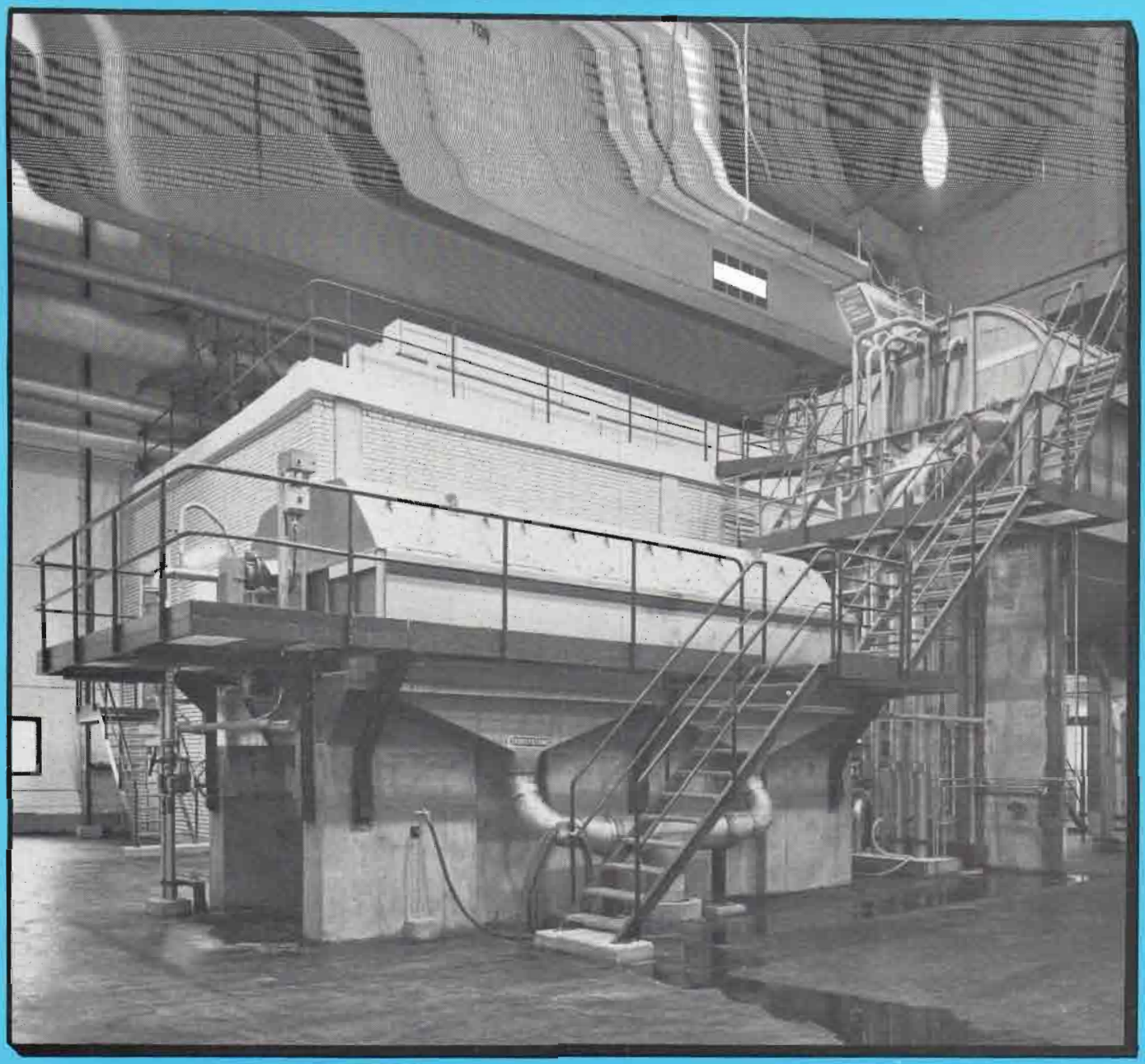
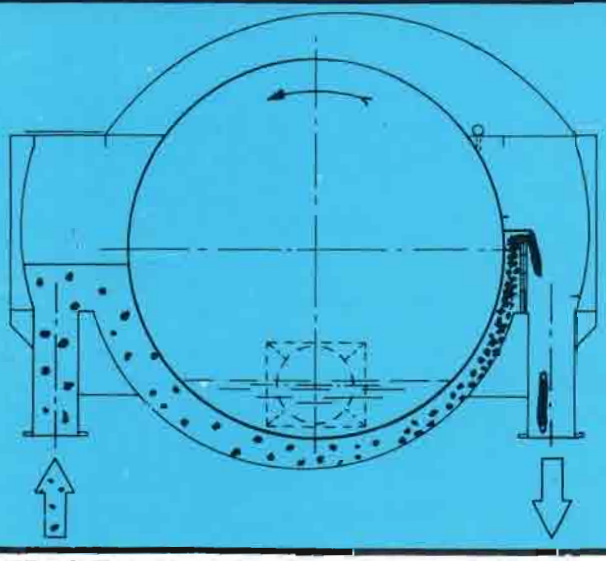
HEDEMORA Gravity Decker





Whatever you need in pulp thickening, washing, fiber recovery

choose.

HEDEMORA Gravity Decker

— Used for thickening up to 4—5% solids of paper machine broke and for prethickening of reject pulp.

— The decker operates without the aid of a dropleg or other vacuum source. It is insensitive to variations in feed flow or feed concentration and works without instrumentation or other regulation.

HEDEMORA
SEPARATION

ALFA-LAVAL
CELLECO HEDEMORA

GENERAL DESCRIPTION

The purpose of the Gravity Washer is to thicken pulp from approximately 0.65% consistency to 4.0% consistency. The perforated drum fitted with a polyester cover rotates in the vat. The dewatering (thickening) is achieved by the level difference between the pulp outside the drum and the filtrate inside the drum. The drum is eccentrically mounted in the vat so the distance between the drum periphery and the vat is less at the discharge point than on the feed side. The pulp is conveyed towards the discharge by the drum rotation and by a carrier (pulp lifter) mounted on the drum outside of the cover. The pulp lifter also pushes the thickened pulp over the discharge weir.

The filtrate leaves the decker through the open end of the drum, opposite the drive end. A spring loaded deckle between the drum and the vat prevents the pulp from getting into the filtrate. This deckle consists of a stainless steel cable covered with plastic.

The polyester cover is cleaned by shower pipe with flat jets covering the entire drum length. The nozzles are cleaned with an internal brush in the shower pipe which is rotated as the flushing valve is opened to the vat.

The discharge consistency may be adjusted by changing the height of the weir at the pulp outlet. The unit is supplied with two (2) sets of 200mm plates and two (2) sets of 100mm plates allowing mounting in combinations for height adjustment.

The fixed speed drive system consists of a shaft mounted gear reducer, 20 HP motor and V-belt transmission. The drive speed is approximately 10 RPM.

ALFA-LAVAL
CELLECO HEDEMORA

OPERATING DATA

PULP FURNISH:	70% News/30% Magazine
FEED CAPACITY:	144.5 BDSTPD
FEED CONSISTENCY:	0.65%
DISCHARGE CONSISTENCY:	4.0%
TEMP. OF STOCK:	40°C
FREENESS OF FEED STOCK:	110 CSF

OPERATING INSTRUCTIONS

INITIAL START-UP

a) Check the oil level in the gear reducer and confirm that the SKF pillowblocks have been greased.

b) Check and adjust the seal between drum and vat. Check compression on the stuffing box glands.

c) Start the shower water pump and open the shower water valve.

d) Start the drum drive motor. **Do not operate the drum for more than a minute** or so without water on the deckle seal. This seal is lubricated and cooled by the water in the pulp and filtrate. The heat generated by friction may become too high for the plastic if no water is present.

e) Start the pump for pulp feed to the decker.

