Liquid ring compressors

KPH 65212, KPH 65218

Compression pressures: **2 to 7 bar**
Suction volume flow: **375 to 660 m³/h**

CONSTRUCTION TYPE

Sterling SIHI liquid ring compressors are displacement compressors of simple and robust construction having following special characteristics:

- Pumping of nearly all gases and vapours
- non polluting due to a nearly isothermal compression
- oil-free, as no lubrication in the working chamber
- additional liquid can be handled with the gas flow
- easy maintenance and reliable operation
- low noise and nearly free from vibration
- wide choice of material, therefore applicable nearly anywhere
- incorporated central drain
- no metallic contact of the rotating parts

The Sterling SIHI liquid ring compressors KPH 65212 and KPH 65218 are two stage compressors, with double acting second stage.

APPLICATION

Handling and compressing of dry and humid gases; entrained liquid can be handled during normal duty. The compressors are applied in all fields where a compression over pressure of up to 6,5 bar has to be created by robust compressors and only a small increase in temperature is admissible during compression.
Fields of application are e.g.

- the plastics industry, for recovery of process gases as vinyl chloride
- the petrochemical industry, for the compression of combustible gases as gasoline vapours or hydrogen
- transport of gases in general e.g. to a reactor

NOTE

During the operation the compressor must continuously be supplied with service liquid, normally water, in order to eliminate the heat resulting from the gas compression and to replenish the liquid ring, because part of the liquid is leaving the pump together with the gas. This liquid can be separated from the gas in a pressure liquid separator (see catalogue part accessories).
It is possible to reuse the service liquid.
The direction of rotation is clockwise when locking from the drive on the pump.

GENERAL TECHNICHAL DATA

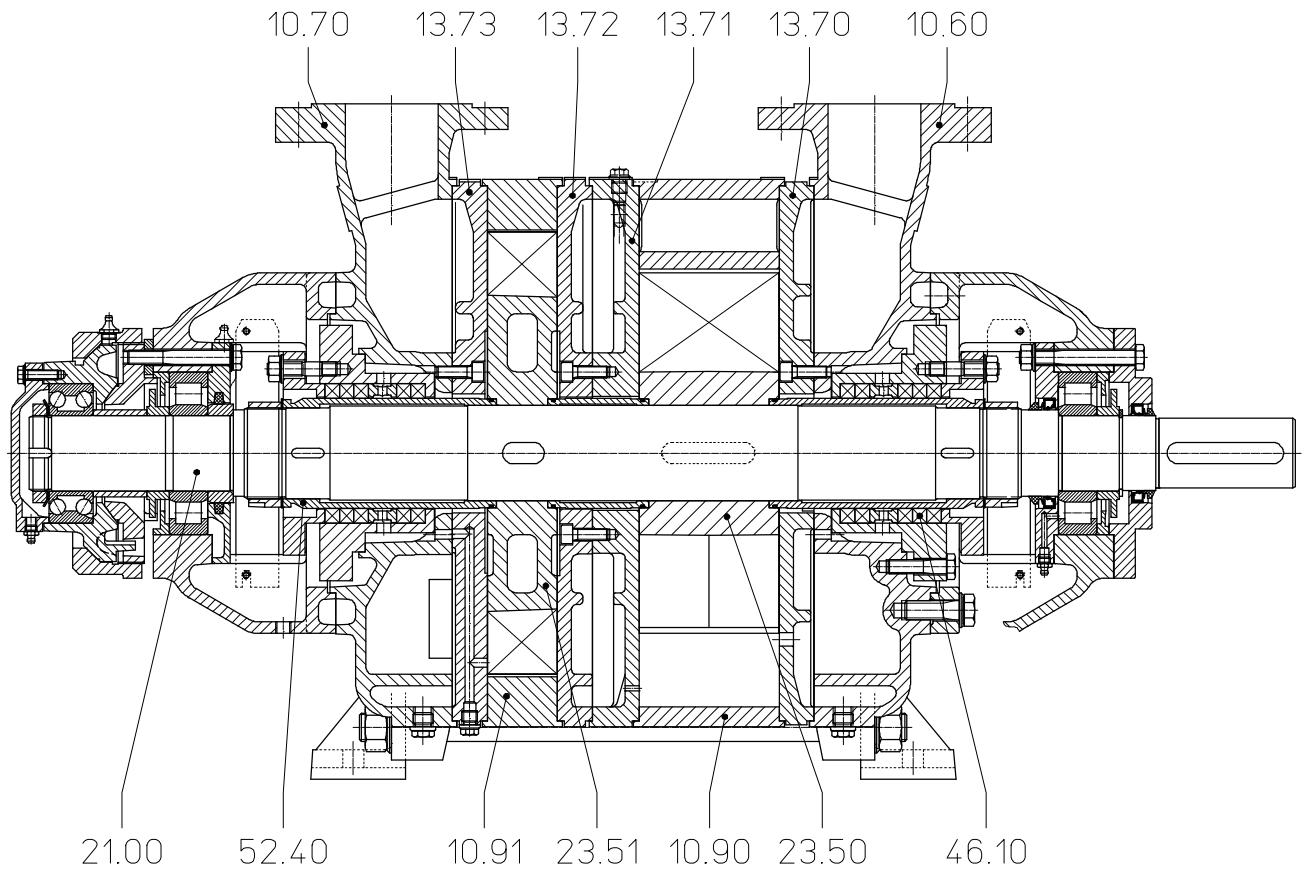
Pump type		unit	KPH 65212	KPH 65218
Speed	50 Hz 60 Hz	rpm	1450 1775	1450 1775
Max. compression over pressure		bar	7	
Hydraulic test (over pressure)		bar	10,5	
Moment of inertial of the rotating pump parts and of the water filling		kg · m²	0,68	0,95
Sound pressure level of measuring area		dB (A)	82 84	82 84
Min. pulley diameter permissible in case of V-belt drive		mm	355	355 450
Max. gas temperature		°C	100	
Service liquid				
max. admissible temperature		°C	80	
max. viscosity		mm²/s	90	
max. density		kg/m³	1200	
volume up to shaft level		liter	22	27

