



ziehm imaging

# **Ziehm Compact Litho Service Manual**

**Supplement to Service Manuals  
Ziehm 8000 & Ziehm Compact**

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## Safety instructions

This manual does not constitute a complete catalog of all safety measures necessary for the operation of the respective medical equipment, since special operating conditions may require further measures. However, it does contain instructions which must be observed in order to ensure the personal safety of operating staff and patients as well as to avoid damage to property. These instructions are highlighted as follows:



### WARNING

This is the highest level of risk. Personal injury or damage to property may occur if the operator does not observe the instructions provided here.



### CAUTION

This means that a situation exists which may require a decision or action on the part of the user for optimum equipment performance or to avoid a minor hazard.



### Note

Notes are informative. Additional useful information and hints are provided for the operator here.

## Intended use

The medical equipment is intended for fluoroscopies in the field of surgery, e.g. in traumatology, orthopedics, neurology, urology, cardiology. Third-party devices and components used in combination with the system must comply with the safety requirements according to IEC 60601-1 and/or IEC 60601-1-1 or furnish proof of an equivalent degree of safety.

Proper and safe operation of the system requires adequate transportation, storage, assembly and installation as well as appropriate use and maintenance.

The limiting values indicated in this user manual must not be exceeded; this applies also when putting the system into service.

## Operation (U.S.A.)

In the U.S.A., Federal law restricts use of this device to trained personnel on the order of a physician.

## Authorized personnel

Only authorized personnel are allowed to assemble and/or repair the medical equipment described in this manual. Authorized personnel are persons who have attended an appropriate training course provided by the manufacturer.

## Exclusion of liability

The manufacturer accepts responsibility for the safety, reliability and performance of the system only if

- any installation, modification or repair work is carried out exclusively by persons authorized by the manufacturer;
- the electrical installation of the room where the system is operated complies with the requirements of VDE 0107 or the corresponding national regulations of the respective country;
- the system is used in accordance with the user manual.

The warranty becomes invalid in case that any repair, modification or installation work is carried out by unauthorized personnel. No consequential damages will be accepted either.

The equipment conforms to Class IIb according to the Council Directive 93/42/EEC.

This user manual has been written and reviewed originally in German and translated.

CE 1275

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### Quality Standards

This manual was produced in compliance with the quality principles of ISO 9001. The information provided in this manual may be updated at regular intervals and is subject to change without prior notice.

