

Non-Destructive Testing Procedures

Visible liquid dye penetrant testing is a three-step process of detecting faults in welds, castings, exotic alloys or standard materials. Faults could be cracks, pin holes or welding laps on the metal surface. Testing procedure for nuclear application is the same as standard procedure. Standard and nuclear grade products meet or exceed the following government specifications:

1. Meets the requirements of MIL-1-25135C (Amendment III).
2. Materials have been tested for halogens and sulfur per the following tests:
 - a. MIL-STD271D, NTR-1A (31 March 1970) Paragraph 5.3.
 - b. ASME Boiler and Pressure Vessel Code, Section V, Nondestructive Examination, Winter 1974 Addenda Paragraph T-630, as amended December 1986, Paragraph T-630.
 - c. ASTM E-165 (Reapproved 1983)
 - d. MIL-STD 271E (31 October 1973) Paragraph 5.3.1 and NTR-1D (July 14,1975) Paragraph 5.3
 - e. NAVSHIPS 250-1500-1 (Rev. 8 June 1971 and Rev. 9 August 1973) Paragraph 12.5.1.1
 - f. RDT Standard F3-6T (May 1974) Article 6, Paragraph T-360.

Step One

CLEANER:

Use cleaner to pre-clean before testing. Apply wet film to part, allow adequate solvent time, wipe clean with cloth. Repeat process until clean. Allow part to dry before applying penetrant. NOTE: After testing, remove penetrant and developer by flushing surface with cleaner as needed. If painting of surface is required, seal with primer before painting.

Step Two

RED DYE PENETRANT (PHF):

Spray penetrant on suspected area. Wet surface well. Allow one to thirty minutes before removing, depending on crack size and contamination. REMOVE PENETRANT. To remove excess surface penetrant, spray cleaner on clean cloth and wipe surface. Repeat as needed.

WATER WASHABLE PENETRANT (PWW):

Spray penetrant on suspected area. Wet surface well. Allow one to thirty minutes before removing, depending on crack size and contamination. REMOVE PENETRANT. To remove excess surface penetrant, remove with a water dampened cloth. Repeat as needed.

Step Three

DEVELOPER:

Shake thoroughly until agitator clicks sharply against bottom and sides of can. Dull clicks indicate that solids are not yet fully suspended. Spray short burst to clear valve, then spray area being inspected with a thin, damp, even coat. Allow developing time (5 to15 minutes for very minute defects), then inspect for red lines which mark cracks and red dots which mark pores.



Kits

Crack Check Standard Grade Kit

Part No. DF315-KIT-S

Includes: 4 cans/case

2 cans CNF315-16, 1 can DNF315-16, 1 can PHF315-16

Nuclear Grade Kit

Part No. DF315-KIT-N

Includes: 4 cans/ case

2 cans CF315-16, 1 can DF315-16, 1 can PHF315-16

Product	Part No.	Description
CNF Cleaner (Standard Grade)	CNF315-16	12x15.1 oz. nt. wt. cans/case
	CNF315-4x1	1 gallon
	CNF315-5	5 gallon pail
CF Cleaner (Nuclear Grade)	CF315-16	12x8.5 oz. nt. wt. cans/case
	CF315-4x1	1 gallon
PHF Penetrant (Standard/Nuclear)	PHF315-16	12x9.4 oz. nt. wt. cans/case
	PHF315-4x1	1 gallon
	PHF315-5	5 gallon pail
WW Penetrant (Standard/Nuclear)	PWW315-16	12x9.4 oz. nt. wt. cans/case
	PWW315-4x1	1 gallon
	PWW315-5	5 gallon pail
DNF Developer (Standard Grade)	DNF315-16	12x14.2 oz. nt. wt. cans/case
	DNF315-4x1	1 gallon
	DNF315-5	5 gallon pail
DF Developer (Nuclear Grade)	DF315-16	12x9.0 oz. nt. wt. cans/case
	DF315-4x1	1 gallon

Industrial Products



Brite Galv Galvanizing Spray

BRITE GALV produces a hard coating that will stop rust on all metal surfaces. Contains Metallic Zinc Dust, Resin and other additives to provide the look of new galvanizing. Equivalent to Hot Dip Galvanizing in cathodic protection, film durability and protection against caustic action salt spray. Available in aerosol, gallons and quarts.



Cylinder Cleaner/Degreaser

A concentrated water soluble industrial grade detergent / degreaser. An excellent cleaner for gas cylinders, trucks, machinery and equipment. May be diluted up to 1:30 with water. Available in 5 gallon pail and 55 gallon drum.