SHUT DOWN

a) Stop pulp feed to the decker.

b) Run the drum for several minutes.

c) Stop drum drive.

d) Close the cover cleaning shower water valve.

e) For a short shutdown, the remaining pulp may be left in the vat.

When shutting down for extended periods, the vat must be drained and the decker cleaned. Use the wire cleaning shower to clean the drum and a hose if necessary to clean the pulp from the vat.

OPERATING INSTRUCTIONS (continued)

NORMAL OPERATION

a) Measure the outlet consistency. It may be increased by lowering the filtrate level. It can also be controlled by increasing or lowering the overflow weir level. If the overflow is too high, the pulp will follow the drum to the shower. The unit is designed to handle up to 600 mm of overflow weirs.

b) Check that all the nozzles on the cover cleaning shower are open. If necessary, clean the nozzles using the built-in cleaning device. A brush rotates in the pipe at the same time as the valve opens at one end of the pipe to flush the contaminants to the vat. When closing, check to ensure that the brushes do not stop at the nozzles, as this could reduce washing efficiency.

c) Measure the filtrate consistency. An abnormally high value indicates a leakage from the pulp side of the drum to the filtrate (inside) side of the drum. Check seal and drum cover for holes.

d) Monitor the power consumption of the drum drive. An abnormally high value may be caused by too high outlet consistency.

ALFA-LAVAL
CELLECO HEDEMORA

MAINTENANCE INSTRUCTIONS

DRUM SEAL

This seal is spring loaded with the spring located on the discharge side. The spring should be preloaded with approx. 50 mm (2") of preload on the spring, and the adjusting cylinder locked with the 16 mm hex nut. The seal can be adjusted at the springs or at the clamp located on the feed side.

The seal must be replaced before the plastic material is worn through. Remove the sealing rope and check the condition at least twice a year. Be careful not to drop the thrust bearing or collars inside the cylinder into the vat.

STUFFING BOXES

The stuffing boxes at both ends of the decker are equipped with one ring of 3.4" square packing. Use a good quality teflon impregnated packing. Cut the packing so that there is no gap between the ends when it is bent around the shaft. Install the joint at the top.

The gland nuts should be tightened by hand. Start the drum to check for leakage. If there is too much leakage, tighten the nuts alternately 1/4 turn each - until the leakage is reduced. A small leakage is normal for this type of stuffing box.

DO NOT OPERATE WITHOUT WATER TO COOL & LUBRICATE.

SKF PILLOWBLOCKS

The pillowblock caps should be removed every 6 months, the old grease removed, and the bearings repacked in accordance with SKF's instructions. Refer to pages 16 & 17 of SKF catalog No. 694, or consult your local representative.

COVER CLEANING SHOWER

Please refer to manufacturer's separate instructions. If the cleaning device is not working properly and the handwheel turns with little resistance, the brushes are probably worn out and need to be replaced.

DRUM COVER

Refer to instructions supplied with the cover. Polyester covers supplied for the deckers are shrunk on, and heat sealed around at the ends. Stainless steel bands are normally never used. **STORE SPARE COVERS IN COOL AREA 20°C (68°F) MAX.**

ALFA-LAVAL
CELLECO HEDEMORA

SHRINKING OF A SYNTHETIC FABRIC ON A CYLINDER

1. Fasten one end of the synthetic fabric to the drum.

2. Rotate the drum slowly one revolution and be careful that the fabric does not slide into the vat.

3. Place the fabric ends opposite each other.

4. Pull out the supporting wires slowly (No. 1 and 2 in the sketch), about 20 cms at a time, placing the loops inside each other (side by side).

5. Push the steel closing wire (No. 3) through the loops. If the closing wire is to tight, pull it out between the loops (No. 4) until the plastic filament comes through. Continue pushing the steel wire through the loops.

6. Pull the entire steel wire through the loops until the whole plastic filament is within the loops.

SHRINKING METHOD

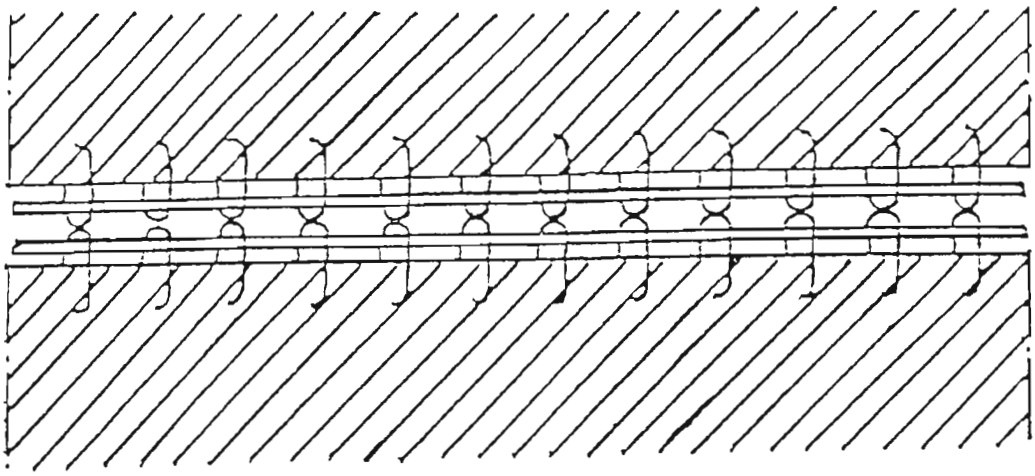
7. Start shrinking the fabric by blowing steam on the middle of the rotating fabric. Work from the middle towards the edges. Do not fasten the steelbands until the fabric fits tightly against the drum.

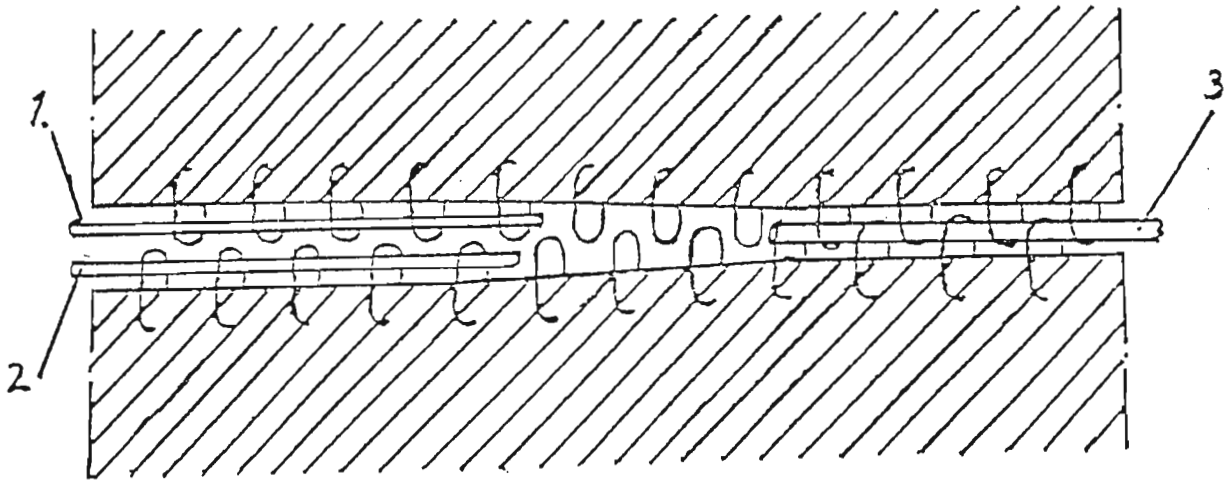
8. Fasten steelbands.