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# General

# 1

## 1.1 Overview Ziehm Compact

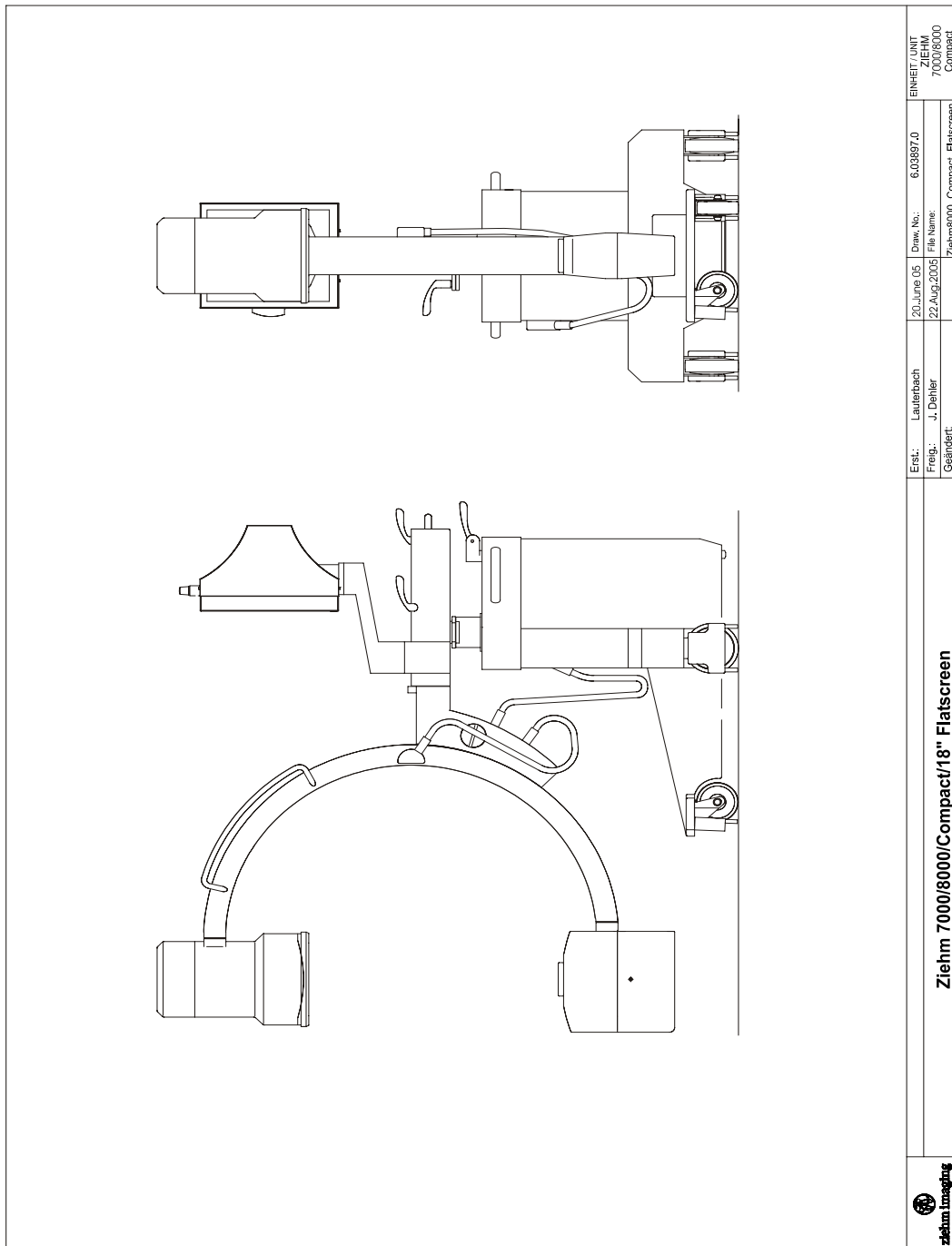


Fig. 1-1 Overview Ziehm Compact

## 1.2 Ziehm Compact features

- 18,1" single TFT flat-screen mounted on the horizontal slide of Mobile Stand
- Image memory for two images selected serial using the Mobile Stand keyboard. (Module 3)
- Cross hair in the image selectable using the F-key on the Mobile Stand keyboard. (Module 3)
- Stepwise digital rotation of the image 0 / 90° / 180° / 270° / 360° using the Mobile Stand keyboard. (Module 3)
- Compact Mobile Stand can be linked with Monitor Cart.

