

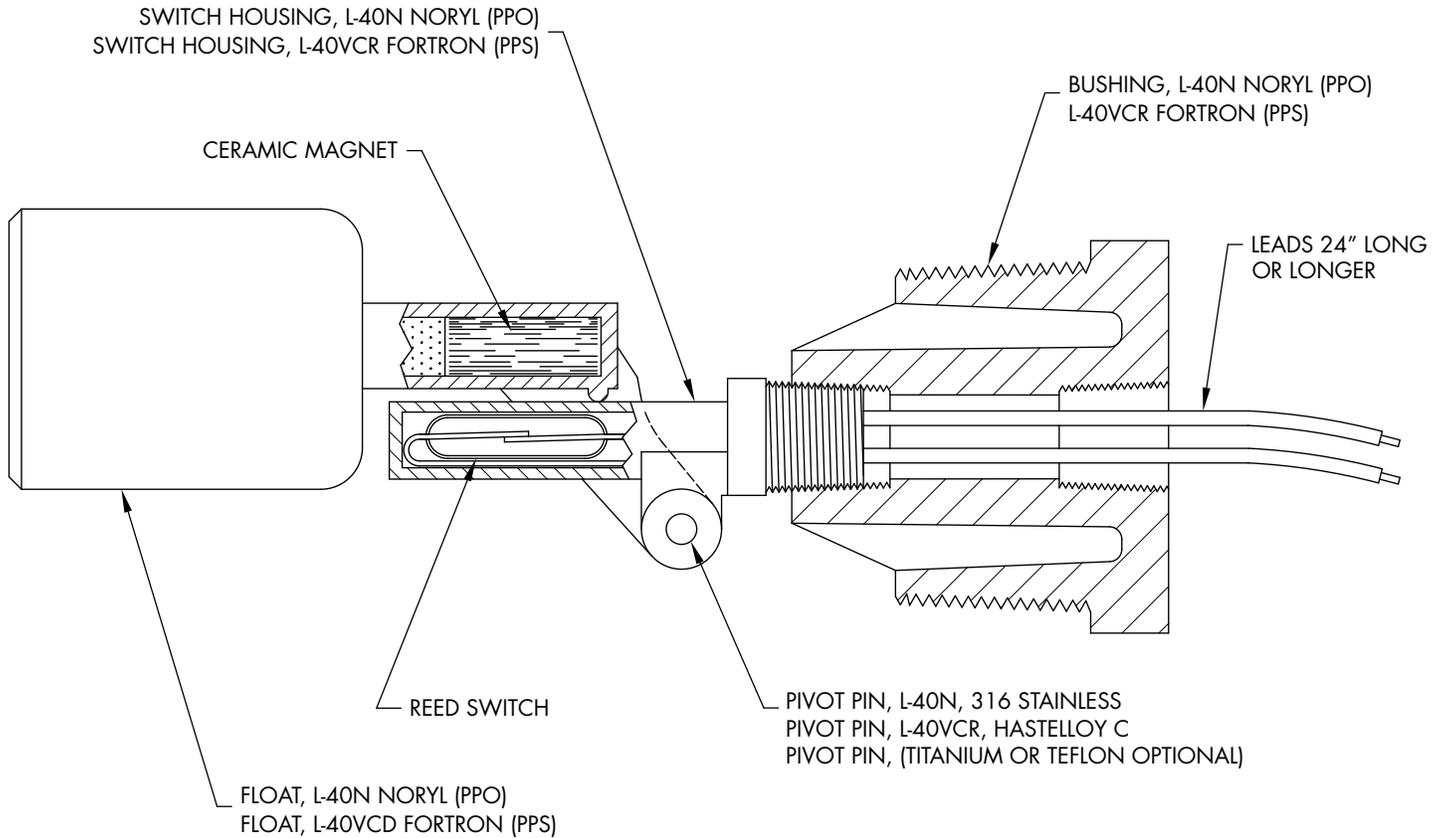
MODEL L-40

L-40N, L-40VCR

HARWIL CORPORATION

541 KINETIC DRIVE, OXNARD, CA 93030
TEL: (805) 988-6800 FAX: (805) 988-6804
EMAIL: HARWIL@HARWIL.COM

INSTALLATION INSTRUCTIONS



SWITCH HOUSING SUPPLIED ONLY AS AN ASSEMBLY OF ENCAPSULATED SWITCH & LEADS. FLOAT SUPPLIED ONLY WITH ENCAPSULATED MAGNET.

