

Liquid ring compressors



KPH 85220, KPH 85227

Compression pressures: 2 to 7 bar
Suction volume flow: 940 to 1450 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 85000 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.

It is possible to reuse the service liquid.

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

APPLICATION

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

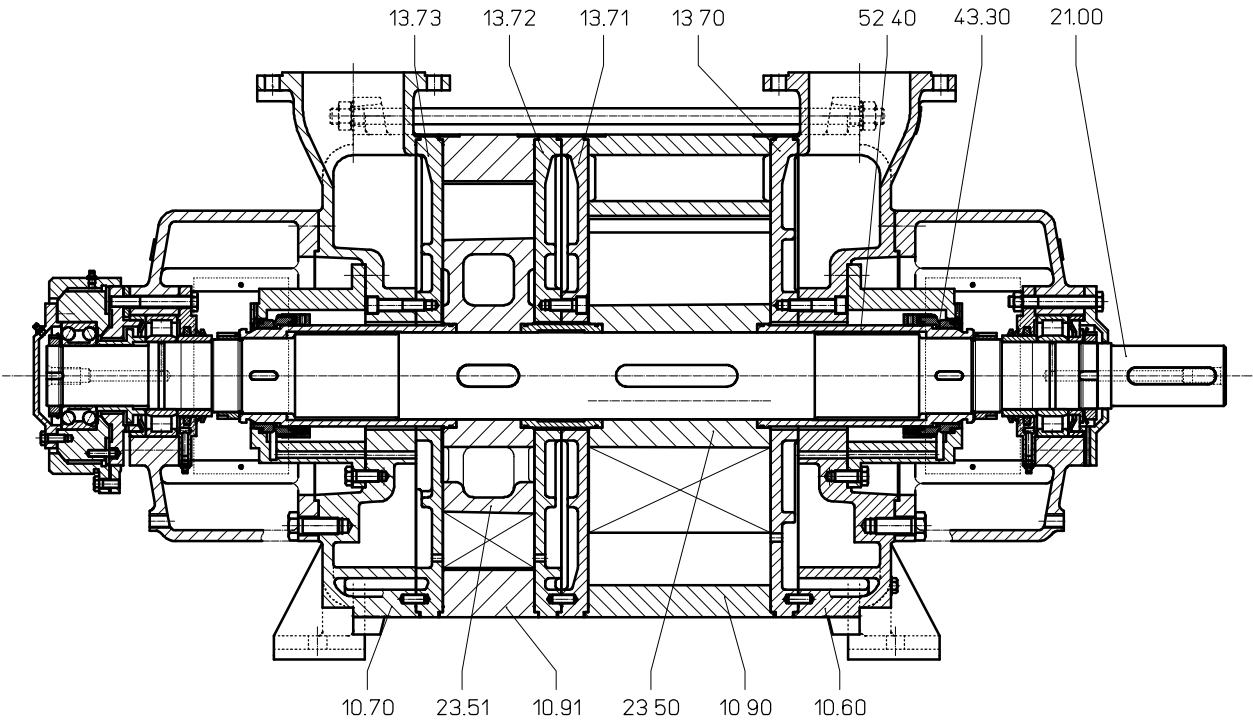
Pump type		unit	KPH 85220	KPH 85227
Speed	50 Hz	rpm	985	
	60 Hz		1180	
Max. compression over pressure		bar	7	
Hydraulic test (over pressure)		bar	10,5	
Moment of inertial of the rotating pump parts and of the water filling		kg · m²	6,25	8
Sound pressure level of measuring area		dB (A)	77...80	
Min. pulley diameter permissible in case of V-belt drive	50 Hz	mm	1000	1000
	60 Hz		1000	1200
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	64	73

The combination of several limiting values is not admissible.

