

Side channel pumps

SK and ASK series
with mechanical seal or magnetic coupling
PN 40



Applications



Heating & Cooling technology

- » Delivering cooling brine
- » Filling and emptying thermal oil systems



Energy technology

- » Delivery and circulation in closed circuits
- » Feeding boilers in boiler systems and steam generators
- » Tank systems, including delivering liquid gas
- » Delivery of diesel in backup generators in power stations



Chemical & Pharmaceutical industry

- » Delivering aggressive, highly flammable and toxic media
- » Recovery of condensates, e.g. solvents

Further applications

- » Delivery of salt water and fresh water in ships

Contacts

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international
Matthias Rasp**

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matthias.rasp@speck.de

International representations

See page 28

Side channel pumps made by Speck

Design

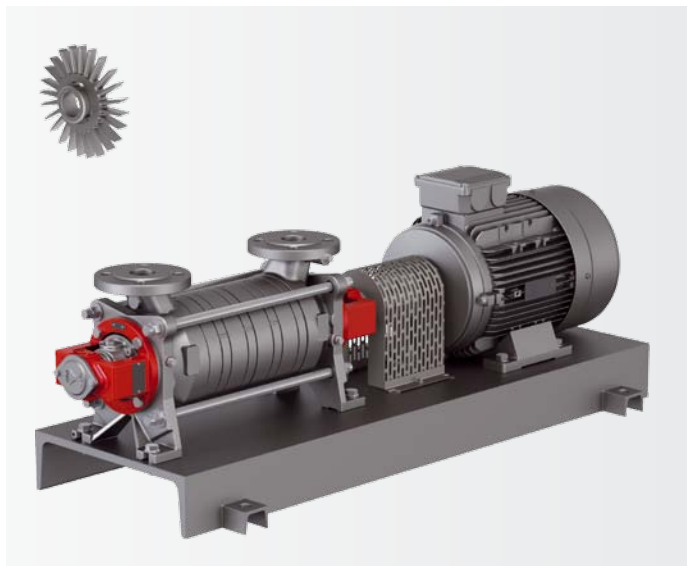
- » Horizontal multistage modular pumps
- » Designed for feeding, filling and emptying operations under difficult physical conditions
- » Suitable for the delivery of gas / self-priming
- » Suitable for liquids without abrasive contaminants and without solid particles
- » Available in a wide range of materials with components from stainless steel, bronze and spheroidal graphite cast iron
- » ATEX certified

With mechanical seal	from	0 to + 180 °C
With magnetic coupling	from	-100 to + 350 °C
Nominal pressure	PN 40	
H _{max}	400 m	
Q _{max}	42 m ³ /h	

Temperature ranges depend on materials, seals and pumped media

SK series

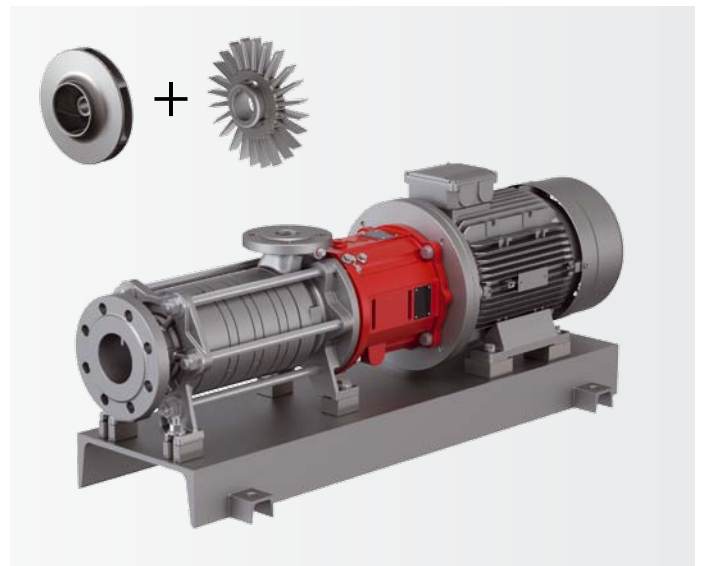
Side channel pumps in acc. with EN 734



Proven side channel pumps for universal applications

ASK series

Side channel pumps with NPSH stage



Combi-pumps for delivering liquids in physically difficult conditions on the suction side

Their very good NPSH values make them particularly suitable for pumped media near the boiling-point

The right pump for your system

Choose from six ranges

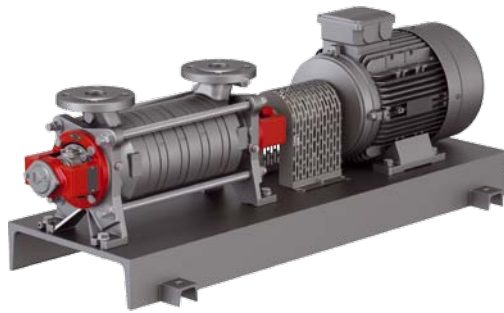
Each system is unique in its own way - on some, the sealing principle is key, on others the installation frame or perhaps the special properties of the medium. You can choose from six ranges and find the best solution for your system.

Pumps with mechanical seal

Pumped media temperatures from 0 to + 180 °C depending on the materials used

Wide range of seals

Available in clockwise and anticlockwise rotation



SKG-LL

- » 1 – 8 stages
- » 2 external rolling bearings



SKG-LO

- » 1 – 8 stages
- » 1 internal casing sleeve bearing
- » 1 external rolling bearing



SKG-LA

- » 1 – 3 stages
- » 1 internal casing sleeve bearing
- » 1 external rolling bearing



ASKG

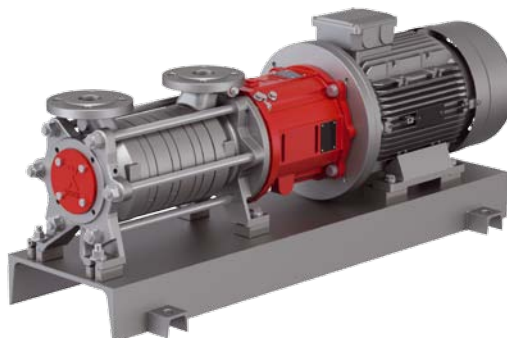
- » With NPSH-stage
- » 1 – 8 stages
- » 1 internal casing sleeve bearing
- » 1 external rolling bearing

Pumps with magnetic coupling

Pumped media temperatures from - 100 to + 350 °C depending on the materials used

Wide range of magnetic coupling sizes

Hastelloy® or ceramic separating cans



SKM

- » 1 – 8 stage
- » 2 internal casing sleeve bearings

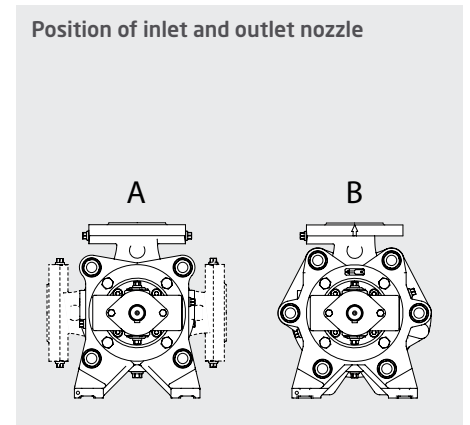
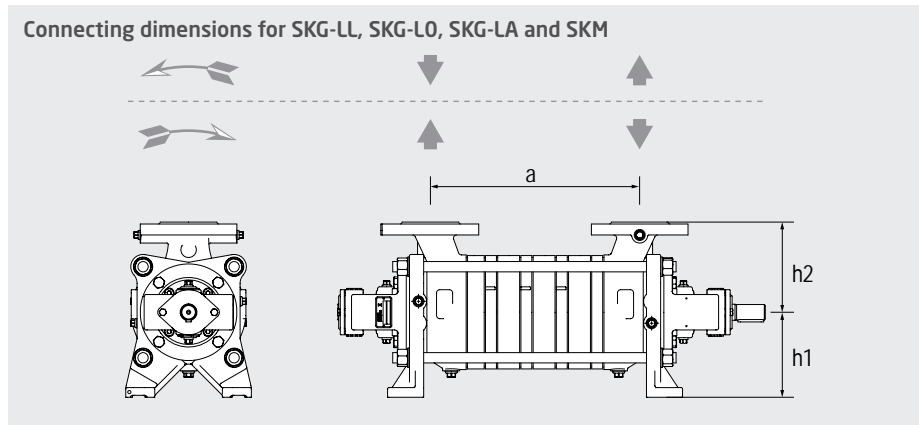


ASKM

- » With NPSH-stage
- » 1 – 8 stages
- » 2 internal casing sleeve bearings

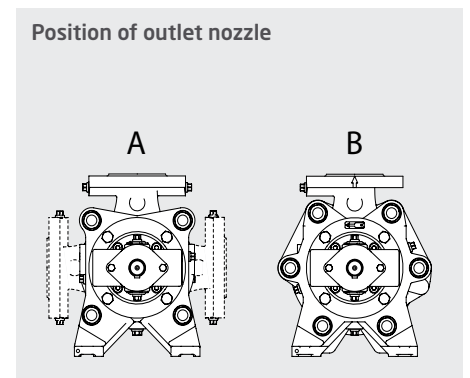
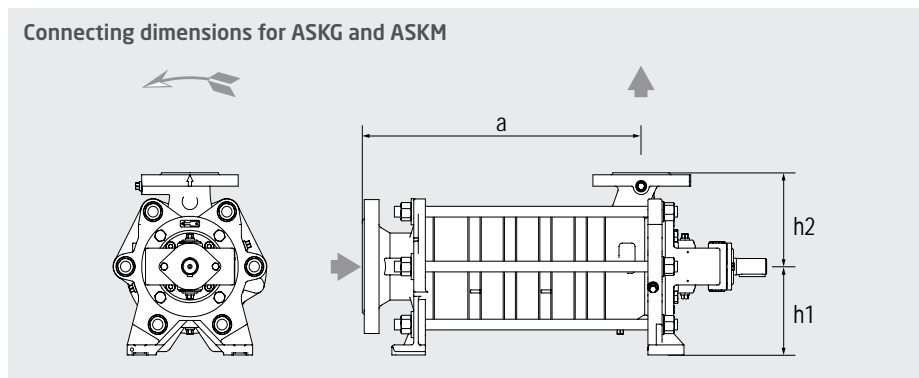
Main dimensions

SK series



Stage no. →	Dimensions								Flanges		Position of inlet and outlet nozzle			
	a								h1	h2	SKG		SKM	
	1	2	3	4	5	6	7	8	-	-	Suction + Discharge	1, 2, 3, 4	5, 6, 7, 8	1 - 8
SK...20	120	120	154	188	222	256	290	324	100	100	DN 20	A	A	A
SK...32 / 33	146	146	186	226	266	306	346	386	112	132	DN 32	A	B	B
SK...40	160	215	270	325	380	435	490	545	132	140	DN 40	A	B	B
SK...50	175	250	325	400	475	550	625	700	160	165	DN 50	A	B	B
SK...65	195	285	375	465	555	645	735	825	180	180	DN 65	A	B	B

ASK series



Stage no. →	Dimensions								Flanges		Position of outlet nozzle		
	a								h1	h2	ASKG and ASKM		
	1	2	3	4	5	6	7	8	-	-	Suction	Discharge	1 - 8
ASK...20	195	229	263	297	331	365	399	433	100	100	DN 40	DN 20	A
ASK...32 / 33	213	253	293	333	373	413	453	493	112	132	DN 65	DN 32	B
ASK...40	268	323	378	433	488	543	598	653	132	140	DN 80	DN 40	B
ASK...50	305	380	455	530	605	680	755	830	160	165	DN 100	DN 50	B
ASK...65	338	428	518	608	698	788	878	968	180	180	DN 100	DN 65	B

Flanges

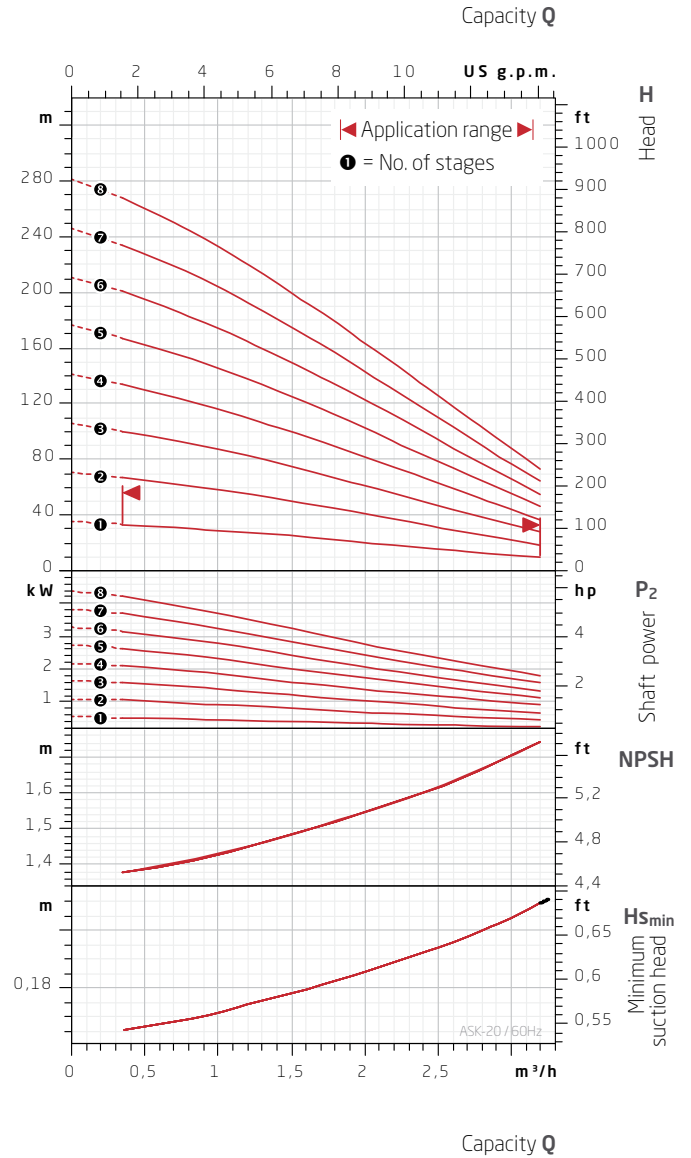
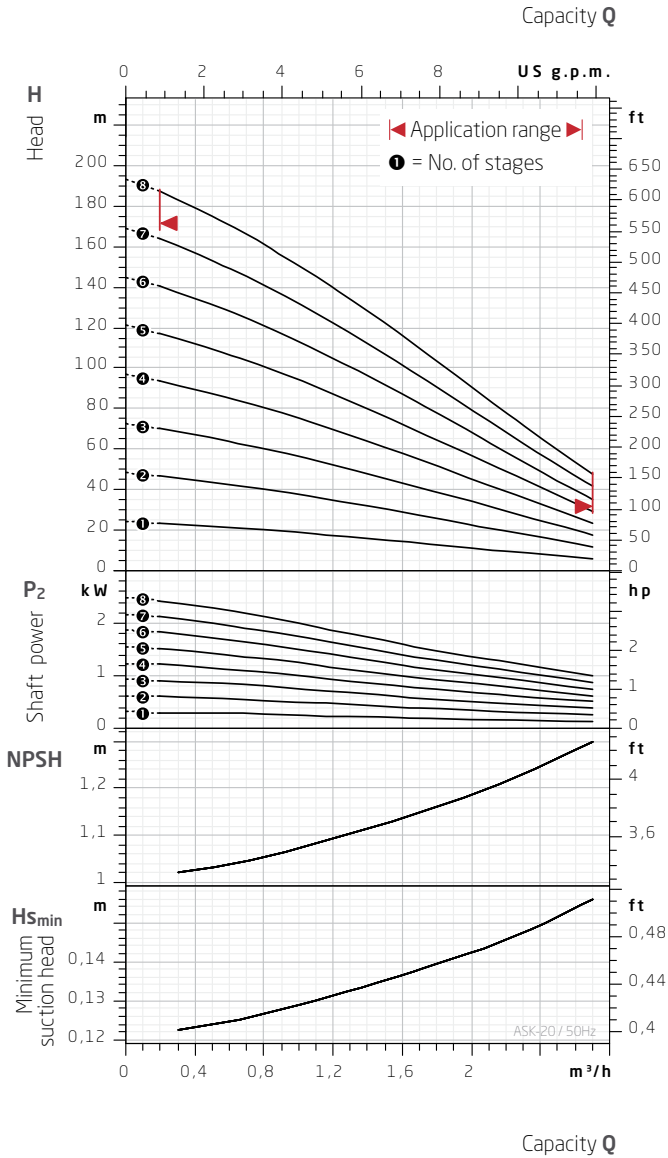
Flanges in acc. with EN 1092 PN 40.