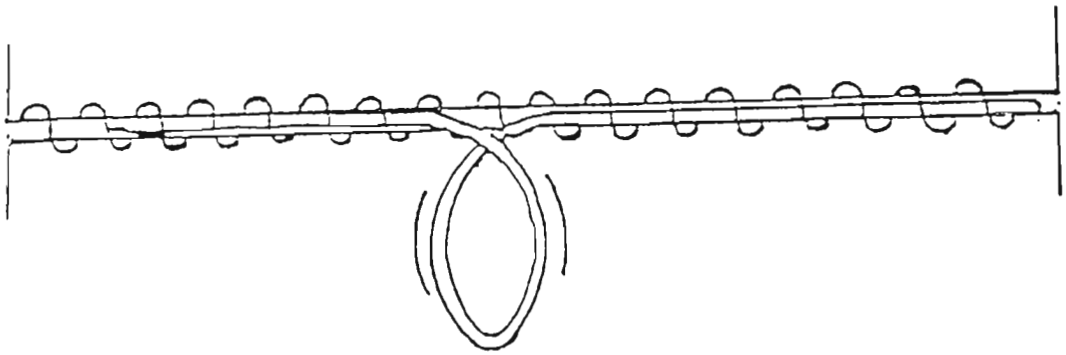
NOTE:

1. The fabric can also be shrunk in hot water. Fill the vat with hot water. Keep the water hot (>80°C) by letting steam through a hose into the vat. Rotate the drum.

2. The fabric should be stored in temperatures below 24°C (75F). (If the fabric is stored in higher temperatures it will shrink.)



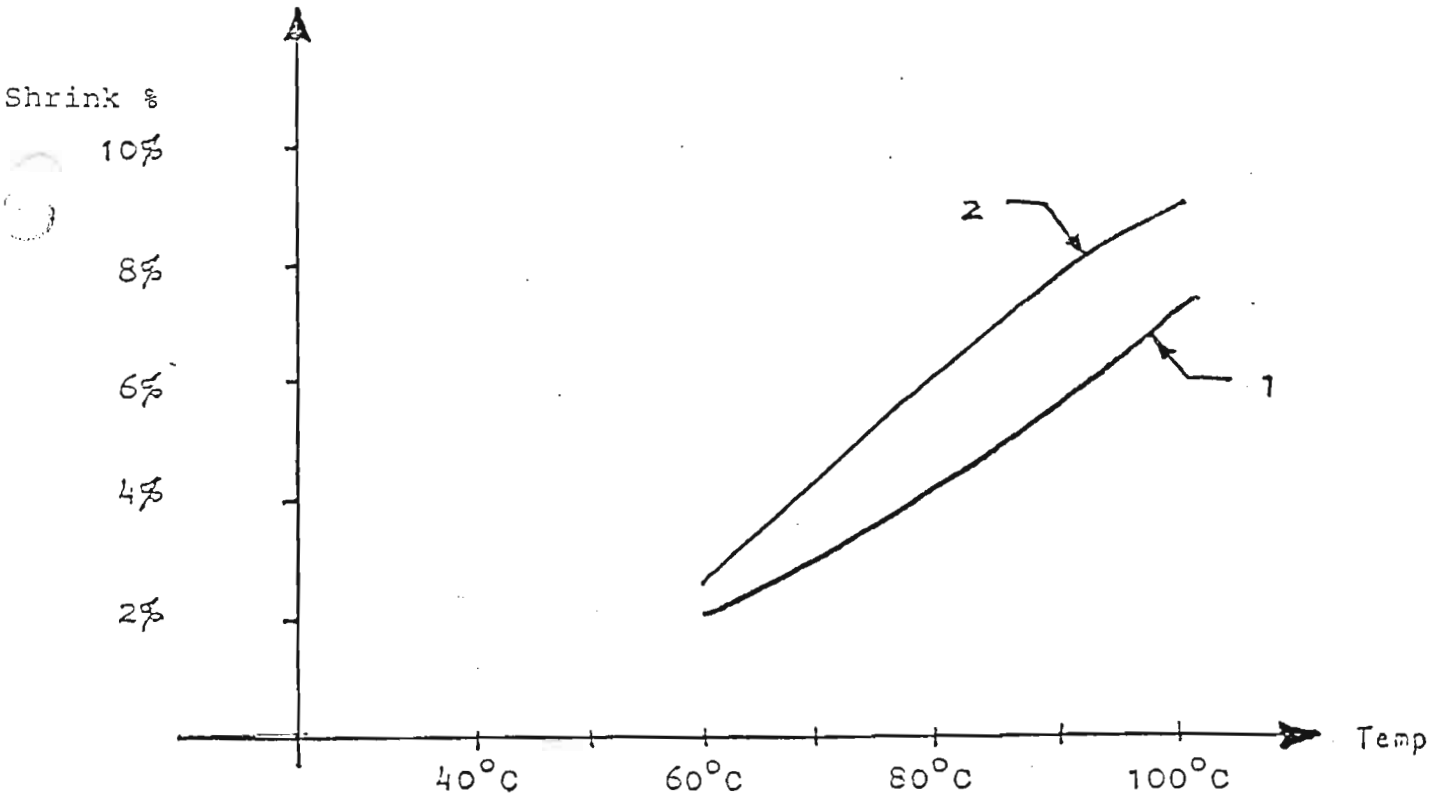

1.
2
3



α ALFA-LAVAL
CELLECO HEDEMORA

TAMMET SHRINKING WIRES

1. Polyester 8/cm 4-shed sires 0.60/0.80mm
2. Kynar 8/cm 4-shed wires 0.60/0.80mm



INSTALLATION
OPERATION

and

MAINTENANCE
INSTRUCTIONS

for

SPRAYING SYSTEMS CO.
STATIONARY
BRUSH TYPE
HEADERS

MODEL NO.	DESCRIPTION	REF.	DOCUMENT NO.	APPR.
	INSTRUCTIONS FOR BRUSH TYPE HEADER		BTH-INSTR	
			SHEET 1 OF 4 REV. A	
		DATE 01/19/90	Spraying Systems Co. East Coast Facility • Hudson, NH 03051	

1. INSTALLATION INSTRUCTIONS

In order to guarantee the proper functioning of the header and the approximate overlap of. 8 to 12% of the flat fans it is important that the spray header is installed in such a way that the minimum spray height (dimension "SH" on the outline drawing) is guaranteed.

Rigid support at least on the valve housing side of the header should be supplied by the customer.

After connecting the water supply to the pipe and generally a hose to the return of the flush-out valve, the spray header is ready for operation.

The nozzles are already located and installed in the proper position. (see page 4 for more details)

2. START-UP

It is recommended that the pipe be filled slowly until a continous spray pattern has been established in order to avoid any damage to the system (water hammer).

