

SPK

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Declaration of Conformity

We **GRUNDFOS** declare under our sole responsibility that the products **SPK**, to which this declaration relates, are in conformity with the Council Directives on the approximation of the laws of the EEC Member States relating to

- Machinery (98/37/EEC).
Standard used: EN 292.
- Electromagnetic compatibility (89/336/EEC).
Standards used: EN 61 000-6-2 and EN 61 000-6-3.
- Electrical equipment designed for use within certain voltage limits (73/23/EEC).
Standards used: EN 60 335-1 and EN 60 335-2-51.

Konformitätserklärung

Wir **GRUNDFOS** erklären in alleiniger Verantwortung, daß die Produkte **SPK**, auf die sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EG-Mitgliedstaaten übereinstimmen:

- Maschinen (98/37/EWG).
Norm, die verwendet wurde: EN 292.
- Elektromagnetische Verträglichkeit (89/336/EWG).
Normen, die verwendet wurden: EN 61 000-6-2 und EN 61 000-6-3.
- Elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen (73/23/EWG).
Normen, die verwendet wurden: EN 60 335-1 und EN 60 335-2-51.

Déclaration de Conformité

Nous **GRUNDFOS** déclarons sous notre seule responsabilité que les produits **SPK** auxquels se réfère cette déclaration sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CEE relatives à

- Machines (98/37/CEE).
Standard utilisé: EN 292.
- Compatibilité électromagnétique (89/336/CEE).
Standards utilisés: EN 61 000-6-2 et EN 61 000-6-3.
- Matériel électrique destiné à employer dans certaines limites de tension (73/23/CEE).
Standards utilisés: EN 60 335-1 et EN 60 335-2-51.

Dichiarazione di Conformità

Noi **GRUNDFOS** dichiariamo sotto la nostra esclusiva responsabilità che i prodotti **SPK** ai quali questa dichiarazione si riferisce sono conformi alle Direttive del Consiglio concernente il ravvicinamento delle legislazioni degli Stati membri CEE relative a

- Macchine (98/37/CEE).
Standard usato: EN 292.
- Compatibilità elettromagnetica (89/336/CEE).
Standard usati: EN 61 000-6-2 e EN 61 000-6-3.
- Materiale elettrico destinato ad essere utilizzato entro certi limiti di tensione (73/23/CEE).
Standard usati: EN 60 335-1 e EN 60 335-2-51.

Declaración de Conformidad

Nosotros **GRUNDFOS** declaramos bajo nuestra única responsabilidad que los productos **SPK** a los cuales se refiere esta declaración son conformes con las Directivas del Consejo relativas a la aproximación de las legislaciones de los Estados Miembros de la CEE sobre

- Máquinas (98/37/CEE).
Norma aplicada: EN 292.
- Compatibilidad electromagnética (89/336/CEE).
Normas aplicadas: EN 61 000-6-2 y EN 61 000-6-3.
- Material eléctrico destinado a utilizarse con determinadas límites de tensión (73/23/CEE).
Normas aplicadas: EN 60 335-1 y EN 60 335-2-51.

Declaração de Conformidade

Nós **GRUNDFOS** declaramos sob nossa única responsabilidade que os produtos **SPK** aos quais se refere esta declaração estão em conformidade com as Directivas do Conselho das Comunidades Europeias relativas à aproximação das legislações dos Estados Membros respeitantes à

- Máquinas (98/37/CEE).
Norma utilizada: EN 292.
- Compatibilidade electromagnética (89/336/CEE).
Normas utilizadas: EN 61 000-6-2 e EN 61 000-6-3.
- Material eléctrico destinado a ser utilizado dentro de certos limites de tensão (73/23/CEE).
Normas utilizadas: EN 60 335-1 e EN 60 335-2-51.

