TOSHIBA Hydra Vision® DR 64
Urology Imaging System

SYSTEM SPECIFICATIONS

Hydra Vision DR System

Hydra Vision® Plus DR Urological Imaging System 16" Four-mode Image Intensifier and 64 kW Generator

The Hydra Vision® Plus DR urological imaging system is optimized for digital image acquisition.

NEW 750 LB WEIGHT RATING!!!

System Includes:

- 88 / 20 tilt table with 4 way power driven table top
- Dual Tower mounted 17" 1280 x 1024 color monitors for fluoro and alternate video input (endo, ultrasound, etc.) and one 17" 1280 x 1024 color monitor at the workstation.
- 1024 x 1024 CCD Camera with Last Image Hold (LIH)
- Splash/Crash Guard for imaging components
- Collapsible UroDrain frame with elbow support
- Under-calf Leg Crutches
- Remote hand control
- Multi-function foot control
- Arm support, IV pole, 24" table extension, and Table pad
- High Frequency 64 kW x-ray generator with pulsed fluoro (30 / 15 / 10 / 7.5 / 5 / 3.75 pps, user selectable)
- Automatic Exposure Control (AEC) for digital radiographic exposures
- Automatic Brightness System (ABS) for fluoro image optimization
- Fluoro / Digital Rad footswitch
- Carton of 10 UroDrain Bags
- Moving Imaging system for visualization of the urinary tract without moving the patient
- Approved for alternate procedures (ERCP, Vena Cava Umbrella, Pacemaker, etc.) 16" Image Intensifier provides complete anatomical visualization of the urinary tract on most patients

CD Recordable Drive, external, with SCSI interface. This option allows a user to transfer images to a CD. These images are stored in a standard DICOM Media Exchange format in full 1024 x 1024 by 10 bit resolution. The CD functionality allows for batch writing of multiple patients to a single CD. It also allows for patient data to be added (appended) to a CD already containing similar data. Approximately 300 Spot and Fluoro Store images (2MB)
can be stored on a single CD.

Control Room Cabinet, White Laminate

DICOM 3.0 Interface
Provides the following functionality:
* DICOM Print Class
* DICOM Storage Class
* DICOM Query
* DICOM Retrieve
* DICOM Worklists
* DICOM Modality Performed Procedure Step (MPPS)
* DICOM Storage Commitment Class

TECHNICAL SPECIFICATIONS

Hydradjust® DR Cysto Table:
HydraVision DR 64kW
NEW 750 LB WEIGHT RATING!

Table Elevation Range:

- 31" (787 mm) to 50" (1270mm) @ up to 1" (25mm) per second

Table Tilt Range:

- 20 degrees to +88 degrees @ up to 5 degrees/second

Table Top:

Imaging Window allows imaging of 34" (86cm) of anatomy without moving the patient
Longitudinal Travel -- ±9.5" (24 cm) @ up to 1-1/2" (38 mm) per second
Transverse Travel -- ±6" (15 cm) @ up to 1-1/2" (38 mm) per second
Table Top Length -- 43-1/2" (110 cm)
Maximum Table Top Load -- 750 lb.
Light-weight carbon-fiber table top lifts for easy cleaning, includes pad

All tables include a mechanical lower limit stop and electronic sensors within the splash/crash guard to provide image tube / camera protection.

Foot Controls:

- Functions Controlled -
- Discrete Mode: Tilt, Elevate, Longitudinal, and Transverse motions
- Scroll Mode: Tilt, Elevate, Longitudinal / Transverse motions, Move Imaging, Table Position Store & Recall, Image Recall.
- Separate Tri-mode Footswitch (Fluoro / Mag and Digital Radiography)

Hand Control:

- 2 user programmable Table Position memories
- 1 service programmable Prep memory
- Table Tilt
- Table Elevation
- Move Imaging
- Table Longitudinal Motion
- Table Transverse Motion
- Tube Arm In/Out
- Mag Mode

X-Ray Tube Support Arm:

- S.I.D. 43" (110 cm) Power assisted x-ray tube arm

Standard Accessories:

- 24" Table Extension with pad (attaches at foot or head end)
- Table Rail Mounted I.V. Stanchion
- Collapsible Latching UroDrain Frame
- Armboard
- 1 Pair of Universal Clamps
- 1 Pair of Leg Crutches

HydraView HR - HIGH PERFORMANCE DIGITAL SYSTEM
PlatinumOne Features

- CCD CAMERA
- 1024 x 1024 x 12 Bit CCD camera provides pure digital signal Image Processor
- Digital Acquisition System for Basic RF Applications with Post Subtraction Capability
- Digital Acquisition System for High-End RF Applications with Post Subtraction Capability
- Digital Acquisition System for High-End RF and DSA Applications w/ Full Functional
- Angiography Capability
- Integrated Auto Aperture / Lens / Mount System
- Automatic CCD Camera Calibration - Set-up
- Fiber Optics or Copper Cabling from CCD Camera to Acquisition Card
- Image Quality Analysis/Measurement Software
- Up to 30 fps 1024 x 1024 x 12 Bit Digital Fluoroscopy (DSA) Acquisition with Automatic 9 level Fluoro Noise Reduction Filters & Pixel by Pixel Motion Correction

