

# FLUID LEVEL INDICATORS

## FSA Series

### Fluid Level Indicator



### Model Code

**FSA - 0076 - 0 . 00000 / H - / M12 . 000**

**Designation** \_\_\_\_\_  
FSA = fluid level gauge

**Nominal size NG** \_\_\_\_\_  
(= bolt centre spacing in mm)  
0076, 0127, **0176**, 0254, **0381**

**Seal material** \_\_\_\_\_  
0 = NBR (Perbunan)  
2 = FKM (Viton)

**Design of riser tube / materials** \_\_\_\_\_  
Design of riser tube  
0 = elliptical tube  
**1 = round tube ø19**  
Material - tube  
0 = high quality plastic  
**1 = glass**  
Material - connectors  
0 = PA  
Material - housing frame  
00 = Aluminium natural  
**03 = Stainless steel**  
**06 = Aluminum, natural, cut-out on right**  
**07 = Aluminum, natural, cut-out on left**

**Options** \_\_\_\_\_  
Contrast inlay  
H = contrast inlay HYDAC  
N = contrast inlay neutral  
**O = w/o contrast inlay**  
**O1 = w/o contrast inlay, w/blue hollow ball**  
**O2 = w/o contrast inlay, w/green hollow ball**

Additional thermometer function  
- = no additional function (standard)  
T = thermometer in display tube  
FF = prepared for thermometer probe  
FT100 = temp. probe 100 mm  
FT200 = temp. probe 200 mm  
FT300 = temp. probe 300 mm  
TS60-O = temp. switch NC, nom. temp. 60 °C  
TS70-O = temp. switch NC, nom. temp. 70 °C  
TS80-O = temp. switch NC, nom. temp. 80 °C  
TFP100 = temp. sensor -40 °C to +125 °C

Note: The combination of temperature switch TS with temperature sensor FT is not possible.

**Type of Connection** \_\_\_\_\_  
**U12 = 1/2 X 20**  
M12 = M12 (standard)  
**M10 = M10 (not with TS and TFP)**

**Connecting Elements** \_\_\_\_\_  
Material bolts / nuts  
0 = bolt and, if applicable, nut Steel  
(surface protection galvanised, chromium(VI)-free)  
**1 = bolt and, if applicable, nut Steel**  
(surface protection zinc-nickel, chromium(VI)-free)  
**2 = Bolt and, if necessary, nut Stainless steel**  
(only for size M12)

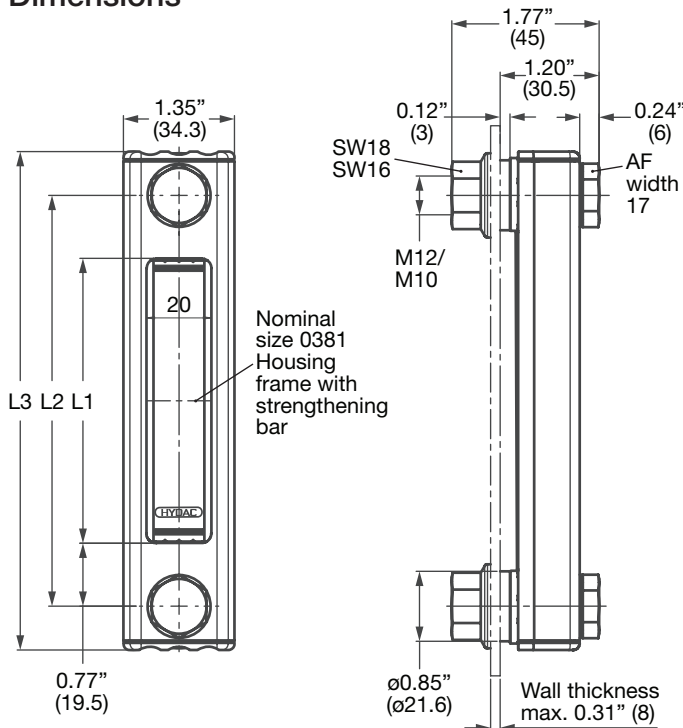
Sealing washer  
0 = with sealing washer  
1 = without sealing washer

Attachment nuts  
0 = with attachment nuts  
1 = without attachment nuts

Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability

Fluid Level Indicators are compatible with water and mineral oils. Exposure to cleaners and rust inhibitors can cause cracking of the tube and leaks. Contact HYDAC if your application could be exposed to cleaners or rust inhibitors.