Δήλωση Συμμόρφωσης

Εμείς η **GRUNDFOS** δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα **SPK** συμμορφώνονται με την Οδηγία του Συμβουλίου επί της σύγκλισης των νόμων των Κρατών Μελών της Ευρωπαϊκής Ένωσης σε σχέση με τα

- Μηχανήματα (98/37/EEC).
Πρότυπο που χρησιμοποιήθηκε: EN 292.
- Ηλεκτρομαγνητική συμβατότητα (89/336/EEC).
Πρότυπα που χρησιμοποιήθηκαν: EN 61 000-6-2 και EN 61 000-6-3.
- Ηλεκτρικές συσκευές σχεδιασμένες για χρήση εντός ορισμένων ορίων ηλεκτρικής τάσης (73/23/EEC).
Πρότυπα που χρησιμοποιήθηκαν: EN 60 335-1 και EN 60 335-2-51.

Overeenkomstigheidsverklaring

Wij **GRUNDFOS** verklaren geheel onder eigen verantwoordelijkheid dat de producten **SPK** waarop deze verklaring betrekking heeft in overeenstemming zijn met de Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgevingen van de Lid-Staten betreffende

- Machines (98/37/EEG).
Norm: EN 292.
- Elektromagnetische compatibiliteit (89/336/EEG).
Normen: EN 61 000-6-2 en EN 61 000-6-3.
- Elektrisch materiaal bestemd voor gebruik binnen bepaalde spanningsgrenzen (73/23/EEG).
Normen: EN 60 335-1 en EN 60 335-2-51.

Försäkran om överensstämmelse

Vi **GRUNDFOS** försäkrar under ansvar, att produkterna **SPK**, som omfattas av denna försäkran, är i överensstämmelse med Rådets Direktiv om inbördes närmande till EU-medlemsstaternas lagstiftning, avseende

- Maskinell utrustning (98/37/EC).
Använd standard: EN 292.
- Elektromagnetisk kompatibilitet (89/336/EC).
Använda standarder: EN 61 000-6-2 och EN 61 000-6-3.
- Elektrisk material avsedd för användning inom vissa spänningsgränser (73/23/EC).
Använda standarder: EN 60 335-1 och EN 60 335-2-51.

Vastaavuusvakuutus

Me **GRUNDFOS** vakuutamme yksin vastuullisesti, että tuotteet **SPK**, jota tämä vakuutus koskee, noudattavat direktiivejä jotka käsittelevät EY:n jäsenvaltioiden koeilaisia laitteita koskevien lakien yhdenmukaisuutta seur:

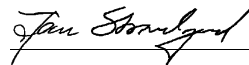
- Koneet (98/37/EY).
Käytetty standardi: EN 292.
- Elektromagneettinen vastaavuus (89/336/EY).
Käytetyt standardit: EN 61 000-6-2 ja EN 61 000-6-3.
- Määrättyjen jänniterajojen puitteissa käytettävät sähköiset laitteet (73/23/EY).
Käytetyt standardit: EN 60 335-1 ja EN 60 335-2-51.

Overensstemmelseserklæring

Vi **GRUNDFOS** erklærer under ansvar, at produkterne **SPK**, som denne erklæring omhandler, er i overensstemmelse med Rådets direktiver om indbyrdes tilnærmelse til EF medlemsstaternes lovgivning om

- Maskiner (98/37/EØF).
Anvendt standard: EN 292.
- Elektromagnetisk kompatibilitet (89/336/EØF).
Anvendte standarder: EN 61 000-6-2 og EN 61 000-6-3.
- Elektrisk materiel bestemt til anvendelse inden for visse spændingsgrænser (73/23/EØF).
Anvendte standarder: EN 60 335-1 og EN 60 335-2-51.

Bjerringbro, 1st December 2002



Jan Strandgaard
Technical Manager

SPK

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Before beginning installation procedures, these installation and operating instructions should be studied carefully. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

1. Applications

The GRUNDFOS pumps, type SPK, are multistage centrifugal pumps designed for pumping liquids for machine tools, condensate transfer, liquid transfer in industrial washing machines and similar applications.



The pump must not be used for the transfer of inflammable liquids such as diesel oil, petrol or similar liquids.

The pumps are designed for pumping liquids with a density and viscosity corresponding to those of water. The pumped liquid must not contain abrasive particles or fibres.

When pumping liquids with a density or viscosity higher than that of water, the motor size should be taken into consideration.

2. Type designation

The standard range of pumps encompasses complete impeller in chamber combinations. On request, other lengths, against duty combinations, can be supplied by fitting empty intermediate chambers instead of standard chambers with impellers.

