

# Liquid ring compressors

## KPH 55206, KPH 55209

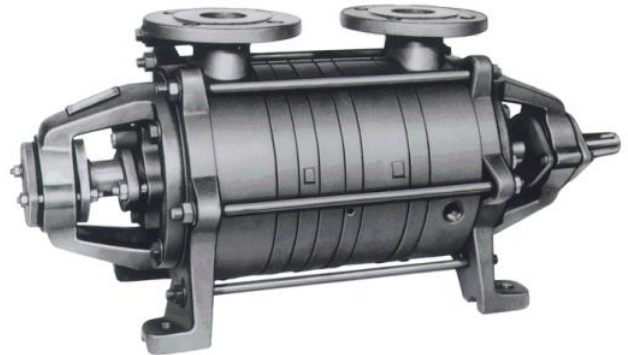
**Compression pressures:** 2 to 7 bar  
**Suction volume flow:** 86 to 170 m³/h

### 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
- small quantities of entrained liquid can be handled
- easy maintenance and reliable operation
- low noise and nearly free from vibration
- wide choice of material, therefore applicable nearly anywhere
- no metallic contact of the rotating parts

The Sterling SIHI liquid ring compressors KPH 55000 are two stage compressors, with double acting second stage.



### 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 looking from the drive on the pump.

### ANWENDUNG

Every application where pumping gas has to be compressed carefully to a pressure of abt. 6,5 bar and only a small increase in temperature is admissible;

e.g. recovery of solvent or vinyl chloride vapour.

### GENERAL TECHNICAL DATA

	unit	KPH 55206	KPH 55209
Speed	50 Hz 60 Hz		2900 3500
Max. compression over pressure	bar		7,5
Hydraulic test (over pressure)	bar		11,5
Moment of inertial of the rotating pump parts and of the water filling	kg · m²	0,04	0,055
Sound pressure level of measuring area	dB (A)		68 ... 70
Min. pulley diameter permissible in case of V-belt drive	mm	180	on request
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	3,5	4

The combination of several limiting values is not admissible.

