

Submersible Wastewater Pump with Anti-Clog Technology



Model DKEU
Model DKEXU

Technical Information

Illinois Location:

(847) 841-7867
860 Church Rd Elgin, IL 60120

Minnesota Location:

(651) 758-7867
330 Mill Bay South Suite 100
Afton, MN 55001

PumpSupplyInc.com



EBARA

EBARA Pumps Americas Corporation

EBARA Submersible Sewage Pumps**DKEU/DKEXU****Technical Information****Impeller Data**

Model	Power		Type	Design	# Vanes	Back P.O. Vanes
	HP	kW				
50DKE(X)U461.5	2	1.5	Semi-Open	Radial	Single	Yes
80DKE(X)U461.5			Semi-Open	Radial	Single	Yes
80DKE(X)U462.2	3	2.2	Semi-Open	Radial	Single	Yes
100DKE(X)U462.2			Semi-Open	Radial	Single	Yes
80DKE(X)U463.7	5	3.7	Semi-Open	Radial	Single	Yes
100DKE(X)U463.7			Semi-Open	Radial	Single	Yes
80DKE(X)U465.5	7.5	5.5	Semi-Open	Radial	Single	Yes
100DKEBXU465.5			Semi-Open	Radial	Single	Yes
100DKE(X)U465.5			Semi-Open	Radial	Double	Yes
80DKE(X)U467.5	10	7.5	Semi-Open	Radial	Double	Yes
100DKEBXU467.5			Semi-Open	Radial	Double	Yes
100DKE(X)U467.5			Semi-Open	Radial	Double	Yes
150DKE(X)U467.5			Semi-Open	Radial	Double	Yes
80DKE(X)U4611	15	11	Semi-Open	Radial	Double	Yes
100DKEBXU4611			Semi-Open	Radial	Double	Yes
100DKE(X)U4611			Semi-Open	Radial	Double	Yes
150DKE(X)U4611			Semi-Open	Radial	Double	Yes
200DKE(X)U4611			Semi-Open	Radial	Double	Yes
100DKEBXU4615	20	15	Semi-Open	Radial	Double	Yes
100DKE(X)U4615			Semi-Open	Radial	Double	Yes
150DKE(X)U4615			Semi-Open	Radial	Double	Yes
200DKE(X)U4615			Semi-Open	Radial	Double	Yes
100DKEBXU4618	25	18.5	Semi-Open	Radial	Double	Yes
100DKE(X)U4618			Semi-Open	Radial	Double	Yes
150DKE(X)U4618			Semi-Open	Radial	Double	Yes
200DKE(X)U4618			Semi-Open	Radial	Double	Yes
250DKE(X)U4618			Semi-Open	Radial	Double	Yes
100DKEBXU4622	30	22	Semi-Open	Radial	Double	Yes
100DKE(X)U4622			Semi-Open	Radial	Double	Yes
150DKE(X)U4622			Semi-Open	Radial	Double	Yes
200DKE(X)U4622			Semi-Open	Radial	Double	Yes
250DKE(X)U4622			Semi-Open	Radial	Double	Yes

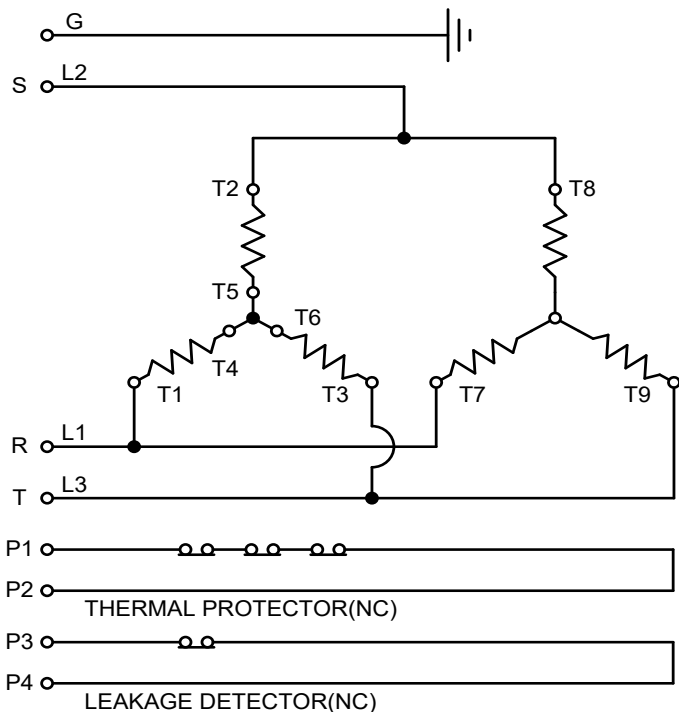


EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Winding Connection- Output 2 to 10 HP 208/230V



- G - GRN
- L1 - RED - T1 - T7
- L2 - WHT - T2 - T8
- L3 - BLK - T3 - T9
- T4 - T5 - T6
- P1 - RED
- P2 - WHT
- P3 - BLK
- P4 - ORG

