

# PUMP CATALOGUE



KI IN-LINE PUMPS WITH FIXED-SPEED MOTOR

Kolmeks is a Finnish manufacturing company and part of the family-owned Brandt Group Oy Ltd. The group has factories in Finland, Estonia, China and India, providing customers with expertise in two business areas: pumps and components (production and supply chain solutions). Kolmeks Pumps specializes in state-of-the-art pumps, HVAC products and dedicated maintenance services.

## The pump specialist

We have been engineering pumps for almost 80 years and striving to develop a portfolio of state-of-the-art pumping equipment. Pump technology and application know-how are our core competencies. We provide our customers with high-quality pumping and HVAC solutions as well as versatile maintenance services.

The main industries we work with include building services, industrial, marine and mobility operators. Kolmeks pumps are typically used in the pulp, paper and chemical industries as well as in other process industries.

Now and in the future, the human infrastructure depends on pumps that improve the quality of lives through sustainable means.

The pumps and their motors are designed and manufactured with the highest craftsmanship and they meet the demands of the European EcoDesign directive. Kolmeks was also among the first Finnish companies to receive the ISO 9001 Quality certificate and the ISO 14001 Environmental certificate.

We strive to be a solutions provider helping our customers to succeed by offering the most efficient, reliable and sustainable products and services.

*Planet, people and continuity are the cornerstones of our sustainability strategy.*





## Global reach, local presence

We have been operating in the Finnish pump market since 1945. Today, a large part of the pumps we manufacture are delivered, to all major European countries and China. Increasingly, Kolmeks products are also exported to several countries in the Middle East, Asia and Africa.

Turenki and Chuzhou are key sites for Kolmeks's own pumps manufacturing and motor assembly.

Ask us more about our products and services! We will be more than happy to provide you with solutions.

[www.kolmeks.com](http://www.kolmeks.com)

## Pump ranges

Alongside of pumps with fixed-speed motor Kolmeks has three ranges of pumps with integrated frequency control; the SC-, MD- and NC -ranges. The smallest pump with integrated frequency control is 0,08 kW, the largest 45 kW.

In addition, all Kolmeks pumps are suited for control by external frequency control.

Kolmeks pumps are available in four different materials; grey cast iron, nodular cast iron, bronze and stainless steel casting. The pumps are also available with several different shaft sealing solutions – which makes them suitable for numerous pumping applications.





## KI IN-LINE PUMPS WITH FIXED-SPEED IEC-MOTORS

TECHNICAL INFORMATION

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## General technical data

### KI-series pumps:

- Inline centrifugal pumps equipped with flange connections.
- Pumps can be used in multiple different applications for clean liquids.

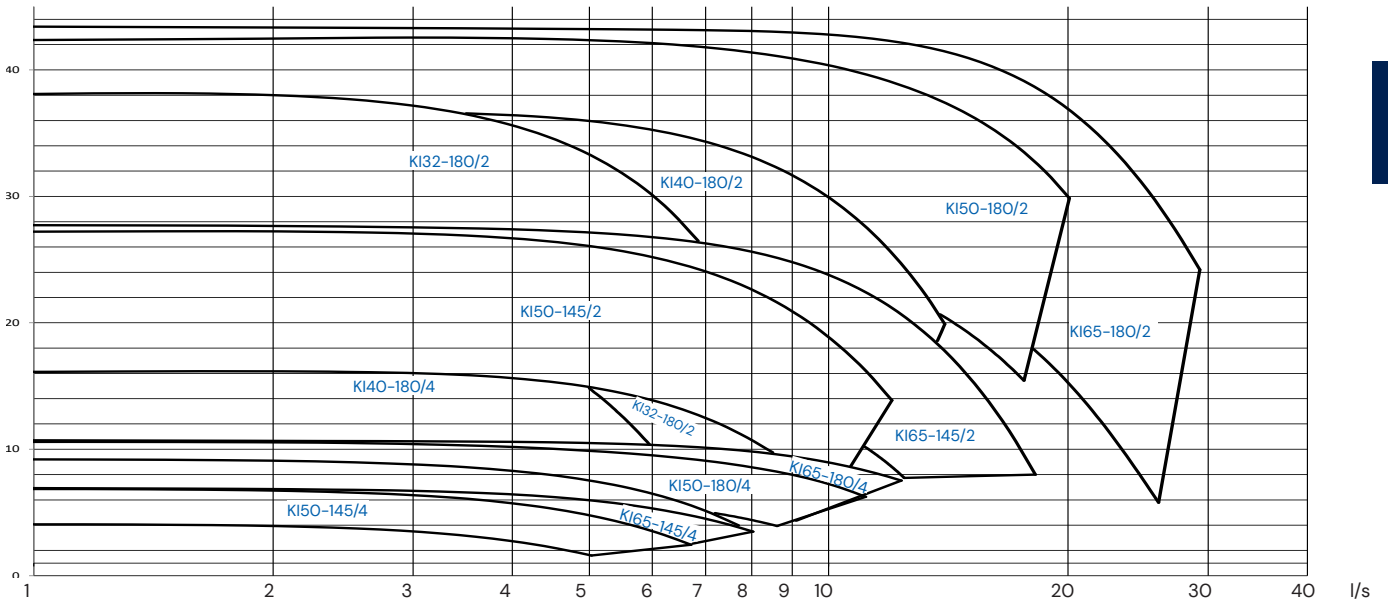
### Applications:

- Grey cast iron pumps can be used as circulation, pressure boosting and transfer pumps for clean liquids.
- Nodular cast iron pumps can be used in power plants and as pressure boosting pumps for primary district heating.