Flanges in acc. with DIN EN 1092-2, drilled in acc. with ANSI 150 lbs or 300 lbs on request.

Characteristic curves ASK...20

50 Hz – 1450 min⁻¹

60 Hz – 1750 min⁻¹



Binding characteristic curves only by SPAIX

These characteristic curves can be used to preselect a pump. They are deviating slightly depending on the material design. Only characteristic curves, which are specified with SPAIX configuration software can be referred to as binding.

Test conditions

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

Tolerances

Flow rate $\pm 10\%$, total head $\pm 10\%$, power requirement $+ 10\%$
 Deviating properties of the media to be pumped affect the characteristic curves.

NPSH value

The NPSH value above shows the required NPSH value of the pump $NPSH_{required}$. This value has to exceed the NPSH value of the system $NPSH_{available}$ with a minimum surcharge of 0.5m to exclude cavitation damages.
 $NPSH_{available} \geq NPSH_{required} + 0.5\text{ m}$

Minimum suction head

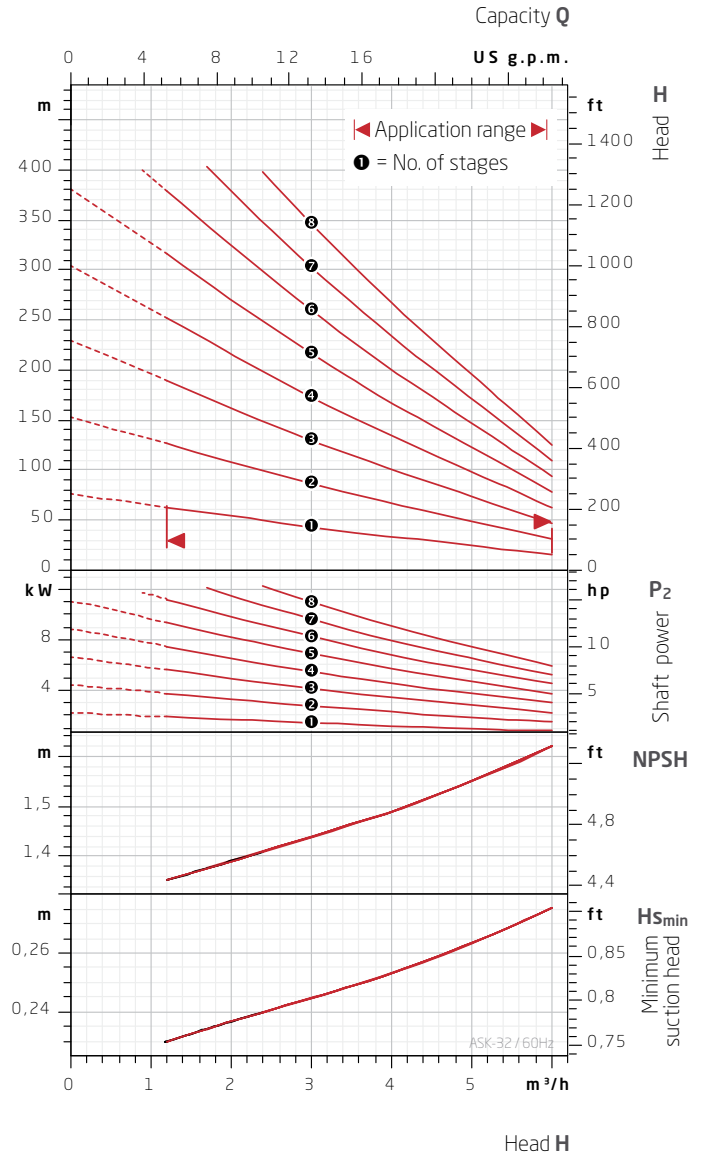
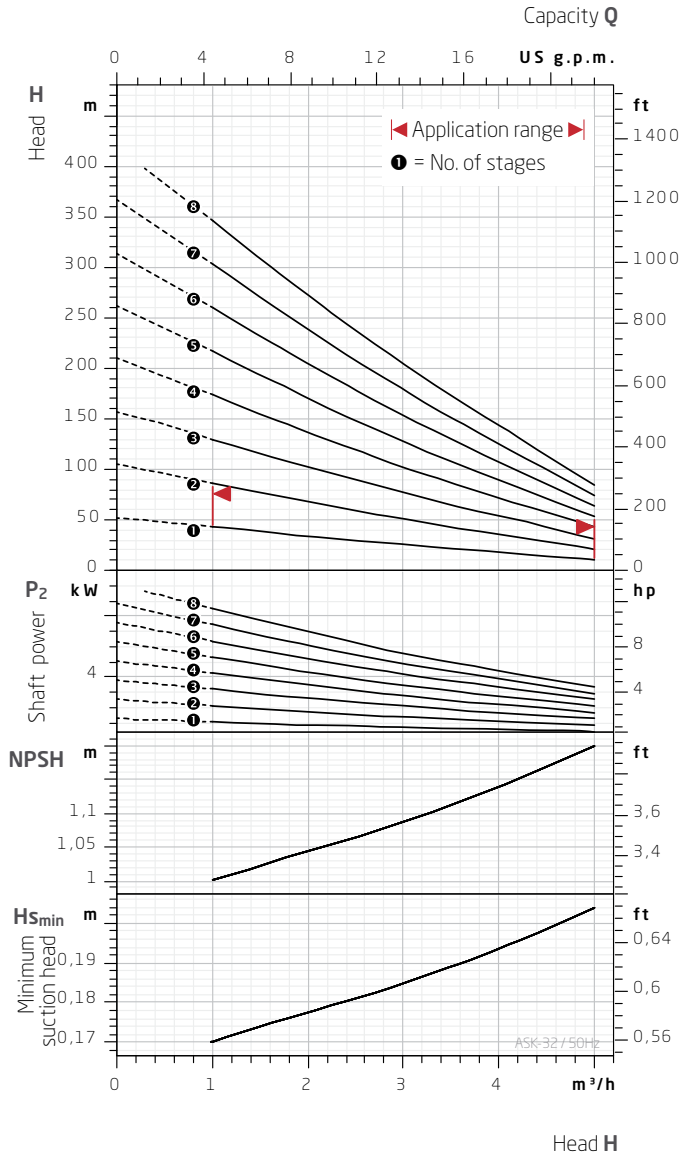
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 $NPSH_{required} \geq NPSH_{available} \geq H_{s_{min}}$ may cause a pressure drop and excessive vibrations.

A drop in the pump performance is caused by the delivery of gas shares at temperatures over the boiling point.
 $NPSH_{available} > H_{s_{min}}$.

Characteristic curves ASK...32

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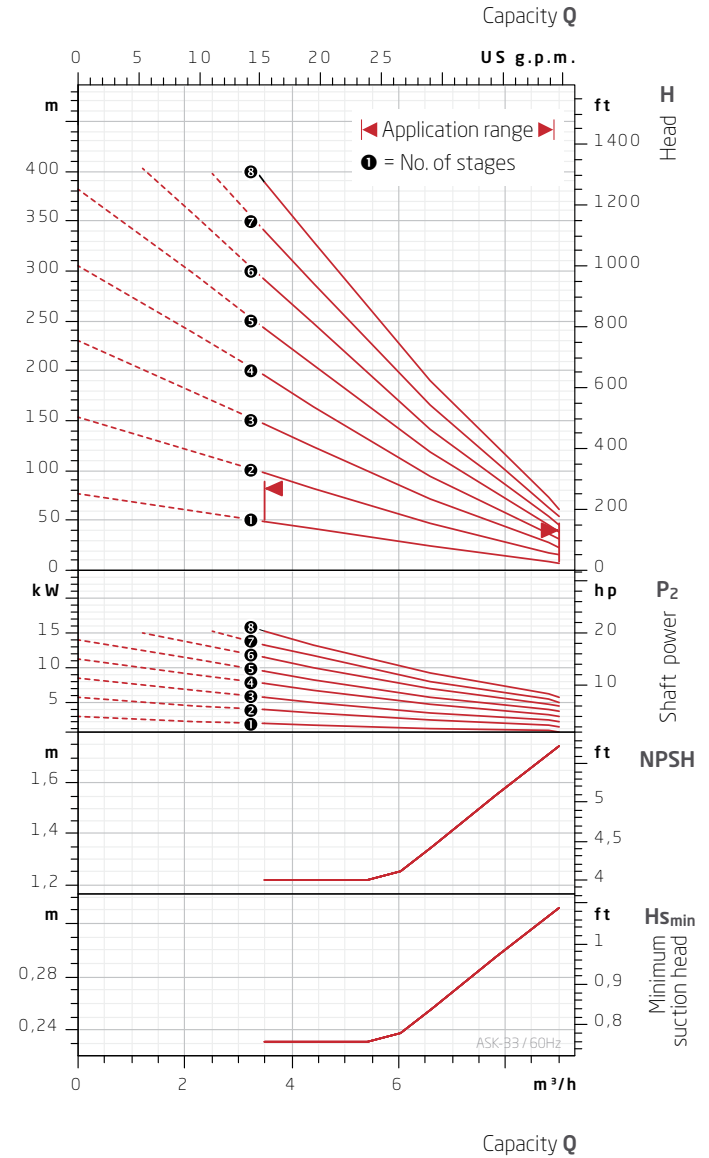
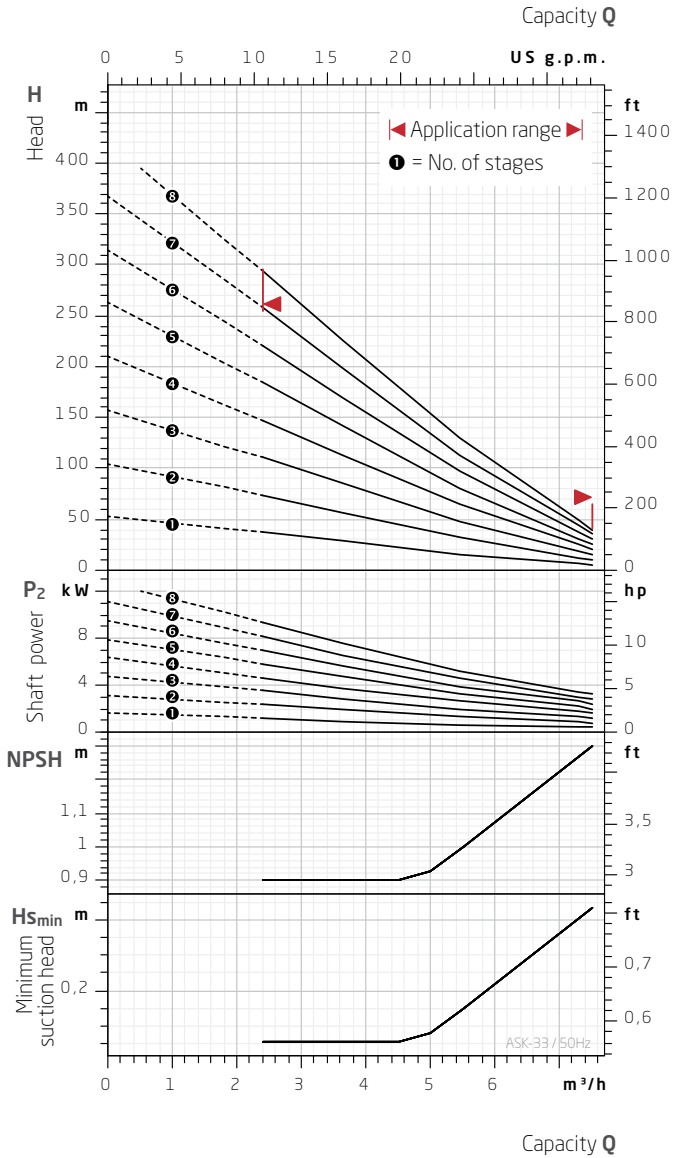
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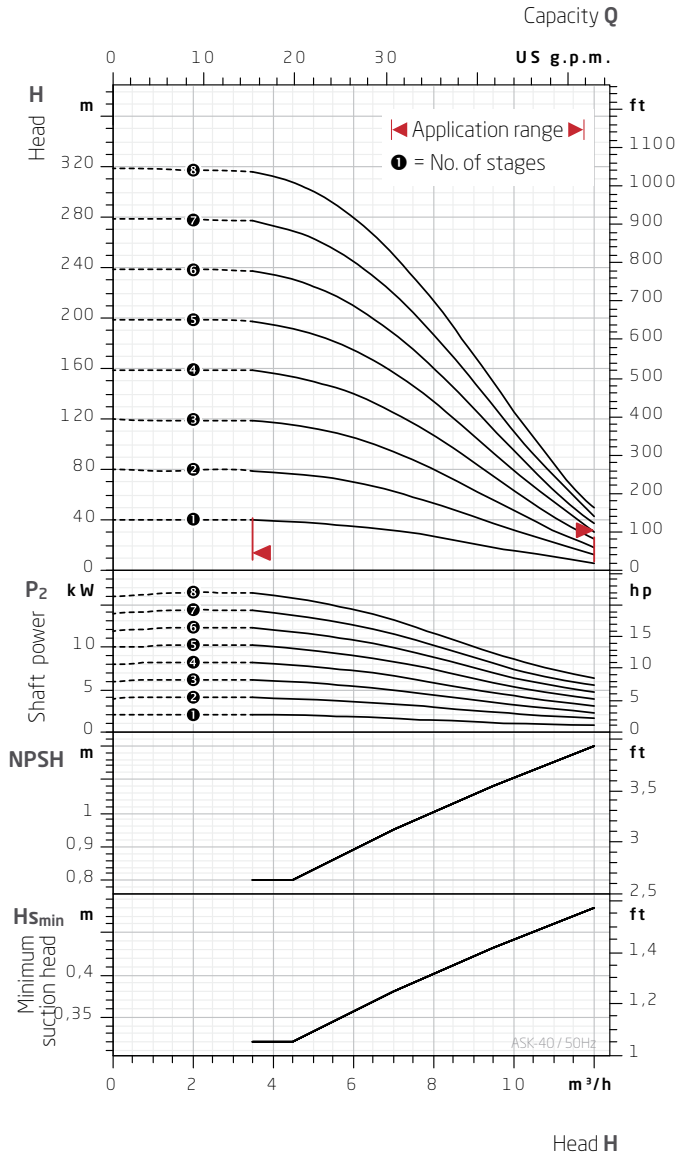
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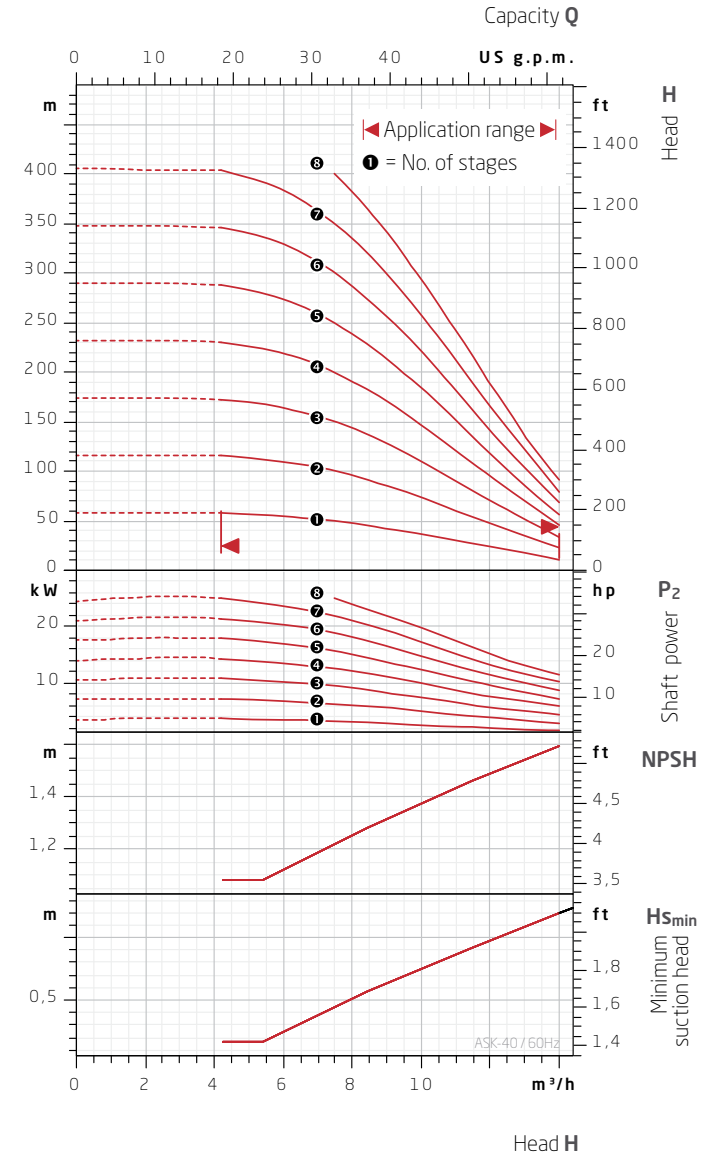
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Characteristic curves ASK...40