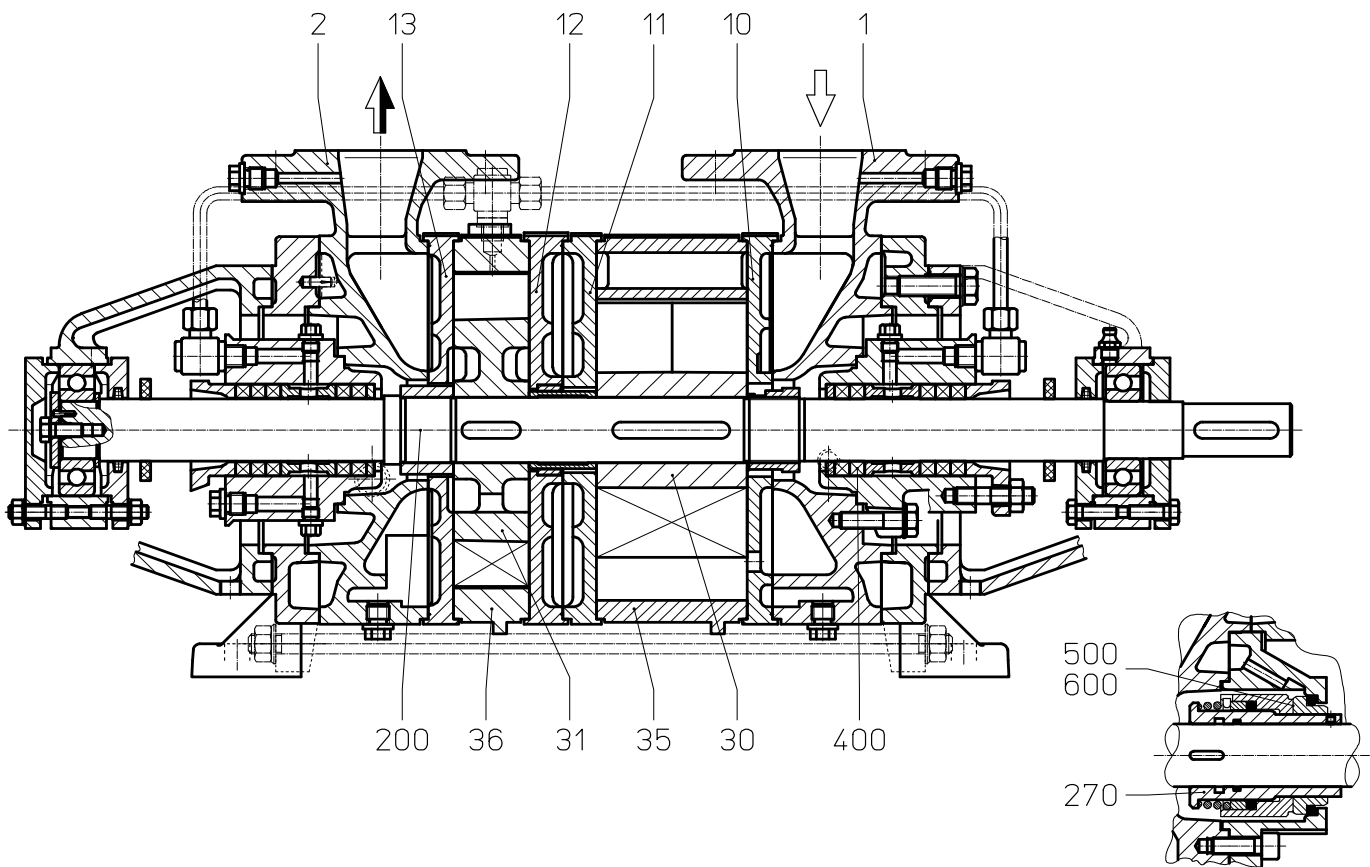
## Material design

Item	COMPONENTS	MATERIAL DESIGN	
		01	42
1, 2	Casing	0.6025	1.4408
10, 11, 12, 13	Guide disk	0.6025	1.4408
30, 31	Vane wheel impeller	2.1096.01	1.4517
35, 36	Central body	0.6025	1.4408
200	Shaft	1.4021	1.4401
270*	Shaft sleeve	1.4021	-
400	Gland packing	GORE	
500*, 600*	Mechanical seal	carbon / Cr Ni Mo-steel / Perbunan	-

