

# Liquid ring compressors

**KPH 90554, KPH 90567**  
**KPH 10054, KPH 11055**

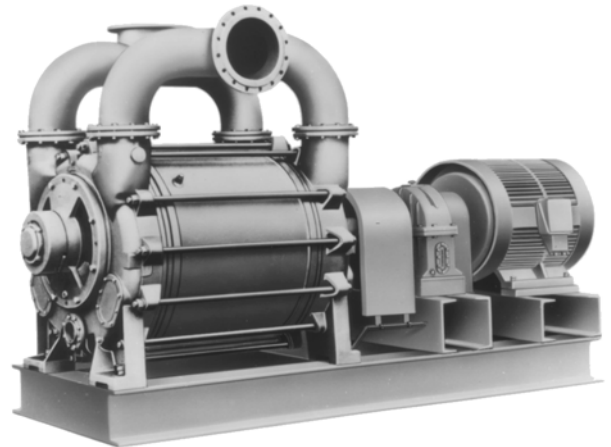
**Compression pressures: 0,2 to 1,5 bar**  
**Suction volume flow: 2300 to 10500 m<sup>3</sup>/h**

## 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 gas 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 90554, KPH 90567, KPH 10054 and KPH 11055 are single-stage compressors. They can be applied without modifications as vacuum pumps up to a suction pressure of 120 mbar (see catalogue part LI 7, LI 8 and LI 9).



## 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 up to 1,5 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 the 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 compressors are equipped with a device by which the contaminated service liquid can be drained during operation, if necessary.

The direction of rotation is clockwise when looking from the drive on the pump.

## GENERAL TECHNICAL DATA

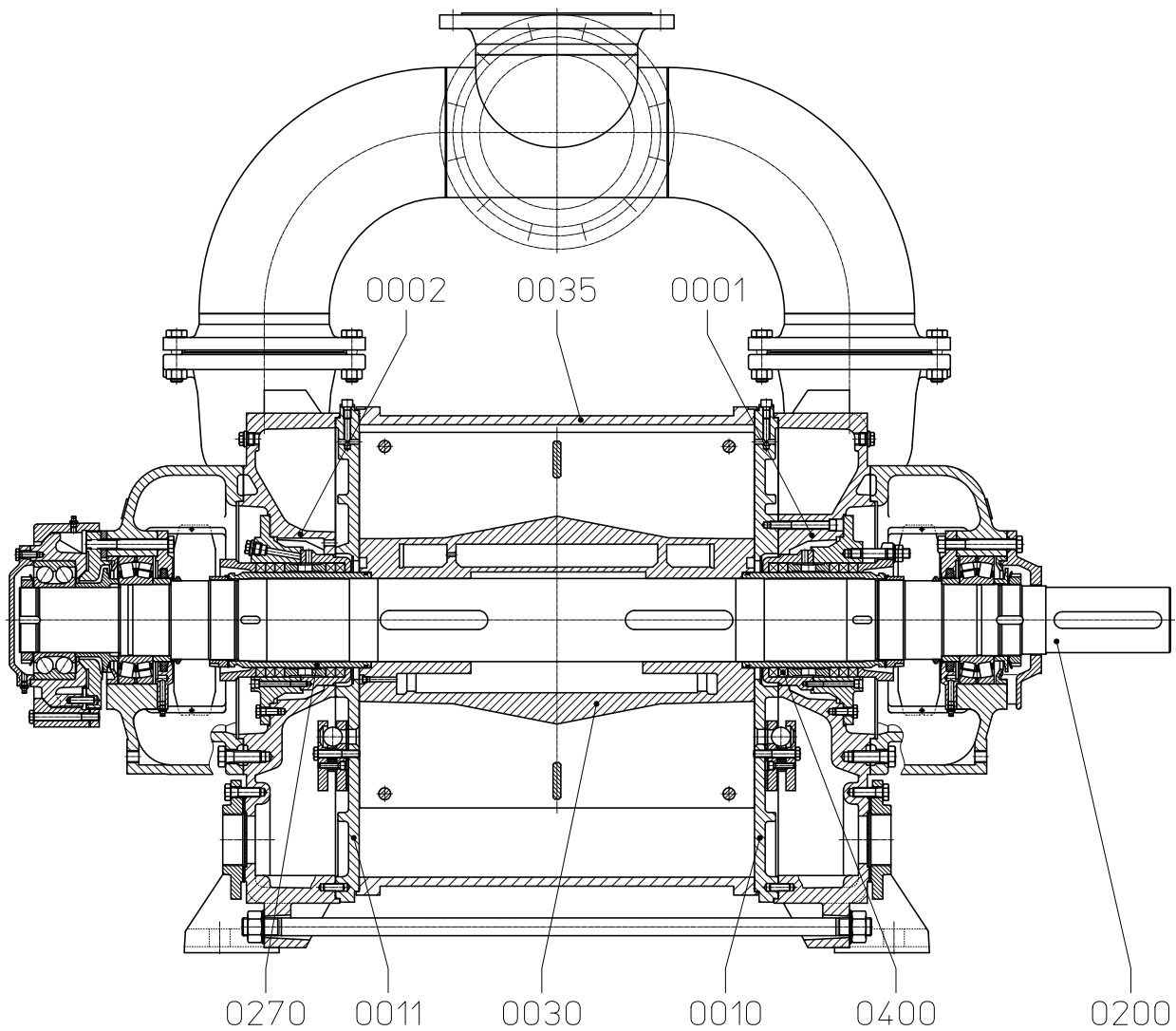
Pump type	unit	KPH 90554	KPH 90567	KPH 10054	KPH 11055
Speed	1/min	605 690 740	605 690 740	475 535 590	410 450 485
Max. compression over pressure	bar		1,5	1,5	1,5
Hydraulic test (over pressure)	bar		3	3	3
Moment of inertial of the rotating pump parts and of the water filling	kg · m <sup>2</sup>	23,5	28	57,5	175
Sound pressure level of measuring area	dB (A)	92 94 94	92 94 94	91 92 94	91 91 92
Min. pulley diameter permissible in case of V-belt drive	mm	on request	on request	on request	on request
Max. gas temperature	°C		80	80	80
Service liquid					
max. admissible temperature	°C		60	60	60
max. viscosity	mm <sup>2</sup> /s		90	90	90
max. density	kg/m <sup>3</sup>		1200	1200	1200
volume up to shaft level	liter	160	185	230	410

