

RC152 Cryogenic WorkStations



Variable Temperature Sample in Vapor Flow Cryogenic Workstation

RC-152 SYSTEM FEATURES INCLUDE:

- Variable temperature
- Stable temperature coordinates
- Sample in vapor
- Top loading of samples
- Quick change of samples while operating
- Many different optical configurations available
- High refrigeration capacity
- Disconnect of transfer system from the cryogenic WORKSTATION
- Buffer volume option for extended operation at lowest temperature (<1.5 K)

RC151 & 152 CRYOGENIC WORKSTATIONS

An advantage of the RC152 is that the sample to be cooled is suspended in the flow of helium vapor exiting from the heat exchanger/diffuser. Unlike sample in vacuum mounting, there are no thermal interfaces between the sample and the temperature sensor. Samples with poor thermal conductivities are uniformly cooled. The temperature of the sample can be varied from <1.5K to room temperature.

The RC152 is not an exchange gas type system. The difference between a conventional exchange gas system and the RC152 is very significant. An exchange gas system uses helium gas at sub-atmospheric pressure through which cooling is supplied. In the RC152, the sample is inserted into the cryogen flow using contiguously the enthalpy of the flowing gas. **Improved performance, lower terminal temperatures, much higher power handling and simpler operating procedures are obtained.**

Vertical and rotational adjustment of sample can be made externally any time during the experiment. Sample interchange can be done in seconds. It is not necessary to cycle the cryostat or WORKSTATION to room temperature.

Helium flow control is adjusted by the needle valve in the transfer line storage dewar 'leg'; no flow pump is required. The transfer line becomes a pseudo long heater that combines with the heat exchanger electrical heater to provide stable selected temperatures in the sample region. Quick disconnect of the transfer line system from the WORKSTATION is standard.

Operation below 4.2 K is obtained by reducing the pressure at the helium vent by pumping on the exhaust gas with a mechanical (roughing) pump. Maintain the flow control partially open for continuous operation or completely closed (no flow) for obtaining the lowest temperature, typically, <1.5 K. The model **RC152-350-DC** has a **buffer volume** that allows extended no flow operation for 30 to 60 minutes at the lowest sub lambda (and bubble free) temperature! Or, extend this to 2 hours with the model RC152-538-EV. In addition, buffer volume refill is quick and easy. An optional built-in liquid helium level indicator can monitor this volume.

The model RC152-352-DCW has epoxy sealed 'cold' windows. The models RC152-349-DFC and RC152-350-DE feature strain relief mounted 'cold' windows epoxy sealed into removable indium sealed flanges- strain relief mounting for critical experiments, achieved by epoxy sealing, and the changeability of indium sealing. Radiation shield windows will reduce 4 K boiling and heat loads to the sample region. CFQ (clear fused quartz) windows are standard; other window materials are available, such as, suprasil, infrasil, sapphire, zinc selenide, zinc sulfide, cadmium, telluride, germanium, silicon, cadmium fluoride, mylar, kapton, beryllium, etc.

For experiments where flowing vapor in the sample region is undesirable (such as mossbauer), the model **RC151** offers exchange gas cooling. The helium vapor cools the heat exchanger and flows **around** the sample tube. Exchange gas in the sample tube provides thermal coupling.

The standard system includes a five (5) foot (8 foot optional) transfer line with a 48 inch long (60 inch optional) storage dewar leg, 0.5" diameter (12 mm optional). The transfer line is included with the cryostat. Turn-key integrated systems that include the Cryogenic WORKSTATION with thermometry or automatic temperature controller are available.