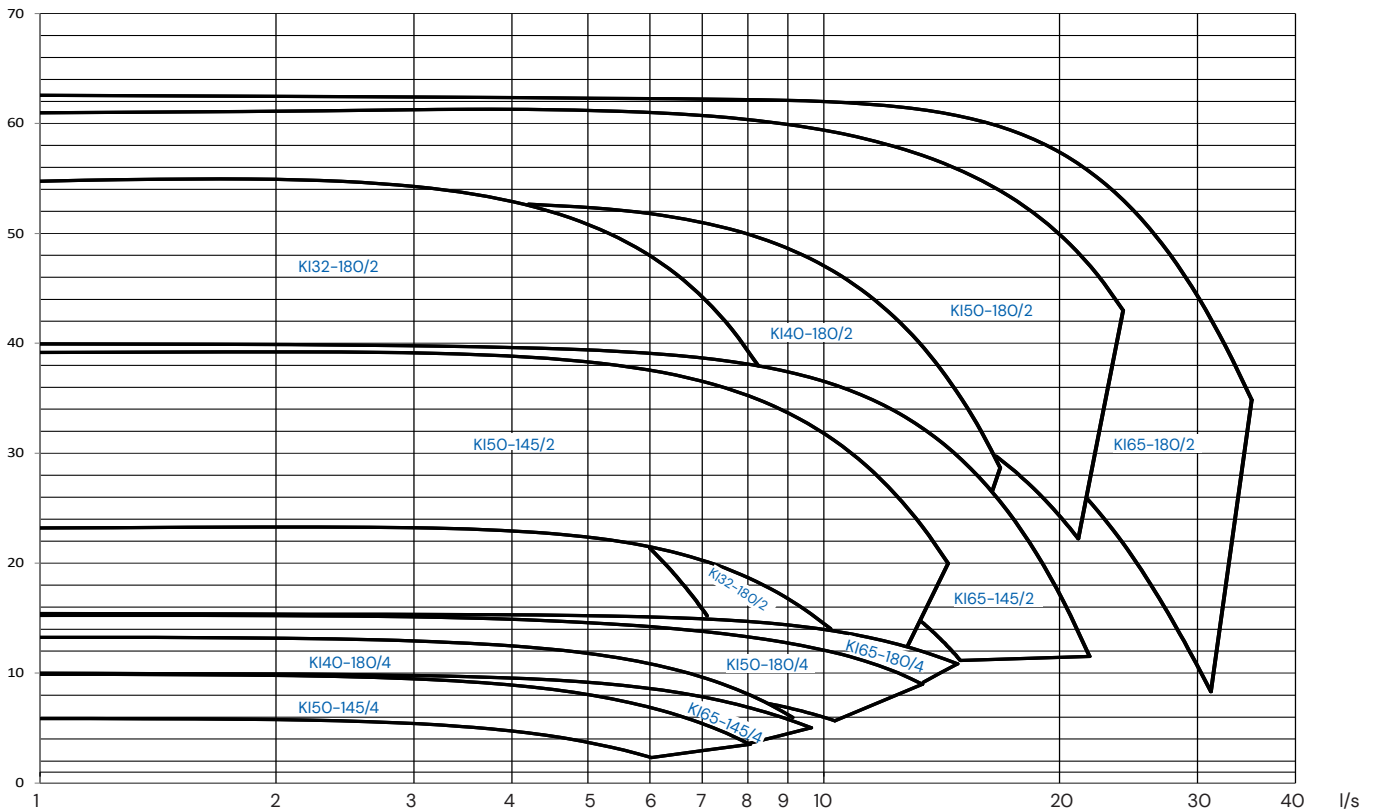
Note! The suitability of materials and seals for the liquid to be pumped must always be confirmed when selecting a pump.



### Quick selection chart KI-series 2- ja 4-poles, 50Hz



### Quick selection chart KI-series 2- ja 4-poles, 60Hz



## Standard materials

Connection	Grey cast iron	Nodular cast iron	Shaft seal material	Wear ring at pump house	Wear ring at shaft seal
	EN-GJL-200, PN10	EN-GJS-400, PN16		ASTM B584 C90500	ASTM B584 C90500
DN32	KI32-180/2	KIH32-180/2	AISI 329	D60/48	D128/116 *
DN40	KI40-180/2	KIH40-180/2	AISI 329	D68/56	D128/116 *
	KI40-180/4	KIH40-180/4	AISI 329	D68/56	D128/116 *
DN50	KI50-145/2	KIH50-145/2	AISI 329	D84/72	D120/108 *
	KI50-145/4	KIH50-145/4	AISI 329	D84/72	D120/108 *
	KI50-180/2	KIH50-180/2	AISI 329	D84/72	D128/116 *
	KI50-180/4	KIH50-180/4	AISI 329	D84/72	D128/116 *
DN65	KI65-145/2	KIH65-145/2	AISI 329	D92/80	D120/108 *
	KI65-145/4	KIH65-145/4	AISI 329	D92/80	D120/108 *
	KI65-180/2	KIH65-180/2	AISI 329	D92/80	D128/116 *
	KI65-180/4	KIH65-180/4	AISI 329	D92/80	D128/116 *

\* By request!