### Dimensions



Size	L	L1	L2
76	4.25" (108)	1.46" (37)	2.99" (76)
127	6.26" (159)	2.99" (76)	5.00" (127)
176	8.19" (208)	4.92" (125)	6.93" (176)
254	11.26" (286)	7.99" (203)	10.00" (254)
305	10.5" (266)	12" (305)	13.1" (332)
381	16.26" (413)	12.99" (330)	15.00" (381)

Notes:  
1. Dimensions are in inches (mm).  
2. Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

## FSK Series

Fluid Level Indicator with Electric Level Switch



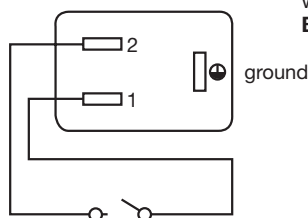
STANDARD FSK



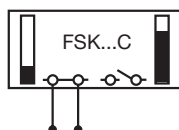
RED FLOAT FSK

### Electric Level Switch

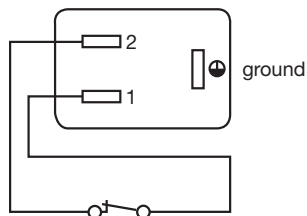
**FSK...C** (open at normal level)



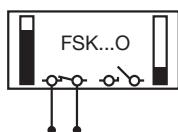
Contacts **CLOSE**  
when fluid level drops  
**BELOW** switching level



**FSK...O** (closed at normal level)



Contacts **OPEN**  
when fluid level drops  
**BELOW** switching level



### Electrical Specifications

#### Contact Ratings

- Max. 8W

#### Maximum Voltage

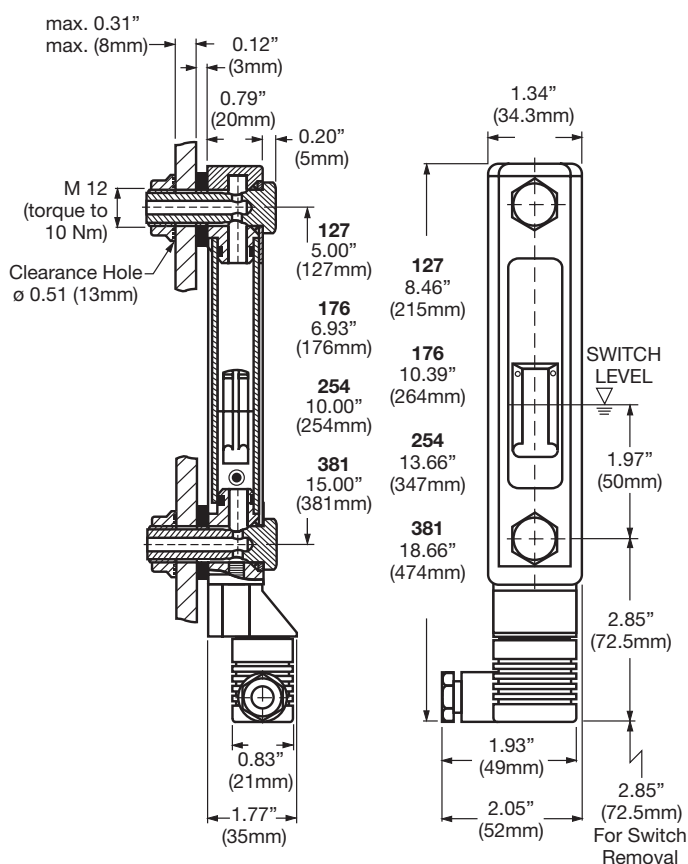
- 50V AC or DC

#### Maximum Current

- 200 mA

Magnetic Float inside tube trips switch when fluid level drops within 50mm of lower bolt. (see illustration)

### Dimensions



#### Notes:

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# FLUID LEVEL INDICATORS

## Model Code

FSK - 0127 - 2 . 50 - 00000 / O- / M12 . 000 - RED

### Designation

FSK = fluid level sensor

### Nominal size NG (= bolt center spacing in mm)

0127, 0176, 0254, 0305, 0381

### Seal material

2 = FKM (Viton)

