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# LKN Series Specifications

## 1.0 Scope

### 1.1 This specification in combination with pump data sheets identifies the minimum requirements for diaphragm metering pumps.

## 2.0 Definitions

### 2.1 Mechanically Actuated Diaphragm Pump - a positive displacement diaphragm-metering pump in which there is a direct coupling mechanism between the diaphragm and the motor.

## 3.0 General

###  3.1 Output volume shall be adjustable while pump is in operation.

### 3.2 Weight of pump as installed shall not exceed 65 pounds.

### 3.3 Pump shall fit within a rectangular volume 17” long by 9” wide by 22” high.

## 4.0 Drive

### 4.1 The mechanically actuated diaphragm metering pump mechanism shall be totally enclosed with no exposed moving parts.

### 4.2 The p ump drive shall utilize a lost motion design. The rotation of the motor shall be reduced by means of a worm and wheel. The rotation shall be converted to a reciprocating motion by means of a dual cam, and a spring back mechanism including the worm wheel, shaft, slider, and spring.

### 4.3 The pump drive shall be oil-bath lubricated

### 4.4 The diaphragm shall be mechanically connected to the pump drive. There shall be no hydraulic oil backing of the diaphragm to ensure there is no contamination of the process fluid in the event of a diaphragm failure.

### 4.5 Pump drive shall be operated by a 1/3 HP, NEMA 42C face electric motor.

### 4.6 Metering pump shall be capable of pumping a maximum of (q) GPH against a maximum pressure of (p) PSI. (q and p from Table 1)

### 4.7 Stroke length shall be adjustable from 10% to 100% by means of a micrometer dial.

### 4.8 An optional DC drive shall provide for external control by a 4-20mA input signal. The control shall be NEMA 4X and shall include a manual/external switch.

## 5.0 Materials of construction

### 5.1 Pump housing shall be epoxy painted aluminum.

### 5.2 All exposed fasteners shall be stainless steel.

### 5.3 Liquid end materials shall be as shown in Table 2.

## 6.0 Shop tests

### 6.1 All pumps shall pass manufacturer’s standard performance test.

## Table 1 Capacity/Pressure Rating

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **Capacity**  | **Maximum Pressure****PSI (MPa)** | **Stroke speed (spm)** | **Connection****NPT** | **Max****Viscosity****cps** |
| **50Hz** **(l/h)** | **60Hz (GPH)** | **PVC/PVDF** | SS | **50Hz** | **60Hz** | **PVC/PVDF** | **SS** |
| LKN32 | 30 | 9.5 | 150 (1) | 225 (1.5) | 96 | 116 | ½”  | ½”  | VC: 300TC: 300VH: 500VS: 1000S6: 1000 |
| LKN45 | 50 | 15.9 | 150 (1) | 225 (1.5) | 48 | 58 | ½” | ½” |
| LKN47 | 100 | 31.8 | 120 (0.8) | 120 (0.8) | 96 | 116 | ½” \* | ½” |
| LKN55 | 168 | 53.4 | 75 (0.5) | 75 (0.5) | 48 | 58 | 1”  | 1” |
| LKN57 | 360 | 114.3 | 45 (0.3) | 45 (0.3) | 96 | 116 | 1”  | 1” |

\* LKN47-VS has 1” NPT connections

## Table 2 Materials of Construction

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Material symbol** | **VC** | **VH** | **VS** | **TC** | **S6** |
| Part | Pump head | PVC | PVC | PVC | PVDF | SS316 |
| Valve ball | CE | HC | HC/SS304 | CE | HC |
| Valve seat | Type 32 | FKM | EPDM | SS304 | FKM | SS316 |
| Type 45 to 57 | PVC | PVC | SS304 | PVDF | SS316 |
| O ring | FKM | EPDM | EPDM | FKM | - |
| Valve gasket | PTFE |
| Diaphragm | PTFE + EPDM |

CE Alumina ceramic EPDM Ethylene propylene diene monomer

FKM Fluoroelastomer HC Hastelloy C276

PTFE Polytetrafluoroethylene PVC Polyvinylchloride

PVDF Polyvinylidenefluoride SS316 316 stainless steel

 SS304 304 stainless steel

## DIMENSIONS

**Outer dimensions**

**◼ LKN32, 45, 47, 55, 57, VC, VH, VS**

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Dimensions in inches (mm)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **L** | **A** | **C** | **E** | **F** | **J** | **K** |
| LKN32, VC, VH, VS | 10.91(277) | 12.05(306) | 3.82(97) | 4.06(103) | 4.61(117) | ½” NPT | 4 x ø0.35”(ø9) |
| LKN45, 47, VC, VH, VS | 11.06(281) | 12.01(305) | 3.90(99) | 4.06(103) | 4.69(119) |
| LKN47VS | 11.06(281) | 10.83(275) | 3.90(99) | 3.46(88) | 4.69(119) | 1” NPT |
| LKN55, 57, VC, VH, VS | 11.77(299) | 12.48(317) | 4.53(115) | 4.17(106) | 5.31(135) |

 **Outer Dimensions**

**◼ LKN32, 45, 47, 55, 57, S6**

F

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Dimensions in inches (mm)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **L** | **A** | **C** | **E** | **F** | **J** | **K** |
| LKN32, S6 | 10.91(277) | 7.80(198) | 3.82(97) | 1.93(49) | 4.61(117) | ½” NPT | 4 x ø0.35”(ø9) |
| LKN45, 47, S6 | 11.14(283) | 11.69(297) | 3.98(101) | 3.86(98) | 4.76(121) |
| LKN55, 57, S6 | 11.61(295) | 14.53(369) | 4.37(111) | 5.31(135) | 5.16(131) | 1” NPT |

**Outer Dimensions**

**◼ LKN32, 45, 47, 55, 57, TC**

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Dimensions in inches (mm)

5 Boynton Road Holliston, MA 01746 USA TEL: 508-429-1110 [www.walchem.com](http://www.walchem.com) P/N 180672.B April 2016

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Model | **L** | **A** | **C** | **E** | **F** | **J** | **K** |
| LKN32, TC | 10.91(277) | 12.05(306) | 3.82(97) | 4.06(103) | 4.61(117) | ½” NPT | 4 x ø0.35”(ø9) |
| LKN45, 47, TC | 11.06(281) | 12.95(329) | 3.90(99) | 4.89(114) | 4.69(119) |
| LKN55, 57, TC | 11.77(299) | 12.48(317) | 4.53(115) | 4.17(106) | 5.31(135) | 1” NPT |