

Flanges Bakeable to 500°C

1. SCOPE

This standard concerns the physical configuration of bakeable flanges intended for use on vacuum systems operated up to 500°C. Specifically omitted are material and thickness specifications, attachment means, and seal design.

2. STANDARD DIMENSIONS

Standard flanges shall have the dimensions shown in Table 2.1.

3. LEAK TEST PROVISION

Each standard flange shall have at least two leak test ports, grooves, or other means of providing leak test gas flow into and out of the immediate vicinity of the entire seal circumference.

APPENDIX A

AI. SUPPLEMENTARY INFORMATION

The user should be cautioned that compliance with the above dimensional standards is necessary but not sufficient to produce a useful bakeable flange conforming to AVS standards. The material must be free of porosity which can cause leaks after bakeout; be free of inclusion, which prevent effective sealing; have a hardness and temperature coefficient of expansion consistent with the seal design; and must be free of high-vapor-pressure components. The flange must have a thickness sufficient to carry the sealing loads and an attachment preparation which will not cause the flange to distort when welded or brazed to the tubing. The sealing surfaces must have the correct dimensions and surface finish.

TABLE 2.1. Standard AVS bakeable flange dimensions.

| Outside diam (in.) | Maximum nominal inside flange diam (in.) | Basic bolt circle diam (in.) | Bolt hole size (in.) | No. of holes | Hole separation* |
|-----------------------|--|---------------------------------|-------------------------|-----------------|---------------------|
| | | | + .004 - .001 | | |
| 2 1/8 | 1 | 1.62500 | .265 | 4 | 90° |
| 2 3/4 | 1 1/2 | 2.31200 | .265 | 6 | 60° |
| 3 3/8 | 2 | 2.85000 | .332 | 8 | 45° |
| 4 1/2 | 2 1/2 | 3.62800 | .332 | 8 | 45° |
| 4 5/8 | 3 | 4.03000 | .332 | 10 | 36° |
| 6 | 4 | 5.12800 | .332 | 16 | 22°30' |
| 6 3/4 | 5 | 5.96900 | .332 | 18 | 20° |
| 8 | 6 | 7.12800 | .332 | 20 | 18° |
| 10 | 8 | 9.12800 | .332 | 24 | 15° |

| (cm) | (cm) | (cm) | Bolt hole size (cm) | No. of holes | Hole separation* |
|--------|-------|----------|------------------------|-----------------|---------------------|
| | | | + .010 - .002 | | |
| 5.398 | 2.54 | 4.12750 | .673 | 4 | 90° |
| 6.985 | 3.81 | 5.87248 | .673 | 6 | 60° |
| 8.573 | 5.08 | 7.23900 | .843 | 8 | 45° |
| 11.430 | 6.35 | 9.21512 | .843 | 8 | 45° |
| 11.748 | 7.62 | 10.23620 | .843 | 10 | 36° |
| 15.240 | 10.16 | 13.02512 | .843 | 16 | 22°30' |
| 17.145 | 12.70 | 15.16126 | .843 | 18 | 20° |
| 20.320 | 15.24 | 18.10512 | .843 | 20 | 18° |
| 25.400 | 20.32 | 23.18512 | .843 | 24 | 15° |

* Holes are to be equally spaced at the angles specified. The center of the bolt hole is to lie within a circle of .009 in. or .229 mm diam drawn about the true position of the bolt hole. The true position of the bolt hole is defined as the intersection of the basic bolt circle and a radial line drawn at the angles specified. For a discussion of true-positioning dimensioning, see, for example, Aerospace-Automotive Drawing-Standards Society of Automotive Engineers, 485 Lexington Ave., New York, Secs. A8.01-A8.17.

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