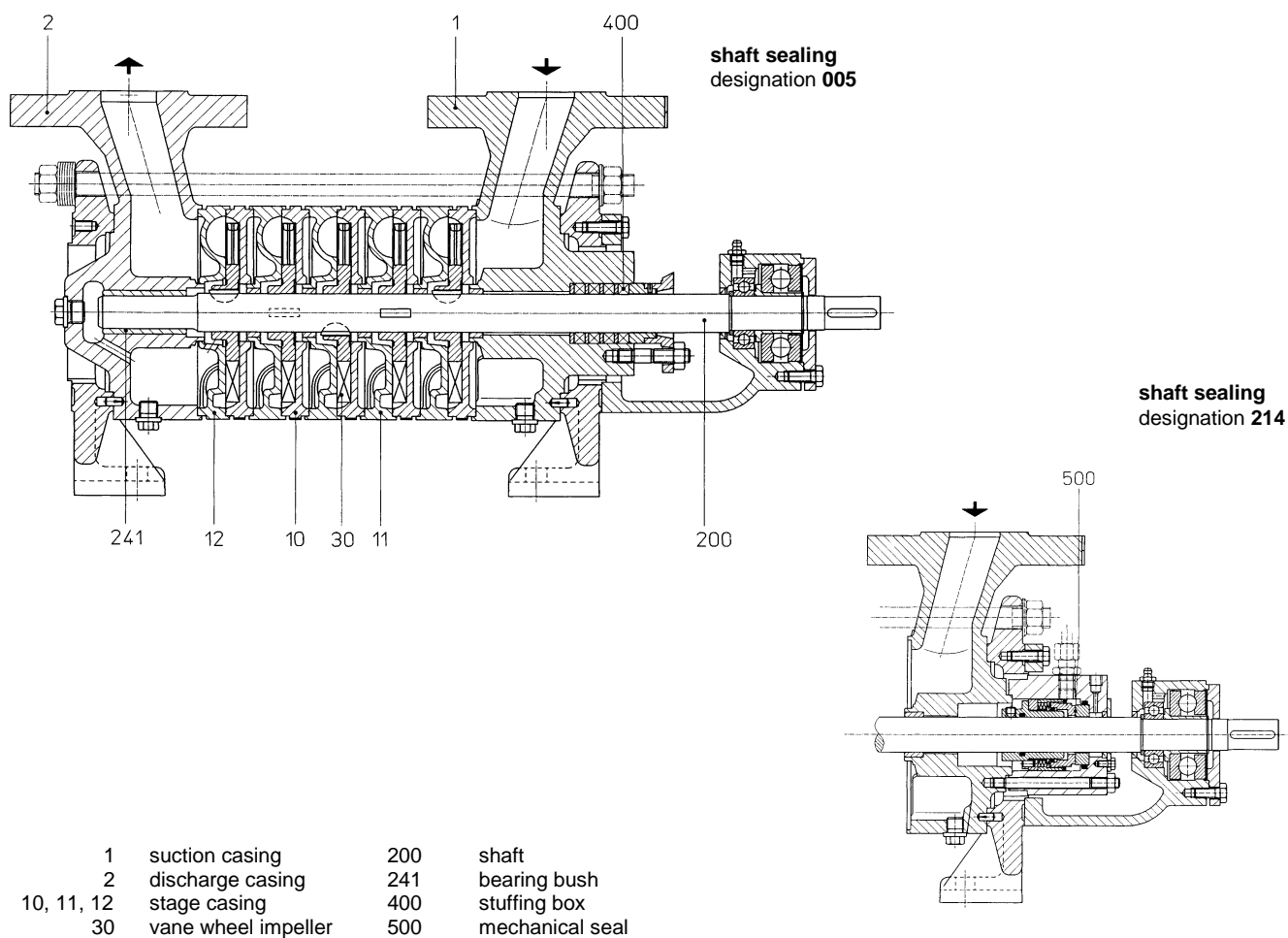
By customary electric motors.