Up to 15 fps 1024 x 1024 12 Bit Digital Radiography (Spot) Acquisition
Real-time Automatic-Image Optimization with Unique "Customizable" Look Up Tables for Optimal Image Quality

HARDWARE CONFIGURATION

- Smaller PC Tower Electronics Enclosure: 19"H x 8"W x 17"D
- High Speed Pentium™ CPU
- Windows™ 2000 Operating System providing "Point & Click" Graphic User Interface
- PCI Bus for Peripheral Integration
- Real-Time 5 Level 13 x 13 Edge Enhancement (Fluoroscopy, Standard Radiography)
- Completely Compatible With Programmed Generator Interfaces - InfiMed's Unique Universal
- Generator / Manufacturer Interface Capability
- PC Keyboard and Windows™ Compatible Mouse with 6' Cable Included
- Choice of additional Windows Compatible Mouse, Infrared Remote, or InfiMed Hula Point
- Windows Compatible Pointing Device Extension with 100' Cable Included
- PC Memory of 512 MB RAM plus Image Processing Board with 512MB
- 60 GB Disk Drive Minimum Storage of approx. 30,000 1024 x 1024 x 12Bit Digital
- Display: 19" Flat Panel Display 1280 x 1024 Monochrome Monitor with Progressive 72Hz Flicker Free Display

- CD-ROM
- CD-RW able to burn 1k x 1k x 12 bit RF/DSA cases/images-
    - 16x Record
    - 10x Re-Write
    - 40x Read

SOFTWARE FEATURES

- Thumbnail Image Viewing
- Basic Measurement Package: Length, Multi-Segment Length, Angle, and Calibration
- Automatic P.A.C.E.™ - AUTO-Image Optimization & Hardcopy & Batch Printing: Allows the
- user to pre-set the desired settings before printing
- Contrast Enhancement
- Polarity
- Digital Shutters
- Zoom / Pan at 2x
- H / V Reverse
- Fluoro Dynamic Range (Kv and Ma Tracking)
- Video Bypass
- Selectable Fluoro Dose (Low, Normal, High)
- InfiMed Shotsave Feature for RF and DSA
- Annotation: Text, Line, Arrow
- Multi Image Display4 on 1 and 16 on 1
- Export Bitmap to file
- Export Jpeg to file
- On-line and Remote Service Diagnostics

Customizable Doctor Preferences

- Acquisition Rate up to 30 fps for DSA and 15 fps for RF
- Frame Selectable DSA Mask
- Fluoro Noise Radiation
- Fluoro Dynamic Range
- Rate Controlled Max Fluoro
- Fluoro Ed
- "Customizable" Auto Image Optimization Look Up Tables
- H / V Reverse
- Edge Enhancement
- Brightness and Contrast Settings
- Invert
- Last Image Hold (LIH)

Includes most Acquire, Review, and Hardcopy features
Image Stacking for DSA
DSA Automatic Loop Replay of Images After Acquisition
Exposet: Automatic DSA X-ray Technique Setting
Landmarking: 0%, 10%, 25%, 50%

Percent Stenosis Vascular Software Package
DSA Roadmapping (LIH, Average, Min, and Max Opacification)
Programmable Sequences
Re-registration of subtracted images, whole or sub pixel
Scan Converter (Supports both NTSC and PAL)
Real-Time Mask Subtraction
Pulsed Fluoro capability: Automatic 6.25, 7.5, 12.5, 15, 25, 30
Export AVI to file

Static High Resolution Reference Image Feature

- 14 Image Storage Viewable With Thumbnails
- Multiple Image Display: 1 on 1, 2 on 1 Horizontal, 2 on 1 Vertical, 4 on 1

DICOM 3.0 Network Interface Kit Includes:

DICOM Print Class
DICOM Storage Class
DICOM Query
DICOM Retrieve
DICOM Worklists
Modality Perform Procedure Step
Storage Commitment Class

64kW HIGH FRQUENCY GENERATOR:

Microprocessor controlled
Single or 3 phase input
64kW output
High Frequency output
Automatic exposure control - Digital Radiography
Automatic brightness control - Digital Fluoroscopy
High Performance Pulsed Fluoroscopy
Three Field Ion Chamber
Fluoro Timer Audible: 5 minutes
Fluoro Total cumulative time record: up to 99 minutes
Automatic Tube Protection: Tube protection circuitry is microprocessor controlled selecting the proper rotor speed, and limiting the tube loading to safe limits increasing useful tube life.

