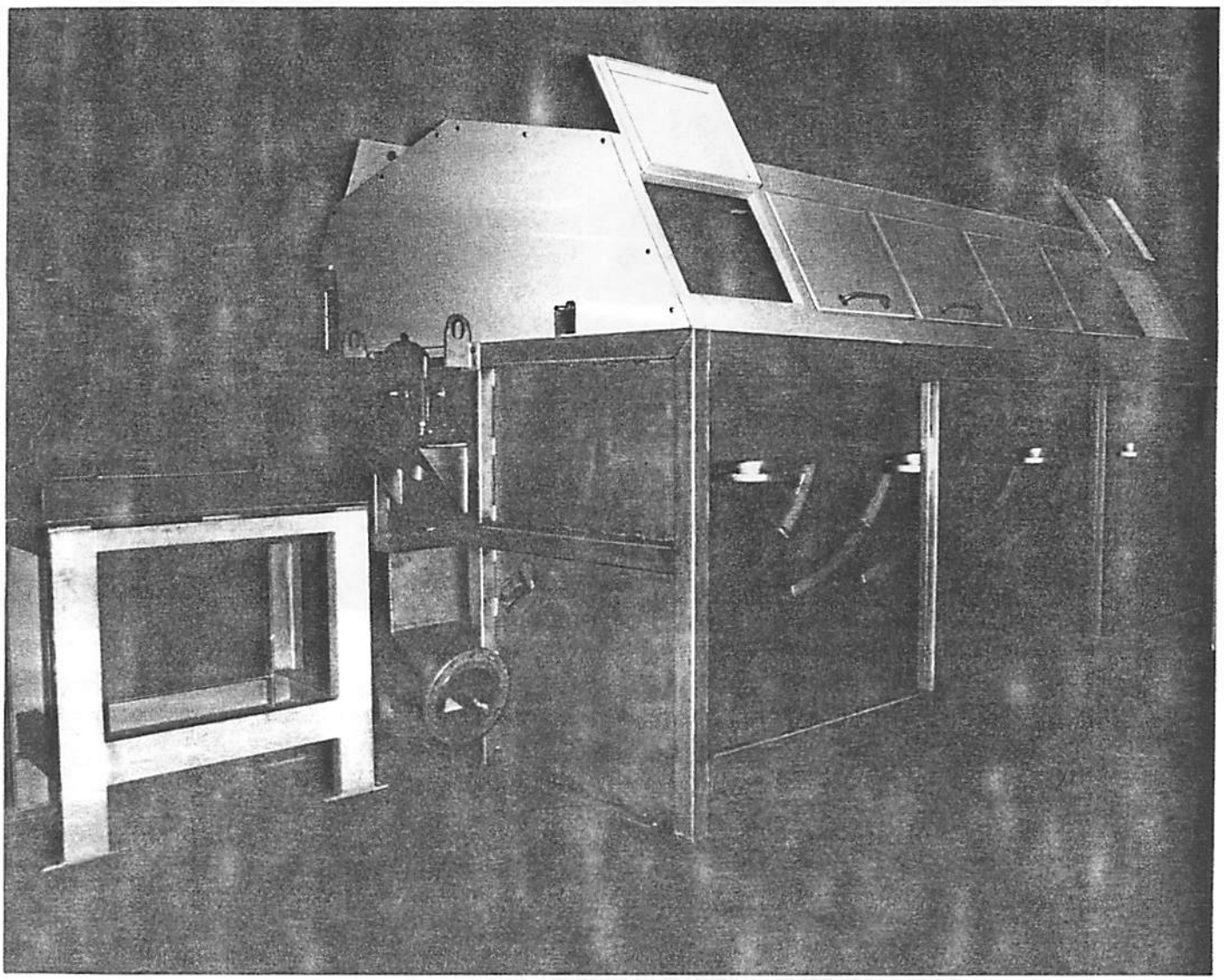
STOCK THICKENERS



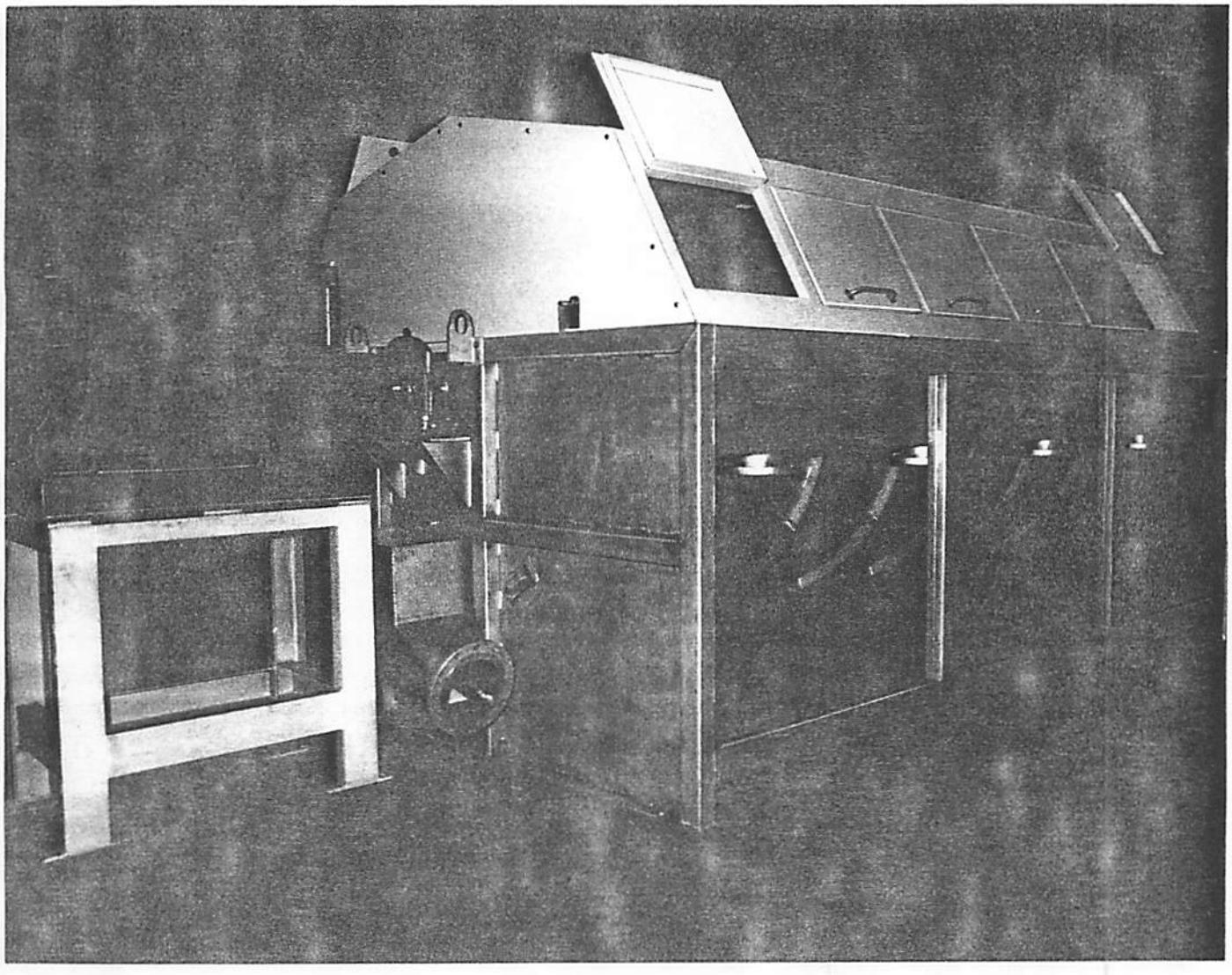
● *PULP CONCENTRATOR* ● *WATER FILTRATION*
● *PULP WASHING*

HOLDER PAMAC

machine showers.

