OPERATIONS & MAINTENANCE MANUAL

AUGUSTA NEWSPRINT CO.

AUGUSTA, GA

CELLECO HEDEMORA CENTERDISC® FILTER

5M-L2-30(21)-250

E19170

CUSTOMER PURCHASE ORDER NO. AN00008983

CELLECO HEDEMORA SALES ORDER NO. CDF2-A-0064

ALFA-LAVAL
CELLECO HEDEMORA

TABLE OF CONTENTS

PRODUCT INFORMATION 1

CENTERDISC® MULTI-DISC FILTER BROCHURE
CENTERDISC® INSTRUCTION MANUAL
CELLECO FILTER ASSEMBLY
INSTRUCTIONS FOR INSTALLING WEAR DISC ON CELLECO HEDEMORA FILTER

P & I DIAGRAM	NO. 0064-PID-201
HOSE ARRANGEMENT PRINT	NO. 0064-DET-202
SEAL WATER	NO. 0064-DET-203
SEAL PIT PRINT AND DROPLEG DETAILS	NO. 0064-DET-204
SUCTION BOX DETAIL	NO. 0064-DET-205
DRIVE DETAIL	NO. 0064-DET-206

CENTERDISC® (GENERAL ARRANGEMENTS) 2

DISC FILTER ASSEMBLY DRAWING SIDE ELEVATION & PLAN VIEW	NO. 0064-CDF-207
DISC FILTER ASSEMBLY DRAWING END ELEVATIONS	NO. 0064-CDF-208

OVERALL ASSEMBLY DRAWING 3

P-SEAL ASSEMBLY DRAWING	NO. 1002 0026
ASSEMBLY DRAWING	NO. 6091-5725
MAIN SPECIFICATION	NO. 6094-3384

VAT ASSEMBLY 4

FILTER VAT ASSEMBLY DRAWING	NO. 6091-5468
PART SPECIFICATION	NO. 6094-3088

ROTOR AND SEGMENT DATA 5

ROTOR COMPLETE ASSEMBLY DRAWING	NO. 6091-5463
PARTS SPECIFICATION	NO. 6094-3087
SLIDE SUPPORT BEARING ASSEMBLY	NO. 6091-5210
PART SPECIFICATION	NO. 6094-3249

TABLE OF CONTENTS CONTINUED

SCREW CONVEYOR 6

ASSEMBLY DRAWING	NO. 6091-5674
PARTS SPECIFICATION	NO. 6094-3381

HOOD 7

HOOD WITH SHOWER PIPES ASSEMBLY DRAWING	NO. 6091-5848
AIR CLUTCH ASSEMBLY DRAWING	NO. 1003-0202
PARTS SPECIFICATION	NO. 6094-3385
ASSEMBLY INSTRUCTIONS FOR SKF Y-UNIT BALL BEARING PILLOW BLOCKS AND FLANGED HOUSINGS	NO. 620-811
HOOD ASSEMBLY DRAWING	NO. 6091-5490
PARTS SPECIFICATION	NO. 6094-3373
KNOCKOFF SHOWER ASSEMBLY DRAWING	NO. 6091-5231
PARTS SPECIFICATION	NO. 6094-3386
KNOCKOFF SHOWER DIMENSION DRAWING	NO. L28397-230
KNOCKOFF SHOWER PARTS DRAWING	NO. P28391-030
PLUG ASSEMBLY	NO. L28190-002
NOZZLE ASSEMBLY	NO. L28190-008
NOZZLE ASSEMBLY	NO. L28190-001

SUCTION BOX 8

SUCTION CHAMBER ASSEMBLY DRAWING	NO. 6091-5786
PARTS SPECIFICATION	NO. 6094-3388

TABLE OF CONTENTS CONTINUED

MAIN DRIVE 9

MAIN DRIVE ASSEMBLY DRAWING NO. 6091-5718
PARTS SPECIFICATION NO. 6094-3382

PILLOW BLOCK DIMENSION PRINT NO. C-21616-R

MIETHER BEARING HOUSING BROCHURE

MIETHER ASSEMBLY, LUBRICATION & MAINTENANCE BROCHURE

MOUNTING PROCEDURE FOR SKF SPLIT-HOUSING PILLOW BLOCKS ASSEMBLY INSTRUCTIONS FOR SKF SPHERICAL ROLLER BEARINGS (ADAPTER MOUNTING) NO. 640-810