### Connector shape

- 4 = 3 PE connector plug form A DIN EN 175301-803 (24°)
- 5 = 2 PE connector plug form B. DIN EN 175301-803 (no entry•)
- 6 = round connector M12x1, 4-pole, male; DIN EN 61076-2-101, A-coded; connection left horizontal (SEW\*)
- 7 = round connector M12x1, 4-pole, male; DIN EN 61076-2-101, A-coded; connection bottom vertical (SES\*)
- 8 = 3+PE connector plug form A, DIN EN 175301-803; special connection (Form B\*)

• previous specifications in parentheses

### Switching function

- O = opening contact NC Opens at switching level (only connector design 5)
- C = closing contact NO Closes at switching level (only connector design 5)
- W = change-over contact Opens and closes at switching level

### Tube geometry, materials

Tube geometry / material of tube

00 = elliptical tube/plastic

Material of connectors

0 = PA

Material of frame

00 = aluminium 02 = steel, zinc-plated 03 = stainless steel

### Options

Contrast pane

0 = without contrast pane

Additional thermal function

- = without additional function
- FF = preparation for temperature gauge
- FT100 = temperature gauge 100 mm
- FT200 = temperature gauge 200 mm
- FT300 = temperature gauge 300 mm
- TSL60-O = temperature switch NC, nominal temperature 60 °C
- TSL70-O = temperature switch NC, nominal temperature 70 °C
- TSL80-O = temperature switch NC, nominal temperature 80 °C
- TFP100 = temperature probe -40 °C to 125 °C
- TFP1000 = temperature probe -40 °C to 125 °C

Note: The TSL temperature switch cannot be combined with the FT temperature gauge

### Type of Connection

M12 = M12 (standard) M10 = M10 (not with TSL and TFP)

### Connecting Elements

Material bolts / nuts

- 0 = bolt and, if necessary, nut steel (surface protection galvanised, chromium(VI)-free)
- 2 = bolt and, if necessary, nut stainless steel (only for size M12)

Sealing element

- 0 = with sealing element
- 1 = without sealing element

Mounting nuts

- 0 = with mounting nuts
- 1 = without mounting nuts

### Float Option

RED = Red float in sight glass

## FSK Series

Fluid Level Indicator with LED shows tank status even in poor visibility



- Clear optical warning signal
- Visible from 180° and from a distance
- Easy to install
- Cost savings due to fast response time
- Easy to clean

### Electrical Specifications

#### Contact Ratings

- Max. 8W

#### Input Voltage

- 5 - 48 V DC

#### Switching Current

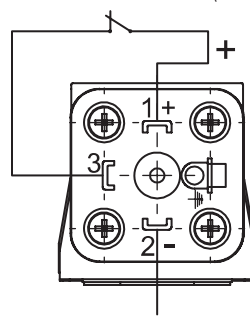
- Max. 0.2A

#### Protection Class

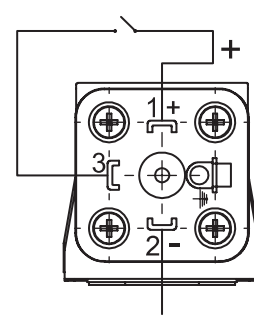
- IP 65

### PIN Connections

Male connector Z4 (as supplied)



Type O / opening contact



Type C / closing contact

### Model Code

#### Fluid Level Indicator

FSK = Electrical and visual level indicator

#### Size (Mounting Hole Centers)

127 = 5 inches

176 = 7 inches

254 = 10 inches

381 = 15 inches

#### Seals

2 = Fluorocarbon

#### Modification Number

4 = FSK (Determined by Manufacturer)

#### Electrical Switch

C = Open at Normal Level

O = Closed at Normal Level

#### Thermometer

(omit) = No Thermometer (standard)

FT 100 = Probe Thermometer (100mm-3.94"LG)

FT 200 = Probe Thermometer (200mm-7.87"LG)

FT 300 = Probe Thermometer (300mm-11.87"LG)

