

SIDE MOUNTED INDUSTRIAL LEVEL SWITCHES MODEL TYPES HF, HFA & HFP - ELECTRIC & PNEUMATIC

DESCRIPTION

KSR Kuebler Horizontal Float Level Switches are buoyancy operated units designed for use in many Chemical, Petroleum, Solvent, and General Process applications. Series "HF" are side mounted units that install through the side opening of the process vessel via ANSI flange or NPT connection.

The Kuebler design permits the specifying the insertion length of the float assembly allowing use in extra long nozzles. This extended float assembly permits using these units where choices were limited to electronic type level switches.

All Series "HF" units utilize hermetically sealed magnetic reed switches that are located in the float support tube. This design is tamper proof and ensures long life. Series HFA are pneumatic types that operate on instrument air or other gases used for motive power in industrial plants.

The only moving part of a KSR magnetic float switch is the float.

Direct level sensing.

Simple and extremely reliable.

STANDARD FEATURES

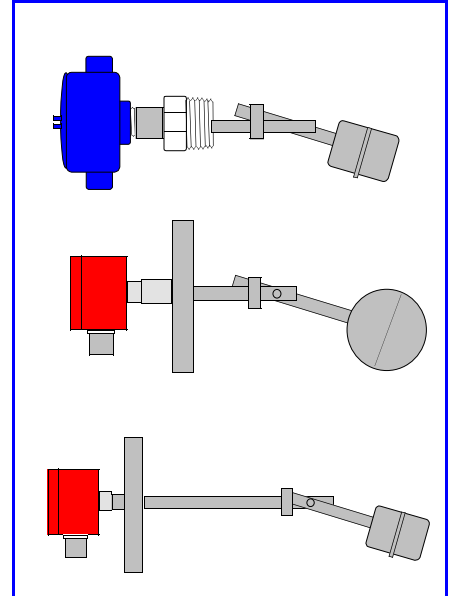
All model "HF" switches from KSR Kuebler offer the following standard features:

- ◆ Custom Insertion Lengths up to 16" (400mm+)
- ◆ Wide selection of materials of construction.
- ◆ All Stainless Steel wetted parts as standard.
- ◆ Widest selection of electrical enclosures.
- ◆ Wide selection of industrial process connections.
- ◆ Extreme High and Low process temperature capabilities.
- ◆ Unmatched selection of floats.

The above standard features allow you to select a model that best suits your process control needs from this order guide.

With the KSR exclusive extended float system, you may mount these units into extended nozzles easily without the float interference experienced with other types.

KSR Kuebler series "HF" are the highest quality and cost efficient solution to industrial liquid level point sensing.



Three Standard HF Units

Two KSR switch models "HF" shown with a standard type NEMA 4X type enclosure (bottom two) and a standard welded ANSI flange and 2" NPT mounting nut.

Model "HF" is shown at bottom with an extended float bridge assembly for insertion into a long nozzle. Model HF can be extended up to 16" (400mm+) for these long nozzle applications.

Catalog 1004mini
05/08/02 rv C



KSR Kuebler Level Control Products of America has made specifying level switches easy. The following "How to Order" guide allows you to select the exact configuration you need to meet your process control and environmental requirements.

Choose the model type "HF", "HFA" or "HFP" that suits your needs.

"Materials of Construction" Remember that all Series "HF" products feature materials of construction that include all wetted parts to match the materials selector. Choose Stainless Steel, Hastelloy B or C, Titanium in models HF. Engineering plastics are also available. Choose Polypropylene, hard PVC, or Kynar (PVDF). Teflon coatings are also available.

"Specific Gravity Range" Select a range that fits your liquid. Consult factory for Specific gravities not listed or for Liquid Interface calibration.

