MODSONIC ®
(SINCE 1987)
Simplifying NDT

Arjun
ULTRASONIC FLAW DETECTORS

Ultra-Portable
Ultrasonic Flaw Detectors

Ultrasonic Flaw Detector Arjun30

Arjun Series (Arjun10/20/30)

| PALMTOP | ULTRALIGHT | CONVENIENT | HIGH PERFORMANCE

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Palmtop Design :

Arjun weighs only 800 Grams with grip oriented weight distribution, which maximizes the efficiency of Ultrasonic testing with single hand operation freeing up user's other hand to manoeuvre the probe.

Ease of Use :

Arjun comes with only few keys for operation and menu navigation. The menu architecture of Arjun makes the inspection easy and comfortable for any level of operator.
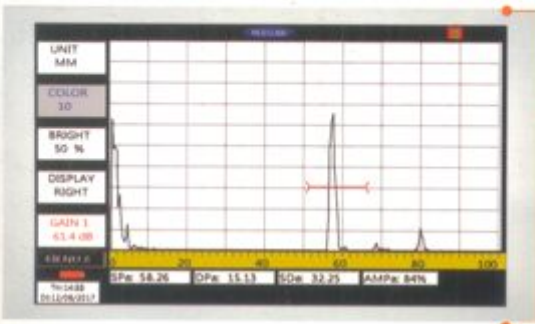
Display :

Arjun series flaw detectors come with high resolution (800×480 pixel) WVGA display. Excellent brightness and option of white background for best visibility in direct sunlight.

Display Rotation :

Display Rotation or Flip feature, is convenient for Left hander as well as Right hander.

Connectors :

Two Lemo Size 00 or Mini Lemo Connectors are fitted on the machine.

Connectivity and Data Storage :

- Micro USB slot for data transfer facility
- Micro SD card slot for data storage, expandable upto 32 GB
- I/O port for Single Axis Encoder input and TTL output for external monitor alarm

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Gasket For Sealing
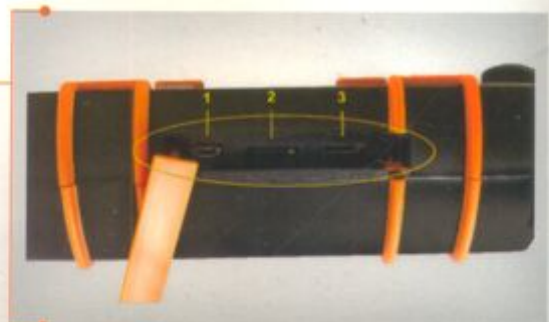
IP Sealing :

Mating joints are gasketed for protection against water, splash and dust. It is designed to comply with IP66.

Rugged and Durable :

Arjun is developed to perform in all indoor and outdoor industrial environment. The durable and high industrial grade components incorporated in Arjun give you best protection for your inspection needs. It is tested to meet international standards for optimized performance.

Battery and Charging :

World class high capacity Li-Ion battery which gives 8 hours of continuous operation with full charge. Arjun has special charging circuit for fast charging. Battery can be charged inside the machine as well as EXTERNALLY without engaging the machine by connecting a Charging Dock Station provided along with the machine. So using spare battery round the clock testing is possible.

Easy Replacement of Battery :

Battery Compartment has 'quick release fasteners' for easy and quick replacement of battery.

Quick Release Fastners

Standard Kit :

- Main unit Ultrasonic Flaw Detector model Arjun10/20/30.
- Rechargeable Li-Ion Battery pack MB-1 (7.2V, 4AH).
- Charger cum mains adaptor AC-1 (100-250V, 50Hz-60Hz).
- Charging Dock Station for external charging ABC-1.
- 8GB USB flash drive containing User Manual and data transfer software ArjnSoft.
- USB ON the Go (OTG) cable for data transfer.
- Neck Strap for extra protection.
- Pelican type carrying case.