The combination of several limiting values is not admissible.

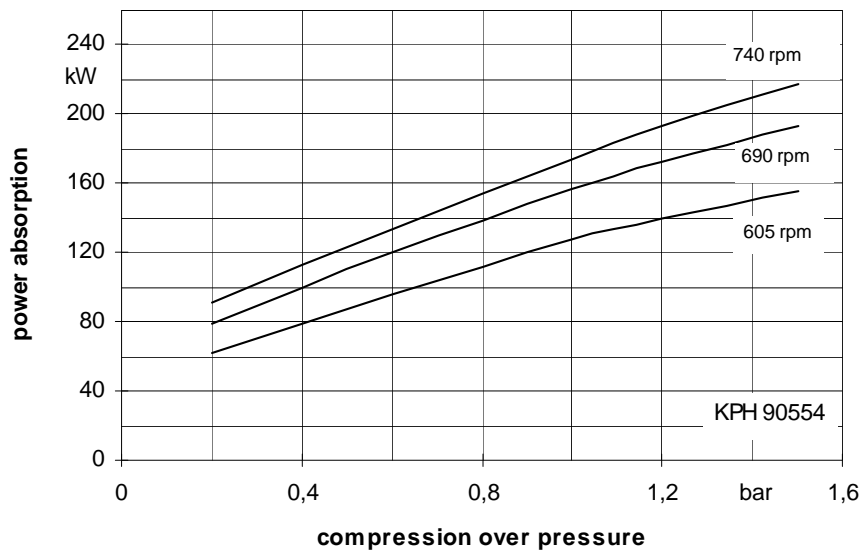
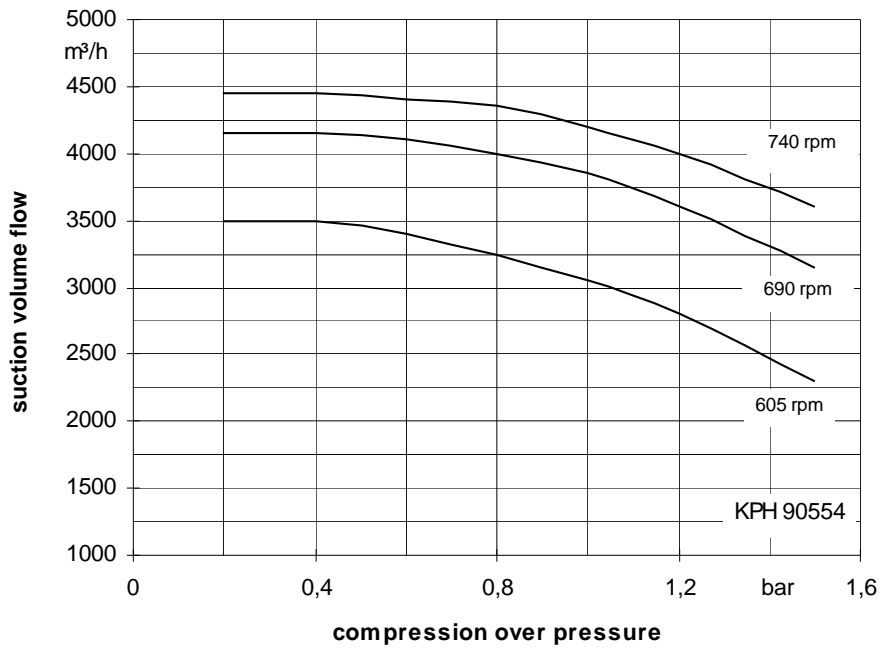
## Material design