SPEED REDUCERS 10

SHRINK DISC INSTALLATION AND REMOVAL INSTRUCTIONS
BEARING/SEALS CHART
ASSEMBLY DRAWINGS NO. 7789X968
NO. 7791Y232
NO. 1952Y206
NO. 1952Y182

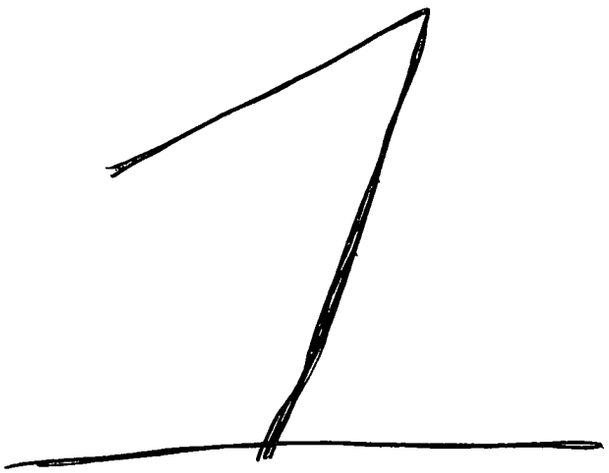
LINK-BELT MODEL "R" PARALLEL SHAFT SPEED REDUCER SERVICE INSTRUCTION MANUAL NO. 3419

LINK-BELT SHAFT-MOUNTED SPEED REDUCERS SERVICE INSTRUCTION MANUAL NO. 3118

LINK-BELT WORM GEAR SPEED REDUCERS SERVICE INSTRUCTION MANUAL NO. 3152

RECOMMENDED SPARE PARTS 11

OPERATING QUESTIONS TO ASK CELLECO HEDEMORA 12



Celleco CENTERDISC CDI - a unique alternative to conventional disc filters

At introduction, the Celleco CENTERDISC CDI disc filter for fiber recovery and stock thickening was probably the most significant filter innovation in the pulp and paper industry in more than 30 years.

Today, the performance demonstrated in well over 100 applications has proven that the Celleco CENTERDISC CDI filter offers substantial benefits in handling low- as well as high-freeness pulps and in fiber recovery applications. Mill personnel have also experienced the advantages of trouble-free operation resulting from the rigid construction of the CDI disc filter.

The large capacity range of the Celleco CENTERDISC CDI filter, combined with its ability to handle even high-freeness pulps, makes it an economic alternative for applications where previously it was only technically possible to use drum filters. The ingenious design of the rotor excludes the need for the "chutes" between the discs, eliminating the operating and maintenance-related problems inherent in other disc filters.

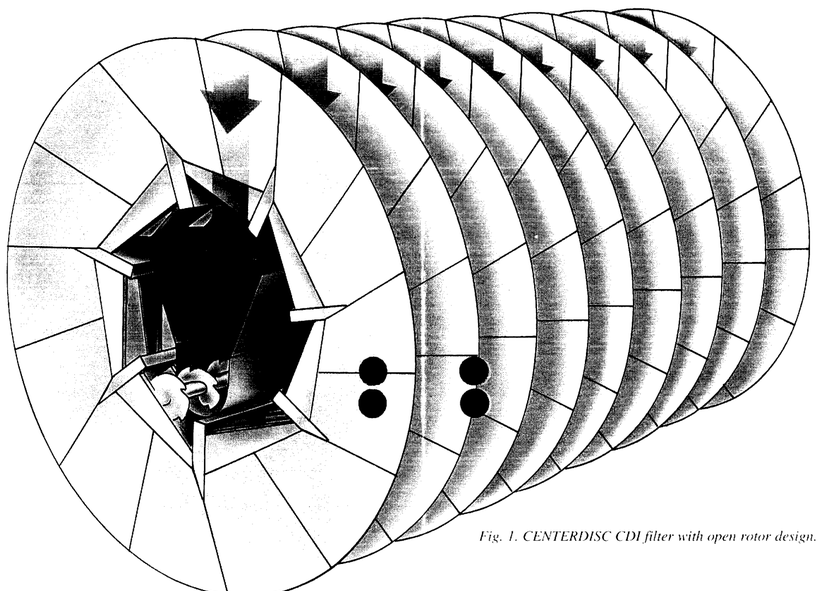


Fig. 1. CENTERDISC CDI filter with open rotor design.