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60 Hz – 1750 min⁻¹



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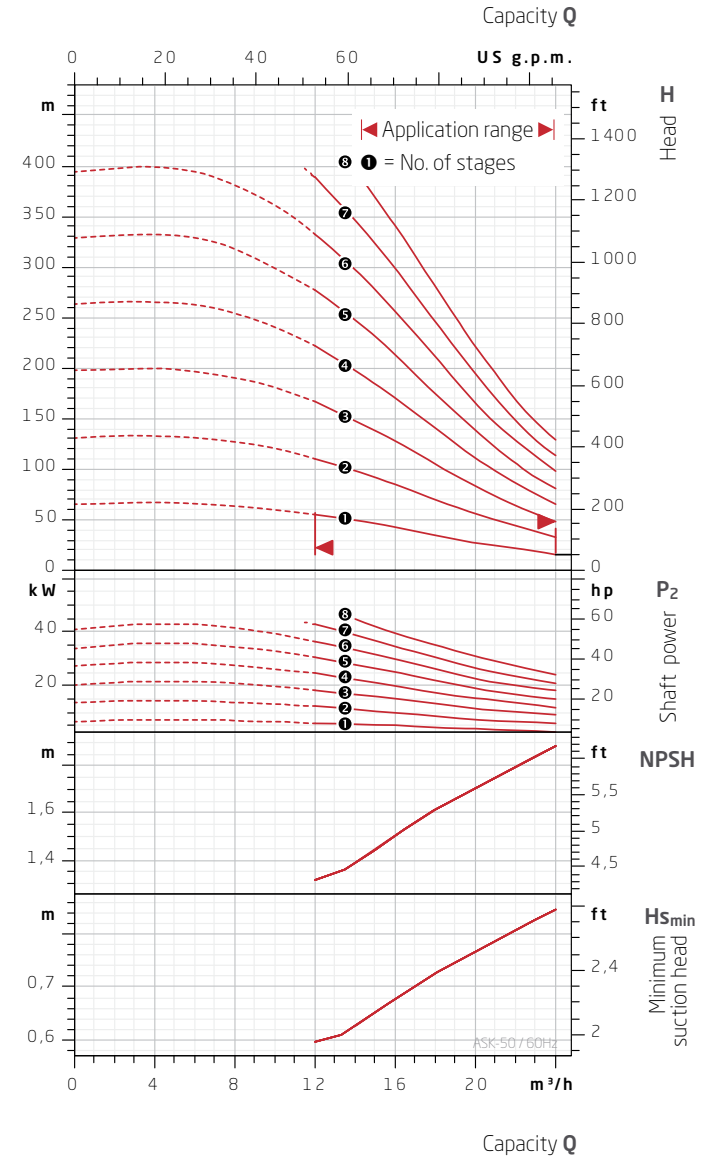
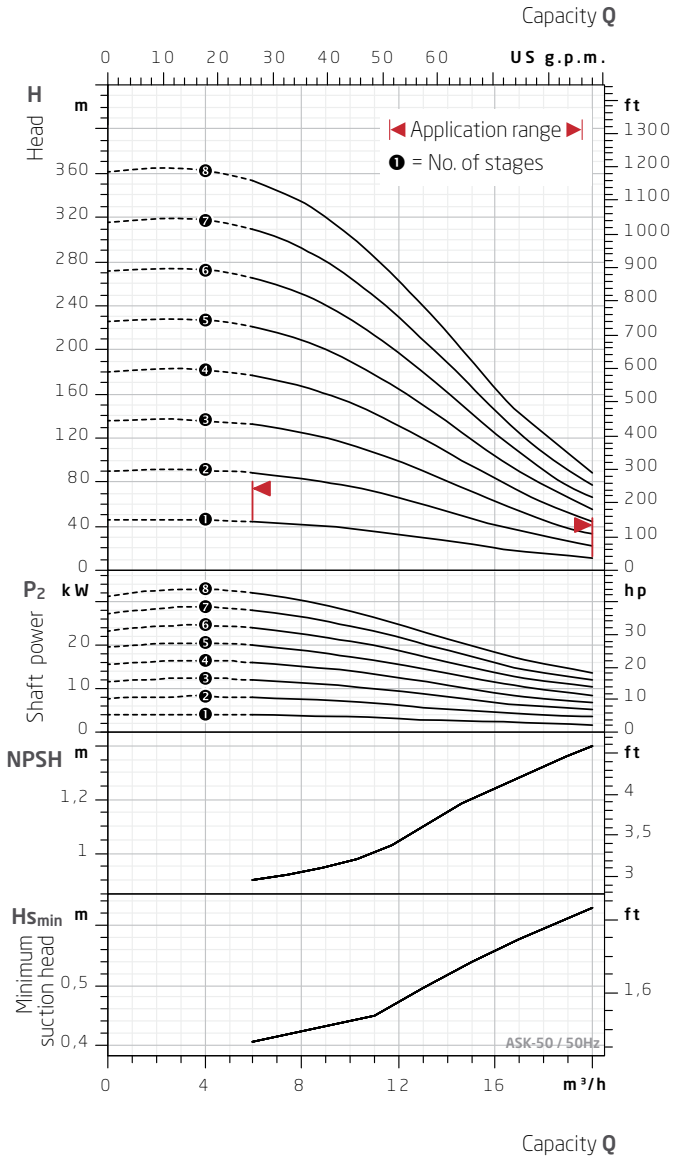
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Characteristic curves ASK...50

50 Hz – 1450 min⁻¹

60 Hz – 1750 min⁻¹



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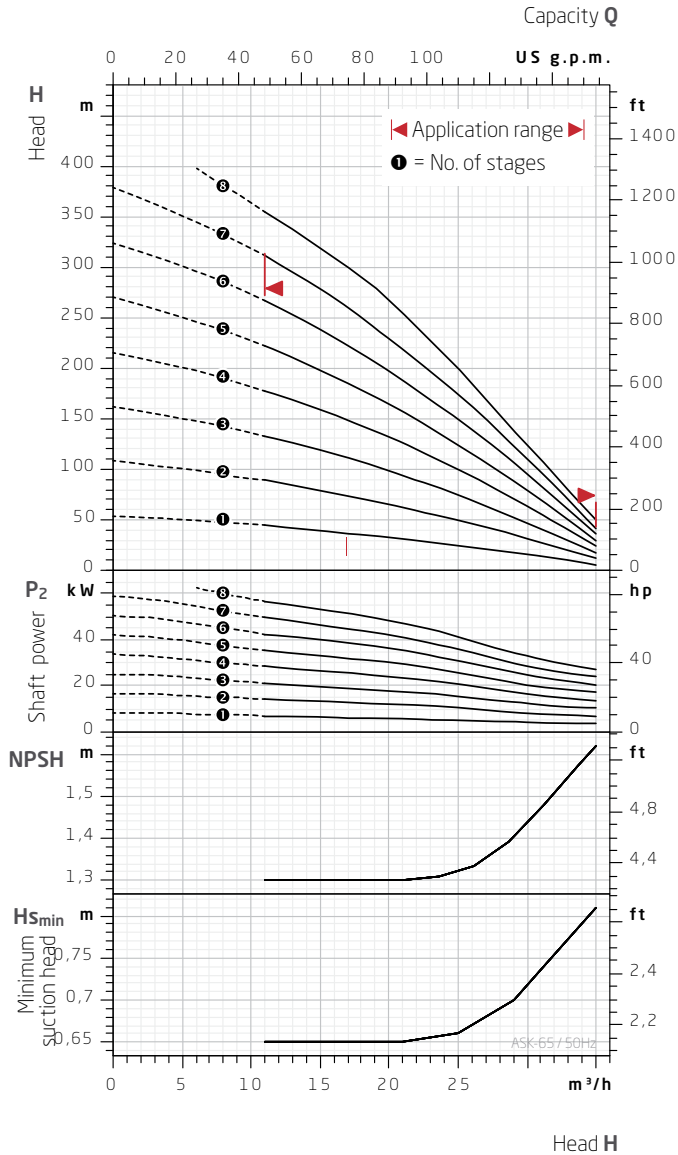
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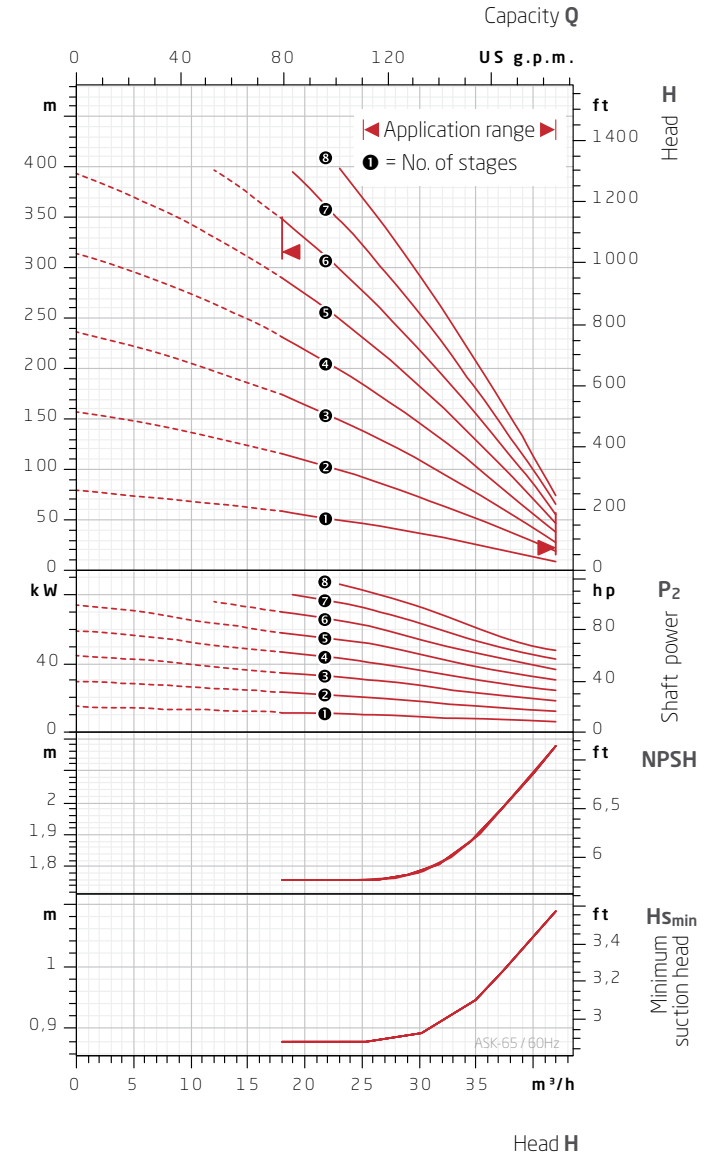
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Characteristic curves ASK...65