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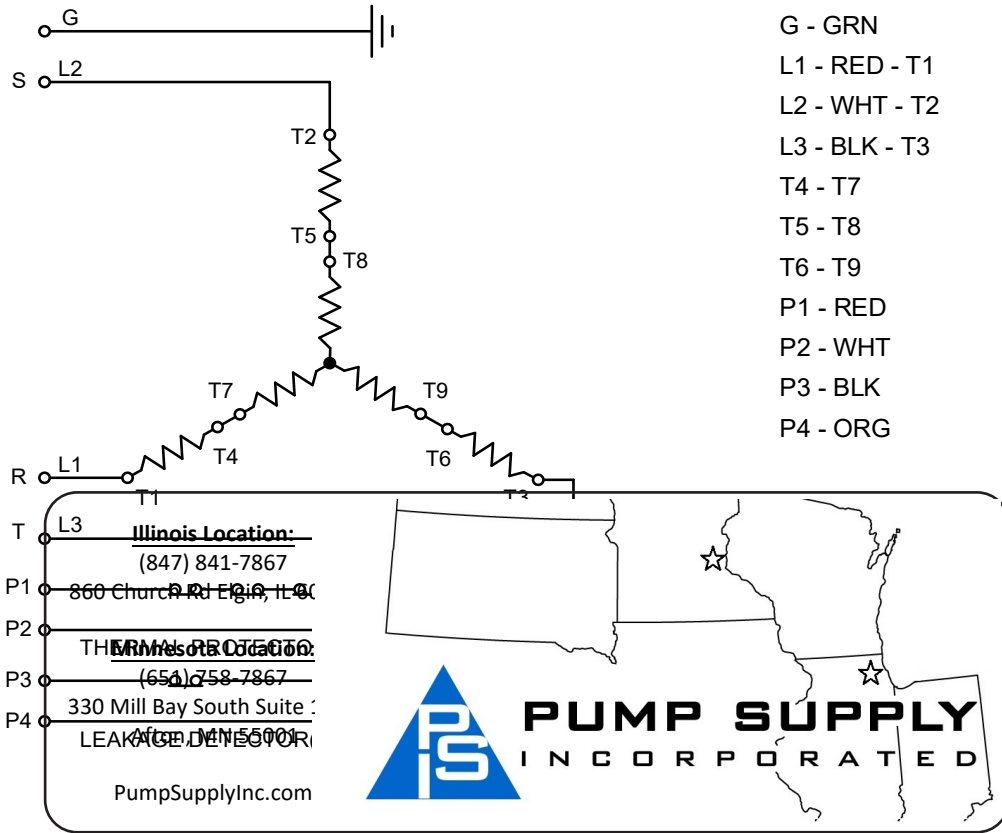
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EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Winding Connection- Output 2 to 10 HP-460V

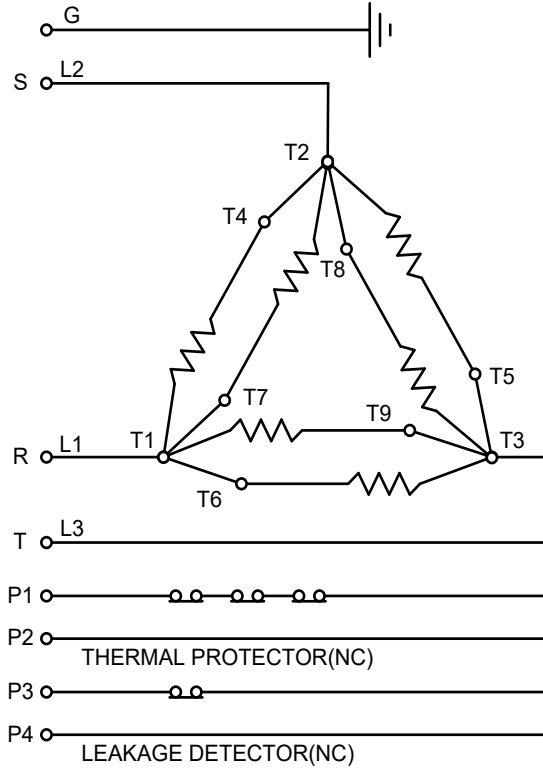


EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Winding Connection- Output 15 to 30HP 208/230V



- G - GRN
- L1 - RED - T1 - T6 - T7
- L2 - WHT - T2 - T4 - T8
- L3 - BLK - T3 - T5 - T9
- P1 - RED
- P2 - WHT
- P3 - BLK
- P4 - ORG

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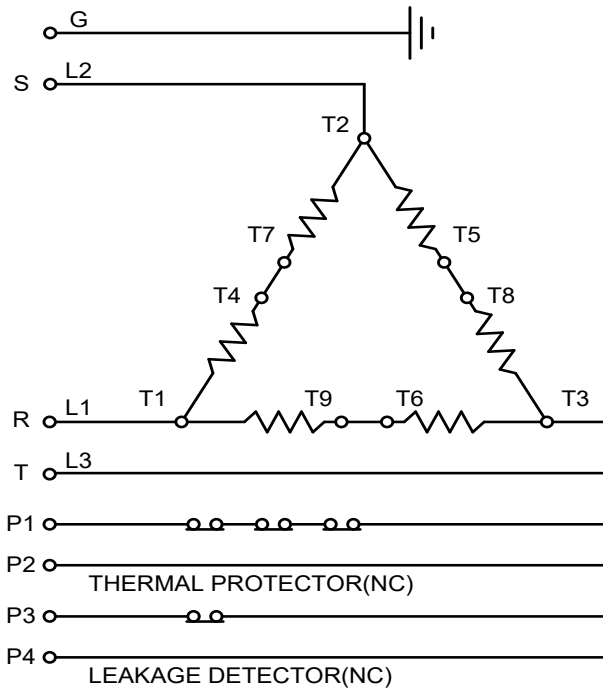


EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Winding Connection- Output 15 to 30HP- 460V



- G - GRN
- L1 - RED - T1
- L2 - WHT - T2
- L3 - BLK - T3
- T4 - T7
- T5 - T8
- T6 - T9
- P1 - RED
- P2 - WHT
- P3 - BLK
- P4 - ORG

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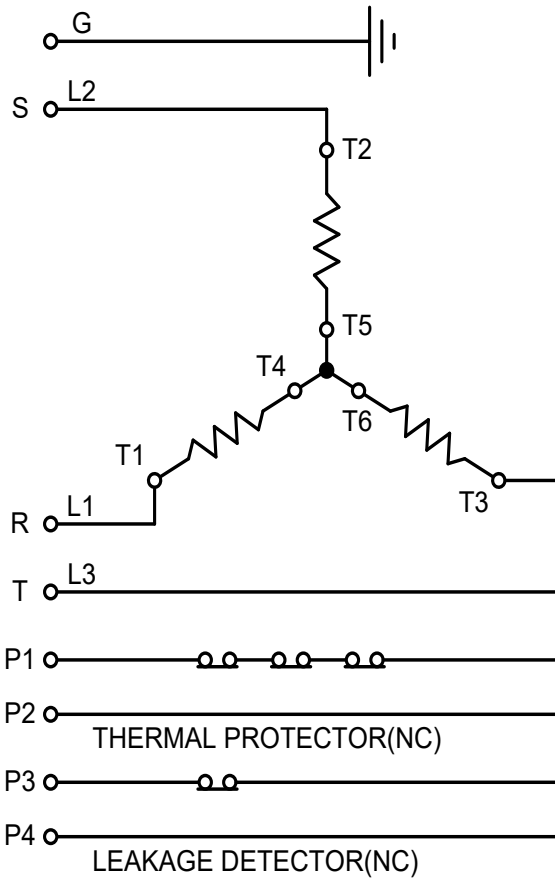


EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Winding Connection- Output 2 to 10 HP-575V



- G - GRN
- L1 - RED - T1
- L2 - WHT - T2
- L3 - BLK - T3
- P1 - RED
- P2 - WHT
- P3 - BLK
- P4 - ORG

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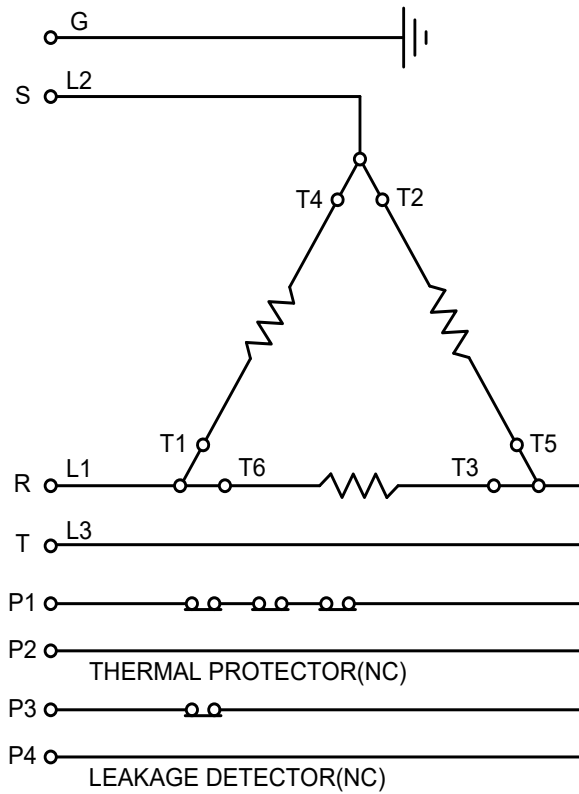


EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Winding Connection- Output 15 to 30HP- 575V





- G - GRN
- L1 - RED - T1 - T6
- L2 - WHT - T2 - T4
- L3 - BLK - T3 - T5
- P1 - RED
- P2 - WHT
- P3 - BLK
- P4 - ORG

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EBARA Submersible Sewage Pumps**DKEU/DKEXU****Technical Information****Thermal Protection**

The motor shall be equipped with a protector such as an automatic cut-off device and thermal protector. The motors described below shall incorporate Miniature Thermal Protectors (MTP) which are embedded in the windings.

When the temperature of the winding rises and reaches the MTP acting point, the motor protection circuit is activated to protect the motor from overheating.