TS... = Thermo Switch

#### Hex Head Bolt

12 = M12 x 1.75 Bolt

#### Sight Tube

(omit) = Polyamide construction (not suitable for water glycols or high water-based fluids)

#### LED Indicator

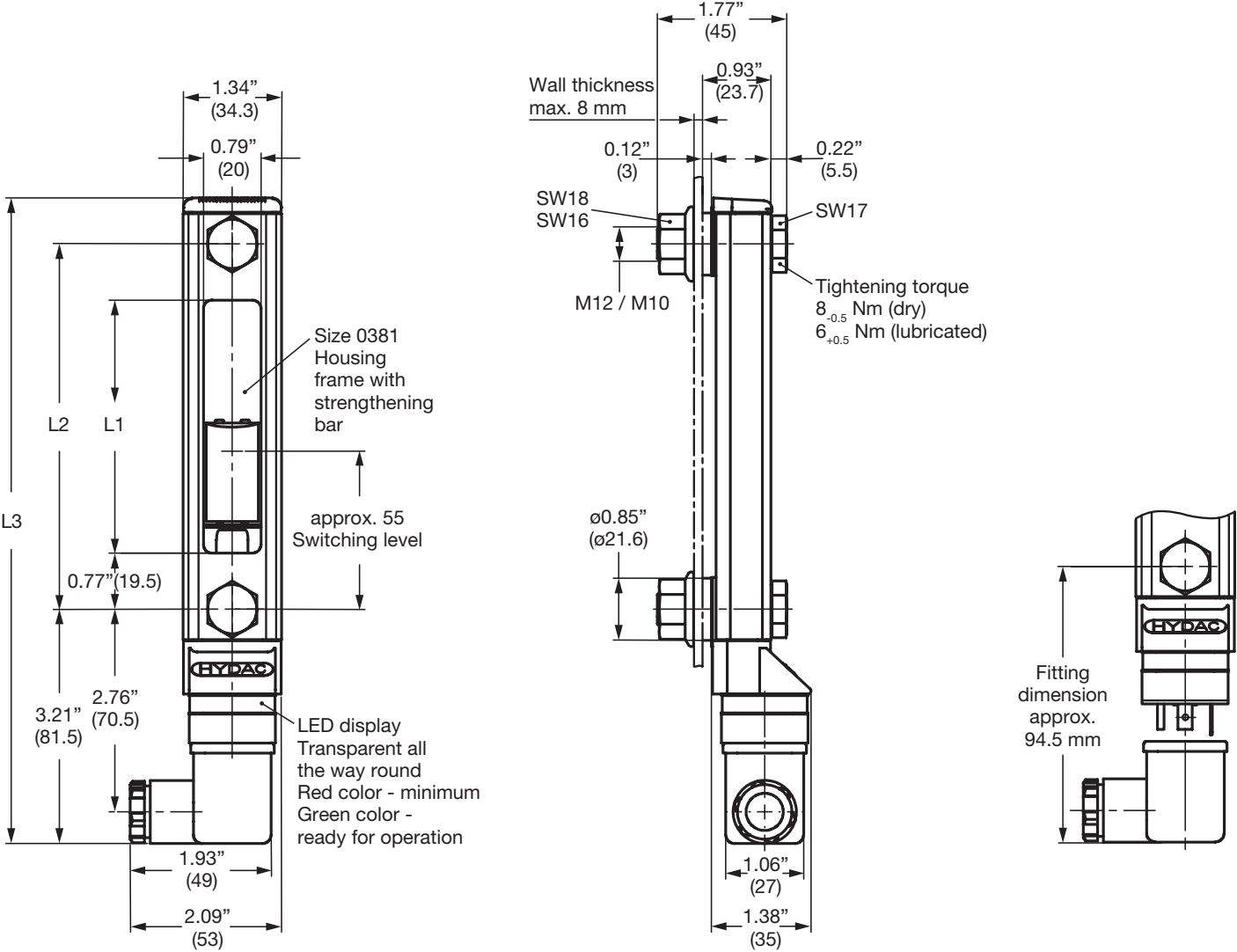
Z4 = LED Indicator Red/Green

FSK - 127 - 2 . 4 / 0 / / 12 Z4

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# FLUID LEVEL INDICATORS

## Dimensions



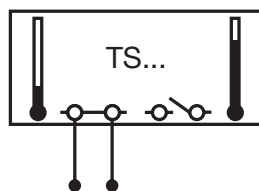
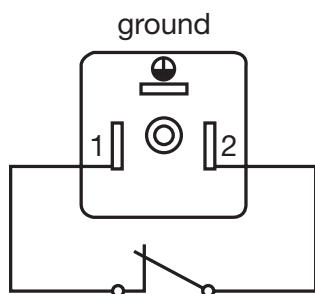
Size	L1	L2	L3
127	3.46" (88)	5.00" (127)	8.84" (224.5)
176	5.39" (137)	6.93" (176)	10.77" (273.5)
254	8.46" (215)	10.00" (254)	13.84" (351.5)
381	13.46" (342)	15.00" (381)	18.84" (478.5)

Notes:  
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## Options

### Electric Thermo Switch / TS



Contacts **OPEN**  
when fluid temperature rises  
**ABOVE** switching temperature

### Electrical Specifications

#### Maximum Voltage

- 50 VAC or DC

