



## INSPECTION SERVICES AND ENGINEERING CERTIFICATION

PHONE: 780.870.1547 EMAIL: operations@indexndt.ca Head Office Mail: P.O. Box 10524, Lloydminster, AB T9V 3A6

### INSPECTION REPORT

EQUIPMENT LOCATION:	Lloydminster, Alberta				NDT PROCEDURE#:	INSP-001			
EXAMINATION COVERAGE:	RANDOM:	5%	10%	25%	50%	75%	100%	X	
ACCEPTANCE CRITERIA:	CSA W59	ISO 9927-1			CAOEC RP	OTHER:			X
INSPECTION METHOD:	VT	X	UT	X	MT WET FLOURESCENT	X	MT WET BLACK	MT DRY RED	
EQUIPMENT INFO:	BLACK LIGHT MAKE - INOVA			LIGHT METER # 1822158			MAG COIL # RC1-30120121		

CLIENT:	K&S Power Tongs	UNIT/RIG:	KSV006
EQUIPMENT:	Volant Tool	MAKE/MODEL:	Volant CRTI2-4.5
REPORT#:	IDX-3266	SERIAL NUMBER:	KSV006

### EQUIPMENT PHOTOS



### INSPECTION RESULTS

ACCEPTABLE:	X	REJECTED:		DATE OF INSPECTION:	April 12, 2023
TECHNICIAN:		COMMENTS:			
		Part:			Serial#:
		Mandrel			82304-03-4437A01-01
		Cage			80939-4268A11-03
		Upper Cam			81208-3J6957-02
		Lower Cam			81221-4437A05-09
		Cam Latch			81212-4437A06-16
		Cam Int			80942-4437A03-09
		Die -			80980-01-4488A01-44
		Die -			80980-01-4488A01-45
		Die -			80980-01-4488A01-46
		Die -			80980-01-4488A01-47
		Die -			80980-01-4488A01-48
		Material Thickness: 0.882"/ 0.887"/ 0.886"/ 0.883"/ 0.880"			
		REPAIRS: NA			

### QUALITY ASSURED INSPECTIONS FOR QUALITY ASSURED BUSINESSES

"Except as provided herein, Index NDT Inspections Ltd. makes no warranty, express or implied with respect to the mechanical or other conditions of the equipment inspected by us. Index NDT Inspections Ltd. shall only be responsible in the event of damage resulting directly from their inspection, and in no event, shall the liability of Index NDT Inspections Ltd. exceed the cost of inspection." Our organization assumes only the responsibility of locating defects in the inspected components and welds made accessible at the time of inspection. All equipment should be cleaned to allow access to all welds and critical components. It is of the utmost importance that the unit's owner be aware that excessive coating over 10 mils can severely mask the detection of discontinuities while utilizing standard inspection techniques. We are not responsible for the mechanical or other conditions assembled condition except at customer's request.

INCLUSION P-POROSITY IUC-INTERNAL UNDERCUT EUC-EXTERNAL UNDERCUT S-SLAG C-CRATOR IP-INCOMPLETE PENETRATION NF-NON-FUSION CR-CRACK PH-PIN HOLE D-DISCONTINUITY



# REES N.D.T. INSPECTION SERVICES 2008 LTD.



15612-89 Street  
Grande Prairie, AB T8V 2N8

Grande Prairie  
(780) 539-3594  
(780) 532-8047 (Fax)

Dispatch  
1-888-540-3594  
www.reesndt.com

Vegreville  
(780) 603-4887  
Email: gcoers@reesndt.com

INSPECTION DATE: 30-Mar-22

CLIENT: K & S Power Tongs  
ADDRESS: 3614 63 Avenue Close  
Lloydminster AB T9V 2W1

REES NDT PO NUMBER: R68181  
CLIENT PO NUMBER: KSV006  
REES NDT WO NUMBER: 197570

## INSPECTION CERTIFICATE

CERTIFICATION OF: CRT Mandrel

MAKE: Volant

MODEL: CRTi2-4.5

SERIAL NUMBER: 82304-03-4437A01-01

UNIT NUMBER: NA

CAPACITY: 120 ton

OWNER: K & S Power Tongs

Rees NDT Inspection Services 2008 Ltd. performed a VISUAL AND NON-DESTRUCTIVE TESTING inspection on the above mentioned CRT MANDREL. All observations have been recorded and are disclosed in the complete documentation for Rees NDT Work Order #197570. The scope of this certificate is limited to the inspection of the item's structural condition at the time of inspection and does not imply a review of the equipment's design or its associated capacity rating. The capacity noted above reflects the original equipment manufacturer's maximum capacity rating and may be reduced by operating conditions, regulatory requirements and the use of auxiliary equipment that has a lower capacity rating.