Output Power Rating	64 kW
Radiographic kVp Range in 1 kVp Steps	40-125/150* kVp
Accuracy	+/-(4%+1kVp)
mA Range and Stations	10, 12.5, 16, 20, 25, 32, 40, 50, 64, 80, 100,
125, 160,	200, 250, 320, 400, 500, 640, 800
Accuracy	+/-(4%+1ma)
Power Output	800mA @ 80kVp
640mA @ 100kVp	
500mA @ 125kVp	
400mA @ 150kVp	
Exposure Time Range	.001- 10 seconds
Accuracy	+/-(1%+.1ms)
mAs Range	.1-640 mAs
High Voltage Ripple (typ)	<1kVp @ 100kVp
Automatic Expose Control	Standard
# of Buckys supported	1
Integrated High Speed Starter	Standard

Fluoroscopic kVp Range in 1 kVp Steps	40-120 kVp
Accuracy	+/-(4%+1kVp)
Fluoroscopic mA	0- 40 mA
Fluoroscopy pulses per second (60 Hz)	1, 2, 3.75, 7.5, 15, 30
Fluoroscopy pulses per second (50 Hz)	.8, 1.6, 3.2, 6.25, 12.5, 25
Automatic Brightness Control	Standard
3/2 Factor Operation	User Selectable
Line Voltage Range (Vac) and Phases	3 phase 480 volts

Pulsed Fluoroscopy Dose Reduction: (compared to 30pps pulsed fluoro, all other factors remaining equal.)

15 pps: 50%
7.5 pps: 75%
3.75 pps: 87.5%
2 pps: 93.3%
1 pps: 96.6%

COLLIMATOR:

Automatic adjustment when magnification sizes are selected
Cross hair provided for accurate centering

RADIOGRAPHIC X-RAY TUBE:

400,000 Heat Units
150 kVp rating
0.6-1.2 mm focal spots
4 inch 12 degree tungsten rhenium anode
Anode heat dissipation rate (max): 60,000 H.U./min
Housing heat storage capacity: 1,500,000 H.U.

16" FOUR FIELD IMAGE INTENSIFIER CHAIN:

Cesium Iodide input window insert.
Four field 16/12/9/6" Magnification Modes
Resolution 4.2 lp/mm at 16", 4.6 lp/mm at 12", 5.4 lp/mm at 9", 6.2 lp/mm at 6"
Typical Conversion Factor: 240
QDE: 56%

CCD Camera 1024 x 1024 with Last Image Hold, Edge Enhancement, Noise Reduction
Image distance from table top - 1.5"
Grid

MONITORS

19" Hi-Res (1024x1280) Monitors (2 table mounted, 1 at workstation)

ELECTRICAL REQUIREMENTS:

Table:
240 ± 10% VAC, 1Ø, 50/60 Hz (± 3 Hz)
Peak Current Draw: 20 Amps @ 240 volts

64kW Generator: 480/75 Amps Three Phase

Collimator Power Supply: Line Rating: 240 ± 10% VAC, 20 Amps, 1Ø

ENVIRONMENTAL REQUIREMENTS:

Operating Temperature Range:	40° F to 95° F (4° C to 35° C)
Humidity (non-condensing):	20% to 90%
Maximum Altitude:	8,000 ft (2,438 meters) above sea level
Weight:	1,900 lbs (862 kg)

LIEBEL-FLARSHEIM

HYDRA VISION® UROLOGICAL IMAGING SYSTEMS

It Started Here. It Stays Here.

Seeing the bigger picture.™

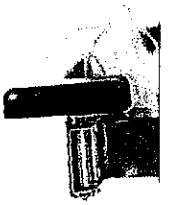
MALLINCKRODT

Respected

Since 1928, Liebel-Flarsheim has earned its reputation as both a pioneer and an innovative leader in the urological imaging industry.