The combination of several limiting values is not admissible.

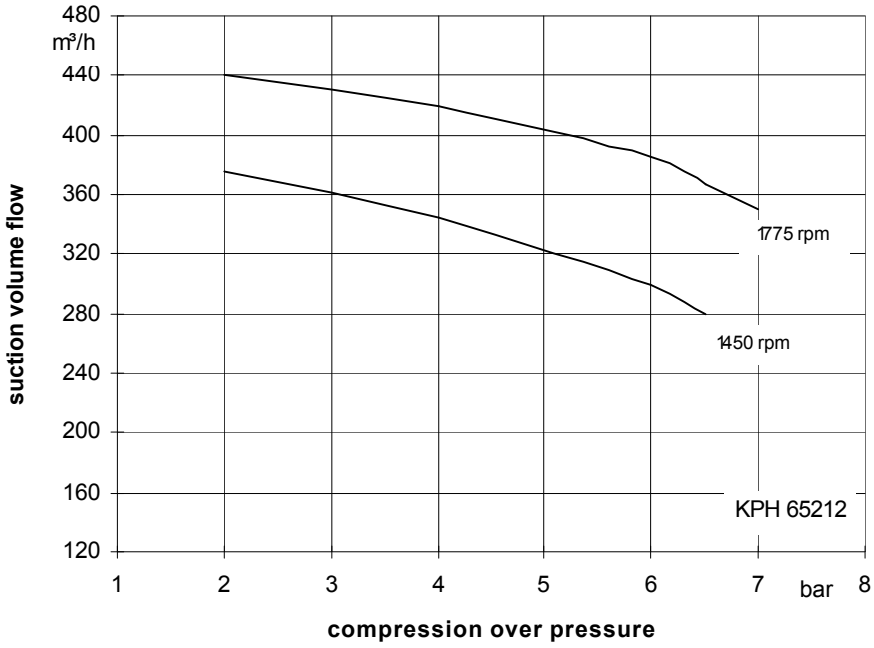
Material design

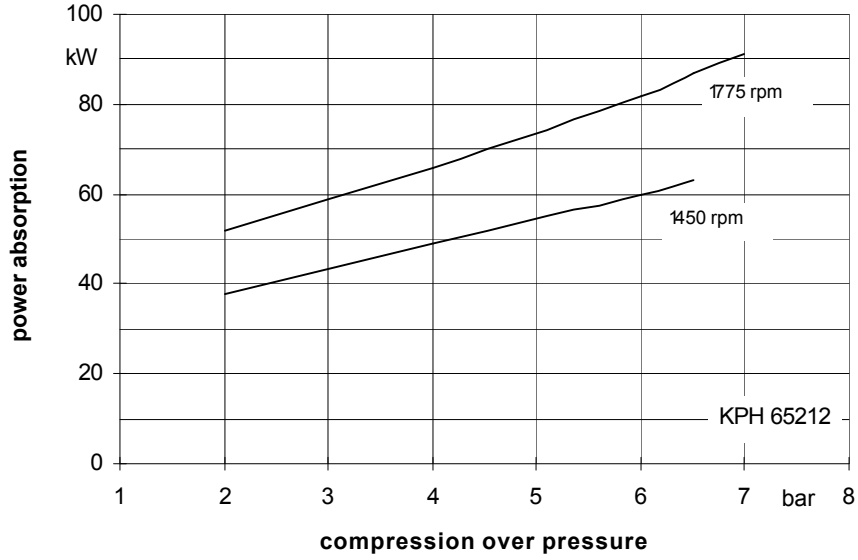
Item	COMPONENTS	MATERIAL DESING	
		0B	4B
10.60 / 10.70	Casing	0.6025	1.4408
10.90 / 10.91	Central body		
13.70 / 1371 13.72 / 13.73	Guide disk		
21.00	Shaft	1.0503	
23.50 / 23.51	Vane wheel impeller	1.4027.05	1.4517
46.10	Gland packing	GORE	
52.40	Shaft sleeve	1.4027.05	1.4581

