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H E R M A N N F I N C K H

Maschinenfabrik

To: [redacted]

Customer's Order no.: [redacted] dated: [redacted]

Erection and Operating Instructions

for

the type "I" FINCKH Cyclo Unit

CERTIFIED

FINCKH Order no:	92.568	Model:	I
Machine no:	222	Year:	1985

HERMANN FINCKH, Maschinenfabrik GmbH & Co, Marktstraße 185, D - 7417 Pfullingen
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Contents

1. Operating Characteristics and Application

The type "I" FINCKH Cyclo Unit is mainly installed when preparing unsorted, mixed waste paper, following the continuously operating pulper, in a stock consistency range up to 5 %.
Generally, the type "I" FINCKH Cyclo Unit is followed by a FINCKH High Density Vibrating Screen which rescreens the rejects from the type "I" FINCKH Cyclo Unit. Depending on the raw stock quality, rejects can undergo a coarse deflaking. Accepts from the type "I" FINCKH Cyclo Unit and from the High Density Vibrating Screen are nearly of equivalent quality and can together be led to a following chest. Depending on the screen basket perforations, the capacity of a type "I" FINCKH Cyclo Unit is approx. 50 - 80 tpd in a consistency range around 4 %. The type "I" FINCKH Cyclo Unit operates under pressure with two screening stages.

The inflowing stock is put in rotation in the bottom body part of the type "I" FINCKH Cyclo Unit. The heavy particles are discharged by means of a heavy particles gate. The stock which has been separated from the heavy particles flows upwards in the type "I" FINCKH Cyclo Unit and is mechanically screened there.

Unrelated to each other, the heavy particles are eliminated in the type "I" FINCKH Cyclo Unit and at the same time coarse flakes and specific light weight impurities are separated from the fine flakes and the accepted stock. Due to this separation, it is possible to carry only the coarse flakes to a deflaking stage and not the entire stock flow coming from the pulper. Depending on the raw materials' quality and the pulper's work, the rejects occuring at the type "I" FINCKH Cyclo Unit amount to a maximum of 30 % with reference to the feeding quantity.

2. Technical Description

The type "I" FINCKH Cyclo Unit consists of three body parts, namely the top body part, the swivelling bottom body part and the gate for heavy particles discharge. The bodies are manufactured of thickwalled stainless steel sheet.

There is the tangentially arranged inlet branch at the top body part, the radially arranged outlet branch, the reject outlet as well as the dilution water supply. The packing gland and the seal water connection are screwed onto the bearing bracket which seals the top end of the section.

The bottom body part consists of a swivelling device and a separating cone. It can be swivelled for the removal of screen basket and rotor. The gate for heavy particles discharge is provided with an illumined window in order to observe the accumulation of heavy particles. A feed for the flush water as well as an air vent valve are installed. The heavy particles are eliminated by means of two pneumatically operated valves.

Drive

The drive takes place through an electric motor, construction type V 6, over V-belts; the motor is set on an adjustable base plate.

Location of the rotor shaft

The shaft is located in a bearing bracket by means of two antifriction bearings. The bracket itself is screwed together with the top body part.

Cleaning Foils

The cleaning foils are welded on a rotor. The rotor is fitted on the shaft end by means of a fitting key and is secured by a cover disc and a screw.

Screen Basket

The screen basket is firmly installed.

Lubrication

The grease nipples for the two antifriction bearings of the shaft are positioned at the bearing bracket. Each bearing has a separate grease nipple. The grease nipples are visible and can easily be reached from the outside.

Pressure Gauges

The two pressure gauges for inlet and outlet pressure are supplied separately and are not to be screwed into the provided openings in the inlet and outlet branch until the type "I" FINCKH Cyclo Unit is completely assembled. The membrane of the pressure gauges is very sensitive and must not be damaged.
Do not remove the protection cover until shortly before installation!

Pressure Reducing Valve

A pressure reducing valve with pressure gauge, for the pressure of the sealing water, is also supplied separately.
It should be fitted near the machine and be clearly visible.

Motor

The motor data can be found in the order confirmation.

3. Installation Instructions

A. Weights

a) The empty weight of the type "I" FINCKH Cyclo Unit is 800 kgs.
b) The weight including stock is 1 100 kgs.
c) Dynamic loads do not occur.

B. Transportation

The type "I" FINCKH Cyclo Unit is usually transported in two cases. One case contains the complete type "I" FINCKH Cyclo Unit with drive, without the gate for heavy particles discharge.
The second case contains the gate for heavy particles discharge and the pneumatic cylinders. At its suspension flanges, the type "I" FINCKH Cyclo Unit is securely screwed to skids in the case.

C. Installation Planning

On installing the type "I" FINCKH Cyclo Unit, the following has to be considered:

a) Installation examples, see enclosed brochure.
b) General arrangement drawing with assembly position and connection dimensions, see enclosure.
c) The pneumatic valve for the rejects with timer control unit and solenoid valve are part of the delivery.
Construction type of the valve:
V-diaphragm and fine adjustment.

The reject discharge isregulated by the timer control unit and a power surveillance device; the diagram of connections is enclosed to the timer control unit.

d) Lay-out of the stock pump for the type "I" FINCKH Cyclo Unit, see drawing no. 422-62 A.

e) N o t e! The inlet pipe, accepts pipe and rejects pipe must be installed above the Cyclo Unit, see drawing no. 422-132 A.
In doing this, it is guaranteed that the Cyclo Unit is always filled during operation.

According to the local conditions, one must determine if the type "I" FINCKH Cyclo Unit is to be set up against the wall or if it is to be placed free in the room. As to the manufacturing of a fixing device or a suitable support, see drawing no. 422-13/14/15 A.

Between the sedimentation vat (lower edge) and the floor must be a distance of approx. 700 mm for the reject tray. Above the Cyclo Unit a lifting device must be provided for removing the bearing. The required free space above the Cyclo Unit results from the space requirements for the lifting device + 400 mm. Enough free space must be kept in front of the Cyclo Unit to enable the swivelling out of the bottom body part.

