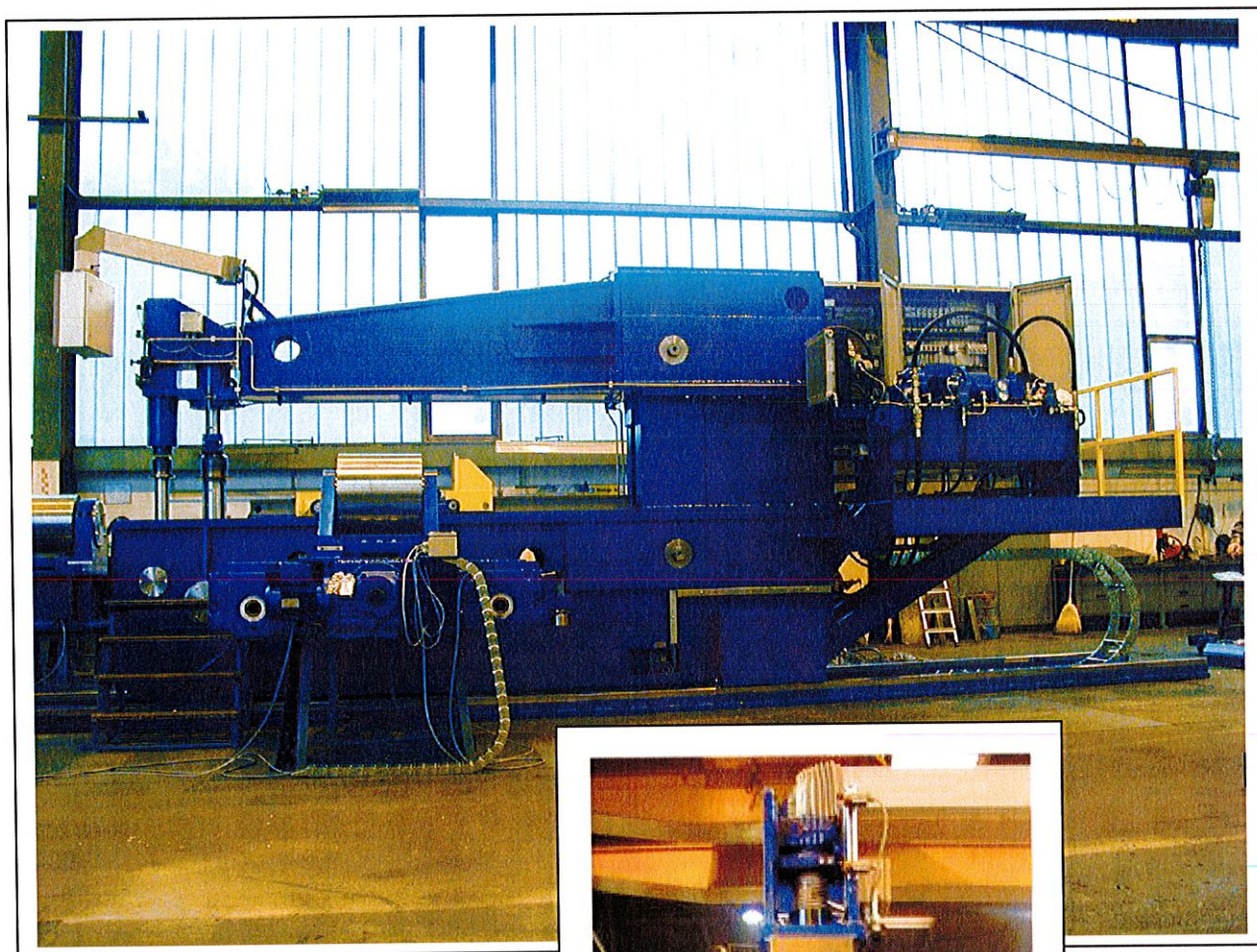


View of the machine



WO 1851

