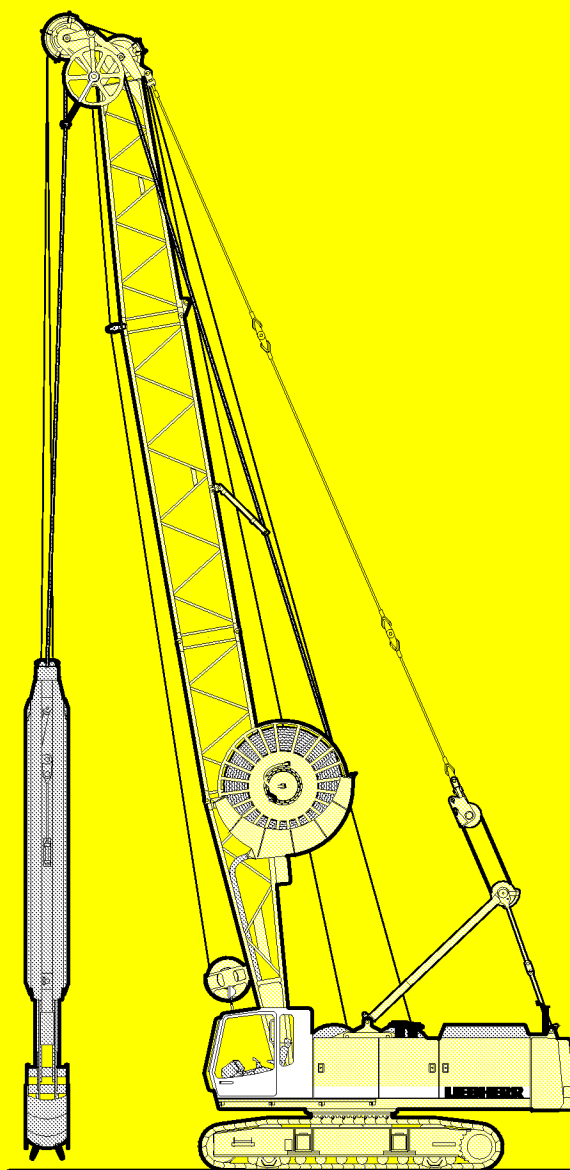


Technical Data
Hydraulic crawler crane

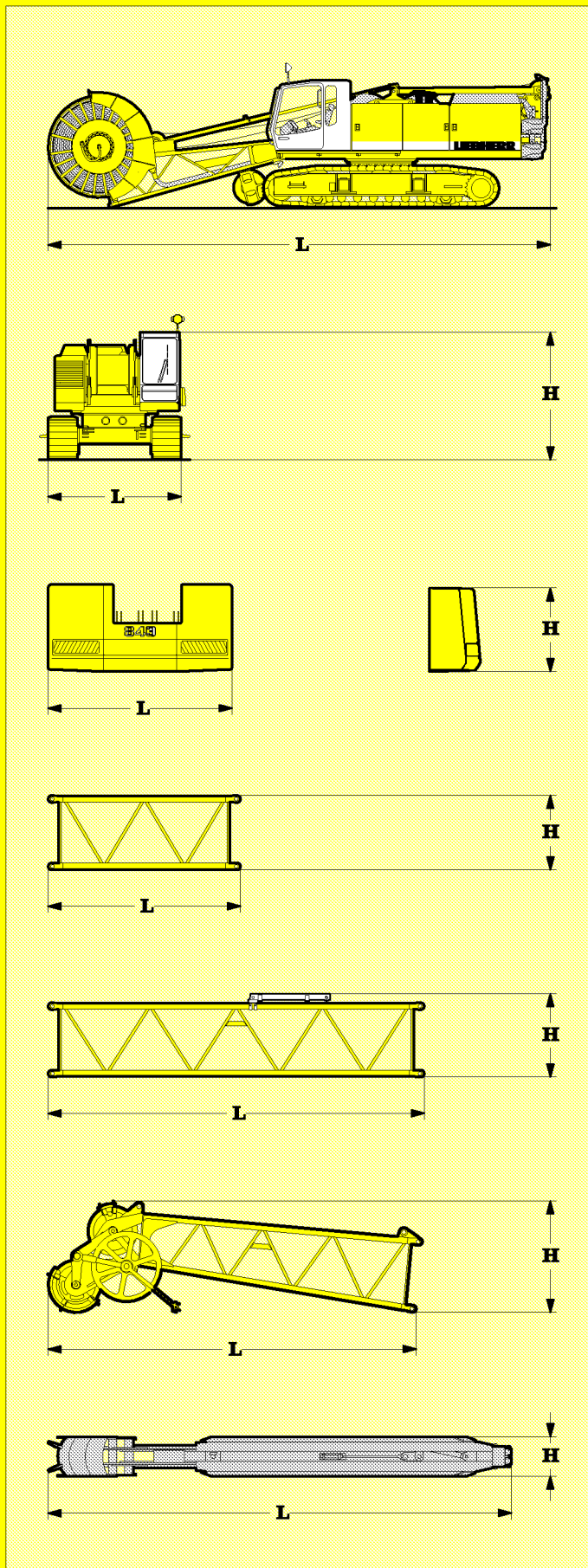
HS 843 HD
Litronic®

with Hydraulic Diaphragm-Wall Grab



LIEBHERR

The Better Machine



Basic machine

with HD undercarriage, boom foot, 2 x hose-reels each with 78 m of hydraulic hose, pulley block with equalizer, V 8 diesel engine, 2 x 12 t winches, A-frame and boom back stops, without counterweight.

3-web shoes	mm	700	800	900	1000
Weight	t	41.4	41.9	42.4	42.9
L Length	mm	8200	8200	8200	8200

Basic machine

3-web shoes	mm	700	800	900	1000
L Length	mm	3200	3200	3500	3500
H Height	mm	3100	3100	3100	3100

Counterweight

					Basic
Width	mm				830
Weight	kg				12300
L Length	mm				3000
H Height	mm				1365

Tubular boom extension

					3m
Width	mm				1400
Weight	kg				290
L Length	mm				3140
H Height	mm				1215
Pendants	kg				100

Tubular boom extension

					6m
Width	mm				1400
Weight	kg				510
L Length	mm				6140
H Height	mm				1360
Pendants	kg				130

Boom head

					Crane
Width	mm				1700
Weight	kg				1600
L Length	mm				5950
H Height	mm				1890
Pendants	kg				115

Hydraulic diaphragm-wall grab

					HSWG	800
Width	mm					3200
Weight	kg					15000
L Length	mm					9300
H Height	mm					800

Transport Dimensions and Weights



Engine

Water cooled, V 8 cylinder Liebherr diesel engine, turbo charged with intercooler, model 9408 T1, power rating according to DIN ISO 3046 T1 IFN: 330 kW (448 hp) at 1800 rpm.

Automatic load limit control provides a perfect match between regulated engine speed and output, maximising power useage and preventing overload. The cooling system, which is controlled by both temperature and engine speed, saves energy and reduces noise emission.

Fuel tank: 800l capacity, with continuous level indicator and reserve warning.



Hydraulic System

The main pumps are operated by a distributor gearbox. Axial piston displacement pumps work in closed and open circuits supplying oil only when needed (flow control on demand). A low loss pressure cut-off protects the pumps and saves energy.

The tailor-made hydraulic system supplies sufficient power to the grab so that additional driving units are not required.

The hydraulic system is fitted with electronically monitored pressure und return line filtration, with an indicator which informs the operator of any unacceptable levels of pollution in the fluid.

The hydraulic tank has a capacity of 650 l.