50 Hz – 1450 min⁻¹



60 Hz – 1750 min⁻¹



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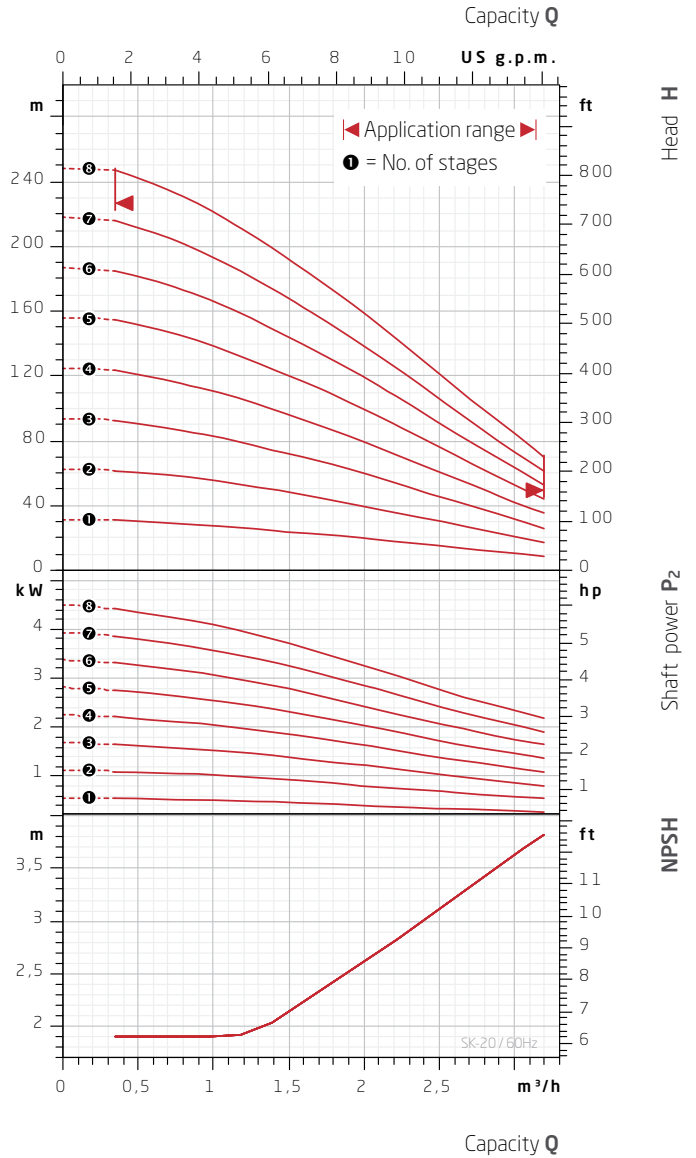
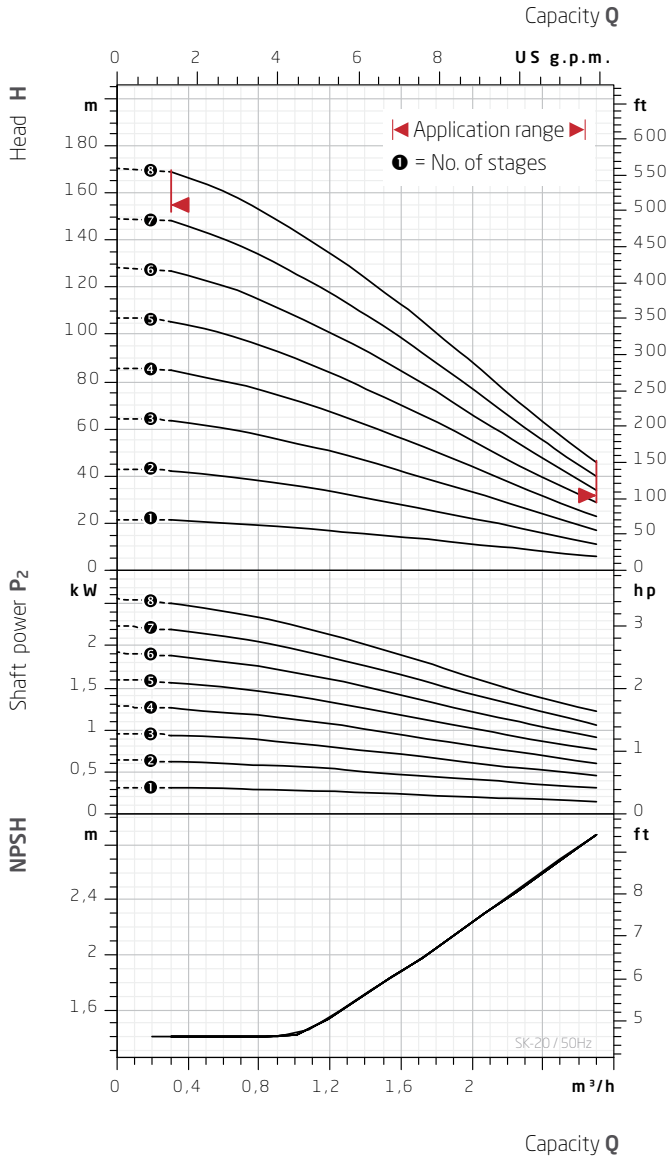
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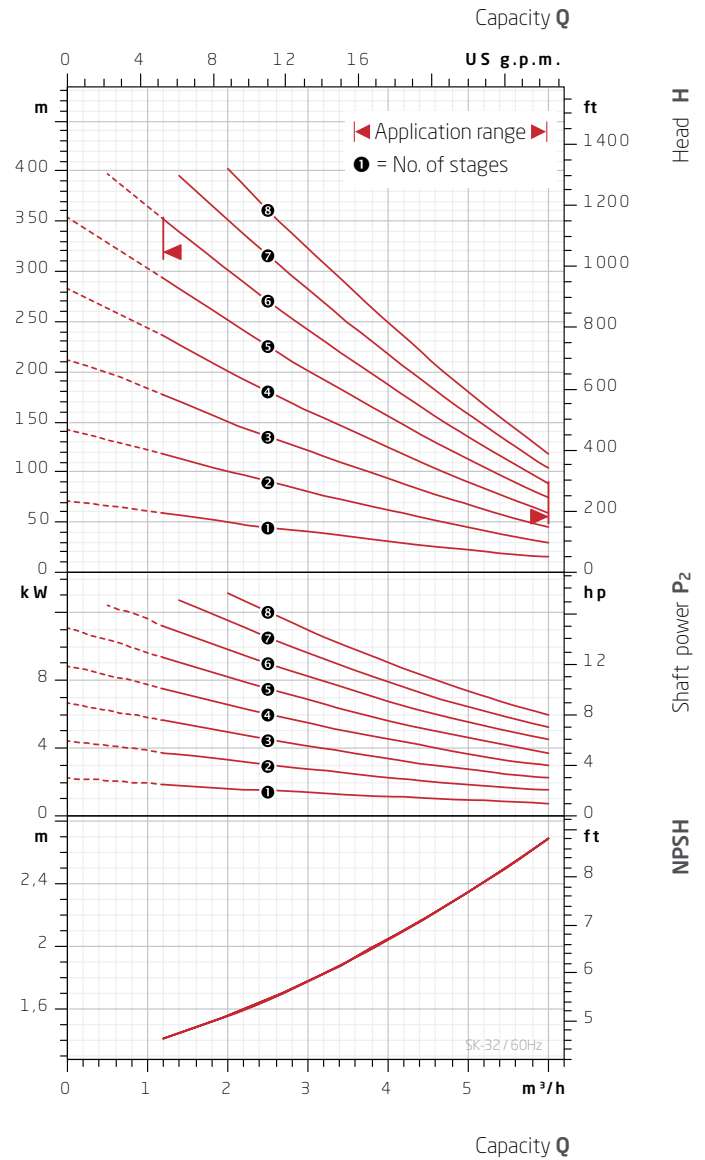
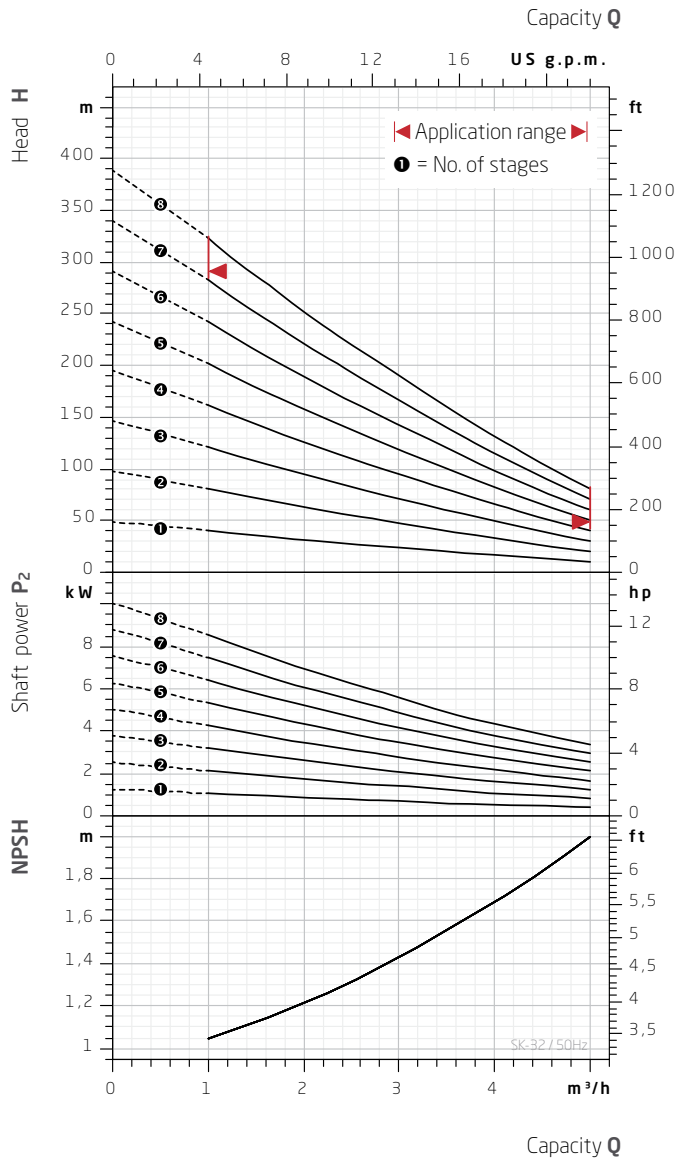
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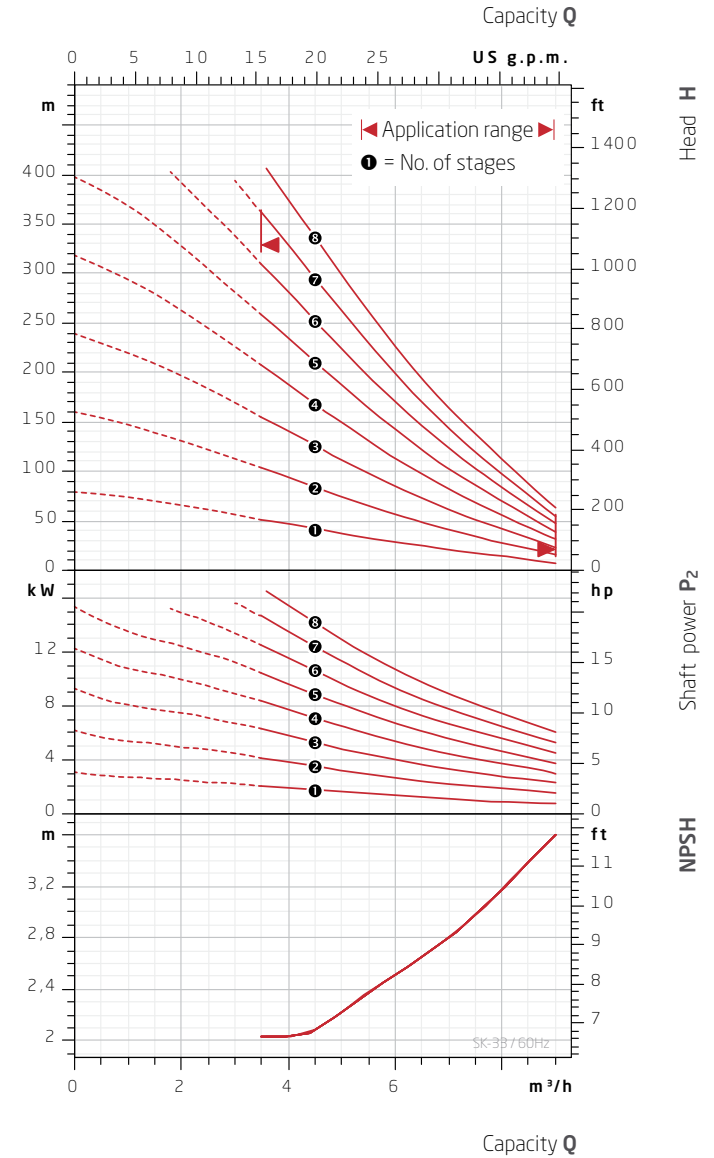
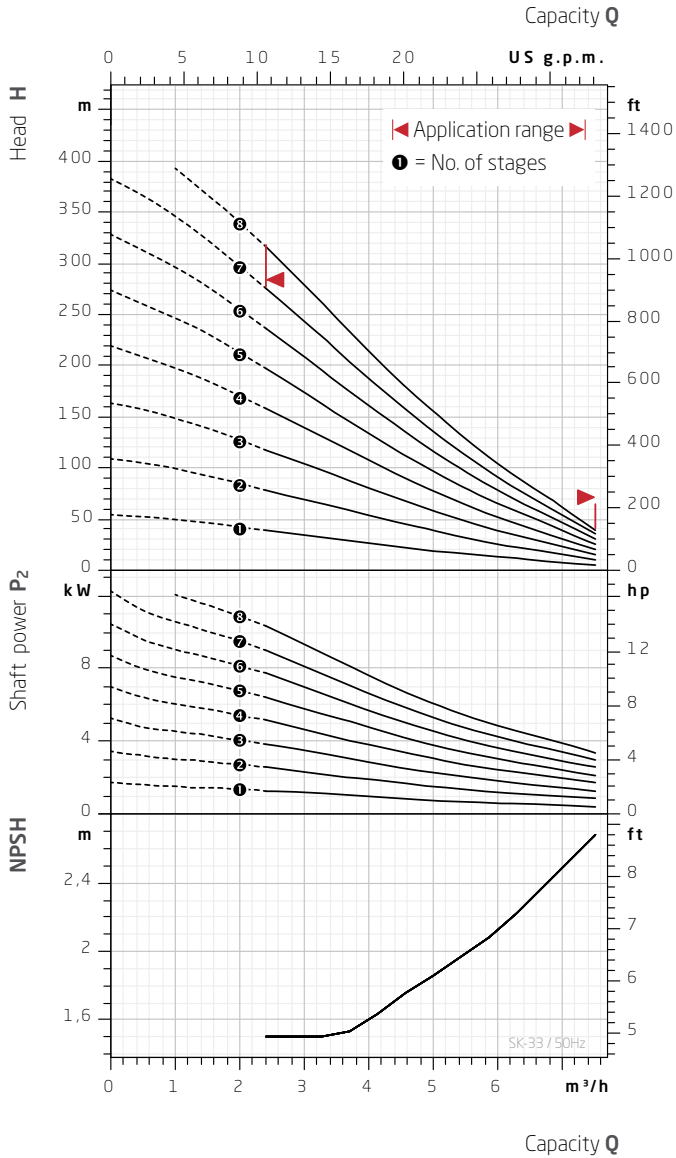
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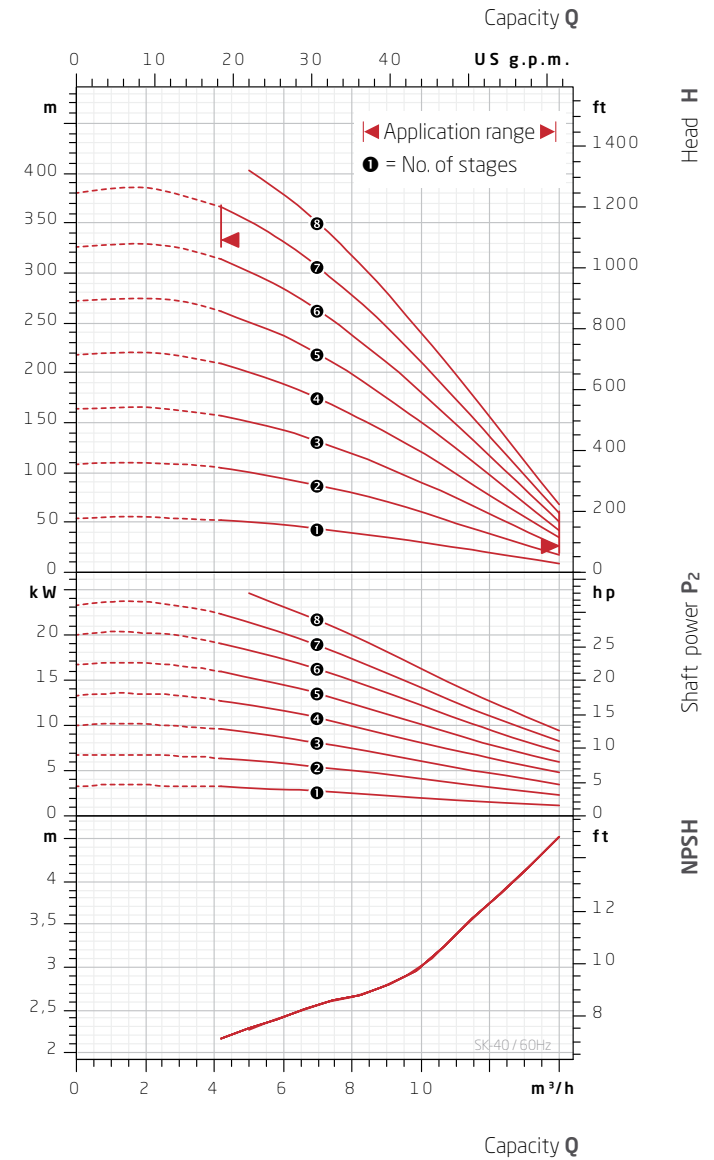
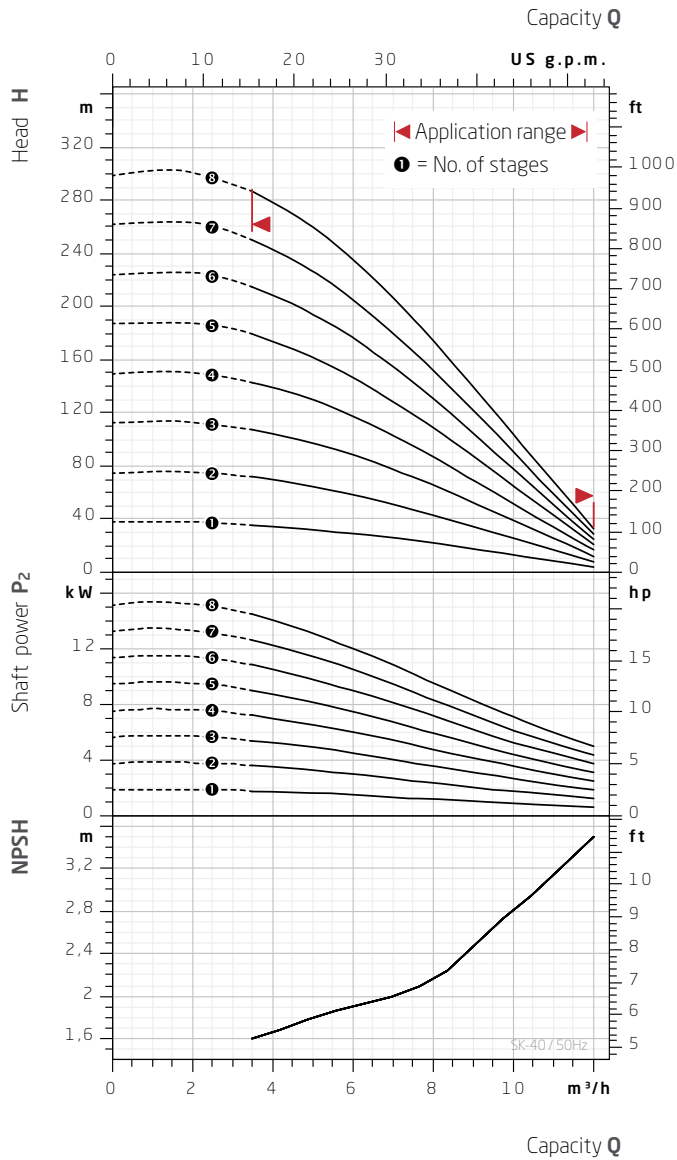
