



Technical Bulletin

- Place a copy of this bulletin in the front of each Blueprints Manual.
- Redline drawings as needed and include a TB reference note.
- Document TB implementation schedule request and completion:

Date Scheduled _____ Date Completed _____
 Completed by (name) _____

TB Number: 103
Date Issued: 10/26/2016
Expiration Date: Na

Subject/Key Words:	Conductivity Sensor/Housing PM Requirements and Parts ID			
Classification:	<input checked="" type="checkbox"/> Informational	<input checked="" type="checkbox"/> Mandatory	<input type="checkbox"/> Safety Alert	<input checked="" type="checkbox"/> Preventive Maintenance Impact
	<input type="checkbox"/> Warranty Impact	<input type="checkbox"/> Purchase Parts	<input type="checkbox"/> No Charge For Parts expires ___ / ___ / ___. Reference this TB# when ordering NC parts.	
Application/Product Line:	GAMA, Rearmount			

Issue: Chemical can leak from the sensor housing wet side to the contained sensor probe dry side due to a PFA coating breach. This generates metal based particles that can contaminate the bath and/or wafer surface.

Symptoms: Chemical present in the sensor wire containment, metal contamination in the chemical bath, and/or metal contamination on the wafers.

Test/Validate: Perform the preventive maintenance inspection for housing welds/fittings, sensor probe PFA coating and wire containment integrity at six month intervals as stated in the PM Manual. Replace sensor (probe) assembly if leakage is found.

Solution: Inspection Interval: Remains at 6 months
 Replacement Interval: Sensor (Probe) Assembly replaced every 18 months.

Supplemental Information.

This is a revision to original Akrion Field Service Bulletin 281.6 released 09/21/01.

Akrion Systems follow a Quality Systems Procedure (OP0407) for the assembly and testing of all conductivity probe and housing assemblies to ensure the sensor-to-bushing seal integrity. Compliance with OP0407 ensures that liquid cannot leak from the housing wet side to the contained sensor dry side and transport metals into the chemical circulation flow stream whereby resulting in metals contamination of wafer product.



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Preventive maintenance inspections for housing welds/fittings, sensor probe coating and wire containment integrity should be performed every six months. Reassemble the sensor in the housing with the probe's hole in line with the chemistry flow.

The sensor (probe) assembly should be replaced every eighteen months.

TABLE 1. Lists the housing and sensor part numbers that should be used for various original manufacturing applications. **TABLE 2.** Lists the original manufacturer sensor part number and the field replacement sensor assembly number. (These sensor assemblies have been assembled and tested per OP0407).

UPDATE YOUR PM AND BLUEPRINTS MANUALS ACCORDINGLY!!!!

SC1 (APM) Applications

For SC1 applications a PFA coated sensor assembly (206545-001) is now used. A special TFM/PFA housing (MAN013070) is also required. The PFA sensor and TFM/PFA housing are compatible with NH₄OH and will not degrade and turn black over time. Degradation has been a problem with older style sensors and PVDF housing assemblies, particularly at higher temperatures and caustic concentrations. Inspect your current SC1 installations and replace immediately if black degradation of the housing or sensor is found.

SC2 (HPM) and HF Applications

For SC2 and dilute HF applications sensor assembly 206544-001 should be installed at the next six month scheduled replacement. This sensor uses a 3/4" diameter. MAN009154 or 1" diameter MAN009155 housing. Many benches are already equipped with these housings.

Note: The assembly listed for SC1 applications could also be used for SC2 and HF but cost will increase due to specialized TFM/PFA and PFA coatings used.

Revised PM

Carefully **inspect the sensor assembly every six months and replace if damage or leakage is evident. Replace the sensor assembly every eighteen months.**

TABLE 1.

Option	Application	Line Dia.	Housing	Sensor Assembly	Housing & Sensor Assembly	Inspect*
1	SC1	1"	MAN013070	206545-001	600698-001	6 months
2	SC2, HF	3/4"	MAN009154	206544-001	ASY009156	6 months
3	SC2, HF	1"	MAN009155	206544-001	ASY009157	6 months

* Should not require replacement unless damage to the housing or sensor is evident.