After the design pressure has been reached, the header should be flushed to ensure proper functioning and to pre-load the sealing so that no leakage occurs.

3. OPERATING

To operate the flush-out valve, simply turn the handwheel first counter clockwise, one or two full turns to open the valve. Flush as long as cleaning cycle is necessary, and then turn the handwheel clockwise to close the valve. This should be enough to clean all nozzles and the inside of the pipe.

3. OPERATING (continued)

If after one cleaning interval the spray pattern is not yet established, repeat the cleaning procedure.

DO NOT shut off water supply during cleaning procedure. It will ensure proper flush out as well as maintain reasonable spray pattern. For high pressure pipes it may be easier (but not necessary) to reduce the operating pressure to 40-80 psig before beginning the cleaning procedure.

4. MAINTENANCE

No special attention is required for the entire unit.

Replacements of parts depends on the usage of the cleaning device and water quality. Only four parts may have to be replaced.

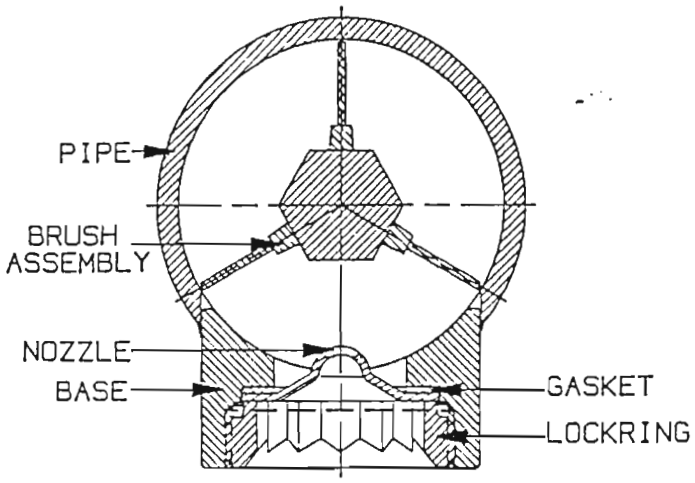
a) Nozzle - if distortion of the 60° flat fan spray pattern is visible. (2 to 3 years)

b) Brush Assy - if no cleaning is achieved after a few cleaning procedures. (2 to 3 years)

c) Valve seal - if heavy leakage is visible at the flush-out valve or if operating pressure drops below acceptable limits. (3 to 4 years)

d) U-Packing Seal - if leakage is visible through the bushing in front of the handwheel. (2 to 3 years)

These are average lifetime figures, and as such should only be used as a guideline.



Instructions:

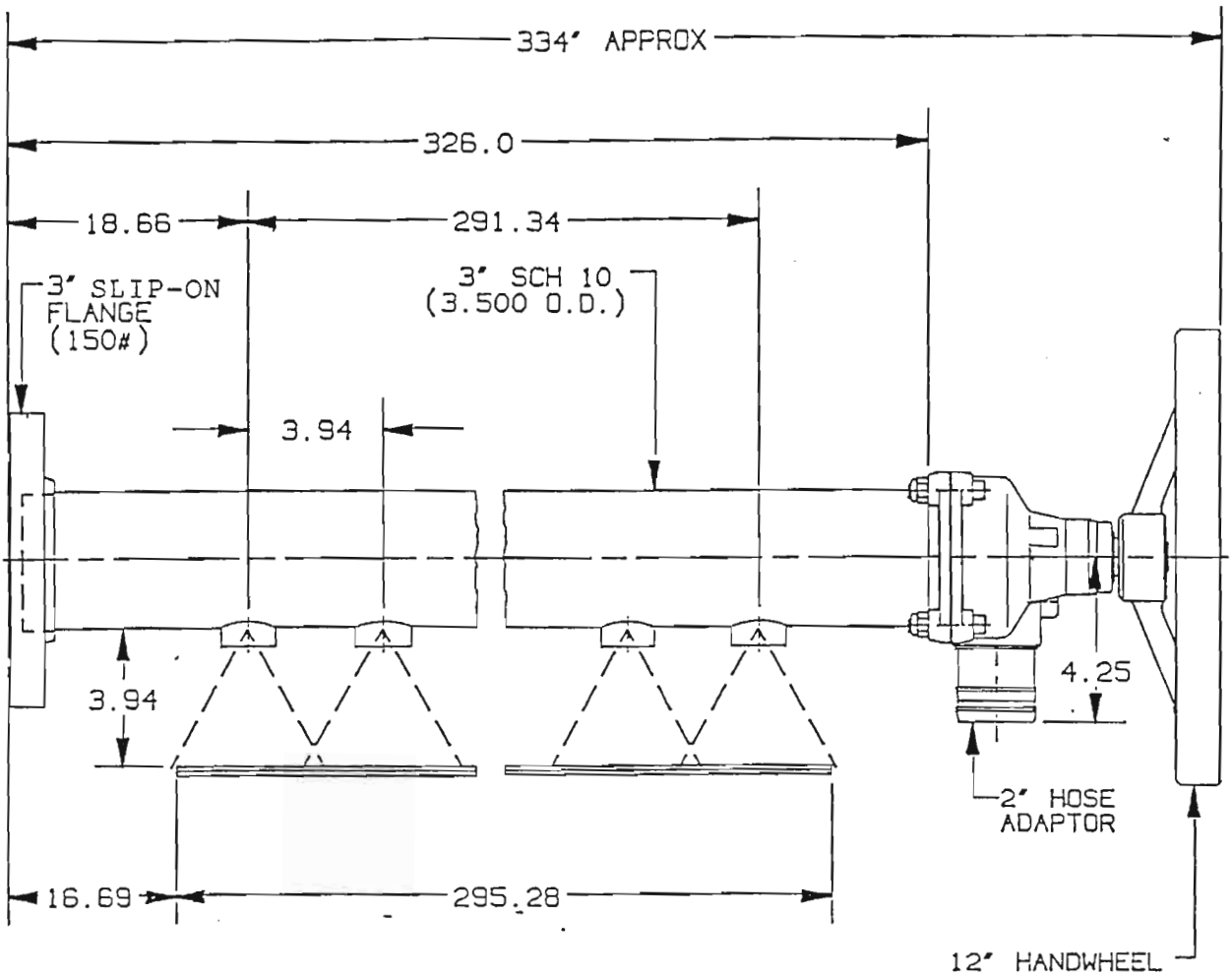
The flat-fan spray pattern produced by the nozzle is oriented perpendicular to the nozzle orifice. Therefore, it is necessary to mount the nozzle perpendicular to the longitudinal axis of the spray header. A locking feature built into the nozzle base does not allow any other orientation. A slight skewing (approximately 7.5°) of the nozzle discharge orifice, in relation to the longitudinal axis of the pipe, guarantees that the flat spray pattern is not mutually obstructed.

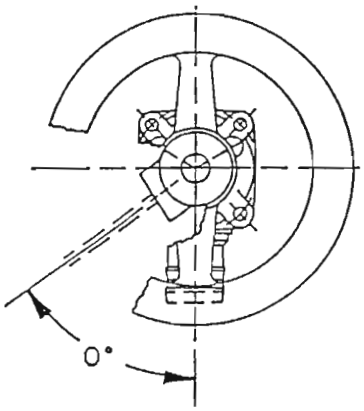
The lockring is coated with a special reusable adhesive to avoid possible loosening of the ring during operation. The adhesive achives almost 90% of the ultimate strength in 24 hours. Threads in the base should be clean and free of grease to obtain maximum holding strength.