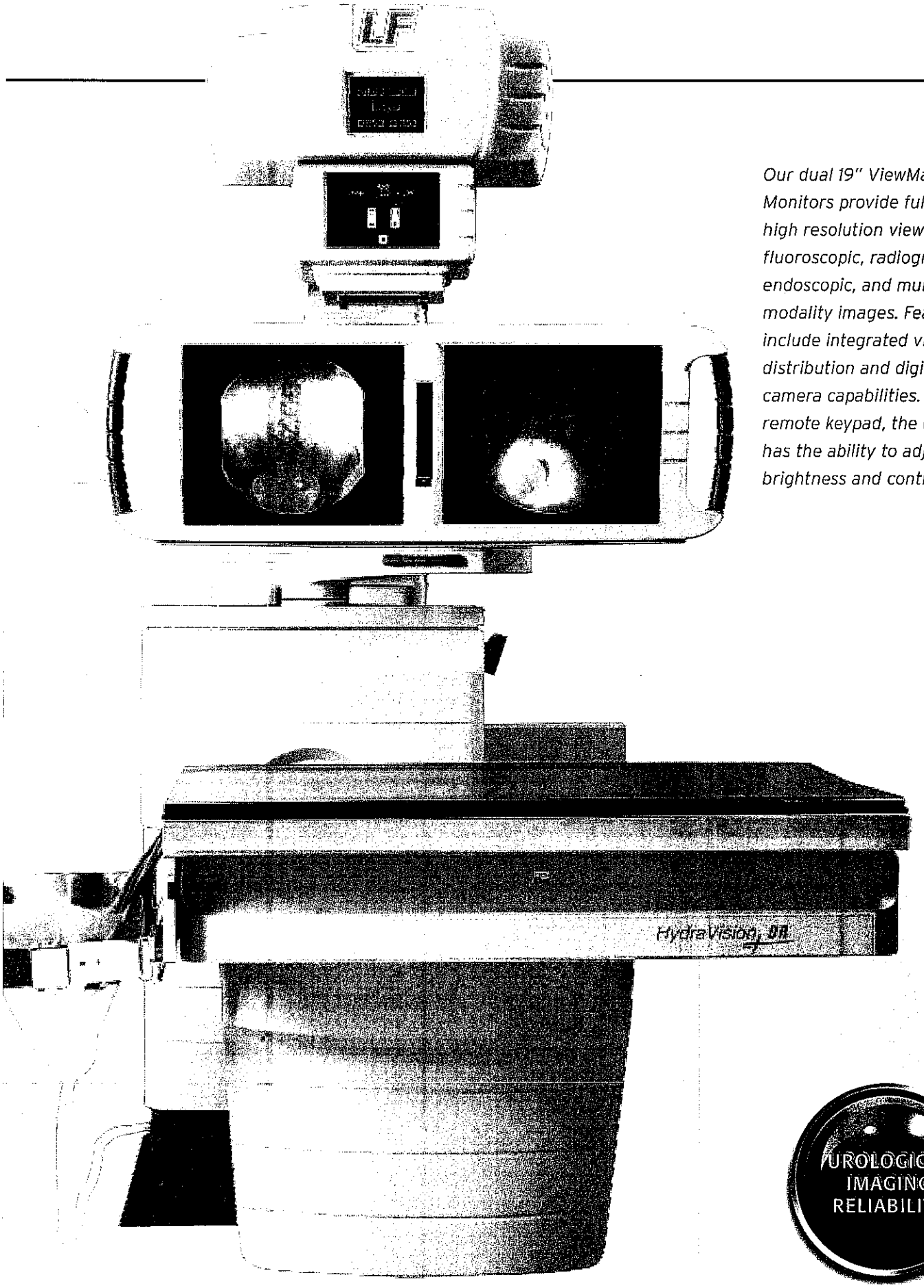
Reliable

For more than three quarters of a century, our first priority has remained steadfast: safe, dependable, outstanding care for you and your patients.



Responsive

We are always available to address your specific needs — with complimentary assistance 24 hours a day, 7 days a week, 365 days a year.



Our dual 19" ViewMax® LCD Monitors provide full size, high resolution viewing of fluoroscopic, radiographic, endoscopic, and multi-modality images. Features include integrated video distribution and digital-ready camera capabilities. With remote keypad, the end-user has the ability to adjust both brightness and contrast.

UROLOGICAL IMAGING RELIABILITY

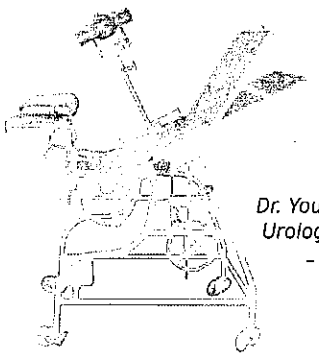
Dedicated To Urology Since 1928

For more than 75 years, Liebel-Flarsheim has consistently been a leader in the development of urological imaging system technology. Our "firsts" include significant milestones that have firmly established Liebel-Flarsheim as the first name to know for new urological imaging systems:

- The introduction of the first urology-specific table
- The first shorter table concept
- The first dual monitor system
- The first multi-tier urology product line
- And more

Today, Liebel-Flarsheim is one of the largest producers of digital radiography urology tables in the world. Our commitment to setting new standards for product performance is unwavering. We are dedicated to providing responsive customer service.

Liebel-Flarsheim is here for you, with all the products and people that provide quality urological imaging. It started here. It stays here.