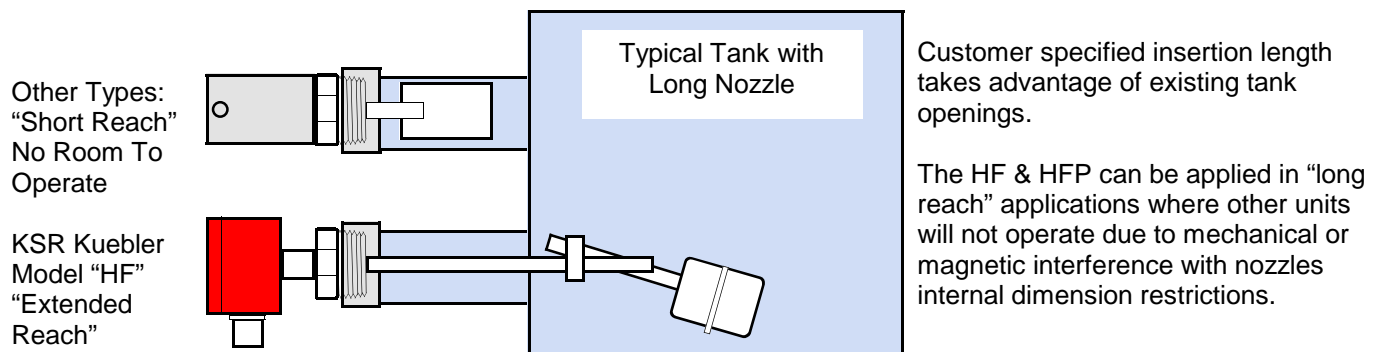
"Sensor Insertion Length" is for the float guide tube length. This dimension is measured from the process connection face to the pivot of the float assembly. Use whole inches in this field.

"Connection Size and Type" is next. All welded connections are ASME Section IX qualified to give that extra measure of process integrity.

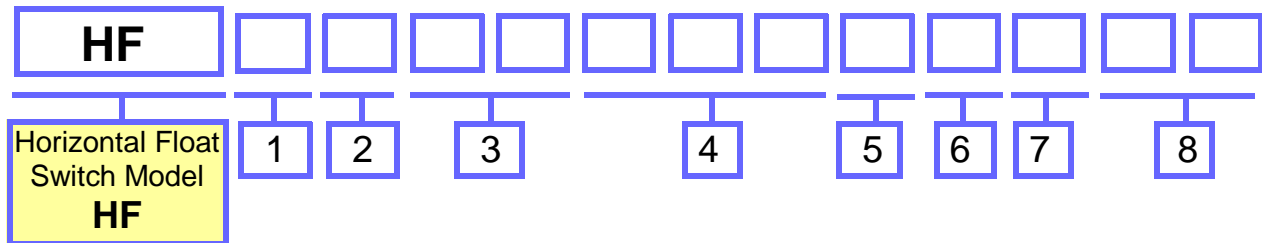
"Connection Rating" Choose the ANSI rating that you need. This rating applies to the Sensor and connection only. The float or connection selected ultimately determines the maximum operating pressure of the Model "HF" switch.

"Electrical Housing" Choose the housing that suits your electrical and environmental requirements. NEMA 4X and NEMA 7 & Group B are available. Note the selection of materials and conduit entry sizes. Explosion proof models feature housings that are Factory Mutual and CSA approved. Pneumatic models HFA feature weather-proof stainless steel housings and air connections.

NOTE: All KSR Kuebler flanges are cataloged as Raised Face (RF) type as standard. Other flanges are available upon request.



DIAL toll free 1-888-KSR-LEVEL
for factory application assistance



TO CREATE A COMPLETE MODEL NUMBER, FILL IN THE BLOCKS !

1. **TYPE OF SWITCH:** 1= 1 SPDT; 2 = 2 DPDT (2 SPDT working in tandem as a DPDT)

2. **MATERIALS OF CONSTRUCTION** (Wetted Parts): **S**=316 Ti Stainless steel; **L**=316L Stainless steel; **C**=Hastelloy C; **B**=Hastelloy B; or **T**=Titanium.

3. **FLOAT GUIDE INSERTION LENGTH:** In whole inches, up to a maximum of **16"**. (As measured from face of process connection to the tip of the float guide tube.) **EXAMPLE:** A 12" float guide would be entered simply as "12". When selecting this dimension remember the **standard dimension is 2.5"**. Select a dimension that allows room so actuating magnet will clear the nozzle.

NOTE: Refer to the Application Data Sheet on page #8 for further ordering information.

4. **CONNECTION SIZE AND TYPE:** **F20**=2.0" ANSI flange; **F25**=2.5" ANSI flange; **F30**=3.0" ANSI flange; **F40**=4.0" ANSI flange; **F50**=5.0" ANSI flange; **F60**=6.0" ANSI flange; **SQF** = Special Square type flange; **N20**=2" NPT; **B20** = 2" BSP.

5. **CONNECTION RATING*:** **A**=150# ANSI; **B**=300# ANSI; **C**=600# ANSI; **S**= Square Flange rating = 230 PSI; **D**=NPT =1,000 PSI.