Do not use any tools (e.s. screwdriver) to align the nozzles in the base. This will result in irreversible damage to the nozzles.

MODEL NO.	DESCRIPTION	REF.	DOCUMENT NO.	APPR.
	INSTRUCTIONS FOR **BRUSH TYPE HEADER**		BTH-INSTR	
			SHEET 4 OF 4	REV. A
		DATE . 01/19/90	Spraying Systems Co. East Coast Facility • Hudson, NH 03051	

BRUNING 75767





SIDE VIEW

(HANDWHEEL END)

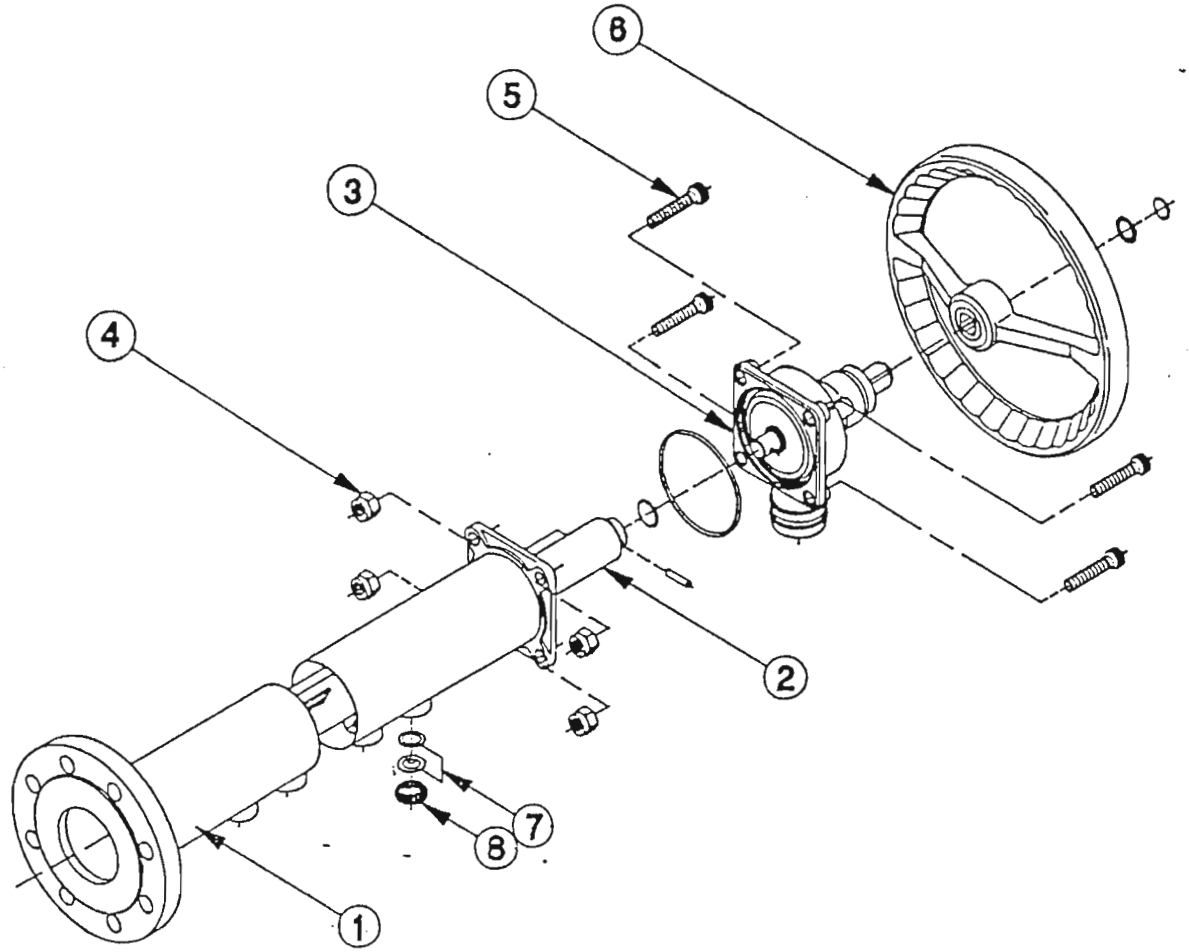
HEADER LOCATION =
OSCILLATING = NO STROKE =---
TYPE =---

MATERIAL = 316L SS
NO. OF NOZZLES = 75 TYPE = FLAT FAN
ORIFICE = .118"
ANGLE = 60°

OPERATING PRESSURE = 87 psig
TOTAL FLOW RATE = 219.0 gpm

CUSTOMER = HEDEMORA

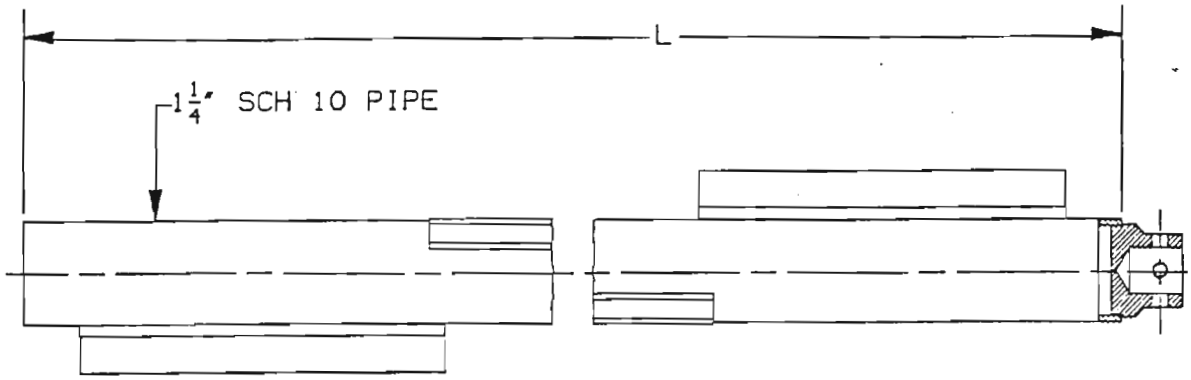
MODEL NO.	DESCRIPTION	REF.	DOCUMENT NO.	APPR.
	PRODUCT OUTLINE BRUSH TYPE HEADER		27236-06 SHEET 1 OF 1 REV. A	RMD
		DATE 5-29-91	Spraying Systems Co. East Coast Facility • Hudson, NH 03051	

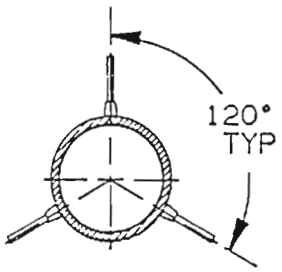


ITEM	QTY	PART NUMBER	DESCRIPTION
08	75	27044-01-CB (316SS)	LOCKNUT
07	75	27149-6020-317L	NOZZLE W/GASKET
06	1	27099-02-AL (ALUM)	HANDWHEEL ASSEMBLY
05	4	27095-17-CB (316SS)	SOCKET HEAD CAP SCREW
04	4	27040-01-CB (316SS)	SELF LOCKING NUT
03	1	27093-02-CB (316SS)	VALVE HOUSING ASSEMBLY
02	1	27452-52-CP	BRUSH ASSEMBLY
01	1		3" PIPE ASSEMBLY