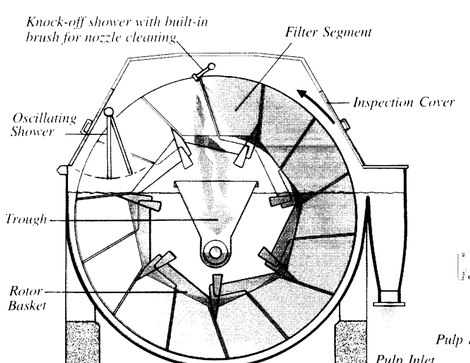
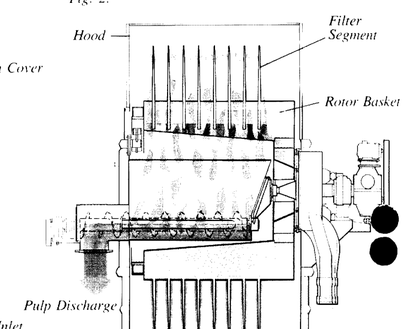


Fig. 2.



Ingenious rotor design

All operation and maintenance advantages of the Celleco CENTERDISC CDI filter stem from the ingenious design of the open rotor basket.

- No restrictions between discs. No discharge chutes that may cause jamming, mat breakage and filter bag damage.
- Very rigid rotor basket, dimensioned for minimum risk of fatigue failure.
- Close disc pitch provides for large filter areas in a small floor space.
- Short discharge screw reduces risk of screw breakage
- Internal components selected to withstand high-temperature operation.
- Discharging of the pulp mat at the "12 o'clock" position after a long drying zone. This is one of the factors contributing to the high final discharge consistencies.
- Rotor design continually agitates the suspension in the vat, resulting in:
  - uniform stock consistency throughout.
  - elimination of slime zones between the discs.
  - ability to operate at inlet consistencies of up to 2 %.
  - no need for a static mixer.
  - insensitivity to variations in flow and feed consistencies.
- Easy start-up after stops. The built-in rotor drop leg creates a vacuum that forms the fiber cake onto the discs ensuring immediate filter operation on start-up.
- Volumetric capacity of up to 150,000 l/min (35,000 US gpm) available.

The "shaftless" disc filter

The most unique feature of the CENTERDISC CDI filter is the large diameter rotor basket rather than the closed center shaft used in conventional filters. This shaftless design permits a trough to be housed inside the rotor to collect the thickened pulp. These design features are the basis of a number of integrated process advantages which make the Celleco CENTERDISC CDI filter the best alternative on the market.

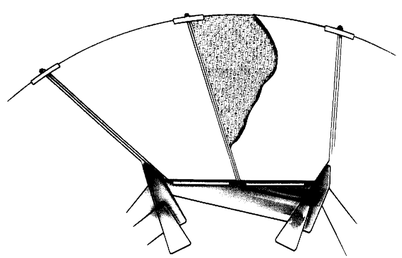


Fig. 3. The filter segments are easily mounted. Separate cross channels for each segment prevent turbulence.

High discharge consistencies

The pulp mat is gently formed on the disc segments, ensuring the build-up of a porous fiber mat, which is easy to knock off from the filter screen after the extra long dry-suction zone.

Discharge consistencies of up to 14 percent BD can be achieved without a vacuum pump when the pulp mat is showered into the discharge trough, and even higher with air-nozzle knock-off.

Rotating brushes are located in the knock-off header pipe to prevent plugging of the knock-off nozzles.

Simple operation and maintenance

The Celleco CENTERDISC CDI filter has been designed with both the operator and service technician in mind. Filter segments, seals and bearings are all easily accessible from outside the filter for checking and service. Standard components are used for the drives and bearings.

New application area

Due to its inherent design features it has been possible to use the Celleco CENTERDISC CDI filter for applications where conventional disc filters cannot be used. For example:

- Dewatering of chemical pulps in high-freeness ranges
- Combining the save-all function with broke handling on paper machines in a single disc filter.

Clear filtrate

The clear filtrate from the CDI filter has a lower solids content than conventional filters in most applications.

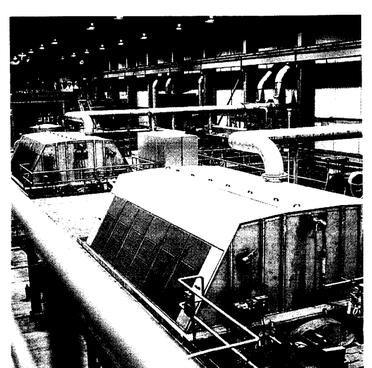
The porous fiber mat provides extremely good filtration properties. If required, the filtrate can be divided into three grades of clarity: cloudy, clear and ultra-clear.