Sectional drawing KPH 65212, KPH 65218



Suction volume flow and power absorption KPH 65212



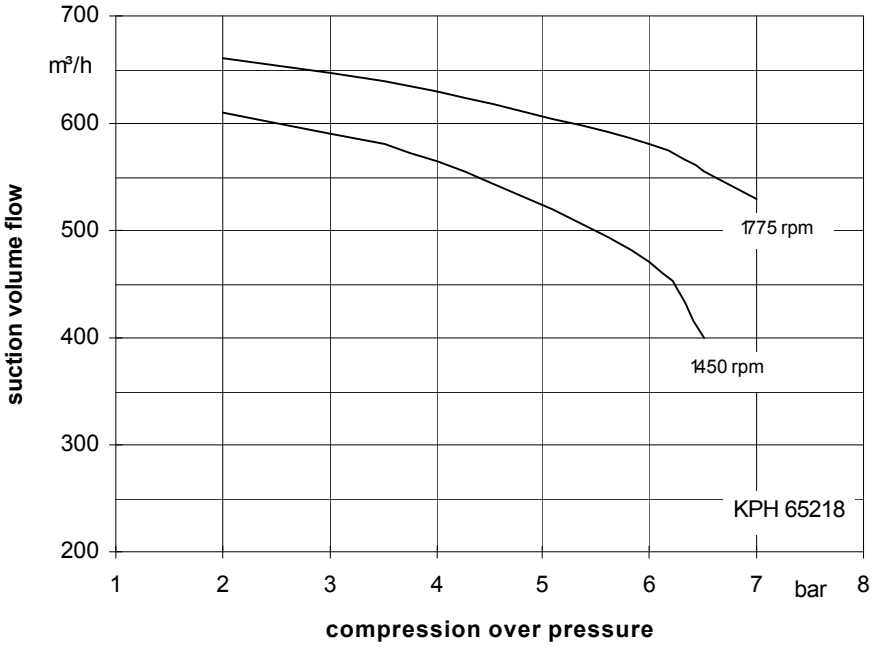


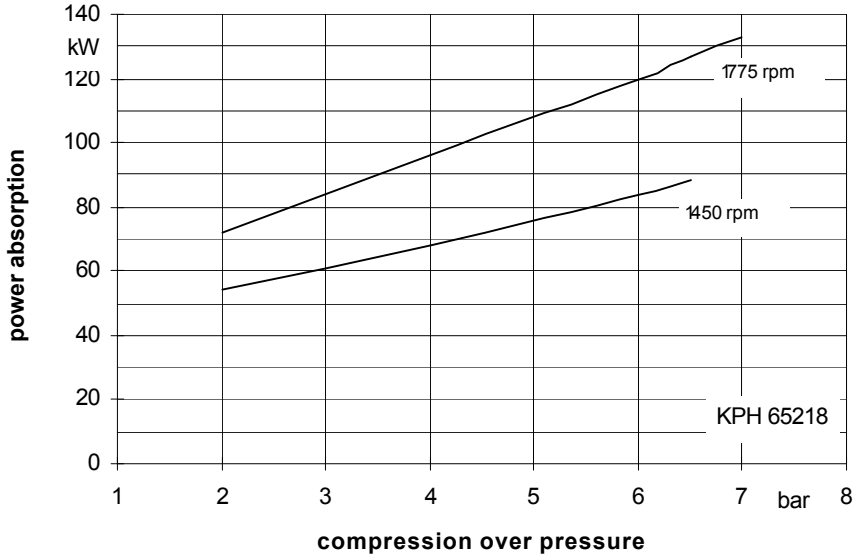
The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure above the atmospheric pressure.

The data indicated change with deviating service conditions, such as deviating physical data of the gas to be handled or of the service liquid (vapour pressure, temperature, density, viscosity) when handling entrained liquid, at a suction pressure deviating from atmospheric pressure handling gas-vapours mixtures.

For determination of service data for deviating service conditions please see catalogue section TH.