## 1.3 View Compact head

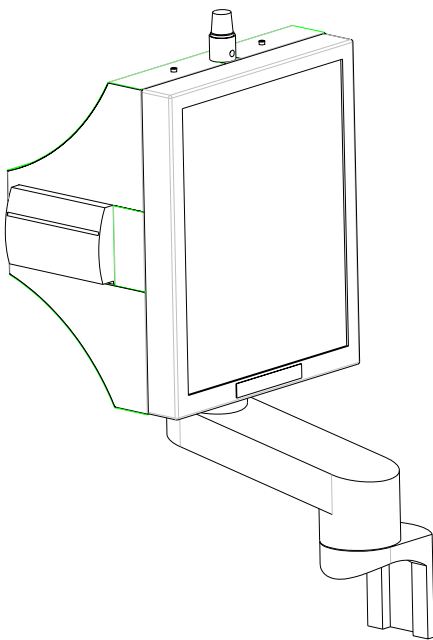


Fig. 1-2 View Compact head



## 1.4 Exploded view Compact head

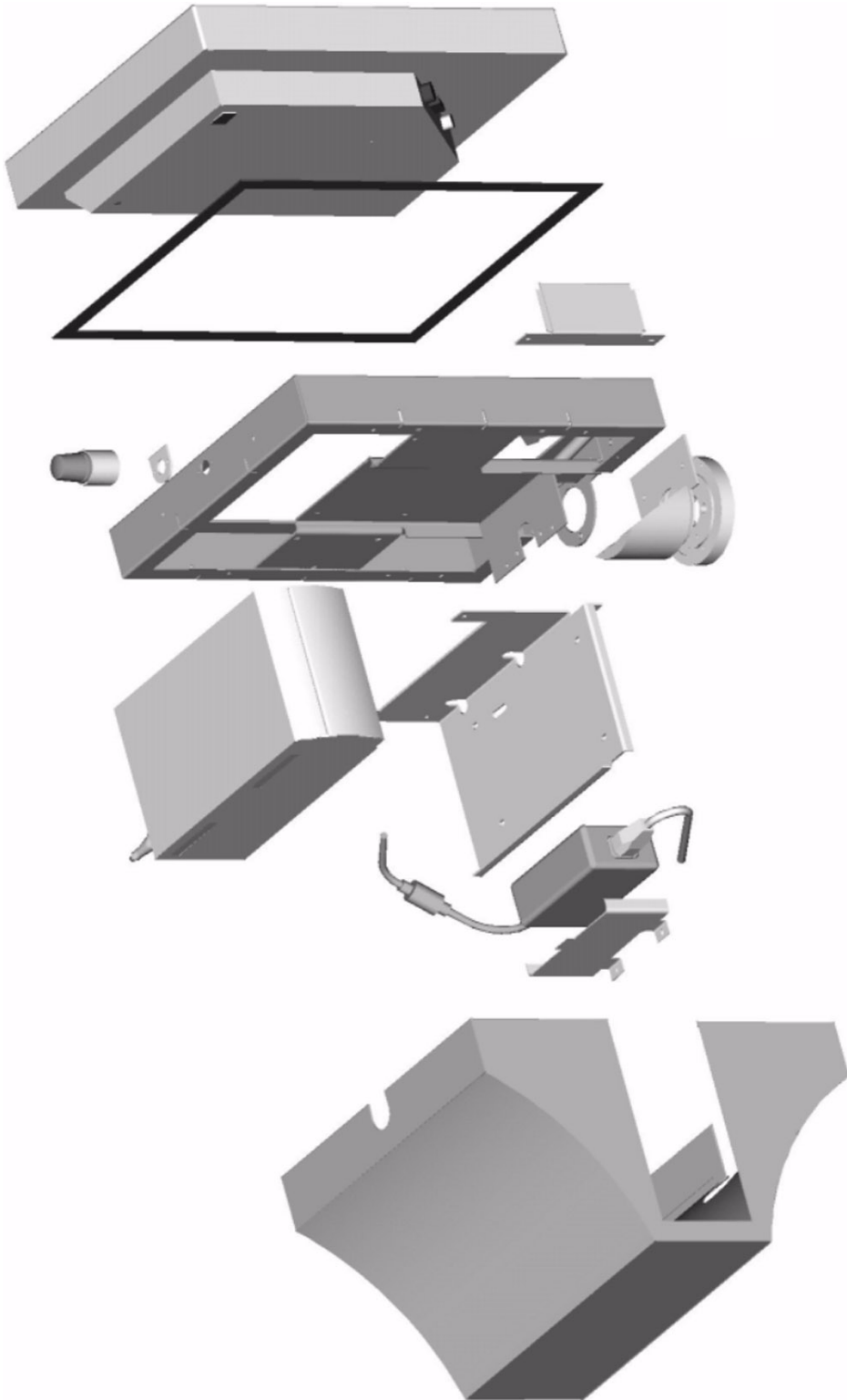


Fig. 1-3 Exploded view compact head

### 1.5 Wiring Compact head – mobile stand

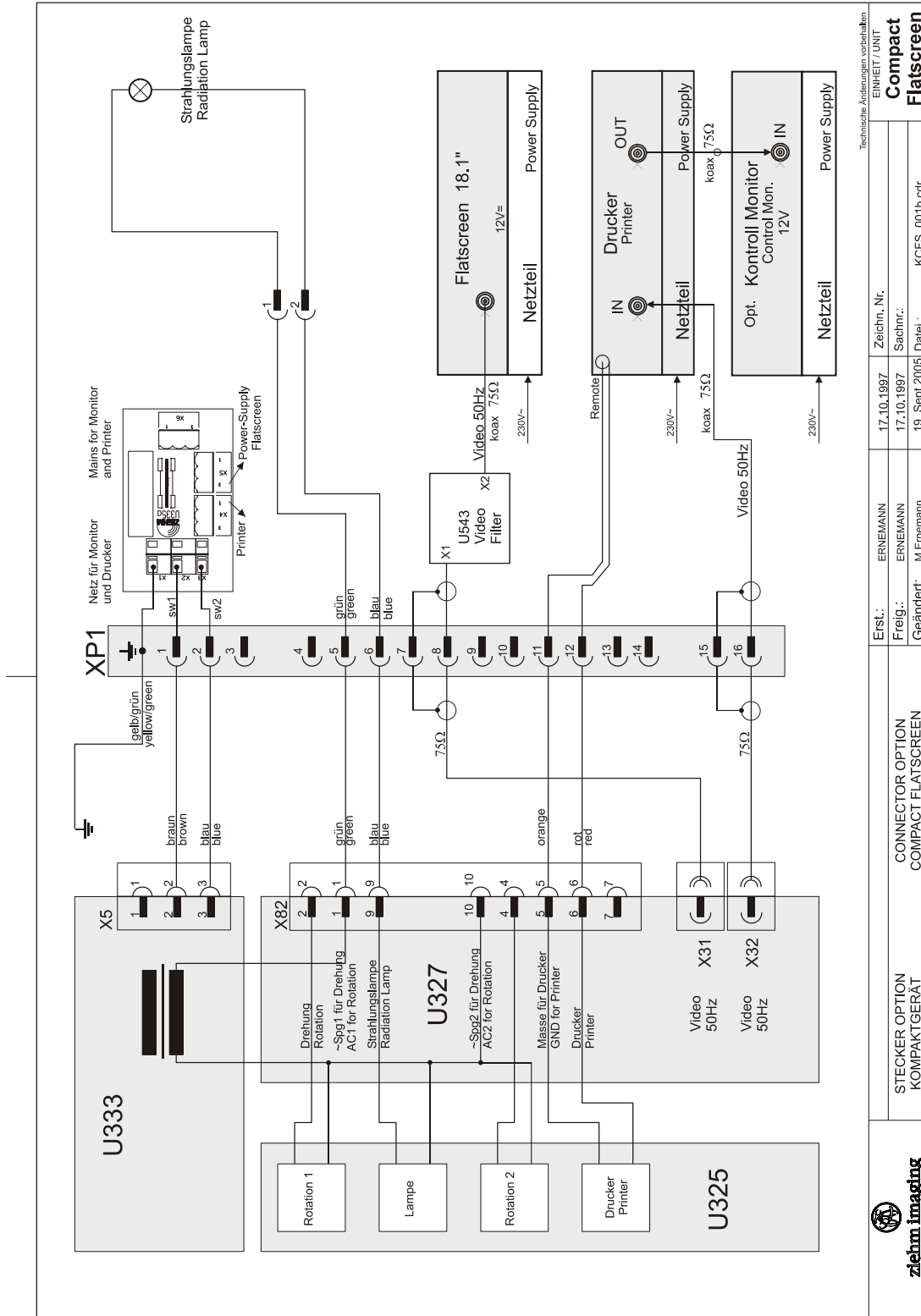


Fig. 1-4 Wiring Compact Head - Mobile Stand