Winches

Winch options:

Basic specification:	Winch I	Winch II
Line pull (nom. load)	120 kN	120 kN
Rope dia	24 mm	24 mm
Drum dia.	525 mm	525 mm
Max. rope speed m/min	0-136	0-136
Rope capacity (first layer)	46 m	46 m

The winches are a particular feature, being of an extremely compact design and easy to assemble. Propulsion is via a planetary gearbox in oil bath. Load support by the hydraulic system; additional safety factor provided by a spring loaded, multi-disc holding brake.

Clutch and braking functions on the free-fall system are provided by a compact designed, low wear and maintenance free multi disc brake.

The dragline and hoist winches use pressure controlled, variable flow hydraulic motors. This system features sensors that automatically adjust oil flow to provide max. winch speed depending on load.

Working with 2 rope clamshell, the oil motors distribute the load to both winches providing speed compensation, even when working in different rope layers.



Boom hoist drive

Twin drum with internally located planetary gearbox, axial piston hydraulic motor and hydraulically released spring loaded multi-disc brake.

Max. line pull 2 x 50 kN. Rope diameter: 18 mm

Max. line speed: 45 m/min.

Counterweight lifting with boom hoist.

Two speed boom hoist option



Noise emission

Special sound proofing produces an extremely low noise emission level of only 77 dB(A) at 16m radius.



Basic Equipment

20m tubular boom consisting of:

- Boom foot with in-built hose winch
- Hydraulic hose of appropriate length for the excavation depth
- Cable winch with control-system cable
- 3m extension tubular boom
- 6m extension tubular boom with hoses spacer bracket
- Universal boom-head with in-built hose pulleys
- Hydraulic diaphragm-wall grab.



Swing Drive

Consists of single row ballbearing with external teeth for lower tooth flank pressure, fixed axial piston hydraulic motor, spring loaded and hydraulically released multi-disc holding brake, planetary gearbox and pinion.

Free swing with hydraulic moment control reduces wear to a minimum because rotation moment is sustained through the hydraulic system by the diesel engine.

Swing speed from 0 - 4.7 rpm continuously variable, selector for 3 speed ranges to increase swing precision.



Crawler

The track width of the undercarriage is changed hydraulically.

Propulsion through axial piston motor, hydraulically released spring loaded multi disc brake, maintenance free crawler tracks, hydraulic chain tensioning device. Flat or 3 - web track shoes.

Drive speed 0 - 1.6 km/h.

Option:

2 speed hydraulic motor for higher travel speed.



Control

The control system - developed and manufactured by Liebherr - is designed to withstand temperature extremes and the many heavy-duty construction tasks for which this crane has been designed. Complete machine operating data are displayed on a high resolution monitor screen. To ensure clarity of the information on display, different levels of data are shown in enlarged lettering and symbols. Control and monitoring of the sensors are also handled by this high technology system.

Error indications are automatically displayed on the monitor in english.

The crane is equipped with proportional control for all movements, which can be carried out simultaneously. A special "Interlock" control system is also optionally available. It is designed for power lifting of the dragline bucket without using the grab winch brake.

An additional option is also the so-called "Redundant" control system, which allows restricted operation of the machine in the event of a failure on the electronic base control or its sensors.