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Measurement resolution :

Measurement resolution of 0.01mm for better accuracy.
Two independent gates with amplitude measurement up to 125% FSH.
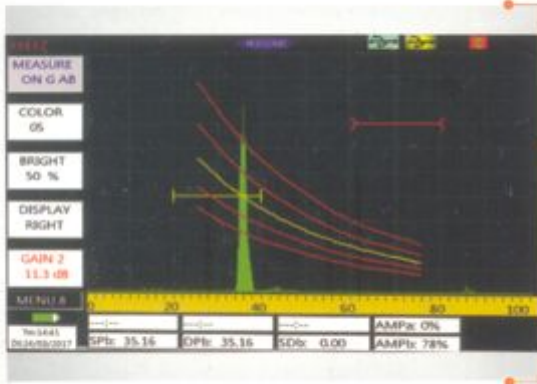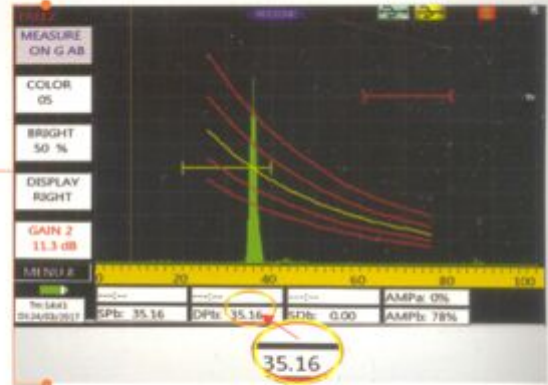
DAC : ✓

Auto Plotting standard dynamic DAC/TCG for easy defect evaluation.
Multiple curves with user selectable dB intervals (1dB to 14dB).
Any of the curves can be selected as flaw monitor gate.

*Onboard DGS/AVG :

Onboard DGS/AVG for defect size evaluation.
Echo signals are evaluated in reference with standard DGS/AVG associated
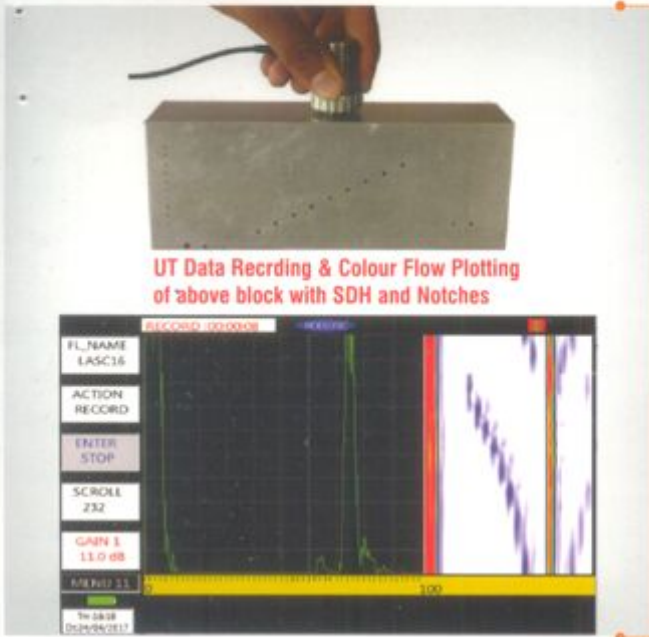with particular probe type and material being tested.
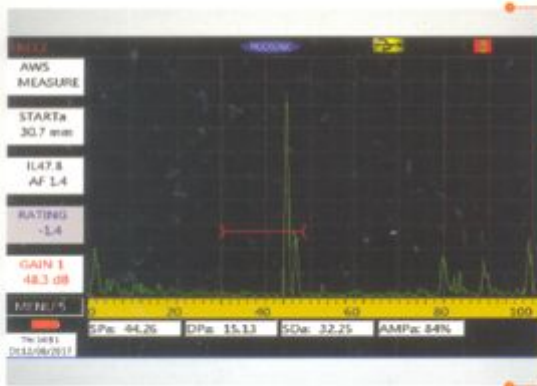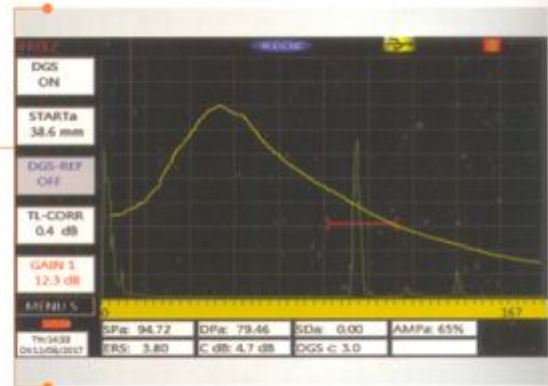
*AWS D1.1 :