Normal hand-operated flat valves can be used for the accepted stock outlet and inlet.
The accepts outlet valve is directly connected to the type "I" FINCKH Cyclo Unit and serves to adjust the counter-pressure. The inlet valve is to be installed with a minimum distance of 1000 mm from the inlet branche of the type "I" FINCKH Cyclo Unit. The feeding pipe must be provided with a flush water pipe in order to prevent any thickening of the stock after the machine is stopped. Accepts pipes as well as the reject pipes are to be as short as possible.

Erection

Check the fixing device against the wall resp. the support with fixing holes. Attach the type "I" FINCKH Cyclo Unit at its bearing bracket and its motor against the wall resp. the support.
The sedimentation vat is installed with two pneumatic valves. Arrange the plate with the valves at a distance of approx. 2 m from the type "I" FINCKH Cyclo Unit and connect the air tubes to the three pneumatic cylinders of the valves.

The installation of the pipes and the electric connections including the timer control unit must take place in the buyer's workshop.
Inner welded joints and flange interfaces, especially in the reject pipe, are to be neatly done in order to prevent cloggings or lump formation.

Backwater can be used as reject dilution water and lower flush water, required pressure 200 - 250 kPa,
or at least 50 kPa higher than the pressure in the type "I" FINCKH Cyclo Unit.
Pressure gauges are to be installed by the buyer's workshop.
The quantity of the reject dilution water depends on the stock consistency as well as on the stock condition and varies between 100 - 250 l/min.
Fresh water must be used as seal water for the packing gland at the drive: approx. 5 l/min.
Required pressure: 50 kPa higher than the pressure in the type "I" FINCKH Cyclo Unit.
The compressed air pipe is to be connected to the distribution pipe for the three valves.

The pneumatic valves for the heavy particles gate are both controlled with hand-operated valves. These valves are to be connected in such a way that the upper valve is open during operation and the lower one is closed.

The pneumatic reject valve is adjusted, by means of the fine regulation device to an opening of approx. 30 mm and is interlocked with the timer control unit and the power surveillance device.
The timer control unit is to be installed near to the type "I" FINCKH Cyclo Unit protected against splash water.
An ammeter is to be mounted near the type "I" FINCKH Cyclo Unit to surveille the power draw.

When the installation is completed, the pressure gauges are to be fitted.
The pipings as well as the type "I" FINCKH Cyclo Unit are to be flushed with water.

Tighten the fixing screws and check the sense of rotation of the motor. Check the operation of the pneumatic valves, especially that of the reject valve; the timer control unit is adjusted for intervals of 3 minutes and an opening time of 1/2 second.
The intervals can be prolonged or shortened as the reject quantities require it.

When several type "I" FINCKH Cyclo Units are mounted in parallel, the following points must be considered:

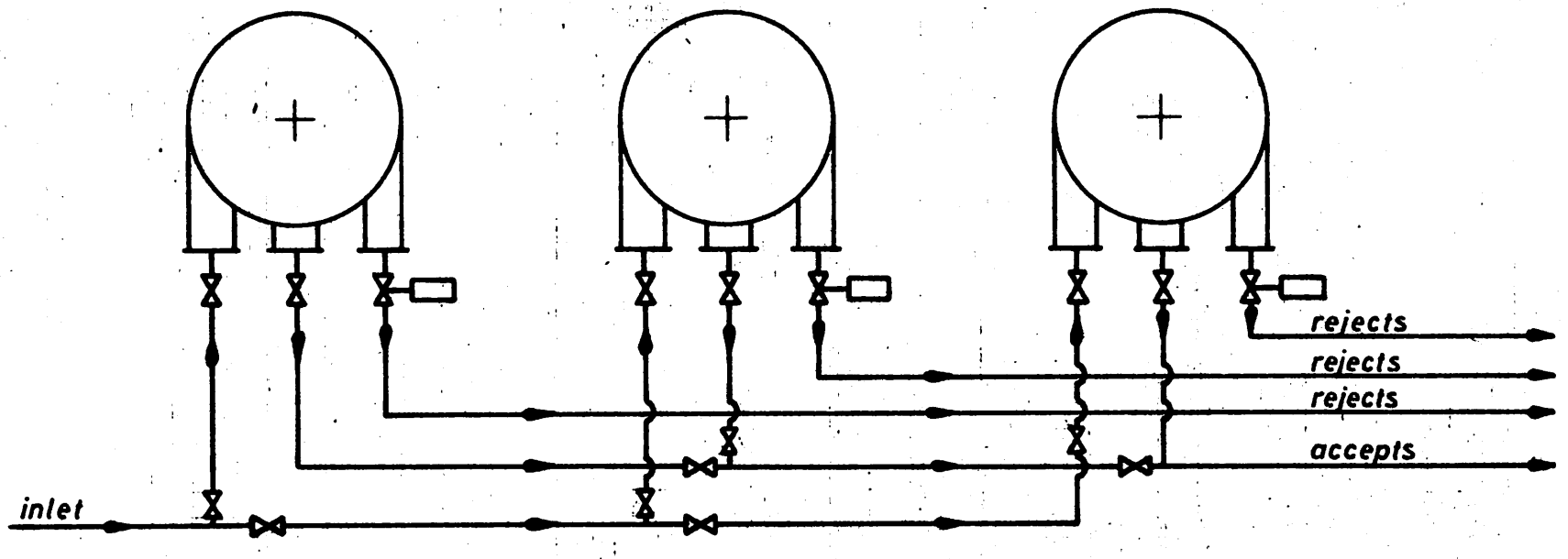
1. In order to guarantee an uniform feeding of the individual units, it is recommended to arrange the inlet of the unscreened stock and the outlet of the accepts in the same direction. Thus, flow conditions are the same for all machines.

2. The gate valves shall be installed in a way that stock thickenings in the piping are avoided if one or several machines are shut down.

3. Inlet pipings, accepts pipings and rejects pipings must be installed above the Cyclo Unit (see drawing no. 422-132 A).

4. The individual reject pipings must separately go to the collecting tank. They must be held as short as possible and must be installed with the least possible elbows.