1. Applicable Model:

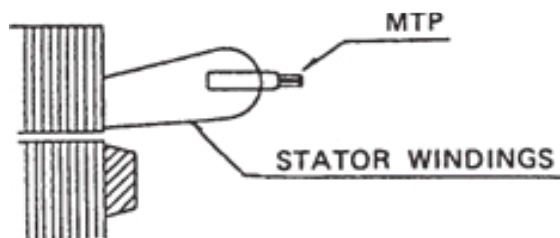
Model: DKE(X)U

2. MTP Specifications:

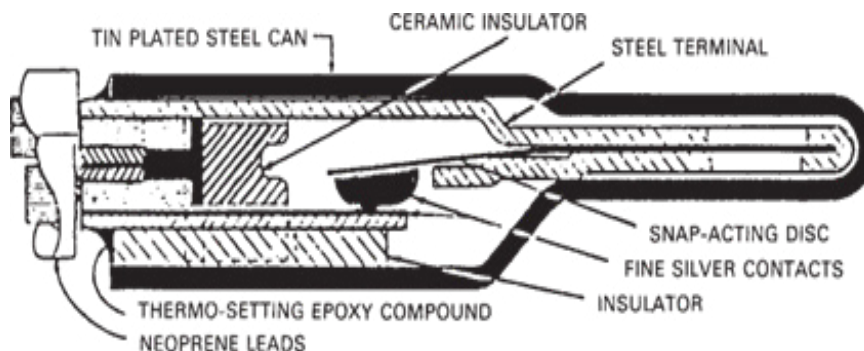
Model: 9700K 66-215
 Type of Contact: Normally Closed (b-contact)
 Acting Temperature: $140^{\circ}\pm 5^{\circ}\text{C}$
 Reset Temperature: $85^{\circ}\pm 10^{\circ}\text{C}$
 Contact Rating: AC 115V/230V x 18A/12A (max)
 Cable Terminal ID: P1 & P2

3. Installation:

MTP shall be embedded between each phase of the stator windings as shown below.

**4. Construction:**

Construction of the MTP is as shown below.

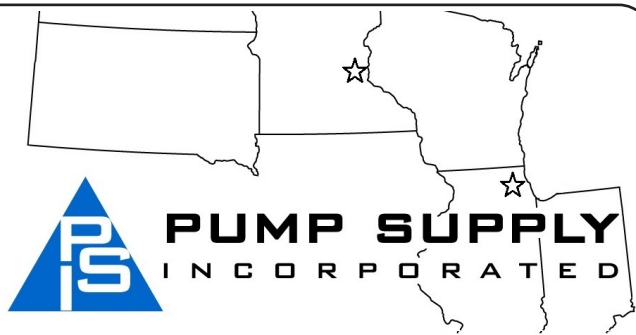
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EBARA Submersible Sewage Pumps**DKEU/DKEXU****Technical Information****Leakage Detector****1. Applicable Model:**

Model: DKE(X)U

2. Construction:

Each switch has a float incorporating a magnet which senses the liquid level and magnetically actuates the dry reed switch encapsulated within the stem. The switch opens on the rise of liquid within the seal chamber.

3. Specifications:

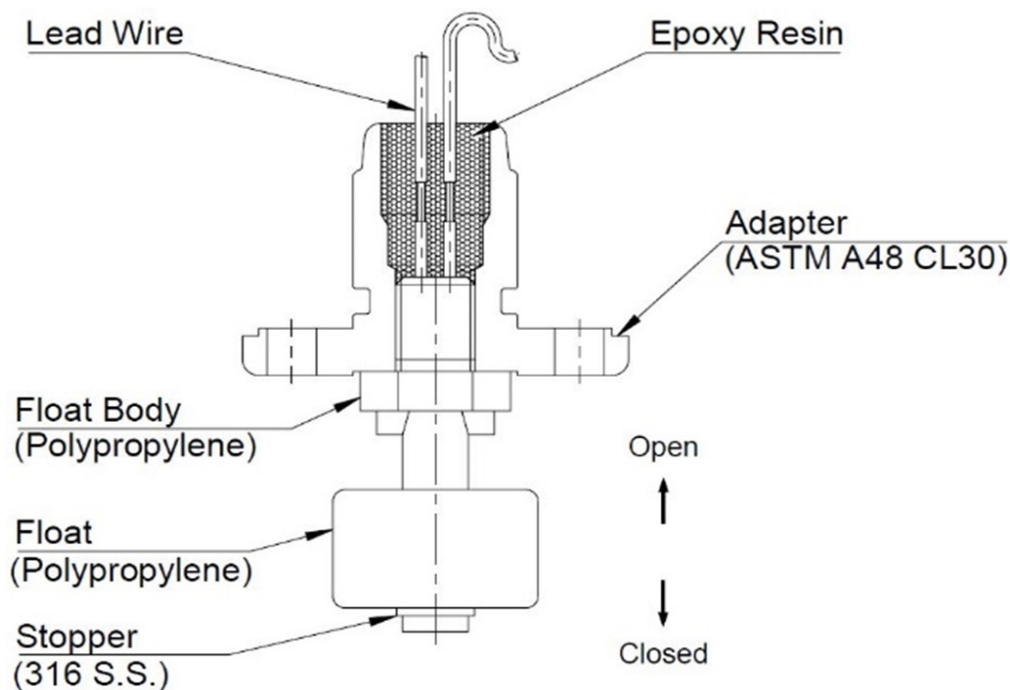
Type: LS11R-1A

Applied Model: ZXDL 2-30hp

Contact Rating: AC 300V x 0.5A (max)