Lightweight, compact, with large filter area

The Celleco CENTERDISC CDI filter is substantially shorter than conventional disc filters and drum filters of the same filter surface area. Low weight and small dimensions mean low installation costs. The CENTERDISC CDI can often be placed in mill locations where other filters will not fit.

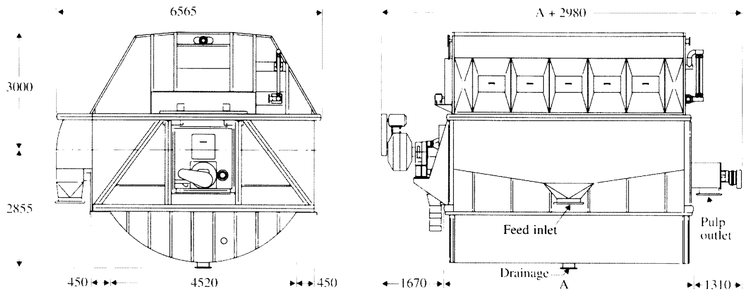
Easy to service

The very rigid segments are made of stainless steel plates and feature a special pattern for supporting the filter bag and ensuring a maximum of free filtering area. The standard filter bags are in high-quality synthetic material. Stainless steel bags are available on request (fig. 3).

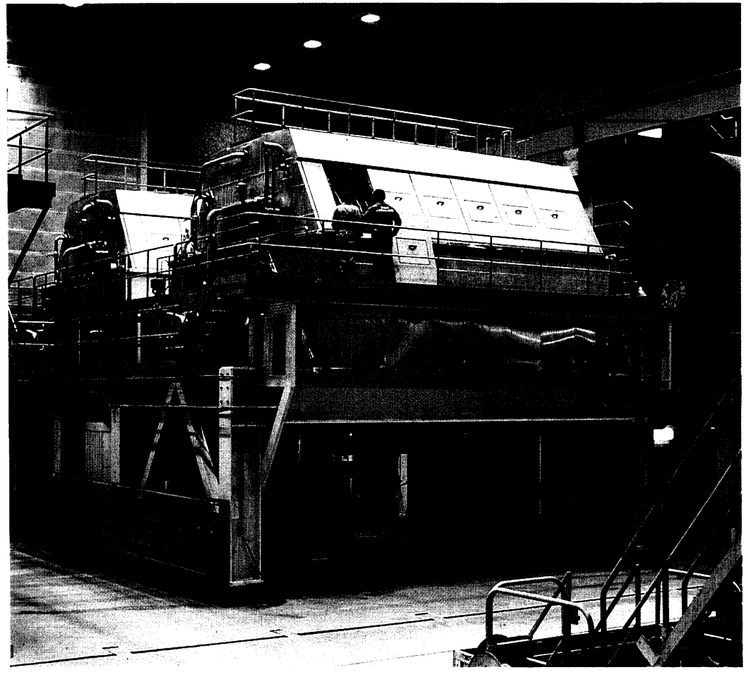


CENTERDISC CDI filter for pulp thickening. ▷

CENTERDISC CDI, diameter 5.2 meter



Celleco CENTERDISC CDI save-all filter for fiber recovery.



CENTERDISC CDI, diameter 4.2 meter

Filter length/area/weight (pitch 250 mm)

No. of discs	6	8	10	12	14	16	18	20	21
Length A, mm	2510	3010	3510	4010	4510	5010	5510	6010	6260
Length A, inch	98.8	118.5	138.2	157.9	177.6	197.2	216.9	236.6	246.5
Filter area, sq m	118	158	197	236	276	315	355	394	414
Filter area, sq ft	1270	1701	2121	2540	2971	3391	3821	4241	4456
Oper. weight, m T	40	45	49	53	58	62	67	71	74
Oper. weight, sh T	44	50	54	58	64	68	74	78	82

CENTERDISC CDI, diameter 5.2 meter

Filter length/area/weight (pitch 250 mm)

No. of discs	8	10	12	14	16	18	20	22	24	26	28	30
Length A, mm	3468	3968	4468	4968	5468	5968	6468	6968	7508	8008	8508	9009
Length A, inch	136.5	156.2	175.9	195.6	215.3	235.0	254.6	274.3	295.6	315.3	335.0	354.6
Filter area, sq m	232	290	348	406	464	522	580	638	696	754	812	870
Filter area, sq ft	2497	3122	3746	4370	4994	5619	6243	6867	7492	8116	8740	9365
Oper. weight, m T	71	81	91	102	112	122	133	143	154	164	174	184
Oper. weight, sh T	78	89	100	112	123	134	147	158	170	181	192	203