## 1.6 Block diagram Compact

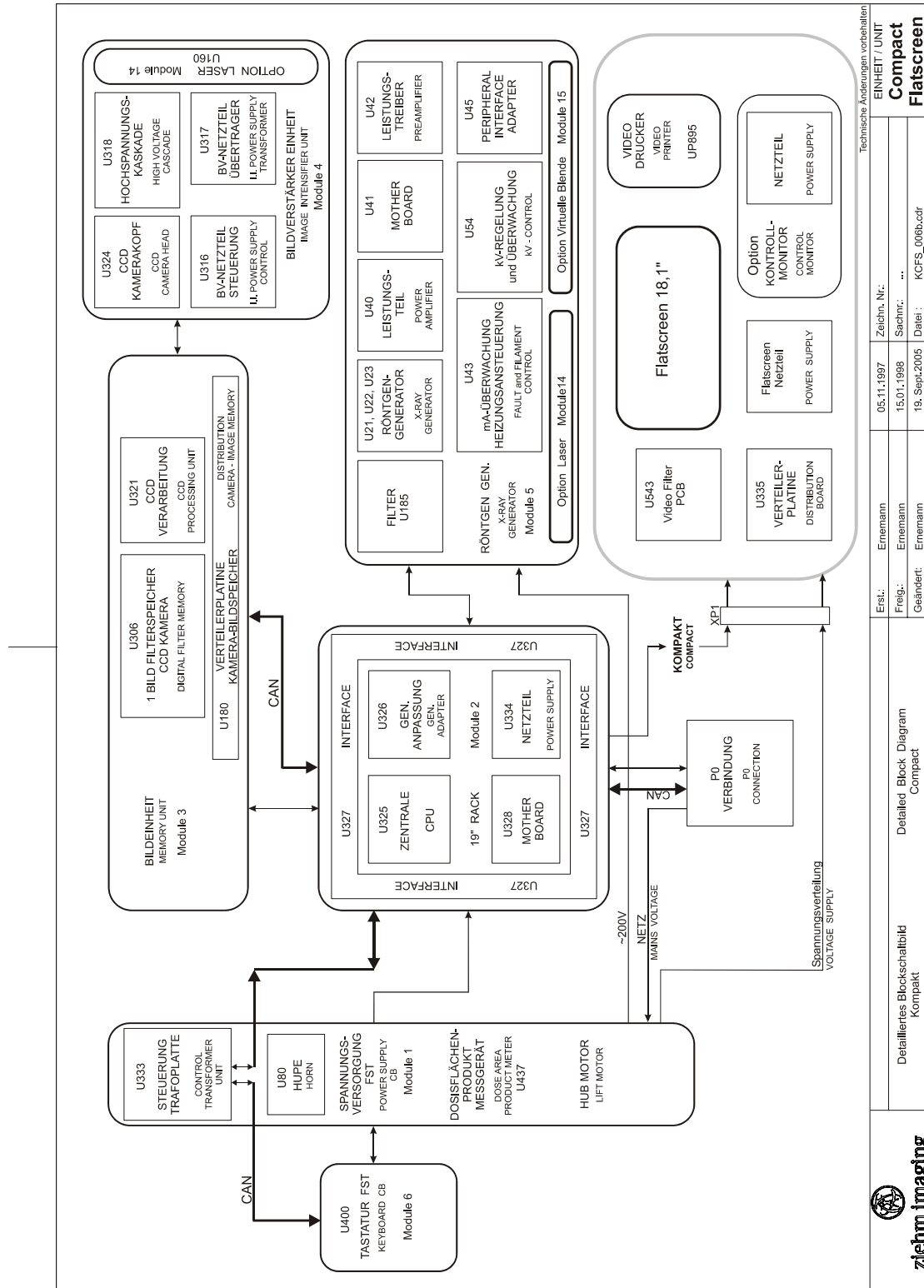


Fig. 1-5 Block Diagram Compact

Technische Änderungen vorbehalten	
Einheit / UNIT	Compact
Flatscreen	
Erstl.: Erneemann	Zeichn. Nr.: 05.11.1997
Freig.: Erneemann	Sachnr.: ...
Geändert: Erneemann	Datei: 19. Sept.2005
	KCFS_006b.cdr