## Seal structure materials

Conne- ction	Pump type	Shaft seal		Shaft seal		Flushing		Double mechani- cal		O-ring		Motor	
		PN10		PN16		PN10/PN16		seal system		Size		[kW]	B14/B5
		Ø [mm]	& material	Ø [mm]	& material	Ø [mm]	& material	Ø [mm]	& material	[mm]	material		
DN32	KI32-180/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	168 X 3	NBR	2,2	B14
	KI32-180/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	25mm	SiC/SiC Teflon - Carbon/ SiC EPDM	168 X 3	NBR	3 and 4	B5
DN40	KI40-180/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	168 X 3	NBR	3	B5
	KI40-180/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	25mm	SiC/SiC Teflon - Carbon/ SiC EPDM	168 X 3	NBR	4, 5,5 and 7,5	B5
	KI40-180/4	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	168 X 3	NBR	0,37, 0,55, 0,75 and 1,1	B14
DN50	KI50-145/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	150 X 3	NBR	1,5 and 2,2	B14
	KI50-145/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	25mm	SiC/SiC Teflon - Carbon/ SiC EPDM	150 X 3	NBR	3	B5
	KI50-145/4	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	150 X 3	NBR	0,25, 0,37, 0,55, 0,75 and 1,1	B14
	KI50-180/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	25mm	SiC/SiC Teflon - Carbon/ SiC EPDM	184.5 X 3	NBR	4, 5,5, and 7,5	B5
	KI50-180/2	25mm	carbon/ SiC EPDM	25mm	carbon/ SiC EPDM	25mm	carbon/ SiC EPDM	25mm	SiC/SiC Teflon - Carbon/ SiC EPDM	184.5 X 3	NBR	11	B5
	KI50-180/4	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	184.5 X 3	NBR	0,37, 0,55, 0,75, 1,1 and 1,5	B14
DN65	KI65-145/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	150 X 3	NBR	2,2	B14
	KI65-145/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	25mm	SiC/SiC Teflon - Carbon/ SiC EPDM	150 X 3	NBR	3 and 4	B5
	KI65-145/4	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	150 X 3	NBR	0,25, 0,37, 0,55, 0,75 and 1,1	B14
	KI65-180/2	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	30mm	SiC/SiC Teflon - Carbon/ SiC EPDM	184.5 X 3	NBR	4, 5,5 and 7,5	B5
	KI65-180/2	30mm	carbon/ SiC EPDM	30mm	carbon/ SiC EPDM	30mm	carbon/ SiC EPDM	30mm	SiC/SiC Teflon - Carbon/ SiC EPDM	184.5 X 3	NBR	11, 15 and 18,5	B5
	KI65-180/4	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	18mm	carbon/ SiC EPDM	-	-	184.5 X 3	NBR	0,37, 0,55, 0,75, 1,1, 1,5 and 2,2	B14

## Structure

### Pump

KI-series pumps are monoblock centrifugal pumps equipped with a IEC-standard motor. Pumps fulfill the requirements of EcoDesign directive.

### KI-series electric motors, standard products

#### Standard voltages:

0,12 kW – 3,0 kW	220 – 240 V / 380 – 415 – 50 Hz
	480 V – 60 Hz
4,0 kW – 22 kW	380 – 415 / 660 – 690 V – 50 Hz
	480 V – 60 Hz

#### Electric motor flange design:

0,12 kW – 2,2 kW / 3000 rpm	IEC63 – IEC90	B14
0,12 kW – 1,5 kW / 1500 rpm	IEC63 – IEC90	B14
3,0 kW – 22 kW / 3000 rpm	IEC100 – IEC315	B5
2,2 kW – 22 kW / 1500 rpm	IEC100 – IEC315	B5

NOTE! Kolmeks electric motors are available in other enclosure classes and voltages by request.

### Connections

The KI series pump is equipped with flanged connections (PN10 or PN16) according to ISO 7005. Flanges to ANSI/JIS standards are available by request.

### Wear rings

The KI-series pumps are fitted with a tin-bronze suction-side wear ring as standard.

Wear rings minimize volumetric losses in pumps and add the possibility of a low-cost upgrade to pump efficiency in long serving pumps during routine maintenance.

Additional features include fitting a wear ring on the rear shroud side.

### Seals

The shaft seal of a KI series pump is a single mechanical seal. The pump housing seal is an O-ring.

By request, there are several seal materials and structure alternatives available depending on the properties and temperature of the liquid.