Item	COMPONENTS	MATERIAL DESIGN	
		02	42
0001, 0002	Casing	0.6025	1.4408
0010, 0011	Guide disk	0.6025	1.4408
0030	Vane wheel impeller	1.0570	1.4571
0035	Central body	1.0038	1.4571
0200	Shaft	1.0503	
0270	Shaft sleeve	1.4027.05	1.4581
0400	Gland packing	GORE	

## Sectional drawing KPH 90554, KPH 90567, KPH 10054, KPH 11055



## Suction volume flow and power absorption KPH 90554

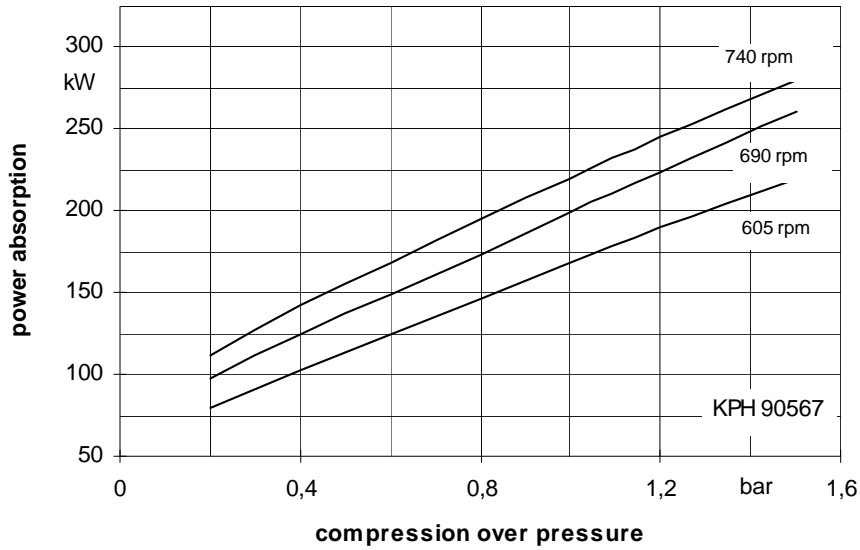
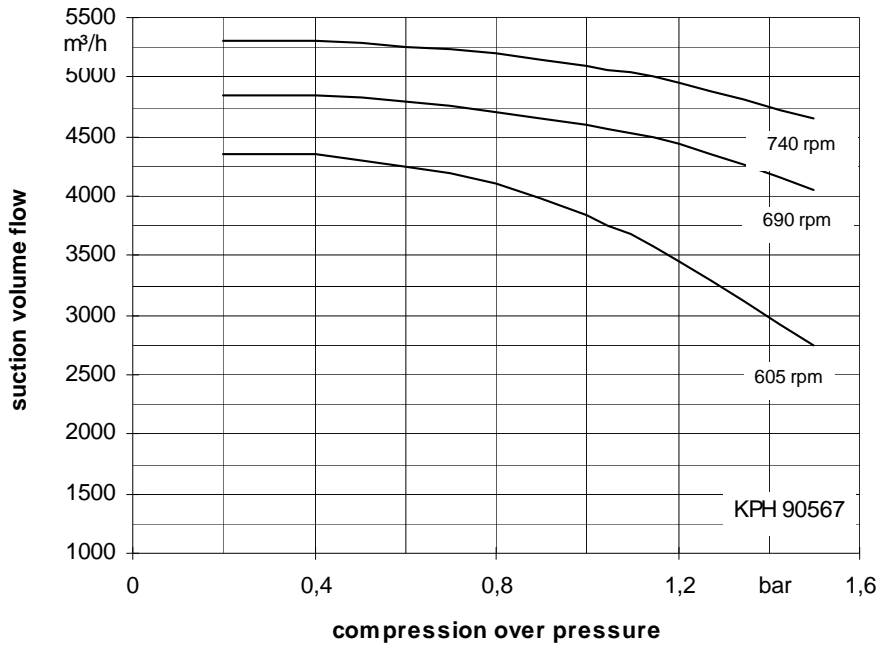


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure 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 90567**