MODEL NO.	DESCRIPTION	REF.	DOCUMENT NO.	APPR.
	SPARE PARTS LIST BRUSH TYPE HEADER	DATE 6-14-91	L 27236-06 SHEET 1 OF 1 REV. A	

Spraying Systems Co.
East Coast Facility • Hudson, NH 03051





VAR	L	NO. OF BRUSHES
20	121.25	20
19	115.25	19
18	109.25	18
17	103.25	17
16	97.25	16
15	91.25	15
14	85.25	14
13	79.25	13
12	73.25	12
11	67.25	11
10	61.25	10
09	55.25	09
08	49.25	08
07	43.25	07
06	37.25	11
05		
04		
03		
02		
01		

VAR	L	NO. OF BRUSHES
40	241.25	40
39	235.25	39
38	229.25	38
37	223.25	37
36	217.25	36
35	211.25	35
34	205.25	34
33	199.25	33
32	193.25	32
31	187.25	31
30	181.25	30
29	175.25	29
28	169.25	28
27	163.25	27
26	157.25	26
25	151.25	25
24	145.25	24
23	139.25	23
22	133.25	22
21	127.25	21

VAR	L	NO. OF BRUSHES
60	361.25	60
59	355.25	59
58	349.25	58
57	343.25	57
56	337.25	56
55	331.25	55
54	325.25	54
53	319.25	53
52	313.25	52
51	307.25	51
50	301.25	50
49	295.25	49
48	289.25	48
47	283.25	47
46	277.25	46
45	271.25	45
44	265.25	44
43	259.25	43
42	253.25	42
41	247.25	41

MODEL NO.

DESCRIPTION
PRODUCT OUTLINE
3" REPLACEMENT BRUSH

REF.

DATE 11/08/90

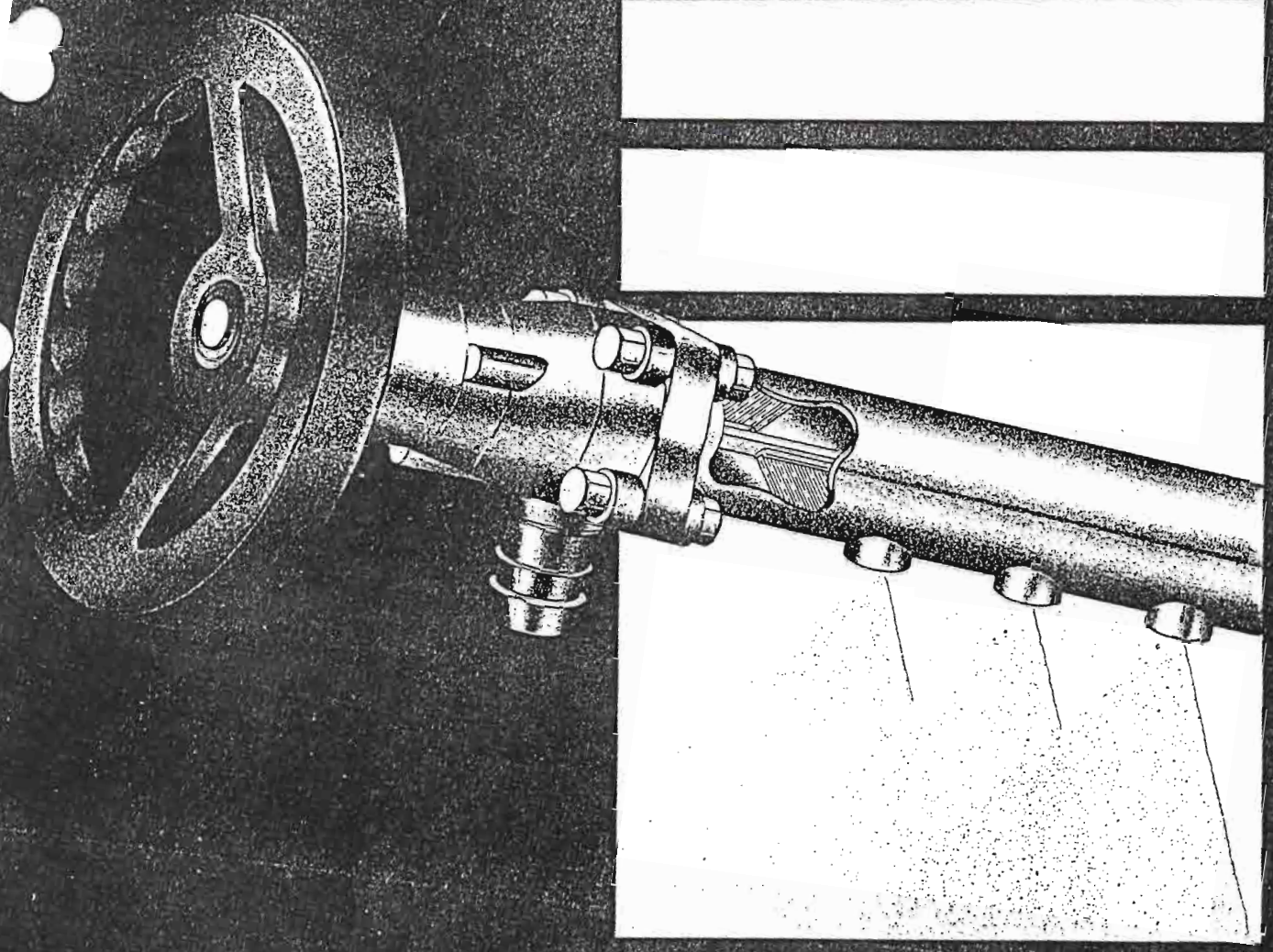
DOCUMENT NO. **P27452-00**

SHEET 1 OF 1 REV. A

APPR.

Spraying Systems Co.
East Coast Facility • Hudson, NH 03051

SELF CLEANING SHOWERS



Spraying Systems Co.

New Shower Header family...5 ways better

1 *Basic Brushless Version*...with exclusive add-on capability.

2 *Brush Type Version* with easy cleaning capability.

3 Optional motor-driven cleaning assembly...for automatic control of cleaning intervals.

4 Exclusive self-locating disc-type shower nozzles eliminate alignment guesswork.

5 Flanged, multi-position flush-out valve for convenient hose connection. Not a welded housing.

Designed-in Versatility

Spraying Systems Co. has taken the conventional shower header and has incorporated sought-after design features that contribute to easier maintenance and better performance.

You can purchase just the basic brushless header. Later you can add a brush type cleaning assembly. Or, if you prefer, a motor-driven cleaning unit can be installed to automate your brush cleaning cycles.

With the brush type design, you simply rotate the interior brush assembly, scrubbing both the inside of the pipe and the nozzle orifices...while continuing to spray. Accumulated debris is removed through the flush-out valve, restoring full liquid flow and preventing contamination of the sprayed surface.

Quality Engineering

Spraying Systems' shower headers are constructed of types 304L or 316L stainless steel. Disc-type shower nozzles are precision machined to provide accurate spray angles and flow rates. Replacement of nozzles is quick and ', Lock-ring holds nozzles securely in place.

Nozzle orifices protrude slightly into the pipe and are in line with the plane of the brush movement. This provides efficient cleaning because the bristles of the brush sweep along the full length of the orifice.