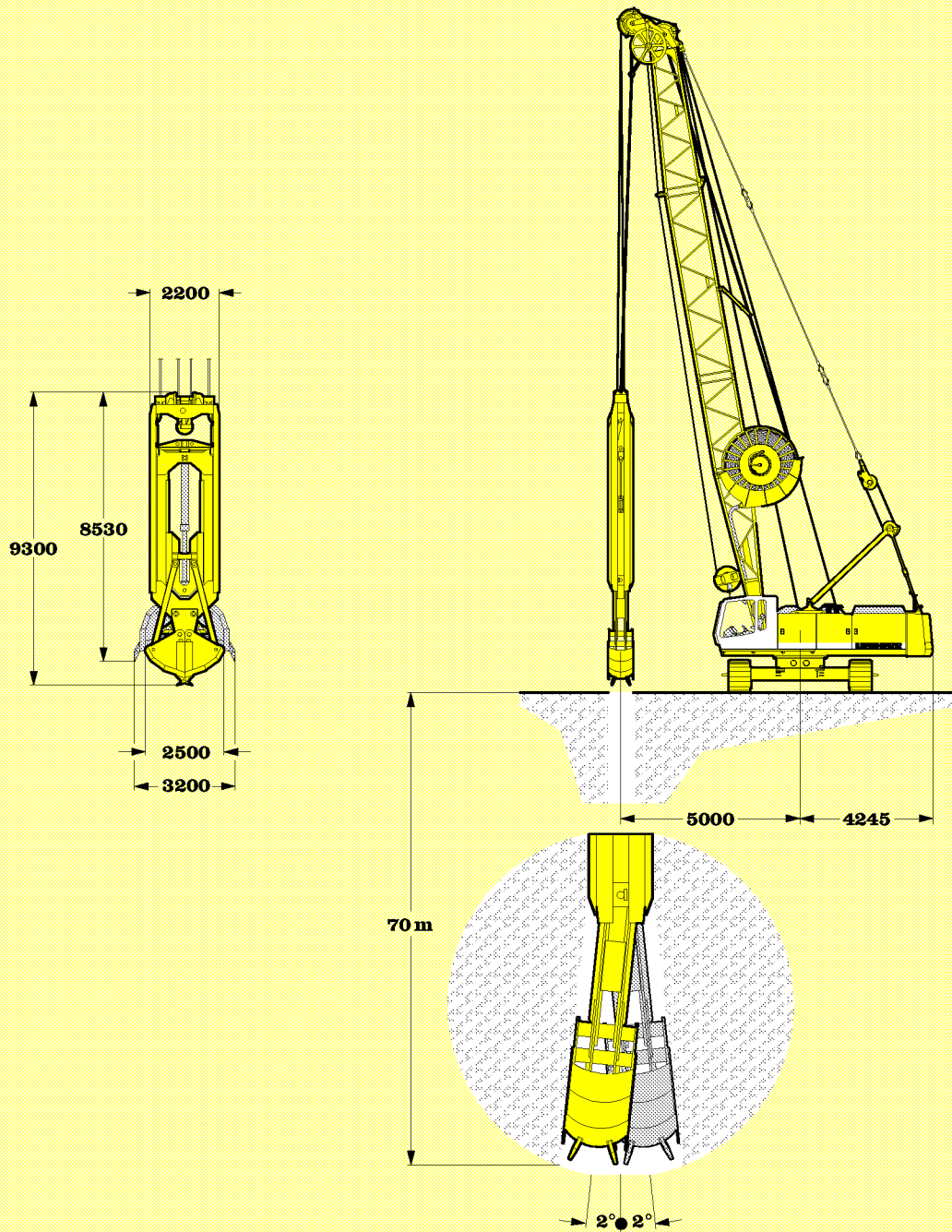
On request, Liebherr also offers special custom designed control systems for free fall winches.

Crane operation is easy with "Double-T levers" for winches I and II, on the right hand side and joystick for swing and boom hoist operations on the left hand side. Crawler control is actuated with the two central foot pedals. Alternatively, hand levers can be attached to the pedals if preferred.

PDE[®] - Process Data Recording

This module calculates, records and stores the progress of the excavation either when lifting or lowering the grab.