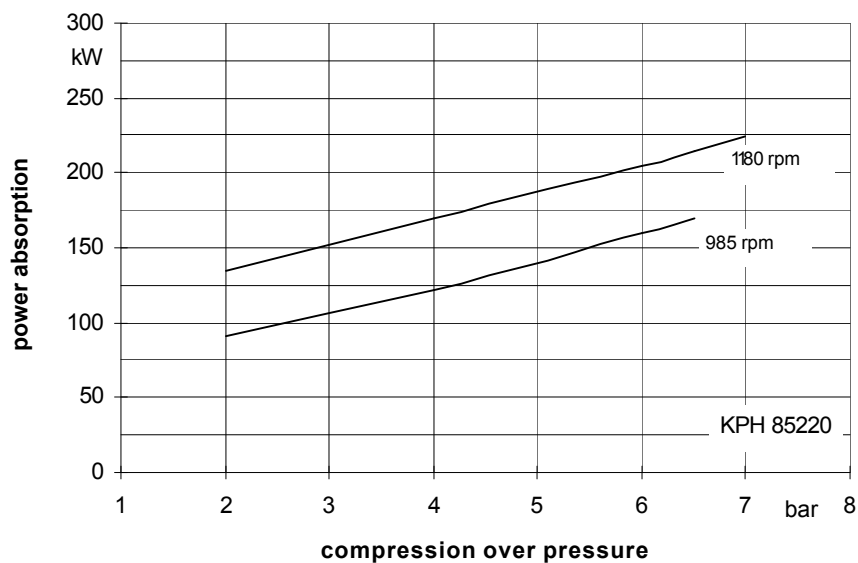
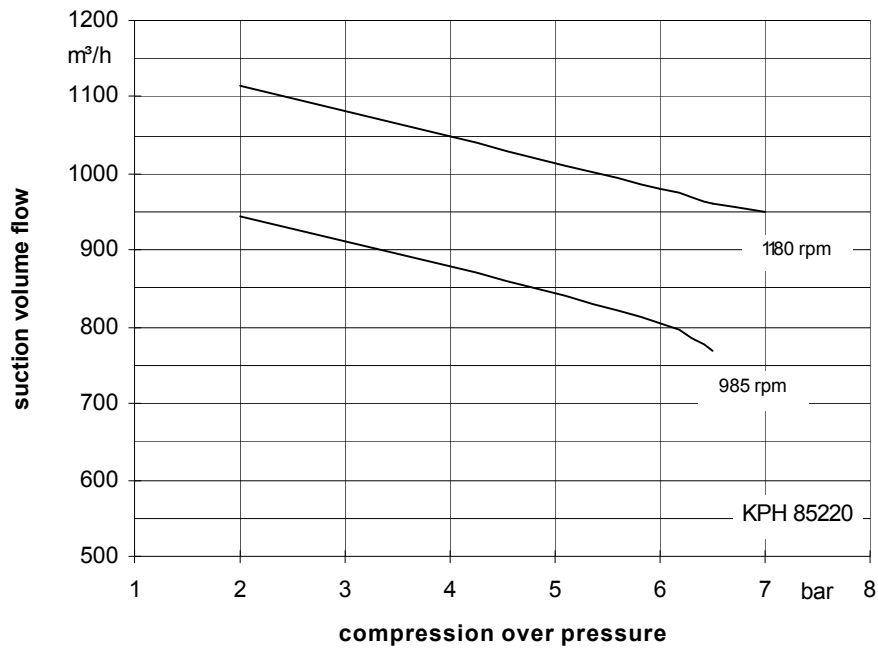
Material design

Item	COMPONENTS	MATERIAL DESIGN	
		1G	4B
10.60 / 10.70	Casing	0.7043	1.4408
13.70 / 1371 13.72 / 13.73	Guide disk	0.7043	1.4408
23.50 / 23.51	Vane wheel impeller	0.7043	1.4517
10.90 / 10.91	Central body	0.7043	1.4408
21.00	Shaft	1.0503	
52.40	Shaft sleeve	1.4301	1.4571
43.30	Mechanical seal	Cr-steel / carbon / Viton	Cr Ni Mo-steel / carbon / Viton