Suction volume flow and power absorption KPH 65218





The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure above the atmospheric pressure.

The data indicated change with deviating service conditions, such as deviating physical data of the gas to be handled or of the service liquid (vapour pressure, temperature, density, viscosity) when handling entrained liquid, at a suction pressure deviating from atmospheric pressure handling gas-vapours mixtures.

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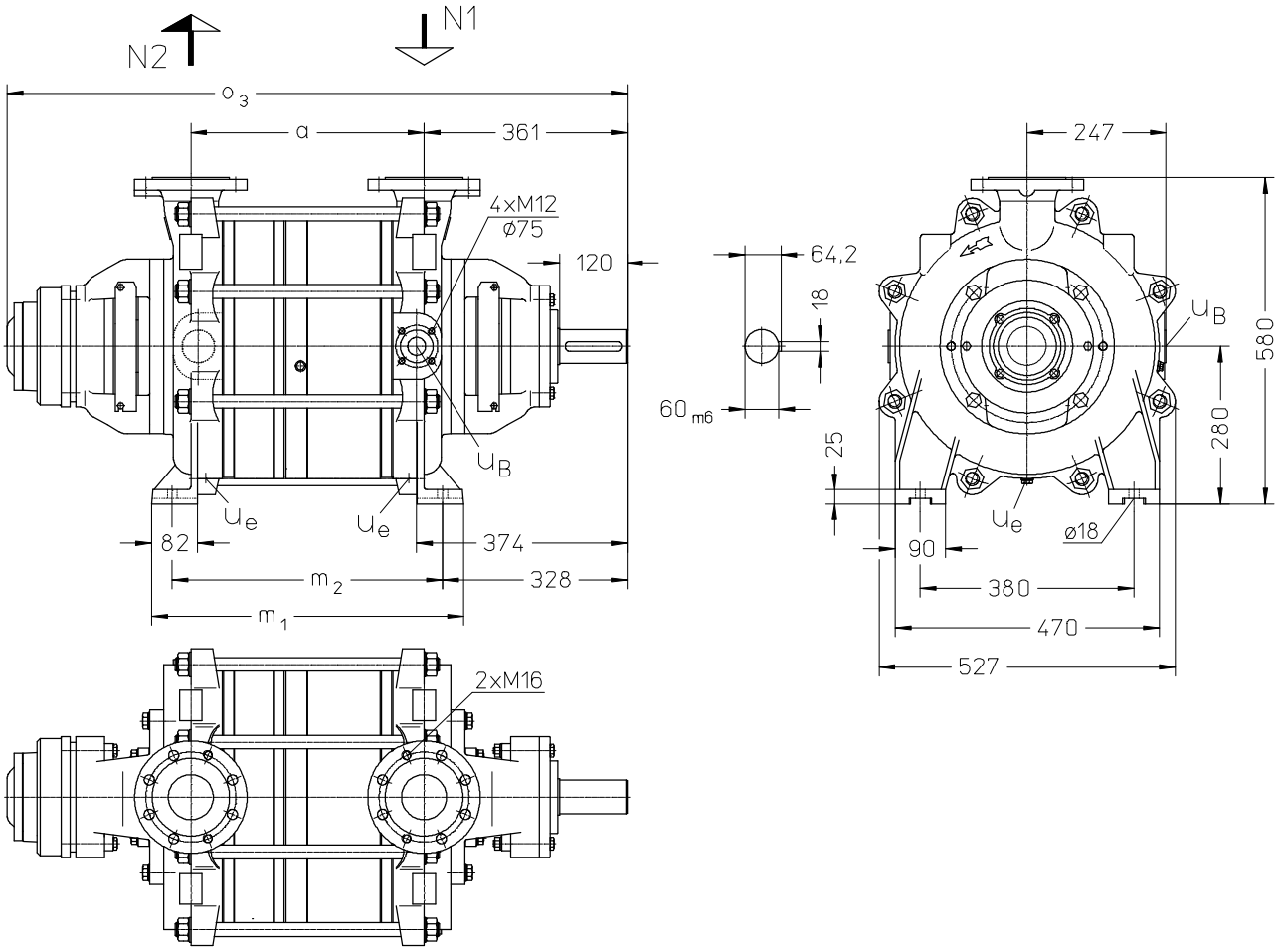
Dimension table KPH 65212, KPH 65218