6. **ELECTRICAL HOUSING:** **4**=NEMA 4X die cast aluminum with industrial gray epoxy coating & 1/2" NPT conduit entry; **7**=NEMA 7 explosion proof & 4X, (Group B) cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; **8**=Group B explosion proof stainless steel with a dual 3/4" NPT conduit entries.

7. **SWITCH TEMPERATURE RATING:** **S**=Standard -40°F to +300°F; **L**=Low Temp -300°F to +300°F; **H**=High Temperature -40°F to +650°F. See specifications on page 11.

8. **MINIMUM SPECIFIC GRAVITY:** **75** = 0.75; **60**= 0.60; **40** =0.40; **IF** = Interface calibration

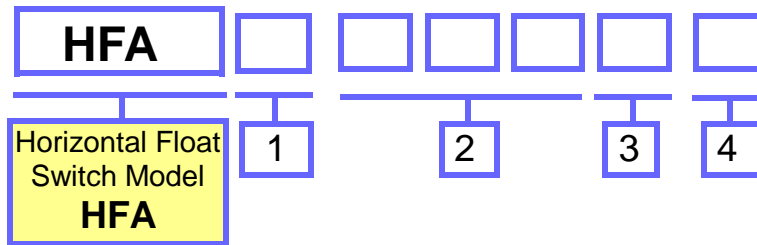
Notes:

Flange or screwed connection & guide tube rating only. See specifications.

Low specific gravity fluids may require larger floats so your tank connection size may be affected.



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TO CREATE A COMPLETE MODEL NUMBER, FILL IN THE BLOCKS

HFA = 1 Snap Action, Magnetically Actuated, Pneumatic Switch.

1. MATERIALS OF CONSTRUCTION (Wetted Parts): **S**=316 Ti Stainless steel; **L**=316L Stainless steel; **C**=Hastelloy C; **B**=Hastelloy B; or **T**=Titanium.

2. CONNECTION SIZE AND TYPE: **F20**=2.0" ANSI flange; **F25**=2.5" ANSI flange; **F30**=3.0" ANSI flange; **F40**=4.0" ANSI flange; **F50**=5.0" ANSI flange; **F60**=6.0" ANSI flange;
SQF = Special Square type flange; **N20**=2" NPT; **B20** = 2" BSP.

3. CONNECTION RATING*: **A**=150# ANSI; **B**=300# ANSI; **C**=600# ANSI; **S**= Square Flange rating = 230 PSI; **D**=NPT =1,000 PSI.

4. MINIMUM SPECIFIC GRAVITY: **75** = 0.75; **60**= 0.60; **40** =0.40; **IF** = Interface calibration

This unit can be configured for air bleed or non-bleed service. Three 1/4" NPT ports make this selection easy.

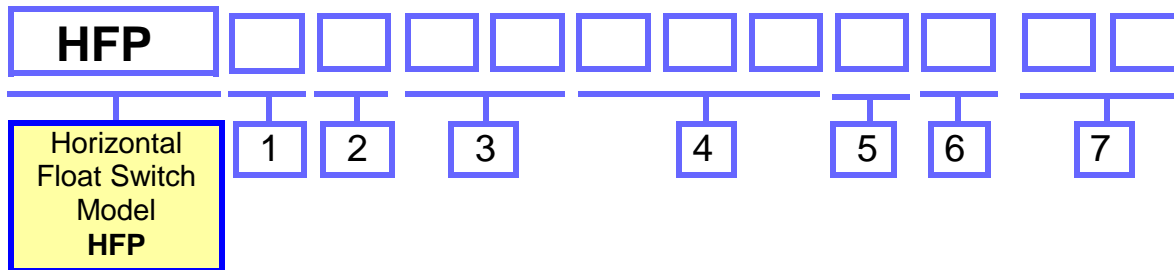
Notes:

Flange or screwed connection & body rating only. See specifications.

Low specific gravity fluids may require larger floats so your tank connection size may be affected.



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TO CREATE A COMPLETE MODEL NUMBER, FILL IN THE BLOCKS

1. TYPE OF SWITCH: 1= 1 SPDT; 2 = 2 DPDT (2 SPDT working in tandem as a DPDT)

2. MATERIALS OF CONSTRUCTION (Wetted Parts): V=Hard Polyvinylchloride (PVC); P= Polypropylene (PP); K=Kynar® (PVDF). Consult factory for Teflon & others.