Sectional drawing KPH 85220, KPH 85227



Suction volume flow and power absorption KPH 85220

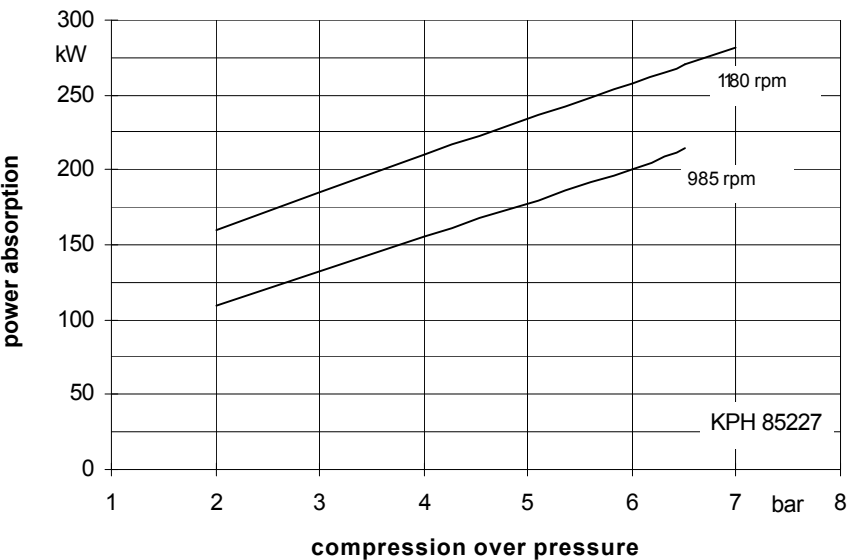
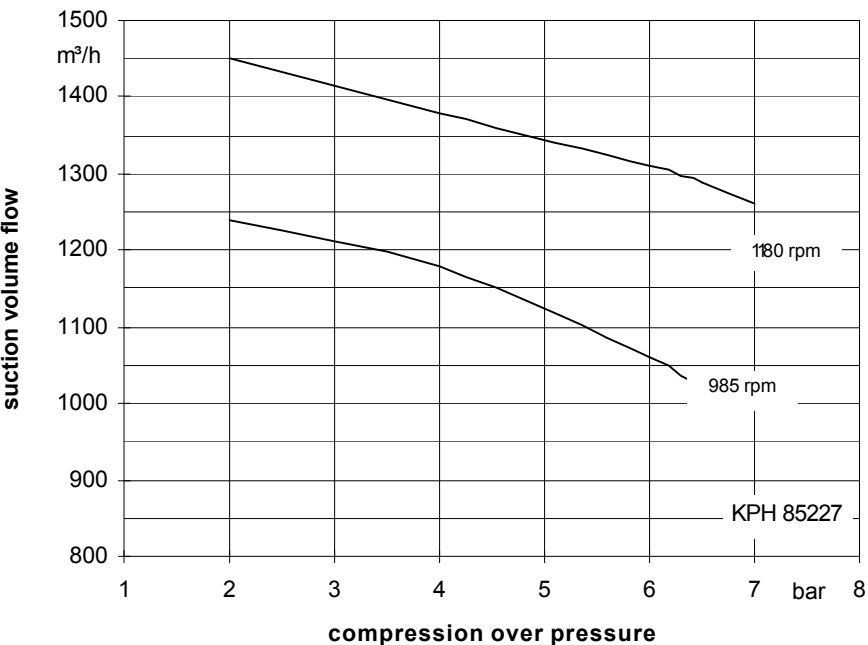


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure 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 85227