Leaders in paper mill technology

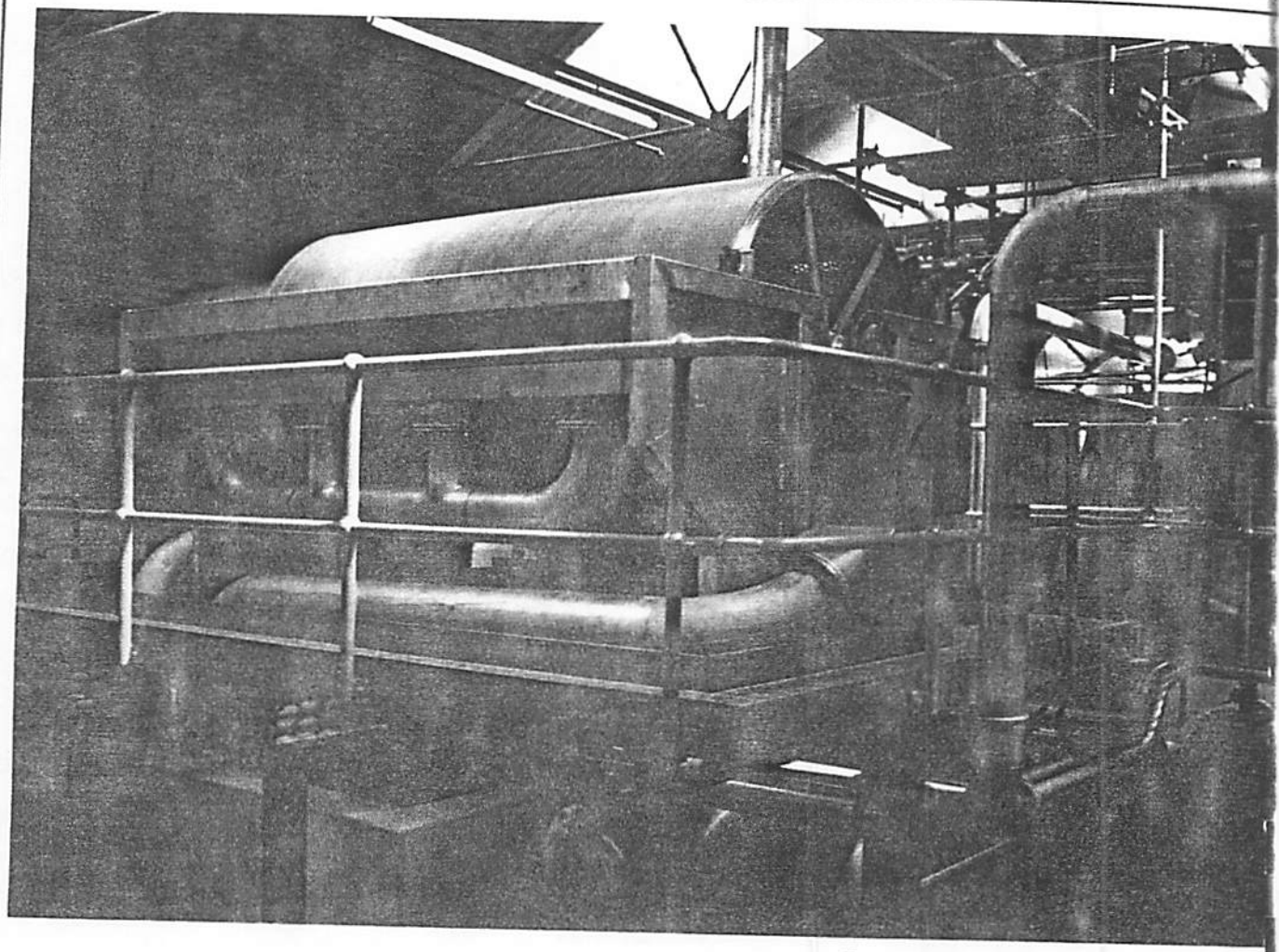
STOCK THICKENERS



● *PULP CONCENTRATOR* ● *WATER FILTRATION*
● *PULP WASHING*

HOLDER PAMAC

Leaders in paper mill technology



One of four Holder Pamac stock thickeners operating in a fine paper mill on excess white water and wet broke, recovering fibre and producing clarified shower water

HOLDER PAMAC

STOCK THICKENERS

The Holder Pamac range of stock thickeners is designed for real benefits in plant efficiency and trouble free operation.

They are suitable for all applications involving the concentration of thin paper stocks and white water to an output consistency of 4 to 5 per cent (6 to 7 per cent with couch roll model).

Ideal for operation in paper machine broke, de-inking and stock washing systems, the installation of a Holder Pamac stock thickener will ensure consistency stabilisation with minimum attention and maintenance.

Already well established in both the U.K. and overseas markets, the units incorporate many cost effective operational features, have proved extremely reliable in service and are manufactured throughout in type AISI 304 or 316 stainless steel.

Additional benefits of Holder Pamac stock thickeners include their application as thickener/filters. In this operation they have the ability to produce clarified water for machine showers.

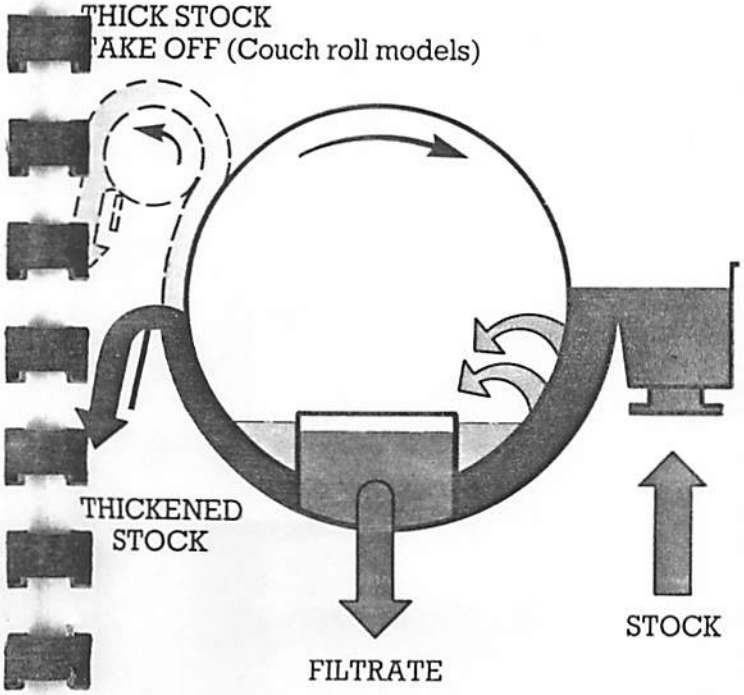
HOLDER PAMAC

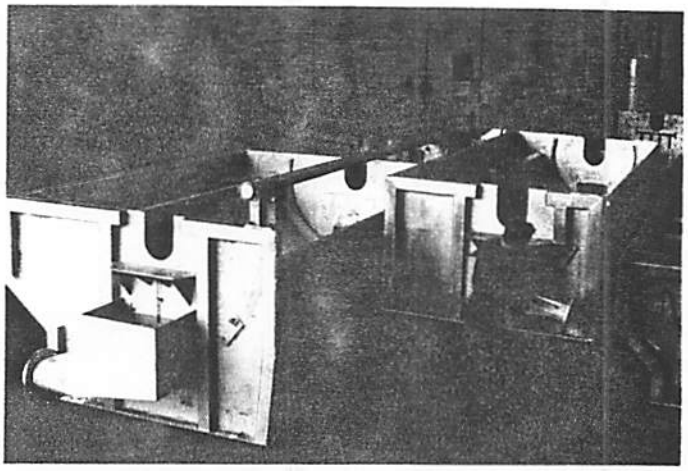
STOCK THICKENER DESIGN FEATURES INCLUDE:-

- *PERFORATED SHELL WITH STAINLESS STEEL BACKING AND FACING WIRES – also adaptable for synthetic shrink sleeves.*
- *ADJUSTABLE STOCK DISCHARGE AND WHITE WATER OUTLET WEIRS.*
- *VARIABLE SPEED GEAR DRIVE.*
- *DRUM CLEANING SHOWER AND SPRAY MIST GUARD.*
- *LOW POWER REQUIREMENTS.*
- *TWIN WATER OUTLETS ENSURE UNIFORM FILTRATE REMOVAL ACROSS DRUM FACE.*
- *OPTIONAL TOTALLY ENCLOSED HOOD.*
- *FILTRATE OUTLETS AND DRIVE HANDING TO SUIT INDIVIDUAL APPLICATION.*
- *THICKENER/FILTER – Produces filtrate suitable for use in correctly specified showers, including drum cleaning shower.*
- *OPTIONAL COUCH ROLL MODEL – for higher consistency.*