## Standard materials for single mechanical seal

Rotating ring	Resin impregnated carbon
Stationary ring	Silicon carbide or ceramic (depending on seal size / pump type)
Elastomers	EPDM or Viton (depending on seal size / pump type)
Metal parts	Stainless steel AISI 304 (10–12mm seals)
Stainless steel	AISI 316 (over 12mm seals)

## Material suitability for different liquids

Rotating ring/Stationary ring	Liquid	Liquid temperature range
Carbon/Ceramic	Water	max. +120°C, standard construction
Carbon/Silicon carbide	Water	0 ... +120°C, standard construction
	Water	0 ... +150°C, with internal flushing
	Freezium (refrigeration system)	-15 ... +40°C, standard construction
	Glycol (refrigeration system)	-15 ... +40°C, standard construction

Rotating ring/Stationary ring	Liquid	Liquid temperature range
Silicon carbide/Silicon carbide	Erosive liquids	-15 ... +120°C, standard construction
		-15 ... +150°C, internal flushing
	Calcium chloride (saline solution)	-15 ... +150°C, internal flushing
Antimony carbon/Silicon carbide	Demineralized water	0 ... +120°C, standard construction

## Rubber materials: suitability for different liquids

Rubber	EPDM	- mostly used
		-40°C–+150°C (+180°C double mech. seal)
		water, freezium, glycol, calcium chloride
		note! not oil resistant!
	NITRIL	-40°C–+90°C
		oil resistant
	VITON	-20°C–+200°C
		note. water max. +100°C
		heat transfer oils, dissolvents, special cases
		used as standard in pumps with thread connection




## Standard surface treatment

All parts of the pumps are painted according to Standard SFS-EN ISO 12944-5, AY100/1-FeSa2½.






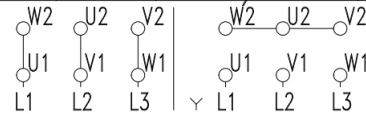
The of pump housing color is RAL3020, Kolmeks red. Motor color is RAL9005, black.

By request, standard surface color blue RAL5010 available free of charge. Epoxy surface treatment and color alternatives are available by request.

## Rating plate

Pump type	<b>Pump KI65-180/2</b>	<b>2302</b>	Manufacturing year and month Component number Impeller diameter and material Nominal power of motor
Serial number, Pressure class	KI65180211V-00010	<b>190030160</b>	
Duty point	<b>No 123456.100 2023 PN 10 Ø 180 mm</b>		
Minimum efficiency index	<b>21 l/s 36 m +110 °C P2N 11 kW</b>		
Motor type	<b>MEI &gt; 0,7 --</b>		
	<b>Original Motor: W22 160M B5T</b>		
	  		

## Example of rating plate for motor

										   			
04AGO14 0000000000 MOD.TE1BFOX0\$ IEC 60034-1													
2 →	3 ~ 315S/M-04	10 →	IP55	8 →	INS CL F Δ	9 ↓	80	4 →	S1	16 →	SF 1.00	AMB 40°C	← 15
3 →	V	10 →	Hz	kW	RPM	13 →	A	14 →	PF	IE code	100%	75%	50%
13067722	380 Δ / 660 Y	50	110	1489	201 / 116	0.87	IE 3	5 ↓	95.5	95.5	95.0	← 27	
	400 Δ / 690 Y	11 ↑	1490	193 / 112	0.86	95.6			95.5	94.7			
	415 Δ / -		1490	189 / -	0.85	95.8			95.0	93.7			
	460 Δ / -	60	1795	170 / -	0.85								
1	6319-C3(45g) ← 19 6316-C3(34g) ← 20 MOBIL POLYREX EM ← 21 11000 h ← 23				NEMA Eff 95.8% 150HP 460 V 60Hz 1795 RPM 170 A PF 0.85 Des A Code H SF 1.15 CC029A			Alt 1000 m.a.s.l. 987 kg					
							22 ↑		17 ↑			18 ↑	

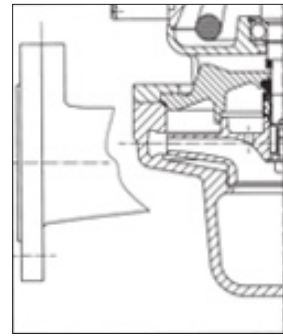
- |                              |   |
|------------------------------|---|
| 1 - Motor code               | 16 - Service factor   |
| 2 - Number of phases         | 17 - Altitude   |
| 3 - Rated operating voltage  | 18 - Motor weight   |
| 4 - Service duty             | 19 - Drive end bearing type and amount of grease (where applicable)     |
| 5 - Efficiency Code - IE     | 20 - Non-drive end bearing type and amount of grease (where applicable) |
| 6 - Frame size               | 21 - Type of grease for bearings  |
| 7 - Degree of protection     | 22 - Connection diagram   |
| 8 - Insulation class         | 23 - Relubrication intervals in hours                                   |
| 9 - Temperature rise         | 24 - Certification labels   |
| 10 - Frequency               | 25 - Manufacturing date   |
| 11 - Motor rated power       | 26 - Serial number  |
| 12 - Full load speed (rpm)   | 27 - Partial load efficiencies  |
| 13 - Rated operating current |   |
| 14 - Power factor            |   |
| 15 - Ambient temperature     |   |

## Seal structure alternatives

### Standard structure

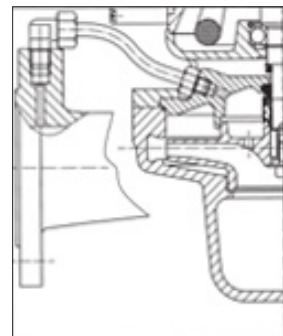
- Single mechanical seal
- Max. operating temperature +120°C.