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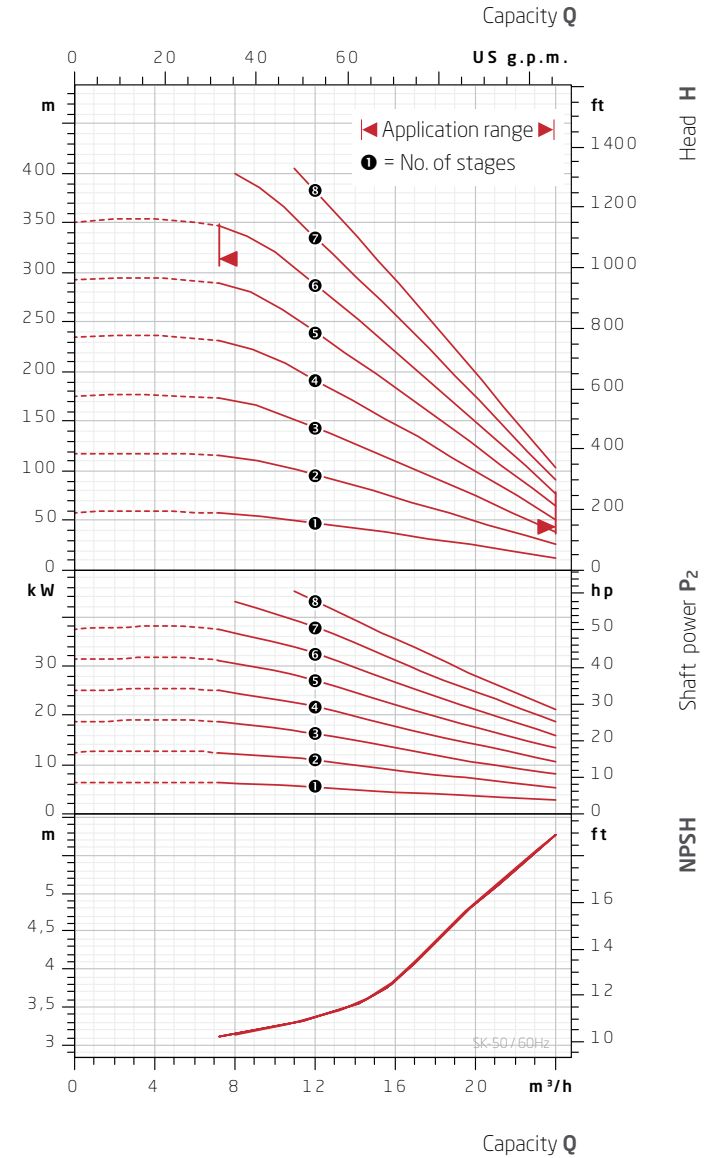
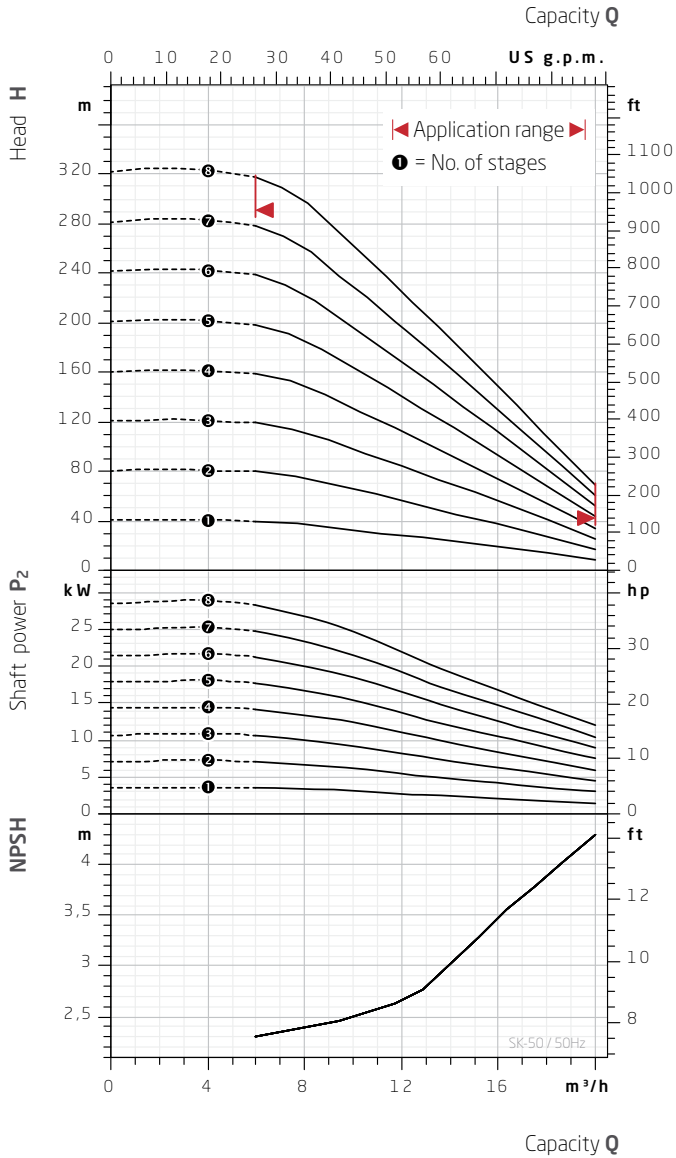
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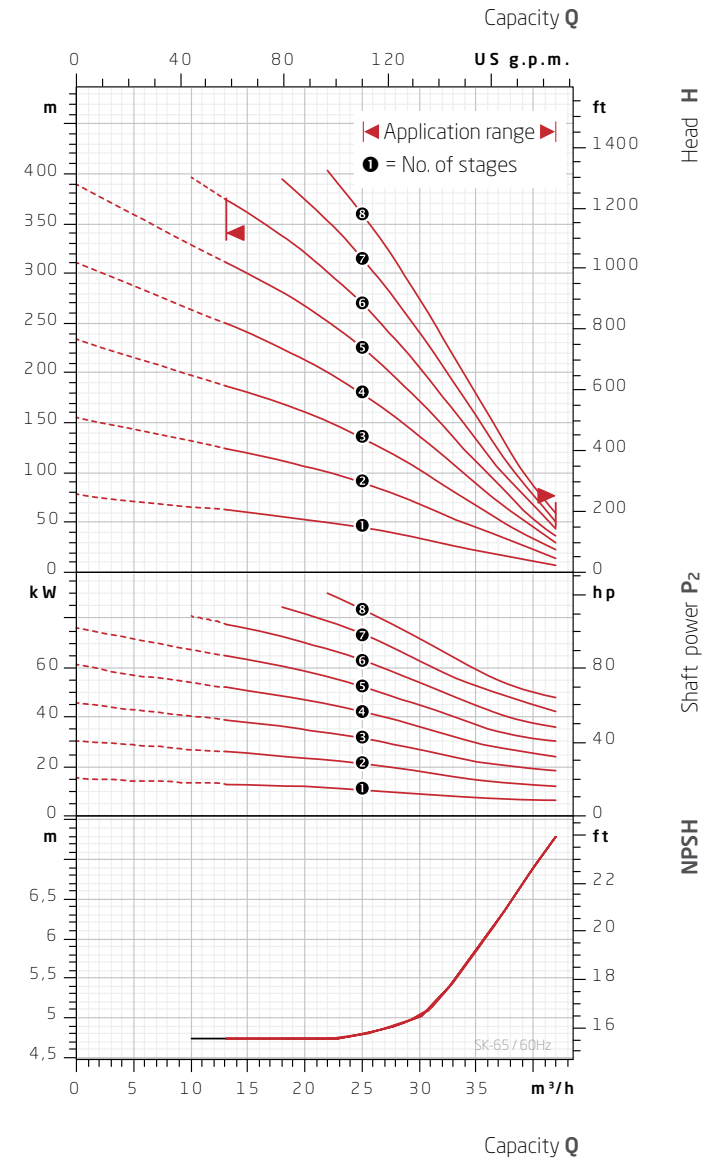
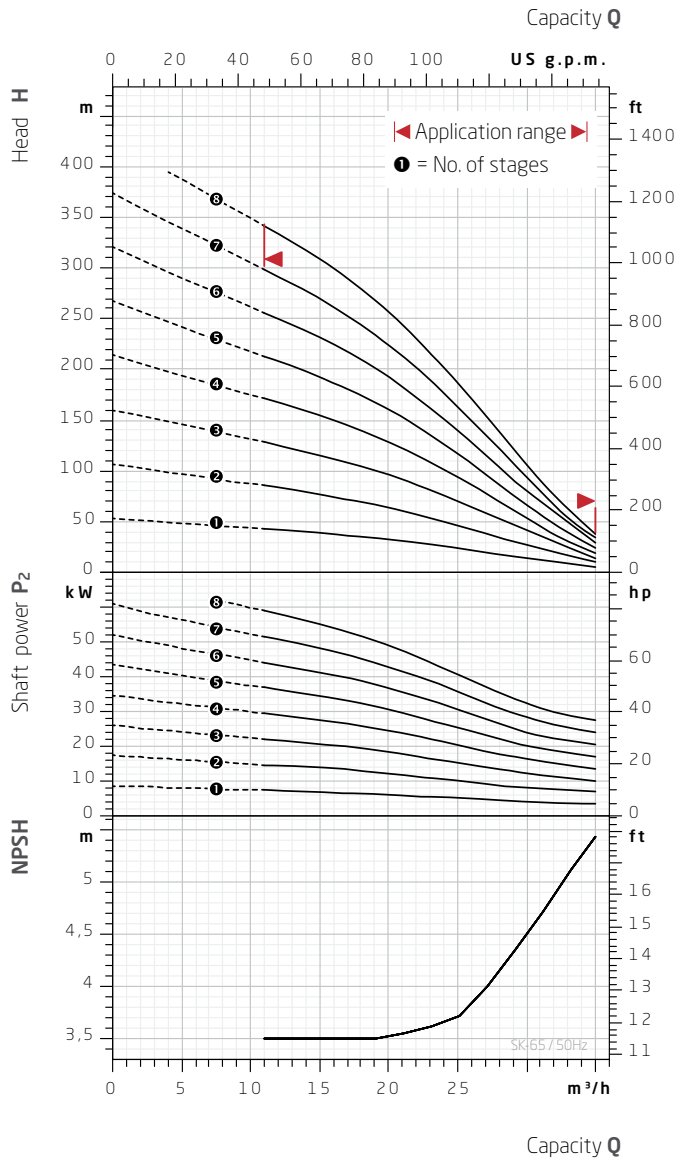
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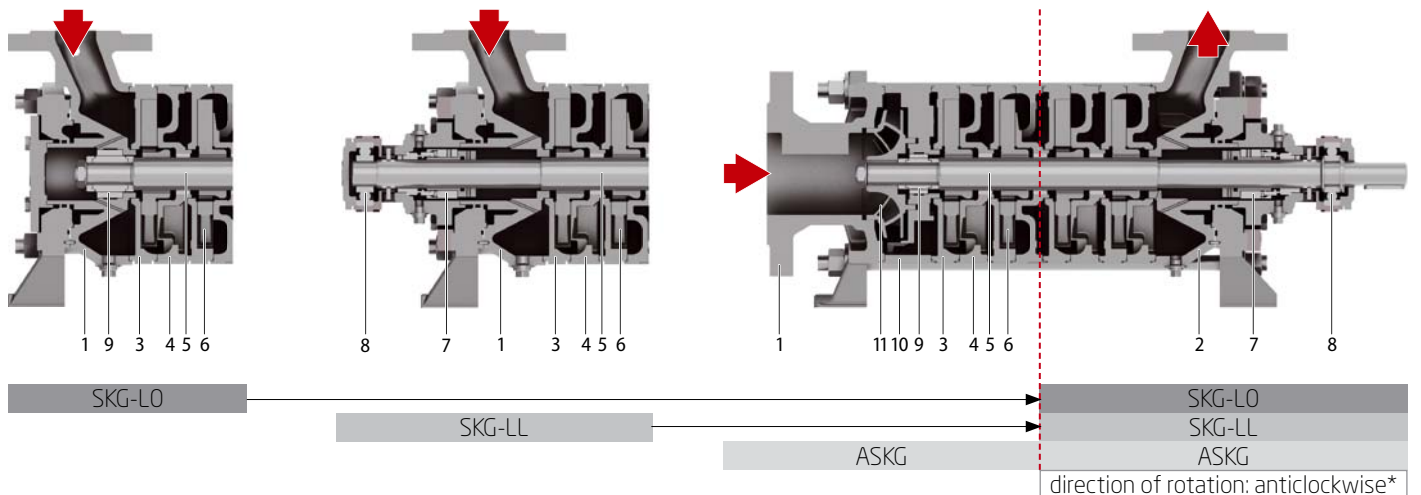
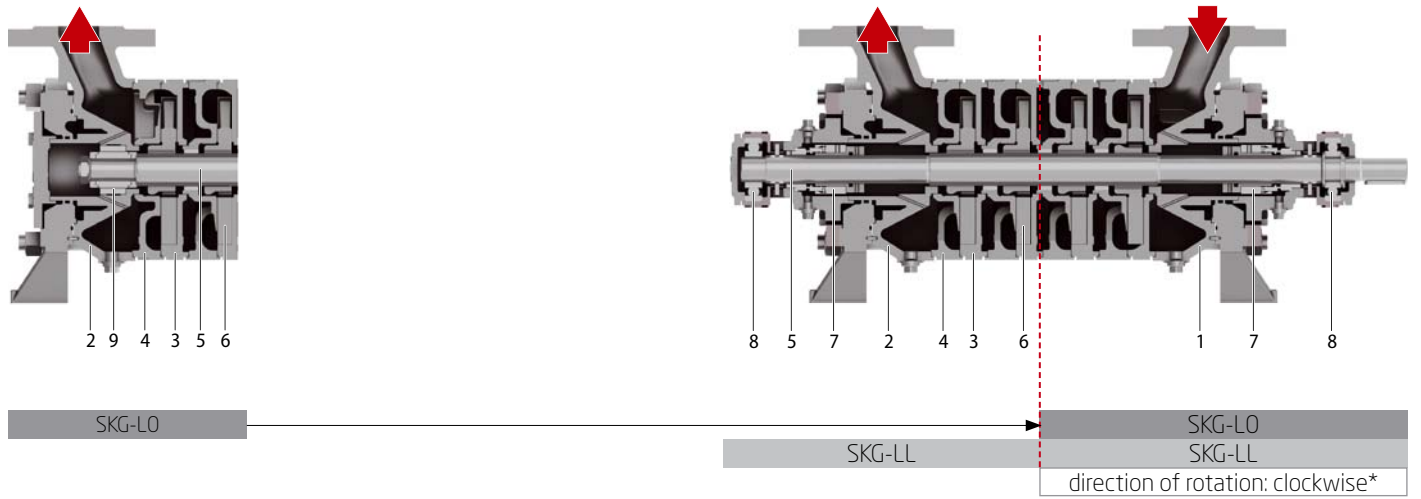
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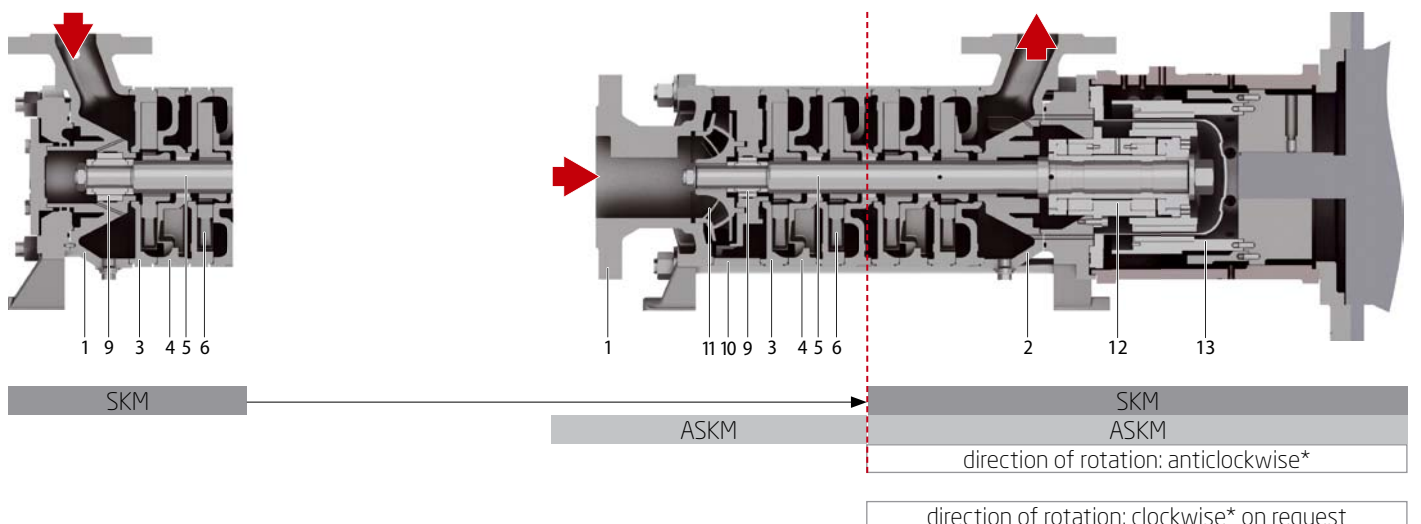
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Smart modular system

