

List of Equipment

TCR Arabia constantly spends a lot on capital purchases of the latest instruments. Our currently available list of instruments is enclosed in this section.

DESTRUCTIVE TESTING

NAME OF EQUIPMENT	MODEL/ TYPE/ MAKE & IN SERVICE	RANGE/ ACCURACY	TRACEABILITY
Universal Testing Machine with extensometer	MTS, USA	0-1000 kN ±1%	NPL
Charpy/Izod Impact Testing Machine	MTS, USA	Charpy-300J Izod-156J	NPL
Brinell / Vickers Hardness Tester	Akash/FIE	HBW 80-400 Hv5 40-1200 Hv10- 80-1000±2%	NPL
Rockwell Hardness tester	RA/FIE	HRB 30-100 HRC 20-70 ±1%	NPL
V Notching Machine		2 mm V Notch	-
Hydraulic Test Pump	Electro- pneumatic	600kg/cm2	-
Muffle furnace	TCR	0-1000 Deg C	NPL
Salt Spray Tank temp. Controller Chamber Temp. Controller	Salt spray controller	0-85 Deg C	
Olympus inverted microscope	Olympus – GX51 inverted system	50X- 1000X	-
Optical Emission Spectrometer	Arcmet 8000	±10 % of Concentration	Daily Calibration
Electronic Weighing Machine	Metler, Swiss	±0.1mg	
Dial Vernier Caliper	Mitutoyo	0-150 mm	
External Micrometer	Mitutoyo	0-25 mm	
External Micrometer	Mitutoyo	0-25 mm	
Tube Micrometer	Mitutoyo	25-50 mm	
External Micrometer	Mitutoyo	25 mm	
Pipe Micrometer	Mitutoyo	0-15 mm	
Dial Vernier Caliper	TESA	0-15 cm	
Vernier Caliper	Aero space	0-20 mm	

Digital Vernier Caliper	TCR/DC/01	0-150 mm
Vernier Caliper	Aero space	0-600 mm
Dial Vernier Caliper	Mitutoyo	0-200 mm
Pressure Gauges(Corrosion Lab)	TCR	0-70 Kg/Cm2
Digital Thermometer with Sensor (New) for impact test	RTD	-196 To 50 Deg C
High Pressure vessel (Autoclave)		
Acrylic vessel		
P H Meter		
HIC Lab Setup including Vessel, Cylinder, Controller and Detector		
SSC Lab Setup for 4 point bend test		
H2S Mask		
Temperature Sensors	2K408THC1666 to 69 & Sensor 5	
Constant temp.(Water)Bath	TCR	0-100
Proving Rings	Sr. No.02035	12 kN

MACHINE SHOP

The machine shop includes wire cut machine, milling and lathe machines, hacksaw, drilling machine, stress-free grinding equipment, saws, surface grinders, and other tools.

NON-DESTRUCTIVE TESTING

NDT SERVICE	MACHINE NAME AND DESCRIPTION	QUANTITY
Automated UT Using ToFD	OmniScan MX UT from Olympus, Canada with 8 channels capable of operating in both pulse-echo and through modes with HSMT-Flex Scanner and the following probes: 2 x C563-SM : 10MHz, 3mm TOFD composite probes 2 x C543-SM : 5MHz, 6mm TOFD composite probes 2 x ST1-45L (45 degree angle) 2 x ST1-60L (60 degree angle) 2 x ST1-70L (70 degree angle) 2 x Creeping TRL4FS45 2 x 3.5MHz probes 10mm 2 x SPE2-60S	6 machines