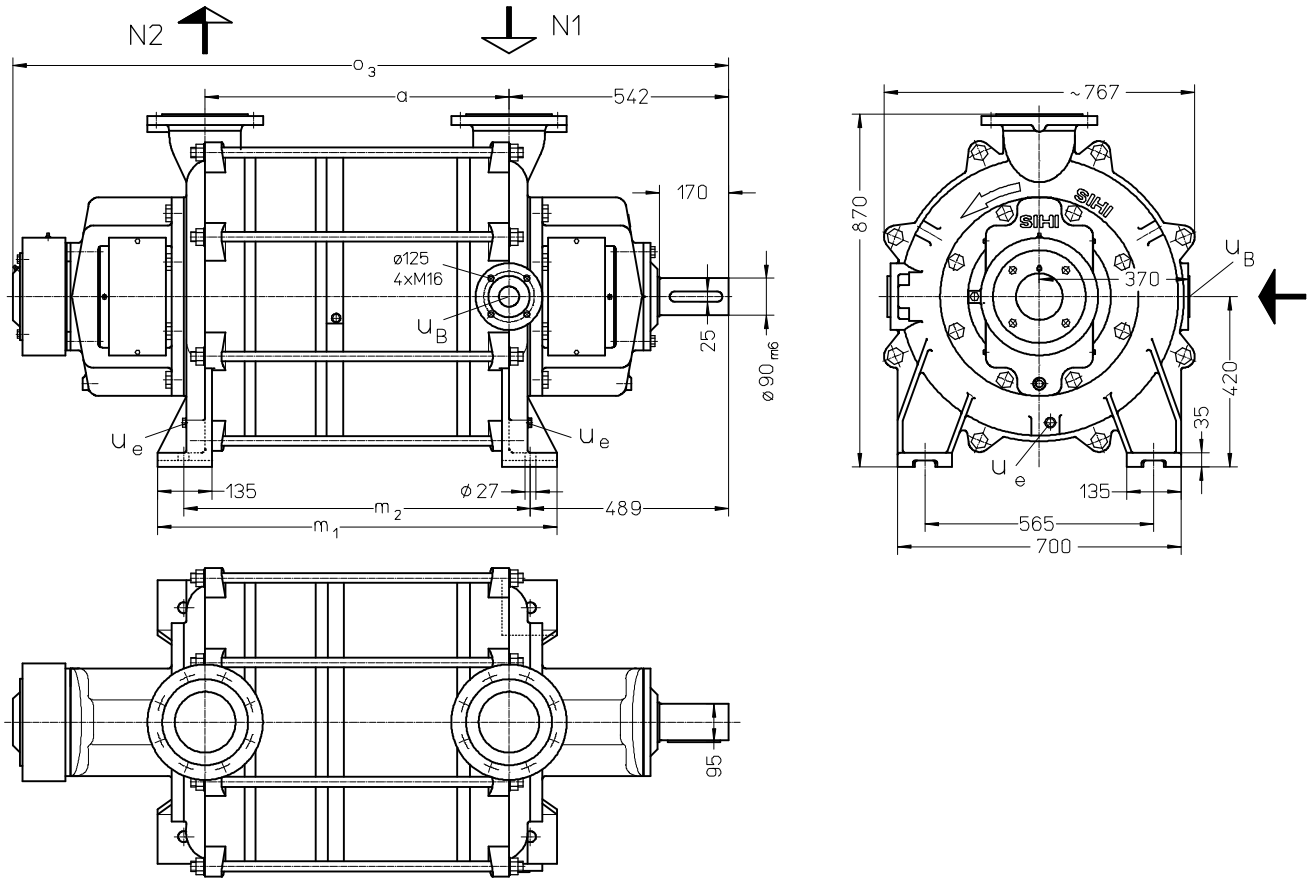


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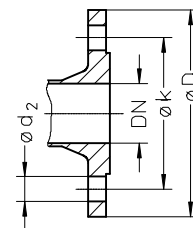
Dimension table KPH 85220, KPH 85227