3. FLOAT GUIDE INSERTION LENGTH: In whole inches, up to a maximum of 12". (As measured from face of process connection to the tip of the float guide tube.) EXAMPLE: AN 8" float guide would be entered as "08".

NOTE: Refer to the Application Data Sheet on page #11 for further ordering information.

4. CONNECTION SIZE AND TYPE: F20=2.0" ANSI flange; F25=2.5" ANSI flange; F30=3.0" ANSI flange; F40=4.0" ANSI flange; F50=5.0" ANSI flange; F60=6.0" ANSI flange; N20=2" NPT; B20 = 2" BSP.

5. CONNECTION RATING*: A=150# ANSI Type = 44 PSI S= Square Flange rating = 44 PSI; D=NPT =44 PSI. All pressure ratings are at 100 degrees F.

6. ELECTRICAL HOUSING: 4=NEMA 4X die cast aluminum with industrial gray epoxy coating & 1/2" NPT conduit entry; 7=NEMA 7 explosion proof & 4X, (Group B) cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; 8=Group B explosion proof stainless steel with a dual 3/4" NPT conduit entries. Models "SMP" cannot be made Explosion Proof testing criterion (they are plastic). The plastic units may be used in hazardous locations if wired Intrinsically Safe and used with an Approved Intrinsic Safety Barrier rated for the hazard class.

7. MINIMUM SPECIFIC GRAVITY: 75 = 0.75.

Special floats for this unit are available. Contact KSR for assistance with special float needs.

This unit is great for use as a high or low level switch in corrosive liquids that would attack stainless steel. Also use this model in applications where no mettalic parts contacting the fluid is required.

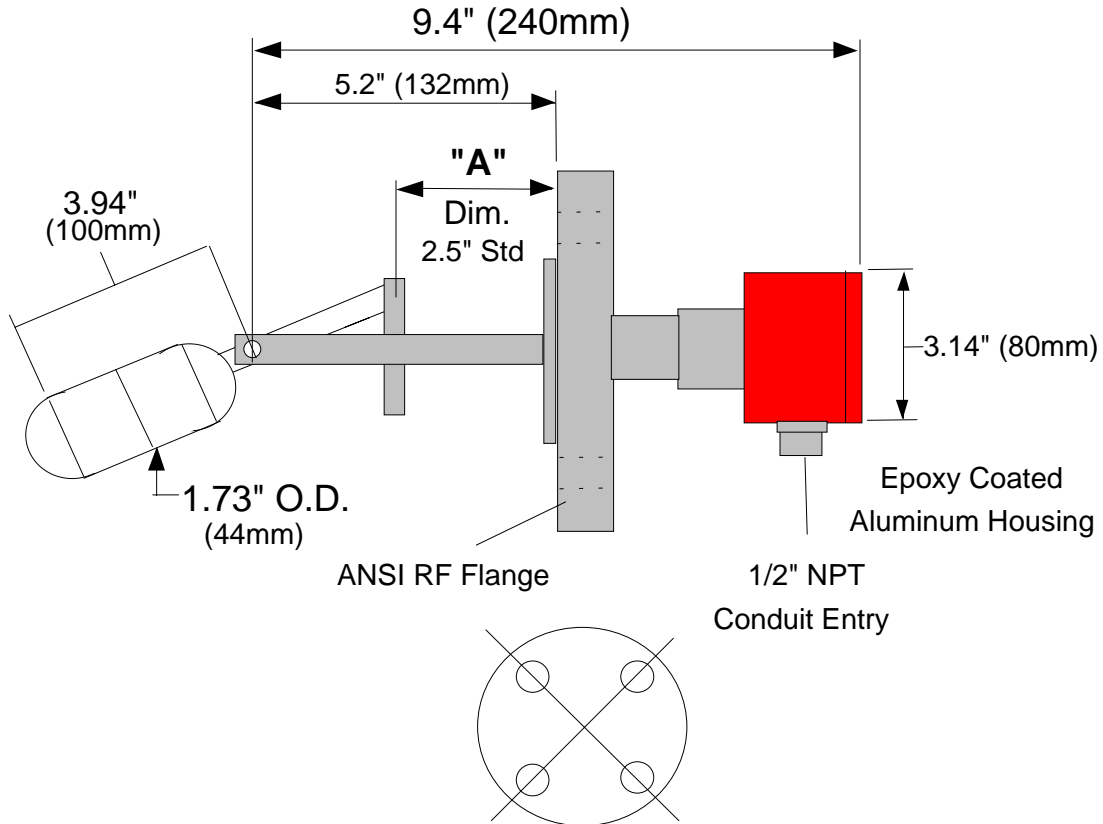
NOTE:

* This pressure rating is float & body rating only The connection you select may lower the "as installed" pressure rating.



