The Rosemount 3300 and 5300 Series Guided Wave Radar Selection Matrix

	Probe Materials	HTHP or HP Option (SST only)	Maximum Probe Length [Minimum]	Upper Transition Zone	Lower Transition Zone	Nozzle Diameter	Nozzle Height	Distance from Tank Wall/ Obstruction	Still Pipe/ Bypass Installations (3)	Maximum Viscosity	Coating/ Build Up Tolerance
 **Rigid Twin Lead Probe**	SST	NA	9.8 ft. (3 m) [Min: 1.3 ft (0.4 m)]	3300: 4.0 in (10 cm) 5300: 4.3 in. (11 cm) hi 5.5 in. (14 cm) lo	3300: 2.0 in. (5 cm) hi 2.8 in. (7 cm) lo 5300: 1.2 in. (3 cm) hi 4.0 in. (10 cm) lo	4 in. (10 cm) or more 2 in (5 cm)[1]	Up to 4 in. (10 cm) + nozzle Ø Higher than 4 in. (10 cm) + nozzle Ø [1]	4 in. (10 cm) or more	Ø ≥ 2 in. (5 cm) probe should not touch the pipe wall	1500 cP	Thin, but no bridging
 **Flexible Twin Lead Probe**	SST	NA	3300: 77.1 ft, (23.5 m) [Min: 3.3 ft. (1 m)] 5300: 164 ft, (50 m) [Min: 3.3 ft. (1 m)]	3300: 5.9 in. (15 cm) hi 8.0 in. (20 cm) lo 5300: 4.7 in. (12 cm) hi 5.5 in. (14 cm) lo	3300: 2.0 in. (5 cm) hi 5.9 in. (15 cm) lo + weight length 5300: 2.0 in. (5 cm) hi 5.5 in. (14 cm) lo + weight length	4 in. (10 cm) or more 2 in (5 cm)[1]	Up to 4 in. (10 cm) + nozzle Ø Higher than 4 in. (10 cm) + nozzle Ø [1]	4 in. (10 cm) or more	Ø ≥ 4 in. (10 cm) probe should not touch the pipe wall[4] NR for bypass installations	1500 cP	Thin, but no bridging
 **Coaxial Probe**	SST, Hastelloy, Monel	Yes	19.7 ft. (6 m) [Min: 1.3 ft (0.4 m)]	3300: 4.0 in (10 c m) 5300: 4.3 in. (11 cm)	3300: 1.2 in. (3 cm) hi 2.0 in. (5 cm) lo 5300: 0.4 in. (1 cm) hi 2.0 in. (5 cm) lo	Enough space to fit the probe	No limitations	0 in. (0 cm)	Ø ≥ 1.5 in.(3.8 cm)	500 cP	NR
 **Rigid Single Lead Probe**	SST, Hastelloy, Monel, PTFE covered SST	Yes	9.8 ft. (3 m) [Min: 1.3 ft (0.4 m)]	3300: 4.0 in (10 c m) 5300: 4.3 in. (11 cm) hi 6.3 in. (16 cm) lo	3300: 2.0 in. (5 cm) hi 4.0 in. (10 cm) lo 5300: 2.0 in. (5 cm) hi 2.8 in. (7 cm) lo	6 in. (15 cm) or up to 10 in. (25 cm) 2 in (5 cm)[1]	No higher than 4 in. (10 cm) + nozzle Ø Higher than 4 in. (10 cm) + nozzle Ø [1]	3300: 12.0 in (30 cm) or more [2] 5300: 20.0 in. (50 cm) or more [2]	Ø ≥ 2 in. (5 cm) probe should not touch the pipe wall	8000 cP	Allowed, but can reduce measuring range
 **Flexible Single Lead Probe**	SST, PTFE covered SST	Yes - liquids	3300: 77.1 ft, (23.5 m) [Min: 3.3 ft. (1 m)] 5300: 164 ft, (50 m) [Min: 3.3 ft. (1 m)]	3300: 5.9 in. (15 cm) hi 20.0 in. (50 cm) lo 5300: 4.3 in. (11 cm) hi 7.1 in. (18 cm) lo	3300: 2.0 in. (5 cm) hi 4.7 in. (12 cm) lo + weight length 5300: 0.0 in. (0 cm) hi 2.0 in. (5 cm) lo + weight length	6 in. (15 cm) or up to 10 in. (25 cm) 2 in (5 cm)[1]	No higher than 4 in. (10 cm) + nozzle Ø Higher than 4 in. (10 cm) + nozzle Ø [1]	3300: 12.0 in (30 cm) or more [2] 5300: 20.0 in (50 cm) or more [2]	Ø ≥ 4 in. (10 cm) probe should not touch the pipe wall[4] NR for bypass installations	8000 cP	Allowed, but can reduce measuring range