PARTS LIST LIQUID LEVEL SWITCH

SPECIFIC GRAVITY COMPENSATING
 MODEL **L-40N/SG** ALSO AVAILABLE

MODEL L-40N L-40VCR

Customer specified specific gravity sensitivity.

Unique design enhances specific gravity sensitivity.

Applications include fuel/water detection, oil/water detection, or detection of ground water contamination.

SAMPLE PART NUMBER			
OPTION 1: L-40N	/ NO	/ HOR	/ 316
BASE MODEL	↑	↑	↑
SWITCH OPERATION			
MOUNTING POSITION			
PIVOT PIN MATERIAL			

INDUCTIVE LOADS

Switch contacts have been tested with small relays and 30A J-C relay inductive driving coils at 120/240VAC to 500,000 operations without failure. Steady state driving coil Volt/Amp rating should be 8VA or less.

DRY CIRCUIT OPERATION

Switch can interface with microprocessor based controllers and related computer circuits.

NOTE: Model L-40 employs magnetic coupling between float arm and switch body. Magnetic particles can accumulate on and around magnetic housing which may affect proper operation. Please conduct appropriate fluid magnetic particle evaluation and operational tests prior to and during installation and use.

TECHNICAL SPECIFICATIONS

ELECTRICAL (REED) SWITCH CHARACTERISTICS

SPNO

Contact Ratings:

AC Voltage (max. switching)	300VAC
DC Voltage (max. switching)	350VDC
Current (max. switching)	0.5A
Current (max. carrying)	2.5A
Power (max) (VA, W)	50 watts
Contact resistance (max. initial)	0.15 ohms
Insulation resistance	10 ¹⁰ ohms
Operating temperature	-40°F–240°F (-40°C–115°C)

OPTIONAL: SPNC or SPDT, 3 watt, 100VAC/VDC.

HYSTERESIS (Δ LIQUID LEVEL TO ACTIVATE/DEACTIVATE SWITCH)

≈ 3/8" (0.375") max. travel

L-40N (NORYL)

WORKING FLUID SPECIFIC GRAVITY:

Top Mount: 0.8 Side Mount: 0.7

WORKING PRESSURE: 200 psi max. continuous

WORKING TEMPERATURE: 180°F max. continuous.

WETTED MATERIALS: Body, Float and Bushing: Noryl (PPO) (10% glass fibers) Pivot Pin: 316 stainless steel

L-40VCR (FORTRON)

WORKING FLUID SPECIFIC GRAVITY:

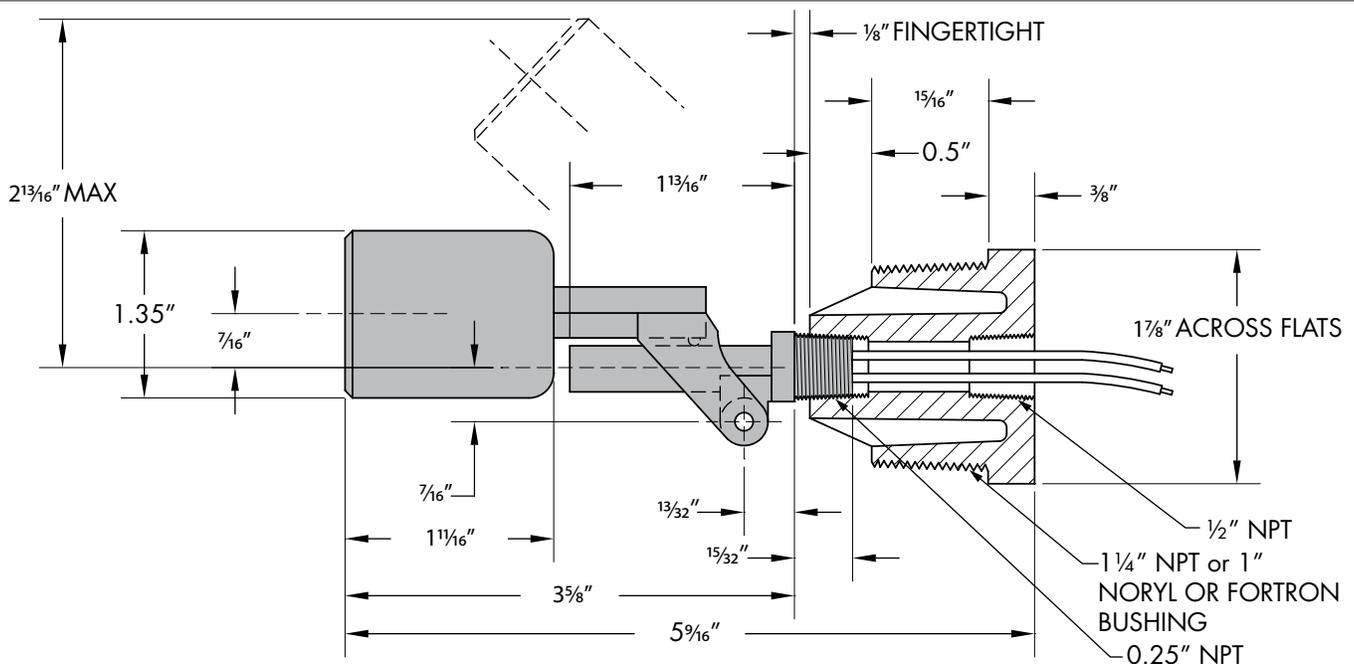
Top Mount: 0.9 Side Mount: 0.7

WORKING PRESSURE: 200 psi max. continuous

WORKING TEMPERATURE: 200°F max. continuous.

WETTED MATERIALS: Body, Float and Bushing: Fortron (PPO) (40% glass fibers) Pivot Pin: Hastelloy C

INSTALLATION DIMENSIONS



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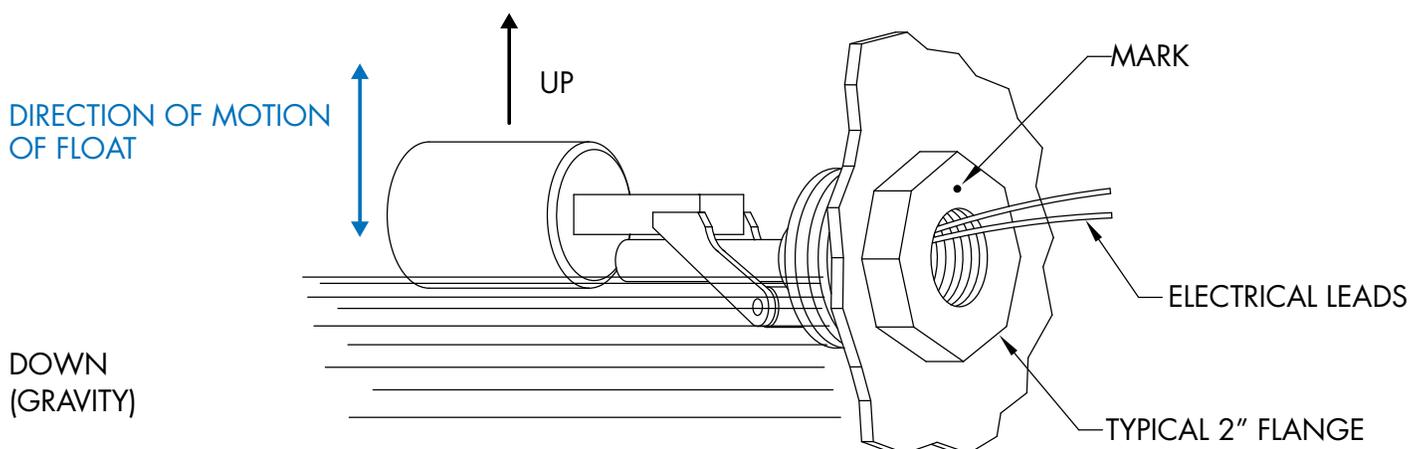
INSTALLATION INSTRUCTIONS

NOTE: Models L-40N and L-40VCR are dimensionally equal and employ the same electrical switch. The only difference between them lies in the materials used, which effects their chemical resistance. Installation procedures and electrical check out are equivalent, so the term "Model L-40" will be used herein to mean both individual models L-40N and L-40VCR.

Model L-40 liquid level switch is supplied with a 1 1/4" x 1/4" NPT TT bushing, which allows the unit to pass through a 1 1/4" NPT female thread, located in the side or top of a tank. Teflon tape is factory applied to the 1/4" NPT end of the switch housing, which is threaded into the 1 1/4" x 1/4" bushing and tightened to provide a sealed connection. A mark on the top of the 1 1/4" x 1/4" bushing indicates the plane of motion of the float.