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KSR KUEBLER MODEL "HF" TYPICAL DIMENSIONS AND AVAILABLE CUSTOM FEATURES
NEMA 4 Housing and an ANSI flange welded to the sensor are shown.



Bolt Holes Straddle Centerline

Note dimension "A" is the minimum dimension needed for interference free operation. This dimension is available from 2.5" standard (63mm) up to 16" (400+mm). This exclusive custom insertion length allows the SM to be mounted through carbon steel nozzles and into the vessel interior without interfering with the unit's operation. Determine "A": Your nozzle length" + 2.5" = "A" Dim.

KSR Kuebler's exclusive extended reach float design permits using a simple float device where only complicated and costly electronic types were used before. One moving part, and no complicated electronics, no periodic calibration to worry about make the model HF a real alternative to capacitance, ultrasonic, and other electronic point level sensors. No power is required for model HF. Just run your control wiring to the switch terminals. No more problems with foaming liquids, changing dielectrics, vapor densities, or temperature induced errors. A simple float unit ignores these common changes in your process fluid. Save money and time when you purchase and install these units. Simple and effective.

KSR Kuebler, Helping Businesses Stay In Control™

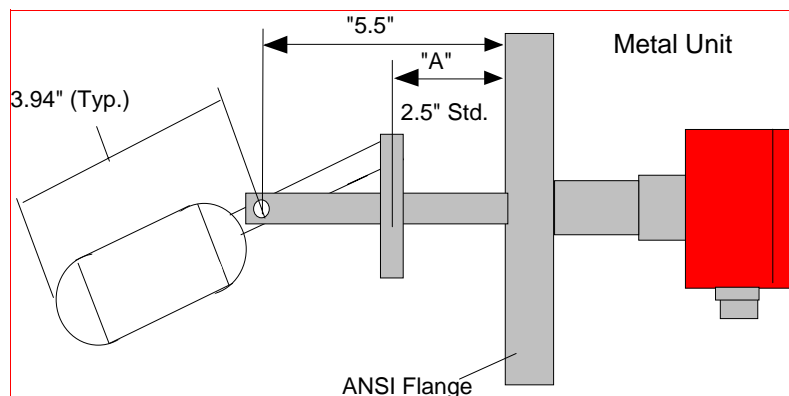
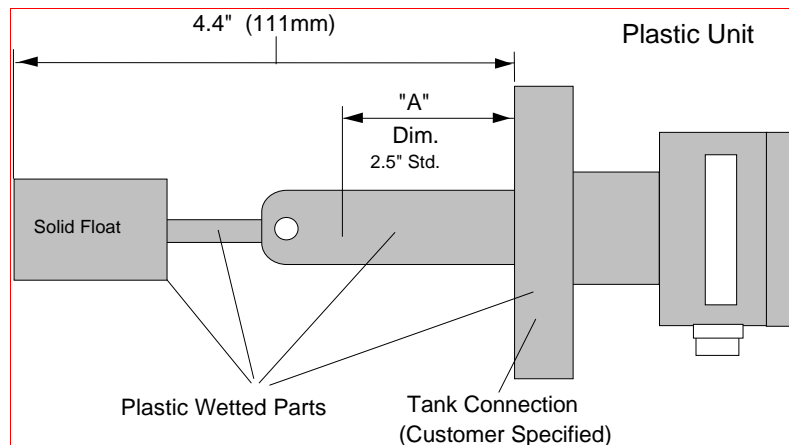
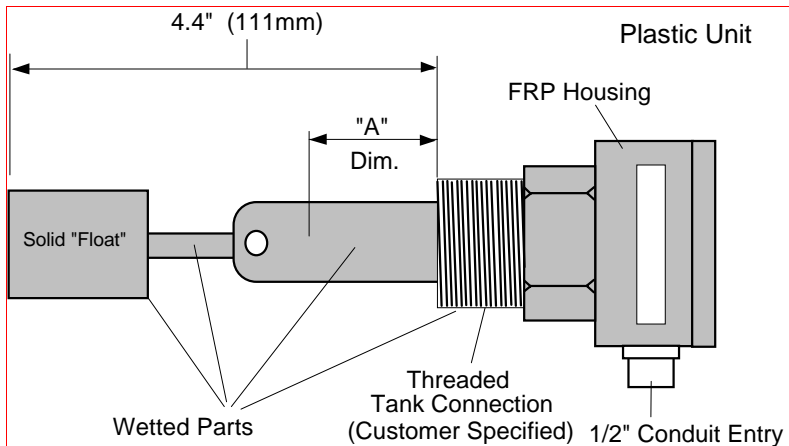
| Product Series HF Specifications | HF-Electrical Alloy Construction Side Mounted Level Switch | HFA-Pneumatic Alloy Construction Side Mounted Level Switch | HFP Engineering Plastics Type Side Mounted Level Switch |
|---|--|--|---|
| Maximum Number of Switch Contacts | 1 @ SPDT or 2 @ SPDT (Acting as DPDT) DPDT Not FM Approved | Vent or Bleed Type Pneumatic Snap Switch | 1 @ SPDT or 2 @ SPDT (Acting as DPDT) DPDT Not FM Approved |
| Maximum Switch Points (Stages) | 1 | 1 | 1 |
| Switch Current Rating A.C. / D.C. Volts | 1 AMP @ 240 VAC 1 AMP @ 125 VDC (non-inductive) | 10-100 PSIG | 1 AMP @ 240 VAC 1 AMP @ 125 VDC (non-inductive) |
| Maximum Insertion Length | 16" (400+ mm) | 16" (400+ mm) | 10" (254+ mm) |