\*only in case of shaft sealing with mechanical seal

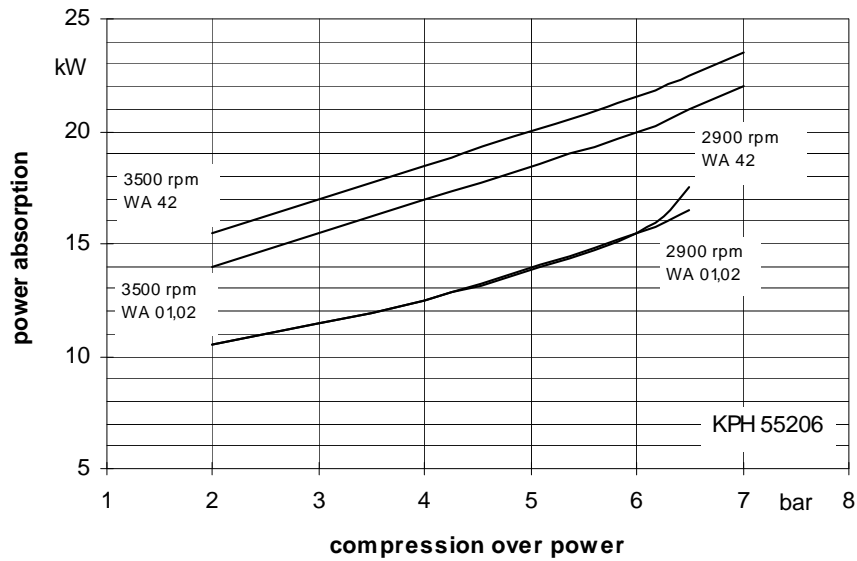
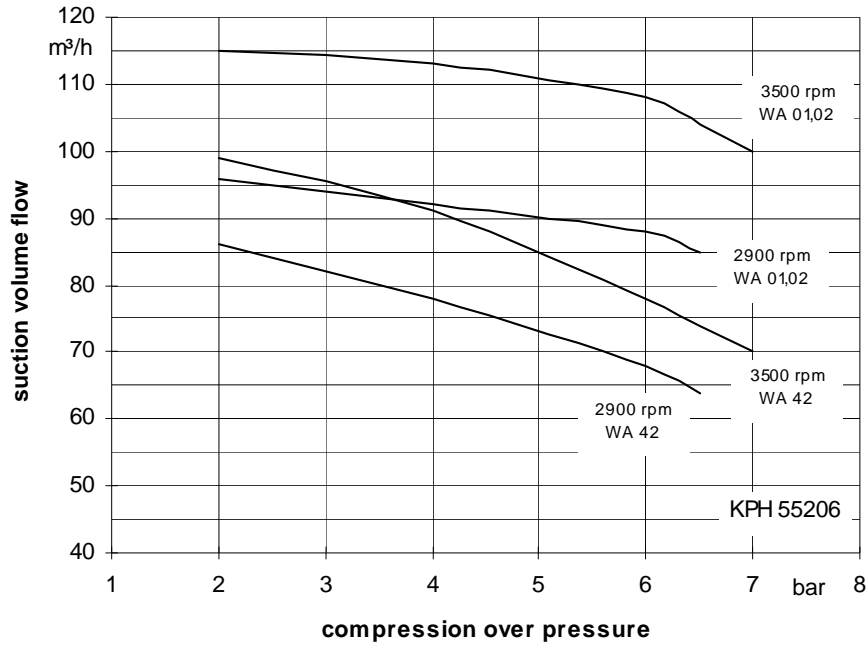
## Sectional drawing KPH 55206, KPH 55209

shaft sealing gland packing  
design 041



shaft sealing mechanical seal  
design 132

**Suction volume flow and power absorption KPH 55206**

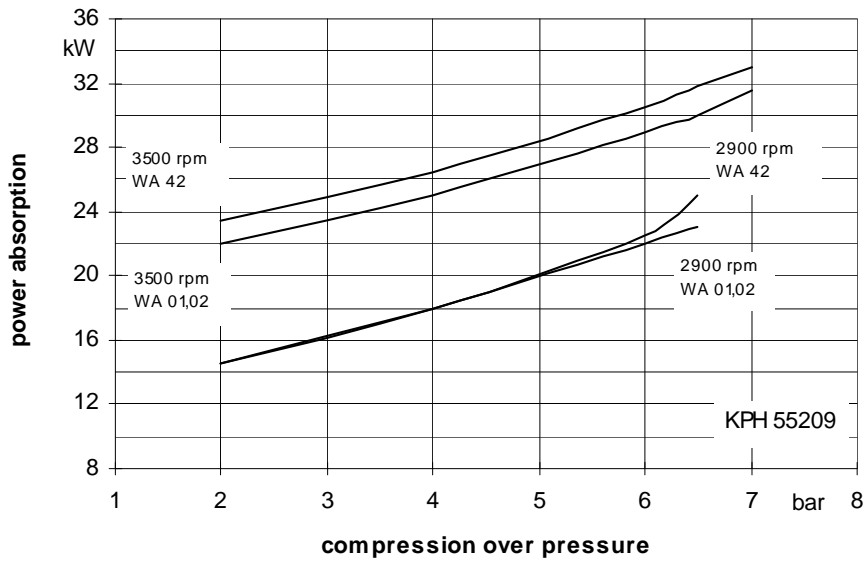
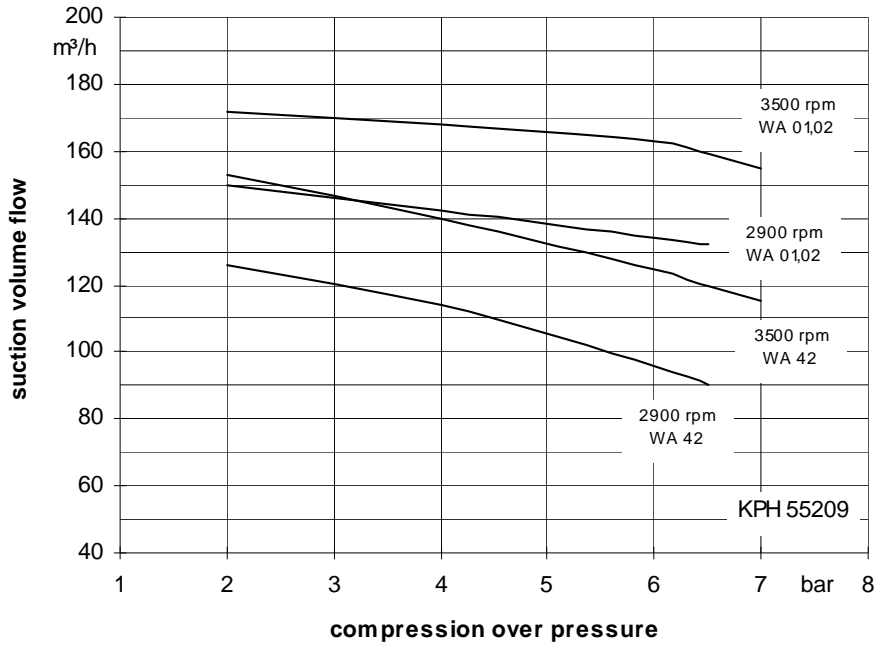