Mounting in Parallel of model "I" FINCKH Cyclo Unit



4. Start-Up

1. Open the reject dilution water.
2. Open the seal water.
3. Open the compressed air.
4. Start the motor and check the sense of rotation, which has to be clockwise seen from the top of the machine.
5. Flush the screen with water, the lower pneumatic valve remaining open.
6. Close the lower pneumatic valve and fill the screen with water as well as slightly opening the lower flush water.
7. Adjust the reject valve by means of the fine adjusting device to an opening width of approx. 30 mm.
8. Open the accepts valve approx. 1/3 of the way.
9. Start the stock pump.
10. Slowly open the inlet valve until an inlet pressure of approx. 150 kPa is reached.
11. Adjust quantity and counter-pressure by means of the accepts valve.
12. Discharge approx. 20 to 30 % of rejects referring to the inlet quantity.

Shut-Down

1. Shut the inlet valve and stop the stock pump.
2. Open the lower pneumatic valve and let off the stock. Flush the unit with upper and lower flush water.
3. Open the flush water in the stock feed pipe and rinse out the pipe.

4. Stop the unit after having flushed the screen and the piping system.
5. Turn off the lower flush water and the reject dilution water as well as the seal water.
6. Close the compressed-air valve.

5. Operating and Maintenance Instructions

To ensure that the type "I" FINCKH Cyclo Unit operates unobjectionably, it must operate under pressure. Inlet pressure between 150 - 200 kPa. The pressure difference between inlet and outlet depends on the throughput capacity, the stock consistency and the open area of the screen basket, i.e. on the perforation size.
The pressure difference is generally 10 to 60 kPa in the low density range and 10 to 20 kPa in the high density range from 2.5 %.
The counter-pressure at the accepts outlet may not fall below 120 kPa.

a) Rejects

Continuous rejects discharge

Approx. 25 % depending on the degree of dirt, adjustable by means of the fine adjusting device of the pneumatic valve.

Discontinuous rejects discharge

In order to prevent blindings or cloggings of the reject valve, it is necessary to control the pneumatic valve with the timer control unit and to open it entirely for a short time.
Depending on raw stock, the pulping efficiency and the flake content, the time intervals for opening the valve must be determined.

⟹ Normal adjustment when treating mixed waste paper: open for 1/2 second every 3 minutes. The time intervals as well as the opening time can be adjusted at the timer control unit.
In addition, the reject discharge is controlled by a power surveillance device and an ammeter relay which are interlocked with the drive motor of the type "I" FINCKH Cyclo Unit.

If the reject valve becomes clogged, the drive motor consumes more power.
The ammeter relay measures the increasing current and opens the reject valve when the adjusted maximum value is reached.

The rejects from the type "I" FINCKH Cyclo Unit must be re-treated.
See hereto our suggestions in the enclosed leaflet.

b) Heavy Particles Discharge

The heavy particles eliminated from the type "I" FINCKH Cyclo Unit are cought in a sedimentation vat. The pneumatically operated valve on the upper side of the sedimentation vat must remain open during operation. The lower valve of the sedimentation vat stays closed during operation. The sedimentation vat is normally emptied every 8 hours. This depends, however, on the quantity of heavy particles.

Empty the heavy particles gate by:

1. Closing the upper pneumatic valve by means of the hand-operated compressed-air valve.

2. Opening the lower pneumatic valve by use of the hand-operated compressed-air valve and draining off the heavy particles until the sedimentation vat is empty.

3. Opening the air vent valve on the upper side of the sedimentation vat.

4. Closing the lower pneumatic valve and filling the sedimentation vat with flush water (which must always be open) until water runs out of the air vent valve.

5. Closing the air vent valve and opening the upper pneumatic valve.

The flush water quantity must be increased if too much stock accumulates in the sedimentation vat.

Bearing

The antifriction bearings are to be checked during operation for silent running.

Lubrication

The following parts are to be lubricated:

2 antifriction bearings of the vertical shaft. Each bearing has a separate nipple on the bearing bracket. The bearings are to be lubricated once a month with an antifriction bearing lubrication of good quality (approx. 30 - 50 g per bearing).
Do not change type of grease!

V-belt Drive

The V-belts must be evenly tensioned. They should not be loose, as they would wear too quickly. Only belts of exactly the same length are to be used. The V-belts may not become wet or they will slip.

Gland Packing and Seal Water

See sectional drawing no. 422-116 A.
The packing gland can be adjusted from the outside while being in operation. The seal water has the duty of preventing the entry of fibres into the packing. If this is not prevented, the packing and shaft sleeve will quickly wear. Fresh water is to be used as seal water. The seal water pressure must lie 50 kPa higher than the pressure in the type "I" FINCKH Cyclo Unit.

Cleaning

The machine is to be kept clean at all times. When not in use, the machine must be thoroughly cleaned from both the outside and inside.

6. Trouble Shooting and Remedies

A Reduction of the throughput capacity

Cause	Remedy
1. stock poorly prepared, not sufficiently pulpered, pulper perforations too large	examine the stock preparation
2. screen basket not sufficiently cleaned since last stand still	change screen basket and thoroughly clean it
3. variations of the stock consistency	examine the system
4. air in the unit, inlet pressure too low,	increase the inlet pressure
counter-pressure too small	set the counter-pressure by means of accepts valve
5. V-belts are slipping	belts are wet or slack

B Plugging up of the Screen Basket

The causes mentioned under item "A" can also lead to pluggings if they are not immediately remedied.