Contact Type: Normally Closed (b-contact)

Cable Terminal ID: P3 & P4

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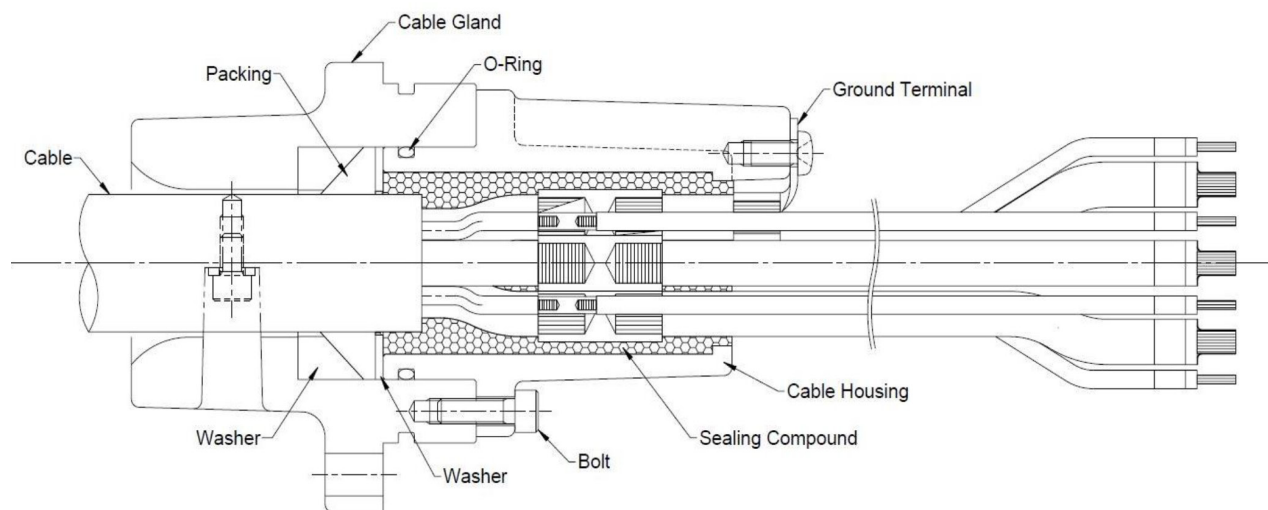
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EBARA Submersible Sewage Pumps**DKEU/DKEXU****Technical Information****Cable Entry**

The cable entry system shall comprise of primary, secondary, and tertiary sealing methods.

1. The primary seal shall be achieved by a NBR tapered elastomeric grommet (packing) compressed between the cable gland, cable housing, and a set of 304SS washers.
2. Secondary sealing is accomplished with a compressed O-ring made of NBR material. Compression and subsequent sealing shall preclude specific torque requirements.
3. The system shall also include tertiary sealing to prevent leakage into the motor housing due to capillary action through the insulation if the cable is damaged or cut.

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DKEU/DKEXU

Technical Information

Mechanical Seal and Ball Bearing Data

Model	Diam	Power		Ball Bearing		Mec. Seal Model	Capacity		Mechanical Seal Lubricating / Coolant
		HP	kW	Bottom	Top		OZS	Liters	
50DKEXU461.5	50	2	1.5	6306ZZ	6204ZZ	D-25	37	1.1	Turbine Oil #32
50DKEXU461.5*	50						321	9.5	Propylene Glycol (50wt%)
80DKEXU461.5	80	3	2.2	5307ZZ	6205ZZ	D-30	37	1.1	Turbine Oil #32
80DKEXU461.5*							321	9.5	Propylene Glycol (50wt%)
80DKEXU462.2	80	3	2.2	5307ZZ	6205ZZ	D-30	44	1.3	Turbine Oil #32
80DKEXU462.2*							382	11.3	Propylene Glycol (50wt%)
100DKEXU462.2	100	3	2.2	5307ZZ	6205ZZ	D-30	44	1.3	Turbine Oil #32
100DKEXU462.2*							382	11.3	Propylene Glycol (50wt%)
80DKEXU463.7	80	5	3.7	5307ZZ	6205ZZ	D-30	47	1.4	Turbine Oil #32
80DKEXU463.7*							392	11.6	Propylene Glycol (50wt%)
100DKEXU463.7	100	5	3.7	5307ZZ	6205ZZ	D-30	44	1.3	Turbine Oil #32
100DKEXU463.7*							375	11.1	Propylene Glycol (50wt%)
80DKEXU465.5	80	7.5	5.5	5309ZZ	6306ZZ	D-50	812	24	Propylene Glycol (50wt%)
100DKEXU465.5							812	24	Propylene Glycol (50wt%)
100DKEXU465.5	100	778	23	Propylene Glycol (50wt%)					
80DKEXU467.5	80	10	7.5	5309ZZ	6306ZZ	D-50	812	24	Propylene Glycol (50wt%)
100DKEXU467.5							812	24	Propylene Glycol (50wt%)
100DKEXU467.5	100	778	23	Propylene Glycol (50wt%)					
150DKEXU467.5	150	744	22	Propylene Glycol (50wt%)					
80DKEXU4611	80	15	11	6310ZZDR	6308ZZ	D-50	710	21	Propylene Glycol (50wt%)
100DKEXU4611							710	21	Propylene Glycol (50wt%)
100DKEXU4611	100	642	19	Propylene Glycol (50wt%)					
150DKEXU4611	150	642	19	Propylene Glycol (50wt%)					
200DKEXU4611	200	642	19	Propylene Glycol (50wt%)					
100DKEXU4615	100	20	15	6310ZZDR	6308ZZ	D-60	812	24	Propylene Glycol (50wt%)
100DKEXU4615							778	23	Propylene Glycol (50wt%)
150DKEXU4615	150	778	23	Propylene Glycol (50wt%)					
200DKEXU4615	200	744	22	Propylene Glycol (50wt%)					
100DKEXU4618	100	25	18.5	6312ZZDR	6309ZZ	D-60	1116	33	Propylene Glycol (50wt%)
100DKEXU4618							1116	33	Propylene Glycol (50wt%)
150DKEXU4618	150	1048	31	Propylene Glycol (50wt%)					
200DKEXU4618	200	1014	30	Propylene Glycol (50wt%)					
250DKEXU4618	250	1014	30	Propylene Glycol (50wt%)					
100DKEXU4622	100	30	22	6312ZZDR	6309ZZ	D-60	1183	35	Propylene Glycol (50wt%)
100DKEXU4622							1183	35	Propylene Glycol (50wt%)
150DKEXU4622	150	1116	33	Propylene Glycol (50wt%)					
200DKEXU4622	200	1082	32	Propylene Glycol (50wt%)					
250DKEXU4622	250	1082	32	Propylene Glycol (50wt%)					