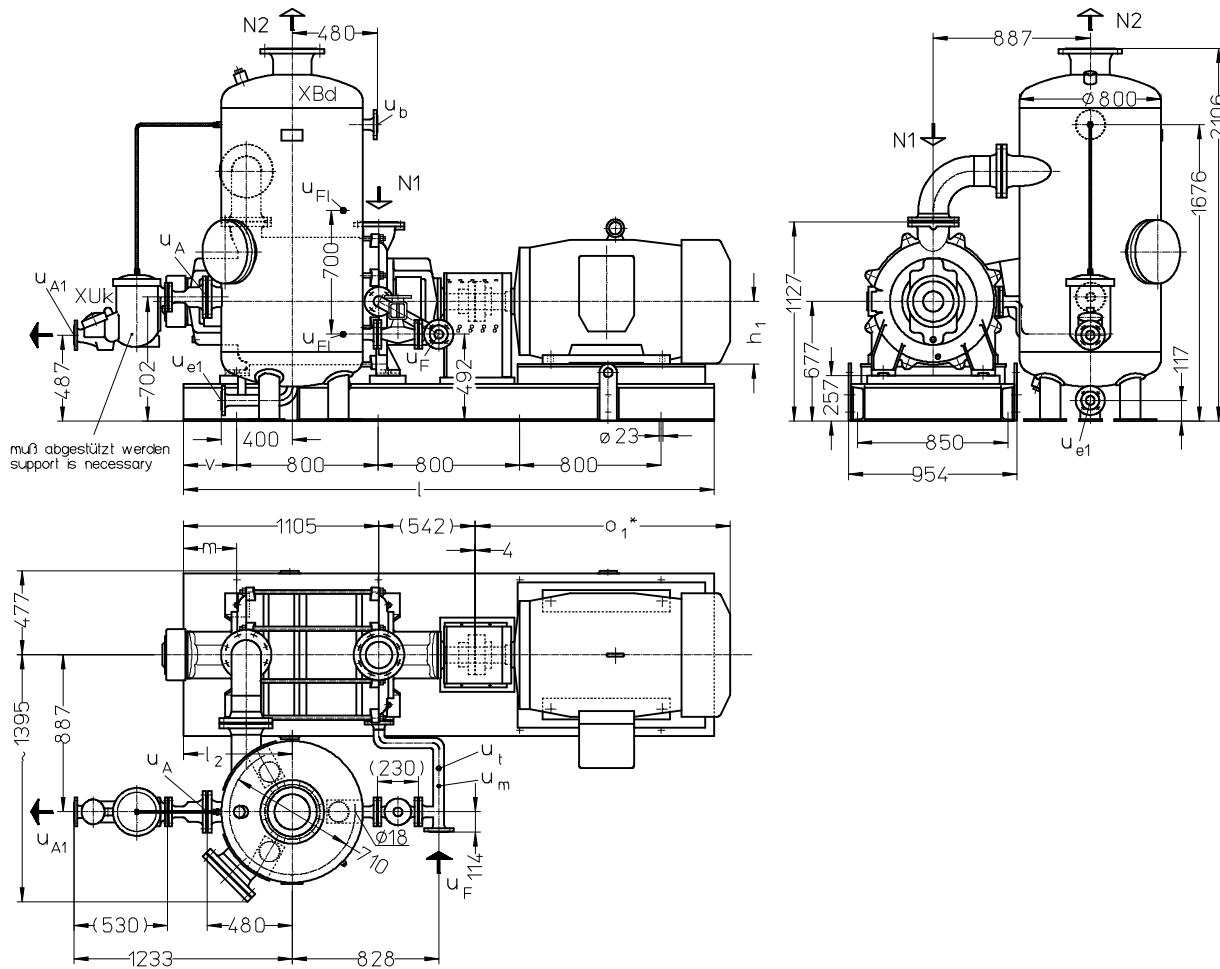
- N 1 = gas-inlet DN 150
N 2 = gas-outlet DN 150
u_B = connection for service liquid DN 50
u_e = drain connection (screwed plug) G ½

	a	m ₁	m ₂	o ₃	weight abt. kg
KPH 85220	645	881	751	1662	1400
KPH 85227	750	986	856	1767	1550

flange connections to DIN 2501 PN 10		
DN	50	150
k	125	240
D	165	285
number x d ₂	4x18	8x22



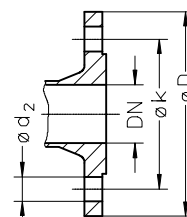
Arrangement drawing KPH 85220, KPH 85227 with pressure liquid separator