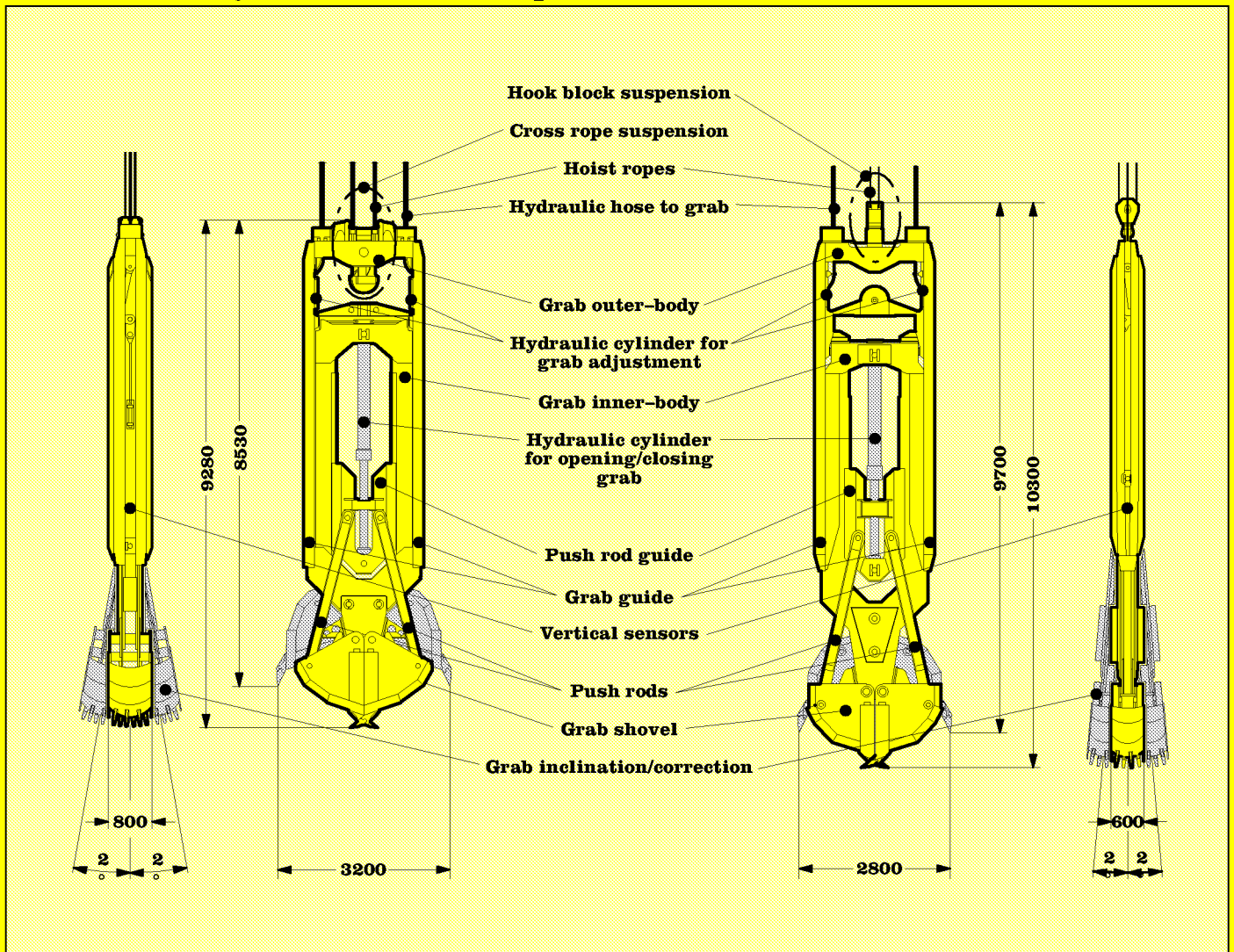
Technical Description



Grab type	Radius with 20 m boom		Grab				Max. operating speeds						
	max	min	Capacity	empty	Weight		Hoisting grab		Grab lowering empty	Radius at max - min	Slewing	Grab	
				Density 1.8	Density 2.0	Density 1.8	Density 2.0	open				close	
m	m	Litre	t	t	t	m/min	m/min	m/min	sec	U/min	sec	sec	
HSWG 3.2													
400	9.0	5.0	500	13.0	13.9	14.0	65.2	65.2	68	9.0	1.5	5	8
500	9.0	5.0	700	13.5	14.7	14.9	65.2	65.2	68	9.0	1.5	5	8
600	8.0	5.0	900	14.0	15.6	15.8	65.2	65.2	68	7.0	1.5	5	8
700	8.0	5.0	1100	14.5	16.4	16.7	65.2	65.2	68	7.0	1.5	5	8
800	7.5	5.0	1300	15.0	17.3	17.6	65.2	64.7	68	6.0	1.5	5	8
900	7.5	5.0	1500	15.5	18.2	18.5	62.6	61.6	68	6.0	1.5	5	8
1000	7.0	5.0	1700	16.0	19.0	19.4	60.0	58.7	68	5.0	1.5	5	8

Technical Data

Grab Control Systems – Basic Components



Grab Operation

Hydraulic power and an electrical supply is transmitted to the grab up to depths of 70 m through hose reels located at the boom foot.

Opening and closing of the grab is operated using the following components:

- hydraulic cylinder
- push rod guides at the inner part of the grab body
- push rods
- grab jaws

Grab Inclination Device