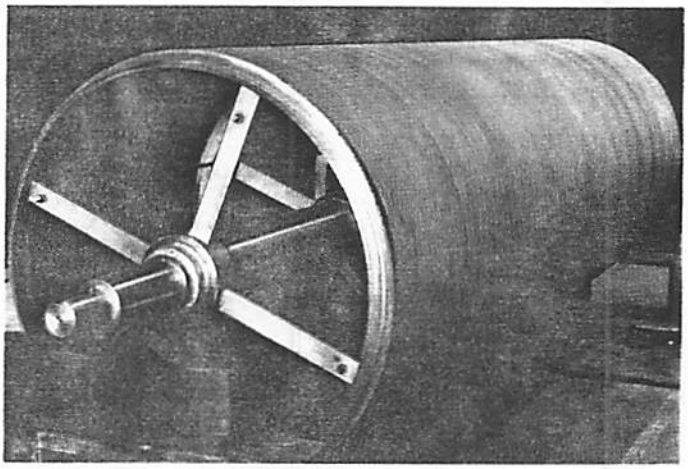
eners white e an vate

STOCK CONCENTRATION
– the principle

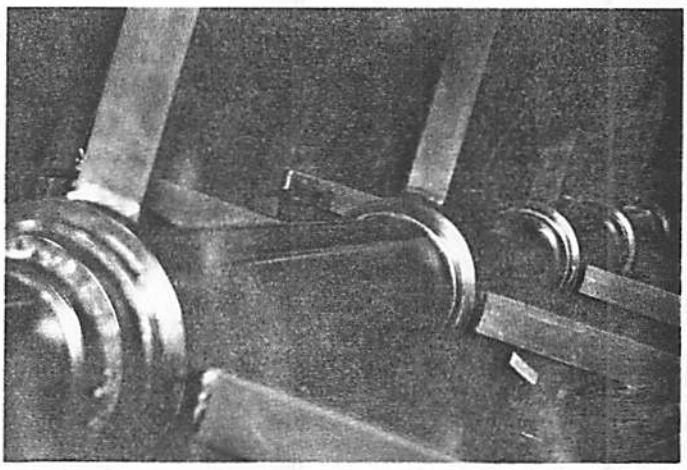




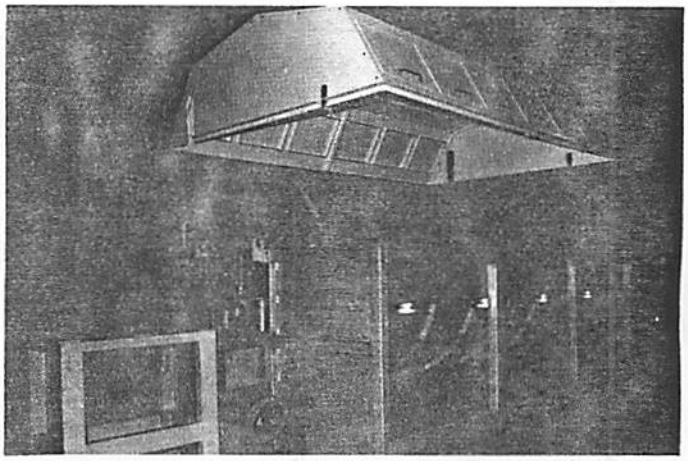
Bodies under manufacture.



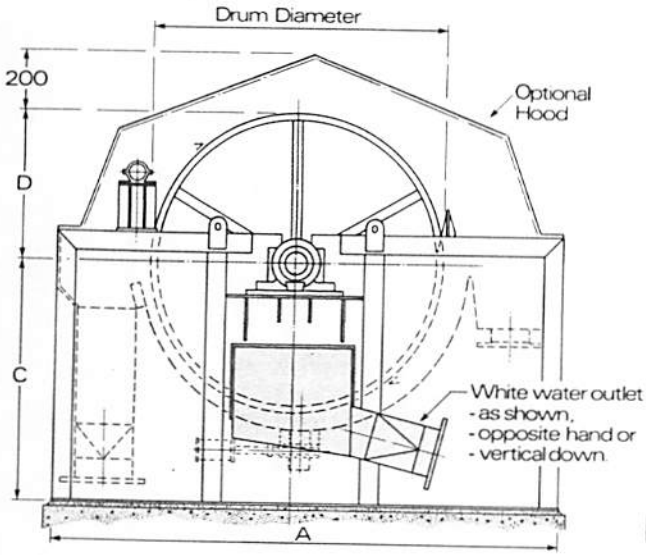
Drum.

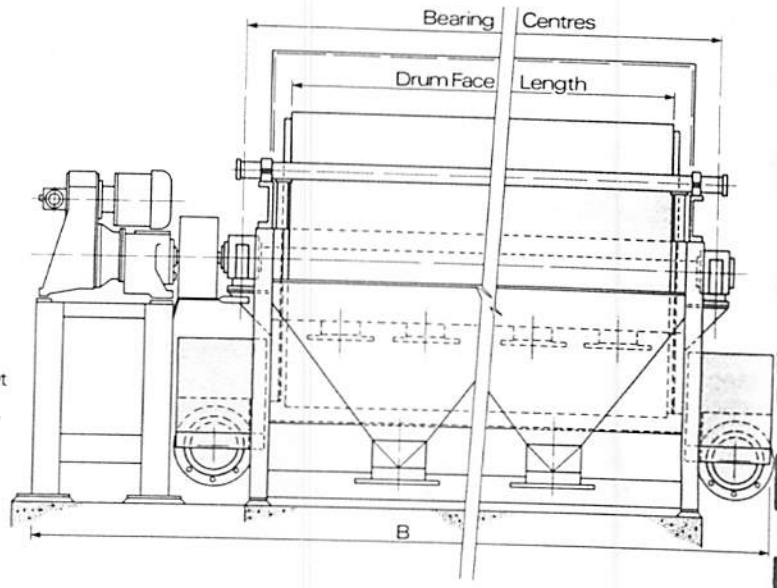


Drum internals.



Cover assembly.





Drum Diameter (mm)	Drum Face Length (mm)	Bearing Centres (mm)	A (mm)	B* (mm)	C (mm)	D (mm)	Filter Area (m^2)	Installed Power Supply (kW)	Weight (tonnes) In Operation	Weight (tonnes) Empty
MODEL 1000										
1000	2000	2416	1740	3948	900	500	6,2	3	4,0	2,1
1000	2500	2916	1740	4448	900	500	7,8	3	4,5	2,2
1000	3000	3416	1740	4948	900	500	9,4	3	5,0	2,3
1000	3500	3916	1740	5448	900	500	11,0	3	5,5	2,4
MODEL 1500										
1500	3000	3416	2620	5020	1270	762	14,3	3	7,0	3,0
1500	3500	3916	2620	5520	1270	762	16,7	3	7,5	3,2
1500	4000	4416	2620	6020	1270	762	19,1	3	8,0	3,4
1500	4500	4916	2620	6550	1270	762	21,5	4	8,5	3,6
1500	5000	5416	2620	7050	1270	762	23,9	4	9,0	3,8
1500	5500	5916	2620	7550	1270	762	26,3	4	9,5	4,0
MODEL 2000										
2000	4000	4466	3300	6606	1525	1000	25,1	5,5	11	4,5
2000	4500	4966	3300	7106	1525	1000	28,2	5,5	12	4,7
2000	5000	5466	3300	7606	1525	1000	31,4	7,5	13	4,9
2000	5500	5966	3300	8106	1525	1000	34,5	7,5	14	5,1
2000	6000	6466	3300	8606	1525	1000	37,7	7,5	15	5,3
2000	6500	6966	3300	9106	1525	1000	40,8	7,5	16	5,5
2000	7000	7466	3300	9606	1525	1000	43,9	7,5	17	5,7

LARGER MODELS AVAILABLE

* Overall width (B) may increase depending on white water discharge position and is quoted as an installation guide only.

