

# SELECTION OF FLANGED IMMERSION HEATERS

## Flanged Immersion Heater Selection Guide

Application	Solution or Heater Type	Alkaline or Acid Content (Est. % by Volume)	Sheath Material	Watt Density (Watts/In <sup>2</sup> )	Max. Recommended Sheath Temp. (°F)
Water & Very Mild Solutions	Clean Water	pH 6 to pH 8 Neutral	Copper	45	350
	Process Water or Very Weak Solutions	pH 5 to pH 9 2-3%	Stainless Steel*	45	1200
	Weak Solutions	5-6%	Incoloy	45	1600
	Deminerlized Deionized or Pure Water	—	Incoloy with Stainless Flange	45	1600
Corrosive & High Viscous Solution	Mild Corrosive Solution	5-15%	Stainless Steel*	23	1200
	More Severe Corrosive Solution	10-25%	Incoloy	23	1200
	Severe Corrosive Solution	30-60%	Incoloy with Stainless Flange	15	1600
Specialty Water Heating	Steam Boiler	Treated	Incoloy, Copper	—	1600
	Water Storage Tank	Treated	Copper	—	350
Oil Heating	Low Viscosity Oil	—	Steel	23	750
	Medium Viscosity Oil	—	Steel	15	750
	High Viscosity Oil	—	Steel	6.5	750
Oil Reservoir Heating	Lubrication Oil	—	Steel	15	750
Air, Gases & Steam Heating	Low Temperature	To 1100°F	Stainless Steel	23	1200
	High Temperature	To 1600°F	Incoloy	23	1600

\*Passivated stainless steel recommended for water

## Flanged Immersion Heater Types

Application	Flange Size (cm)	Sheath Material	Flange Material	Heater Type	Page	Application	Flange Size (cm)	Sheath Material	Flange Material	Heater Type	Page	
Clean water heater	3" (8)	Copper	Steel	TM	F-54	Demineralized or deionized water heater	3" (8)	Incoloy	SS	TMIS	F-61	
	5" (13)	Copper	Steel	TM			5" (13)	Incoloy	SS	TMIS		
	6" (15)	Copper	Steel	TM			Boiler & water heater	2½" sq. (6)	Copper	Steel		TTSF
	8" (20)	Copper	Steel	TM				2½" sq. (6)	Incoloy	Steel		TTSF
	10" (25)	Copper	Steel	TM				Storage water heater	3" (8)	Copper		Steel
12" (30)	Copper	Steel	TM	5" (13)	Copper	Steel	TM					
14" (36)	Copper	Steel	TM	6" (15)	Copper	Steel	TM					
Process water heater	3" (8)	SS	Steel	TMS	F-55	Light weight oil heater	3" (8)	Steel	Steel	TMO	F-63	
	5" (13)	SS	Steel	TMS			5" (13)	Steel	Steel	TMO		
	6" (15)	SS	Steel	TMS			6" (15)	Steel	Steel	TMO		
	8" (20)	SS	Steel	TMS			8" (8)	Steel	Steel	TMO		
Solution water heaters	3" (8)	Incoloy	Steel	TMI	F-56	Medium weight oil heater	3" (8)	Steel	Steel	TMO	F-65	
	5" (13)	Incoloy	Steel	TMI			5" (13)	Steel	Steel	TMO		
	6" (15)	Incoloy	Steel	TMI			6" (15)	Steel	Steel	TMO		
	8" (20)	Incoloy	Steel	TMI			10" (25)	Steel	Steel	TMO		
Mild corrosive heaters	3" (8)	SS	Steel	TMS	F-58	Heavy weight oil heater	3" (8)	Steel	Steel	TMO	F-66	
	5" (13)	SS	Steel	TMS			5" (13)	Steel	Steel	TMO		
	6" (15)	SS	Steel	TMS			6" (15)	Steel	Steel	TMO		
	8" (20)	SS	Steel	TMS			Sump oil heaters	3" (8)	Steel	Steel		TMO
Corrosive solution & gas heaters	3" (8)	Incoloy	Steel	TMI	F-59	Food equipment heater		5" (13)	Steel	Steel	TMO	F-69
	5" (13)	Incoloy	Steel	TMI				8" (20)	Steel	Steel	TMO	
	6" (15)	Incoloy	Steel	TMI				3" (8)	Copper	Brass	TTUH-CO TTUH	
	8" (20)	Incoloy	Steel	TMI								
10" (25)	Incoloy	Steel	TMI									
12" (30)	Incoloy	Steel	TMI									
14" (36)	Incoloy	Steel	TMI									
Severe corrosive solution heater	3" (8)	Incoloy	SS	TMIS	F-60							
	5" (13)	Incoloy	SS	TMIS								
	6" (15)	Incoloy	SS	TMIS								



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