The standard-construction shaft seal can also be used for water-glycol mixtures and most other indirect refrigeration systems. The recommended glycol is propylene glycol with a concentration of up to 50%. Most often, a concentration of 30–40% is adequate.



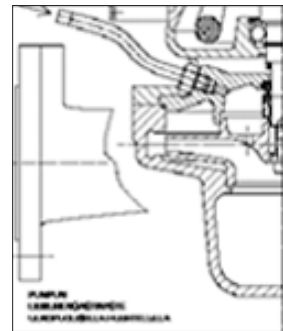
### Internal flushing

- Single mechanical seal
- Recirculation from the discharge flange of the pump to the seal chamber which flushes the seal
- Max. operating temperature +150°C water
- Available for flange sizes DN50 ... DN300. . This is indicated with an additional marking 'H' in the pump type e.g. KI65-145/4H.



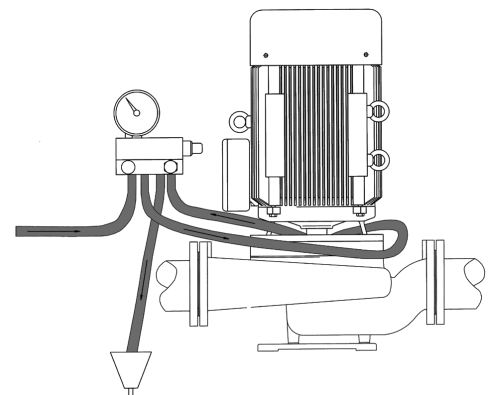
### External flushing

- Single mechanical seal
- A pipe from an external source plugged to the seal chamber, which makes it possible to flush the seal with external pressure if required
- Max. operating temperature +150°C water
- Available for pumps in flange sizes DN 50–300
- Crystallising and accumulative liquids



### Double mechanical seal system (cartridge)

- Two opposing seals with sealing liquid brought from outside (circulation). The pressure of the liquid can be lower or higher than that of the liquid being pumped
- Max. operating temperature +180°C for water
- Requires a separate seal water monitoring unit (available from Kolmeks)
- Marking 'KT' in the pump type e.g. KI65-185/4KT
- Hot, crystallizing and accumulative liquids



## Installation

Ensure the following when installing the pump:

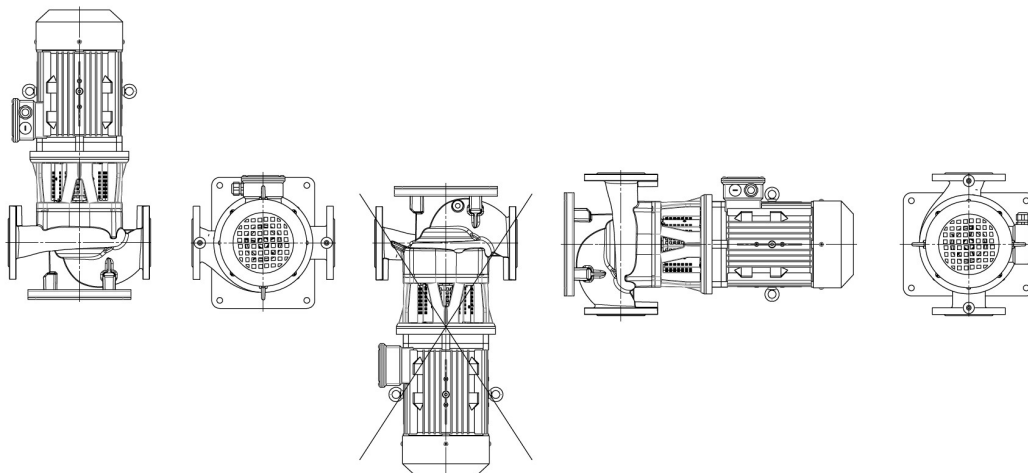
- Enough room for service and inspection
- Possibility to use lifting and transfer devices if required
- Shut-off valves on both sides of the pump, allowing the position of the drive unit and the electrical terminal connection box to be changed by removing the drive unit from the pump housing and by installing it in the required position --- (not applicable when using internal seal flushing, marking 'H')

Kolmeks inline pumps are suitable for both vertical and horizontal pipe mounted positions. Small pumps are usually installed without a base in a vertical or horizontal position. Large pumps are installed with the base in a vertical position.

Pumps equipped with 5,5 kW or larger motor, cannot be installed in horizontal position.

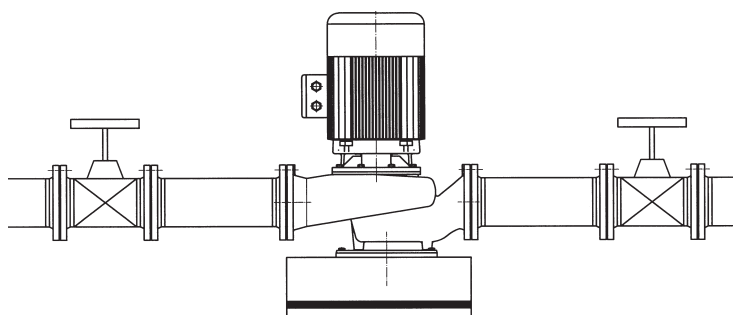
When selecting a method of installation, please consider at least the following:

- Enough room for installation and service
- Strength, rigidity and support of the piping
- Vibration and noise level requirements



### Recommended general limits without the base:

Large pumps are fastened by their base plate onto a freely moving concrete plinth, which is separated from the floor by a 20-mm thick rubber or cork mat for example. The weight of the concrete base must be about 1.5 times the weight of the pump.