The undersigned Engineer reviewed all the inspection reports and has issued this certificate after all required repairs (if any) were completed. In the undersigned Engineer's opinion, the CRT MANDREL may be returned to service and is safe to use within the original manufacturer's specifications. The equipment owner is obliged to supply the OEM's operating instructions with the equipment and maintain the OEM's identification and capacity markings. If OEM information cannot be obtained, certified replacements must be obtained from a Professional Engineer.

This certification covers the above mentioned unit for a period of 5 YEARS AS PER API-8B from the date of inspection, or until the unit is damaged by handling, transportation or operation.

Reviewed  
By:



12-Apr-2022

<b>PERMIT TO PRACTICE</b>	
REES NDT ENGINEERING LTD.	
Signature	
Date	12-Apr-2022
<b>PERMIT NUMBER: P 11509</b>	
The Association of Professional Engineers and Geoscientists of Alberta	





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## LOAD TEST CERTIFICATE

**Owner** K & S Power Tongs  
**Address** 3614 63 Avenue Close  
Lloydminster AB T9V 2W1

**Date** 30-Mar-22  
**Workorder #** 197570  
**Purchase Order#** KSV006

<b>Contact Name:</b>	Chris	<b>Phone #:</b>	(780) 872-8240
<b>Item:</b>	CRT Mandrel	<b>Location:</b>	Rees NDT Shop, Grande Prairie
<b>Make:</b>	Volant	<b>Model:</b>	CRTi2-4.5
<b>Serial Number:</b>	82304-03-4437A01-01	<b>Unit:</b>	NA
<b>Capacity:</b>		120 ton	

**Proof Load Test** 264000 lbs

**Test Date** 31-Mar-22

**Required Duration (sec)** 300

**Test Method: Proof** 1.10

**Peak Load** 272696 lbs

**Passed** ☒

**Test Equipment:**

**Make:**

**Model:**

**Serial Number:**

**Capacity:**

Testing Frame

Volker Ries

525 ton

VR-01

525 ton

Pressure Gauge

Rosemount

3501

-

(0-5000) psi

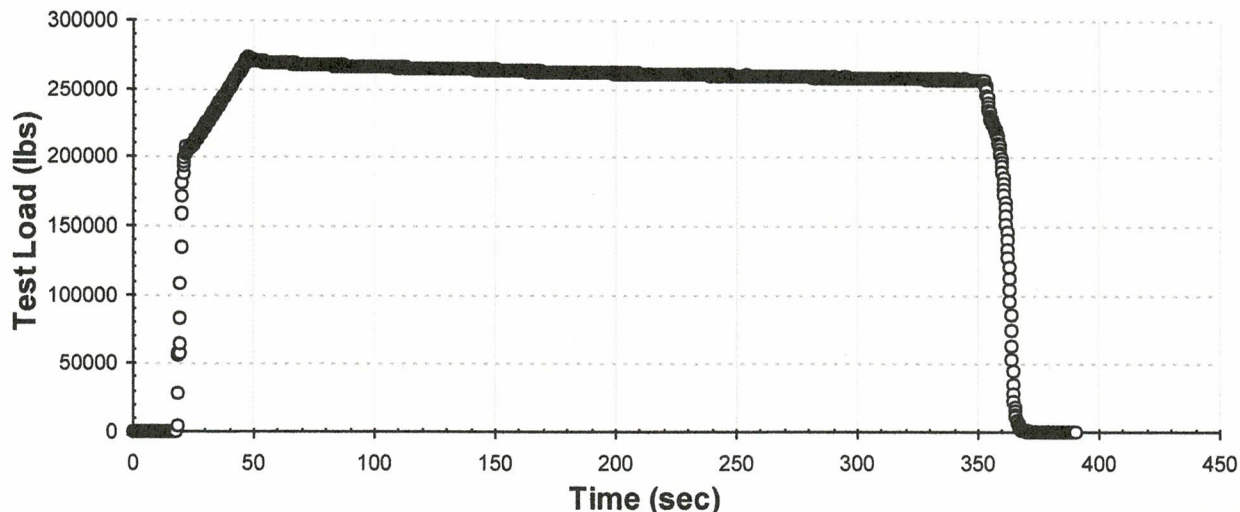
Data Logger

ACR Systems

SRP-7-32K 0-25MA

96674

(0-25 mA)