# 1.7 Wiring diagram Compact

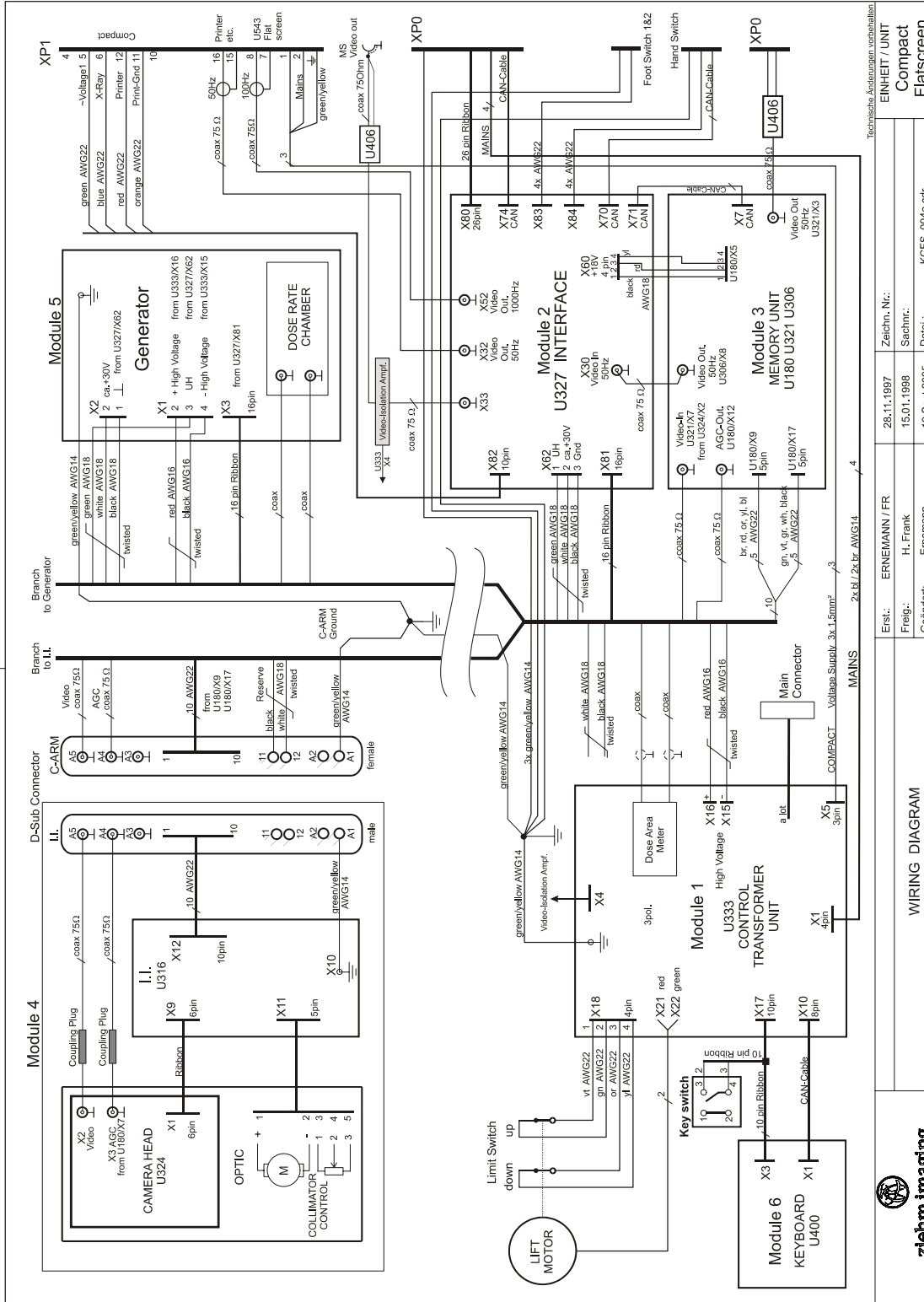


Fig. 1-6 Wiring Diagram Compact

Technische Änderungen vorbehalten	
EINHEIT / UNIT	Compact Flatscreen
Erstl.: ERNEMANN / FR	Zeichn. Nr.: 28.11.1997
Freig.: H. Frank	Sachnr.: 15.01.1998
Geändert: Ernemann	Datei: 19.Sept.2005
Datei: KCFS_004a.cdr	