The pump key on the pump nameplate indicates the number of chambers and impellers fitted to the pump.

2.1 Pump key

Example	SPK 4 - 16 / 2 - x - x - x - xxx
Pump range	
Nominal flow rate in m ³ /h	
Number of stages	
Number of impellers	
Code for pump version	
Code for pipework connection	
Code for materials	
Code for shaft seal and rubber pump parts	

3. Technical data

Pump type	SPK
Minimum liquid temperature [°C]	-10
Maximum liquid temperature [°C]	+90
Maximum ambient temperature [°C]	+40
Maximum operating pressure [bar]	10
Enclosure class	IP 54

4. Installation



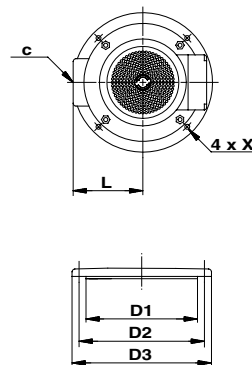
The pump must be installed so that persons cannot accidentally come into contact with the hot surface of the motor.

4.1 Pump location

The pump is designed for tank mounting in vertical position. The pump is positioned in a hole cut into the cover of the tank (upper side) and is secured to the tank by four hexagon head screws through the holes in the mounting flange. It is recommended to fit a sealing gasket between the pump flange and tank.

If the pump is to be installed horizontally, the drain hole of the motor stool must be fitted with a plug.

Fig. 1



Pump mounting flange dimensions:

Pump type	D1	D2	D3	L	C	X
SPK 1, 2 and 4	100	115	130	64	Rp ¾	ø7.5
SPK 8	140	160	180	100	Rp 1 ¼	ø7.5

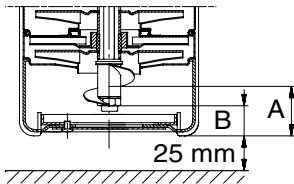
4.2 Suction conditions

The bottom of the pump strainer must be at least 25 mm above the bottom of the tank.

The pumps are designed to provide full performance down to a level of A mm above the bottom of the strainer.

At a liquid level between A and B mm above the bottom of the strainer, the built-in priming screw will protect the pump against dry running.

Fig. 2



TM00 4841 3897

5. Electrical connection

The electrical connection should be carried out in accordance with local regulations.



Never make any connections in the pump terminal box unless the electricity supply has been switched off.

If the pump is not connected to an electric installation, it must be connected to an external mains switch.

The operating voltage and frequency are marked on the pump nameplate. Please make sure that the motor is suitable for the electricity supply on which it will be used.

Single-phase GRUNDFOS motors incorporate a thermal overload switch and require no additional motor protection.

Three-phase motors must be connected to a motor starter.

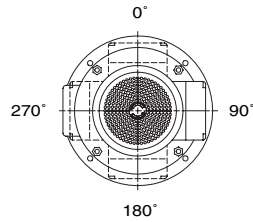
The terminal box can be turned to four positions, in 90° steps, see fig. 3.

Proceed as follows:

1. Remove the coupling guards. Do *not* remove the coupling.
2. Remove the four bolts securing the motor to the motor stool.
3. Turn the motor to the required position.
4. Replace and tighten the four bolts.
5. Replace the coupling guards.

The electric motor should be connected to the supply as shown in the diagram inside the terminal box cover.

Fig. 3



TM00 4257 2294

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6. Start-up



Pay attention to the direction of the vent hole and take care to ensure that the escaping water does not cause injury to persons or damage to the motor or other components.

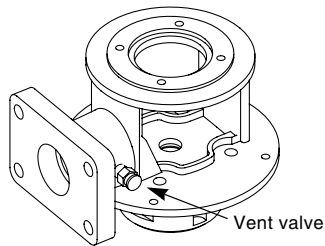
Before starting the pump, make sure:

- that all pipe connections are tight.
- that the pump body is partly filled with liquid (partly submerged).
- that the strainer is not blocked by impurities.

Start the pump as follows:

1. Close the isolating valve on the discharge side of the pump.
2. If the pump is fitted with a vent valve, this valve must be opened, see fig. 4.