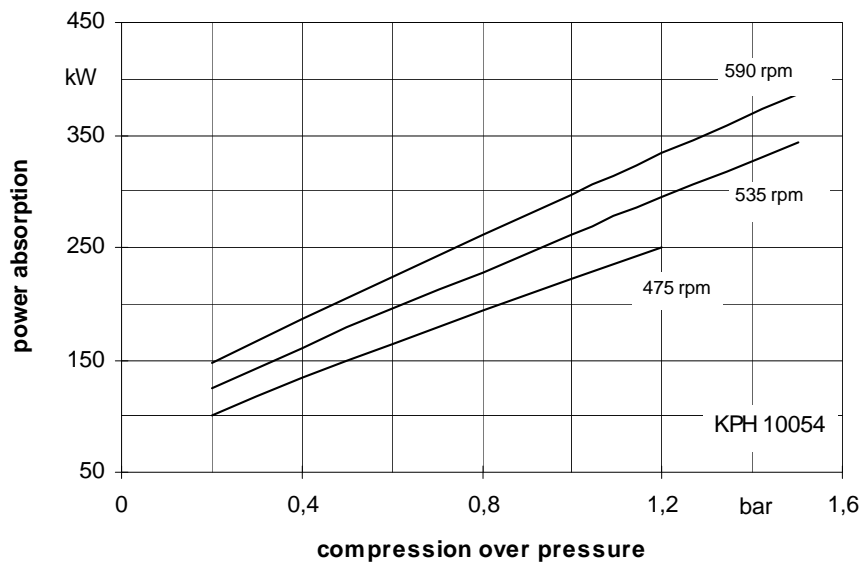
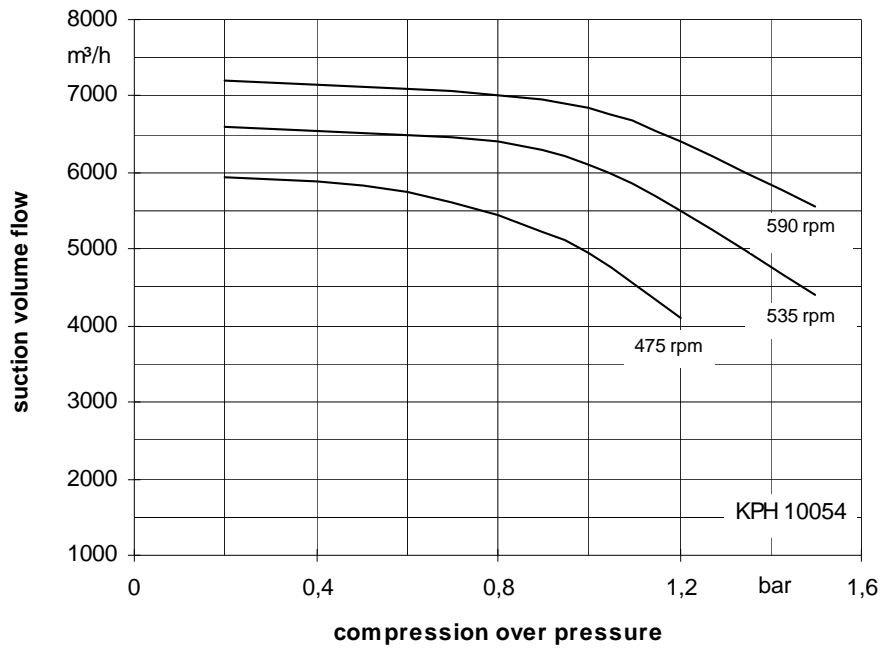


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure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

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## Suction volume flow and power absorption KPH 10054

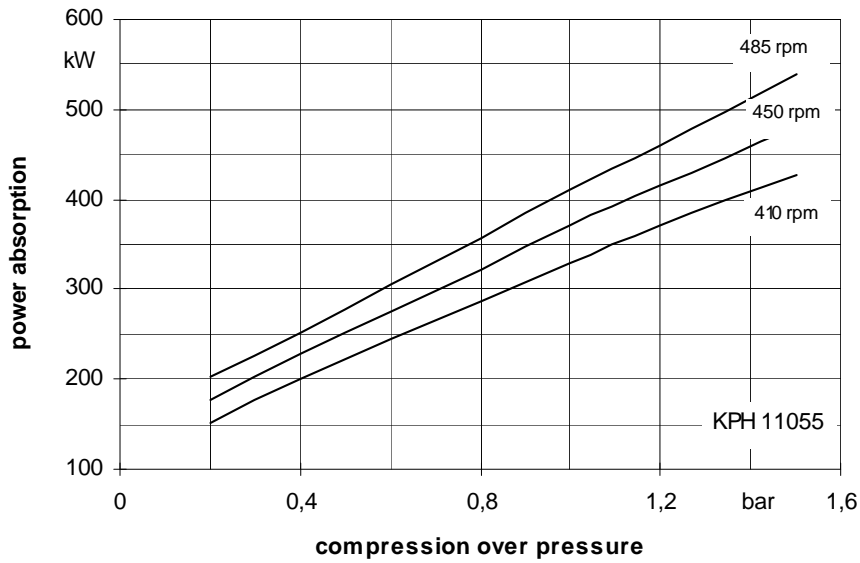
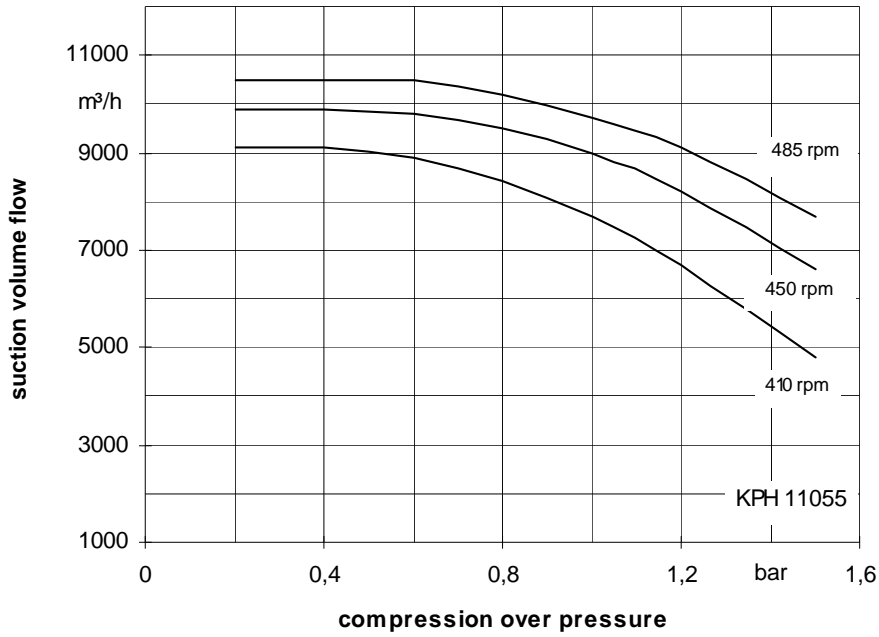