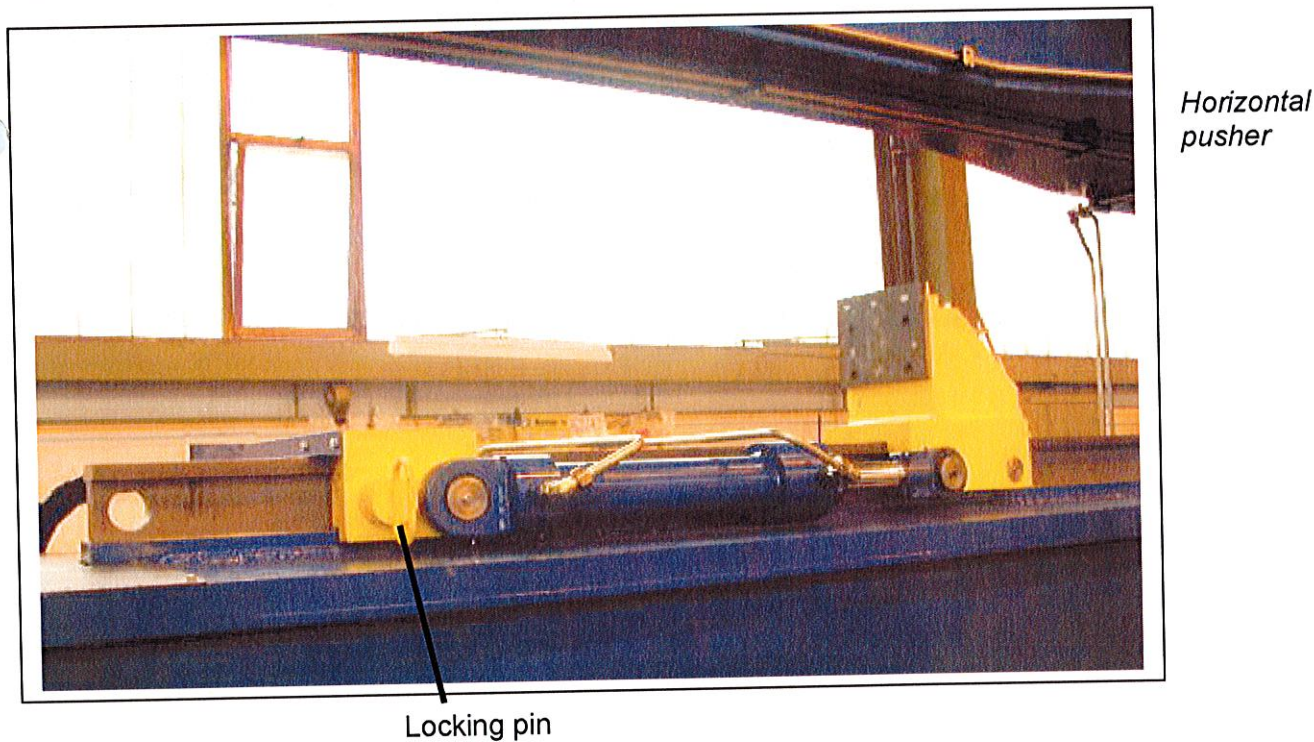
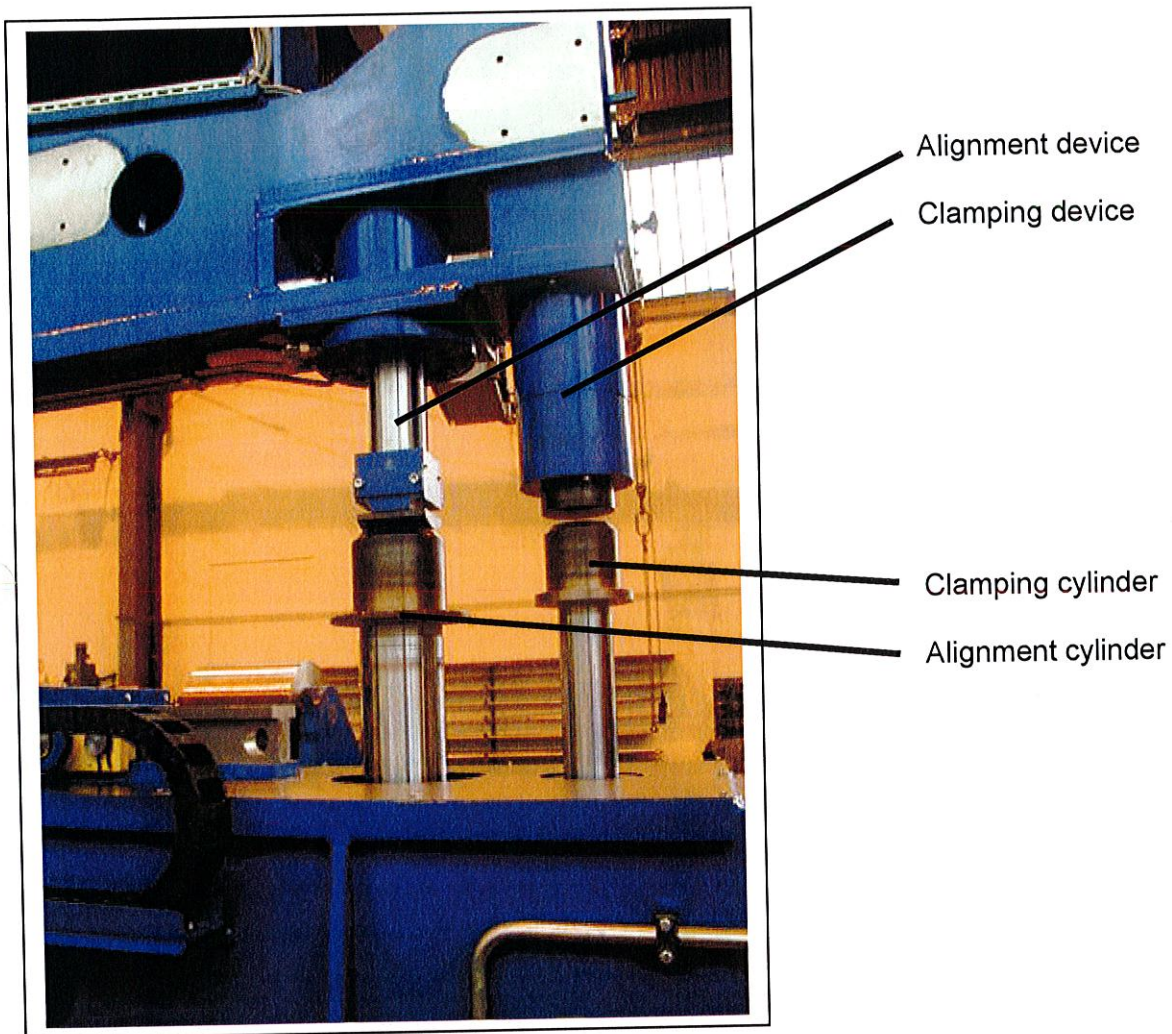
HAEUSLER AG
HAEUSLER GmbH