HOLDER PAMAC LIMITED

Brandlesholme House, Brandlesholme Road,
BURY BL8 1JJ, Lancashire, U.K.
Tel: 061-761 2616 /061-761 3636 (Sales) Telex: 667453 Fax: 061-797 5205 (Group 3)

INDEX

1. **SPECIFICATION:** Model No. 1500

Drum Diameter	1500 mm
Drum Face	5500 mm
Filter Area	26.3 m^2
Weight Empty	6 tonnes (incl.Drive and Hood)
Weight in Operation	12.5 tonnes (incl.Drive and Hood)
Installed Power	4 kw (by mill)
Throughput	6 short tons/hr. max.
Consistency	Inlet 0 - 3% maximum Outlet 4 - 5% maximum
Stock Type	Return post card Hardwood/Softwood mix.
Holder Pamac Serial No.	1555/39

2. GENERAL DESCRIPTION:

Vat:

Fabricated entirely in Grade 304 stainless steel, including all stiffeners, mounting feet and internal chambers, etc. The Vat ends are complete with clean-out ports, having bolted on covers. Two drains are incorporated in the Vat, one of which is fitted with a gasketed blank cover.

The inlet chamber is fitted with four flanged connections and the outlet with two flanged connection.

Two identical white water outlet chambers, one drive end and one non drive end are fitted to the vat body. Each chamber is fitted with simple manually operated adjustable gate terminating with a 200 mm nominal bore flanged connection.

Drum:

The Drum of stainless steel perforated plate construction is covered by two stainless steel filtration wires.

The inner backing wire is 14 mesh wire and the outer facing wire is of 50 mesh wire.

It may be necessary to replace the fine 50 mesh facing wire as it becomes worn or damaged.

Refer to instructions for fitting new facing wire later in this manual.

The drum is carried on two Cooper split roller pedestal bearings complete with swivel cartridges. A fixed bearing Ref. 01 BCP 110 mm GR with felt seals is fitted at the drive end and a free bearing Ref. 01 BCP 110 mm EX with felt seal and end blanking plate is fitted at the non-drive end to allow for expansion of the drum.

For details on these bearings including fitting and lubrication see the following sheets.

Seals:

Each end of the drum, is fitted with a fabric felt type seal complete with tensioning device, to seal between the vat and the drum.

N.B. Do not run the drum more than a few minutes without water on the seals.

To fit a new seal it is easiest to tie a new seal to the old seal and pull same round the drum, then attach to the clamp and tensioning device, before final tensioning.
Ref. Seal Drawing 111-DET-53.

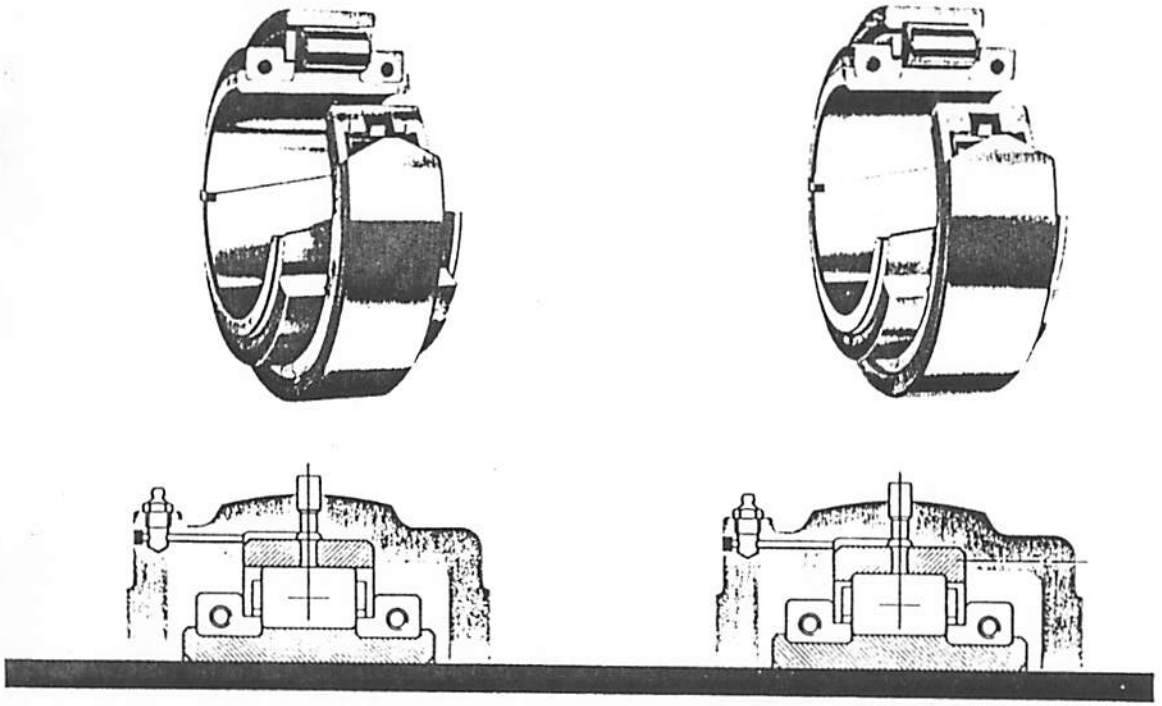
Main Drive Unit: (by Lincoln Pulp and Paper Inc.)

Shower:

Refer Drg. 111-DET-106

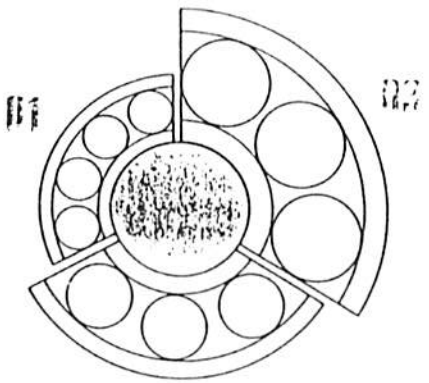
Water Consumption	at 30 p.s.i. = 383 l.p.m.
	at 50 p.s.i. = 516 l.p.m.

TYPES OF BEARINGS



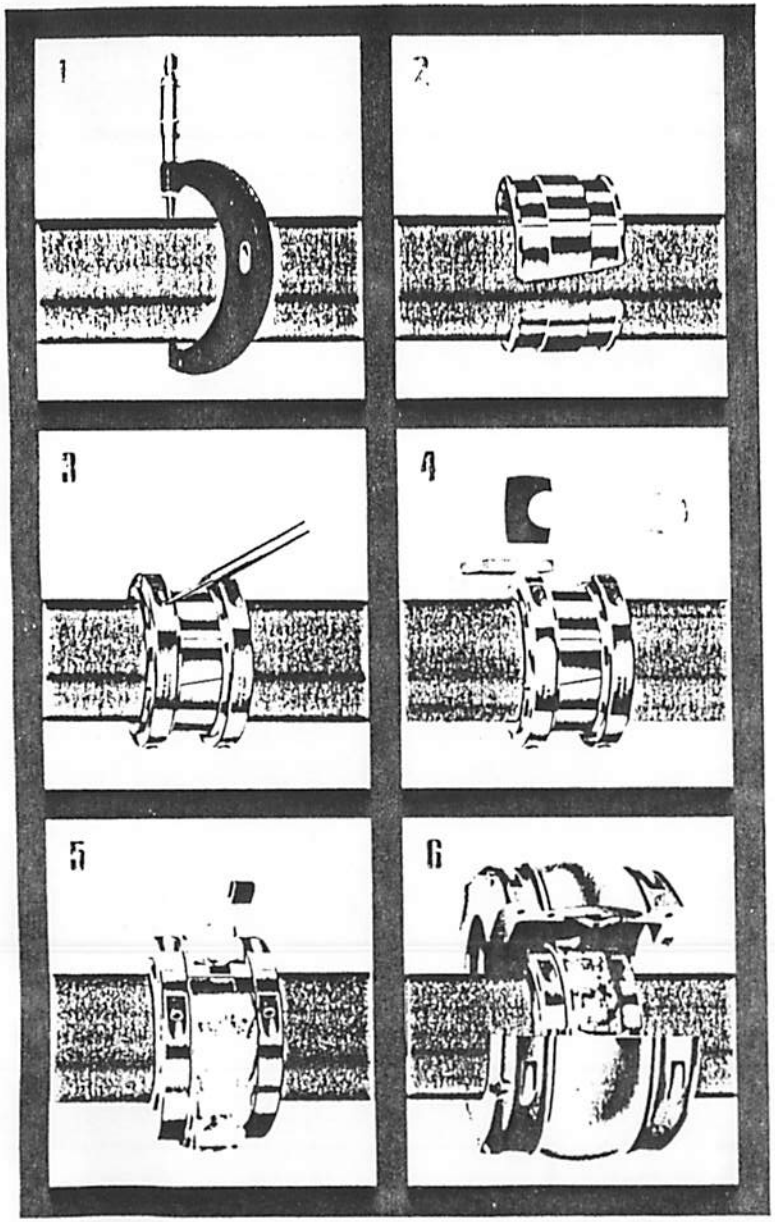
EXPANSION EX
Bearings for radial loads only. The inner race and shaft have axial freedom.