Not Recommended (NR) — Suitable within guidelines — Application dependent (AD), consult factory

Ø = diameter, hi = high dielectric , lo = low dielectric

[1]Requires special configuration setting of Upper Null Zone and making threshold adjustment. A nozzle that is too small can create false echo at 2 x nozzle height distance from the flange. This can be a problem especially for low dielectric products. Probe should not be in contact with nozzle. Contact Factory.
[2]4 in. (10 cm) if smooth metallic wall since it can help measurement but it Is important that the probe does not touch the wall
[3]See Technical Note 00840-0200-4024, Guidelines for Choosing and Installing Radar in Pipes and Stilling Wells
[4]Centering disk is recommended

The Rosemount 3300 and 5300 Series Guided Wave Radar Selection Matrix (Cont.)

	Minimum Dielectric Constant (DC)	Level and Interface (5)	Interface with Submerged Probe (5)	LPG/Natural Gas Liquids	Ammonia (6)	Replacing Displacers (7)	Replacing Capacitance (8)	Solid Applications (9)	Foam Applications	Turbulence
 **Rigid Twin Lead Probe**	3300: 1.9 5300: 1.4	3302 or 5302	3301 or 5301	3300: OK, if DC > 1.8 5300 1.4	OK	OK	OK	NR	Possible to measure top of foam and liquid level	Avoid conditions causing breaking forces without supporting probe
 **Flexible Twin Lead Probe**	3300: 1.6 @ 33 ft. (10 m) 2.4 @ 77 ft. (23.5 m) 5300: 1.4 @ 82 ft. (25 m) 6 @ 164 ft. (50 m)	3302 or 5302	3301 or 5301	3300: DC 1.6 up to 36 ft. (11 m) 5300: DC 1.6 up to 95 ft. (29 m)	OK	OK, if wall is not touched	OK	NR	Possible to measure top of foam and liquid level	Avoid, or probe has to be fixed in the bottom of tank
 **Coaxial Probe**	3300: 1.4 (Std) 1.6 (HP) 2.0 (HTHP) 5300: 1.2 (Std), 1.4 (HP), 2.0 (HTHP)	3302 or 5302	3300: NR 5301: OK	3300: 1.4 (Std) 1.6 (HP) 2.0 (HPHT) 5300: 1.2 (Std), 1.4 (HP), 2.0 (HTHP)	OK	OK	OK	NR	Only to mechanically avoid foam	Avoid conditions causing breaking forces without supporting probe
 **Rigid Single Lead Probe**	3300: 2.5 (1.7 if in a metallic pipe) 5300: 1.4 (1.25 if in a metallic pipe)	3302: note min DC for 3300 5302: OK		3300: NR 5300: 1.4 (1.25 if in a metallic pipe)	3300: NR 5300: OK	OK	OK	Consult factory	Possible to measure top of foam	Avoid conditions causing breaking forces without supporting probe
 **Flexible Single Lead Probe**	3300: 2.5 up to 36 ft (11 m) 7.5 up to 77 ft (23.5 m) 5300: 1.4 up to 49 ft. (15 m) 4 up to 148 ft. (46 m) 10 up to 164 ft. (50 m)	3302: NR 5302: OK	3300: NR 5300: OK	3300: NR 5300: DC 1.6 up to 69 ft. (21 m)	3300: NR 5300: OK	OK, if wall is not touched	OK	3301: if DC > 2.5 and vessels are < 66 ft. (20 m) 5300: OK	Possible to measure top of foam	Avoid, or probe has to be fixed in the bottom of tank

Not Recommended (NR) — Suitable within guidelines — Application dependent (AD), consult factory

[5]Use the 3301 or 5301 for level only or for interface-only applications where the probe is completely submerged in the upper fluid. Use the 3302 or 5302 when both level and interface measurements are desired. Target interface applications are those between oil/oil-like and water/water-like liquids. These have low (<3) upper product dielectric and high (>20) lower product dielectric. See PDS for details.

[6]See technical note 00840-0100-4811, Measuring Ammonia with Radar

[7]See Technical Note 00840-2200-4811, Replacing Displacers with Guided Wave Radar

[8]GWR is a good replacement for most capacitance level and interface applications. However, capacitance probes often have smaller connections (< 1 inch) so care must be taken that the nozzle height and diameter will be large enough for the GWR probes. In interface applications, emulsion layers will create an error for capacitance probes that is proportional to its thickness and dielectric properties. For GWR applications, the impact of the emulsion layer is more variable and is dependent upon the emulsion layers dielectric properties.

[9]See Technical Note 00840-2300-4811, Measuring Solids with Guided Wave Radar