Typ Crocodile

CH-4202 Duggingen
D-79618 Rheinfelden

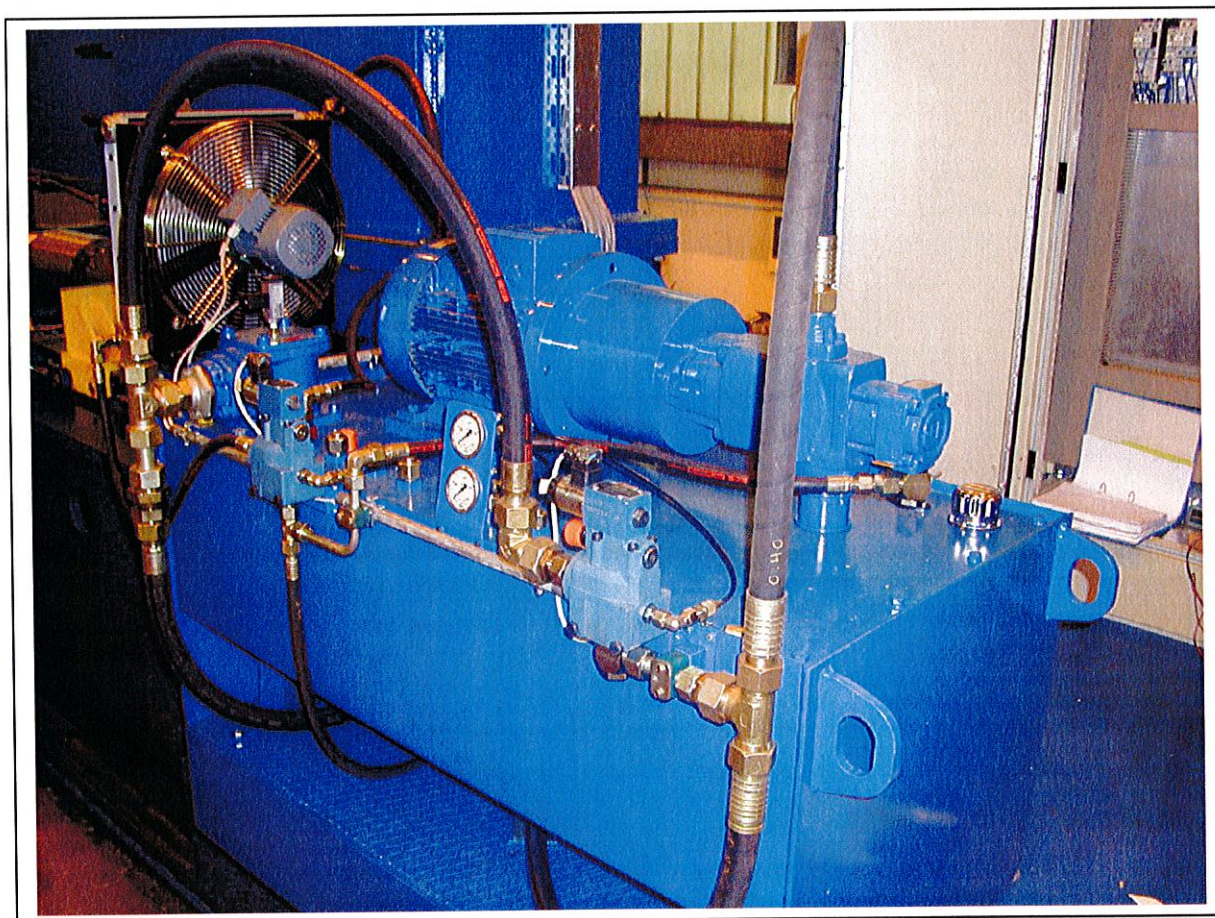
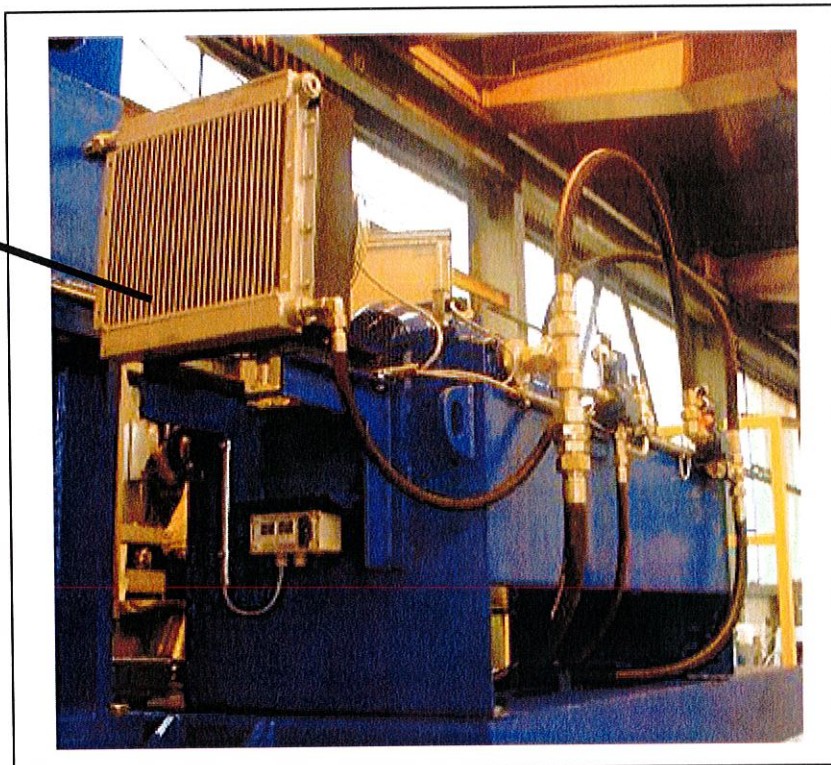
Date: 14.10.02 / Name: A. Winkler
Page 1 of 8 Pages