	Remote pulser/receiver 200V / 40dB Tomoview software capable of collecting and storing full waveform signals and displaying the data in standard B-scan and C-scan imaging as well as TOFD imaging with vertical sizing algorithms.	
Helium Leak Testing	Alcatel ASM 142 with Helium Spray Probe, 10M Extension To Lds Probe, He Cal.Leak With Valve 1/3.10-9 DN25	1 machine
Eddy Current Testing	ect MAD 8D from Eddy Current Technology Incorporated (USA). This system is capable of inspecting any heat exchanger tube in the world (ferrous or nonferrous).	6 machine
Positive Material Identification (XRF)	Innox-Sys Alpha 2000 portable XRF alloy analyzer	3 machine
Positive Material Identification (OES)	Oxford Instruments Xmet 3000TX portable XRF alloy analyzer	3 machine
Acoustic Eye Tube Inspection	Oxford Instruments Arcmet 8000	3 machine
Automated Reformer Tube Inspection System	Bruker	1 set
Dye Penetrant Testing	Consumables will be purchased as needed and will include: Penetrant Aerosol Cans Cleaner Aerosol Cans Developer Aerosol Cans Parker Electromagnetic yoke (AC/DC) Ultraviolet Lamp (Black light) Extra U.V. Bulb	As Needed
Magnetic Particle Inspection	ASTM Field Indicator Florescent Powder Wet visible Magnetic Powder Dry Magnetic Powder Centrifuge Tube with Stand White contrast Spray can	As Needed
Ultrasonic Testing	Modsonic (Einstein II DGS) Ultrasonic Testing Machine with built-in DGS/AVG curves for time proven flaw size evaluation. It has TCG (Time Controlled Gain) which compensates for amplitude decay with distance. Dynamic DAC curves which allow change of Test Range and Gain after plotting them	multiple machines
Ultrasonic Corrosion Mapping (conventional method for piping or small locations)	Panametric Epoch LT	2 sets

Portable Hardness	Time HL-200	multiple sets
Pipelines Thickness survey	Modsonic Ultrasonic Digital thickness gauge D-meter which gives readings in mm. Memory of 2000 Readings.	4 machine
Micro-Structural Analysis (including insitu-replica)	Kit includes: Microscope/ image analysis software such as TCR's MiC 2.0 /cutting/mounting/polishing and fume chamber for etching. For in-situ metallography: portable units like grinder/polisher/portable electrolytic polishing and etching unit. (Insipol 200)/portable microscope/ lab consumables/portable hardness tester.	4 Kits
Paint Inspection	Kit includes Wet paint thickness gauge(s), Dry paint film thickness gauge(s), Holiday detector(s), Hygrometer with dew point calculator and Metal surface thermometer.	2 Kit
Holiday Detection	P60 pulse porosity detector (thick coating) and PCI Wetsponge Pinhole detector (thin coating)	1 Kit
Ferrite Measurement	Fisher MP 30	1 machine
ROV Camera	Robotic Visual Inspection system for pipelines inspections	02 sets

PHASED ARRAY INSTRUMENTS FOR ADVANCED NDT INSPECTION

QTY.	PART NO.	DESCRIPTION
6 EA	U8100029	OmniScan MX and 16:128 Phased Array Acquisition Module for Manual UT Inspection (with 1 UT Channel). Included: AC ADAPTOR, 1 Battery, Small Carrying Case, 2GB CompactFlash Card, CompactFlash Reader, CD-ROM Including OmniScan Software User Manuals.
6 EA	U8143007	Multigroup option for phased array software versions 1.4 or 2.0 only
4 EA	U8143005	OmniScan TOFD Acquisition and Analysis software option including calibration tools. cursors. sizing. hyperbolic cursors. and lateral wave synchronization.
4 EA	U8330806	5L64-38.4X10-A12-P-10-OM PROBE
4 EA	U8330648	5-L-16-9.6X10-A10-P-2.5-OM,SXT : XAAB-0171: Phased-Array Ang
4 EA	U8720545	Standard wedge for angle beam phased-array probe A10. normal scan. 55-degree shear wave. plain wedge (without irrigation holes and carbides)
4 EA	U8721019	Custom wedge for angle beam phased-array probe A10, Normal scan, 0-degree Longitudinal wave, plain wedge (without irrigation, holes, carbides).