General comments:

For liquid gases having lower vapour pressures we draw your attention to our series **AEH** and **CEH**

Technical documentation about these programmes will be supplied on request.

Sectional drawing and nomenclature



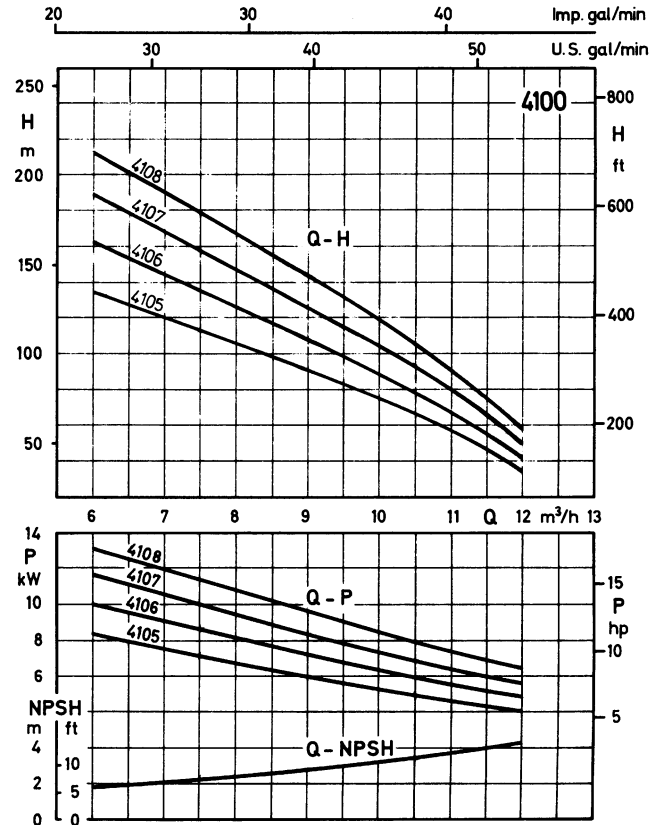
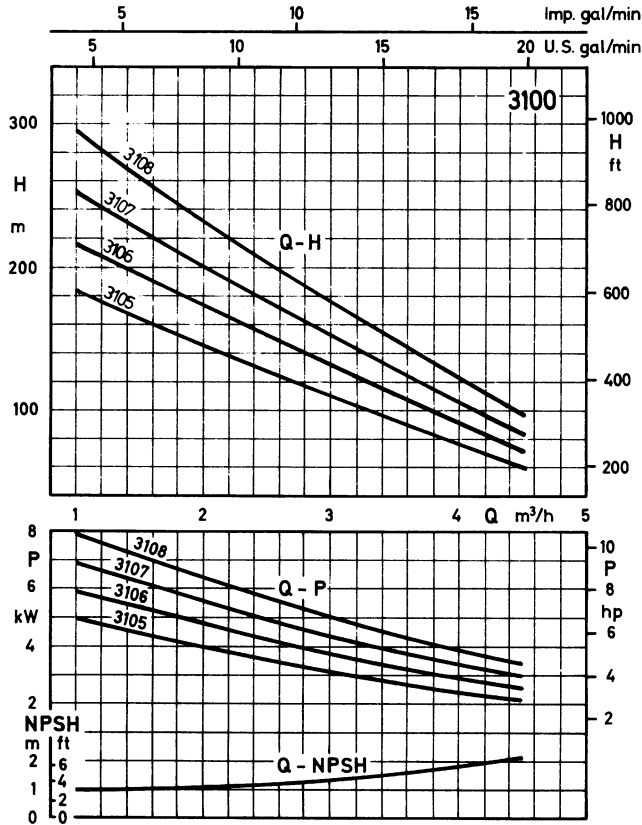
Characteristic curves

For the values stated in the characteristic curve sheet, that following tolerances apply:

Manufacturing tolerances:

n = 1450 rpm
 capacity $\pm 5\%$, head $+5\% -10\%$,
 power requirements $\pm 10\%$
 according to DIN 1944