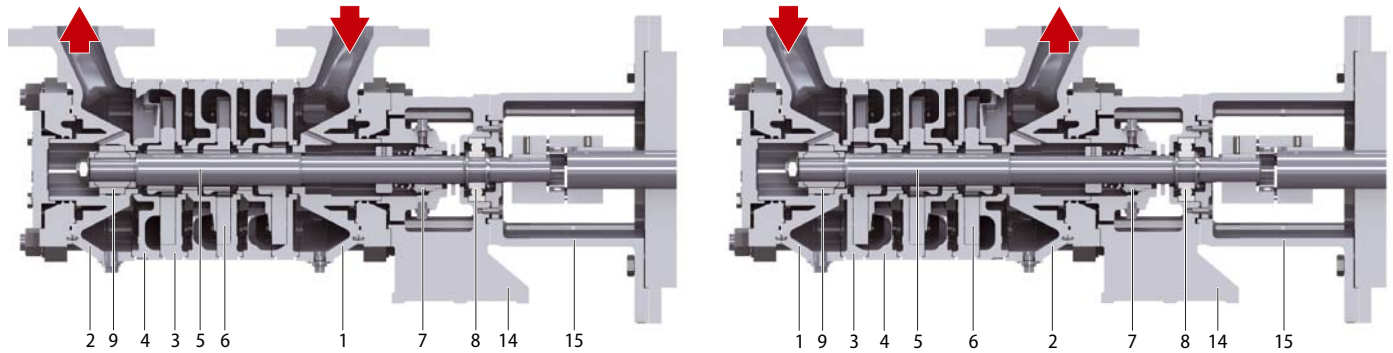
Pumps with mechanical seal – SKG-LO / SKG-LL / ASKG



Pumps with magnetic coupling – SKM / ASKM



Pumps with mechanical seal – SKG-LA



SKG-LA
direction of rotation: clockwise*

SKG-LA
direction of rotation: anticlockwise*

No.	Designation
1	Suction casing
2	Discharge casing
3	Suction stage
4	Discharge stage
5	Shaft

No.	Designation
6	Star impeller
7	Mechanical seal
8	Rolling bearing
9	Sleeve bearing made of SiC (or carbon bearing, not illustrated)

No.	Designation
10	N-stage
11	Radial impeller
12	Bearing cartridge made of SiC
13	Magnetic coupling
14	Bearing bracket
15	Bracket

With Speck you get a smart modular system with many identical parts. In addition, the SK series allows two directions of rotation, providing full flexibility when replacing or converting a system.

* View from drive-side

High operational safety, optimal design and service-friendly

Robust and durable

Rolling bearing

Robust lifetime lubricated rolling bearings suitable for a long service life

Wear resistant sleeve bearings

Solid, hydrodynamically lubricated sleeve bearings made from carbon, a proven slide material – extremely hard wearing and highly resistant to corrosive media. Alternatively, SiC sleeve bearings are also available.

A perfect seal

Speck offers a wide range of mechanical seals: Designed for your operating point and for a variety of applications.

Mechanical seals & Stuffing box packings

Versions and materials: See type code page 22 for further details.

Magnetic couplings

See page 20 for further details and see page 22 for type code.

Wide temperature range

- 100 °C up to + 350 °C, depending on the material, the seals and the pumped medium. See type code page 22 for further details.

Flexible and simple to service

Minimum stock of spares required

Thanks to the consistently developed modular system, many components are completely identical and interchangeable across six ranges. This means a minimum stock of spare parts is required.

This guarantees complete flexibility as replacing pumps and components or changing the pump execution is easy.

Critical media

We offer a range of medium-specific designs suitable for the delivery of acids, lyes, fuel, glycol, glycerine, hot water, oil, etc.

Casing seals with graphite, FKM, FFKM or EPDM O-rings are available.

You can choose for stage sealing among graphite, Teflon® or various liquid seals by Epple®.

ATEX

All series are ATEX certified

» Mechanical seal version: II 2G c TX

» Magnetic coupling version: II 2G c b TX

Magnetic couplings

Optimal design

The wide range of magnetic couplings offers an optimum configuration for your operating conditions and cuts energy consumption.

Wide range

Magnetic couplings consist of an inner rotor, a separating can and an outer rotor. The separating can hermetically seals the pumped media from the atmosphere.

A great variety of sizes and configuration using the latest software guarantee the best design for your operating point.

The transmissible torques of the magnetic couplings range between 10 and 500 Nm.

Type code for magnetic couplings

Type code (example)	135-	70
Nominal diameter DN		
Magnet length [mm]		

Magnetic coupling sizes and versions

		Magnet diameter				
		DN 60	DN 75	DN 110	DN 135	DN 165
Magnet length in mm	40	x	x	x		
	50		x	x	x	
	60	x	x	x	x	
	70			x	x	
	80			x	x	x
	90				x	x
	100					x
	110					x
	120					x
Separating can made of Hastelloy®		PN 40	PN 40	PN 25 / 40	PN 40	PN 25 / 40
Separating can made of ceramic ZrO ₂ Mg		not available		PN 40 on request		

Cooling through flushing bores

Eddy current, viscosity and bearing friction losses generate heat inside the pump, adding to the temperature of the medium. Flushing bores in the inner rotor and the casing ensure that critical points are cooled with the medium. At the same time, gases or air are conducted out of the inner rotor.

Robust Hastelloy® separating cans



Proven and with low eddy current losses

High-grade Hastelloy® separating cans come as standard with Speck. This robust material has proven its properties in daily use in many industries. The finely graduated coupling and separating can diameters allow optimum design with minimum eddy current losses.

Safety with temperature monitoring

If required (e. g. in areas with potentially explosive atmospheres), with Hastelloy® separating cans, temperature sensors can be mounted into the bracket to monitor the surface temperature of the separating can.