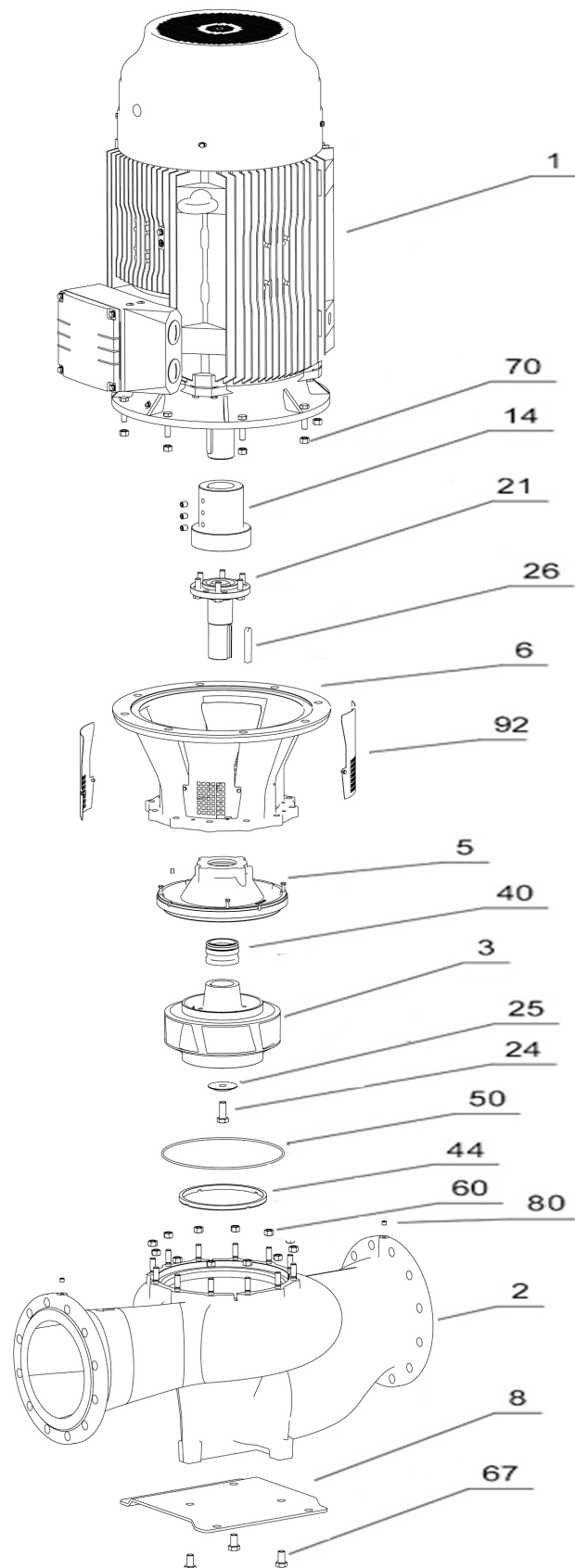


### Maximum size without base

Size	Power
DN32...DN 50	max. 2,2 kW
DN 65	4 kW
DN 80	4 kW
DN 100	7,5 kW
DN 125	7,5 kW

## Pump service

- 1 ELECTRICAL MOTOR
- 2 PUMP HOUSING
- 3 IMPELLER
- 5 SEALING FLANGE
- 6 MOTOR BRACKET (ADAPTER)
- 8 BASE PLATE
- 14 COUPLING
- 21 FLANGE-SHAFT
- 22 SCREW
- 24 SCREW
- 25 WASHER
- 26 KEY
- 40 MECHANICAL SHAFT SEAL
- 44 WEAR RING
- 50 O-RING OR GASKET
- 60 SCREW / NUT
- 62 SCREW
- 67 SCREW
- 70 SCREW / NUT
- 73 RUUVI
- 80 PIPE UNION (Internal flushing)
- 81 PIPE UNION (Internal flushing)
- 86 PIPE (Internal flushing)
- 89 COUPLING PROTECTION
- 92 COUPLING PROTECTION