* Opt. (ICS)



EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Mechanical Seal Sectional View

Double Mechanical seals with the hard seal face materials are provided on all EBARA DKE(X)U & DL3F(X)U submersible pumps.

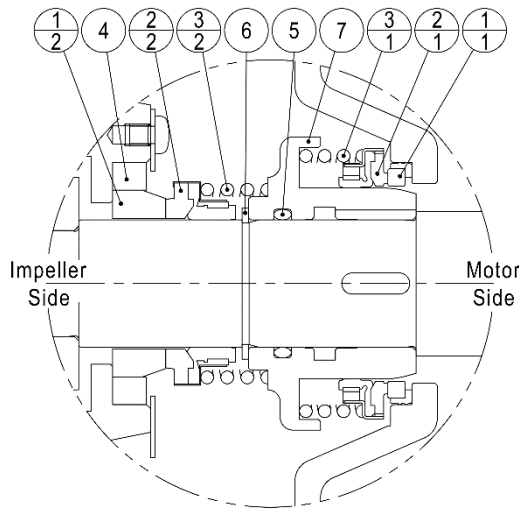
The double mechanical seal operates within an oil chamber providing long life and friction-free sealing of the motor shaft.

Typical construction and materials are as follows:

Mechanical Seal Models D-25 and D-30

1. Applicable Model:

2-5hp DKE(X)U / DL3F(X)U

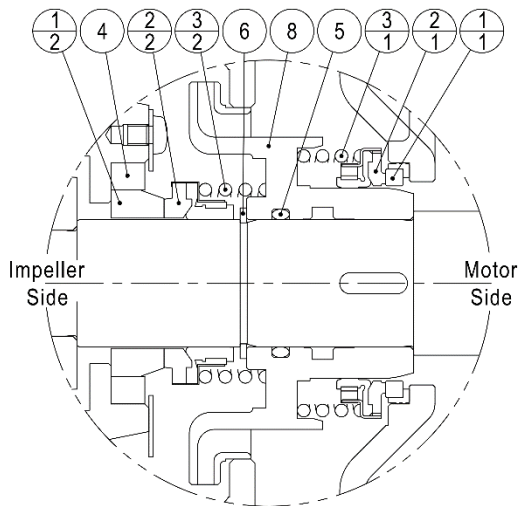


Power		Mec. Seal Model
HP	kW	
2	1.5	D-25
3	2.2	D-30
5	3.7	
7.5	5.5	D-50
10	7.5	
15	11	
20	15	D-60
25	18.5	
30	22	
40	30	D-75
50	37	
60	45	

Item Number	Part Name	Material	Qty per set
1-1	Stationary Mating Ring	Ceramic	1
1-2	Stationary Mating Ring	Silicon Carbide	1
2-1	Rotating Seal Ring	Carbon	1
2-2	Rotating Seal Ring	Silicon Carbide	1
3-1	Spring	Stainless Steel (SUS304)	1
3-2	Spring	Stainless Steel (SUS304)	1
4	Cup Gasket	NBR	1
5	O-ring	NBR	1
6	C-type Snap Ring	Stainless Steel (SUS304)	1
7	Mechanical Seal Sleeve	Stainless Steel (SCS13)	1

2. Applicable Model:

2-5hp ICS Option DKE(X)U / DL3F(X)U



Item Number	Part Name	Material	Qty per set
1-1	Stationary Mating Ring	Ceramic	1
1-2	Stationary Mating Ring	Silicon Carbide	1
2-1	Rotating Seal Ring	Carbon	1
2-2	Rotating Seal Ring	Silicon Carbide	1
3-1	Spring	Stainless Steel (SUS304)	1
3-2	Spring	Stainless Steel (SUS304)	1
4	Cup Gasket	NBR	1
5	O-ring	NBR	1
6	C-type Snap Ring	Stainless Steel (SUS304)	1
8	ICS Impeller	Stainless Steel (SCS13)	1



EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Mechanical Seal Sectional View

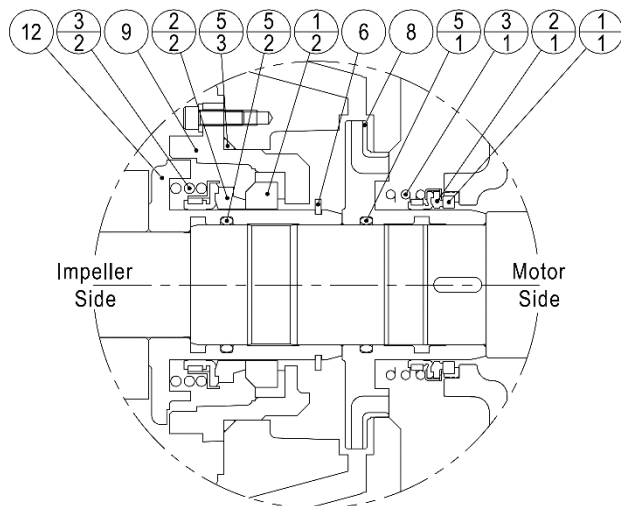
Mechanical Seal Model D-50



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3. Applicable Model:

7.5-15hp DKE(X)U / DL3F(X)U

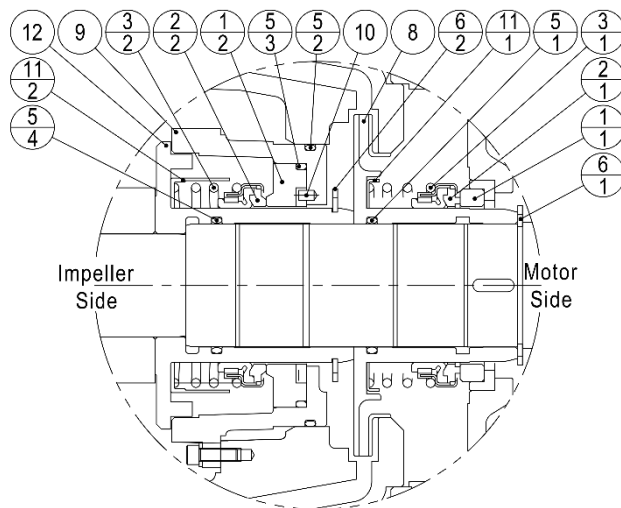


Item Number	Part Name	Material	Qty per set
1-1	Stationary Mating Ring	Ceramic	1
1-2	Stationary Mating Ring	Silicon Carbide	1
2-1	Rotating Seal Ring	Carbon	1
2-2	Rotating Seal Ring	Silicon Carbide	1
3-1	Spring	Stainless Steel (SUS304)	1
3-2	Spring	Stainless Steel (SUS304)	1
5-1	O-ring	NBR	1
5-2	O-ring	NBR	1
5-3	O-ring	NBR	1
6	C-type Snap Ring	Stainless Steel (SUS304)	1
8	ICS Impeller	Stainless Steel (SCS13)	1
9	ICS Housing	FC200	1
12	ICS Sleeve	Stainless Steel (SCS13)	1

Mechanical Seal Model D-60

4. Applicable Model:

20-30hp DKE(X)U / DL3F(X)U



Item Number	Part Name	Material	Qty per set
1-1	Stationary Mating Ring	Ceramic	1
1-2	Stationary Mating Ring	Silicon Carbide	1
2-1	Rotating Seal Ring	Carbon	1
2-2	Rotating Seal Ring	Silicon Carbide	1
3-1	Spring	Stainless Steel (SUS304)	1
3-2	Spring	Stainless Steel (SUS304)	1
5-1	O-ring	NBR	1
5-2	O-ring	NBR	1
5-3	O-ring	NBR	1
5-4	O-ring	NBR	1
6-1	C-type Snap Ring	Stainless Steel (SUS304)	1
6-2	C-type Snap Ring	Stainless Steel (SUS304)	1
8	ICS Impeller	Stainless Steel (SCS13)	1
9	ICS Housing	FC200	1
10	Parallel Pin	Stainless Steel (SUS316)	1
11-1	Spring Holder	Stainless Steel (SUS304)	1
11-2	Spring Holder	Stainless Steel (SUS304)	1
12	ICS Sleeve	Stainless Steel (SCS13)	1



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EBARA Submersible Sewage Pumps

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Technical Information

Maximum Submergence

EBARA submersible pumps shall be capable of continuous submergence under water without loss of watertight integrity to the following depths: 65 ft (20m).