Further causes are:

	Cause	Remedy
1.	the motor is not switched on or motor stands still because of defect	check power feed and motor
2.	start-up without water	a) open the upper flush water and fill system with water before adding any stock b) it may be enough to close the accepts valve and then to re-open it very slowly.
3.	throughput too high and therefore excessive differences in pressure	too small open area - change screen basket to have larger perforations
4.	stock consistency too high	dilute
5.	screen basket perforations chosen too small a) for this throughput b) for the stock consistency c) for the type of stock, fibre length and freeness	larger open area is required if necessary change screen basket or install more screening capacity
6.	reject accumulation in the unit valve opening too small	prolonge the pulping process, continually discharge more rejects, open the upper flush water more, set shorter inter-

	Cause	Remedy
		vals at the timer control unit, check functioning of the power surveillance device.
C	Deterioration of the Screening Efficiency	
	1. Screen basket damaged	change screen basket and repair it
	2. air in the screen	see A 4.
	3. excessive load	more screening capacity is required
	4. pulper perforations too large or perforated plate damaged	check the pulper bottom, perhaps build in smaller perforated plates in the pulper
	5. insufficient reject discharge	see B 6.
D	1. stuffing box leaking	tighten the gland packing. If necessary, replace it. Check the seal water pressure.
	shaft sleeve worn	replace it check screwing of seal water pipe
E	bearing defect can be determined by listening against the screen body	replace the bearing, see pages 21, 22 and 23

7. Screen Basket Change
(see drawing no. 422-116 A)

1. Take out the connecting screws (item 34) between the top and the bottom housing.

2. Swivel out the bottom gate (item 36) to the side.

3. Undo the bolt (item 33) situated in the centre of the rotor cover.

4. Install the removal assembly by means of a forcing spindle on the rotor cover.

5. Wind in the threaded spindle in the lower eccentric ring of the screen basket (item 29).

6. Wind back the two fixing spindles (item 73) on the upper part of the type "I" FINCKH Cyclo Unit.

7. Pull out the screen basket by means of turning the nut on the forcing spindle.

Build in the screen basket by proceeding in the reverse sequence.

8. Rotor Change

(see drawing No. 422-116 A)

Same as screen basket change, items 1 and 2.

3. Remove the cylinder screws (item 30) and take off the cover.

4. Brace the rotor and take out the screw (item 27).

5. Take off the cover disc (item 26) and slowly lower the rotor to the bottom. The rotor is not wedged up; it has fitting keys.

Installation is to be effected in reverse sequence. When installing make sure that the round cord seal is properly inserted in the rotor cover (item 37) and in the shaft sleeve (item 22).

Shaft Sleeve Change

(see drawing No. 422-116 A)

1. Remove the rotor (see "Rotor Change").

2. Unscrew the seal water pipe and remove the connection (item 19).

3. Remove 8 screws (item 17) between housing (item 70) and bearing bracket (item 7).

4. Loosen and take off the packing gland follower (item 68). Remove the packing rings (item 21).

5. Lift up the bearing bracket with shaft and motor approx. 300 mm by means of a pulley block.

6. Take the fitting keys out of the shaft.

7. Undo spanner bolt (item 69) and remove gland housing (item 20).

8. Pull old shaft sleeve (item 22) off and new sleeve onto the shaft.

   Important: The shaft sleeve has a collar with an O-ring stuck in it. This O-ring must be there when sleeve is fitted, otherwise the rotor will fill with water and stock.

9. Mount gland housing, insert packing rings and tighten gland follower.

10. Remove all old sealing compound from supporting surfaces of top section and from bearing bracket, and coat with new sealing compound.

11. Place fitting keys in shaft and assemble bearing bracket and motor.

12. Install the rotor and make the type "I" FINCKH Cyclo Unit ready for operation.

9. Replacement of the Antifriction Bearings (see drawing no. 422-116 A)

1. Remove the rotor (see "Rotor Change", page 19).

2. Unscrew the seal water pipe and remove connection (item 19).

3. Undo spanner bolt (item 17).

4. Loosen and take off the gland follower (item 68). Take out the packing rings (item 21).

5. Remove the V-belts (item 53).

6. Lift up the bearing bracket with shaft and motor using a pulley block.

7. Take fitting key out of shaft.

8. Loosen spanner bolt (item 69) and remove gland housing (item 20).

9. Pull sleeve (item 22) off the shaft.

10. Take the V-belt pulley (item 48) off the shaft (item 51) and remove fitting key).

11. Loosen the threaded pins of the labyrinth rings (item 1 and 18) and remove labyrinth rings.

12. Loosen connection between the lubrication pipe (item 6) and the angle screw connection (item 5).

13. Unscrew covers of immovable (item 2) and movable (item 16) bearings.

14. Remove top and bottom locking rings (item 4 and 14).

15. Press the shaft (item 51), with immobile bearing (item 8) to the top, out of the bearing bracket.

16. Pull movable bearing (item 13) out of the bearing bracket.

17. Clean the bearing bracket, removing especially any old sealing compound on the supporting surfaces.

18. Push the immobile bearing (item 8) onto the shaft and insert the locking ring (item 4).

19. Grease bearing and bearing seat, push the shaft, with the immobile bearing on it, from the top into the bearing bracket until the antifriction bearing rests against the bracket shoulder.

20. Fit the immobile bearing cover (item 2).

21. Grease mobile bearing (item 13) and bearing seat, and push bearing into bearing bracket.

22. Insert locking ring (item 14).

23. Fit mobile bearing cover (item 17).

24. Push top and bottom labyrinth rings (item 1 and 18) onto the shaft and screw tight.
(Theoretical distance of 17 mm must be kept between the upper edge of the labyrinth ring and the upper edge of the bearing cover.)

25. Screw together the angle screw connection (item 5) and the lubrication pipe (item 6).

26. Coat all supporting surfaces with sealing compound before fitting the gland housing and bearing bracket.

27. Installation of the gland housing, bearing bracket, rotor, etc. follows in reversed order.

28. Prior to start-up tighten up the gland follower.

10. Replacement of the Separating Cone of the Bottom Body Part (see drawing no. 422-116 A)

1. Undo the spanner bolts (item 38 and 79) and take off the heavy particles receptacle together with the valve.

2. Loosen spanner screws (item 75) and pull swivelling bolt (item 77) out of guide.

3. Loosen spanner bolt (item 34) and remove separating cone (item 36) together with the swivelling device (item 86).

4. Replace the separating cone (item 36) and insert the round cord (item 35).

5. Complete assembly in reversed order.

11. Connection and Start-Up of the Timer Control Unit for Reject Discharge

The Timer Control Unit for the type "I" FINCKH Cyclo Unit is layed out for connecting two or six type "I" FINCKH Cyclo Units. When installing one type "I" FINCKH Cyclo Unit only, a Timer Control Unit for two type "I" FINCKH Cyclo Units is used. Be sure that the motor is started up via a contactor when connecting the Timer Control Unit and the driving motor. This contactor is shown by a dotted line on the installation plan which is enclosed to the switchboard since this contactor does not belong to our delivery.