### DELAYED USE

Date of 1st Use: Aug 1/22  
Job #: Amherst Energy  
Signed By: [Signature]





# REES N.D.T. INSPECTION SERVICES 2008 LTD.



- Non-Destructive Testing • UT MPI LPI
- Wall Thickness Testing • Hardness test
- Crane and Picker Certification
- Drilling Rig Certification
- Materials Consulting
- Failure Analysis
- Corrosion Monitoring
- Weld Procedures (WPS, PQR)
- Quality Control
- Predictive Maintenance
- Computer Generated Drawings (CAD)

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15612-89 Street Grande Prairie AB T8V 2N8

email: [ronvader@reesndt.com](mailto:ronvader@reesndt.com)

**Consigned to** K & S Power Tongs

**Date** 30-Mar-22

**Address** 3614 63 Avenue Close  
Lloydminster AB  
T9V 2W1

**Workorder** 197570

**Purchase Order#** KSV006

**Location** Rees NDT Shop, Grande Prairie

**Customer** K & S Power Tongs

## Eng Certification - Visual - Fluorescent Magnetic Particle - Ultrasonic - Load Test

<b>Contact Name:</b>	Chris	<b>Phone #:</b>	(780) 872-8240
<b>Item:</b>	CRT Mandrel	<b>Location:</b>	Rees NDT Shop, Grande Prairie
		<b>Model:</b>	CRTi2-4.5
<b>Make:</b>	Volant	<b>Unit:</b>	NA
<b>Serial Number:</b>	82304-03-4437A01-01	<b>Capacity:</b>	120 ton

## Field Report

### RESULTS OF INSPECTION IN ALL ACCESSIBLE AREAS:

Rees NDT Inspection Services 2008 Ltd. performed a Visual, Wet Fluorescent Magnetic Particle Inspection, Wall Thickness Test and Load Test on the above mentioned CRT Mandrel. Mandrel was cleaned of paint, oil and grease prior to inspection. Mandrel was demagnetized at the time of inspection. See attached pictures.

#### MPI Inspection

Procedure: MPI-ASTM E709 Rev 0, Jan 22, 2019  
Technique: MT-3 Wet Fluorescent Magnetic Particle  
Acceptance Standard: API-8C  
Surface Prep: Bare Metal / Machined  
Material: Carbon Steel

#### NDT Inspection Results:

Pre Load Test - CRT Mandrel: No relevant indications or damage was noted at the time of inspection. 4 1/2" IF Box Plug Gauge Passed.

Post Load Test - CRT Mandrel: No relevant indications or damage was noted at the time of inspection.

5-Wall Thickness Readings Taken: 0.835", 0.833", 0.833", 0.831", 0.835" Average Reading: 0.833"

Areas scanned around and lowest readings recorded.

O.D. was measured at the same spot as wall thickness readings: O.D. 2.670"

Calibrated Equipment Used Blacklights: BL-30-00 Wet Benches: WB-02-00 UT Machines: USU-23-00 Cal Blocks: UT-CB-74-00 Digital Calipers & Micrometers: DVC-34-00

Inspected By: J. House CGSB #20221 (MPI II) SNT #028 (MPI II) B. Kempert SNT #044 (MPI II LPI II) CGSB #24150 (MPI II) K. Gejdos Millwright (J-09-31585) Machinist (J-11-16754) J. Ibarbia

Rees NDT Records

Received by: \_\_\_\_\_



AR = 0.3% = Passed.

Calculated with CRT maintenance procedure Appendix B mandrel neck area calculation.

This inspection and compliance certification covers items supplied for inspection.

Customer is responsible for PLC / mechanical components, and proper function of tool.