Dr. Young-McKim Smith
Urological X-Ray Table
- circa 1937 -

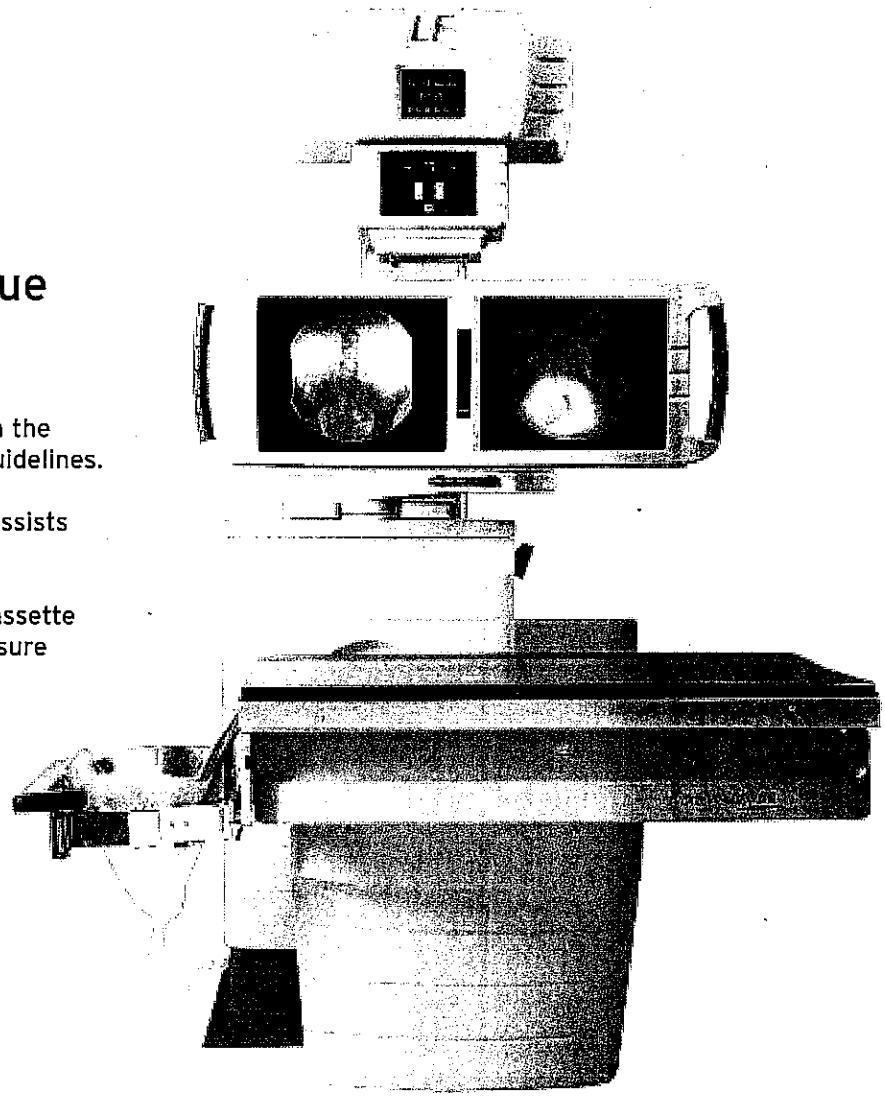
1928
First Urology-Specific Table Concept

1989
First Pulsed Fluoroscopy in Urology - 50%-96% Radiation Dose Reduction

1994
First Tower Mounted Dual Monitor System

The Benefits of True Digital Acquisition

- Radiation levels are well within the Code of Federal Regulations guidelines.
- Enhanced imaging resolution assists diagnostic accuracy.
- Compared to a conventional cassette urological table radiation exposure is decreased.



"Our Liebel-Flarsheim sales and technical representatives provide excellent service. We look at other tables, but we always come back to LF."

Christine Atkinson, RN, Manager-OR
Lakeland Regional Medical Center, Lakeland, FL

1994
First Shorter Table Concept

1994
First Hydraulically Driven Moving Imaging System

1997
First Multi-Tier Product Line (Hydra Vision® ES, HF, HR, DR)

HYDRA VISION® UROLOGICAL IMAGING SYSTEMS

"One of the things we like best about our Liebel-Flarsheim system is the dual monitors. It allows us to view x-ray and camera at the same time."

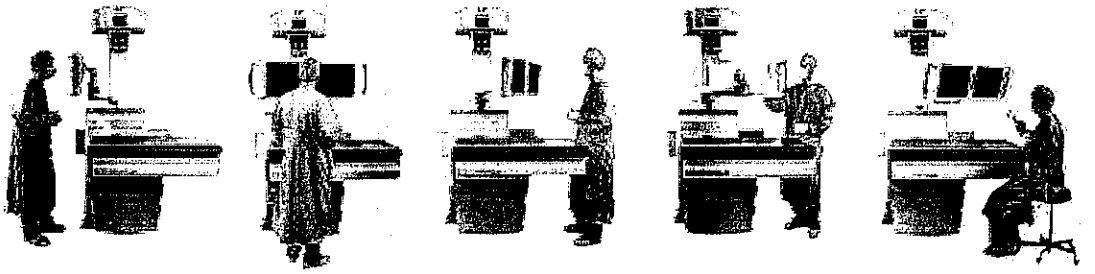
Nicole Beasley, RN, Director - OR
Athens Limestone Hospital, Athens, AL

1999
First Truly Digital System

1999
First 16" Image Intensifier for one shot KUB

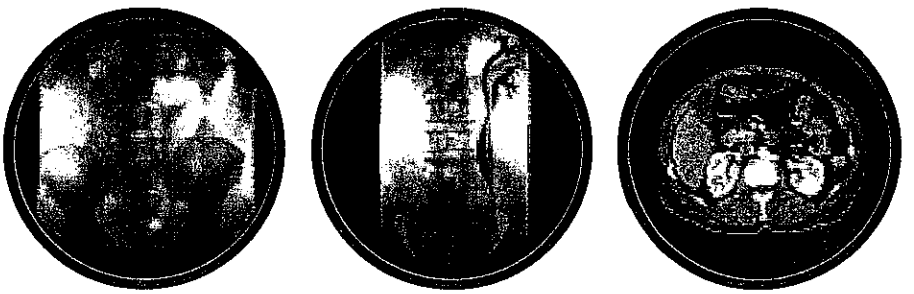
1999
First Urology System with Modern Diagnostics for Remote Preventative Maintenance

Positional Flexibility. Procedural Vision.