## 1.8 Video signal distribution Compact

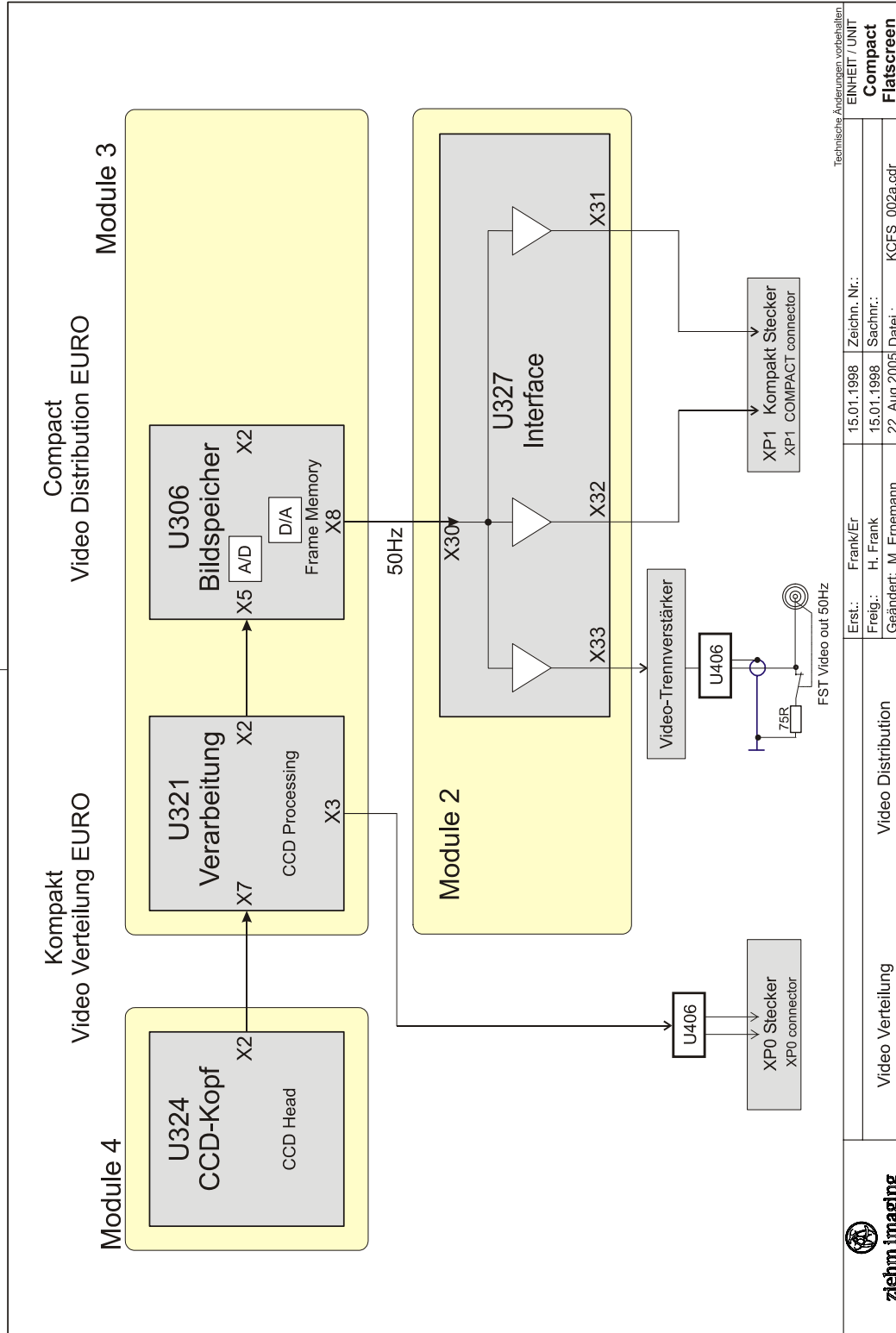


Fig. 1-7 Video Signal Distribution Compact

### 1.9 Wiring module3 Compact

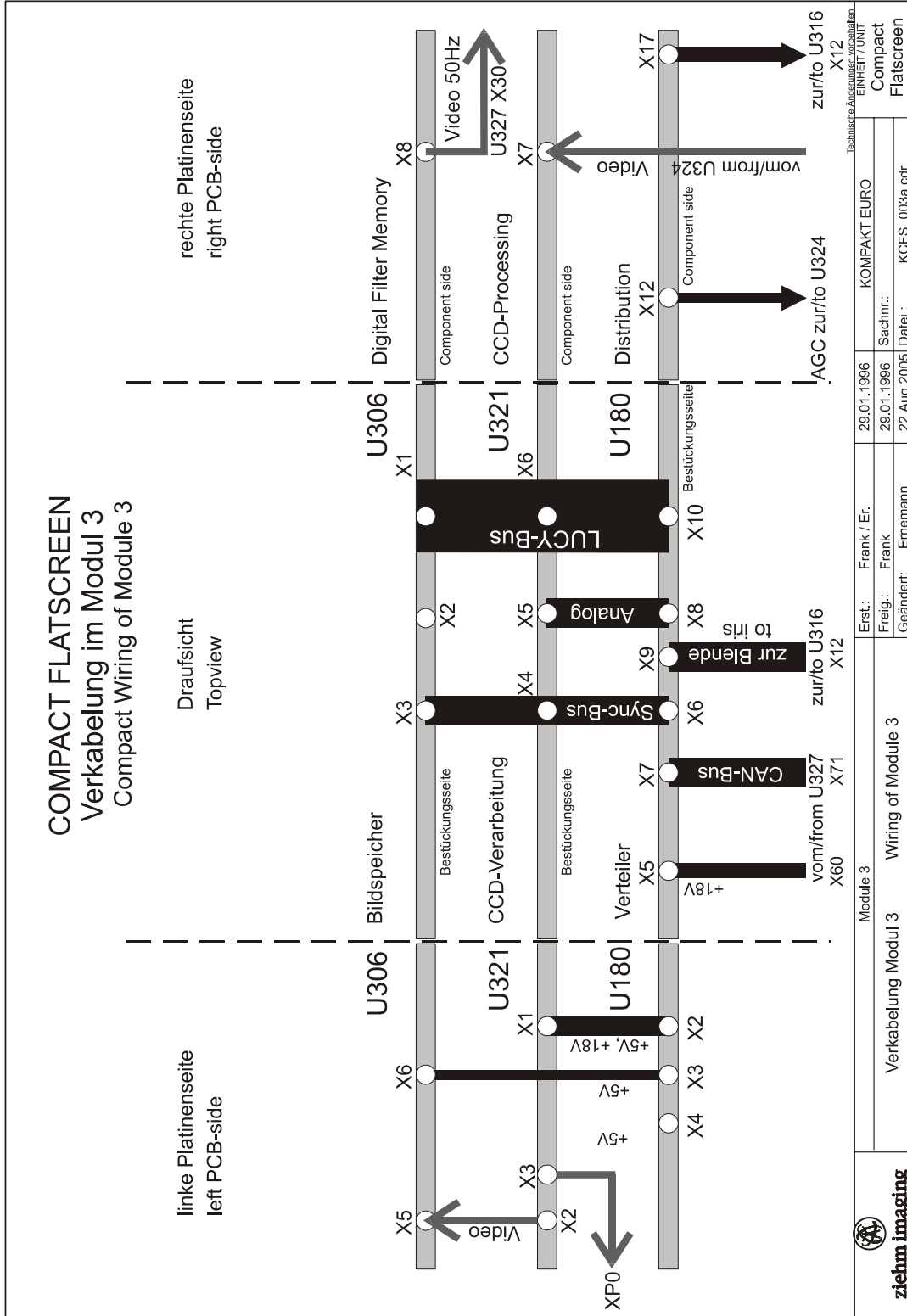


Fig. 1-8 Wiring Module3 Compact

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# Monitor

# 2

## 2.1 18.1" flat-screen monitor

### 2.1.1 Description

The 18.1" flat-screen monitor is a monochrome high resolution LC Display. It works as a separate module and is not integrated in the CAN bus. All settings and adjustments are made by an integrated setup menu.



Fig. 2-1 18.1" flat-screen monitor

### 2.1.2 Technical data

Viewable Diagonal (inches)	18.1
Brightness (cd/m <sup>2</sup> , typical)	600
Native Resolution (pixels)	1280 x 1024
Dot Pitch (mm)	0.28
Vertical Viewing Angle	170°
Horizontal Viewing Angle	170°
Contrast Ratio (typical)	600:1
VGA Input signal level at 75 Ohm	0,7V <sub>p-p</sub>
BNC Input signal level	1V <sub>p-p</sub>
Power (nominal)	70W
Monitor Weight	6.35 kg
Operating Temperature	0°C to 40°C
Storage Temperature	-20°C to 60°C
Relative Humidity (non condensing)	5% – 85%

### 2.1.3 Power switch

There is a power switch on the rear side of the monitor.