Horizontal mounting through the side wall of the tank.

- A. The male 1 1/4" NPT thread of the 1 1/4" x 1/4" bushing is Teflon taped at the factory. Inspect the taped threads for uniform tape covering. If the Teflon tape has been damaged, remove and replace with new tape.
- B. Insert Model L-40 through the 1 1/4" NPT opening in the wall of the tank, thread the 1 1/4" x 1/4" bushing into place, and tighten until seal is obtained, as per standard PVC pipe fittings. Tighten additional amount until this mark is at the top of the bushing.
- C. Model L-40 is designed to be field replaceable for "donut" sliding float types with 1/4" NPT on end of the switch housing tube. Installation is accomplished as follows:
 1. Disconnect the old sliding float switch wires and unthread the unit from the support (e.g. 2" flange, bushing, etc.)
 2. Clean the female threads, apply Teflon tape to the L-40 threads as required, and tighten them in place as required to ensure a proper seal.
 3. Move the L-40 float through the full travel to ensure float motion is not restricted by adjacent structures. Mark the outside surface of the flange, bushing, etc. to indicate the plane of motion and "up" position of the float.



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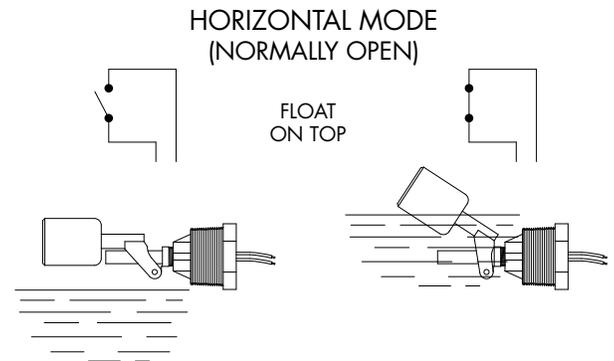
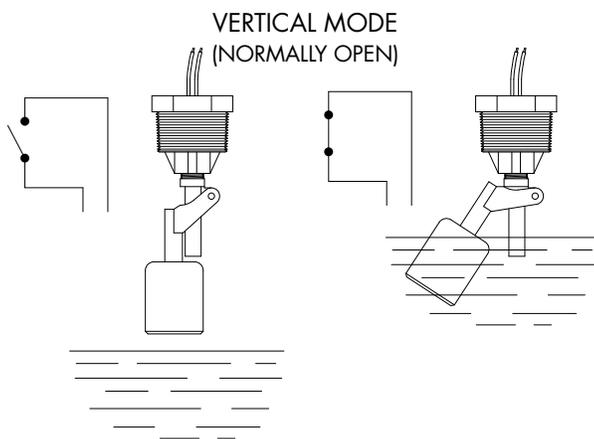
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Vertical mounting through top of tank.

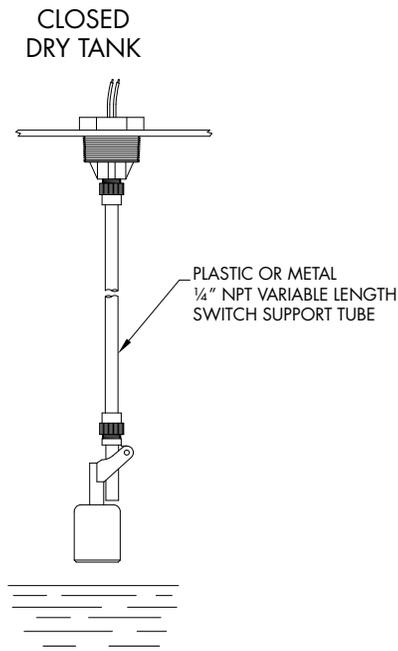
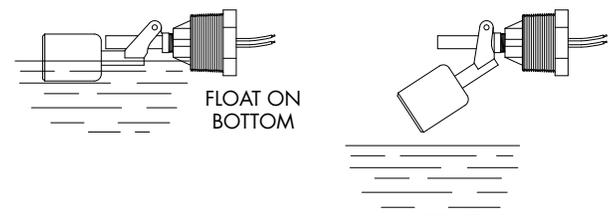
- A. Same as A) on previous page.
- B. Insert Model L-40 through the 1 1/4" NPT opening in the top of the tank, thread the 1 1/4" x 1/4" bushing into place and tighten it until seal is obtained as per standard PVC pipe fittings. Arrow indicates the plane of motion of the float, which may be in any position or a particular position should internal structure interfere with motion of the float.
- C. Field replacement of top mounted "donut"-type sliding float level switches is the same as C) on the previous page, except that indexing the plane of motion of the float is not required except when tank internal structure interferes with float motion.