Staggered cleaning brush sections are installed at 120° intervals. Large flow passages between sections reduce pressure loss. The cleaning assembly is designed to prevent brush section interference of nozzle performance when the flush-out valve is in the operating position after cleaning cycles. The entire brush assembly is removable and is easy to replace.

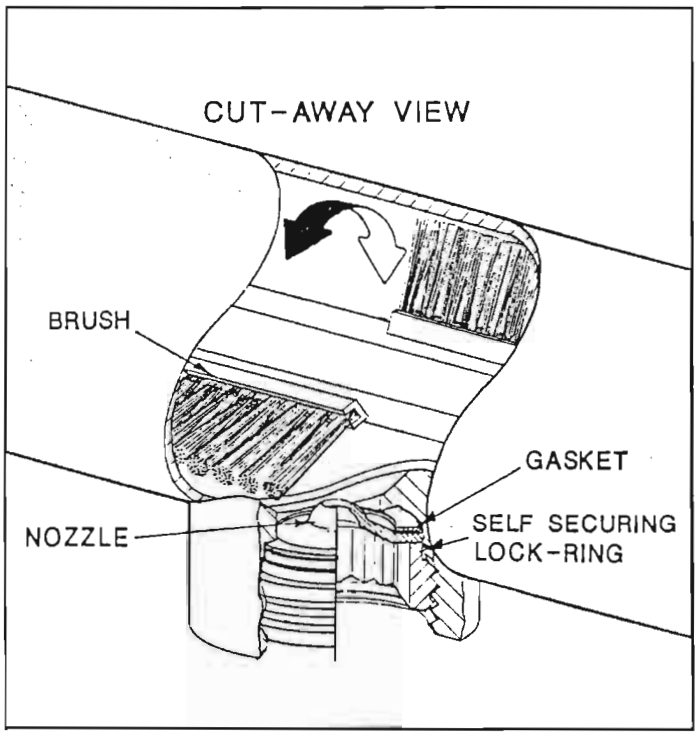
Shower Options Provide Design Flexibility

Spraying Systems Co.'s headers are available in many different configurations to accomodate your specific needs.

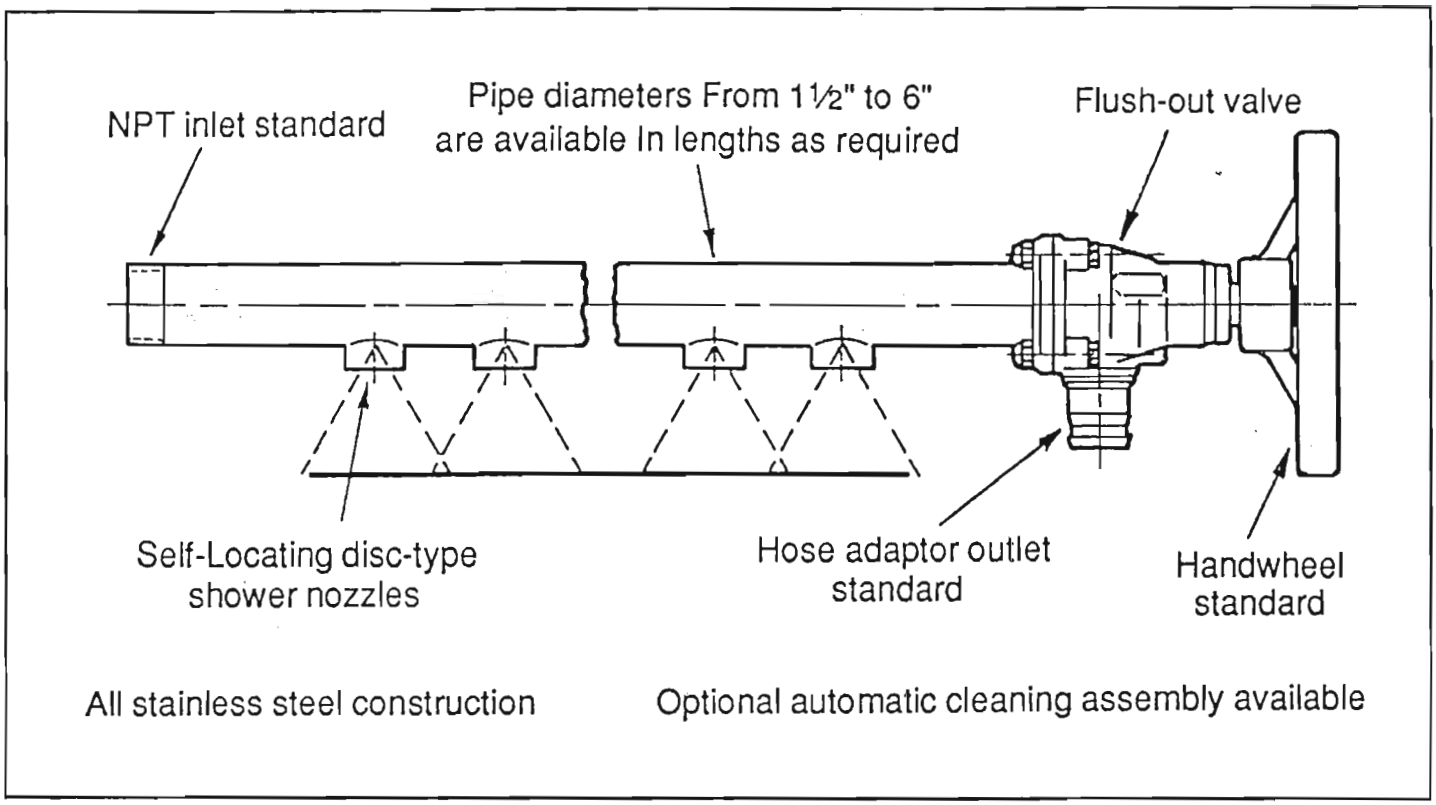
Pipe diameters from 1½" to 6" are available in lengths as required. The shower headers are designed to operate up to 1000 psi (70 bar). Disc-type shower nozzles are available in a wide variety of spray angles and flow rates. Nozzles may be spaced at any desired interval.

Elbows, flanges, hose adaptors and a variety of mounting options are available in many sizes...and may be specified for the inlet as well as outlet connection.

For more information concerning Spraying Systems' shower headers, contact Spraying Systems Co. directly or consult your local Spraying Systems Co. representative.



Brush sections sweep the interior of the pipe and the nozzle orifice with each cleaning cycle.