Fig. 2-2 Monitor power switch

### 2.1.4 Connectors

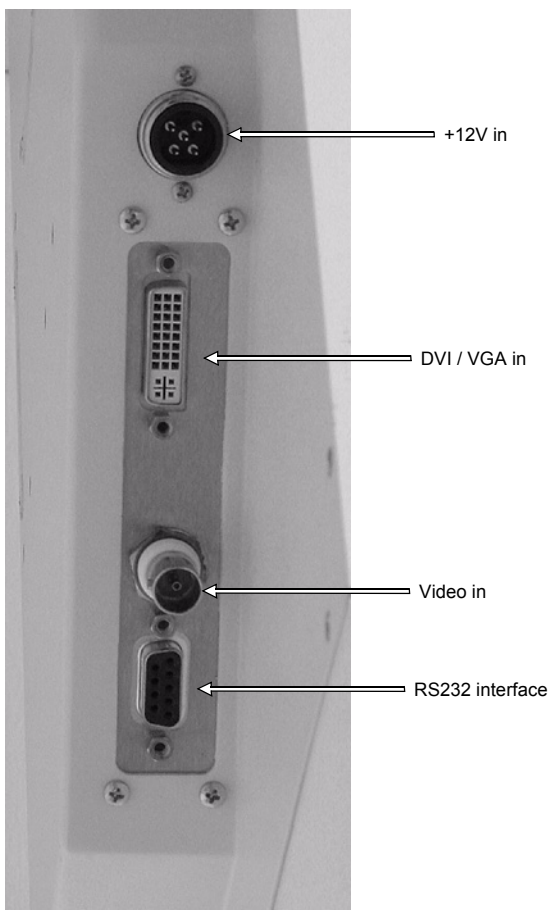


Fig. 2-3 Monitor connectors

## 2.1.5 On screen display

### 2.1.5.1 Locking and unlocking the on screen display

The monitor is set up and adjusted by a on screen display. The functions are controlled by a integrated keypad.

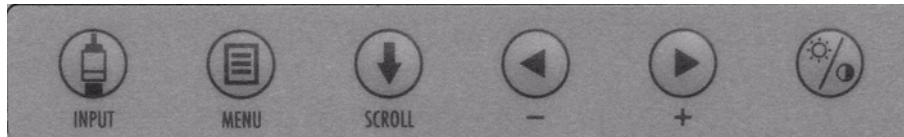


Fig. 2-4 Monitor keypad

The on screen display is activated by pressing the "Menu" key. In the section "Setup" it is possible to lock the menu.



Fig. 2-5 Menu "Setup"

If this function is activated, the menu will disappear. Instead of the menu you will get a message "MENU LOCKED" for a short time. Now the access to the on screen display is denied. You will get this message any time you press a key on the keypad.

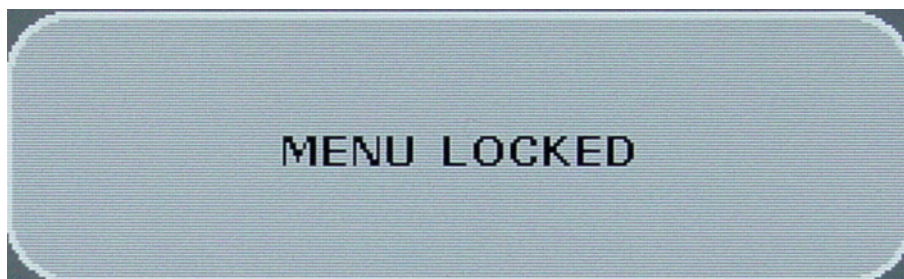


Fig. 2-6 Menu locked

In order to unlock the menu, you have to press the keys "**MENU**" and "**SCROLL**" simultaneously until you get a message "MENU UNLOCKED"



Fig. 2-7 Menu unlocked

You can use the key combination "MENU" and "SCROLL" also to lock the on screen display directly. This function will toggle between "MENU LOCKED" and "MENU UNLOCKED"

### 2.1.5.2 Restoring the factory settings

In the section "Defaults" of the on screen display you can restore the factory settings. The factory settings are not optimized for the video output of the image memory. (Bios Version 58B0109 C 01)

The top line refers to the input connector and the timing. BNC 733 x 568 / 50 Hz for Compact Flat.

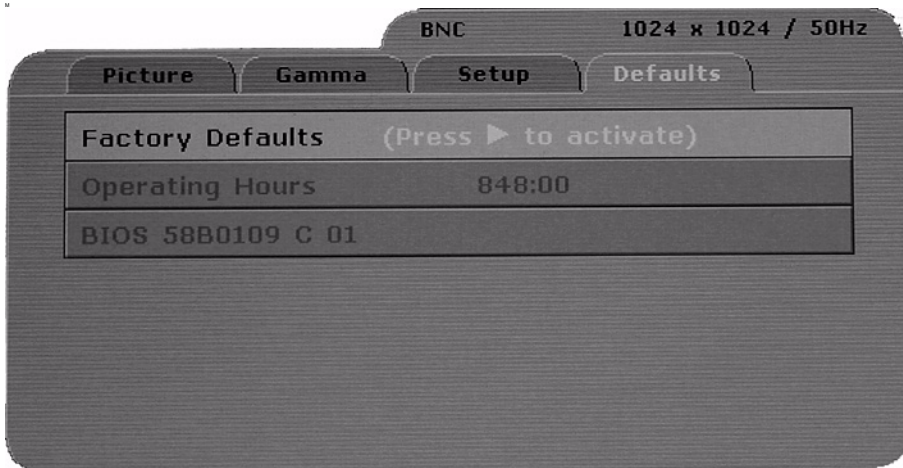


Fig. 2-8 Menu "Defaults"

If the factory default was performed, the image will be outshining and not centered.