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure 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 11055

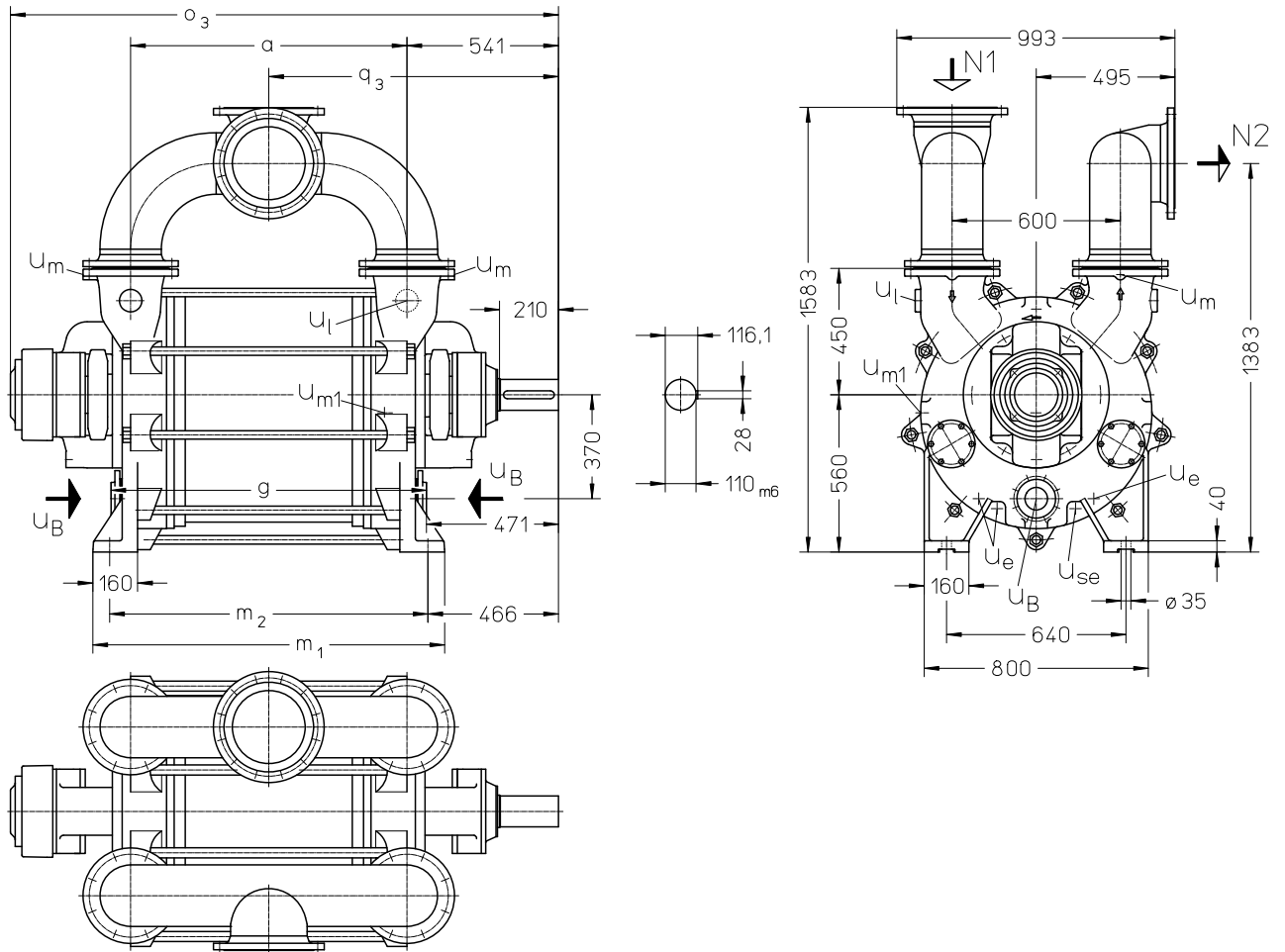


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure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