N 1 = gas-inlet DN 80

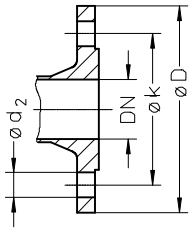
N 2 = gas-outlet DN 80

u_B = connection for service liquid DN 20

u_e = drain connection (screwed plug) G $^3/_8$

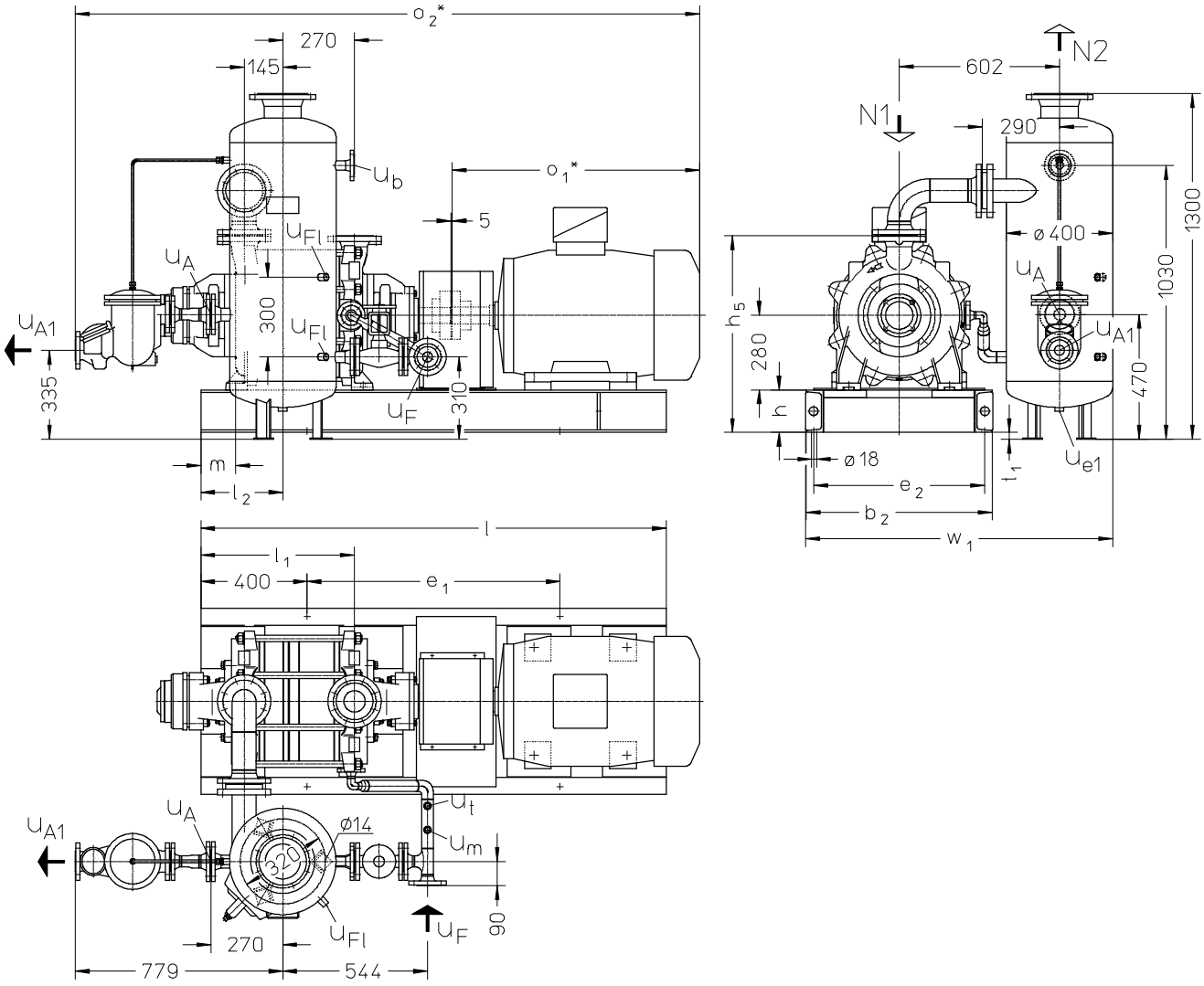
	a	m_1	m_2	o_3	weight abt. kg
KPH 65212	415	554	481	1103	445
KPH 65218	505	644	571	1193	510