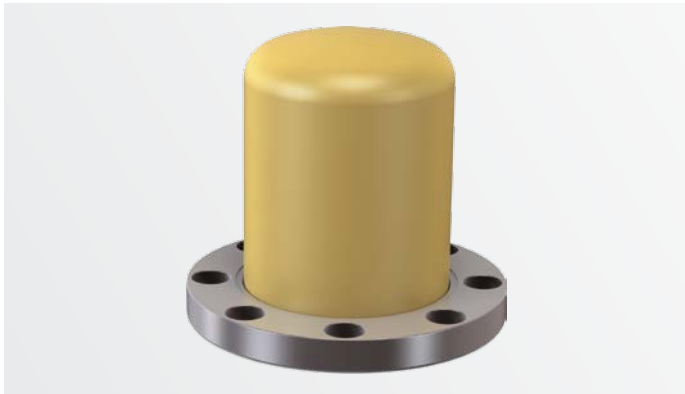
PT-100 temperature sensor (standard design)

The universal linear PT-100 temperature sensor with a detection range from -100 to +400 °C is available in three versions.

- » Standard design
- » ATEX design without SIL/IPL2
- » ATEX design with SIL/IPL2

All three versions can be optimally adjusted for length using a compression fitting. In addition, the sensor tip is held against the separating can using a spring to guarantee secure contact.

Ceramic ZrO₂Mg separating cans



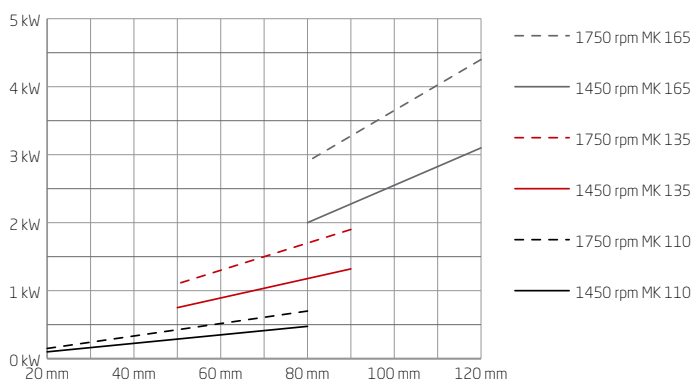
No current eddy losses in the separating can

When non-conductive ceramics are used, no eddy currents occur within the coupling. This has two advantages.

Energy savings

Magnetic fields cause eddy currents within metal separating cans, increasing the overall energy consumption of the pumps. Ceramic separating cans mean there are no eddy currents, leading to significant energy savings.

The graph below shows the additional energy consumption of a metal separating can due to eddy currents. It shows the energy consumption in relation to the length of the magnet (in 10 mm increments) and to the diameters. In the case of the largest separating can diameter, energy consumption rises to the power of three.



The additional energy consumption found in magnetic couplings with metal separating cans due to electrical eddy currents is completely eliminated by using ceramic separating cans.

No entry of heat into the medium

In metal separating cans, the electrical eddy currents described above are converted into thermal energy, thereby increasing the heat of the medium. With ATEX applications and media near vapour pressure, this can become a considerable problem. Ceramic separating cans do not create losses of energy through eddy currents and the medium retains its temperature.

Safety through leak detection

Separating cans often break as a result of vibrations caused, for example, by damaged bearings after they have been running dry, or by vibrations in the system.

In the event of a rupture, there is a danger of the medium getting into the motor through the motor casing, which must be avoided when explosive substances are being pumped.

For your safety we can offer a leak monitoring sensor which detects any medium emerging after a rupture of the separating can and immediately switches off the pump or the system.

In addition, the sealed slots on the bracket temporarily prevent the medium from entering the environment.

On request, we can also fit a pipe to the bracket to safely remove the pumped medium. The connector for the pipe is directly opposite the sensor.



- 1 Leak sensor
- 2 Externally sealed slots covered: the connector for the media removal pipe on the back of the bracket opposite the sensor

Versions

Type code with versions and material designs

	A	S	K	G	3	2	0	4		-	0	1	2			-	1	1	0	0	0	0		
		S	K	G	3	2	0	4	L	L	-	1	1	3			-	4	0	0	0	0	0	
		S	K	G	3	2	0	4	L	0	-	0	1	3			-	3	0	0	0	0	0	
	A	S	K	S	3	2	0	4			-	0	0	0			-	1	1	0	0	0	0	
		S	K	S	3	2	0	4	L	A	-	0	0	0			-	1	1	0	0	0	0	
	A	S	K	M	3	2	0	4			-				6	2	4	-	6	0	0	0	0	0
		S	K	M	3	2	0	4			-				7	5	2	-	2	0	0	0	0	0
Series																								
Sealing (table 1)																								
Size																								
Number of stages																								
Shaft bearing (Table 2)																								
Shaft sealing (Table 3)																								
Magnetic coupling – Size (Table 4)																								
Magnetic coupling – PN (Table 5)																								
Material designs and temperature range (table 6)																								
Counting number																								

Table 1: Sealing

Code	M	G	S
	Magnetic coupling	Mechanical seal	Stuffing box packing

Table 2: Shaft bearing for pumps with shaft sealing

Code	ASKG / ASKS	SKG / SKS		
	-	LL	LO	LA
Stage number	1 - 8	1 - 8	1 - 8	1 - 3
Bearing suction-side	Sleeve bearing	Rolling bearing	Rolling bearing	Rolling bearing
Bearing pressure-side	Rolling bearing	Rolling bearing	Sleeve bearing	Sleeve bearing
Mechanical seal suction-side	-	Yes	Yes	Yes
Mechanical seal pressure-side	Yes	Yes	-	-
Design	Base plate version	Base plate version	Base plate version	Bracket version

Table 3: Shaft sealing

000: Stuffing box packing

XXX: Special version, details in order-related documents

SKG-LL 2 mechanical seals and 2 external rolling bearings					ASKG, SKG-LO, SKG-LA 1 mechanical seal, 1 sleeve bearing and 1 external rolling bearing							
Properties	O-ring	Single-acting mechanical seal			Properties	O-ring	Single-acting mechanical seal			Double-acting mechanical seal		
	Elasto-mer	SiC / A carbon	SiC / B carbon	SiC / SiC		Elasto-mer	SiC / A carbon	SiC / B carbon	SiC / SiC	SiC / A carbon	SiC / B carbon	SiC / SiC
Suction-side: unbalanced	FFKM	110	220	330	Unbalanced up to 140 °C	FFKM	010	020	030	110	220	330
Pressure-side: unbalanced	EPDM	112	222	332		EPDM	012	022	032	112	222	332
up to 140 °C	FKM	113	223	333		FKM	013	023	033	113	223	333
Suction-side: unbalanced	FFKM	140	250	360	Balanced up to 140 °C	FFKM	040	050	060	440	550	660
Pressure-side: balanced	EPDM	142	252	362		EPDM	042	052	062	442	552	662
up to 140 °C	FKM	143	253	363		FKM	043	053	063	443	553	663
Suction-side: balanced	FFKM	440	550	660	Balanced cooled up to 180 °C	FFKM	070	080	090	770	880	990
Pressure-side: balanced	EPDM	442	552	662		EPDM	072	082	092	772	882	992
up to 140 °C	FKM	443	553	663		FKM	073	083	093	773	883	993
Suction-side: balanced	FFKM	770	880	990								
Pressure-side: balanced	EPDM	772	882	992								
cooled up to 180 °C	FKM	773	883	993								

Table 4: Size of magnetic coupling

Code no.	51	52	61	62	63	71	72	73	74	75
Size	60-40	60-60	75-40	75-50	75-60	110-40	110-50	110-60	110-70	110-80
p _{max.} bar	40	40	40	40	40	25/40	25/40	25/40	25/40	25/40

Code no.	81	82	83	84	85	91	92	93	94	95
Size	135-50	135-60	135-70	135-80	135-90	165-80	165-90	165-100	165-110	165-120
p _{max.} bar	40	40	40	40	40	25/40	25/40	25/40	25/40	25/40

Table 5: Magnetic coupling - Material design of separating can

Code no.	2	4	6
Max. admissible pressure	PN 25, max. 25 bar,	PN 40, max. 40 bar,	PN 40, max. 40 bar,
Material design of separating can	Hastelloy®	Hastelloy®	Ceramics

Table 6: Material designs and temperature ranges

SK

Sealing			Code no.	11	20	30	31	40	60	61
G	S	M	Parts							
x	x	x	Suction casing	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	-	GBz	1.4581	1.4531
x	x	x	Discharge casing	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	-	GBz	1.4581	1.4581
x	x	x	Stage	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	-	GBz	1.4581	1.4581
x			Shaft seal casing	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	-	GBz	1.4581	1.4581
x	x	x	Star impeller	GBz	1.4408	1.4408	-	GBz	1.4408, hardened	1.4408, hardened
x	x	x	Shaft	1.4122	1.4122	1.4122	-	1.4571	1.4571	1.4571
x	x	x	Pump frame ¹	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	-	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15
		x	Pump frame ²	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	-	1.4581	1.4581	1.4581
x	x		Temperature limits	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C	-	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C
		x	Temperature limits	-20 up to +200 °C	-40 up to +350 °C	-40 up to +200 °C	-	0 up to +180 °C	-100 up to +250 °C	-40 up to +350 °C

¹ no contact with the medium
² in contact with the medium

ASK

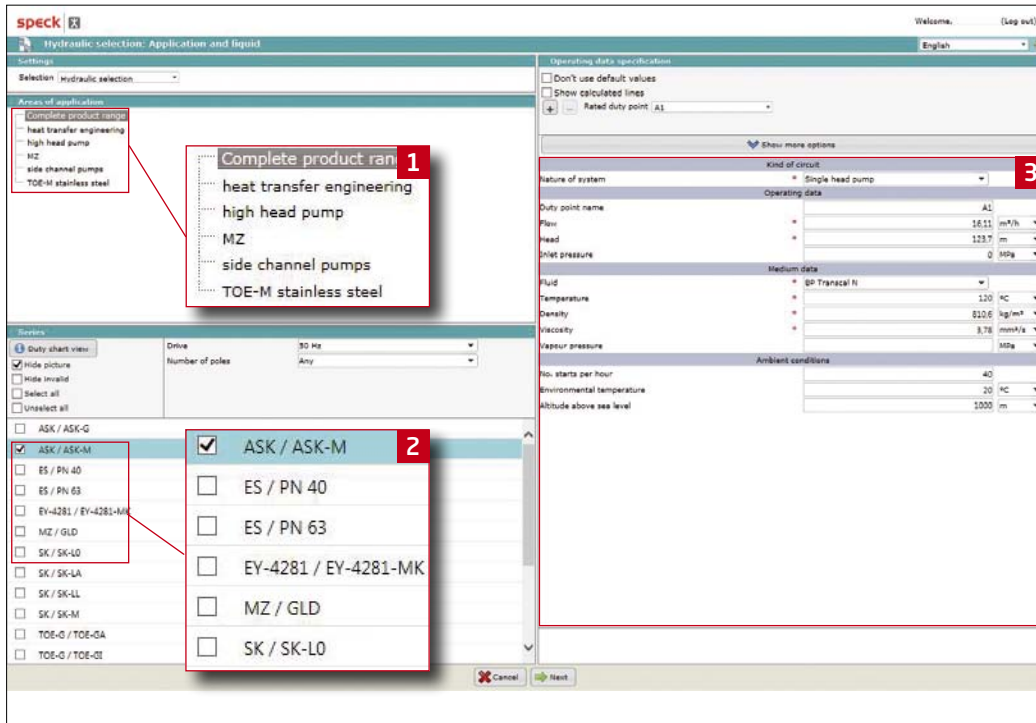
Sealing			Code no.	11	20	30	31	40	60	61
G	S	M	Parts							
x	x	x	Suction casing	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	1.4581	1.4581	1.4581
x	x	x	Discharge casing	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	GBz	1.4581	1.4581
x	x	x	Stage	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	GBz	1.4581	1.4581
x	x	x	Stage / NPSH	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	1.4581	1.4581	1.4581
x	x		Shaft seal casing	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	GBz	1.4581	1.4581
x	x	x	Star impeller	GBz	1.4408	1.4408	1.4408	GBz	1.4408, hardened	1.4408, hardened
x	x		Impeller / NPSH	EN-GJL-250	EN-GJL-250	EN-GJL-250	1.4408	1.4408	1.4408	1.4408
x	x	x	Shaft	1.4122	1.4122	1.4122	1.4122	1.4571	1.4571	1.4571
x	x		Pump frame ¹	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15
		x	Pump frame ²	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	EN-GJS-400-15	1.4581	1.4581	1.4581
x	x		Temperature limits	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C	0 up to +180 °C
		x	Temperature limits	-20 up to +200 °C	-40 up to +350 °C	-40 up to +200 °C	-40 up to +200 °C	0 up to +180 °C	-100 up to +250 °C	-40 up to +350 °C

¹ no contact with the medium
² in contact with the medium

The operating limit values result from the max. permissible pressure and the max. permissible temperature as well as the pumped medium with its specific vapour pressure..

Simple and optimal configuration software

SPAIX selection program



The software allows you to configure heat transfer pumps, side channel pumps and boiler feed pumps via your Internet browser. As well as design details, the system will also request operating details and details about the medium to be pumped.

Ideal for system planners

Speck now also offers the latest version 4 of the renowned SPAIX design software.

We make the program available to authorised customers who can pre-select the pumps within their system. The web-based software always accesses an up-to-date database.

Easy pre-selection

The configuration system avoids a wide range of selection parameters with regard to design, sealing systems, hydraulics, operating conditions and media.

The software has language options for German and English.

Checking the pre-selection

When the order is submitted, the customer's choices are double-checked to ensure that your project requirements are met.