Fig. 4



TM01 6428 2399

3. See the correct direction of rotation of the pump on the motor fan cover. When seen from the top, the pump should rotate *counter-clockwise*.
 4. Start the pump and check the direction of rotation.
 5. Open the discharge isolating valve a little.
 6. If the pump is fitted with a vent valve, this valve must be closed when a steady stream of liquid runs out of it.
 7. Completely open the discharge isolating valve.
- The pump has now been vented and is ready for operation.

7. Operation and maintenance

Note: The pump is not allowed to run against a closed discharge valve for more than approx. 5 minutes as this will cause an increase in temperature/formation of steam in the pump which may cause damage to the pump.

7.1 Lubrication and maintenance

Pumps installed in accordance with these instructions require very little maintenance.

The mechanical shaft seal is self-adjusting and has wear-resistant seal rings which are lubricated and cooled by the pumped liquid.

The pump bearings are also lubricated by the pumped liquid. The motor ball bearings are grease packed and sealed for life. No further lubrication is necessary.

Pumps from 4 kW and up have angular contact bearings.

7.2 Filters

Chip trays, filters, etc. should be cleaned at regular intervals to ensure a correct flow of liquid.

7.3 Periodic checks

At regular intervals, depending on the conditions and time of operation, the following checks should be made:

- Check the quantity of liquid and operating pressure.
- Check that there are no leaks.
- Check that the motor is not overheating.
- Check the tripping of the motor starter.
- Check that all controls are operating satisfactorily.

If the above checks do not reveal any abnormal operating details, no further checks are necessary.

Should any faults be found, check the symptoms with section 10. *Fault finding chart.*

8. Service



If a pump has been used for pumping liquids which are injurious to human health or poisonous, it will be classified as contaminated.

A contaminated pump must not be sent to GRUNDFOS for service until GRUNDFOS has received all necessary details about the pumped liquid, etc. Otherwise GRUNDFOS can refuse to accept the pump for servicing.

Possible costs of returning the pump are to be paid by the customer.

9. Sound pressure level

Motor [kW]	\bar{L}_{pA} [dB(A)]	
	50 Hz	60 Hz
0.06	<70	<70
0.12	<70	<70
0.18	<70	<70
0.25	<70	<70
0.37	<70	<70
0.55	<70	<70
0.75	<70	<70
1.1	<70	<70
1.5	<70	71
2.2	<70	71

10. Fault finding chart



Before starting work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.



Fault	Cause	Remedy
1. Motor does not run when started.	a) Supply failure.	Connect the electricity supply.
	b) Fuses are blown.	Replace fuses.
	c) Motor starter overload has tripped out.	Reactivate the motor protection.
	d) Main contacts in motor starter are not making contact or the coil is faulty.	Replace contacts or magnetic coil.
	e) Control circuit is defective.	Repair the control circuit.
	f) Motor is defective.	Replace the motor.
2. Motor starter overload trips out immediately when supply is switched on.	a) One fuse/automatic circuit breaker is blown.	Cut in the fuse.
	b) Contacts in motor starter overload are faulty.	Replace motor starter contacts.
	c) Cable connection is loose or faulty.	Fasten or replace the cable connection.
	d) Motor winding is defective.	Replace the motor.
	e) Pump mechanically blocked.	Remove the mechanical blocking of the pump.
	f) Overload setting is too low.	Set the motor starter correctly.
3. Motor starter overload trips out occasionally.	a) Overload setting is too low.	Set the motor starter correctly.
	b) Low voltage at peak times.	Check the electricity supply.
4. Motor starter has not tripped out but the pump does not run.	a) Check 1 a), b), d) and e).	
5. Pump runs but gives no liquid or pump capacity is not constant.	a) Pump strainer partly blocked by impurities.	Clean the strainer.
	b) Liquid level in tank too low.	Increase the liquid level.
	c) Pump rotates in the wrong direction.	Change the direction of rotation of the motor.

11. Disposal

Disposal of this product must be carried out according to the following guidelines:

1. Use the local public or private waste collection service.
2. In case such waste collection service does not exist or cannot handle the materials used in the product, please deliver the product or any hazardous materials from it to your nearest GRUNDFOS company or service workshop.

Subject to alterations.

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