**Equipment Used:**

-Spectroline BIB-150P (BL-30-00 - 1910553) Calibration Due: 30-Jul-2022

-DCM Wet Bench (WB-02-00 - 37941) Calibration Due: 05-Apr-2022

-Krautkramer USN-58L SW (USU-23-00 - 023K45) Calibration Due: 03-Jun-2022

-0.250" - 1.000" 4 Step Curve (UT-CB-74-00 - UT-CB-74-00) Calibration Due: 31-Dec-2099

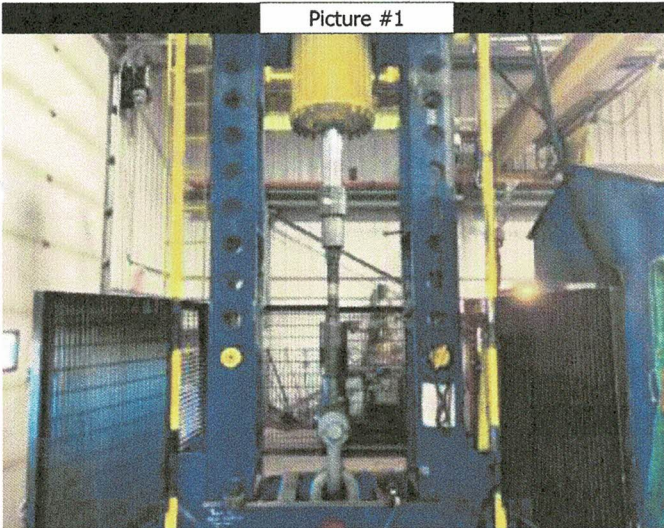
-Digital Vernier Caliper (DVC-34-00 - 0012982) Calibration Due: 07-Jun-2022

-Magnaglo 14A Fluorescent Magnetic Particles Batch #21E020

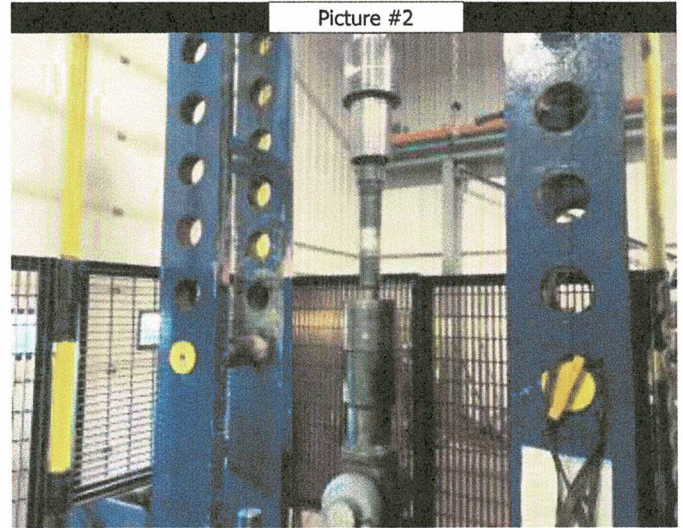
See attached pictures.



Picture #1



Picture #2



Calibrated Equipment Used    Blacklights: BL-30-00    Wet Benches: WB-02-00    UT Machines: USU-23-00    Cal Blocks: UT-CB-74-00    Digital Calipers & Micrometers: DVC-34-00

Inspected By: J. House CGSB #20221 (MPI II) SNT #028 (MPI II) B. Kempert SNT #044 (MPI II LPI II) CGSB #24150 (MPI II) K. Gejdos Millwright (J-09-31585) Machinist (J-11-16754) J. Ibarbia

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Picture #3



Picture #4



Picture #5



Picture #6



Picture #7



Picture #8



Calibrated Equipment Used    Blacklights: BL-30-00    Wet Benches: WB-02-00    UT Machines: USU-23-00    Cal Blocks: UT-CB-74-00    Digital Calipers & Micrometers: DVC-34-00

Inspected By:    J. House CGSB #20221 (MPI II) SNT #028 (MPI II)    B. Kempert SNT #044 (MPI II LPI II) CGSB #24150 (MPI II)    K. Gejdos Millwright (J-09-31585) Machinist (J-11-16754)    J. Ibarbia

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