TABLE 2.

Application	Sensor assembly, bushing and probe*	Sensor Part # for RMA**	Housing Material
SC1	206545-001	237470-001	PFA
SC2, HF	206544-001	237470-001	PVDF

*Assembled and tested at factory per OP0407 to ensure seal integrity. Once installed, inspect per TABLE 1. Schedule. **Individual sensors **cannot** be ordered and installed in the field. Only factory tested sensor assemblies can be ordered. Sensor PN is provided for RMA purposes only. Return unused sensors for credit and order appropriate replacement sensor **assemblies**. To qualify for RMA credit, the sensor must be sealed in its original packaging. Contact Akrion Parts Department for details.

Upgrade History

Ordering parts for upgrades to the new sensors will depend on which generation of housing and sensor are currently installed on the station. The first priority is to eliminate the old (SNS1A0028) sensors which have flat sides where sharp edges can easily breach. The second priority is to remove PVDF sensors from SC1 applications to eliminate the possibility of metals leaching. The third priority is to ensure you have the appropriate size housing prior to ordering replacement sensor assemblies per TABLE 2.

1. For benches equipped with the first generation conductivity sensor in a welded housing (SNS9A0005) replace the entire assembly. (Ref. sensor is SNS1A0028)
2. For benches equipped with the second generation housing 3/4" (MAN000870) or 1" (MAN000871) housing with a SNS1A0028 sensor, replace the entire assembly since the new sensors do not fit in the housing neck.
3. For benches equipped with the third generation housing 3/4" (MAN009154) or 1" (MAN009155) with a SNS1A0028 sensor:

Option 1: SC1 - Replace sensor and housing per TABLE 1 and TABLE 2.

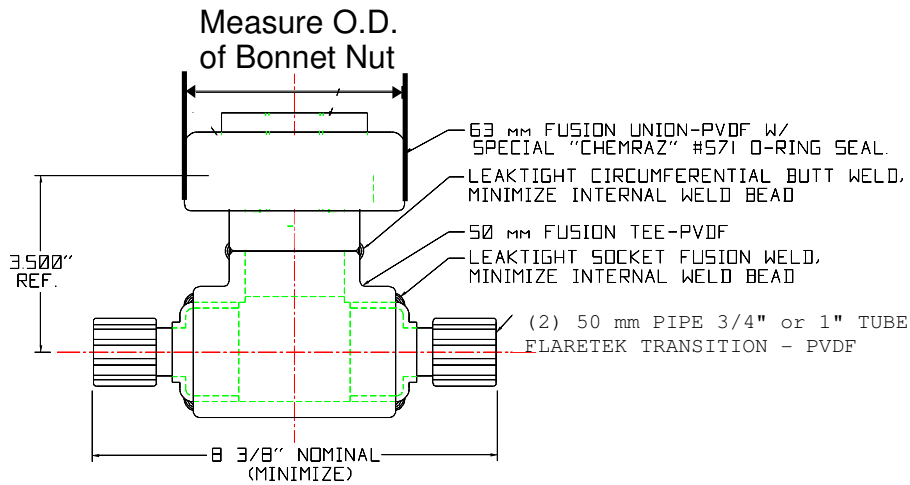
Option 2: SC2/HF - Replace sensor per TABLE 1 and TABLE 2. Re-use housing if in good condition (Option #1 could also be used)

Identifying MAN009154/55 Housings

To determine if you have useable MAN009154 or MAN009155 housings, measure the outside diameter of the bonnet nut. It should measure 4.37".

Old, unusable MAN000870 and MAN000871 housings will measure 3.58". These housing are too narrow to accept the new sensors. They must be replaced.

(see illustration on next page)



O.D. MAN009154/55 = 4.37" CAN BE REUSED

O.D. MAN000870/71 = 3.58" MUST BE REPLACED