Phase R is to be connected, after the contactor, on clamp 1 of the ammeter relay in the control. From clamp 2 of the ammeter relay, go to the motor via clamp U.

When starting up one type "I" FINCKH Cyclo Unit only with a timer control unit for two type "I" FINCKH Cyclo Units, the time relay "Pause" between valve 1 and 2, no. d.1.4., and the time relay for the opening time, valve 2 no. d.2., must be set on 0. The opening intervals for the reject valve are to be set on the relay no. d.1. The program repeat relay no. d.2.4 determines the space of time until the reject valve opens again.

When connecting two type "I" FINCKH Cyclo Units, both reject valves are not to open at the same time in order to avoid excessive pressure drop.

Therefore, a delay time is to be set on the time relay "Pause" between valve 1 and 2, no. d.1.4.
Furthermore, the opening interval for valve 2 is to be set on the time relay no. d.2.

When connecting more than 2 type "I" FINCKH Cyclo Units, use the timer control unit for 6 machines.
The switchboard is connected to the motor in exactly the same manner as described beforehand.

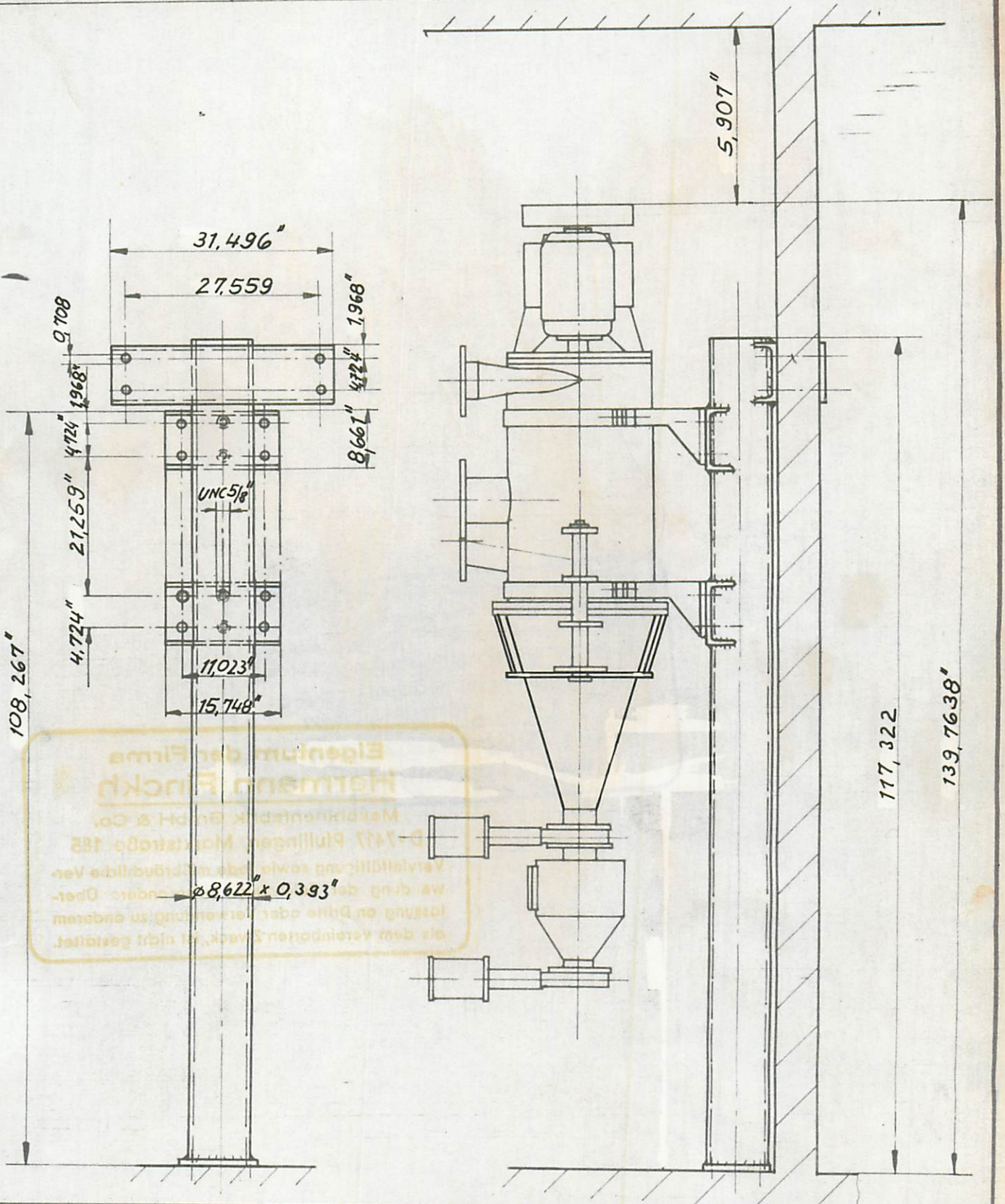
If here are connected less than 6 machines, too, the remaining time relais must be set on 0.

After switching on the driving motor, the timer control unit can now be fed with current by actuating the main switch b_1.
The program is then to be started via the start selector b_2.

Time sets at the relais see item 5 of our maintenance and instruction manuals.