RC152 Specifications

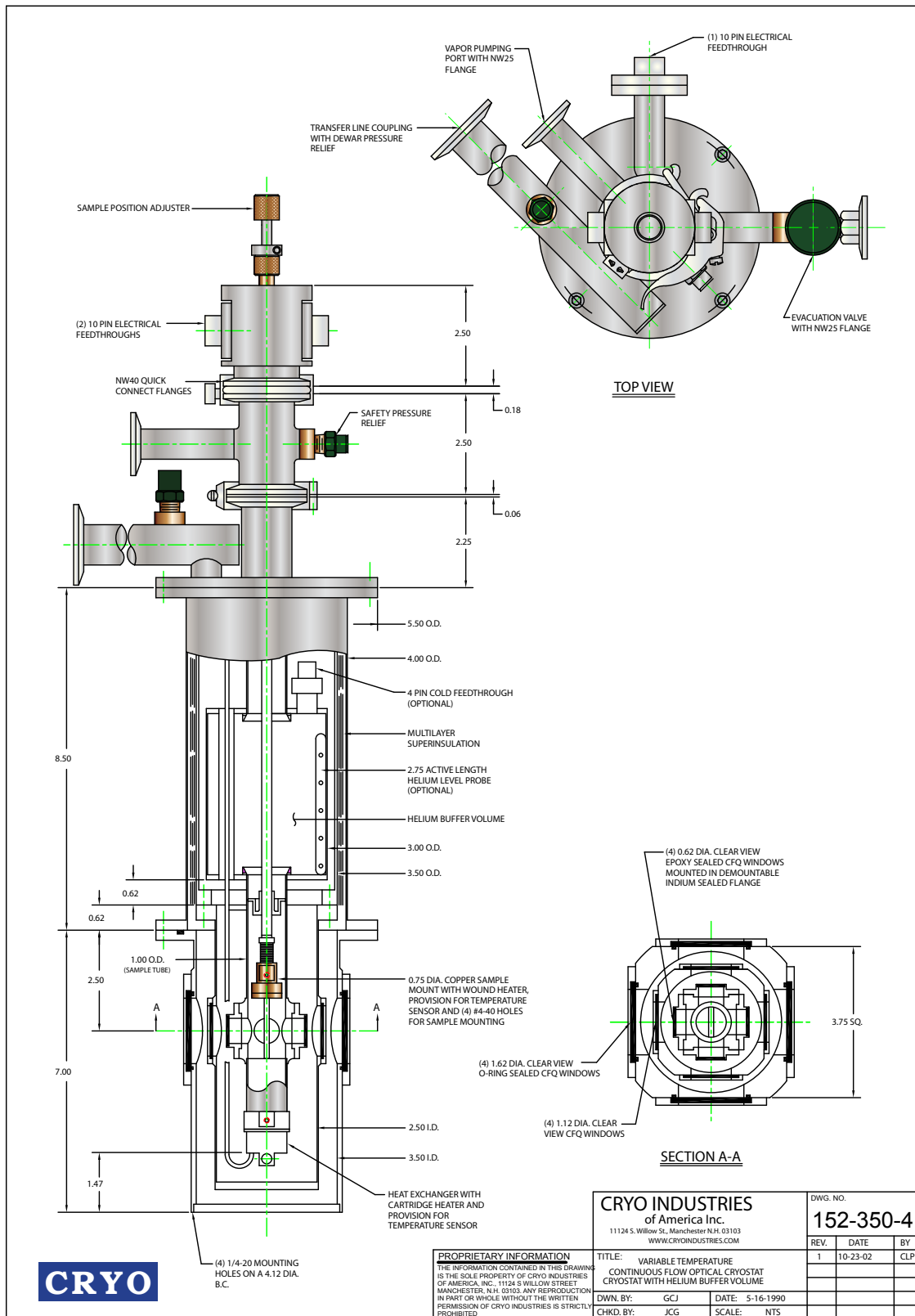
Refrigeration Capacity:	Over 2 watts at 4.2 K Capacity increases with temperature
Temperature Range:	<1.5 to 300 K
Temperature Stability:	0.05 K
Initial Cooldown Time:	10 min - 300 to 4.2 K
Total Liquid Helium Consumption*:	1.0 liter/hour below 10 K 0.6 liter/hour at 10 K 0.4 liter/hour at 15 K Lower at higher temperatures