flange connections to DIN 2501 PN 10 / PN 16		
DN	20	80
k	75	160
D	105	200
number x d_2	4 x M12	8 x 18



Arrangement drawing KPH 65212 with pressure liquid separator

(Dimensions and scheme of the liquid discharge trap XUk for combined operation only)



N 1 = gas-inlet DN 80

N 2 = gas-outlet DN 125

u_A = connection for liquid drain DN 40

u_{A1} = connection for liquid drain DN 32

u_b = connection for safety valve DN 25

u_{e1} = drain connection G ¾

u_F = connection for fresh liquid DN 32

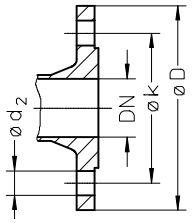
u_m = connection for pressure gauge G ½

u_{Fl} = connection for liquid level indicator G ½

u_t = connection for thermometer G ½

	electric motor 50 Hz size	kW IP 55	kW EEx e II T3	b_2	e_1	e_2	h	h_5	l	l_1	l_2	m	o_1*	o_2*	t_1	w_1	weight abt. kg
KPH 65212	250 M	55	-	700	950	640	160	740	1750	578	308	130	930	2345	26	1154	1300
	280 S	75											1005	2420			1470
	280 S	-	58										1044	2459			1430
	280 M	-	70										1095	2510			1500
	315 S	-	84	800	1218	740	200	780	2018	618	348	170	1220	2635	-14	1202	1850