A P P E N D I X

1.	General Arrangement Drawing	422-79 A
2.	Assembly Drawing	422-13 A 422-14 A 422-15 A
3.	Pipework Example	422-132 A
4.	List of Spare Parts	422-121 A
5.	General Assembly Drawing	422-116 A
6.	Lay-Out Stock Pump	422-62 A
7.	Pneumatic Drawing for Valves	422-46 A
8.	Leaflet	



b					e
a					d
Anderung:			Datum	Name	c

Werkstoff:		Datum	Name
	Gezeichnet:	24.4.75	Pf
	Geprüft:		
	Normgeprüft:		

HERMANN FINCKH
Maschinenfabrik GmbH & Co
PFULLINGEN

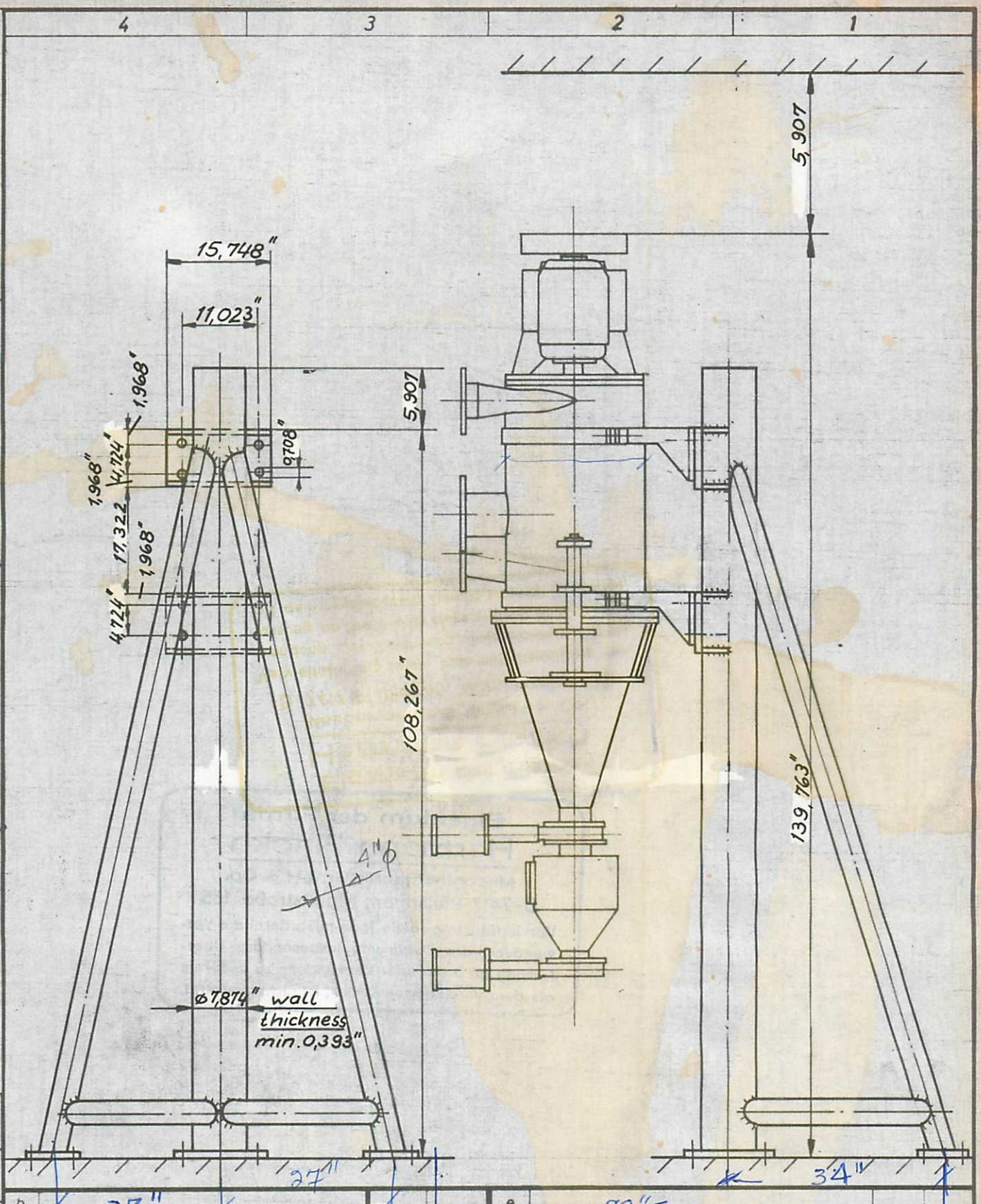
Maßstab: /

Attachment device for installation against a wall for Cyclo Unit Model I

422 - 13 A (A4)

Ers. f.:
Ers. d.:

Nennmaß	mittel n. DIN 7168
1-6	± 0,1
6-30	± 0,2
30-100	± 0,3
100-300	± 0,5
300-1000	± 0,8
1000-2000	± 1,2



b				e	
a				d	
Änderung:		Datum	Name	c	

		Datum	Name
Werkstoff:			
	Gezeichnet:	24.4.75	97
	Geprüft:		
	Normgeprüft:		