ELECTRICAL WIRING

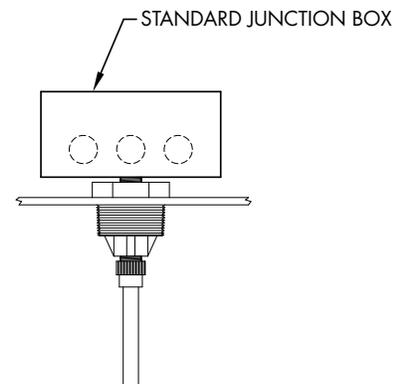
Check switch operation with an ohmmeter prior to installing to insure switch is activated when float is moved between stops. NOTE: Switch must be activated and deactivated when float is in a position near but not at stop.



WHEN MOUNTED IN THE HORIZONTAL MODE, THE SWITCHING LOCK IS REVERSED BY MOUNTING FLOAT ON TOP OF SWITCH TUBE OR ON BOTTOM OF SWITCH TUBE



NOTE: Normally closed switch is available.



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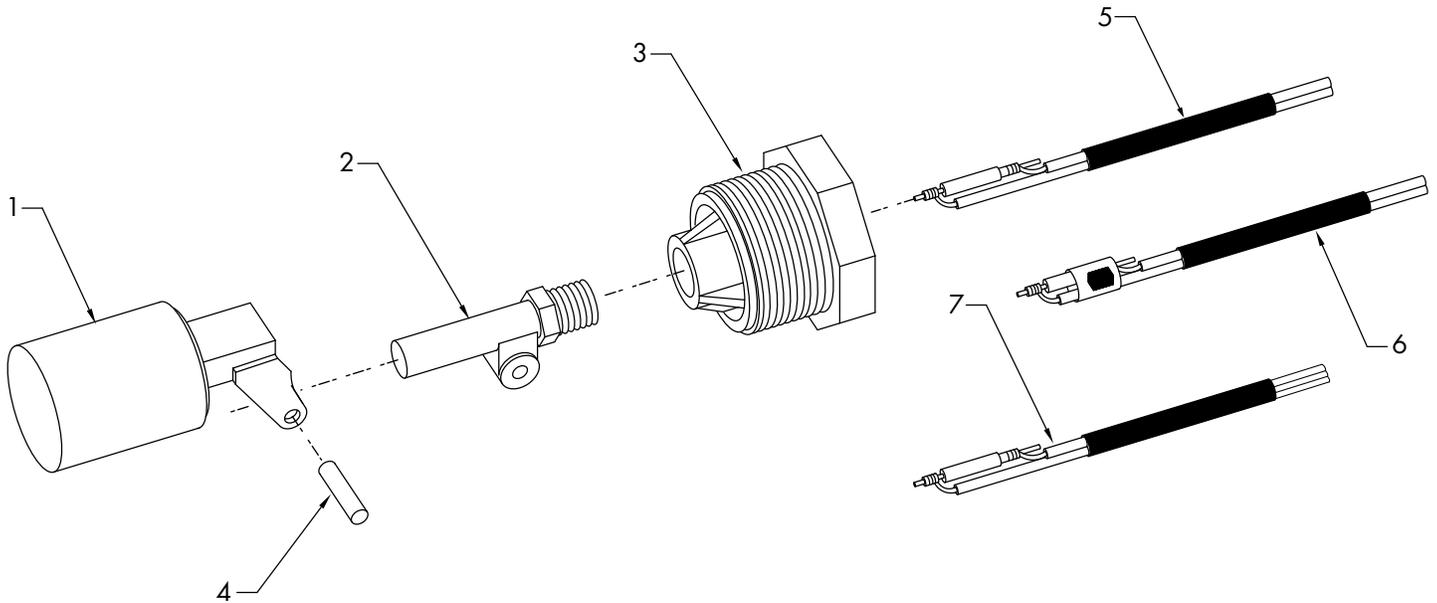
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#	PART NAME	QTY	PART #	#	PART NAME	QTY	PART #
1.	FLOAT (SONIC WELD) - NORYL - FORTRON	(1)	40100 (N) 40201 (VCR)	6.	LEAD WIRE (OPTIONAL) (NORM OPEN)		
	#A MAGNET INSIDE	(1)	40112 (N)		OPEN SWITCH - ASSEMBLY ONLY	(1)	40109
2.	SWITCH HOUSING - NORYL ASSEMBLY ONLY	(1)	40102 (N) 40202 (VCR)		#A BLUE WIRE - SHORT	(1)	40106
	- FORTRON				#B BLUE WIRE - LONG	(1)	40107
3.	BUSHING - NORYL	(1)	40103 (N)		#C BLACK SHRINK TUBING	(1)	901-F
	- FORTRON				#D REED SWITCH - (NC)	(1)	40108
4.	PIVOT PIN - 316 STAINLESS STEEL - HASTELLOY C	(1)	40104 (N) 40301 (VCR)		#E SQUARE MAGNET	(1)	40110
5.	LEAD WIRE (OPTIONAL) (NORM CLOSED)				#F CLEAR SHRINK TUBING	(1)	40111
	CLOSED SWITCH - ASSEMBLY ONLY	(1)	40105	7.	LEAD WIRE (OPTIONAL) (SPDT) (3 WIRES)		
	#A BLUE WIRE - SHORT	(1)	40106		SPDT SWITCH - ASSEMBLY ONLY	(1)	40113
	#B BLUE WIRE - LONG	(1)	40107		#A GREEN WIRE - COMMON	(1)	40114
	#C BLACK SHRINK TUBING	(1)	901-F		#B BLACK WIRE - NORMALLY OPEN	(1)	40115
	#D REED SWITCH - (NO)	(1)	40108		#C WHITE WIRE - NORM CLOSED	(1)	40116
					#D BLACK SHRINK TUBING	(2)	901-F
					#E BLACK SHRINK TUBING	(1)	901-G
					#F REED SWITCH - SPDT	(1)	40117