## Measurement table

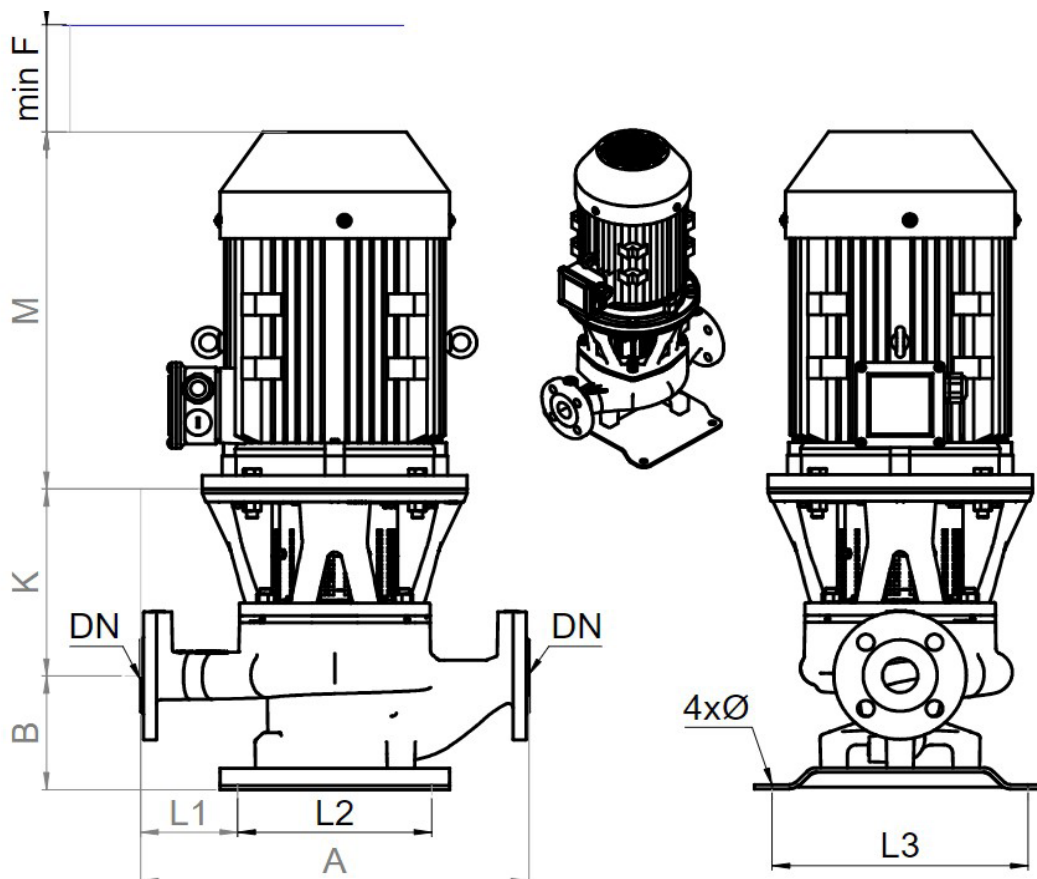
Pump type	Motor	DN	A	B	K	L1	L2	L3	M *	Ø	minF	Weight [kg] *
KI32-180-2	2,2	DN32	340	121	175	60	220	290	320	14,5	150	55
KI32-180-2	3	DN32	340	121	201	60	220	290	350	14,5	150	65
KI32-180-2	4	DN32	340	121	201	60	220	290	340	14,5	150	75
KI40-180-2	3	DN40	440	133	200	110	220	290	350	14,5	150	65
KI40-180-2	4	DN40	440	133	200	110	220	290	340	14,5	150	75
KI40-180-2	5,5	DN40	440	133	220	110	220	290	420	14,5	150	105
KI40-180-2	7,5	DN40	440	133	220	110	220	290	460	14,5	150	120
KI40-180-4	0,37	DN40	440	133	174	110	220	290	280	14,5	150	48
KI40-180-4	0,55	DN40	440	133	174	110	220	290	280	14,5	150	49
KI40-180-4	0,75	DN40	440	133	164	110	220	290	260	14,5	150	50
KI40-180-4	1,1	DN40	440	133	174	110	220	290	280	14,5	150	60
KI50-145-2	1,5	DN50	340	128	206	60	220	290	350	14,5	150	63
KI50-145-2	2,2	DN50	340	128	180,5	60	220	290	320	14,5	150	65
KI50-145-2	3	DN50	340	128	206	60	220	290	350	14,5	150	75
KI50-145-4	0,25	DN50	340	128	181	60	220	290	280	14,5	150	48
KI50-145-4	0,37	DN50	340	128	181	60	220	290	280	14,5	150	49
KI50-145-4	0,55	DN50	340	128	181	60	220	290	280	14,5	150	50
KI50-145-4	0,75	DN50	340	128	171	60	220	290	260	14,5	150	50
KI50-145-4	1,1	DN50	340	128	181	60	220	290	280	14,5	150	60
KI50-180-2	4	DN50	440	148	198	110	220	290	310	14,5	150	102
KI50-180-2	5,5	DN50	440	148	218	110	220	290	390	14,5	150	120
KI50-180-2	7,5	DN50	440	148	218	110	220	290	430	14,5	150	130
KI50-180-2	11	DN50	440	148	250	110	220	290	490	14,5	150	195
KI50-180-4	0,37	DN50	440	148	152	110	220	290	220	14,5	150	45
KI50-180-4	0,55	DN50	440	148	162	110	220	290	260	14,5	150	50
KI50-180-4	0,75	DN50	440	148	162	110	220	290	260	14,5	150	55
KI50-180-4	1,1	DN50	440	148	172	110	220	290	280	14,5	150	60
KI50-180-4	1,5	DN50	440	148	172	110	220	290	320	14,5	150	65

\*) Indicative. Varies by engine option.