The Hydra Vision® Urological Imaging System provides easy access to all sides of the patient.

Imaging Versatility



Stent KUB CT

Endo Mag Mode MR

Multi Modality Viewing

The Integrated Video Distribution system (IVD) allows the user to attach the following video inputs:

- DVI
- VGA
- Composite
- S-Video
- RGB(S)

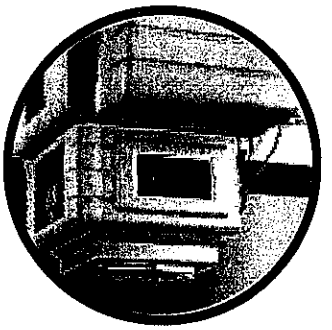
Examples of images that can be displayed:

- X-Ray (Fluoro or Rad)
- Endoscopy
- Ultrasound
- PACS images
- Computer signals
- Urodynamics

2000 First Upgradable System Approach

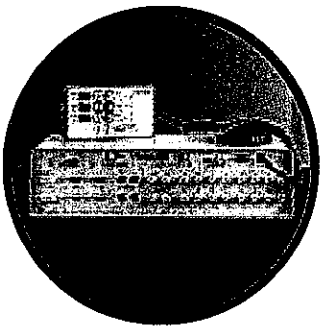
2001 First Triple Articulating 18" Flat-Panel Monitor System

2002 First New High Frequency Generator with touch screen interface



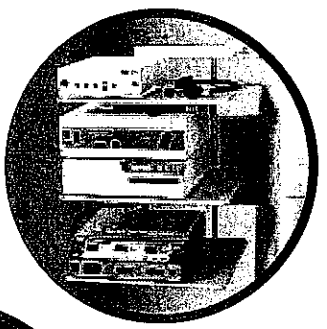
Dosimetry Readout

- *Dose, rate, and time are conveniently displayed to the fluoroscopist.*



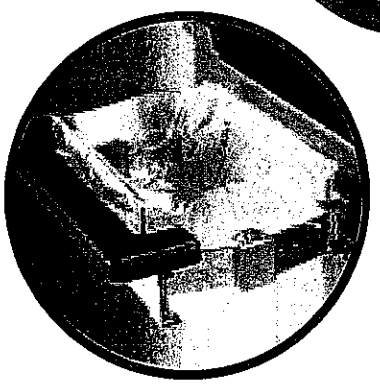
LF05 Monitor Software

- *Integrated video distribution technology allows easy hand-held control switching of images from monitor to monitor.*
- *Wide range of video signal inputs and outputs accommodate endoscopic camera technology.*
- *Multi-modality/PACS viewing capability.*
- *Remote viewing capabilities.*



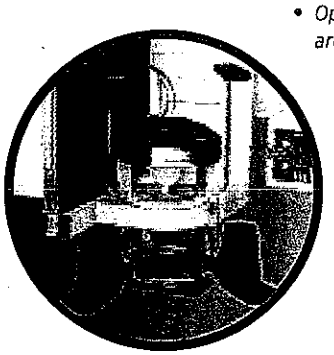
Tower Mounted Side Shelves

- *Can be mounted on either or both sides of the table.*
- *Provide convenient storage for ancillary equipment, up to 150 lbs.*
- *Attach directly to the table. As table is raised or lowered, shelves remain fixed relative to patient position.*
- *Eliminates need for separate video cart. Frees up valuable floor space.*



UroDrain System

- *Collapsible, latching frame is standard (hoop style optional).*
- *Patented system provides complete access to perineal end of table, while offering the sturdiness of a drain pan.*
- *Padded elbow rests provide comfort and convenience during long procedures.*
- *Disposable liners provide easy clean up.*
- *Optional FluiDrain LSS® Fluid Disposal Containers are available for "closed system" disposal.*



Urodynamics Chair

- *Attaches to system to provide simpler patient loading.*
- *Open design and 180° rotation allow for convenient insertion of catheters and oblique x-ray views.*