View of the machine

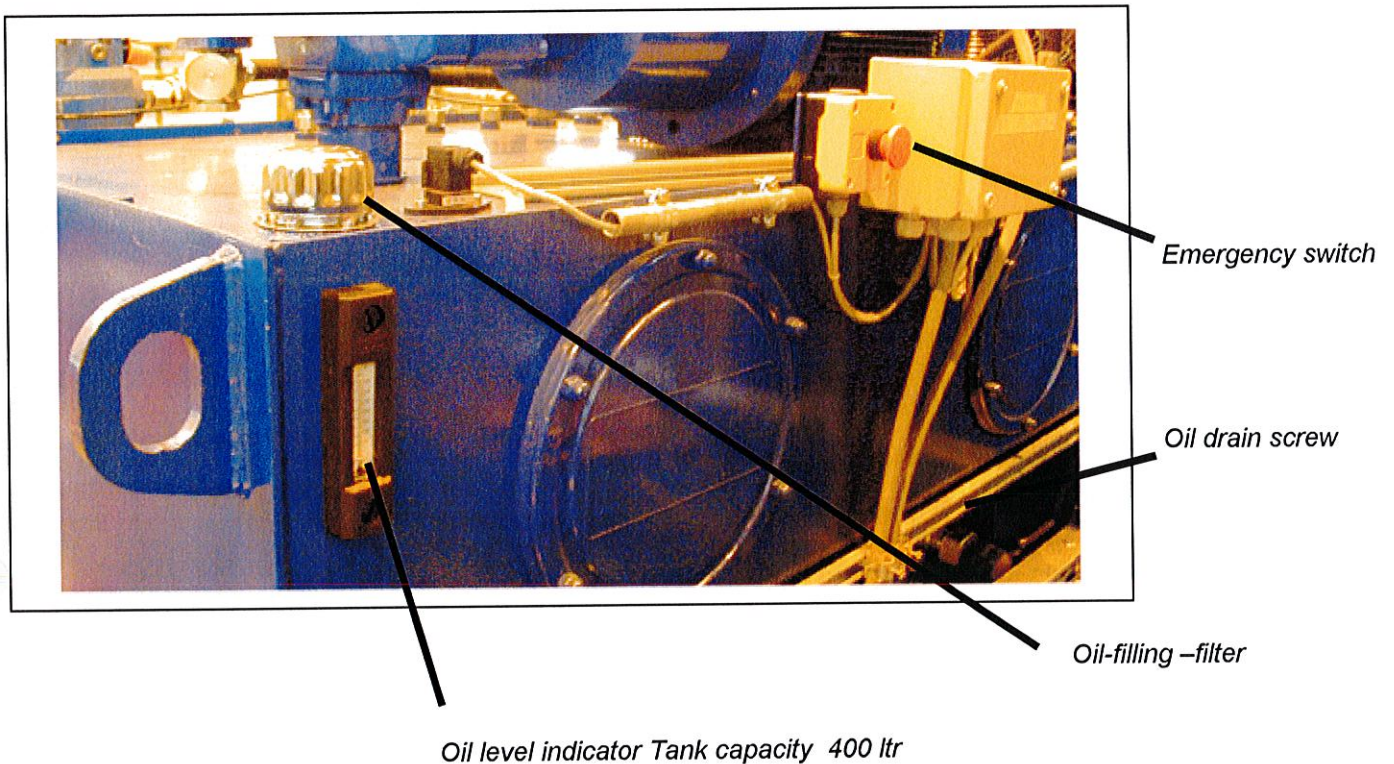


View of the machine / hydraulic unit

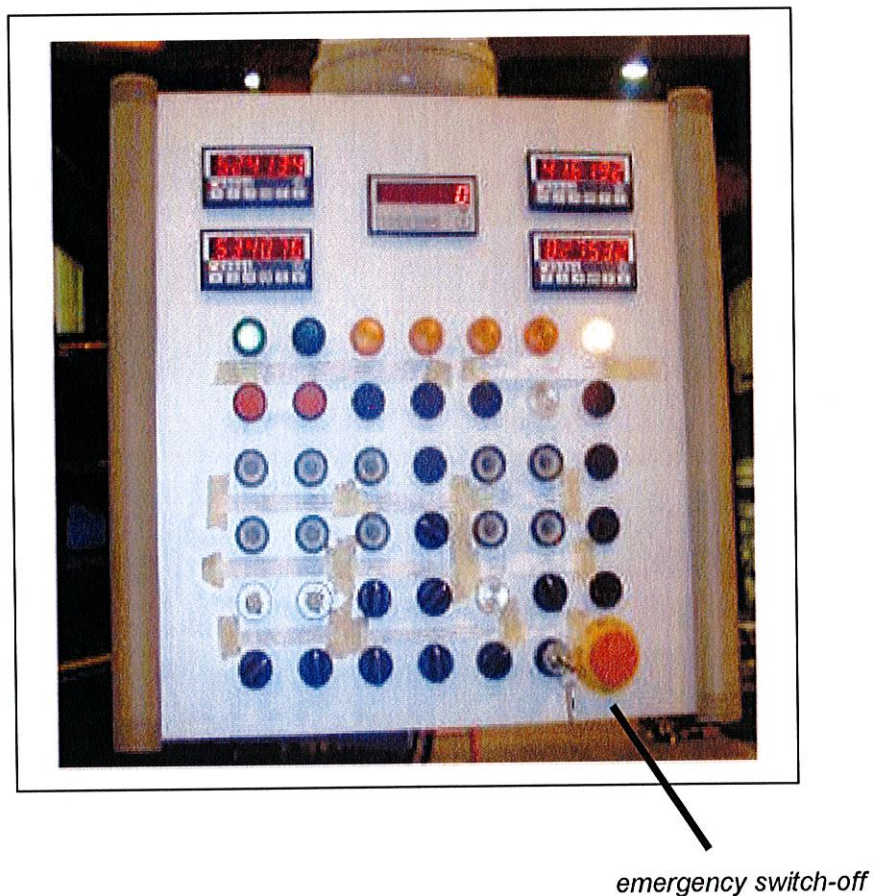
Oil cooler (air-cooled)