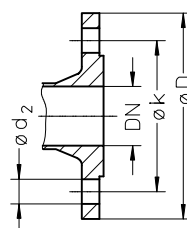
**Dimension table KPH 90554, KPH 90567**



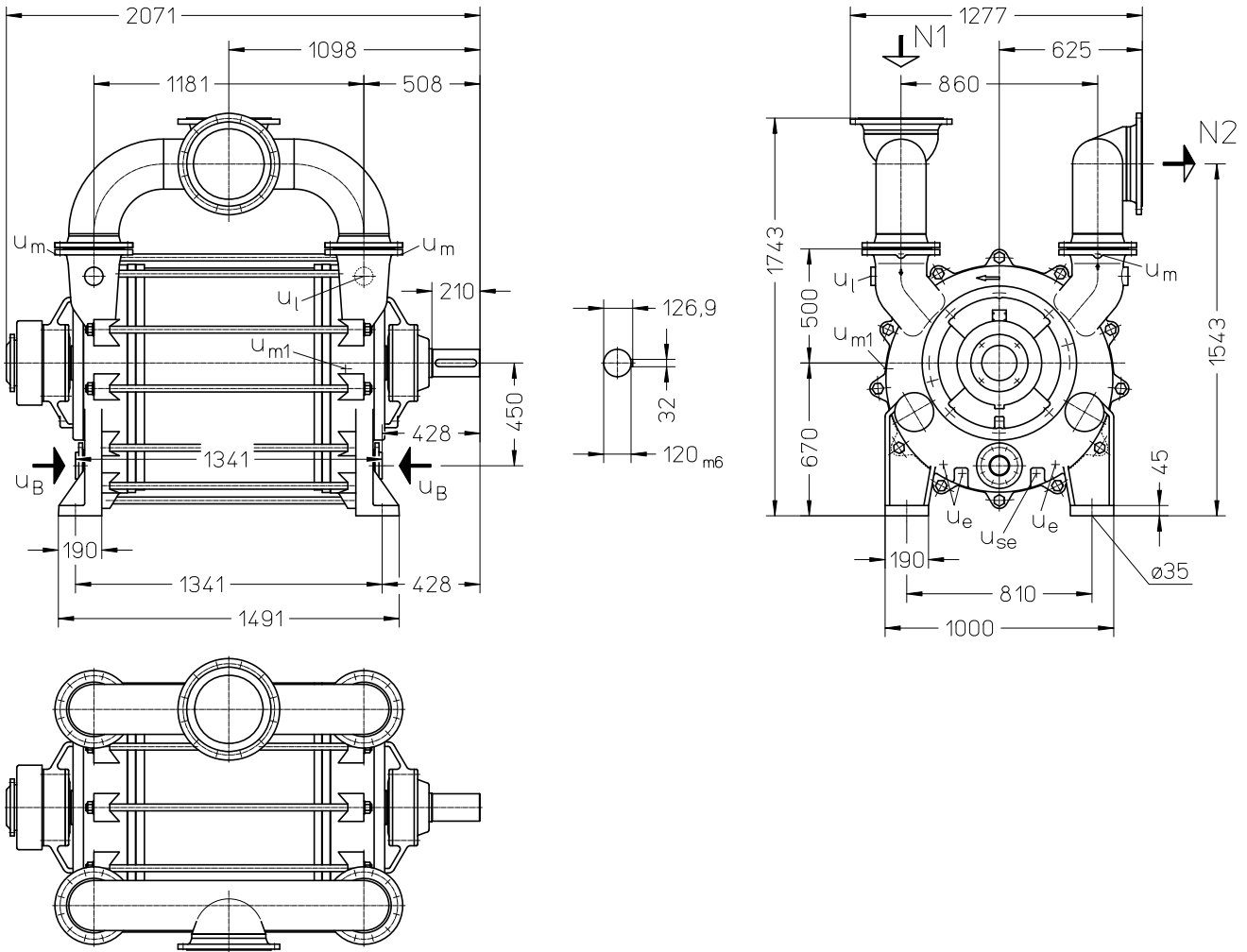
- N 1 = gas-inlet DN 250
- N 2 = gas-outlet DN 250
- UB = connection for service liquid G 3
- Ue = drainage (screwed plug) G ¾
- Ul = connection for vent cock G 1 ½
- Um = connection for pressure gauge G ½
- Um1 = connection for drain valve G ¾
- Use = connection for dirt drain ¾

	a	g	m <sub>1</sub>	m <sub>2</sub>	o <sub>3</sub>	q <sub>3</sub>	weight abt. kg
KPH 90554	861	1001	1130	1011	1830	971	2160
KPH 90567	986	1126	1255	1136	1955	1034	2430

flange connections to DIN 2501 PN 10	
DN	250
k	350
D	395
number x d <sub>2</sub>	12 x 22