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure 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 pressure and power absorption KPH 55209

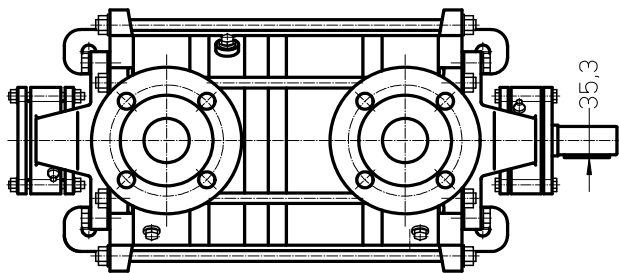
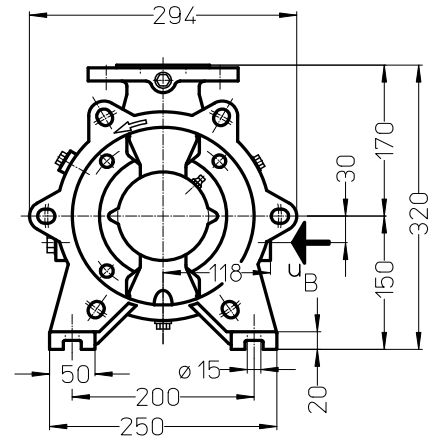
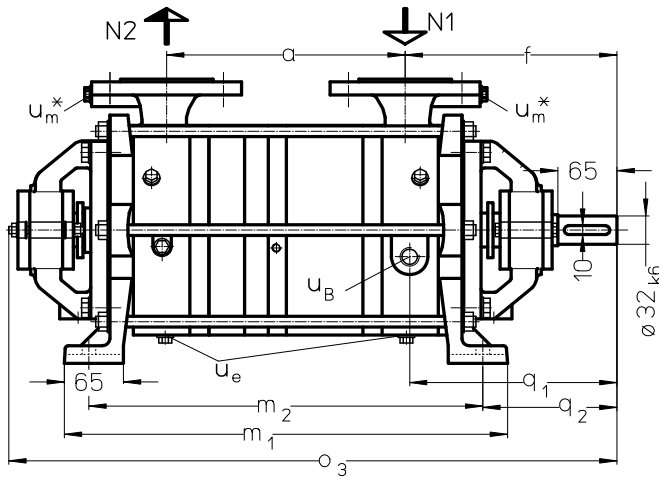


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**Dimension table KPH 55206, KPH 55209**