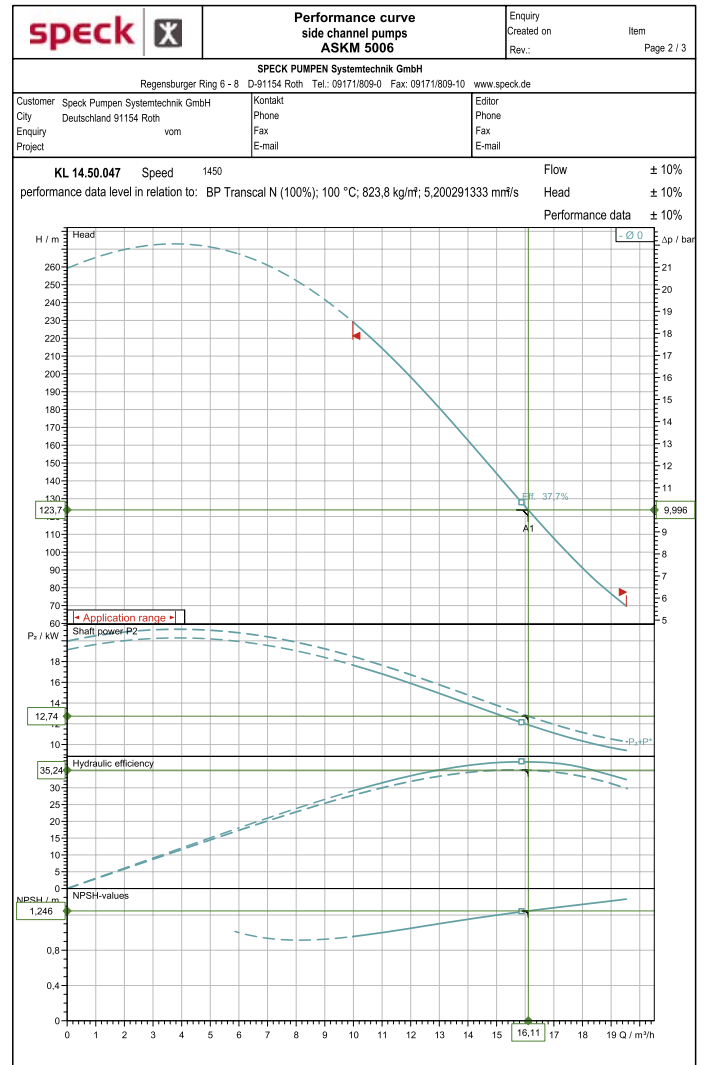


Characteristic curve depending on hydraulic selection

- 1 List of all pump designs that can be configured in the software
- 2 List of all series within the pump designs
- 3 Selection parameters operating parameters and medium data in the first instance
- 4 Characteristic curve depending on hydraulic selection generated

Documentation based on the selection program

speck X		Data Sheet side channel pumps ASKM 5006		Enquiry Created on Rev.:	Item Page 1 / 3
SPECK PUMPEN Systemtechnik GmbH Regensburger Ring 6 - 8 D-91154 Roth Tel.: 09171/809-0 Fax: 09171/809-10 www.speck.de					
Customer Speck Pumpen Systemtechnik GmbH City Deutschland 91154 Roth Enquiry vom Project		Kontakt Phone Fax E-mail		Editor Phone Fax E-mail	
Operating Data					
1 Fluid	BP Transcal N	Flow rate	rated 16,11 m ³ /h	Speed	1450 1/min
2 Corrosive matters	keine/not	min / max	10 / 19,5 m ³ /h	Efficiency	35,24 %
3 Abrasive matters	keine/not	Inlet Ø	10 bar (ü)	Total abs. power	12,74 kW
4 Solids	Ø	Disch.	9,996 bar (ü)	Dissipation	0,835 kW
5 Oper. Temp. tW / tS	100 / °C	Head	123,7 m		
6 Density at tW / tS	823,8 / kg/m ³	Pressure differential	10,00 bar (ü)		
7 Kin. viscosity at tW / tS	5,2 / mm ² /s			Flow rate at cold start	m ³ /h
8 Vapor press. at tW / tS	/ bar	NPSH required	1,75 m	Total abs. power at cold start	kW
9 PH value	/			Dissipation cold	kW
Installation / Environment					
10 Building / Outside	Gebäude	Altitude	< 1000 m	Amb. Temp. min	20 / 40 °C
11 under roof yes/no	Ja / Yes	ATEX aggregate category	not ATEX	rel. Humidity	<55 %
Pumpe					
12 Impeller type	side channel impeller	Pressure rating	PN 40	Pressure rating	PN 40
13 direction of rotation	left	Suction port	nom. diam. DN 100 Standard EN 1092-1	Delivery port	nom. diam. DN 50 Standard EN 1092-1
14					
15 Single head pump	X 1	Specifying calming suction side = min.	1000 mm	Material combination	11
Accessories					
Motor		Magnetic drive		Base plate	
17 Make	HOYER	Type	HMC2 180M-4	Description	135-060 bis 40 bar
18 Specific design	IE 2 / 50 Hz / Pole pairs 2	Number of poles	4	Description	U 400.1500.L
19 Rated power	18,5 kW	Degree of p	IP 55	Magnetic drive pow	22,1 kW
20 Rated current	34 A	Frequency	50 ± 2% Hz	Length	1500 mm
21 1-phase / 3-phase	3-	Voltage	400 ± 5% V	Diameter	135 mm
22 Rated speed	1470 1/min	Mounting	IM B35		
23 Motor flange ø	350 mm	Sound pressure level	dB(A)		
24					
25		terminal box, motor	oben		
Materials					
26 Suction casing	EN-GJS-400-15	Discharge casing	side channel impeller	EN-GJS-400-15	
27 Stage	EN-GJL-250	Shaft		GBz	1.4122
28 Impeller	EN-GJL-250				
29 pump frame MK	EN-GJS-400-15				
30					
31					
32 seal stage	Teflon	O-ring pump frame	FKM	seal separating can	Graphit
Tests and Inspections					
33 Material Tests	Test	Certificate	Other Tests	Tests and Inspections	Certificate Qty
34 Suction casing	keine	kein	Hydrost. Pressure Test	Intern	kein alle
35 Discharge casing	keine	kein	Gas Pressure Test	Intern	kein alle
36 Stage	keine	kein	Performance curve	4	Keine kein alle
37 side channel impeller	keine	kein	NPSH-Measurement		Keine kein alle
38 Impeller	keine	kein	Final check	Intern	kein alle
39			vibration		Keine kein alle
40			temperature		Keine kein alle
41			Max. operating pressure	40 bar / 20°C [X] Factor 1,5 test time 30 min	
Shipping data					
42 Net weight appr.	kg	Gross weight appr.	kg	pump color	motor color
Documentation					
43 Dimensional drwg.	Cross sect. drwg.	performance curve No.	Oper. & Instruct. Man.	Other (see attached)	Qty
44 RD 14... xxx	E 1420... xxx	KL 14.50.047	DE 1096.0851		1
Remarks					
45	motor article				
46	1) motor supplement corresponds to ISO 9908 2) according to EN 10204 3) volute casing & casing cover 4) without NPSH test 5) scope of deliv. to price sheet				



Technical data sheet (example)

Characteristic curve (example)

speck X		Dimension drawing side channel pumps ASKM 5006		Customer Speck Pumpen Systemtechnik GmbH City Deutschland 91154 Roth	Kontakt Phone Fax E-Mail	Editor Phone Fax E-Mail																																																																																																								
Enquiry																																																																																																														
SPECK PUMPEN Systemtechnik GmbH Regensburger Ring 6 - 8 D-91154 Roth Tel.: 09171/809-0 Fax: 09171/809-10 www.speck.de																																																																																																														
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Motor		HOYER - HMC2 180M-4 - IM B35																																																																																																												
		<table border="1"> <thead> <tr> <th colspan="2">Anschlüsse</th> <th colspan="2">Dimensions in mm</th> </tr> </thead> <tbody> <tr> <td>Suction port</td> <td>EN 1092-1</td> <td>Delivery port</td> <td>EN 1092-1</td> </tr> <tr> <td>DN 100 PN 40</td> <td>DN 50 PN 40</td> <td>a</td> <td>680</td> </tr> <tr> <td>ø D1 190 mm</td> <td>ø D1 125 mm</td> <td>m1</td> <td>728</td> </tr> <tr> <td>ø D2 22 mm</td> <td>ø D2 18 mm</td> <td>m2</td> <td>690</td> </tr> <tr> <td>D2 x 8</td> <td>D2 x 4</td> <td>m3</td> <td>353</td> </tr> <tr> <td></td> <td></td> <td>B1</td> <td>400</td> </tr> <tr> <td></td> <td></td> <td>B2</td> <td>500400</td> </tr> <tr> <td></td> <td></td> <td>B3</td> <td>500</td> </tr> <tr> <td></td> <td></td> <td>G1</td> <td>290</td> </tr> <tr> <td></td> <td></td> <td>G2</td> <td>110</td> </tr> <tr> <td></td> <td></td> <td>G3</td> <td>38</td> </tr> <tr> <td></td> <td></td> <td>G5</td> <td>477</td> </tr> <tr> <td></td> <td></td> <td>R1</td> <td>18,5</td> </tr> <tr> <td></td> <td></td> <td>L1</td> <td>1500</td> </tr> <tr> <td></td> <td></td> <td>L2</td> <td>100</td> </tr> <tr> <td></td> <td></td> <td>L3</td> <td>1300</td> </tr> <tr> <td></td> <td></td> <td>L5</td> <td>50</td> </tr> <tr> <td></td> <td></td> <td>P</td> <td>350</td> </tr> <tr> <td></td> <td></td> <td>B</td> <td>241</td> </tr> <tr> <td></td> <td></td> <td>BB</td> <td>315</td> </tr> <tr> <td></td> <td></td> <td>A'</td> <td>279</td> </tr> <tr> <td></td> <td></td> <td>AA</td> <td>70</td> </tr> <tr> <td></td> <td></td> <td>K</td> <td>14,5</td> </tr> <tr> <td></td> <td></td> <td>o</td> <td>30</td> </tr> <tr> <td></td> <td></td> <td>Z</td> <td>1580</td> </tr> </tbody> </table>					Anschlüsse		Dimensions in mm		Suction port	EN 1092-1	Delivery port	EN 1092-1	DN 100 PN 40	DN 50 PN 40	a	680	ø D1 190 mm	ø D1 125 mm	m1	728	ø D2 22 mm	ø D2 18 mm	m2	690	D2 x 8	D2 x 4	m3	353			B1	400			B2	500400			B3	500			G1	290			G2	110			G3	38			G5	477			R1	18,5			L1	1500			L2	100			L3	1300			L5	50			P	350			B	241			BB	315			A'	279			AA	70			K	14,5			o	30			Z	1580
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		G5	477																																																																																																											
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		L1	1500																																																																																																											
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		L3	1300																																																																																																											
		L5	50																																																																																																											
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		o	30																																																																																																											
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<p>* Die angegebenen Maße sind ca. Maße. Sowas möglich sollten sich nach dem an Auftragsunterlagen angegebene Maßstab.</p> <p>** The indicated motor dimensions are approx. dimensions. Exact details correspond to the actual model used in every single order.</p> <p>*** nur bei Grundplatten mit Laschen</p> <p>**** Only for base plates with flaps.</p>																																																																																																														

Save projects

Interim configuration results such as characteristic curves, scale drawings or technical data sheets can be saved as a project and generated as a pdf file.

Dimensional drawing (example)

Research and development with recent test stands



Computer-controlled and fully automated test stands on the premises of Speck in Roth.

Measuring of hydraulics, power requirements, axial thrust, vibrations and NPSH values. Heads of up to 400 m and flow rates of up to 750 m³/h are possible.



Thermal oil test stand with pump surveillance system on the premises of Speck in Roth.

Research of impacts of high temperatures up to 350 °C on the lifetime of the pumps.

Order-related tests and dimensioning

Pressure tests

Speck carries out the tests below as standard:

Gas pressure test

The gas pressure test is used to prove that the components are leak-proof. All components that bear pressure are tested, such as the discharge casing and the suction casing, stages and mechanical seal casing. The test is carried out with forming gas at 2 bar. The holding time is 15 minutes.

Hydrostatic pressure test

The hydrostatic pressure test is used to prove strength of the components and that the pump is leak-proof. The fully assembled pump is tested. The test is carried out with a hydrostatic test pressure based on prEN 12162; the hydrostatic test pressure corresponds to 1.5 x the nominal pressure (PN16) at 20 °C. The holding time is 10 minutes.

If you want to use pressure tests according to different criteria, please enter them in the request.

Testing the performance

At the customer's request, Speck offers the following tests:

Hydraulic tests

The measurement of the characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed. Tolerances: flow rate ± 10 %, total head ± 10 % power requirement + 10 %. Deviating properties of the media to be pumped affect the characteristic curves.

NPSH test

In this test, the suction-side pressure is gradually reduced until the decrease in the delivered head reaches 3 % at a constant flow rate. At least four flows are evaluated that are spread appropriately over the admissible operating range. The NPSH value is not a guarantee point.

Vibration test

Vibration test according to EN ISO 5199, Edition 2002. The vibration values are measured radially and vertically at every operating point on the bearing casing at the nominal speed and with the corresponding flow rate.

Temperature measurement

The measurement is taken on the motor-side bearing at operating temperature. The operating temperature and the ambient temperature at every operating point measured are documented.

Standard conditions at site

- » Ambient temperature from - 20 °C to + 40 °C
- » Permissible altitude up to 1000 m above sea level

Deviations from the site conditions specified herein must already be disclosed in the inquiry.

Dimensioning

Assessment of the maximum pump outlet pressure

- The pump outlet pressure at the pump nozzle depends on
 - » the pump inlet pressure
 - » the density of the medium to be pumped

The maximum pump outlet pressure $p_{2max\ op}$ is calculated using the formula:

$$p_{2max\ op} = p_{1max\ op} + \rho \cdot g \cdot H \cdot 10^{-5}$$

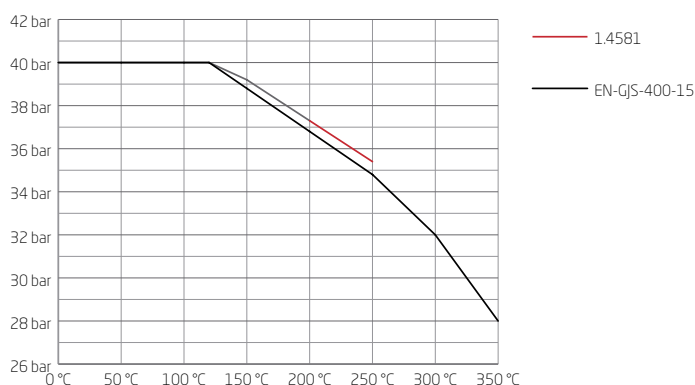
With:

- $p_{2max\ op}$ = maximum pump outlet pressure [bar]
- $p_{1max\ op}$ = maximum pump inlet pressure [bar]
- ρ = density of the medium to be pumped [kg/m³]
- g = gravitation constant [m/s²]
- H = maximum total head at zero flow or at the peak of the pump's characteristic curve [m]

Pumps must be selected and operated in a way which ensures that the maximum pump outlet pressure does by no means exceed the maximum permissible operating pressure of the casing $p_{all\ w\ c}$ at operating pressure. This also applies to commissioning while the discharge valve is closed (refer to diagram).

Pressure and temperature limitations

The maximum casing operating pressure $p_{all\ w\ c}$ of the pressure retaining parts depends on the operating temperature:



Maximum permissible casing operating pressure $p_{all\ w\ c}$

1.4581: stainless steel

EN-GJS-400-15: spheroidal graphite cast iron

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- Produktion / Production
- Vertrieb / Sales
- Service / Service

D Germany Produktion / Verwaltung Production / Administration

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