This feature adjusts the inner body including

- hydraulic cylinder
- push rod guides at the inner part of the grab body
- push rods
- grab jaws

in relation to the outer grab body up to $\pm 2^\circ$ automatically.

This is activated by two hydraulic cylinders which are controlled from the cab.

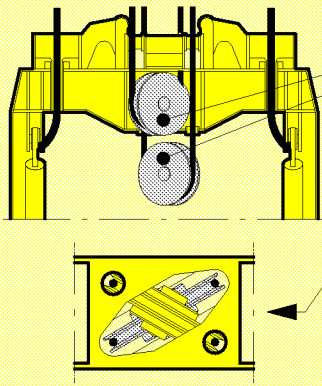
Jaw Teeth and Cutting Edges

The unique positioning of the teeth – equal in numbers on both sides – eliminates the need to turn the grab. The cutting edges are manufactured from “HARDOX” material, ensuring long working life and precision digging.

Other grab profiles and sizes are available on request.

Hydraulic Diaphragm Wall Grab

Grab Suspension



Cross rope suspension

This unique design, with the tiered and staggered vertical axis arrangement of the two suspension pulleys, gives the following benefits:

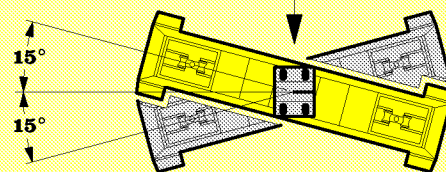
- prevents twisting of grab
- eliminates tilting when lifting with one winch only
- in case of breakage of rope, the grab can still be lifted with the second winch only.

Grab suspension with hook block

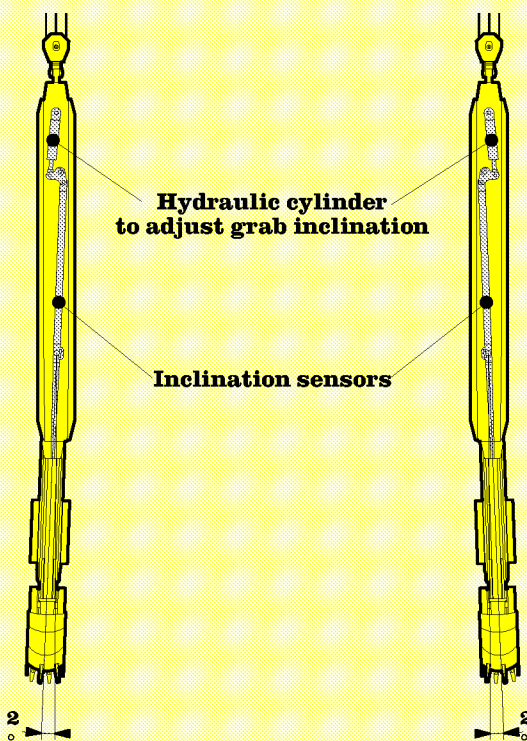
This option allows the fixing of a special hook block on top of the grab body.