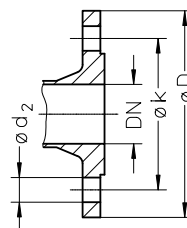


\* = not existing at material design 42

- N 1 = gas-inlet DN 50
- N 2 = gas-outlet DN 50
- u<sub>B</sub> = connection for service liquid G ½
- u<sub>e</sub> = drain connection G ¼
- u<sub>m</sub> = connection for pressure gauge G ¼

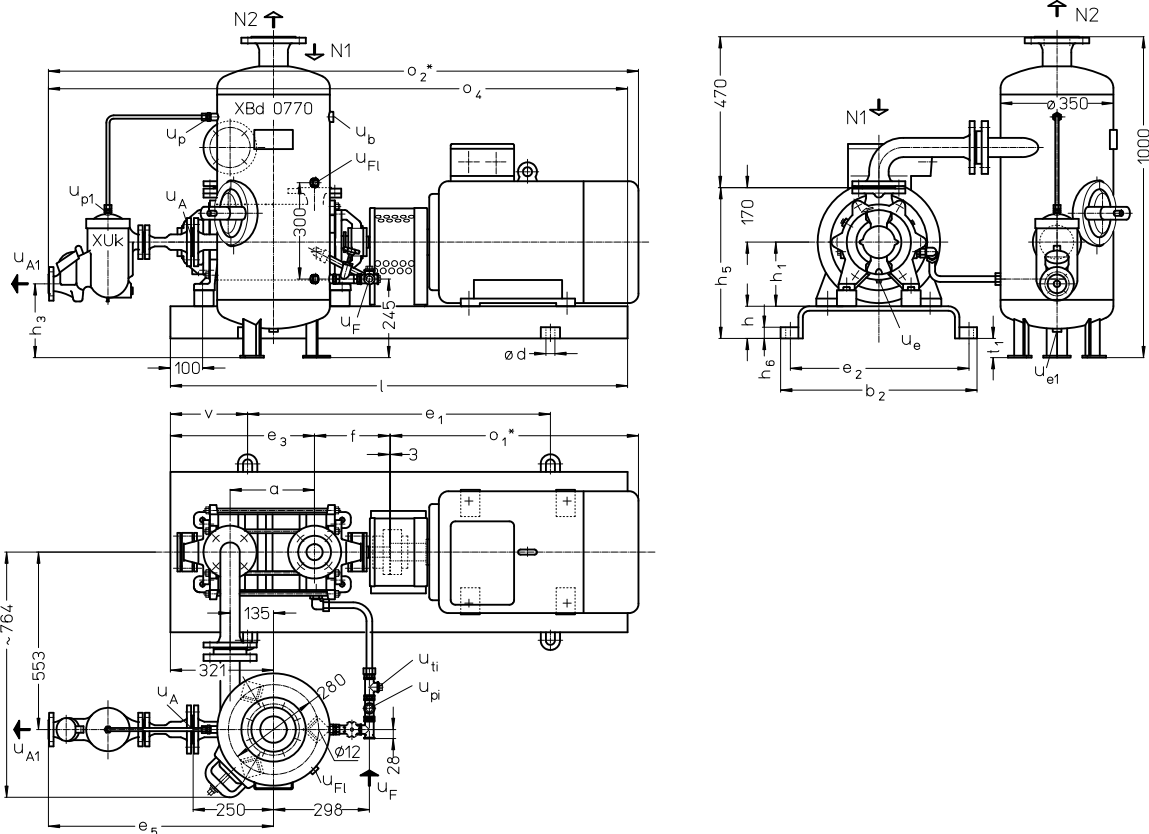
	a	f	m <sub>1</sub>	m <sub>2</sub>	o <sub>3</sub>	q <sub>1</sub>	q <sub>2</sub>	weight abt. kg	
KPH 55206	041	217	281	442	388	720	276	196	87
	132		233			624	228	148	84
KPH 55209	041	262	281	487	433	765	276	196	95
	132		233			669	228	148	92

flange connections to DIN 2501 PN 16	
DN	50
k	125
D	165
number x d <sub>2</sub>	4x18