		With a delay line of 55mm of rexolite
4 EA	U8720650	Standard Removabe IHC Option for SA10 Wedges. Work with the ADIX655 Fork (40mm large).
4 EA	U8720550	Standard Wedge for Angle Beam Phased Array Probe A12, Normal Scan, 55° Shear Wave, Plain Wedge (Without Irrigation Holes and Carbides).
4 EA	U8720708	Removable IHC (Irrigation Holes and Cabides) Ring for SA12 Wedges.
4 EA	U8720549	Standard wedge for angle beam phased-array probe A12. normal scan. 0-degree longitudinal wave. plain wedge (without irrigation. holes. carbides).
6 EA	U8780197	Mini encoder. 2.5Å m cable. waterproof with DE15 connector for OmniScan MX. Includes bracket kit.
4 EA	U8330094	3.5L16-25.6X16-A3-P-2.5-OM PROBE
2 EA	U8750015	HS10-X01 HAND SCANNER MOUSE TYPE
4 EA	U8720140	SA3-0L-IHC STANDARD WEDGE
4 EA	U8720143	SA3-N45S STANDARD WEDGE
4 EA	U8720147	SA3-N60S STANDARD WEDGE
		MOUNTING RACKET FOR ENC1
4 EA	U8780217	Mounting Brackets for mini wheel encoder OMNI-A-ENC1. Compatible with Standard Phased-Array probe/wedge assembly for manual encoded scan

HEAT TREATMENT

SERVICE	DESCRIPTION	QUANTITY
	70 KVA Power Source Forced air cooled with 6 Way Contactorised Energy Regulator Control "H" Class Insulation with Transformer over Temperature Protection Input Supply – 380/415/440 Volts, 3 Phase, 50 Hz 3 Wire System, Output 32/ 42/65 Volt. Each 70KVA Power source can feed 24 heating elements of 32/42/65 V	
Electric Resistance PWHT	Cabling System for 70KVA Power 30 Sq.mm HOFR Supply and Return cable 25m long with Male & Female Cam locks (12 Numbers). 4 Way Splitter Cable (12 Numbers)	15 machines
	6 Channel Fully Automatic Micro-Processor based Ramp Soak PID / ON-OFF Programmer for carrying out PWHT in Auto mode (West U.K Make) with Input supply 85 to230V.	
	Chino make 12 Point temperature recorder, housed in Steel casing with Panel mounting T/C socket ,180mm chart width,	

range 0-1200 Deg. C Input supply 110 or 230V. Model EH-100

Thermocouple Attachment Unit (Input supply 230V)

Ceramic Mat Heaters

60 / 65 Volts, 2.7 / 3.25 KW Rating of the following sizes -
 CP-6 (36 Numbers), CP-8 (36 Numbers), CP-10 (36 Numbers),
 CP-12 (36 Numbers), CP-16 (36 Numbers), CP-48 (18
 Numbers)

21/22 s.w.g. K Type insulated Thermocouple wire 100m roll
 (10 rolls).

Compensating Cable, 25m long with plug and socket (12
 Numbers)

SERIAL NO.	SERVICE	DESCRIPTION	QTY.	LOCATION
TCRA-PWHT-001	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/06/103, Programmer : SI# PC-6/1514/07-08 Recorder S#:70313842	1 set	India
TCRA-PWHT-002	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/06-07/106, Programmer : SI# PC-6/1515/07-08 Recorder S#:80214864	1 set	India
TCRA-PWHT-003	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/06-07/108, Programmer : SI # PC-6/1516/07-08 Reorder S#:80214863	1 set	India
TCRA-PWHT-004	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/06-07/107, Programmer : SI # PC-6/1517/07-08 Recorder S#:80214929	1 set	India