Built in Software for AWS which provides dynamic reflector indication
ratings for various AWS weld inspections . This allows efficient
inspection by eliminating manual calculations.

**Encoder Input :

Single Axis Encoder Input for Real time
probe positioning (mm/Inch).

X = Probe position in mm   X: 62.1

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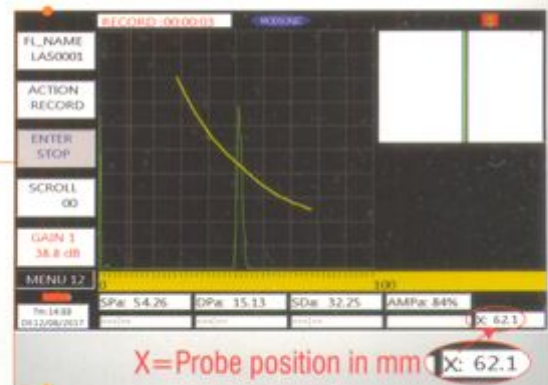
* Available only in Arjun 20 & Arjun30.
**Available only in Arjun30.

UT Data Recrding & Colour Flow Plotting of above block with SDH and Notches

UT Data Recording :

It comes with the continuous **UT Data Recording** facility with **Colour Flaw Plotting.** Upto 100 Hours of UT Data Recording (A-Scan and Colour B-Scan) can be stored on 8GB Micro SD card. It comes with **Non-Tamperable Date/Time** stamp, which is best for **Evidence Based Testing.** Options of Playback and Analysis of A-Scan and colour B-Scan for analysis on main unit of Arjun are available.
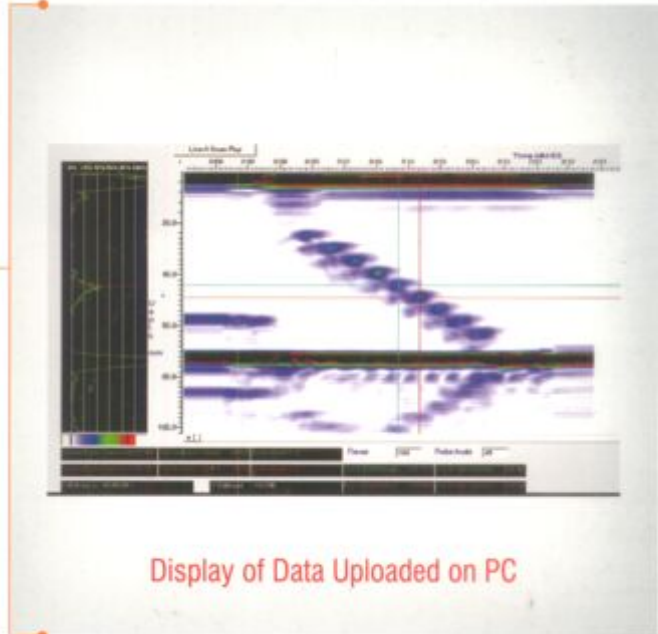
Analysis :

I Recorded data can be transferred to PC using USB cable or USB OTG Cable for Analysis, After the test data are transferred to PC, analysis is possible using ArjnSoft software.