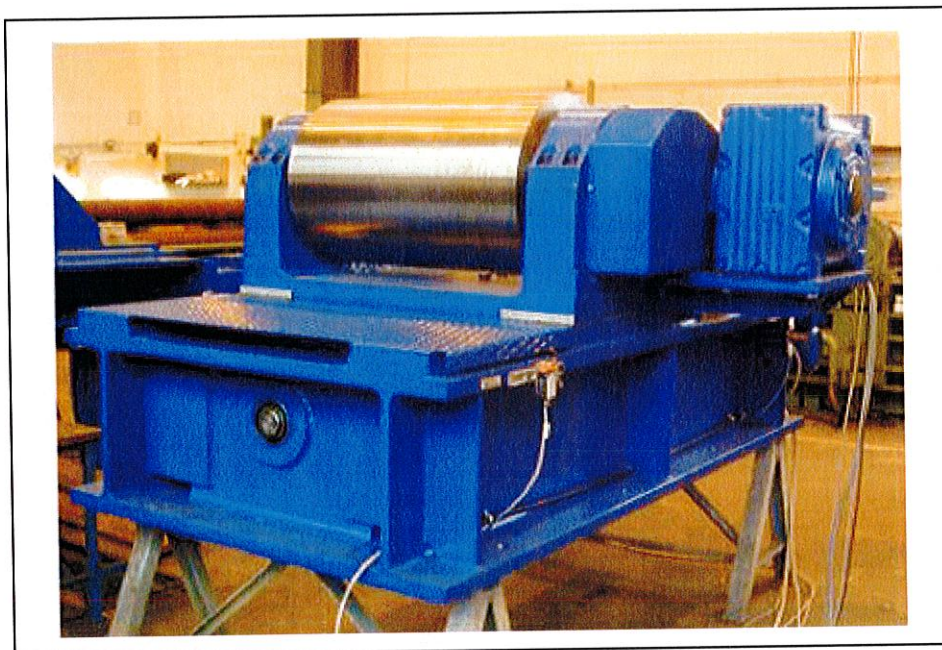
View of the machine / hydraulic unit



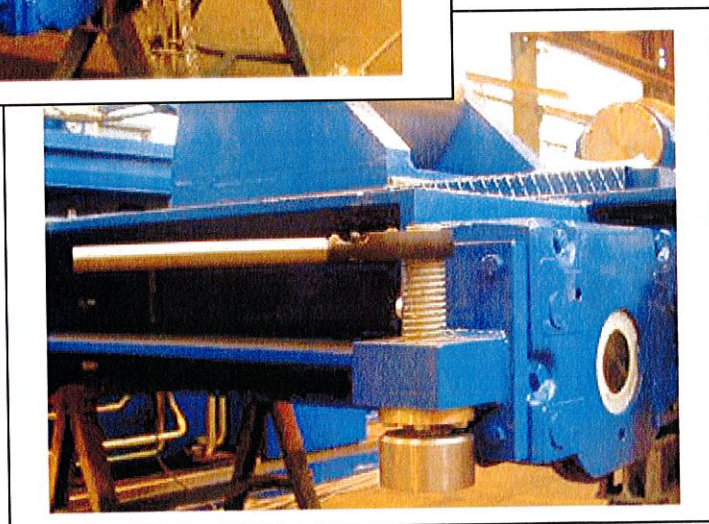