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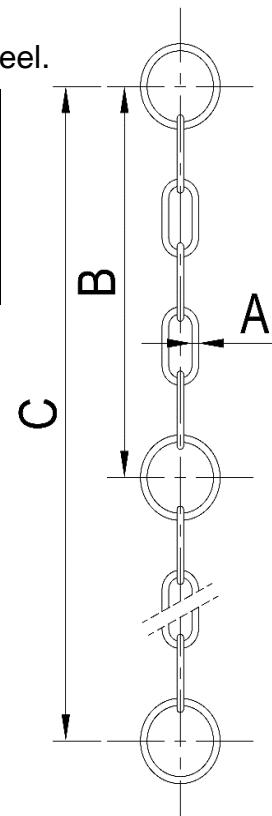
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Technical Information

Lifting Chain

The EBARA lifting chain is high tensile strength galvanized steel or stainless steel.

Model	Size (A)		Material	Max. Load		Weight		B		Length (C)	
	Inch	mm		lbs	kg	lbs	kg	ft	m	ft	m
LCMG-6	1/4	6	Galvanized Steel	1200	544	12	5.44	2	0.61	20	6.1
LCMS-6	1/4	6	Stainless Steel	1200	544	12	5.44	2	0.61	20	6.1
LCL-9	3/8	9	Galvanized Steel	2400	1089	24	10.89	3	0.91	20	6.1
LCLS-9	3/8	9	Stainless Steel	2400	1089	24	10.89	3	0.91	20	6.1



Application of Lifting Chain

Model	Power		Lifting Chain Model	
	HP	kW	Galvanized Steel	Stainless Steel
50DKEXU461.5	2	1.5	LCM-6	LCMS-6
80DKEXU461.5			LCM-6	LCMS-6
80DKEXU462.2	3	2.2	LCM-6	LCMS-6
100DKEXU462.2			LCM-6	LCMS-6
80DKEXU463.7	5	3.7	LCM-6	LCMS-6
100DKEXU463.7			LCM-6	LCMS-6
80DKEXU465.5	7.5	5.5	LCM-6	LCMS-6
100DKEXU465.5			LCM-6	LCMS-6
100DKEXU465.5			LCM-6	LCMS-6
80DKEXU467.5	10	7.5	LCM-6	LCMS-6
100DKEXU467.5			LCM-6	LCMS-6
100DKEXU467.5			LCM-6	LCMS-6
150DKEXU467.5			LCM-6	LCMS-6
80DKEXU4611	15	11	LCM-6	LCMS-6
100DKEXU4611			LCM-6	LCMS-6
100DKEXU4611			LCM-6	LCMS-6
150DKEXU4611			LCM-6	LCMS-6
200DKEXU4611			LCM-6	LCMS-6
100DKEXU4615	20	15	LCM-6	LCMS-6
100DKEXU4615			LCM-6	LCMS-6
150DKEXU4615			LCM-6	LCMS-6
200DKEXU4615			LCL-9	LCLS-9
100DKEXU4618	25	18.5	LCL-9	LCLS-9
100DKEXU4618			LCL-9	LCLS-9
150DKEXU4618			LCL-9	LCLS-9
200DKEXU4618			LCL-9	LCLS-9
250DKEXU4618			LCL-9	LCLS-9
100DKEXU4622	30	22	LCL-9	LCLS-9
100DKEXU4622			LCL-9	LCLS-9
150DKEXU4622			LCL-9	LCLS-9
200DKEXU4622			LCL-9	LCLS-9
250DKEXU4622			LCL-9	LCLS-9

Standard Lengths = 20ft (6m)

To Attach Chain:

1. Unbolt pump bail
2. Slide open end ring over bail
3. Re-bolt bail to pump top

For chain lengths longer than 20 ft.:
use "quick links" or shackles to join 20ft lengths.



EBARA Submersible Sewage Pumps

DKEU/DKEXU

Technical Information

Shop Painting Standards



1. Applicable Model:

Model: DKE(X)U, DL3F(X)U

2. Surface Preparation

All surfaces to be painted shall be cleaned of oil, grease or other similar materials with solvent, and then shall be brushed and air blasted to remove rust or scale.

Prior to above preparation, mill scale, rust scale, chips and other foreign materials shall be removed in accordance with painting schedule.

3. Coating Procedure

Detailed coating procedures are as shown in each paint schedule.

Table-1 Pump part

Service	Painting Schedule			
External Surface	Surface Preparation		SSPC-VIS1-3-63	
	Coats	Type of Coating	Brand Name	Maker
	1st	Zinc-Rich primer	Eco Power Mild 1	KANAE Paint Co., Ltd
	2nd	Coal Tar Epoxy	Hi-Build Tneme-Tar 46H-413	Tnemec Co., Inc
Internal Surface	Surface Preparation		SSPC-VIS1-3-63	
	1st	Zinc-Rich primer	Eco Power Mild 1	KANAE Paint Co., Ltd


Table-2 Motor part

Service	Painting Schedule			
External Surface	Surface Preparation		SSPC-VIS1-3-63	
	Coats	Type of Coating	Brand Name	Maker
	1st	Zinc-Rich primer	SD ZINC PRIMER 100	Kansai Paint Co., Ltd
	2nd	Coal Tar Epoxy	Hi-Build Tneme-Tar 46H-413	Tnemec Co., Inc
Internal Surface	Surface Preparation		SSPC-VIS1-3-63	
	1st	Zinc-Rich primer	SD ZINC PRIMER 100	Kansai Paint Co., Ltd

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