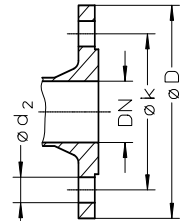
# Arrangement drawing KPH 55206, KPH 55209 with pressure liquid separator

Representation and dimensions of the XUK's only in case of combined service



- N 1 = gas-inlet DN 50
- N 2 = gas-outlet DN 80
- U<sub>F</sub> = connection for fresh liquid G ½
- U<sub>A</sub> = connection for liquid drain DN 40
- U<sub>A1</sub> = connection for liquid drain (XUK 1608) DN 15
- U<sub>A1</sub> = connection for liquid drain (XUK 2108) DN 20
- U<sub>b</sub> = connection for safety valve G ¾
- U<sub>e</sub> = drain connection G ¼
- U<sub>e1</sub> = drain connection G ½
- U<sub>Fl</sub> = connection for liquid level indicator G ½
- U<sub>p</sub> = connection for hanging gas line G ¾
- U<sub>p1</sub> = connection for hanging gas line G ¼
- U<sub>pi</sub> = connection for pressure gauge G ½
- U<sub>ti</sub> = connection for thermometer G ½

flange connections to DIN 2501 PN 25					
DN	15	20	40	50	80
k	65	75	110	125	160
D	95	105	150	165	200
number x d <sub>2</sub>	4x14	4x14	4x18	4x18	8x18



	electric motor		base plate	a	b <sub>2</sub>	d	e <sub>1</sub>	e <sub>2</sub>	e <sub>3</sub>	e <sub>5</sub>	f	h	h <sub>1</sub>	h <sub>3</sub>	h <sub>5</sub>	h <sub>6</sub>	l	o <sub>1</sub> *	o <sub>2</sub> *	o <sub>4</sub>	t <sub>1</sub>	v	
	size-	50Hz																					
KPH 55206	041	160L	18,5	S436	217	540	24	840	394	403	686	281	80	160	260	410	30	1270	588	1640	1635	120	215
	132																						
KPH 55209	041	200L	30	S487	262	610	940	432	448	699	281	100	200	230	470	35	1420	770	1880	1798	60	240	
	132																						
KPH 55209	041	225	-	S536	660	1060	550	1060	550	448	699	281	225	495	1620	813	1923	1998	1875	1998	35	280	
	132																						

\* Dimensions and position of the connection box depend on the motor make

	electric motor	base plate	pressure liquid separator	liquid discharge trap	compressor + coupling + motor + base frame	as above + XBd + bend + XUK + reduction
KPH 55206	160L	S 436	XBd 0770	XUK 1608	ca. kg	abt. kg
	200L EEx e II T3	S 487			270	350
KPH 55209	200L			XUK 2108	380	460
	225M EEx e II T3	S 536			540	620

**Fresh water requirements** in [m<sup>3</sup>/h] dependent on compression pressure, speed, mode of operation and temperature difference

compressor	speed [rpm]	*	FB not depending on the pressure [m <sup>3</sup> /h]	KB= combined liquid service with service liquid 30°C, 20°C, 10°C, 5°C warmer than the make-up water															
				compression pressure															
				2 bar				4 bar				6 bar				6,5(50Hz) / 7(60Hz) bar			
				difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]				difference in temperature [°C]			
30	20	10	5	30	20	10	5	30	20	10	5	30	20	10	5				
KPH 55206	2900	1,1	1,1	0,24	0,32	0,50	0,68	0,27	0,36	0,54	0,73	0,32	0,41	0,60	0,78	0,34	0,45	0,64	0,81
	3500	1,8	1,3	0,33	0,44	0,66	0,87	0,38	0,49	0,72	0,92	0,42	0,54	0,76	0,96	0,44	0,57	0,79	0,98
KPH 55209	2900	1,8	1,5	0,33	0,44	0,68	0,94	0,38	0,51	0,76	1,01	0,45	0,59	0,84	1,08	0,48	0,63	0,88	1,11
	3500	2,6	1,8	0,49	0,65	0,95	1,25	0,53	0,70	1,01	1,29	0,59	0,76	1,07	1,34	0,62	0,79	1,10	1,37