#### Minimum Current

- 50 mA

#### Contact

- Normally Closed

#### Switching Tolerance

- $\pm 10^\circ\text{F}$

#### Hysteresis

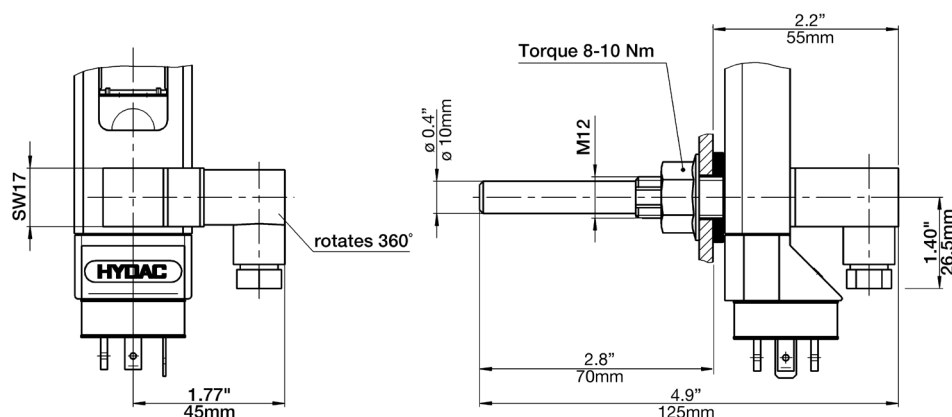
- TS 60/70 27°F (15°C)
- TS 80 36°F (20°C)

### Expected Life Cycle

- at 25 A / 50 V 10,000 cycles
- at 0.5 A / 50 V 100,000 cycles

### Thermo Switch - TS...

Detail of Lower Connection  
for Probe Thermometer (FT...) see chart below



### Thermo Switches (Normally Closed Contact)

Thermo Switch Code	Model Code	Part Number	Switch Opens @	Switch Closes @	Mounting Thread
TS60	TS-L-60/X/12 THERMO-SWITCH	03252752	60°C/140°F	45°C/113°F	M 12
TS70	TS-L-70/X/12 THERMO-SWITCH	03252766	70°C/158°F	55°C/131°F	M 12
TS80	TS-L-80/X/12 THERMO-SWITCH	03252767	80°C/176°F	60°C/140°F	M 12

### Probe Thermometer / FT Features

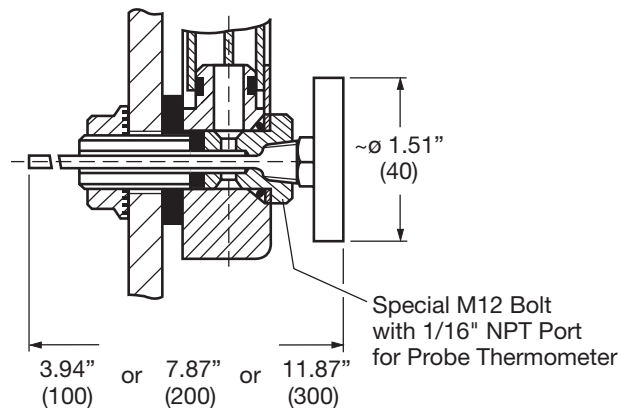
- Analog dial type thermometer for visual temperature indication