+without RC151 exchange gas option

*excluding optical & experimental loads

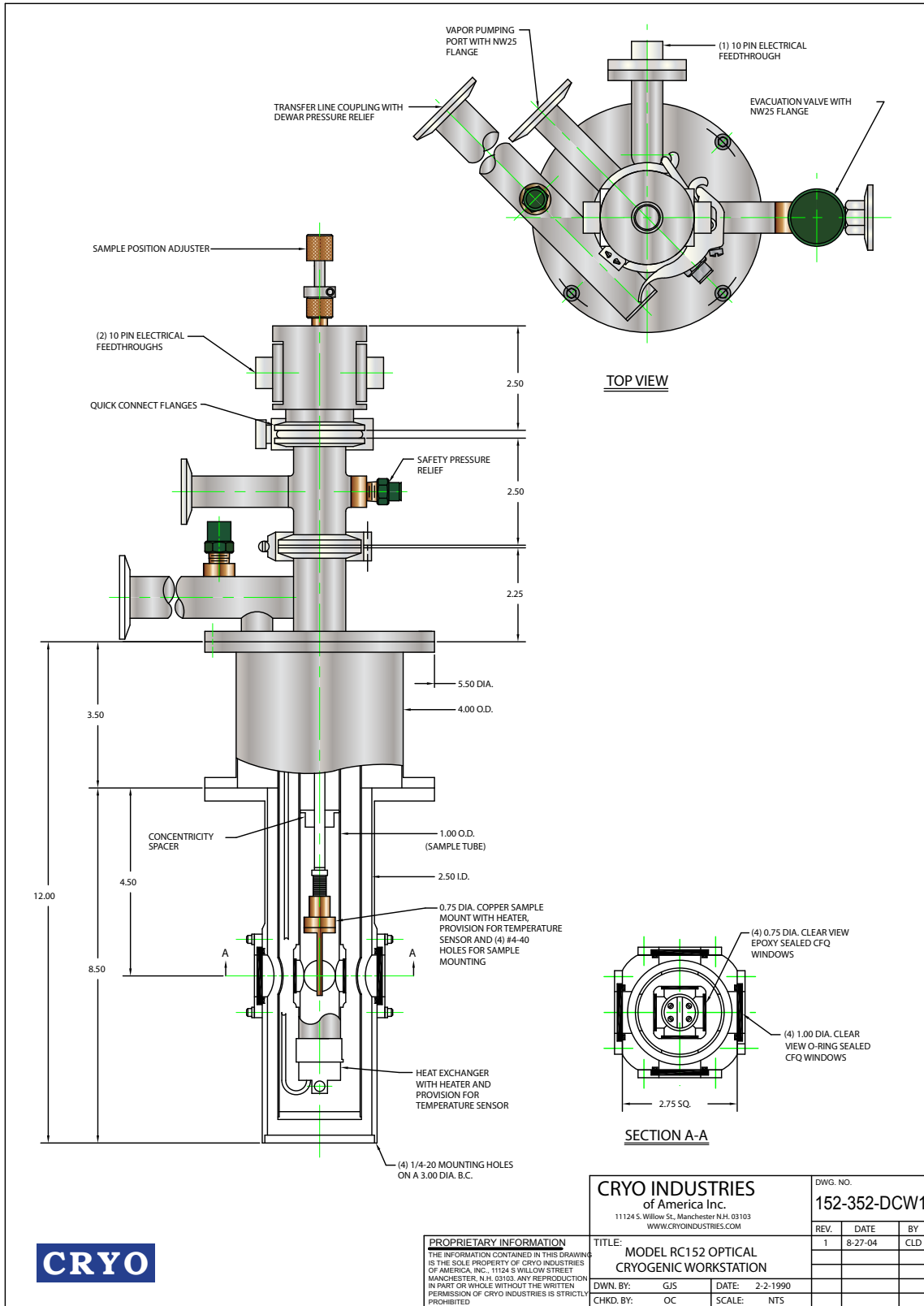
CRYO Industries of America, Inc. • 11124 S. Willow St. • Manchester, NH 03103
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RC152 Optical Workstation with Buffer Volume