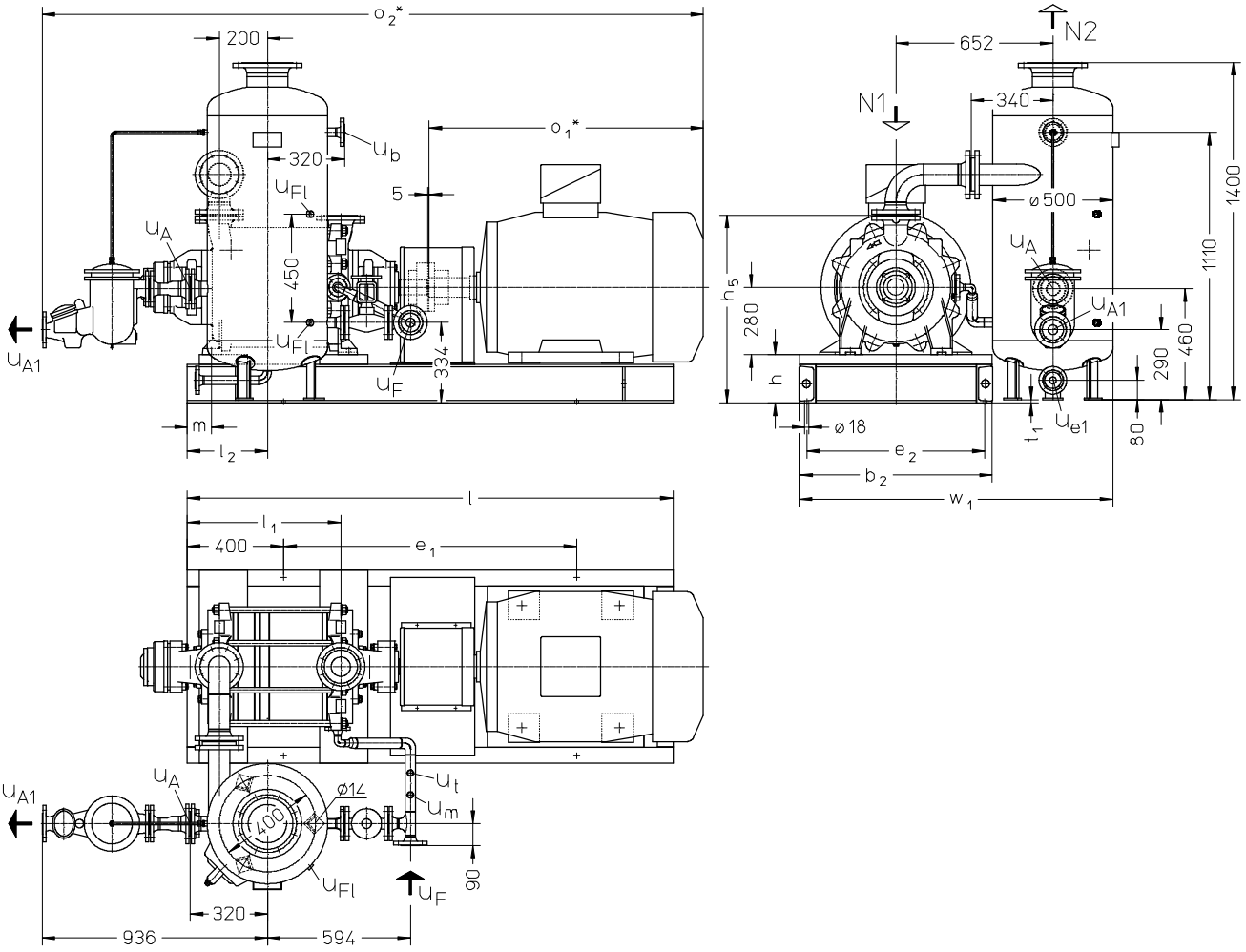
flange connections to DIN 2501 PN 10 / PN 16					
DN	25	32	40	80	125
k	85	100	110	160	210
D	115	140	150	200	250
number x d_2	4 x 14	4 x 18	4 x 18	8 x 18	8 x 18



* Dimensions depend on the motor make

Arrangement drawing KPH 65218 with pressure liquid separator

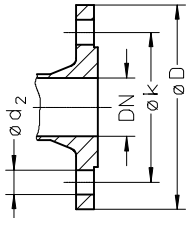
(Dimensions and scheme of the liquid discharge trap XUk for combined operation only)



N 1 =	gas-inlet DN 80	u_{e1} = drain connection DN 25
N 2 =	gas-outlet DN 150	u_F = connection for fresh liquid DN 32
u_A =	connection for liquid drain DN 50	u_{Fl} = connection for liquid level indicator G ½
u_{A1} =	connection for liquid drain DN 40	u_m = connection for pressure gauge G ½
u_b =	connection for safety valve DN 25	u_t = connection for thermometer G ½

	electric motor 50 Hz size	kW IP 55	kW EEx e II T3	b_2	e_1	e_2	h	h_5	l	l_1	l_2	m	o_1*	o_2*	t_1	w_1	weight abt. kg
KPH 65218	280 M	90	-	700	950	640	160	740	1750	578	273	40	1005	2612	-26	1254	1650
	280 M	-	70										1095	2702			1620
	315 S	110	-	800	1218	740	200	780	2018	638	333	100	1140	2747	14	1304	1900
	315 S	-	84										1220	2827			1970
	315 M	-	100														2010
	315 M	-	115														

flange connections to DIN 2501 PN 10 / PN 16						
DN	25	32	40	50	80	150
k	85	100	110	125	160	240
D	115	140	150	165	200	285
number x d_2	4 x 14	4 x 18	4 x 18	4 x 18	8 x 18	8 x 22