Display of Data Uploaded on PC
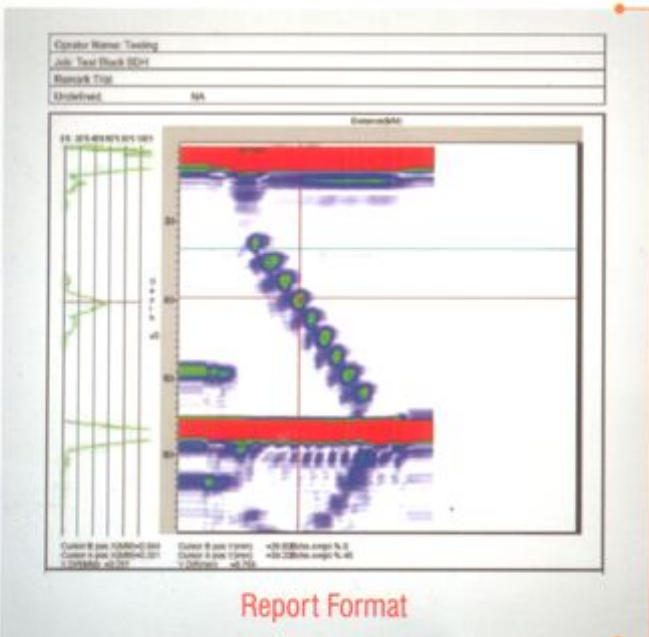
Report Format

Reporting, Printing and Documentation:

Reports in PDF and WORD format can be generated from A-Scan and colour B-Scan recorded files with all essential information like operator details, job details, and defect details for subsequent printing and documentation
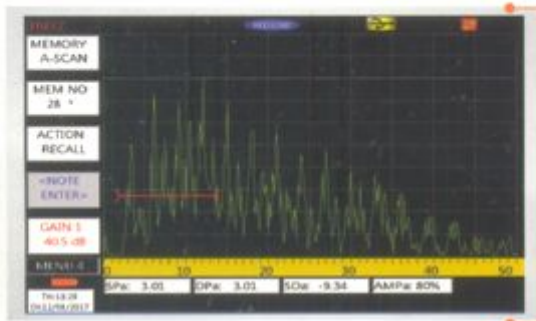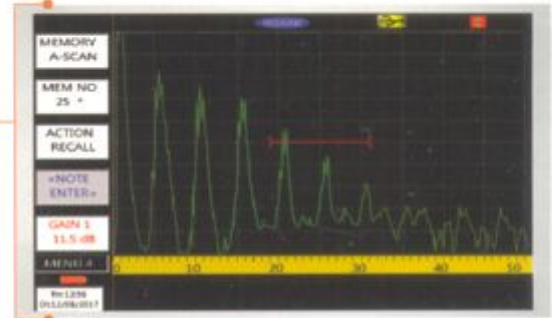
** Available only in Arjun30

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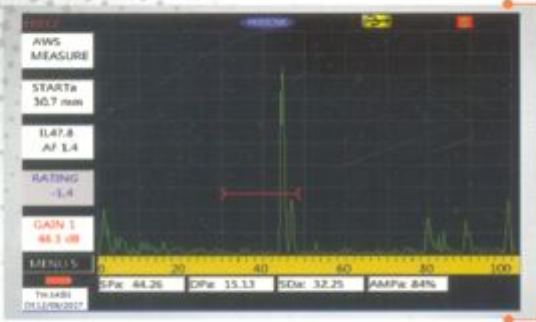
Dead Zone/Near Surface Resolution in Angle Probe :

Angle Probe: 4MHz, 70 Degree.
Reflection from 1.5mm SDH from V1 Block

Dead Zone/Near Surface Resolution in Normal Probe :

Normal Probe: 4MHz, 10mm Dia.
Reflection from 5mm Step of VW Block.

Dead Zone/Near Surface Resolution in TR Probe :

Twin Crystal Probe: 4MHz, 10mm Dia.
Reflection from 3mm Step of VW Block.