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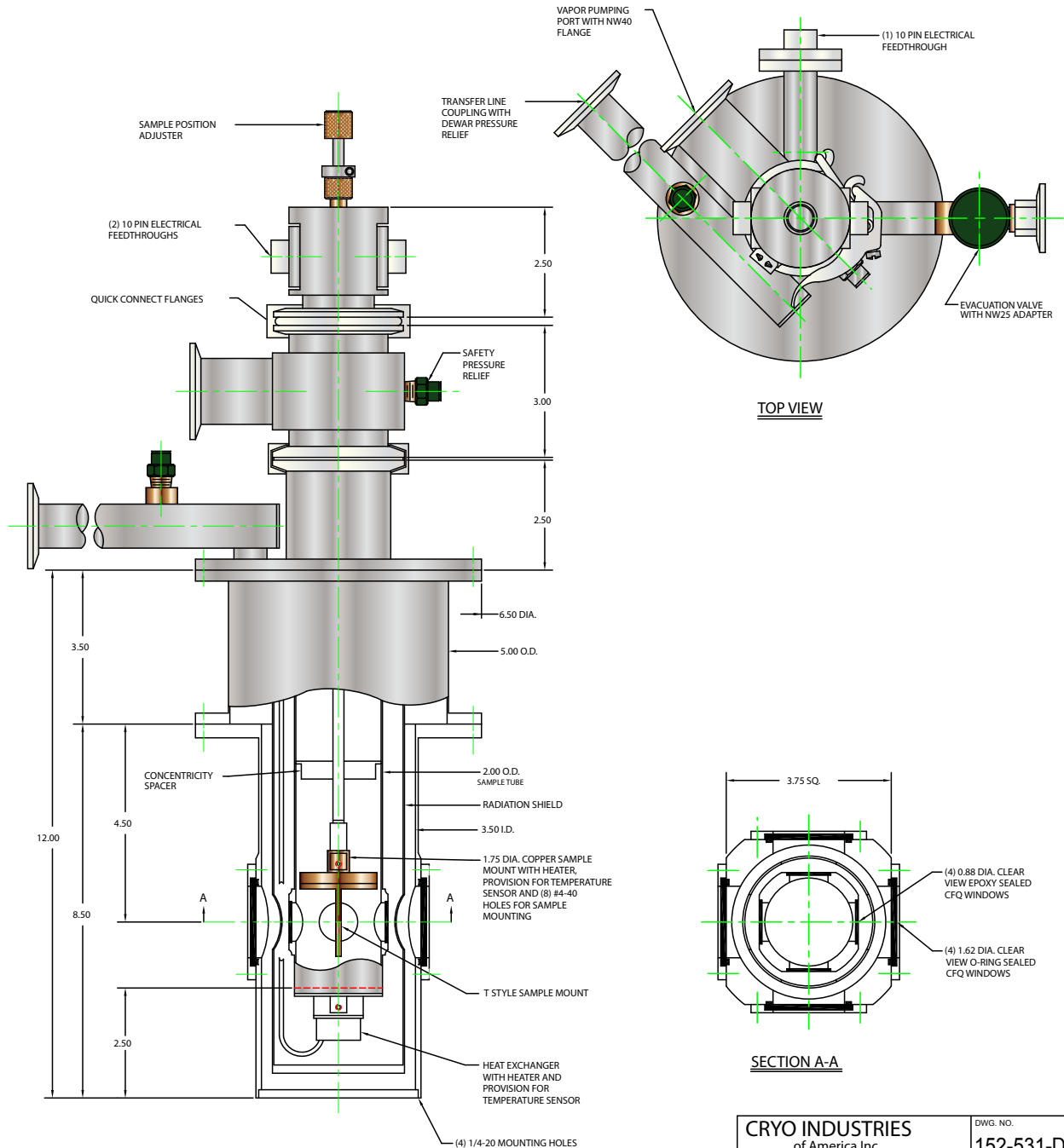
RC152 Optical Workstation



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CRYO INDUSTRIES of America Inc. 11124 S. Willow St., Manchester N.H. 03103 WWW.CRYOINDUSTRIES.COM		DWG. NO. 152-352-DCW1	
TITLE: MODEL RC152 OPTICAL CRYOGENIC WORKSTATION		REV. 1	DATE 8-27-04
DWN. BY: GJS	DATE: 2-2-1990	BY CLD	
CHKD. BY: OC	SCALE: NTS		