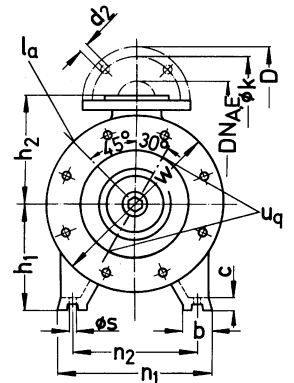
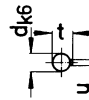
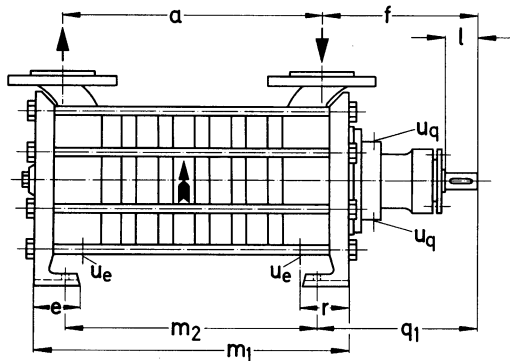
Measuring tolerances:



Values are applicable for water $\rho = 1 \text{ kg/l}$

Dimension table

n = 1450 rpm

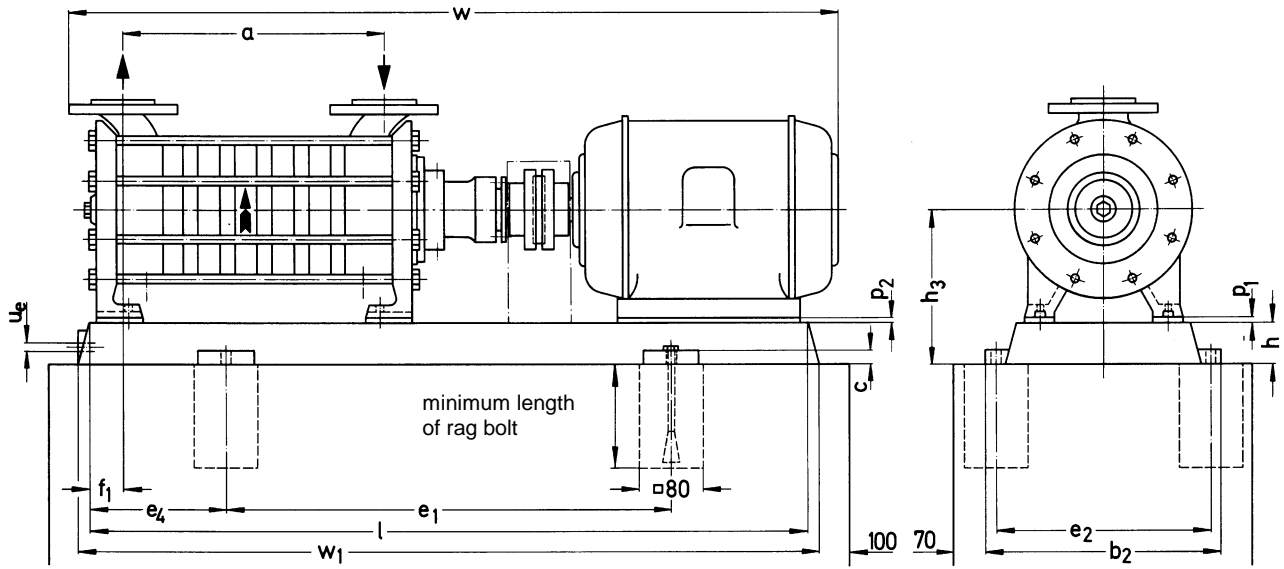


- u_e = drain connection, screwed plug G $\frac{1}{4}$
- u_q = connection for Quensch at designation 214, G1/8
- l_a = by-pass at designation 214

size	DN _{A,E}	b	c	e	f	h ₁	h ₂	n ₁	n ₂	q ₁	r	s	w	d	l	t	u
3100	40	50	20	65	240	132	160	250	200	247	53	15	220	19	40	21,5	6
4100					252		170			254	55		236	24	45	26,9	8

size	.. 05			.. 06			.. 07			.. 08		
	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂
31 ..	300	376	286	340	416	326	380	456	366	420	496	406
41 ..	395	475	391	450	530	446	505	585	501	560	640	556

flange connection size according to DIN 2501	
DN _{A,E}	40
k	125
D	170
d ₂ x number	23 x 4