Far Surface Resolution :

Normal Probe: 4MHz, 10MM Diameter on V1 Block Resolution Notch.
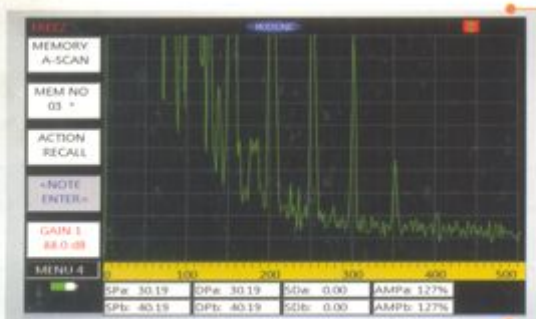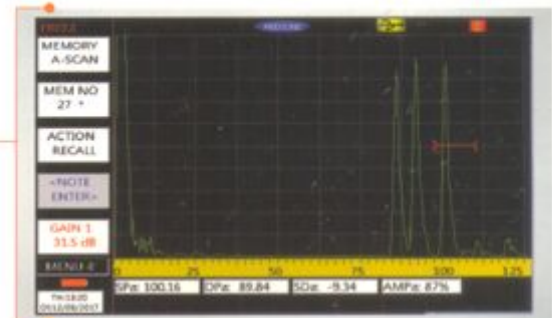
Penetration Power :

Normal Probe: 2MHz, 24MM Diameter on V1 Block Perspex insert.
Total number of back wall reflections are 6 full and 7th about
40% FSH with noise level about 10% FSH.

Sensitivity :

Normal Probe: 4MHz, 10mm Dia.
Reflection From 1/64" (0.4mm diameter) FBH of ASTM Standard block

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Time Base :

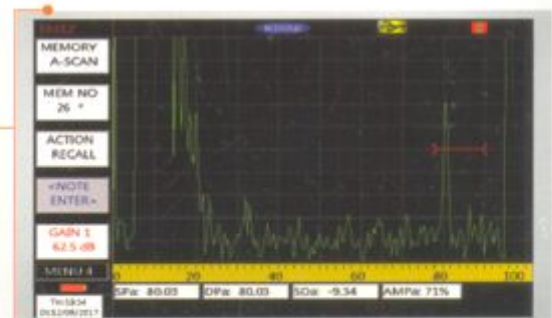|		
Test Range (Arjun10, Arjun20)	:	2.5 mm to 5 meter (in steel). Fine mode adjustable in step of 1mm.
Test Range (Arjun30)	:	2.5 mm to 10 meter (in steel). Fine mode adjustable in step of 1mm.
Velocity	:	1000 m/s to 15000 m/s. In Hot key mode it has 21 pre-set values. Fine mode adjustable in step of 1 m/s.
Delay	:	Up to 120mm adjustable in 0.01, 0.1mm or 1mm step.
Horizontal Linearity	:	Non Linearity ±0.5%
Unit of Measurement	:	Metric (mm) and Inch

Pulser/receiver :

TxPulse	:	Square wave pulse
PRF	:	50Hz to 1KHz coupled with test range in three adjustments
Gain	:	100 dB calibrated gain adjustable in 0.1, 0.5, 1, 2, 6 or 14 dB step
Test Modes	:	Pulse echo and Transmit/Receive
Rectification	:	Full wave rectification with filtering.
Partial Rejection	:	0 to 125% FSH with LED indicator
Frequency Range	:	Broad Band amplifier (0.5 MHz to 15 MHz)
Vertical Linearity	:	Non Linearity ±3%
Connectors	:	Lemo 00 (2 Nos.)

Monitor Gates :

Independent Gates	:	Two fully independent gates GATEa and GATEb for flaw echo monitoring and thickness/distance measurement. Start and Width adjustable over full screen. Threshold level adjustable over 0 to 100% FSH.
Measurement Mode	:	Peak and Flank.

Display :

LCD	:	5 inch Colour Wide VGA LCD display (800x480 pixel, size 108x64 mm) with five different colour sets.
Update Rate	:	60Hz Display rate.
Reference Waveform	:	Reference A-Scan pattern of standard test object can be saved and recalled in the background for easy comparison during testing
Video Filled	:	Solid filled echo patterns for better visibility.
Video Dynamic	:	Dynamic echo patterns which saves the last maximized echo amplitude for reference.
Brightness	:	Variable 0 to 100% brightness.
Clock	:	Records real time date and time of UT Data saved.