Pump type	Motor	DN	A	B	K	L1	L2	L3	M *	Ø	minF	Weight [kg] *
KI65-145-2	2,2	DN65	360	144	215	70	220	290	380	14,5	150	63
KI65-145-2	3	DN65	360	144	215	70	220	290	350	14,5	150	70
KI65-145-2	4	DN65	360	144	215	70	220	290	380	14,5	150	85
KI65-145-4	0,25	DN65	360	144	189	70	220	290	280	14,5	150	49
KI65-145-4	0,37	DN65	360	144	169	70	220	290	220	14,5	150	50
KI65-145-4	0,55	DN65	360	144	179	70	220	290	260	14,5	150	55
KI65-145-4	0,75	DN65	360	144	179	70	220	290	260	14,5	150	55
KI65-145-4	1,1	DN65	360	144	189	70	220	290	280	14,5	150	65
KI65-180-2	4	DN65	475	158	212	127	220	290	310	14,5	150	107
KI65-180-2	5,5	DN65	475	158	232	127	220	290	390	14,5	150	125
KI65-180-2	7,5	DN65	475	158	232	127	220	290	430	14,5	150	135
KI65-180-2	11	DN65	475	158	264	127	220	290	490	14,5	150	205
KI65-180-2	18,5	DN65	475	158	264	127	220	290	526	14,5	150	198
KI65-180-4	0,37	DN65	475	158	166	127	220	290	220	14,5	150	60
KI65-180-4	0,55	DN65	475	158	176	127	220	290	260	14,5	150	65
KI65-180-4	0,75	DN65	475	158	176	127	220	290	260	14,5	150	70
KI65-180-4	1,1	DN65	475	158	186	127	220	290	280	14,5	150	75
KI65-180-4	1,5	DN65	475	158	186	127	220	290	320	14,5	150	85
KI65-180-4	2,2	DN65	475	158	212	127	220	290	350	14,5	150	85

\*) Indicative. Varies by engine option.



## Kolmeks and the new energy efficiency directive

Kolmeks dry motor driven pumps fulfil all energy efficiency requirements in force as from the beginning of 2013. The basis for these requirements is the EcoDesign directive which harmonises the requirements for energy consuming and energy-related products.

### The EcoDesign directive – 2009/125/EC October 21st 2009

Establishes a framework for the setting of Community EcoDesign requirements for energy-related products by contributing to sustainable development by increasing energy efficiency and the level of protection of the environment, while at the same time increasing the security of the energy supply.

The Directive provides for the setting of requirements which the energy-related products covered by implementing measures, i.e. measures adopted pursuant to the Directive laying down EcoDesign requirements for defined products or for environmental aspects thereof, must fulfil in order to be placed on the market and / or put into service.

Commission Regulations implementing the Directive with regard to EcoDesign requirements have been issued for water pumps as well as for electric motors.

All Kolmeks' pumps fulfil said energy efficiency requirements.

### Kolmeks dry motor driven pumps Regulation (EU) No 547/2012, June 25th 2012

Regulation 547/2012 sets minimum efficiency requirements (MEI = minimum efficiency index), as well as information requirements for rotodynamic water pumps in Annex II of the Regulation, and shall the requirements apply in accordance with the following timetable. MEI means the dimensionless scale unit for hydraulic pump efficiency at best efficiency point (BEP), part load (PL) and over load (OL)

#### Requirements are implemented in two phases

From January 1st 2015 water pumps shall have a minimum efficiency of  $MEI \geq 0.4$

The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of a water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

The most efficient water pumps have a MEI of  $\geq 0.70$

More information on the comparative efficiency of pumps can be found at [www.europump.org/efficiencycharts](http://www.europump.org/efficiencycharts)

All pumps in this catalogue fulfil the minimum requirements set by the Directive and its implementing regulations.

# Kolmeks electric motors Regulation (EC) No 2019/1781

Regulation 2019/1781 sets minimum efficiency levels (IE class) for electric motors. The IE class defines directly the minimum efficiency (as a percentage) based on the number of poles and the rated output power of the motor.

The efficiency level of the motor shall be visibly displayed on the motor, for example IE4 – 96,2 %.

## Requirements are implemented in phases

Since June 16th 2011 IE2 is required for motors from 0.75kW to 375 kW.

From January 1st 2015 IE3 is required for motors from 7.5 kW to 375 kW and IE2 is allowed only in combination with a variable speed drive.

From January 1st 2017 IE3 is required for all motors from 0.75 kW to 375 kW).

From July 1st 2023 IE4 is required for motors from 75 kW to 200 kW.

Kolmeks manufactured electric motors meet mainly IE3 level requirements. All Kolmeks electric motors meet above mentioned requirements.

We will gladly supply You with more information and answer any questions regarding the new energy efficiency requirements.

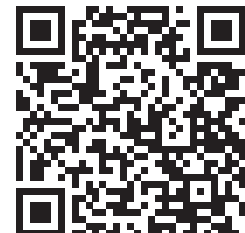
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## Pumpselector

See more detailed information and make pump selection using our selection program.

You can do fast check without signing in, but please register for better use!

[pumpselector.kolmeks.fi](http://pumpselector.kolmeks.fi)





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