

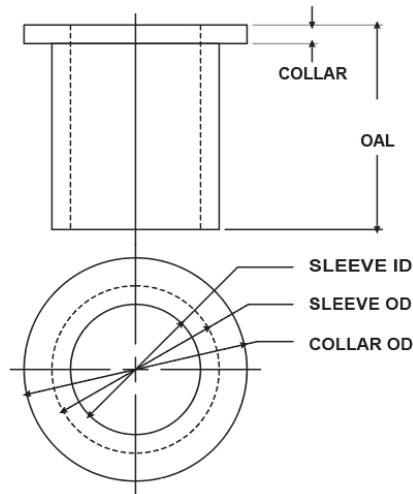
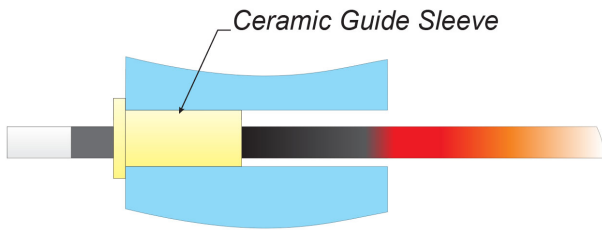
# Ceramic Guide Sleeves for Starbar Heating Elements

The element terminal holes through the furnace walls must be in line and be large enough in size to prevent the element or terminal tube from being pinched at all furnace temperatures. Guide sleeves are optional but recommended for use with Starbar elements and with fiber wall furnaces. Ceramic guide sleeves are used to support and electrically isolate the elements from the furnace casing.

The sleeves also protect the furnace wall insulation and provide a constant clearance. They are strongly recommended in applications where product vapors may condense in the furnace terminal holes. This can cause the element to stick to the refractories inside the lead through holes. When sticking, the element may break from mechanical forces caused by thermal expansion and contraction. Guide sleeves can prevent this from occurring, for if the element sticks to the tubes, the sleeves can still move. Guide sleeves should be loose fitting, and never be cemented in place.

When vapors depositing anywhere on the elements is a problem, it is recommended that ceramic fiber pads be placed beneath the element cold ends and the guide sleeves where they enter the furnace.

Loosely stuffing ceramic wool around the circumference of the element where it enters the terminal hole for a depth of one 1-2 inches (25-50mm) may also be recommended to reduce heat losses from radiation and convection, but elements must be free to move both radially and longitudinally. Terminal Gasket Assemblies may also be used.



**Starbar Guide Sleeves - Standard Sizes**

Starbar Nom. Dia.		Sleeve P/N	OD x ID		OAL		Collar Diameter x Thickness	
mm	inch		mm	inch	mm	inch	mm	inch
13	0.50	2024-1	35 x 20	1.37 x 0.81	105	4.12	50 x 10	2.00 x 0.38
16	0.63	2024-1	35 x 20	1.37 x 0.81	105	4.12	50 x 10	2.00 x 0.38
19	0.75	2024-3	44 x 30	1.75 x 1.18	105	4.12	60 x 10	2.38 x 0.38
22	0.88	2024-3	44 x 30	1.75 x 1.18	105	4.12	60 x 10	2.38 x 0.38
25	1.00	2024-5	51 x 37	2.00 x 1.44	105	4.12	70 x 10	2.75 x 0.38
32	1.25	2024-5	51 x 37	2.00 x 1.44	105	4.12	70 x 10	2.75 x 0.38
35	1.38	2024-7	57 x 43	2.25 x 1.69	105	4.12	75 x 10	3.00 x 0.38
38	1.50	2024-7	57 x 43	2.25 x 1.69	105	4.12	75 x 10	3.00 x 0.38
44	1.75	2024-9	64 x 49	2.50 x 1.94	105	4.12	83 x 10	3.25 x 0.38
54	2.12	2024-11	76 x 62	3.00 x 2.44	105	4.12	95 x 10	3.75 x 0.38
54	2.12	2024-12	76 x 62	3.00 x 2.44	168	6.63	95 x 10	3.75 x 0.38
70	2.75	2024-15	100x83	4.00 x 3.25	139	5.50	127 x 16	5.00 x 0.63

Special OD, ID and Overall lengths available upon request.  
 Standard Tolerances:  $\pm 1/8"$  (3.2 mm) on length,  $\pm 1/16"$  (1.6 mm) on all other dimensions.  
 Recommended minimum hole size through steel casing and refractories: OD +  $1/8"$  (+ 3.2 mm)



**Silicon Carbide Heating Elements**