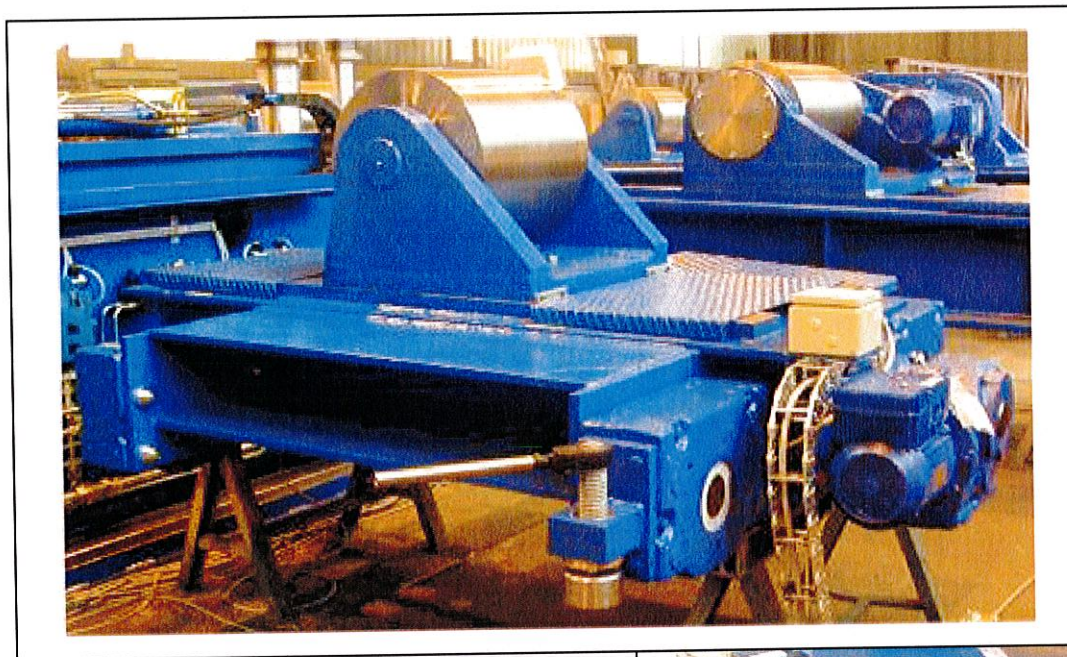
Control desk



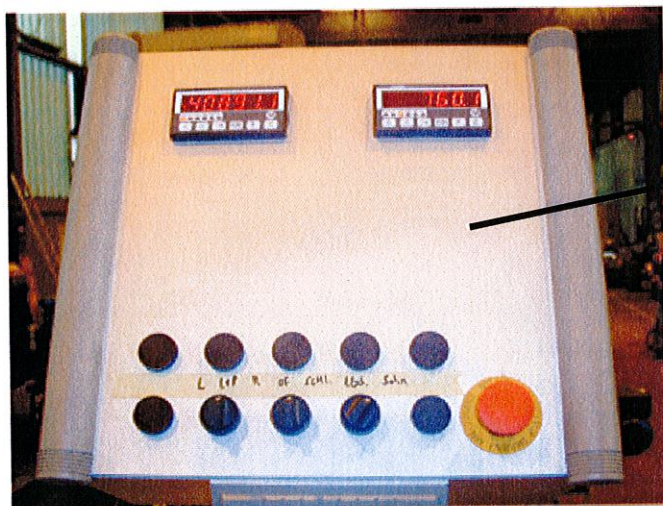
View of the machine / Driven Turning roll system