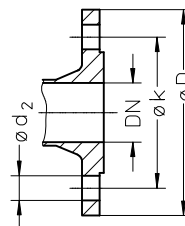
**Dimension table KPH 10054**



- N 1 = gas-inlet DN 300
- N 2 = gas-outlet DN 300
- u<sub>B</sub> = connection for service liquid G 3
- u<sub>e</sub> = drainage (screwed plug) G 3/4
- u<sub>i</sub> = connection for vent cock G 1 1/2
- u<sub>m</sub> = connection for pressure gauge G 1/2
- u<sub>m1</sub> = connection for drain valve G 3/8
- u<sub>se</sub> = connection for dirt drain G 3/4

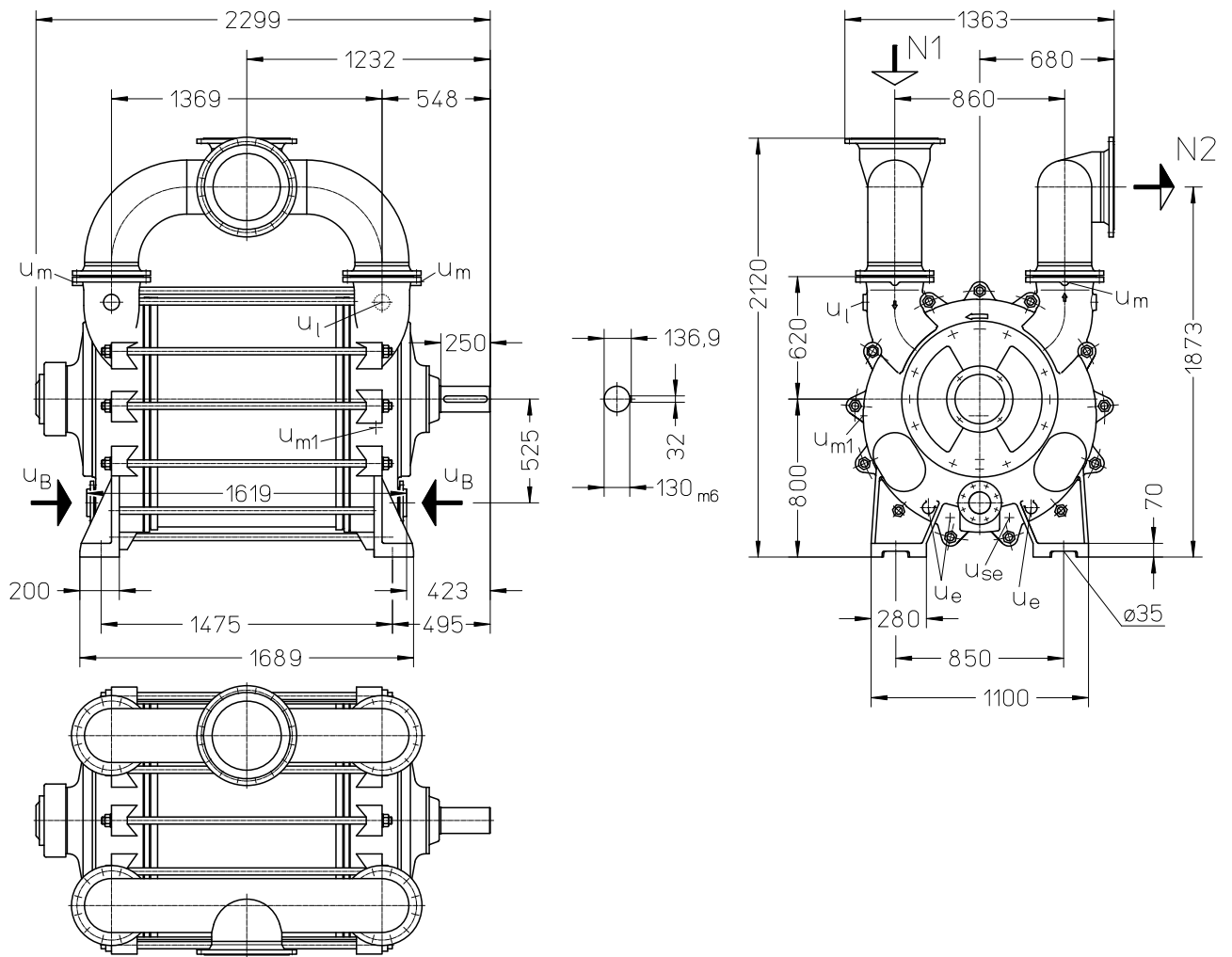
weight: abt. 3220 kg

flange connections to DIN 2501 PN 10	
DN	300
k	400
D	445
number x d <sub>2</sub>	12 x 22