TCRA-PWHT-005	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/08-09/104, Programmer : SI # PC-6/1518/07-08 Recorder S#:80315348	1 set	India
TCRA-PWHT-006	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/08-09/113, Programmer : SI # PC-6/1519/07-08 Recorder S#:8061674	1 set	India
TCRA-PWHT-007	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/1112/139, Programmer : SI # PC-6-1562-11-12, Recorder S#:12026862	1 set	India
TCRA-PWHT-008	PWHT - Main Unit 70 KVA, Programmer & Recorder	Main Unit : SI # PS/70/1112/140, Programmer : SI # PC-6-1561-11-12, Recorder S#11115084	1 set	India
TCRA-TOFD-001	ToFD - Olympus Omni scan Machine	S/N: 5197/1640	1 no.	Canada
TCRA-TOFD-002	ToFD - Olympus Omni scan Machine	100609/5264	1 no.	Canada
TCRA-PAUT-001	Phased Array - Omniscan MX1	101704 / 600686	1 no.	Canada
TCRA-PAUT-002	Phased Array - Omniscan MX2 (Touch Screen)	101704 / 600686	1 no.	Canada
TCRA-PAUT-003	Phased Array - Omniscan MX2 (Touch Screen)	103576/ QC- 008725	1 no.	Canada
TCRA-TD-HS-001 & 002	TD Handy-Scan RX (AUT corrossion Mapping)	HS0174	1 no.	USA
TCRA-TD-HS-001	TD Handy-Scan RX (AUT corrossion Mapping)	RX00124	1 no.	USA
TCRA-TD-HS-001 & 002	Thermal Scan - Industrial Automated Inspection Scanner	SN: 2012	2 nos.	USA
TCRA-ECT-001	ECT - 48 LT 4F8C, Computer & ECT 4F,8C Board - One set	D 1703, 2238	1 no.	USA

TCRA-ECT-002	ECT- Technofour Eddy Current Tester "SD-PC-11"	SDPC/57/12	1 no.	USA
TCRA-ECT-003	MS5800 ECT/RFT/MFL/IRIS 1ch US	941134	1 no.	Canada
TCRA-ECT-004	ECT EDDIFY Ectane 2 Tube Inspection	1507801	1 no.	UK
TCRA-UFD-001	UT - Digital Ultrasonic Flaw Detector Modsonic	E1288-1007	1 no.	India
TCRA-UFD-002	UT - Digital Ultrasonic Flaw Detector Modsonic	E1814-1108	1 no.	India
TCRA-UFD-003	UT - Digital Ultrasonic Flaw Detector Modsonic	D0155-4509	1 no.	India
TCRA-UFD-004	UT - Digital Ultrasonic Flaw Detector Modsonic	E3321-0412	1 no.	India
TCRA-UFD-005	UT - Digital Ultrasonic Flaw Detector Modsonic	E3494-0912	1 no.	India
TCRA-UFD-006	UT - Digital Ultrasonic Flaw Detector Modsonic	D0238-3812	1 no.	India
TCRA-UFD-007	UT - Digital Ultrasonic Flaw Detector (SonoScreen ST 10)	10160	1 no.	Germany
TCRA-UFD-008	UT - Digital Ultrasonic Flaw Detector (SonoScreen ST 10)	10161	1 no.	Germany
TCRA-UTG-001	UTG - Ultrasonic Thickness Gauge (Olympus) MG2XT 7906SM-E	90626601	1 no.	Canada
TCRA-UTG-002	UTG - Ultrasonic Thickness Gauge (Olympus) 38 DLP	120544111	1 no.	Canada
TCRA-UTG-003	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG	130189308	1 no.	Canada
TCRA-UTG-004	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG	130191608	1 no.	Canada
TCRA-UTG-005	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG	130214709	1 no.	Canada