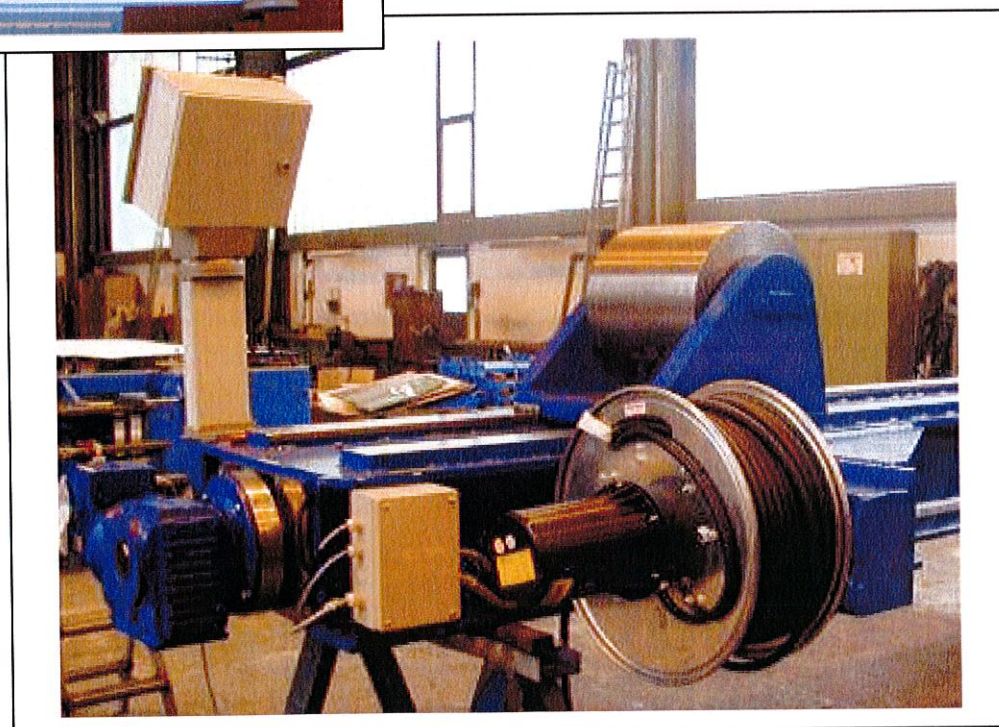
View of the machine / Turning roll system



View of the machine / Turning roll carriage



Auxiliary control board



Denomination: MECHANISED ALIGNING, ASSEMBLING AND
WELDING SYSTEM „CROCODILE“

Typ: Model STANDART for SHELLS and WESSELS

Fabrication No. WO 021-1872

Producer: HAEUSLER AG Duggingen
Baselstrasse 21
CH-4202 Duggingen

Representative: -

Date of delivery: 10/2002

Order-No.: -

Customer: Erik Roug A/S
Marupvej 27-35
DK-7400 Herning

Remarks:

Application

The Crocodile can be classified as a Mobile Work Centre, moving into and out of the Shell Assembly Area, assisting Platers and Welders, when and where required, thus resulting in a saving of 85 % compared to manual working

Capacity (Standard)

Individual shell inner diameter	max. 6000 mm min. 1500 mm
length	max. 3000 mm min. ca 1200 mm
Wall thickness	max. 70 mm min. 20 mm
weight max.	max. 30 tons
Assembled straight length max.	40 m
Assembled weight	max. 120 tons

The Crocodile together with its purpose built Turning Roll System is capable of Clamping and rectifying curvature of Shell circumference.

It is a hydro-mechanical design of robust welded steel construction. It is self-propelled and operates in conjunction with a Turning Roll System designed for the purpose.

Machine Description Model Standard

The Crocodile consists of a top and bottom beam which, together with filler block form a C-frame. Twin bearing plates provide a further connection between the two beams, single tracks are mounted underneath the top beam and on top of the bottom beam to accommodate the horizontal pusher which is connected to two axial cylinders the mounting of which is adjustable by locking pins in locating holes along the lower track.

Two hydraulic sub-presses are arranged at the front end of the beams. The clamping cylinder and the alignment cylinder are in the bottom beam, their counterparts, a manually adjustable end stop and an anvil fitted with a suitable die are in the top beam. The top beam carries a spirit level, the operator's panel providing control of all functions.

The crocodile is mounted in a motorized chassis in such a manner that its nose is well clear of the chassis of the crocodile. Heavy guide and supporting rollers are fitted on the chassis at either side to eliminate any possible lateral movement.

The chassis also carries the drives for fast approach and return, the hydraulic power pack, hydro-motor, hydraulic valve plate as well as the electric control cabinet. On top of the platform ample space is provided to accommodate the power source and flux recovery and re-conditioning unit for sub-arc welding equipment if required.

Arrangement can be made to fit "Pentagraph" type Welding Head Support.

Machine Specification

Travel speed

stepless 200 - 2000 mm/min.
fast/5000 mm/min.

Total installed power approx.