Standard Software Options :

DAC	:	Dynamic DAC curve can be digitally plotted (Smooth parabolic curve) on screen with selectable additional offset curves from 0 to 14 dB in 0.1 dB selectable steps. DAC curve can be set as flaw monitor gate. DAC curve can be plotted using minimum 2 to maximum 10 points.
*TCG	:	Time Corrected Gain for echo amplitude compensation
*On-board DGS/AVG	:	Defect size evaluation using predefined probe settings and custom probe set-ups, ERS (Equivalent Reflector Size) can also be displayed on the screen in mm/inch.
*AWS D1.1	:	Built in Software for rating of defects in accordance with AWS Specification D1.1

**UT Data Recording :

Built-In UT Data Recording	:	Carries out 100 Hours of continuous /dynamic A-Scan and B-Scan recording (on SD Card) which can be replayed and analysed in machine as well as PC
Colour Flaw Plotting/ Colour B-Scan	:	Real time Colour coded Encoded/Un-Encoded colour B-Scan along with A-Scan on the Screen which can be transferred to PC, Also analysis of A-Scan and B-Scan can be done in the machine as well as PC.

Memory :

Micro SD Card Slot	:	SD Card slot for all standard micro SD cards. (up-to 32 GB) supported.
A-Scan	:	500 A-Scan can be saved in internal memory and Huge A-Scan storage capacity on SD Card depending on SD Card size.

General :

Size	:	117 x 176 x 56 mm (HxWxD)
Weight	:	800 grams with Li-Ion battery
Battery	:	Hi capacity 7.2V, 4AH Lithium Ion battery
Battery Life	:	8 Hours when fully charged
Charging Method (Standard)	:	Internal with power adaptor.
Charging Method (External)	:	Externally with charging docking station and power adaptor.
Power Adaptor	:	Charger cum mains adaptor AC-1 (100-250V, 50Hz-60Hz).
Software	:	ArjnSoft Software for Data Transfer, Analysis, Reporting, Documentation and Printing.
Temperature	:	Operating temperature 0 to 55°

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Arjun Series Comparison

Technical Parameters	Arjun10	Arjun20	Arjun30
Palmtop, Ultralight, Weighs only 800 Gms along with Battery.	√	√	√
Test Range 2.5mm to 5 metre (In steel).	√	√	√
Gain 100 dB adjustable in step of 0.1, 0.5, 1, 2, 6, or 14 dB Step.	√	√	√
MicroSD Card Slot (Upto 32GB).	√	√	√
USB On The Go communication Port.	√	√	√
Dynamic DAC which can be easily plotted on the Screen.	√	√	√
Selection Of British and Metric Units.	√	√	√
Lithium Ion Battery Pack 7.2VDC, 4AH which gives 8+ hours of battery life.	√	√	√
High Resolution 5 inch Colour WVGA LCD/TFT display (800 × 480 pixel, Size 108 × 64 mm).	√	√	√
Internal memory of 500 A-Scan patterns and 50 Calibration Setups.	√	√	√
Reporting and Printing in A4 format is possible.	√	√	√
TTL Output	✗	√	√
TCG (Time Corrected Gain) for Echo Amplitude Compensation.	✗	√	√
Built-in DGS/AVG Curves for time proven flaw size evaluation.	✗	√	√
Built-In Software for Flaw Rating as per AWS Standards.	✗	√	√
Test Range 2.5mm to 10 metre (In steel).	✗	√	√
Continuous UT Data Recording.	✗	✗	√
Colour Coded B-Scan along with recording facility.	✗	✗	√
Single Axis Encoder Input.	✗	✗	√
100 of Hours of UT Data Recording which can be transferred to PC.	✗	✗	√
A-Scan and B-Scan Data Analysis inside the machine as well as PC.	✗	✗	√

With security neck strap

On hinged stand

Leather wrist strap

Mounted on the tripod