

# SPECIAL TECHNICAL CHARACTERISTICS

## NO-FREEZ

PERCENTAGE PRODUCT IN SOLUTION		50%	60%	70%	80%	90%	100%
<b>MIXING PROPORTION</b>	PARTS PRODUCT PARTS WATER	1 1	3 2	7 3	4 1	9 1	1 0
<b>EXPANSION DAMAGE PROTECTION POINT</b>		-50°F.	-59°F.	-67°F.	-76°F.	-86°F.	-100°F.
<b>FLOW POINT</b>		0°F.	-16°F.	-27°F.	-41°F.	-50°F.	-61°F.
<b>REFRACTIVE INDEX nD</b>		1.361	1.367	1.372	1.377	1.383	1.388
<b>THERMAL CONDUCTIVITY</b> BTU / (HR.) (SQ. FT.) (°F./FT.)	-10°F. 0°F. 10°F. 20°F. 30°F. 40°F. 50°F. 60°F. 70°F. 80°F. 90°F. 100°F. 110°F. 120°F. 130°F. 140°F.	0.269 0.271 0.273 0.275 0.277 0.279 0.281 0.283 0.285 0.288 0.290 0.293 0.295 0.298 0.300 0.302	0.256 0.258 0.260 0.262 0.264 0.266 0.268 0.269 0.271 0.273 0.275 0.277 0.279 0.281 0.283 0.285	0.249 0.250 0.251 0.252 0.254 0.255 0.256 0.258 0.259 0.260 0.261 0.263 0.264 0.265 0.267 0.268	0.242 0.243 0.244 0.245 0.245 0.246 0.247 0.248 0.248 0.249 0.250 0.251 0.252 0.252 0.253 0.254	0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238	0.229 0.229 0.228 0.228 0.227 0.227 0.226 0.226 0.225 0.225 0.224 0.224 0.223 0.223 0.222 0.222
<b>DENSITY</b> gms. / ml.	-20°F. 0°F. 20°F. 40°F. 80°F. 100°F. 180°F.	1.035 1.031 1.028 1.025 1.017 0.991 0.984	1.042 1.037 1.034 1.030 1.021 0.994 0.987	1.048 1.043 1.040 1.035 1.024 0.996 0.988	1.053 1.049 1.045 1.040 1.028 0.998 0.990	1.058 1.054 1.049 1.044 1.031 1.000 0.992	1.063 1.058 1.053 1.047 1.034 1.002 0.993
<b>SPECIFIC HEAT</b> BTU / LB. / DEGREE FAHRENHEIT	40°F. 80°F. 120°F. 160°F. 200°F. 240°F.	0.95 0.96 0.96 0.97 0.97 0.96	0.93 0.94 0.95 0.95 0.96 0.97	0.91 0.92 0.93 0.94 0.95 0.96	0.89 0.90 0.91 0.93 0.94 0.95	0.87 0.89 0.90 0.91 0.92 0.94	0.84 0.86 0.88 0.89 0.91 0.93
<b>VISCOSITY</b> CENTIPOISE	0°F. 50°F. 100°F. 150°F. 200°F.	13 3.5 1.5 0.8 0.5	19 4.0 1.6 0.8 0.5	24 5.3 1.9 1.1 0.6	42 7 2.2 1.3 0.7	50 8 2.7 1.4 0.8	70 11 3.2 1.7 0.7

THE SPECIFICATIONS LISTED ARE FOR TYPICAL IDEAL SITUATIONS. CONTAMINANTS IN THE SYSTEM MAY ALTER THE CHARACTERISTICS OF THIS PRODUCT.

### HOW TO SIZE YOUR SYSTEM

THE CAPACITY OF YOUR BOILER CAN BE FOUND ON THE BOILER PLATE, IN THE BOILER MANUAL OR CONTACT THE MANUFACTURER. USE THE FOLLOWING CHART TO HELP SIZE THE PIPING IN YOUR SYSTEM.

Nominal size		Gallons Per 100 ft. of Length	Length in Feet Per Gallon
3/8"	Type "L" Copper Tubing	0.753	132.6
1/2"	Type "L" Copper Tubing	1.21	82.6
5/8"	Type "L" Copper Tubing	1.81	55.2
3/4"	Type "L" Copper Tubing	2.51	39.8
1"	Type "L" Copper Tubing	4.29	23.4
1 1/4"	Type "L" Copper Tubing	6.55	15.3
1 1/2"	Type "L" Copper Tubing	9.25	10.8
2"	Type "L" Copper Tubing	16.05	6.2
2 1/2"	Type "L" Copper Tubing	24.78	4.0
3"	Type "L" Copper Tubing	35.38	2.8
3 1/2"	Type "L" Copper Tubing	47.84	2.1
4"	Type "L" Copper Tubing	62.	1.6
5"	Type "L" Copper Tubing	97.1	1.0
6"	Type "L" Copper Tubing	139.2	0.7
3/8"	Standard Steel Pipe	1.0	100.0
1/2"	Standard Steel Pipe	1.6	63.3
3/4"	Standard Steel Pipe	2.8	36.0
1"	Standard Steel Pipe	4.5	22.2
1 1/4"	Standard Steel Pipe	7.8	12.8
1 1/2"	Standard Steel Pipe	10.5	9.5
2"	Standard Steel Pipe	17.5	5.7
2 1/2"	Standard Steel Pipe	25.0	4.0
3"	Standard Steel Pipe	39.0	2.6
3 1/2"	Standard Steel Pipe	53.0	1.9
4"	Standard Steel Pipe	66.7	1.5

Stock Number	Size & Description	Pack	Lbs./ case
18-450	1 GALLON NO-FREEZ	4	36
18-452	5 GALLON NO-FREEZ	1	46
18-456	55 GALLON NO-FREEZ	1	500
18-465	REFRACTOMETER	1	1
18-460	NO-FREEZ QUICK CHECK TEST STRIPS	6	1
18-470	8 OZ. CONTAINERS NO-FREEZ INHIBITOR	12	7

**Also available:**

ALUMINUM-SAFE POLAR GRADE NO-FREEZ, POLAR GRADE NO-FREEZ & SUPER POLAR GRADE NO-FREEZ CONCENTRATE. Also available for fire sprinkler applications FIRE & ICE MASTER GL48 and FIRE & ICE MASTER PG38.

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