* Dimensions depend on the motor make

Fresh water requirements in [m³/h] dependent on compression pressure, speed, mode of operation and temperature difference

compressor	speed	*	FB not depending on the pressure	KB= combined liquid service with service liquid 30°C, 20°C, 10°C, 5°C warmer than the make up-water															
				compression over pressure															
				2 bar				4 bar				6 bar				6,5 resp. 7 bar			
				difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]			
	[rpm]	[bar]	[m³/h]	30	20	10	5	30	20	10	5	30	20	10	5	30	20	10	5
KPH· 65212	1450	1,4	3	0,80	1,06	1,56	2,06	0,96	1,24	1,75	2,21	1,09	1,39	1,90	2,32	1,13	1,42	1,93	2,35
	1775	2,0	3,6	1,05	1,38	1,99	2,57	1,24	1,59	2,20	2,73	1,42	1,78	2,38	2,87	1,51	1,87	2,47	2,93
KPH· 65218	1450	2,0	4,2	1,13	1,49	2,20	2,89	1,33	1,72	2,44	3,09	1,53	1,94	2,65	3,25	1,58	1,99	2,70	3,29
	1775	2,8	5	1,46	1,91	2,77	3,56	1,77	2,26	3,11	3,84	2,04	2,54	3,37	4,02	2,16	2,67	3,48	4,10

FB = make-up liquid service

* = In order to secure the service liquid flow the service liquid pressure shall be higher than the suction pressure by the following values

Data regarding the pump size - order hints

series + size		hydraulic + bearings	shaft sealing	material design	Case sealing
		B• two antifriction bearings •N one shaft end clockwise rotating	041 double gland packing	0B main parts cast iron, without non-ferrous metal 4B main parts high-grade steel	0 liquid seal
KPH	65212	BN	041	0B, 4B	0
	65218				

Accessories

recommended accessories			KPH 65212	KPH 65218
Pressure liquid separator		type weight	XBd 1370 105 kg	XBd 2070 150 kg
material design	130 / galvanized 172 / 1.4571	SIH part No.	35 000 323 35 000 324	35 018 053 35 000328
Service liquid line				
material design	070 / St 37-0	SIH part No.	35 009 157	35 018 080
Shutoff valve				
material design	GG-25	SIH part No.	On request	
Bend				
material design	070 / St 37-0 172 / 1.4571	SIH part No.	35 003 229 35 003 230	
Liquid discharge trap (KB)		type / weight	XUk 3308 / 22 kg	XUk 4108 / 31 kg
material design	762 / GG20+1.4541	SIH part No.	43 014 806	43 014 812
Reduction				
material design	072 / St 37-0	SIH part No.	35 009 225	35 009 226
Air vent pipe				
material design	072 / St 37-0	SIH part No.	35 009 242	35 009 245
Liquid discharge trap (FB)		type / weight	XUk 4108 / 31 kg	XUk 5108 / 46 kg
material design	762 / GG20+1.4541	SIH part No.	43 014 812	43 014 815
Air vent pipe				
material design	072 / St 37-0	SIH part No.	on request	on request
Motor in case of standard design				
IP 55		size power weight	250 M 55 kW 435 kg	280 S 75 kW 610 kg	280 M 90 kW 660 kg	315 S 110 kW 830 kg
EEx e II T3		size power weight	280 S 58 kW 570 kg	280 M 70 kW 630 kg	315 M 84 kW 900 kg	280 M 70 kW 630 kg	315 S 84 kW 900 kg	315 M 100 kW 940 kg	315 M 115 kW 940 kg
Coupling						
for motor IP 55		type weight SIH part No.	A 180 14 kg	A 180 14 kg	A 180 14 kg	A 200 20 kg
pump side			43 035 527	43 035 527	43 035 527	43 000 275
motor side			43 034 392	43 021 495	43 021 495	43 029 522
for motor EEx e II T3		type weight SIHI part No.	ADS 194 17 kg	ADS 218 24 kg	ADS 194 17 kg	ADS 218 24 kg
pump side			43 040 600	43040602	43040600	43 040 602
motor side			43 038 678	43040603	43038678	43 040 603
Contact safety device				
material design	076 / steel 345 / 2.0321	SIHI part No.	43 042 350 43 042 351	
for motor size 315	076 / steel 345 / 2.0321	SIHI part No.	43 042 359 43 042 360	
Base frame				
material design	081 / RSt 37-2	SIHI part No. weight	on request	
for motor size 315	081 / RSt 37-2	SIHI part No. weight	35 002 946 310 kg	

Any changes in the technical development are reserved.

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