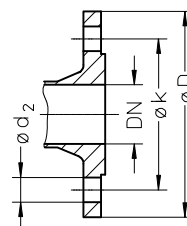
## Dimension table KPH 11055



- N 1 = gas-inlet DN 350
- N 2 = gas-outlet DN 350
- $U_B$  = connection for service liquid G 4
- $U_e$  = drainage (screwed plug) G 1
- $U_l$  = connection for vent cock G 1 ½
- $U_m$  = connection for pressure gauge G ½
- $U_{m1}$  = connection for drain valve G 1
- $U_{se}$  = connection for dirt drain G 1

weight: abt. 5000 kg

flange connections to DIN 2501 PN 10	
DN	350
k	460
D	505
number x d <sub>2</sub>	16 x 22



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

type	speed rpm	compression pressure in bar																			
		0,4				FB	0,8				FB	1,2				FB	1,5				FB
		KB					KB					KB					KB				
		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 90554	605	1,88	2,59	4,20	6,08	11	2,70	3,75	6,14	9,03	17	3,38	4,70	7,71	11,4	22	3,76	5,24	8,63	12,8	25
	690	2,27	3,09	4,82	6,71		3,23	4,42	7,01	9,93		4,03	5,52	8,79	12,5		4,51	6,19	9,89	14,1	
	740	2,50	3,37	5,16	7,02		3,50	4,76	7,44	10,4		4,40	5,98	9,36	13,0		4,92	6,71	10,5	14,7	
KPH 90567	605	2,37	3,23	5,09	7,15	12	3,39	4,65	7,39	10,5	18	4,40	6,02	9,55	13,5	23	5,07	6,93	11,0	15,4	26
	690	2,74	3,69	5,64	7,68		3,90	5,28	8,17	11,2		5,02	6,78	10,5	14,4		5,81	7,83	12,0	16,5	
	740	2,97	3,97	5,96	7,97		4,21	5,66	8,61	11,7		5,38	7,22	11,0	14,9		6,21	8,32	12,6	17,0	
KPH 10054	475	3,15	4,33	6,94	9,94	18	4,56	6,29	10,1	14,6	26	5,90	8,20	13,2	19,0	34	-	-	-	-	38
	535	3,63	4,94	7,70	10,7		5,22	7,11	11,2	15,6		6,75	9,21	14,5	20,3		7,81	10,6	16,6	23,1	
	590	4,08	5,49	8,35	11,3		5,82	7,85	12,1	16,5		7,47	10,1	15,6	21,4		8,58	11,6	17,7	24,2	
KPH 11055	410	4,50	6,07	9,32	12,7	20	6,55	8,89	13,8	19,1	31	8,40	11,4	17,6	24,3	39	9,67	13,1	20,2	27,6	44
	450	5,13	6,82	10,2	13,5		7,38	9,89	15,0	20,2		9,44	12,6	19,1	25,6		10,9	14,5	21,9	29,2	
	485	5,55	7,31	10,7	13,9		7,98	10,6	15,8	20,9		10,2	13,6	20,1	26,6		11,8	15,6	23,0	30,2	

FB = make-up liquid service

KB = combined liquid service, service liquid 30 °C, 20 °C, 10 °C, 5 °C warmer than the make-up water

### Data regarding the pump size - order hints

series + size	hydraulic + bearings	shaft sealing	material design	case sealing	
	<ul style="list-style-type: none"> <li>• B two antifriction bearings</li> <li>• N one shaft end clockwise rotating</li> </ul>	041 double gland packing	02 main parts cast iron, without non-ferrous metal  42 main parts high-grade steel	0 liquid seal	
LPH	90554 90567 10054 11055	BN	041	02, 42	0
	BN	041	02	0	0

### Accessories

recommended accessories		KPH 90554	KPH 90567	KPH 10054	KPH 11055
<b>Pressure liquid separator</b>	type	XBd 10212		XBd 15212	XBd 20212
material design	weight	374 kg		483 kg	575 kg
Service liquid line	SIHI part No.	35 018 225		35 000 346	35 000 348
material design		35 008 177		35 000 347	35 000 349
	SIHI part No.	35 007 332	35 003 227	35 018 189	35 018 223
<b>Liquid discharge trap</b>	type	XUk 8102		XUk 8102	XUk 10102
material design	weight	90 kg		90 kg	125 kg
Reduction	SIHI part No.	43 014 819		43 014 819	43 014 821
material design		-		35 013 017	-
Hanging gas line	SIHI part No.	on request		on request	on request
material design		on request		on request	on request

Any changes in the technical development are reserved.

### Sterling SIHI GmbH

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