Product	Part No.	Description
Brite Galv	DF305-16	16 oz. Net Wt. Can
	DF305-2x1	1 Gallon
	DF305-6x1	1 Quart
Aluminum Coating	DF310-16	12 oz. Net Wt. Can
Cylinder Cleaner/Degreaser	DF393-5	5 Gallon Pail
Wire Feed Pads & Lubricant	DF500-6x10	Treated Pads 6/pk
	DF501-6x10	Untreated Pads 6/pk
	DF502-12x4	Wire Feed Lubricant 4oz
Aluminum Cleaner	DF781-12x1	1 Quart
	DF781-4x1	1 Gallon
Gas Leak Detectors	DF800-12x4	4 oz. Squeeze Bottle
	DF800-4x1	1 Gallon
	DF800-5	5 Gallon
	DF800-55	55 Gallon Drum
Anti-Spatter	DF200-16	16 oz. Aerosol Can
Nozzle Dip	DF731-16	16 oz. Nozzle Dip Gel



HTR Heat Tint Removal System

A lightweight and portable system that quickly, safely and economically removes heat tint and discoloration from weld heat affected zones.

- Operates on standard 120 VAC Power
- Unique applicator design captures fluid, thereby avoiding frequent re-moisturing.
- Uses safe, inexpensive cleaning fluid
- Dramatically reduces weld clean up time
- Versatile applicator challenges the most difficult joint configuration.
- No surface preparation necessary
- Eliminates grinding, sanding, buffing, and polishing
- All stainless steel construction
- Power indicator light
- Hi - Low power selector
- Fully fused
- Carry all package

Part No.	Description
HTR121S	Complete Unit with Spoon Applicator
HTR121R	Complete Unit with Roller Applicator
HTR120-3A	Spoon Applicator Boot 6/bag
HTR120-4X1	HTR120 Solution 1gal, 4/cs
HTR120-5	HTR120 Solution 5 gal
HTR120-06	HTR120 Solution 16 oz., 6/cs
HTR120-8A	Roller Applicator 6/bag

HTR-30 Stainless Steel Heat Tint Remover

Effectively removes heat tint and metal discoloration caused by high temperatures within the weld zone on stainless steel, especially after TIG welding. Contains Hydrofluoric Acid. Available in 6 ea. 550 gram bottles/case.

Part No.	Description
DF790-06	550 gram Bottle/9.25 fl. oz.

Water Recirculation Coolers



Part No.	Description
Vane Pump	
R1100V-115	115 VAC 50/60 HZ 1ph
Gear Pump	
R1100G-115	115 VAC 50/60 HZ 1ph

Watercooler

The R1100V (Vane Pump) and the R1100G (Gear Pump) Cooling Systems are designed for:

- MIG guns: up to 750 amps
- TIG torches: up to 750 amps
- PLASMA Welders/Cutters up to 200 amps
- RESISTANCE Welders: up to 75 KVA
- INDUCTION Welding: up to 5 KW
- 15,000 BTU/HR @ 75 Degree

Specifications

- 3 gallon reservoir
- 115 or 230 single phase 50/60 HZ
- 15,000 BTU
- 23" L x 11" W x 14-3/4" H
- Net Wt: 42 lbs/19 kg



Pro Cool II V Cooling System with Rotary Vane Pump

The Pro Cool II V Cooling System is designed for:

- MIG guns: up to 500 amps
- TIG torches: up to 500 amps
- RESISTANCE Welders: up to 60 KVA
- 12,000 BTU!

Pump Centrifugal Peripheral

1.7 gpm @ 50 psi
Rebuilt pump with new warranty

Specifications

- 3 gallon reservoir
- 115 VAC single phase 50/60 hz.
- 5/8 LH std. inert fittings - 1/4" FPT
- 8' power cord
- Visible water level through tank
- 18" L x 14" W x 9" H
- Net Wt: 37 lbs/ 17kg



Part No.	Description
Vane Pump	
VH1000V-115	115 VAC 50/60 Hz 1ph
Gear Pump	
VH1000G-115	115 VAC 50/60 Hz 1ph

Watercooler

The VH1000V (Vane Pump) and the VH1000G (Gear Pump) Cooling Systems are designed for:

- MIG guns: up to 500 amps
- TIG torches: up to 500 amps
- PLASMA Welders/Cutters up to 150 amps
- RESISTANCE Welders: up to 60 KVA
- 12,000 BTU/HR @ 75 Degree Differential

Specifications

- Operates in both vertical and horizontal positions
- 2 gallon reservoir
- 115 or 230 VAC single phase 50/60 hz.
- 9" L x 9" W x 26" H
- Net Wt: 33 lbs/15kg

Defense

DEFENSE anti-freeze and pump lubricant provides year round pump protection for water coolers and closed loop water systems. DEFENSE contains a lubricant additive providing continuous pump lubrication during operation. Prolongs seal and shaft life because of its silicate free formula. Protects from freezing to -30°F when not diluted. A dilution of two parts DEFENSE to one part water protects to 10°F. Although DEFENSE is a permanent anti-freeze and pump lubrication solution, it should be changed annually to maintain maximum anti-freeze protection and pump lubrication. DEFENSE may not be compatible with other anti-freeze compounds. Use of automotive anti-freeze voids manufacturers' warranty.



Part No.	Description
DF929-4x1	4 x 1 Gallon Case
DF929-55	55 Gallon Drum