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

In the following listed are our standard compressors, special design on request.

	bearings	shaft sealing	material design	case sealing
	B· two antifriction bearings	041 double gland packing	01 main parts cast iron	0 liquid seal
	·N one shaft seal clockwise rotating	132 balanced mechanical seal	42 main parts Cr Ni Mo- steel	4 sealing cord
KPH 55206	BN	041	01	0
KPH 55206	BN	041	42	4
KPH 55206	BN	132	01	0
KPH 55209	BN	041	01	0
KPH 55209	BN	041	42	4
KPH 55209	BN	132	01	0

## Accessories

recommended accessories			KPH 55206	KPH 55209
<b>pressure liquid separator</b>		type / weight	XBd 0770 / 60 kg	
material design	130/ steel galvanized 172 / 1.4571	SIH part No.	35 000 310 35 000 311	
Bend				
material design	072 / 1.0254 172 / 1.4571	SIH part No.	35 003 209 35 003 210	
Service liquid line				
material design	072 / 1.0254 172 / 1.4571	SIH part No.	35 015 682 35 015 683	35 015 685 35 015 686
<b>Liquid discharge trap for combined service</b>		type / weight	XUk 1608 / 11 kg	XUk 2108 / 12 kg
material design	762 / GG20+1.4541 172 /		43 014 794 on request	43 014 798 on request
Reduction				
material design	072 / 1.0254 172 / 1.4571	SIH part No.	35 015 680 35 015 676	35 015 681 35 002 763
Hanging gas line				
material design	072 / 1.0254 172 / 1.4571	SIH part No.	20 049 499 20 049 500	
<b>Liquid discharge trap for fresh liquid service</b>		type / weight	XUk 2108 / 12 kg	XUk 2608 / 15 kg
material design	762 / GG20+1.4541 172 /		43 014 798 on request	43 014 803 on request
Reduction				
Material design	072 / 1.0254 172 / 1.4571	SIH part No.	35 015 681 35 002 763	on request on request
Hanging gas line				
Material design	072 / 1.0254 172 / 1.4571	SIH part No.	20 049 499 20 049 500	on request on request
<b>Motor dependent on operating point e.g.:</b>				
IP 55		size power weight	160 L 18,5 kW 102 kg	200 L 30 kW 165 kg
EEx e II T3		size power weight	200 L 20 kW 252 kg	225 M 28 kW 305 kg
<b>Coupling</b>				
for motor IP 55		type / weight	B 95 / 3 kg	B 125 / 6 kg
pump side		SIH part No.	43 021 427	43 021 454
motor side			43 021 436	43 021 463
for motor EEx e II T3		type / weight	BDS 135 / 7 kg	
pump side		SIH part No.	43 033 472	
motor side			43 028 118	
<b>Contact safety device</b>				
for motor size 160 L	076 / 1.0330.5	SIH part No.	43 042 250	
for motor size 200 L	076 / 1.0330.5 345 / 2.0321	SIH part No.		43 042 296
for Motor size 225M	345 / 2.0321	SIH part No..	43 042 297	43 042 305
<b>Base plate</b>				
for motor size 160L	081 / 1.0038	type / weight	S 436 / 75 kg	
		SIH part No.	43 040 641	
for motor size 200 L	081 / 1.0038	type / weight	S 487 / 105 kg	
		SIH part No..	43 040 642	
for motor size 225M	081 / 1.0038	type / weight	S 538 / 128 kg	
		SIH part No.	43 040 643	
<b>Base support</b>				
for motor size 160	003 / 0.6025	SIH part No.	4x 43 041 065	
for motor size 200	003 / 0.6025	SIH part No.	4x 43 041 070 + 4x 43 041 071	
for motor size 225	003 / 0.6025	SIH part No.	4x 43 041 072 + 4x 43 041 076	

Any changes in the technical development are reserved.

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