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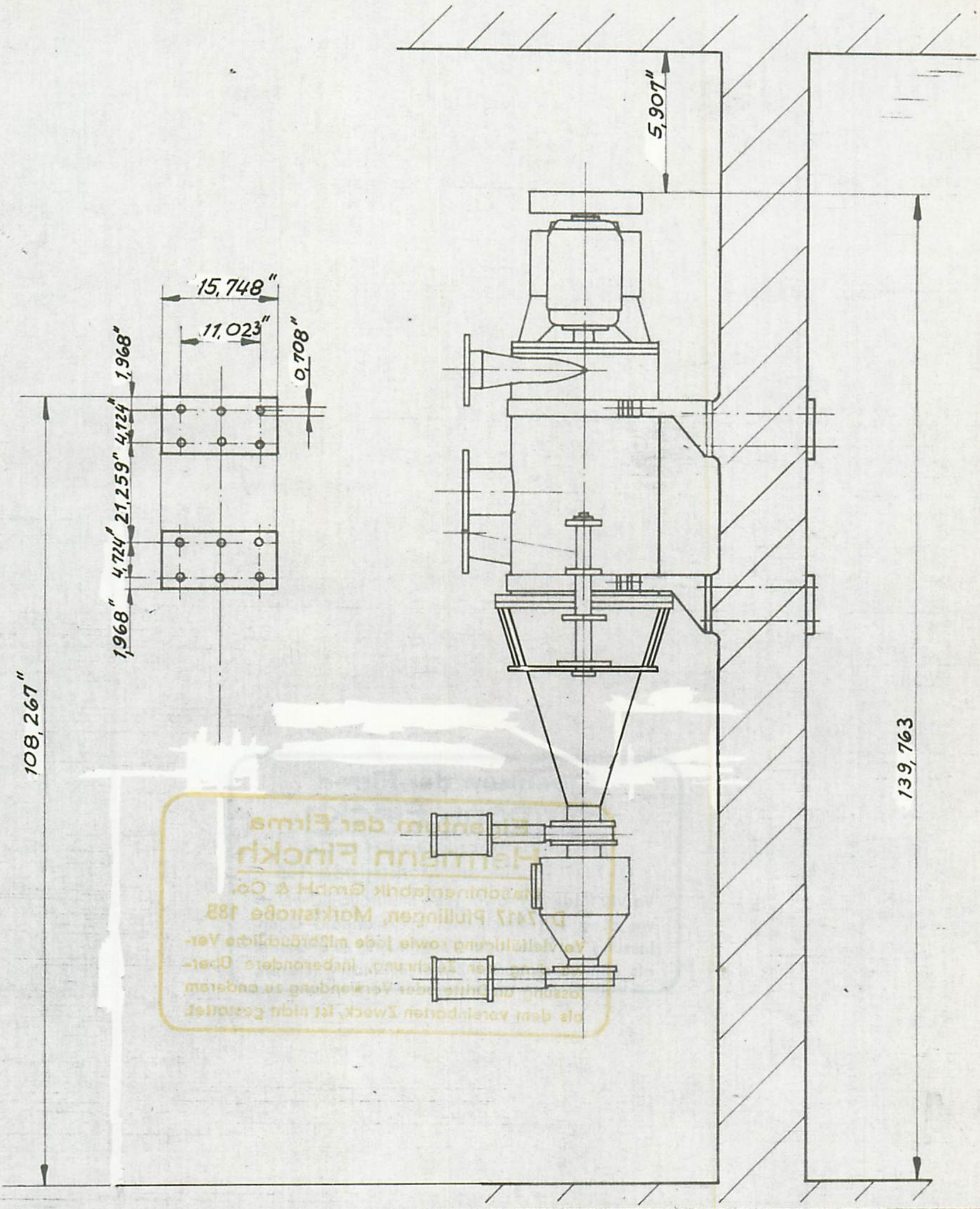
Maßstab: /

Attachment device for free standing installation for Cyclo Unit Model I

422-14 A (A4)

Ers. f.:
Ers. d.:

Nennmaß	1-6	6-30	30-100	100-300	300-1000	1000-2000
mittel n. DIN 7168	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2



Nennmaß	mittel n. DIN 7168
1-6	± 0,1
6-30	± 0,2
30-100	± 0,3
100-300	± 0,5
300-1000	± 0,8
1000-2000	± 1,2

	Änderung:	Datum	Name	
b				e
a				d
				c

Werkstoff:		Datum	Name
	Gezeichnet:	24.4.75	97
	Geprüft:		
	Normgeprüft:		

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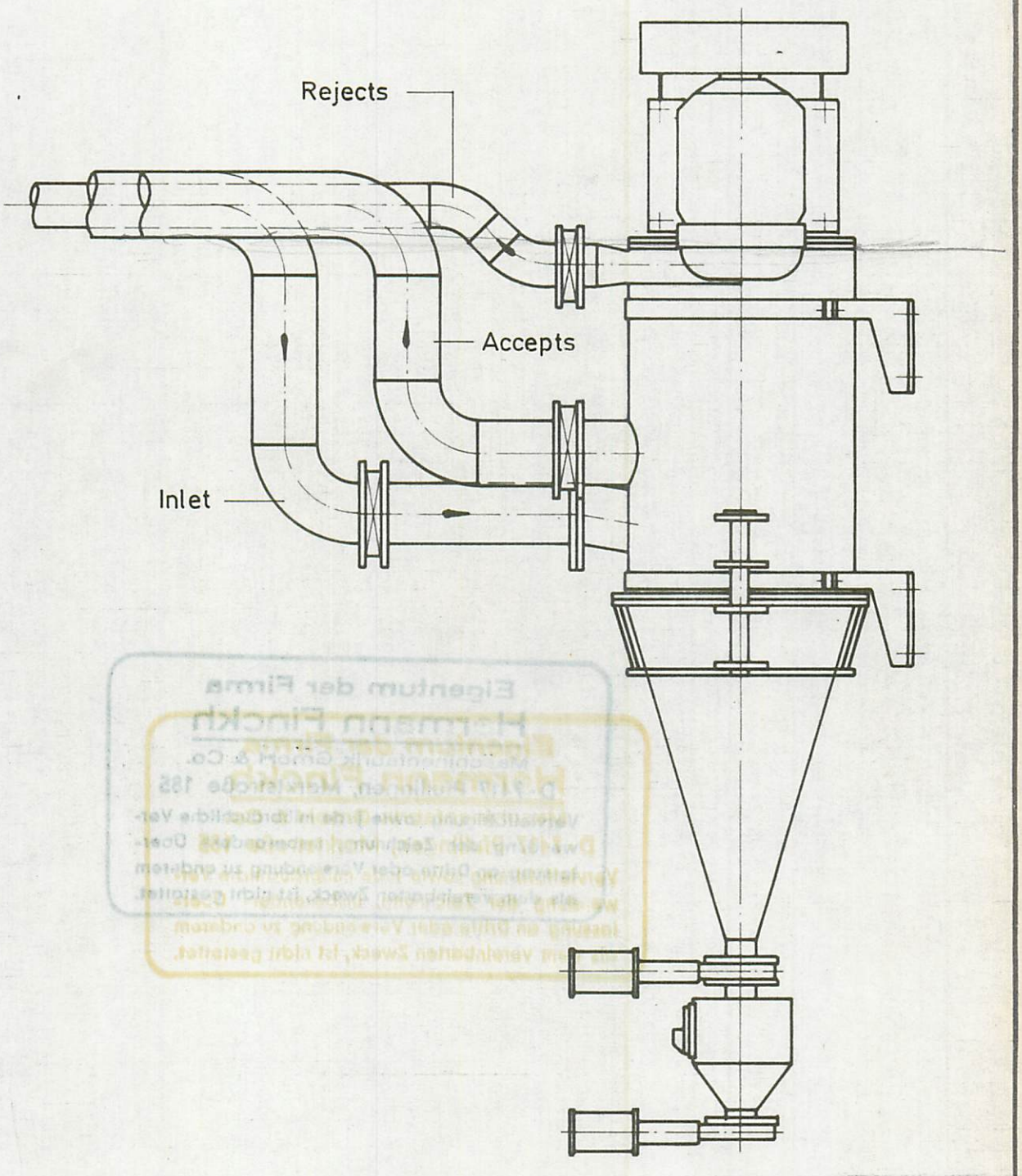
Maßstab: /