FIXED GR
Bearings for radial and axial loads. Position the shaft endways and resist axial load by cycloidal contact of the roller ends within the inner and outer race grooves.
The halves of the inner races are aligned by recessed clamping rings and are fitted to plain shafts as above or between abutments when specified. The split outer race must also be accurately registered axially. See Race Positioning page 8.



COMPARISON OF RATINGS
To provide optimum selection, standard Cooper Split Roller Bearings are classified in Series 01, 02 and 03 according to their respective ratings as depicted above. Selection page 6.

ASSEMBLY



Preliminary Notes. Unwrap Bearing parts. Carefully ease out cage jointing clips of assembled bearings and clean off preservative. Handle half cages and rollers with care. To fit outer race in cartridge, see right. Maintain the bearing clean and safe from damage. Lightly oil threads and interfaces, including bores of clamping rings. Complete roller bearings are interchangeable between similar Cooper cartridges, but individual parts should not be interchanged. Pairing marks must coincide. Note the Expansion EX bearing has a plain outer race with no lips. The Fixed GR bearing has guiding lips on both inner and outer races.

1 Check shaft diameter, roundness and parallelism. Tolerance values, see page 9. For some applications, especially at slow speed and moderate load, wider tolerances h9 as on standard shafting can be accepted. The inner race, before assembly, measures under-size equivalent to the final gap at the joints.

2 Place the two halves of the inner race at the correct position on the cleaned shaft. Inner races of EX bearings are normally set centrally with the outer race, but in cases of axial expansion may be offset within 10% of the outer race width.

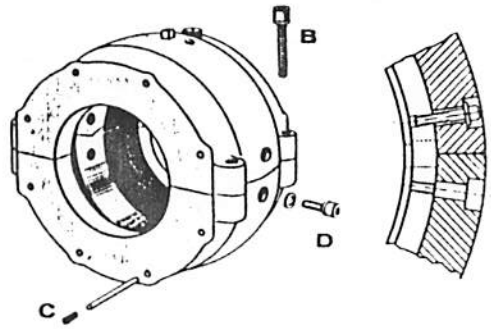
3 Fit the clamping rings with the joints at about 90° to the inner race joint. There should be approximately equal gaps at both joints of the clamping rings and races. A soft packing may be placed in the race joint under the clamping ring. Take care not to damage the joint faces. Tighten all four clamping screws equally using the correct hexagon key and tube extension.

4 Tap down each half of the inner race and clamping rings all round the shaft, interposing a fibre or hardwood block between hammer and bearing parts. Retighten screws. Repeat until the screws are fully tight. The recommended torque values are shown on page 11. Check there is a gap at both joints of the inner race. The total gap varies and is not critical provided the shaft is within the required tolerance. Check that inner races of EX bearings will be central or correctly offset when all parts are finally positioned.

5 Coat the roller cage with grease and lightly cover the other parts for protection. Place the cage round the inner race and engage the jointing clips/plates. Place the half outer race with the lubrication hole into the top half cartridge and the second half race into the lower half cartridge ensuring pairing marks will coincide. Where there are axial and/or radial screws, see right. Inject grease to fill the grease passages. End bore seals should be well lubricated on assembly including the bores of the revolving triple labyrinth seals. Blanking plates should be sealed with grease or compound. Add grease to the cartridge as specified on page 12.

6 Close cartridge and tighten joint screws. Expansion bearings, indicate on shaft the correct axial position of cartridge. Lubricate spherical seating, anti-scuffing compounds are advantageous. Pedestal bases must be supported to avoid deflection. The shaft should be run for a short period before finally tightening the pedestal cap screws to ensure swivel alignment. For EXBT see page 31. Where oil lubrication is to be used the cartridge joint faces and screws should be treated with a sealing compound. See page 12.

Fitting an outer race where screws are used



Clean the cartridge bore and lightly oil.
Fit the half outer races — see paragraph 5.
Just enter radial holding screws D where provided – it is important to fit the washers.
Fit the side rods and screws C where provided and very lightly tighten.
Place together the half cartridges and fully tighten the cartridge joint screws B.
Progressively and fully tighten the radial screws D and/or side screws C.
In some sizes two cartridge joint screws must be removed to gain access to the side screws.
When subsequently lifting large half cartridges, take care the half outer race does not fall.

All threaded lifting holes are marked with appropriate size, eg M16.

Tolerances page 9. Seals page 13.

SUMMARY

The correct shaft limit is important

Parts should not be interchanged

Markings should coincide

Lightly oil threads and interfaces

Fully tighten the inner race

Lubricate before closing the cartridge

Lubricate swivel seatings

Safeguard rolling surfaces for transit

crew Sizes

l threads are Metric Coarse

SERIES 01 bore d mm		Cartridge Pedestal	Flange	Take-up	Joint	Radial	Side	Clamping Ring
40		8	8	8	4		4	4
50		8	8	8	4		4	4
60		10	10	10	4		4	4
65								
70		12	12	12	4		4	4
75								
80	90	16	12	16	5		4	5
85								
100		16	16	16	6		4	6
105								
110	115	20	16	20	6		6	6
120	130	20	20	20	6		6	6
125								
135	140	20	20	20	8		6	8
150	155	20	20	20	8		6	8
160		16	20		8		6	8
170	180	16	20		8		6	8
190	200	16	24		8	10	6	8
220		16	24		10	10	6	10
240		20	24		10	10	6	10
260	280	20	24		10	10	10	10
300		20	24		10	10	10	10
320		20			12	10	10	12
340		20			12	10	10	12
360	380	20			12	10	10	12
400		20			12	10	10	12
420		20			12	12	10	12
440	460	20			12	12	10	12
480		20			12	12	10	12
500		20			16	12	10	16
530		20			16	12	10	16
560		20			16	12	10	16
600		20			16	12	10	16

SERIES 02 Bore d mm		Cartridge Pedestal	Flange	Take-up	Joint	Radial	Side	Clamping Ring
60		12	12	12	5		4	5
65								
70		16	12	16	6		4	6
75								
80	90	16	16	16	6		4	6
85								
100		20	16	20	6		4	6
110	115	20	20	20	8		6	8
120	130	20	20	20	8		6	8
125								
140		20	24	20	8		6	8
150		20	24	20	8		6	8
160	170	20	24		10		6	10
180		20	24		10	10	6	10
190	200	20	24		12	10	6	12
220		20	24		12	10	6	12
240	260	20	24		12	10	10	12
280		20	24		16	10	10	16
300		20	24		16	10	10	16
320		20			16	10	10	16
340	360	20			16	12	10	16
380		20			16	12	10	16
400		20			16	12	10	16
420		20			16	12	10	16
440	460	20			16	12	10	16
480		24			20	12	10	20
500		24			20	12	10	20
530		24			20	12	10	20
560		24			20	12	10	20
600		24			20	12	10	20

SERIES 03 Bore d mm		Cartridge Pedestal	Joint	Radial	Side	Clamping Ring
110	120	16	10	10	6	10
130		16	10	10	10	10
140		20	10	10	10	10
150		20	10	10	10	10
160	170	20	12	12	10	12
180		20	12	12	10	12
190	200	24	12	12	10	12
220		20	16	12	10	16
240	260	20	16	12	10	16
280X		20	20	12	10	20
280E		20	20	12	10	20
300		20	20	12	10	20
320		24	20	12	10	20
340E	360E	24	20	12	16	24
360X		24	20	12	10	24
380	400	24	20	12	10	24
420E	440E	24	20	12	16	24
460E		24	20	12	16	24
460X	480X	24	20	16	10	24
500	530	24	20	16	10	24
560E		24	20	12	16	24
600E		24	20	12	16	24

Tightening Torque

Screw Size	Clamping Ring Torque Nm	Torque lbf ft	Key A/F	Side Screw Key A/F
4	4,5	3,5	3	2
5	8,5	6,5	4	
6	15	11	5	3
8	35	26	6	
10	70	52	8	5
12	120	88	10	
16	300	220	14	8
20	560	415	17	
24	950	700	19	

Torque values for screws other than Clamping Ring are 75% of above.