CERTIFICATE OF CONFORMANCE

All HARWIL Corporation ("HARWIL") products are manufactured using new materials and components. Our products meet the applicable performance and materials specifications indicated in our current Specifications Sheets and Parts Lists. HARWIL endeavors to obtain its materials and components from American Companies.

DOMINANCE OF HARWIL LIMITED EXPRESS WARRANTY

HARWIL warrants that all HARWIL products will be free from defects in material and workmanship for a period of one year from the date of original shipment. This warranty shall be limited to the replacement and reconditioning of our products and parts. HARWIL reserves the right and sole discretion to modify or change the composition, design and appearance of its products at anytime.

This warranty shall be in lieu of all warranties of merchantability and of all warranties of fitness for a particular purpose relating to harwil products and parts. Buyer's sole remedy hereunto shall be replacement or reconditioning as set forth herein.

HARWIL shall incur no obligations hereunder and no liability in the event of (a) buyer not fulfilling its responsibilities, including as set forth herein; (b) neglect, alteration or improper product use, including use with non-compatible devices or chemicals; or (c) repair by other than HARWIL. ANY LAWSUIT RELATING TO THIS WARRANTY MUST BE COMMENCED WITHIN ONE YEAR OF THE DATE IT ACCRUES.

Each user of our product should make appropriate analysis and tests to determine the suitability of the product for the intended use prior to purchase. HARWIL provides no warranty and assumes no responsibility for corrosive attack on any material, component or design features associated with any of its products.

Corrosion resistance information listed in HARWIL specification sheets, installation sheets and product brochures is solely for general background information. This table has been compiled from literature published by various material suppliers and by equipment manufacturers who use these materials in their products. Inasmuch as these data are based on tests by entities over which HARWIL has no control, HARWIL does not guarantee or accept responsibility for the accuracy of such tests. When using the table, please remember that in any given case several factors such as concentration, temperature, degrees of agitation and presence of impurities influence the rate of corrosion. The guide is intended, in a general way, to rate materials for resistance to chemicals which contain their usual impurities and for types of equipment in common use. Ratings should be used only as a general guide to first approximation of your material requirements rather than as the final answer.

- When in doubt, test materials before installation.
- After installation, follow up with preventative maintenance and periodic inspection.