#### Temperature Range (Dual Scale)

- 0° to 212°F
- 0° to 100°C



### Detail of Lower Connection



### Probe Thermometers Temperature Range 32° to 212°F (0° to 100°C)

Thermo Switch Code	Model Code	Part Number	Mounting Thread
FT100	FT-100 TEMP PROBE W/M12 BOLT	02067556	M 12
FT200	FT-200 TEMP PROBE W/M12 BOLT	00086740	M 12
FT300	FT-300 TEMP PROBE W/M12 BOLT	00086741	M 12

# FLUID LEVEL INDICATORS

## Technical Data

<b>Material</b>	
Housing	Anodized Aluminum or ABS Plastic
Sight Tube	Polyamide or Glass
Seals	Fluorocarbon, NBR
Nuts / Bolts	Steel, Zinc plated
<b>Fluid Temperature</b>	
-4° to 176°F (-20° to 80°C)	
<b>Maximum Pressure</b>	
14.5 PSI (1 BAR)	
<b>Thermometer Range</b>	
Type T (FSA only)	14° to 176°F (-10° to 80°C)
Type FT100	32° to 212°F (0° to 100°C)
Type FT200	32° to 212°F (0° to 100°C)
Type FT300	32° to 212°F (0° to 100°C)
<b>Bolting Torque</b>	
Max. 8 LB-FT+1 (10 Nm +2) see installation instructions below	

## Recommended Installation Process

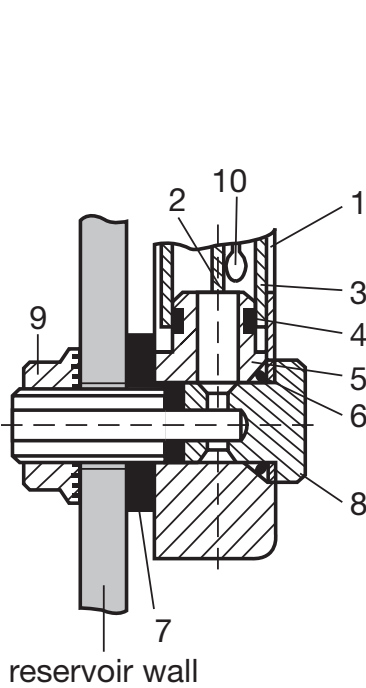
1. Drill mounting holes (13 mm) according to dimension L2.
2. Torque the Nut, item 9, to 8+ 1 LB-FT. If it is not possible to torque the nut, the bolt head must be torqued.  
To avoid damaging the indicator a washer is recommended to be used under the bolt head.  
This washer is available from HYDAC: Part Number 00001689.  
Washer Dimensions: øD 18.8 mm, ID 13.10 mm, 0.5 mm thick

## Component Parts

Item	Description		Part No.	Quantity	
				FSA	FSK
1	Housing		-	1	1
2	Name Plate		-	1	-
3	Tube		-	1	1
4*	O-ring 13X2.5	FPM-70 (Fluorocarbon)	00601916	2	2
		NBR-70 (Buna)	00601047		
5	Tube Connector		-	2	2
6*	O-ring 12.3X2.4	FPM-70 (Fluorocarbon)	00601531	2	2
		NBR-70 (Buna)	00601045		
7*	Washer FSA/FSK	FPM (Fluorocarbon)	22183158	2	2
		NBR (Buna)	00271948		
8*	Bolt M12 SW17 FSA		22183153	2	2
9*	Nut Hex M12 FSA		22183151	2	2
10	Thermometer (In Tube)		-	1	-
11*	Probe Thermometer		See pg. C2-11	1	1
12*	Bolt FSA/K M12 SW17 for FT Temp Probe		03126743	1	1
13	Magnetic Float		-	-	1
14	Base Assembly w/Type "C" Switch		-	-	1
15	Base Assembly w/Type "O" Switch		-	-	1
16*	Washer FSA/FSK Steel		00001689	2	2

\* items may be purchased individually.

FSA & FSK



FSK Only