Clamping Ring screw sizes for Series 04 are as follows:

Screw Size	SERIES 04 Bore d
10	10¾"-18¼"
12	20¾"-1550mm

All screws are high tensile, hexagon socket.

LUBRICATION

Lubrication by grease is usually satisfactory up to the normal maximum speeds, subject to consideration for temperature and axial loads and it is convenient to group into two ranges according to maximum working temperature.

Range A greases are often water-absorbent and many greases in both ranges contain moisture and oxidation inhibitors.

Greases with extreme pressure additives are sometimes advantageous, especially for high radial and axial loads, where their use can double the permitted thrust load on a GR bearing.

For extreme temperatures and speeds it is always advisable to obtain recommendations from our Technical Department.

Very stiff greases which tend to channel or very soft greases which may churn at speed should not be used.

Greases of No. 2 consistency are generally used for pumped systems.

Procedure

The bearing parts must be clean on assembly, see page 10. Apply grease as follows.

For speeds up to *dn=50,000 the roller bearing and cartridge should be packed full on assembly.

For speeds over dn=50,000 use progressively less grease to coat the bearing parts, down to a smear of about 1mm thick on all rolling surfaces at a speed of dn=200,000, and add 25% of the amount shown in the grease weights table into the cartridge in addition to coating the bearing parts.

Cartridges fitted with thrust bearings, which are used only up to dn = 20,000 should be completely filled on assembly, including the bore of the thrust bearing.

All cartridge end bore seals should be well lubricated on assembly including the bores of the revolving triple labyrinth seals. Blanking plates should be sealed with grease or jointing compound.

NEVER ASSEMBLE THE BEARINGS DRY AND INJECT THE GREASE AFTER CLOSING THE CARTRIDGE. ALWAYS COAT SWIVEL SEATINGS WITH OIL OR GREASE.

Routine Greasing

If possible it is better to re-grease as the bearing rotates. The grease charges listed below are for bearings up to 75mm bore, use progressively more grease as the bearing size increases.

EXPANSION EX BEARINGS. One or two shots from a grease gun two or three times a year, i.e., every 1,000 operating hours is usually sufficient.

FIXED GR BEARINGS FOR THRUST. One or two shots from a grease gun every two weeks, i.e., every 100 operating hours or longer according to duty and experience.

FIXED GR BEARINGS USED FOR LOCATION ONLY. Treat as Expansion Bearings.

Pumped systems should be metered to be equivalent to the above quantities.

Clean out and replace the grease after several years or as determined by the conditions.

For Bearings with speeds up to dn=50,000 which are assembled with a full pack of grease, re-greasing intervals can be increased to one year, provided the thrust load on the GR bearing is nominal.

*d=bearing bore mm n=rpm.

Grease Weights

The weights given are sufficient to coat the roller bearing as described. A similar amount fills the remaining space in the lower half of the cartridge and thus three times the values given will completely fill the bearing and cartridge. All weights are approx.

Suitable Greases include

	Range A	Range B
	up to 100°C	up to 140°C
Shell	Alvania R2 or R3	Darina R2
Mobil	Mobilplex 47 or 48 / Mobilux 2 or 3	Mobiltemp 1
Esso	Beacon 2 or 3	Norva 275
Castrol	Spheerol AP2 or 3	Spheerol BNS
BP Energrease	LS 2 or 3	HTB 2
Texaco	Regal AFB 2	Ultra Temp
Duckhams	Admax L2 or L3	Admax B3
Acheson	Multi-Purpose No 2	Hi Temp
Century	Lupus A2	Bellatrix 2
Rocol	BRB 1200	BRB 1200

Extreme pressure greases are usually Range A and suffixed EP. Range B greases should be checked for speeds over dn = 100 000, and replenishment intervals.

Oil Lubrication

Oil lubrication is used mainly for high temperature, high speed, full row and Fixed GR bearings with high axial loads, to ensure the continuous lubrication of the roller ends. Use a good quality mineral or synthetic oil, turbine or automotive grade and as recommended. The rate of oil feed will depend mainly on speed. Piped oil circulating systems may be employed, but oil pressure inside the cartridges should be avoided. An effective seal at the cartridge ends is necessary and the cartridge joint faces and all screws should be treated with a sealing compound. The type, method of application, sealing and replenishment should be decided in consultation with our Technical Department.

Lubrication Points

Cooper cartridges are tapped ⅛ or ¼ NPT according to size and series. Grease nipples or temporary plugs are fitted as standard. Special lubricators by arrangement. BSP fittings are acceptable, but will screw in further and care must be taken to avoid blocking off the horizontal grease passage.

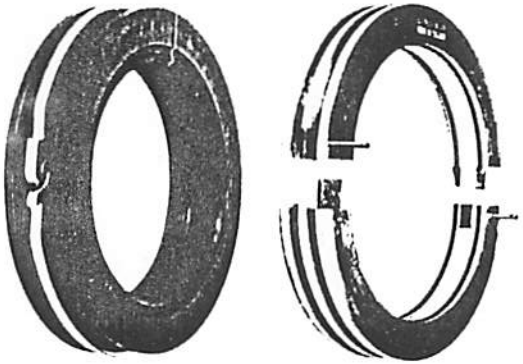
The lubricant is injected through the outer race directly to the rolling surfaces. Pipework must be flexible to allow the swivel cartridge to function.

Grease Weights. Kilogrammes

Bearing bore d		Series 01	Series 02	Series 03
40		0,02	[illegible]	[illegible]
50		0,03	0,05	[illegible]
60		0,05	0,07	[illegible]
65				
70		0,06	0,10	[illegible]
75				
80	90	0,10	0,15	[illegible]
85				
100		0,12	0,20	0,40
105				
110		0,17	0,30	0,46
115				
120	125	0,20	0,37	0,46
130				
135		0,26	0,46	0,68
140				
150		0,30	0,46	0,90
155				
160		0,34	0,46	1,20
170	180	0,37	0,68	1,40
190	200	0,46	0,90	1,80
220		0,46	1,20	2,30
240		0,68	1,40	2,70
260	280	0,68	1,60	3,40
300		0,68	1,80	3,90
320		0,9	2,2	4,0
340		1,0	2,4	5,0
360	380	1,0	2,6	5,4
400		1,2	3,0	6,4
420		1,4	3,2	7,2
440	460	1,4	3,2	8,2
480		1,6	3,4	
500		1,6	3,6	10,0
530		1,8	3,8	11,0
560		1,8	3,8	12,0
600		2,0	4,2	12,8

Seal	Temp.	Shaft Surface Texture		
	Max °C	Max. Roughness μm Ra dn · 20 000	dn · 20 000	
Neoprene triple labyrinth	100	3,2	1,6	Available for sizes up to 105mm, in neoprene rubber.
Aluminium triple labyrinth O-ring grade 1 O-ring grade 2	 100 150	3,2	1,6	Available for sizes 110–300mm with cartridge length L_1—see pages 15-23. Larger sizes are made to order
Felt Asbestos or other HT packing	100 250	1,6	0,8	Available for sizes to 300mm. Maximum speeds dn · 150 000. Cartridge length L—see pages 15-23.
Rubber split seal grade 1 grade 2	 100 175	0,8	0,4	Available for sizes to 300mm. Maximum speeds dn · 150 000. Cartridge length L—see pages 15-23.
Grease groove	—	—	—	Standard for sizes over 300mm and normally for Marine applications. Cartridge length L—see pages 17 21 and 23.
Blanking plate	—	—	—	Available for sizes to 300mm. Sizes to 90mm in Series 01 and 02 can be fitted with thrust bearings, for shaft termination—see page 31.