CENTERDISC CDI, diameter 5.5 meter

Filter length/area/weight (pitch 250 mm)

No. of discs	8	10	12	14	16	18	20	22	24	26	28	29
Length A, mm	3468	3968	4468	4968	5468	5968	6468	6968	7508	8008	8508	8758
Length A, inch	136.5	156.2	175.9	195.6	215.3	235.0	254.6	274.3	296.0	315.3	335.0	344.8
Filter area, sq m	272	340	408	476	544	612	680	748	816	884	952	986
Filter area, sq ft	2928	3660	4392	5124	5856	6588	7320	8051	8783	9515	10247	10613
Oper. weight, m T	86	96	106	117	127	137	148	158	169	179	189	194
Oper. weight, sh T	95	106	117	129	140	151	158	174	186	197	208	214

The CENTERDISC CDI filter is manufactured under license from Vargo Machinery.

ALFA-LAVAL
CELLECO HEDEMORA

Sweden **Celleco-Hedemora AB**
Box 12109, S-102 23 Stockholm
Tel: +46 (8) 80 93 50
Fax: +46 (8) 25 58 84

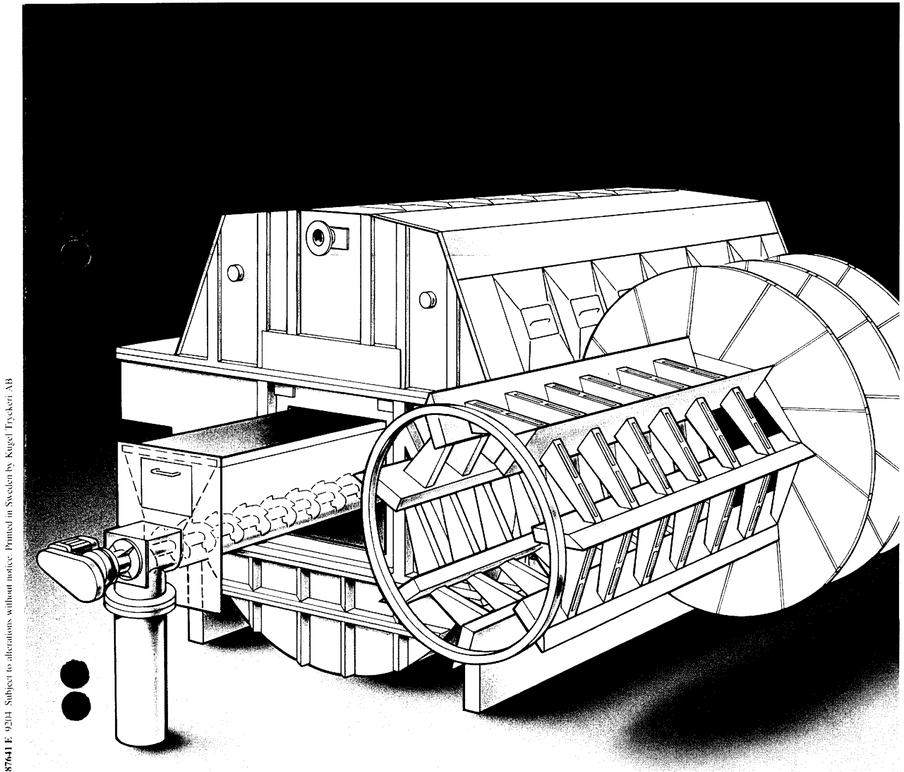
Celleco-Hedemora AB
S-776 00 Hedemora
Tel: +46 (225) 120 00
Fax: +46 (225) 128 28

United States **Celleco-Hedemora, Inc.**
1000 Laval Boulevard, Lawrenceville, GA 30243
Tel: +1 (404) 963-2100
Fax: +1 (404) 339-6132

Canada **Celleco-Hedemora Ltd.**
797 Lakeside, Foster, PQ J0E 1R0
Tel: +1 (514) 539-0694
Fax: +1 (514) 539-2662

PD 97641 E 9204 Subject to alterations without notice. Printed in Sweden by Kugel Tryckeri AB

ALFA-LAVAL
CELLECO HEDEMORA

CENTERDISC CDI

Disc filter for fiber recovery and pulp thickening