Refer to the table of settings for correct values.

### 2.1.5.3 Table of settings

<b>Picture</b>	
Horizontal Position	285
Vertical Position	47
Sharpness	○○○●○○
Phase	25
Frequency	908
Scaling	Aspect
<b>Gamma</b>	
Gamma	2,2
<b>Setup</b>	
Menu Position	top left
Menu Orientation	Portrait
Menu Language	English
DPMS (power management)	off
Auto Source Select	on
<b>Brightness / Contrast</b>	
Contrast	99
Brightness	50
Backlight brightness	100

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# Option Litho Interface

## 3.1 Overview Ziehm Compact Lithotripter adaption

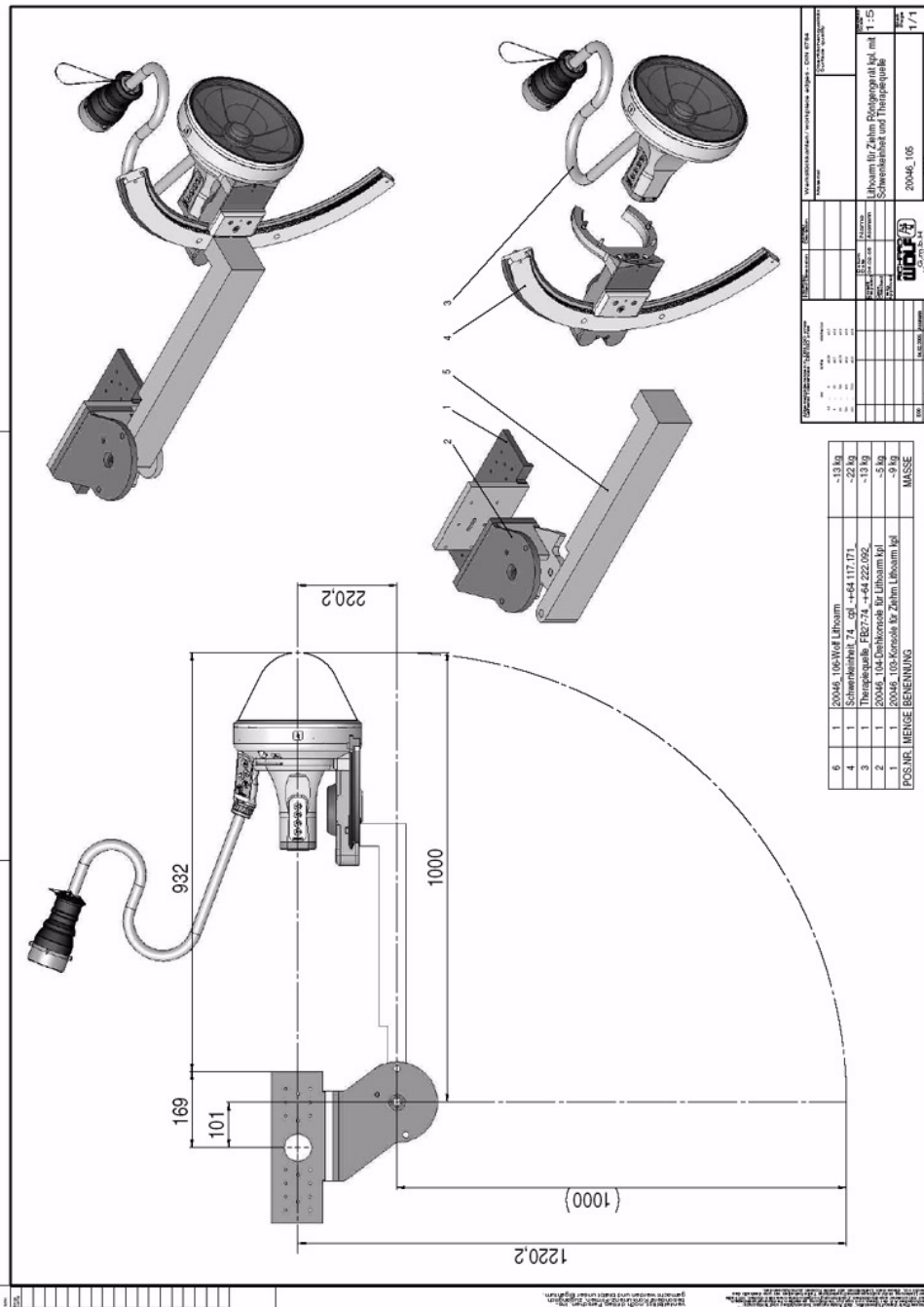


Fig. 3-1 Overview Ziehm Compact Lithotripter adaption

## 3.2 Lithotripter adaption requirements

- Mechanical interface for a Lithotripter source: The focal spot of the lithotripter source must be in the intersection of the central beam and the angulation axis of the C-arm.
- Reinforced bearing blocks for the orbital rotation of the C-arm.
- Horizontal slide blocked at position "0 cm" indicated on attached scale.
- Vertical lift restricted to 230 mm.
- Wig-Wag (10-0-10 degrees) blocked at 0 position.