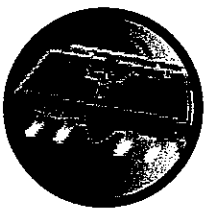
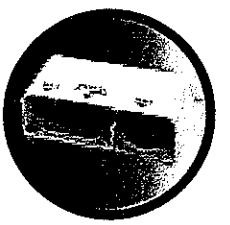
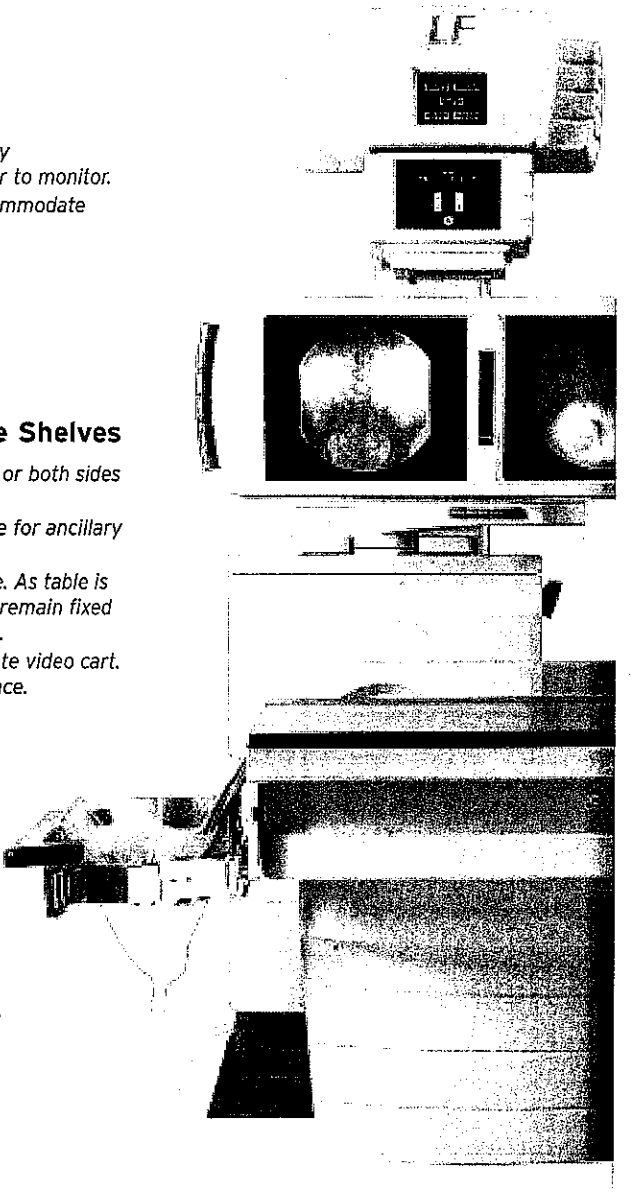
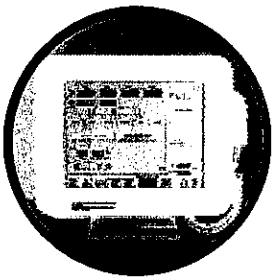


Table Control Foot Pedal

- *Water resistant, ergonomic design allows for 4-way table top float, table tilt.*
- *Table elevation controls are logically arranged for ease of operation.*







High Frequency Generator

- *64 kW or 80 kW – provides ample power for both fluoroscopic and radiographic exams.*
- *Automatic exposure control allows "one-button operation" while maintaining the capability of 3 factor exposure settings, if desired.*
- *Variable pulse rates (1, 2, 3.75, 7.5, 15, 30 pps at 10R) allow clinician to balance dose reduction with clinical needs.*
- *No high level or boost mode fluoroscopy.*
- *Compact electronics allow for easy installation in small rooms.*
- *Touch screen console provides for fast and easy technique changes.*

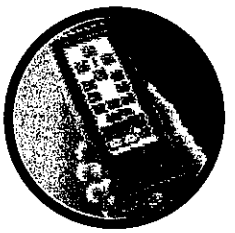
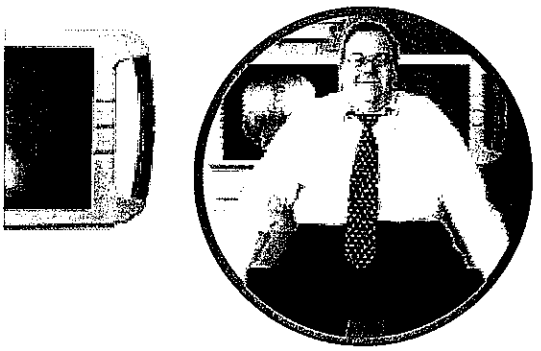


Table Imaging Controls

- *Easy, logical layout for intuitive operation.*
- *Two table position memories provide quick movement between two areas of interest.*
- *One permanent position memory allows one button operation to set up table for patient transfer or emergency access.*
- *X-ray tube arm park can be controlled from the hand switch or from a table side control.*



750 Pound Weight Limit

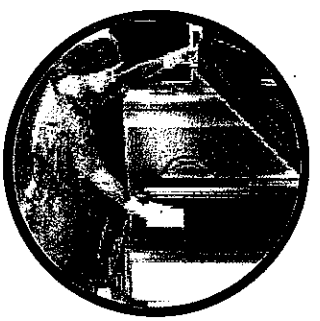
- *Sturdy table construction provides the highest weight limit available in the industry.*
- *Powerful and reliable hydraulic system.*
- *Accommodates greater percentage of the patient population.*

Digitally Enhanced Images

- *Productivity is achieved with film-like quality without the bother of x-ray films and associated delays.*
- *Electronic image cropping, 2x zoom, and roam provide digital hard copy quality images.*
- *Digital image acquisition with PACS compatibility (DICOM).*
- *60,000 image storage.*
- *CD-RW.*
- *Anatomical measurement package.*
- *Physician preference screens.*

100% DICOM Compliant

- *Full complement of DICOM 3.0 is standard.*
- *No additional costs for add-ons or upgrades.*
- *DICOM Print Class.*
- *DICOM Storage Class.*
- *DICOM Query.*
- *DICOM Retrieve.*
- *DICOM Worklist.*
- *Modality Perform Procedure Step.*
- *Storage Commitment Class.*