Dimensions in mm, dimensional tolerances admissible (base plate) for castings acc. DIN 1686 / GTB 16/5, for welded parts acc. DIN 8570 B.

series + size	motor size	kW	base plate 271 ... 100	coupling	weight		a	b ₂	c	e ₁	e ₂	e ₄	f ₁	h	h ₃	l	p ₁	p ₂	w*	w ₁	u _e	rag bolt DIN 529			
					pump kg	unit kg																			
ASH	3105	112 M	4,0	303	63	68	150	300	390	25	600	350	150	43	65	197	900	-	20	991	920	R1/2	M12 x 125		
		132 S	5,5	344																			184	450	30
	3106	132 S	5,5	0110.00.385	63	73	189	340	490	40	740	440	190	93	110	242	1120	-	-	-	-	-	-	M20 x 250	
																									236
	3107	132 S	5,5	0110.00.385	63	78	231	380	490	40	740	440	190	93	110	242	1120	-	-	-	-	-	-	-	M20 x 250
	3108	132 M	7,5	0110.00.385	63	83	246	420	490	30	840	490	205	73	80	240	1250	28	-	-	-	-	-	-	M20 x 200
	4105	132 M	7,5	0110.00.385	63	88	251	395	490	40	740	440	190	58	110	242	1120	-	-	-	-	-	-	-	M20 x 250
	4106	132 M	7,5	0110.00.487	63	96	250	450	490	30	840	490	205	98	110	242	1120	-	-	-	-	-	-	-	M20 x 200
	4107	160 M	11,0	0110.00.487	100	104	316	505	610	40	940	550	230	108	100	260	1400	-	-	-	-	-	-	-	M24 x 400
	4108	160 M	11,0	0110.00.487	100	112	325	560	610	40	940	550	230	78	100	260	1400	-	-	-	-	-	-	-	M24 x 400

* Motor protection type IP 55, dimensions depend on the motor make

Data regarding the pump size - order notes

Series+ size	Bearings and sense of rotation	Shaft sealing	Material design	Casing seal
	A · two grease-lubricated antifriction bearings, one liquid-surrounded sleeve bearing · N sense of rotation, clockwise when looking at the pump from the motor	005 uncooled special stuffing box 214 mechanical seal	25 stainless steel / cast steel	4 soft Teflon
ASH 3105 3106 3107 3108 4105 4106 4107 4108	AN	alternatively 005 214	25	4

scope of delivery	Designation	Motor selection table		
pump with free shaft end	01	motor n = 1450 rpm		
pump with coupling, motor side rough-drilled	04	kW	size	designation
as above, but pump mounted on base plate	05	4,0	112 M	MB
as above, but with motor and coupling guard		5,5	132 S	NB
e.g. three-phase A.C. motor. 7,5 kW (50 Hz, 380 V Δ), for 1450 rpm	e.g. PB	7,5	132 M	PB
		11,0	160 M	SB
		15,0	160 L	UB

Example for ordering:

The pump size ASH 4106 AN 005.25.4 with coupling rough-drilled on the motor side has the complete order number:

ASH · 4106 AN 005.25.4 04

The pump size ASH 4106 AN 005.25.4 as a complete unit with 11,0 kW three-phase A.C. motor, 1450 rpm has the complete order number:

ASH · 4106 AN 005.25.4 SB

On delivery the period (·) at the fourth place of the type designation is replaced by a letter in the factory.

Any changes in the interest of the technical development are reserved.

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