100°C is the maximum temperature for standard bearings, see page 6.



Triple Labyrinth Seals—TL

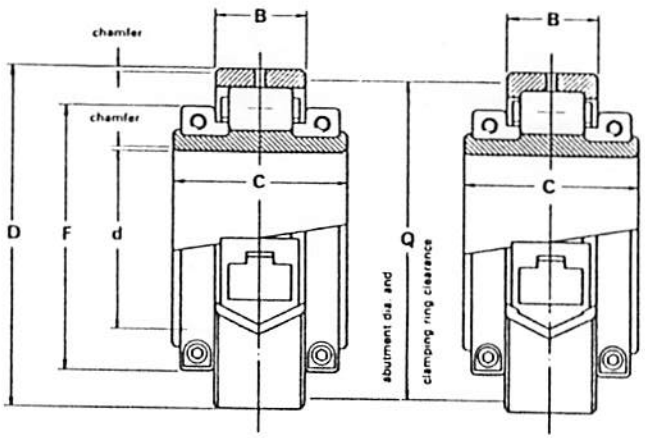
Cartridges to 300mm are usually supplied with a general purpose felt seal. The felt groove will also accommodate asbestos or other HT packing seals, lipped rubber seals or suitable blanking plates (see optional types at foot of page).

Triple labyrinth seals have precision non-rubbing characteristics and are readily available on request to suit the more difficult sealing environments. Note that the cartridge end profile is different from the felt groove.

For special applications seals may be made from other materials and alternative special seals can be supplied to suit specific conditions.

SERIES 01 Roller Bearing

40 – 155mm bore



Expansion EX **Fixed GR**

d mm	Reference BEARING only	Bearing Rating kN Dynamic C	Static Co	Axial Ca	Max rpm	D	B	C	F[1]	Q	Wt B kg
40	01 B 40	59	38	1,6	5400	84,14	23,8	50,1	66	75	1,0
50	01 B 50	68	45	1,8	4630	98,42	25,4	55,7	80	90	1,5
60	01 B 60	88	61	2,7	3940	114,30	27,0	55,7	92	105	1,5
65	01 B 65										
70	01 B 70	118	86	3,8	3310	133,35	31,8	61,2	106	124	2,5
75	01 B 75										
80	01 B 80	163	127	6,2	2790	152,40	38,9	70,7	128	142	4,0
85	01 B 85										
90	01 B 90										
100	01 B 100	217	171	8,0	2340	174,62	45,3	81,0	144	162	6,0
105	01 B 105										
110	01 B 110	271	223	9,3	1970	203,20	46,9	84,9	165	182	9,0
115	01 B 115										
120	01 B 120	316	263	11,1	1740	222,25	54,0	89,7	180	200	11,0
125	01 B 125										
130	01 B 130										
135	01 B 135	351	294	12,9	1570	241,30	55,6	98,4	198	216	14,0
140	01 B 140										
150	01 B 150	382	331	14,7	1450	254,00	55,6	98,4	214	230	16,0
155	01 B 155										

Add mm and EX or GR to reference (1 kN = 100 kgf = 225 lbf approx.) Sizes 160–600 mm bore see page 16.

Chamfer in inner race:
Sizes to 90mm: 1,5, over 90mm: 2,5.

Chamfer on outer race
Sizes to 105mm: 1,0, over 105mm: 1,5.

For details of race positioning—see page 8.

[1] Screw heads project—dimension Q clears.

Modified construction is required for some operating conditions—see page 6.

Selection page 6. Tolerances page 9.

For normal inch and sixteenth equivalent sizes, see Inside Back Cover.

Assembly page 10. Lubrication page 12.

Lubricating points tapped ¼ NPT.

Seals page 13.

Where shafts terminate at the bearings, cartridge ends can be fitted with blanking plates, or in the case of Expansion bearings up to 90mm, blanking plates with thrust bearings for one way positioning. See page 31.

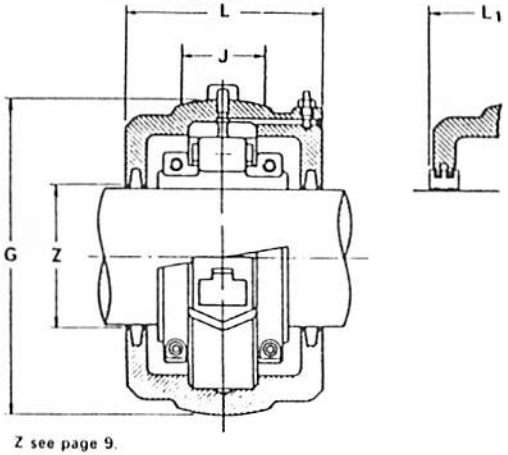
Where swivel cartridges only are supplied please apply for details of cartridge registering pegs.

Swivel Cartridge

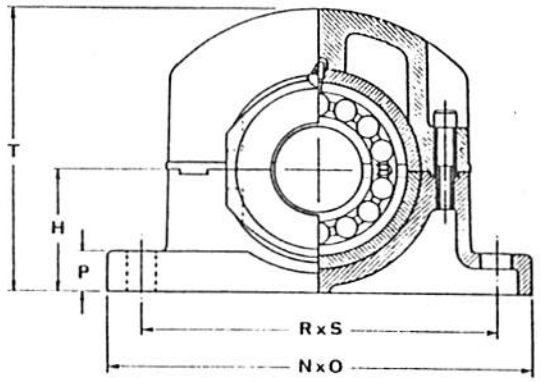
Pedestal

SERIES 01

40 – 155mm. bore



Z see page 9.



d mm	Reference: Cartridge & Bearing	Reference: Cartridge Shell only	L & L1	G	J	Wt BC kg
40	01 BC 40	01 C 40	86	100,00	25	3
50	01 BC 50	01 C 50	98	117,48	25	4
60	01 BC 60	01 C 60	104	134,94	32	5
65	01 BC 65	01 C 65				
70	01 BC 70	01 C 70	114	157,16	38	8
75	01 BC 75	01 C 75				
80	01 BC 80	01 C 80	136	177,80	50	11
85	01 BC 85	01 C 85				
90	01 BC 90	01 C 90				
100	01 BC 100	01 C 100	134	203,20	50	14
105	01 BC 105	01 C 105				
110	01 BC 110	01 C 110	142	231,78	64	21
115	01 BC 115	01 C 115				
120	01 BC 120	01 C 120	156	266,70	76	31
125	01 BC 125	01 C 125				
130	01 BC 130	01 C 130				
135	01 BC 135	01 C 135	168	279,40	76	35
140	01 BC 140	01 C 140				
150	01 BC 150	01 C 150	174	295,28	82	42
155	01 BC 155	01 C 155				

Add mm and EX or GR to reference.

Standard cast iron bases normally have longitudinal bolt slots, amount of movement in either direction: sizes to 90mm: 4, over 90mm: 6, upper surface as cast. Cast steel or other special bases normally have drilled holes, spot faced.

For styles of pedestals—see page 5.

Maximum loading on pedestals—see page 8.

Base dowel diameter when required Sizes to 65mm: 6, over 65mm to 105mm: 10, over 105mm: 12.

d mm	Reference: Pedestal complete	Reference: Pedestal casting	H	N x O	P	bolts	R x S	T	Wt BCP kg
40	01 BCP 40	P 01	60	228 x 60	22	2–M12	180	138	5
50	01 BCP 50	P 02	70	270 x 60	25	2–M16	214	158	8
60	01 BCP 60	P 03	80	280 x 70	32	2–M16	234	180	11
65	01 BCP 65								
70	01 BCP 70	P 04	95	330 x 76	38	2–M20	270	208	16
75	01 BCP 75								
80	01 BCP 80	P 05	112	380 x 90	44	2–M24	320	252	26
85	01 BCP 85								
90	01 BCP 90								
100	01 BCP 100	P 06	125	420 x 102	52	2–M24	354	272	30
105	01 BCP 105								
110	01 BCP 110	P 07	143	466 x 120	60	2–M24	392	314	42
115	01 BCP 115								
120	01 BCP 120	P 08	162	508 x 178	38	4–M24	450 x 120	372	76
125	01 BCP 125								
130	01 BCP 130								
135	01 BCP 135	P 09	181	558 x 178	40	4–M24	482 x 120	405	87
140	01 BCP 140								
150	01 BCP 150	P 10	181	558 x 178	40	4–M24	496 x 120	415	97
155	01 BCP 155								

Add mm and EX or GR to reference—see also page 44

3. PRINCIPLE OF OPERATION:

Stock is fed, via a distribution header, to the thickener inlet through and passes over a flow-evening weir into the vat.