Easy Clean Up

- *Table top is hinged at the head end to make cleaning simple and easy.*

Imaging Foot Pedal

- *Enclosed design allows for ergonomic operation while standing or sitting.*
- *"All in One" Exposure Control for easy operation of Mag Mode, fluoro, or digital radiography.*

HYDRA VISION® UROLOGICAL IMAGING SYSTEMS

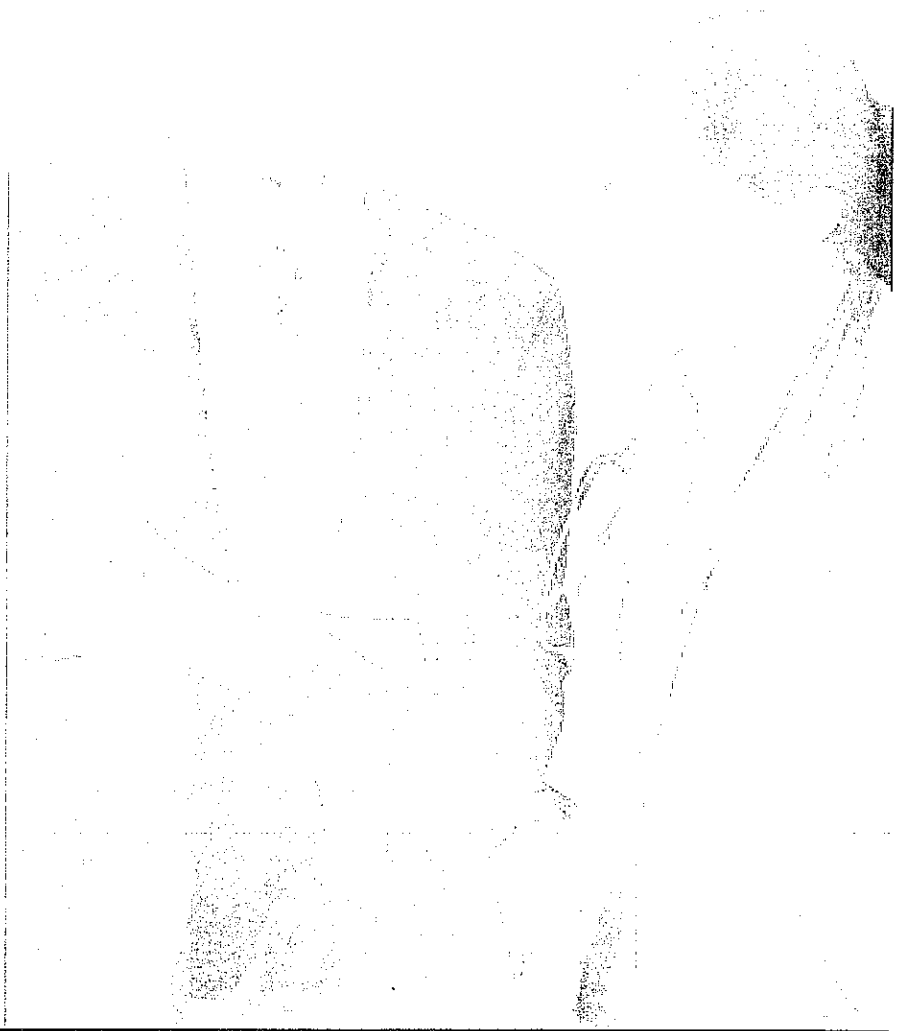
Our Commitment To Sales And Service Support Helps You Provide Quality Patient Care.

- We come to you as dedicated professionals, graduates of on-going, customer-based and technology-driven training.
- We bring the special knowledge of our equipment that only we, the dedicated service arm of the original manufacturer, can provide.
- We are customer focused. You and your patients are our first priority.
- We are always available to address your specific needs - with complimentary assistance 24 hours a day, 7 days a week, 365 days a year.

- We have a growing, dedicated staff, providing full service throughout 50 states.
- Comprehensive technical training is provided for your biomedical engineering staff.
- Complimentary on-site clinical applications training is provided by our certified personnel.
- We focus on the details during product installation – helping to ensure that your investment affords you optimal product performance.
- Complimentary technical support via phone. Call us at 1-800-877-0791. Our trained technical support staff will provide assistance.

"We have three LF units – one in the main OR, one in our outpatient surgery center, and one at the VA Hospital. They are all very heavily used and perform extremely well. The mechanics of the table are excellent, image quality is outstanding, and reliability is awesome. The controls are easy to use and no radiology personnel are required to be in the OR. Repairs have promptly been made when (rarely) necessary."

Stephen H. Weinstein, MD, School of Medicine, Division of Urology
Harry S. Truman VA Medical, Columbia, MO



2003

First Integrated Video Distribution for interchangeable images on monitors at touch of a button

2004

First Physician Preference Screen Software available on Urology Systems

2006

First 750 pound weight limit for a urology imaging system table

LIEBEL-FLARSHEIM

HYDRA VISION® UROLOGICAL IMAGING SYSTEMS

United States
Mallinckrodt Inc.,
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