45 kW

Machine operation

The Crocodile allows one operator to align, assemble, tackweld, two shells, between 30 and 120 minutes depending on shell diameter and wall thickness (additional preheating process if required has to be added for calculation).

The operation can be performed in such a manner that all circumferential differences whether caused by material elongation during rolling or merely by the marrying of two shells of the same nominal diameter but of different plate thickness, will be equally displaced throughout the circumference and within the common axis of the shells themselves.

Working Sequence

The undriven turning rolls are suitable positioned on either side of the fixed driven turning rolls to support the lengths of shells to be assembled; the first two shells are then loaded.

The Crocodile is moved forward until the front hydraulic sub-press is suitably positioned to clamp the trailing end of the first shell having adjusted the end stop to allow for any difference in shell thickness or rolled diameter and the front hydraulic sub-press then is closed.

The horizontal hydraulic pusher is actuated to force the second shell either into a butt-to-butt position with the first shell or to provide any desired gap between the two shells, and the hydraulic sub-press is then closed against suitable die.

The joint is tack welded nearby at both sides of the clamping area, the clamps are released, the shells rotated, and the above sequence repeated until the full circumference has been tack welded as necessary for the following internal welding process.

Turning Roll System: Type HRS 120 tons

- 1) Driven Turning Rolls of split design and arranged in fixed

Technical Data

Load carrying capacity	60 tons
Turning capacity	120 tons
Roller material	steel
Rotation drive , variable, approx.	7.5 kW

- 2) Idler Turning Rolls as above of split design and arranged to the right and left of the crocodile pit

Technical Data

Load carrying capacity (on two rolls)	15 tons
Roller material	steel

- 3) Idler Turning Rolls on carriage and rail-mounted to allow longitudinal adjustment to suit different shell lengths. Centre adjustment of rollers.

Technical Data

Load carrying capacity	60 tons
Roller material	steel

Not Admitted Ranges/Fields of Application

We have to indicate especially, that further ranges/fields of application of this above described machine are not admitted without our special approval.

Because of safety reasons and because of protection of persons and things the determined application of this machine/installation must be kept strictly as it is described in the technical documentation.

Absolutely not admitted are:

- * The bending of warm material without a special equipment of the machine, without a special proceeding instruction and without our approval.
- * The overpassing of the capacity of the machine according capacity chart.
- * The application of other bending methods and proceedings than it is described in this instruction manual.
- * The application of further proceeding steps resp. intermediate steps at the work piece, as long as it is in the working range of this machine (for instance grinding, etc.) except working steps, which belong especially to the integrated sequence of application of this machine/installation and which are described in the technical documentation.
- * The use of faulty or unadequated materials of work piece.
- * The exchange of parts or units of the machine/installation against not adequated ones, which endanger the safety of persons and things (for instance spare parts not delivered by HAEUSLER).
- * The removal or the putting out of use of machine parts, which are safety reliable.

In case of doubt please contact us!

Dimension/Weight

Area:	Machine without device approx.	8 m x 2,5 m
Height:	Machine without device approx.	3,2 m
Weight:	Machine without device approx.	to

Electric

Control panel	movable/central
Voltage	3 x 400 V / 50 Hz
Control voltage	24 VDC
Total capacity	45 kW

Others

Year of construction	10 / 2002
Colour of machine	RAL 5010 (blue)
Technical Documentation	3 sets (english)

Additional devices

- Aire-Cooled Oilcooler

Machine-Accessories

St. Electric-Motor to	Typ	Manufacturer	U/min.	kw
1 Hydro-Unit	1LA7 166-4AA66	Siemens	1460	15
1 Oil-Cooling	VTA 2	VEM-trading		0,25
2 Turning 1 - roller adjustment	(KAF87)DV100M4/2	SEW-Eurodrive	2900	34
2 Turning 2 - roller adjustment	(KAF87)DV100M4/2	SEW-Eurodrive	2900	34
1 Turning 3 - roller adjustment	(KAF87)DV100M4/2	SEW-Eurodrive	2900	34
1 Clamping device	(SAF47)DR63L4	SEW-Eurodrive	1300/1600	0,25
1 Drive	(KF107)DV132S4/BMG/	SEW-Eurodrive	1730	5,5
2 Turning roller	(FA107BR77)DV132M4/BMG	SEW-Eurodrive	1730	7,5

St. Hydraulic	Type	Manufacturer	Art	Pos.
See Hydraulic diagram				

St. Gear to	Type	Manufacturer	Art	Pos.
2 Turning roller unit 150 to (fix) roller driven	FA107B	SEW	Flachgetriebe	2 + 32
2 Turning roller unit 50 to movable spindle driven	KAF87	SEW	Kegelrad	4 + 5
1 Crocodile-drive	KF107	SEW	Kegelrad	1
1 Crocodile spindle-adjustment	SAF47	SEW	Schneckengetr.	1

St. Lubrication	Typ	Manufacturer	Art	litr.
(Machine bearing lifetime lubricated, single greasing point acc. Lubrication diagram)				