The open-ended drum, formed of perforated plate and covered with wire mesh, rotates within the vat and is designed to allow filtrate to pass from the drum into the filtrate discharge chambers formed outside each end of the vat.

A band seal formed between drum and vat ends maintains separation of the filtrate from the feed stock.

Initial de-watering of the feed stock takes place due to the level difference between the feed stock outside the drum and the filtrate inside the drum.

Adjustable weir plates in the filtrate discharge chamber allow optimum setting of the level inside the drum, and changes in level in the vat are obtained by variation of the drum speed.

The axis of the drum is off-set to that of the vat, creating a progressive reduction in the gap between drum periphery and vat as the flow approaches the thick stock discharge weir and further de-watering of the stock occurs due to the wedging action obtained.

Optimum handling capacity of the unit, combined with thickened stock consistency, is achieved by careful selection of drum speed and adjustment of filtrate and thick stock discharge weir levels.

Lowering of the thick stock discharge weir will result in a lower thick stock consistency. Should it prove necessary to raise the weir level this can be attained by the addition of a weir extension element.

4. **INITIAL START-UP:**

a) Ensure that the Thickener Vat is clean and free form debris.

b) Check oil level in drive gearbox.

c) Check that drum bearings are greased.

d) Ensure that the band seals between drum and vat ends are correctly tensioned.

e) Set the weir plates in both filtrate discharge chambers to lowest position.

f) Fill the vat with clean water to the level at which water flows over the filtrate discharge weirs.

g) Start drum drive, checking that direction of drum rotation is correct.

h) Open the shower valve, checking that the spray angle is correct and that the fan jets cover the entire length of the drum.

i) Star drum thickener feed stock pump.

5. **SHUT DOWN:**

a) Stop the feed stock to the drum thickener.

b) Leave the drum running until filtrate discharge ceases.

c) Stop drum drive.

d) Shut off showers.

NOTE: When shutting for an extended period the vat must be drained and the unit thoroughly cleaned.

6. FITTING INSTRUCTIONS FOR NEW FACE WIRE:

1. Support drum on suitable pedestals to give clearance from floor level.

2. Pre-ordered wire should be 50 mm in excess of both length and circumference.

3. Drape wire mesh around drum direct from support package such that the natural curve created from weaving and rolling for despatch is inwards to the drum face.

4. Arrange that the joint of the two edges of wire are at working height across the drum face and roughly 'square' the mesh before typing securely with 5 or 6 lengths of strong sting or light rope across the face. This two-handed operation to wrap the mesh as tightly as possible around the drum before holding with string will enable the final operation to be more easily carried out.

5. Attach the rubber tensioning belt around the drum and using a torque spanner tension the wire to about 30/40 ft/lbs. (see sketch) starting at one end.

6. With the mesh overlapping form top to bottom cut along the line projected by the bottom edge of the wire for the width of the belt. Spot weld the two edges at one inch intervals holding the edges of the wire down with a wooden stake or a handle of a hammer. When spot welded across face of belt then return to starting point and fully weld the joint.

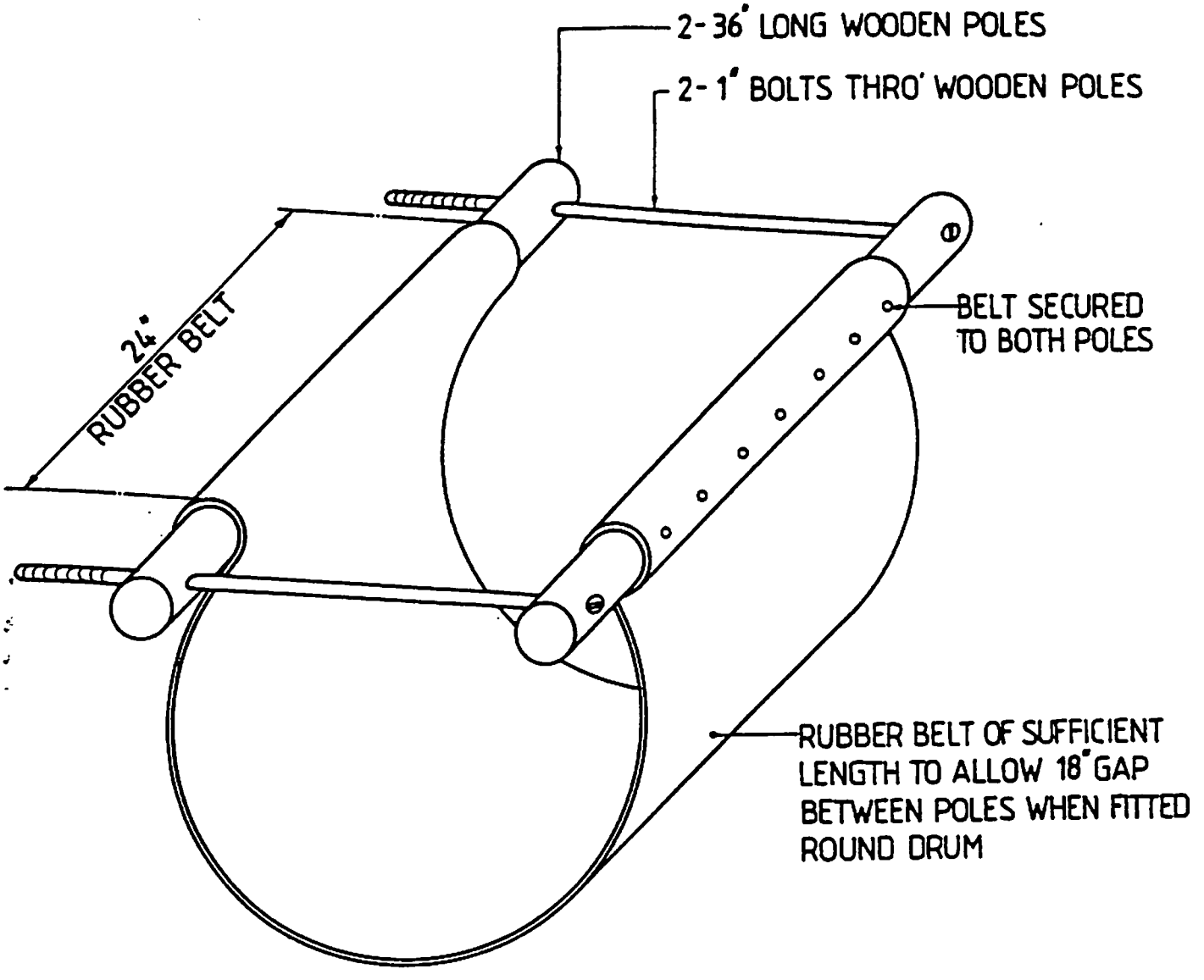
7. Remove tension belt and move along the drum face for width of belt and repeat the operation removing strings as necessary.

8. On completion of the longitudinal seam, trim the wire around the circumference to length, and solder the edges down at both ends around the drum about ½" wide.

9. Repeat the operation for the fine mesh wire ensuring the longitudinal joints are at opposite sides.

N.B. When soldering the edges we find using heavy conventional soldering irons heated in a flame are the only satisfactory method of retaining sufficient heat to 'run' the solder.

Refer Sketches A & B.



ISSUE	REVISION	INITIAL	DATE
3			
2			

HOLDER PAMAC LIMITED

Title	WIRE CRADLE BELT				Matl.
Scale	Issue 1	Drawn	Date	Checked	Order Title DRUM THICKENERS

LIST OF DRAWINGS:

111-5-21 (2 sheets)	Arrangement Broke Thickener
111-DET-106	Shower