- N 1 = gas-inlet DN 150 PN 10
- N 2 = gas-outlet DN 200 PN 25
- u A = liquid drain DN 100 PN 25
- u A1 = liquid drain DN 50 PN 10
- u b = connection for safety valve DN 50 PN 25
- u e1 = drain connection DN 50 PN 25
- u F = connection for fresh liquid DN 50 PN 25
- u FI = connection for liquid level indicator G ½
- u m = connection for pressure gauge G ¼
- u t = connection for thermometer G ½

	electric motor	h ₁	l	l ₂	m	o ₁ *	v	pump + coupling + motor + base frame	as above + XBd + bend + Xuk + reduction
	size							ca. kg *	abt. kg *
KPH 85220	315	315	2800	720	407	1250 - 1400	200	3450	4500
	355	355	3000			1440 - 1740	300	3650	4700
KPH 85227	315	315	2800	615	302	1250 - 1400	200	3550	1600
	355	355	3000			1440 - 1740	300	3750	4800

flange connections to DIN 2501					
	PN 10		PN 25		
DN	50	150	50	100	200
k	125	240	125	190	310
D	165	285	165	235	360
number x d ₂	4x18	8x22	4x18	8x22	12x26



* Dimensions and

position of the connection

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

compressor	speed [rpm]	*	FB not depending on the pressure [m³/h]	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]			
				30	20	10	5	30	20	10	5	30	20	10	5	30	20	10	5
KPH· 85220	985	1,6	6,0	1,8	2,4	3,4	4,3	2,2	2,8	3,8	4,7	2,6	3,2	4,2	4,9	2,7	3,3	4,34	5,0
	1180	2,0	7,0	2,5	3,2	4,4	5,4	2,9	3,6	4,7	5,6	3,2	3,9	5,0	5,8	3,4	4,1	5,1	5,9
KPH· 85227	985	2,0	7,5	2,2	2,9	4,2	5,4	2,8	3,5	4,8	5,9	3,2	4,0	5,2	6,2	3,4	4,1	5,3	6,2
	1180	2,5	8,5	3,0	3,8	5,3	6,5	3,5	4,4	5,8	6,9	4,0	4,8	6,1	7,1	4,1	5,0	6,3	7,2

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.

	bearing	shaft sealing	material design	case sealing
	A· hydraulic A	BDC balanced mechanical seal carbon with Viton	1G main parts ductile iron	4 sealing cord
	·B two grease lubricated antifriction bearings	BDV balanced mechanical seal carbon with Teflon	4B main parts Cr Ni Mo- steel	
KPH 85220	AB	BDC	1G	4
KPH 85220	AB	BDV	4B	4
KPH 85227	AB	BDC	1G	4
KPH 85227	AB	BDV	4B	4

Accessories

recommended accessories			KPH 85220	KPH 85227
Pressure liquid separator		type / weight	XBd / 520 kg	
material design 062 / 1.0425		SIHI part No.	35 006 155	
Bend				
material design 072 / 1.0254		SIHI part No.	35 009 380	
Service liquid line				
material design 072 / 1.0254		SIHI part No.	35 009 825	35 009 384
Regulating valve DIN 3356/ DIN 3201-F1				
material design GG-25		SIHI part No.	on request	
Liquid discharge trap		type/ weight	XUk 5108 / 46 kg	
material design 762 / GG20+1.4541		SIHI part No.	43 014 815	
Reduction DN100-DN50				
material design 072 / 1.0254		SIHI part No.	35 011 221	
Hanging gas line				
material design 072 / 1.0254		SIHI part No.	35 011 264	
Motor				
IP 55		power size	dependent on operating point dependent on power and motor make	
EEx e II T3		power size	dependent on operating point dependent on power and motor make	
Coupling				
for motor IP 55		type / weight	A 250 / 37 kg	
pump side ϕ 90		SIHI part No.	on request	
motor side ϕ 80			43 036 230	
motor side ϕ 85			on request	
motor side ϕ 90			43 029 029	
for motor EEx e II T3		type / weight	ADS 272 / 45 kg	
pump side ϕ 90		SIHI part No.	43 042 762	
motor side ϕ 80			on request	
motor side ϕ 85			on request	
motor side ϕ 90			43 042 461	
Contact safety device				
076 / 1.0330		SIHI part No.	43 042 385	
345 / 2.0321			43 042 386	
Base frame				
for motor size 315	081 / 1.0038	weight	ca. 700 kg	
		SIHI part No.	on request	
for motor size 355	081 / 1.0038	weight	ca. 750 kg	
		SIHI part No.	on request	

Any changes in the technical development are reserved.

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