This feature provides the following advantage:

- The grab can be mechanically tilted from the vertical by $\pm 15^\circ$ for easy operation in corners.



Measuring and Control System



Display and documentation

Any deviation of the grab from vertical will be measured by inclination sensors and shown on display in the operator's cabin.

Correction of panel deviation

With this feature it is possible to incline the grab jaws for immediate correction of panel deviations.

Hydraulic Diaphragm Wall Components

PDE[®] = Process-Data-Recording

This module calculates the signals received from the sensors. This system is used for permanent calculation and documentation of the panel.

Measurement

The measurement of the excavation is automatically fed back from the sensors to the processor for display in the operator's cabin.

Display of measured data

The measured deviations from vertical are indicated on the monitor in the operator's cab. He can correct them and maintain the vertical without interrupting normal operations.

Shut-down

No recorded data is lost during shut-downs for lunch-breaks or at the end of a working day. At restart the recording cycle continues from its last operation.

Data storage

All data are permanently stored on a memory card. Therefore reports and analysis of the excavating process can be done at a later date on any PC.

Available information includes:

- Daily performance and achievements
- Excavated quantities per panel, per day, etc.
- Maximum and average deviations from the vertical
- x/y profile of each panel

Diagram

On completion of a panel, a diagram of the recorded data may be printed.

The diagram contains:

- Company logos
- Date, time of start and end
- Construction site number
- Panel number- panel depth
- Profile of x and y coordinates.

Print-outs

A built-in printer in the operator's cab provides a print-out of the diagram. In case the printer is not activated, all data are stored and may be retrieved at a later date.

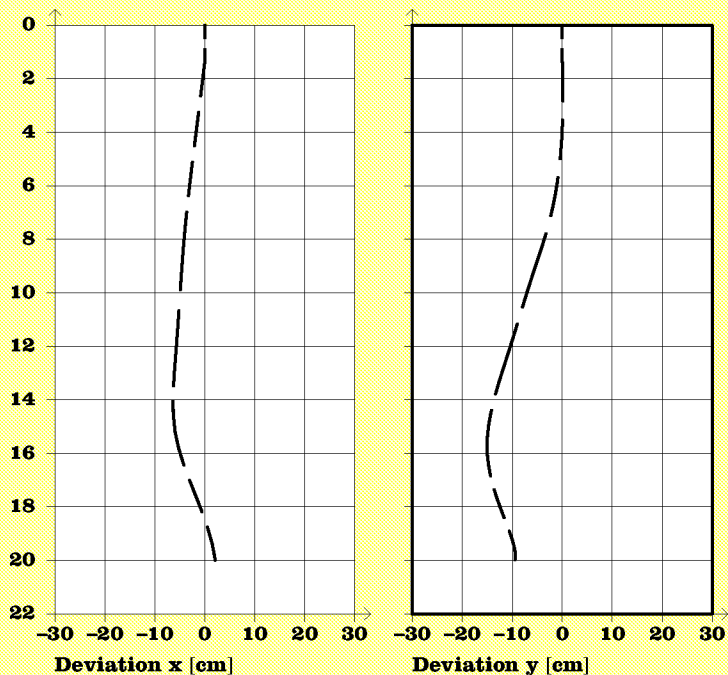
Graph file

For quick and easy review on a PC or laptop, diagrams can be saved on a memory card.

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WERK NENZING GMBH

Start time	16: 00: 29	End time	16: 50: 31
Date	24. 05. 1995	max. depth [m]	20.34
Building site	123. 456	Panel number	1.2.3
Depth [m]			



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