| Maximum Process Pressure* | NPT=1,000 PSI ANSI Flanged =Flange Rating* | NPT=1,000 PSI ANSI Flanged =Flange Rating* | NPT=44 PSI ANSI Flanged =Flange Rating* |
| Minimum Specific Gravity | 0.40 Depending on float | 0.40 Depending on float | 0.60 Depending on float material |
| Maximum Process Temperature* (switch type) | +650 F Type H +300 F Type S +300 F Type L | +500 F | +212 F type Teflon +180 F type K (Kynar) +140 F type P (PolyPro) +140 F type V (PVC) |
| Minimum Process Temperature (switch type) | -40 F type H -40 F type S -250 F type L | -40 F | +10 F type SMP |
| Conduit Entry Size NEMA 4X | 3/4" NPT | Air Connections (3 ea) 1/4" NPT | 3/4" NPT |
| Conduit Entry Size Group B (Small Housing) | 3/4" NPT (dual is standard) | n/a | 3/4" NPT (dual is standard) |
| Switch Hysteresis | 2-3mm (.078"-.118") typical | 2-3mm (.078"-.118") typical | 2-3mm (.078"-.118") typical |
| Hazardous Area Service Ratings (Factory Mutual Approved) | Explosion Proof Class 1, Division 1, Groups B, C, & D Intrinsically Safe* *With Approved Barrier rated For Hazard Class | Pneumatic Type - No Electrical Safety Approvals Relevant Use in hazardous locations not regulated | Intrinsically Safe* Class 1, Division 1, Groups A, B, C, & D Intrinsically Safe* *With Approved Barrier rated For Hazard Class |

* Maximum pressure and temperature rating can be limited by the float or connection used with your KSR Kuebler level switch model series "HF" & "HFP".

Fill in this form and Fax it to 1-434-374-4482 for assistance in model selection.

Your Fax Number (_ _ _) _ _ _ - _ _ _ _

Your E-mail _____



Customer Name _____

Customer Ref.# _____

Sensor Information

Insertion Length "A" Dim.: _____

Sensor Material _____

Connection Type _____

Connection Size _____

Connection Rating _____

Max. Pressure _____

Max. Temp. _____

Min. Temp. _____

Liquid Name _____

Electrical Information

Type of Switch: SPDT _____ DPDT: _____

Housing: NEMA 4 _____ Gr. B Ex Pr _____

Electrical Enclosure Material:
Aluminum _____ Stainless Steel _____

Conduit Entry: 1/2" _____ 3/4" _____

Entry Quantity: 1 _____ 2 _____

Float Information

Float Material _____

Product Float #1 part# _____

Upper Liq. S.G. _____

Lower Liq. S.G. _____

By _____

Date _____

Determine "A" - Your nozzle L + 2.5" = "A"



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