TCRA-UTG-006	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG	130214809	1 no.	Canada
TCRA-UTG-007	UTG - Ultrasonic Thickness Gauge (EHC-09DL-W)	5056461	1 no.	Canada
TCRA-UTG-008	UTG - Ultrasonic Thickness Gauge (Olympus) 37 DLP	101788303	1 no.	Canada
TCRA-UTG-009	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG (w/ A-Scan)	140506012	1 no.	Canada
TCRA-UTG-010	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG (w/ A-Scan)	140505912	1 no.	Canada
TCRA-UTG-011	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG (w/ A-Scan)	140483110	1 no.	Canada
TCRA-UTG-012	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG (w/ A-Scan)	150524601	1 no.	Canada
TCRA-UTG-013	UTG - Ultrasonic Thickness Gauge (Olympus) 45MG (w/ A-Scan)	150523901	1 no.	Canada
TCRA-PMIO-001	PMI (OES) Machine (ARCMET 8000)	800517	1 no.	USA
TCRA-PMIO-002	PMI (OES) Q4 Mobile (Bruker)	4565	1 no.	Germany
TCRA-PMIX-001	PMI (XRF) Machine (Innov-X Alpha 2000) 1-3500	541233	1 no.	Canada
TCRA-PMIX-002	PMI (XRF) Machine DPO-2000-CC	9511	1 no.	Canada
TCRA-TC-001	Thermography Camera (FLIR T620)	55904756	1 no.	USA
TCRA-TC-002	Thermography Camera (FLIR T620)	55907168	1 no.	USA
TCRA-BS-001	Boroscope IV88100LI-IPLEX - LX	Y203143	1 no.	Canada
TCRA-BS-002	Boroscope IV88200L2-IPLEX - LX/LT	Y70T863	1 no.	Canada
TCRA-HT-001	HT - Hardness Testing Machine - Mitec	8587	1 no.	UK

TCRA-HT-002	HT - Hardness Testing Machine - (HL 200) DIGITAL	HL0116062701	1 no.	China
TCRA-HT-003	HT - Hardness Testing Machine - (HL 200) DIGITAL	HL0116062702	1 no.	China
TCRA-FM-001	Ferrite Meter (MP30) - Fischer (with Calibration or V-Block-N0-0484)	S/N: 150002380	1 no.	USA
TCRA-Rep-001	Replica Kit		3 nos	India
TCRA-MsM-001 - 003	INSIPOL 2000 Microstructure Machine (Replica)	S/N: 2K15110201	3 nos	India
TCRA-MFL-001-A	MFL Machine FM3D	S/N: 2361208	1 no.	UK
TCRA-MFL-001-B	MFL Hand Scan Machine	S/N: 2371208	1 no.	UK
TCRA-MFL-001-C	MFL HS/PS Electronic Module - Site Master	S/N: 2371208E	1 no.	UK
TCRA-HLM-001	Helium Leak Machine	S/N: FC13001117	1 no.	Germany
TCRA-MPI-001 - 006	MPI Yokes 110v & 220V	24728	8 nos.	USA

THERMOGRAPHY

Thermography Camera: FLIR T620 | QTY: 3 NO

CAMERA SPECIFICATIONS

Resolution	640 x 480
Total Pixels	307,200
Thermal Sensitivity	0.045C
Accuracy	+/-2% or 2C
Temperature Range	-4F to 1,202F (-20C to 650C)
Lens Options	Standard:25; Optional: 45, 15, 100, 50
Zoom	4x Continuous Digital
Focus	Auto & Manual
Uncooled Microbolometer	Yes
Color LCD Touchscreen	4.3" Bright Touch

Video Camera with Lamp	5 MP
Fusion	PIP Scalable & Moveable
Laser Spot	Yes
Video Out	HDMI/DVI
Frame Rate	30Hz
Analysis	
Professional	Yes
Delta T	Yes
Annotation	
Voice (60 seconds)	Yes
Text & Sketch	Yes
Draw Direct	Yes
Periodic Image Storage	Yes
Other: Joystick Control	Yes
Wi-Fi to Mobile Devices	Yes
Bluetooth to PC/Smartphone	Yes
Meter Link	Yes
Instant Report	Yes
FLIR Tools	Yes
Weight	2.87 lb (1.3 kg)
Warranty	2 Years Parts & Labor
Warranty (Battery)	5 Years
Warranty (Detector)	10 Years