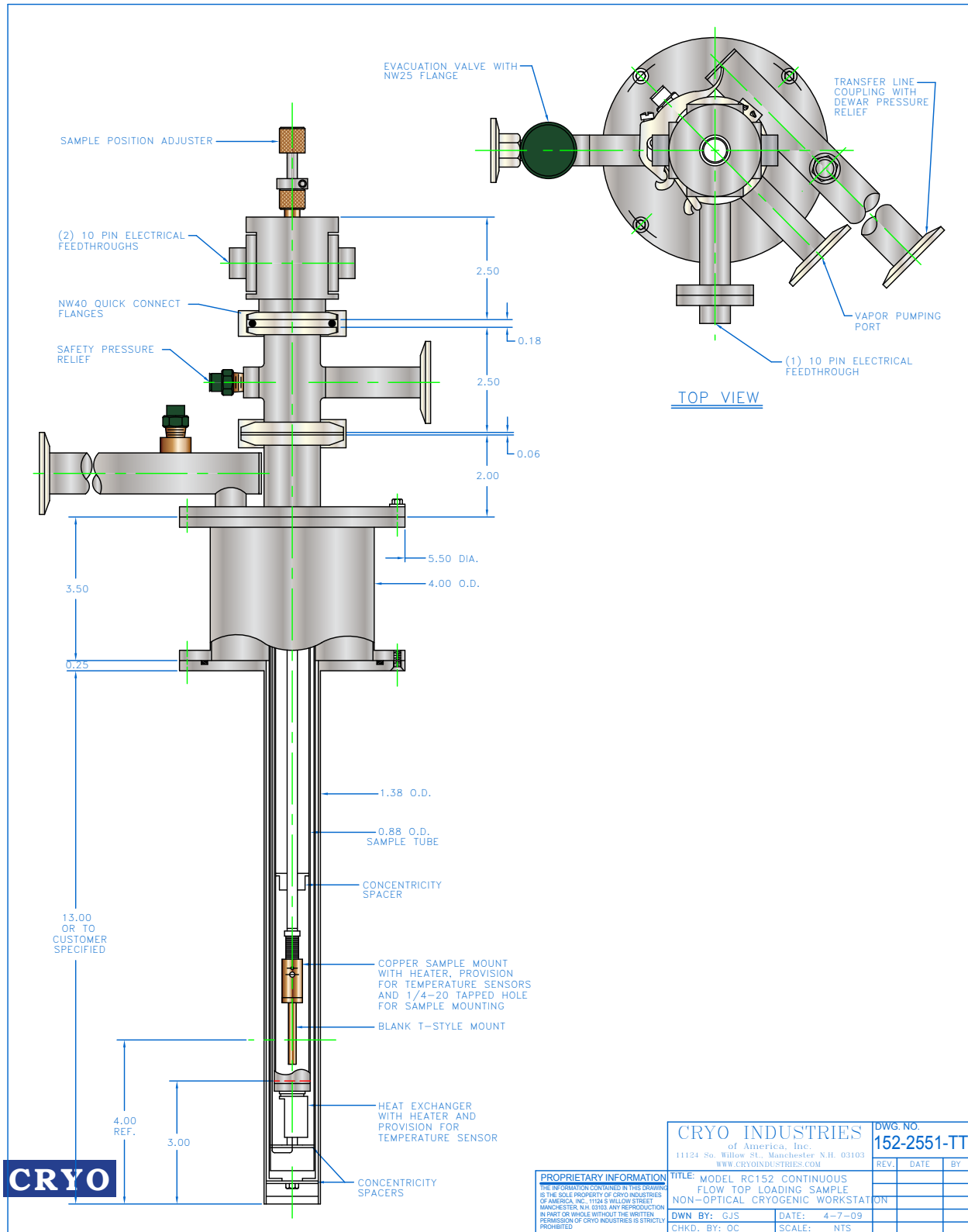
RC152 Optical Workstation for Larger Samples



CRYO INDUSTRIES of America Inc. 11124 S. Willow St., Manchester N.H. 03103 WWW.CRYOINDUSTRIES.COM		DWG. NO. 152-531-DST
REV.	DATE	BY
1	8-10-00	OC
TITLE: TOP LOADING SAMPLE IN VAPOR MODEL RC152 OPTICAL CONTINUOUS FLOW CRYOGENIC WORKSTATION		
DWN. BY:	GJS	DATE: 6-26-91
CHKD. BY:	OC	SCALE: NTS

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RC152 Non-Optical Workstation



CRYO

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CRYO INDUSTRIES of America, Inc. 11124 So. Willow St., Manchester N.H. 03103 WWW.CRYOINDUSTRIES.COM		DWG. NO. 152-2551-TT
TITLE: MODEL RC152 CONTINUOUS FLOW TOP LOADING SAMPLE NON-OPTICAL CRYOGENIC WORKSTATION	REV.	DATE
DWN BY: GJS	DATE: 4-7-09	BY:
CHKD. BY: OC	SCALE: NTS	

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