Attachment device for Cyclo Unit
Model I
directly on the wall

422- 15 A (A4)

Ers.f.:
Ers.d.:



b				e	
a				d	
	Änderung:	Datum	Name	c	

Werkstoff:		Datum	Name
	Gezeichnet:	7.11.80	Tt
	Geprüft:		
	Normgeprüft:		

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Maßstab:

Pipework Example for Cyclo Unit Model I

422-132 A (A4)

Ers.f.:

Ers.d.:

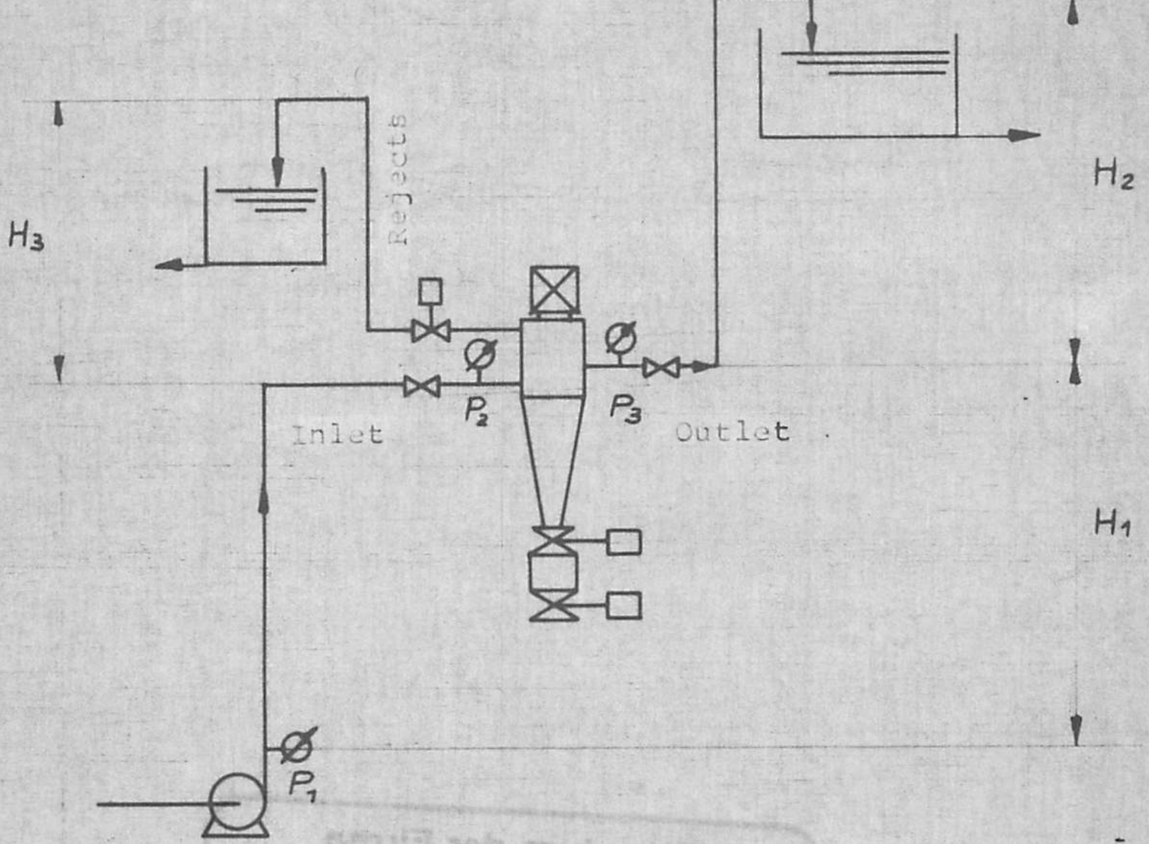
Nennmaß	1-6	6-30	30-100	100-300	300-1000	1000-2000
mittel n. DIN 7168	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2

Model "I" FINCKH Cyclo-Unit

List of recommended Spare Parts

Item	No. of Pcs.	Designation
1	1	Complete screen basket with reinforcing rings
2	2	Self aligning roller bearings 22.214 for the vertical shaft d = 70, D = 125, B = 31 mm
3	1	Shaft sleeve, Ø 65/57 x 110 mm long
4	1	Gland packing 10 x 10 mm
5	5	V-belts, type SPZ LW = 1 900 mm
6	2	Pressure gauges for inlet and outlet pressure
7	1	Separating cone

Drawing no. 422-121 A



<u>Computation of the Pump Pressure P_1</u>

$P_1 = H_{W1}$ (inlet pipe friction) + H_1 (geodetic pump head) + $H_{W\ Cyclo}$ (pressure drop in Cyclo-Unit max. 3 m w.g.) + P_3 (min. 12 m w.g.)

P_3 must be at least H_2 (geodetic pump head) + H_{W2} (pipe friction, accepts piping), so that the accepts can reach the tank.

<u>Reject Piping</u>

Arrange reject piping to be as short as possible, having as little as possible bends. In order to avoid plugging, the geodetic height H_3 shall be below the height H_2, if possible. Should H_3 be higher than H_2, P_3 must be at least $H_3 + H_{W3}$.

b			e
a			d
Änderung	Datum	Name	c

Werkstoff		Datum	Name
	Gezeichnet	19.9.79	[illegible]
	Geprüft		
	Normgeprüft		

HERMANN FINCKH
Maschinenfabrik GmbH & Co
PFULLINGEN

Maßstab:

Dimensioning of Stock Pump
for FINCKH Cyclo - Unit

422 - 62 A (A4)

Ers. f.:
Ers. d.:

Nennmaß	mittel n. DIN 7168
1-6	± 0,1
6-30	± 0,2
30-100	± 0,3
100-300	± 0,5
300-1000	± 0,8
1000-2000	± 1,2