FLOW RATES per nozzle in g.p.m. - l/min

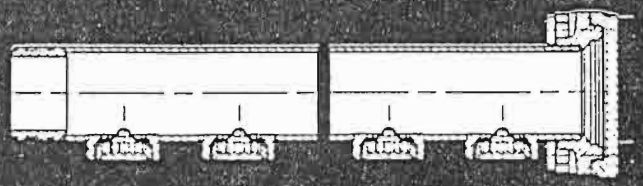
SPRAY ANGLE AT 60 PSI (4 bar)	PART NUMBER	ORIFICE DIAMETER		CAPACITY IN GALLONS PER MINUTE					CAPACITY IN LITERS PER MINUTE				
		INCHES	mm	20 PSI	40 PSI	100 PSI	250 PSI	800 PSI	1.5 bar	3 bar	7 bar	20 bar	55 bar
0°	00004	0.016	0.4	0.03	0.04	0.06	0.10	0.18	0.11	0.16	0.24	0.41	0.68
	00007	0.024	0.6	0.05	0.07	0.11	0.18	0.31	0.20	0.28	0.42	0.71	1.2
	00009	0.028	0.7	0.06	0.09	0.14	0.23	0.40	0.25	0.36	0.54	0.92	1.5
	0001	0.031	0.8	0.09	0.13	0.21	0.33	0.58	0.36	0.51	0.78	1.3	2.2
	0002	0.039	1.0	0.16	0.23	0.36	0.58	1.0	0.64	0.91	1.4	2.3	3.9
	0003	0.047	1.2	0.23	0.33	0.52	0.83	1.5	0.92	1.3	2.0	3.4	5.6
	0004	0.059	1.5	0.30	0.43	0.68	1.1	1.9	1.2	1.7	2.6	4.4	7.3
	0008	0.079	2.0	0.56	0.79	1.3	2.0	3.5	2.2	3.1	4.8	8.1	13.4
	0012	0.099	2.5	0.88	1.2	2.0	3.1	5.6	3.5	4.9	7.5	12.6	21
	0020	0.118	3.0	1.4	2.0	3.1	5.0	8.9	5.5	7.8	11.9	20	33
30°	3002	0.039	1.0	0.16	0.23	0.36	0.58	1.0	0.64	0.91	1.4	2.3	3.9
	3004	0.059	1.5	0.30	0.43	0.68	1.1	1.9	1.2	1.7	2.6	4.4	7.3
	3008	0.079	2.0	0.56	0.79	1.3	2.0	3.5	2.2	3.1	4.8	8.1	13.4
	3012	0.099	2.5	0.88	1.2	2.0	3.1	5.6	3.5	4.9	7.5	12.6	21
	3020	0.118	3.0	1.4	2.0	3.1	5.0	8.9	5.5	7.8	11.9	20	33
60°	6002	0.039	1.0	0.16	0.23	0.36	0.58	1.0	0.64	0.91	1.4	2.3	3.9
	6003	0.047	1.2	0.23	0.33	0.52	0.83	1.5	0.92	1.3	2.0	3.4	5.6
	6004	0.059	1.5	0.30	0.43	0.68	1.1	1.9	1.2	1.7	2.6	4.4	7.3
	6008	0.079	2.0	0.56	0.79	1.3	2.0	3.5	2.2	3.1	4.8	8.1	13.4
	6012	0.099	2.5	0.88	1.2	2.0	3.1	5.6	3.5	4.9	7.5	12.6	21
	6020	0.118	3.0	1.4	2.0	3.1	5.0	8.9	5.5	7.8	11.9	20	33
	6031	0.157	4.0	2.2	3.1	5.0	7.9	14.0	8.8	12.4	18.9	32	53
	6049	0.197	5.0	3.5	4.9	7.8	12.3	22	13.7	19.4	30	50	83
	6078	0.236	6.0	5.6	7.9	12.4	19.6	35	22	31	47	80	133
	6099	0.276	7.0	7.0	9.9	15.6	25	44	28	39	60	101	167
	60124	0.315	8.0	8.8	12.4	19.6	31	56	35	49	75	126	210

Minimum Water Pressure - 20 psig (1.5 bar)

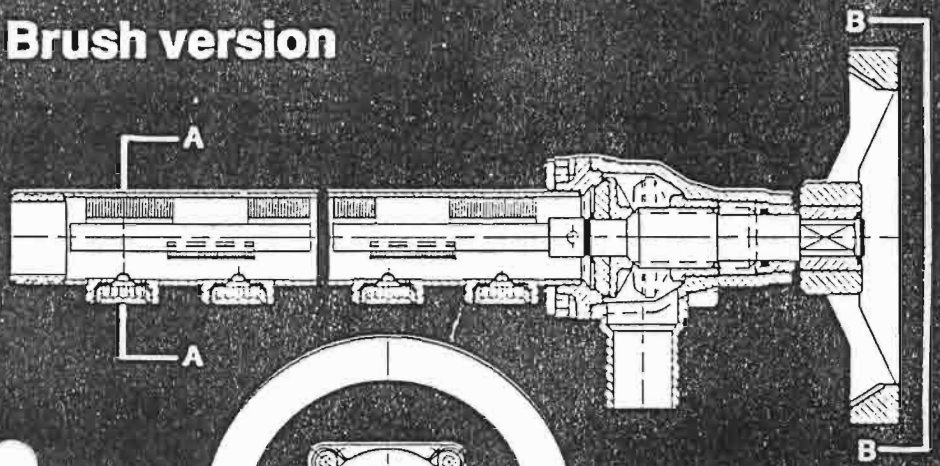
$$GPM\ REQ = \sqrt{\frac{PSI\ (REQ)}{PSI\ (GIVEN)}} \times GPM\ GIVEN$$

Shower Header Assemblies (3 versions available)

Brushless version

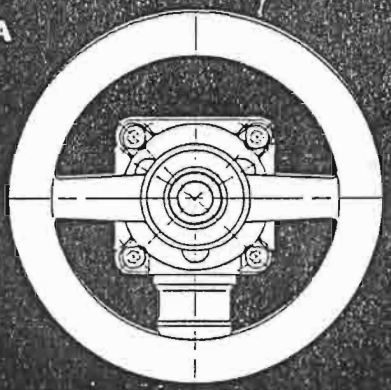


Brush version



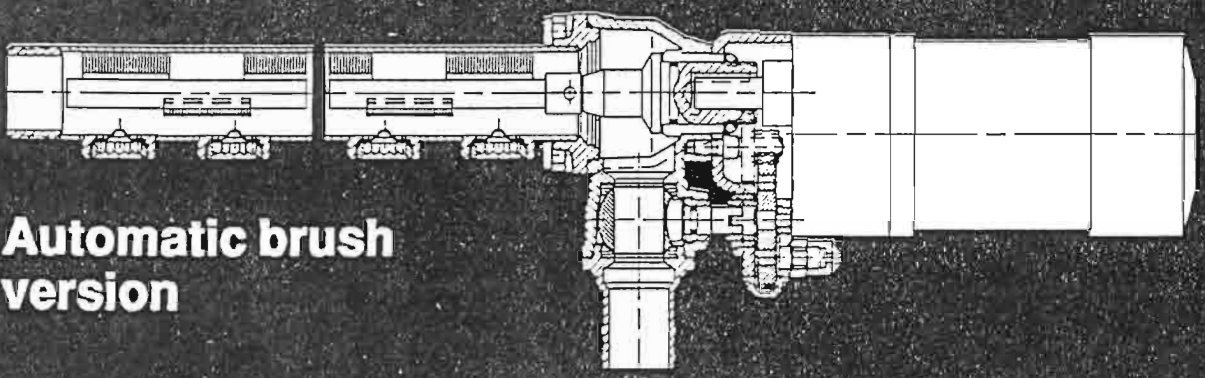
EXTENSION

VIEW A-A



VIEW B-B

Automatic brush version



Spraying Systems Co.
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Bulletin No. 278A

α ALFA-LAVAL
CELLECO HEDEMORA

RECOMMENDED SPARE PARTS

1.	DRUM SEALING ROPE:	3-90183
2.	WIRE CLOTH:	Polyester 20 Mesh Warp thread 0.6 mm dia. Welt thread 0.8 mm dia. Opening @ 0.65 mm x 0.63 mm
3.	DRUM BEARING:	SAF 22536/6 7/16 w/triple seals Replacement bearing 22236 CCK/W33