



AWN D.D. Refiner

The Most Advanced Double Disc Refiner



FEATURES AND BENEFITS

The AWN-DDR is the latest developed Low Consistency Twin Disc type Refiner. AIKAWA's long and rich experiences for refiners provides the best solution for refining of any kind of paper stock.

1. Easy maintenance and quick replacement of disc plate
2. Superior machine accuracy and refining performance
3. Various plate pattern is available for various furnish
4. Two types of control systems are provided, Mechanical System (Servo-Motor & Ball Screw) and Hydraulic System (Hydraulic Cylinder & Mechanical-Servo)

Disc plate changing is easily done keeping the machine accuracy, because of;

1. The Casing is completely opened when the disc plate is changed.
2. The shaft (runner) is easily moved by rotating the wheel of the sliding mechanism.
3. It is not necessary to de-mount the runner from the shaft, resulting in no effect for the machine accuracy. (machine accuracy is kept without any change)
4. The number of fixing bolts of the disc plate is less than the conventional refiner.
5. The piping connection can be easily opened (one-touch-joint)
6. Larger working space, because of no any mechanism for the door side.

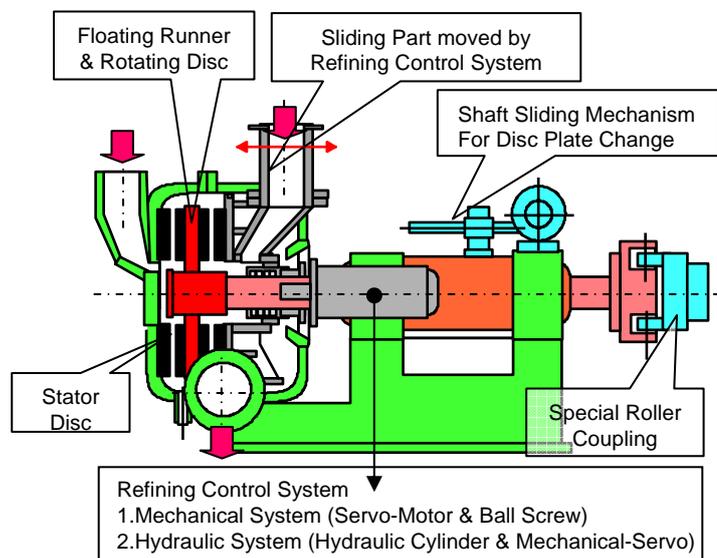
Applications

- Refining of Various Waste Paper.
- Refining of virgin pulp (Hard wood & Soft wood)
- Refining of mechanical pulp.
- Refining of deinkied pulp.



AWN. Double Disc Refiner

OPERATION



Stock is introduced through two inlets, and discharged through one outlet. The AWN DDR consists of a **rotating runner disc**, which floats smoothly in the direction of the rotating shaft, **two stationary disc plates** which locate on both of sliding part side and door side, and a **sliding part**. The position of the sliding part is controlled in the axial direction by the **Refining Control System**.

Parallelism between disc plates (Rotor and Stator) is maintained at the highest accuracy level by both manufacturing and assembling technologies. The Floating Runner floats freely in axial direction, and then, naturally maintains uniform clearance between the disc plate of each side. Then, uniform refining is easily achieved on both side.

Standard Specification & Capacity of AWN

		(A) Through-put (T/D)			(B) Through-put (T/D)			Install-ed	Motor KW	Motor RPM		Disc. Dia.	No Load
		Min	Max	Standard	Min	Max	Standard			St.	Max		
AWN	14	10	50	20-36	8	30	13-21	110	132	1000	1200	356	25
AWN	20	20	80	40-60	10	65	25-35	190	20	1000	900	506	46
	22	24	96	48-72	12	78	30-42	250	280	1000	900	558	55
AWN	26	35	150	60-110	20	120	38-60	350	400	750	720	658	80
	30	46	197	79-145	27	157	50-79	450	550	750	720	762	85
AWN	34	70	280	110-200	40	220	70-110	600	710	600	600	862	130
	38	86	345	136-248	58	273	87-136	800	900	500	514	965	130
AWN	42	120	480	200-400	70	370	130-200	1100	1250	500	514	1065	160
	44	132	528	220-440	77	404	142-220	1200	1350	428	450	1118	180

Capacity (A) = Hard Wood Kraft Pulp, Capacity (B) = Soft Wood Kraft Pulp

Stock Consistency: 4.5% for Hard Wood, 3.5% for Soft Wood

Min. Capacity means the minimum throughput required to return a part of the accept of refiner to the feed side.

Max. Capacity means the maximum throughput of the refiner, not considering refining performance.

Standard Capacity means the throughput (T/D) recommended to obtain optimum refining performance.

Minimum required motor KW is calculated as follows;

Specific Power Consumption (KWh/T/100cc) x (Required Freeness Drop, cc /100cc) x Throughput (Ton/hour)



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ADC D. Conical Refiner

The Latest Developed Low Intensity Refiner



FEATURES AND BENEFITS

The AWN-DDR is the latest developed Low Consistency Twin Conical type Refiner, which provides ideal low intensity refining. AIKAWA's long and rich experiences for refiners provides the best solution for refining of any kind of paper stock.

1. Less damages and less cutting of fibers.
2. Superior fiber characteristic improvement.
3. Less absorbed power consumption.
4. Easy maintenance and quick replacement of disc plate
5. Two types of control systems are available,
 - + Mechanical System (Servo-Motor & Ball Screw)
 - + Hydraulic Cylinder & Mechanical-Servo System

Replacement of the conical bar is easily done keeping the machine accuracy, because of;

1. The Casing is completely opened when the bar is changed.
2. The shaft (runner) is easily moved by rotating the wheel of the sliding mechanism.
3. Not required to de-mount the runner from the shaft, resulting in no effect for the machine accuracy. (machine accuracy is kept without any change)
4. The piping connection can be easily opened (one-touch-joint)

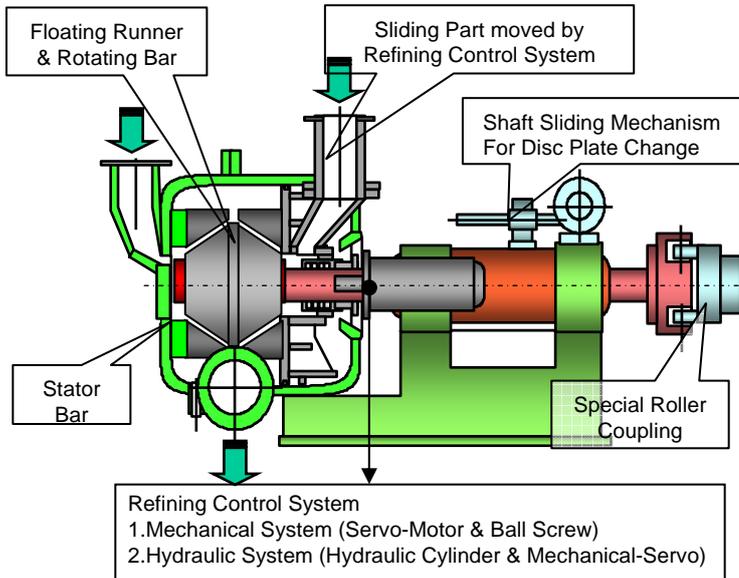
Applications

- Refining of Various Waste Paper.
- Refining of virgin pulp (Hard wood & Soft wood)
- Refining of mechanical pulp.
- Refining of deinkied pulp.



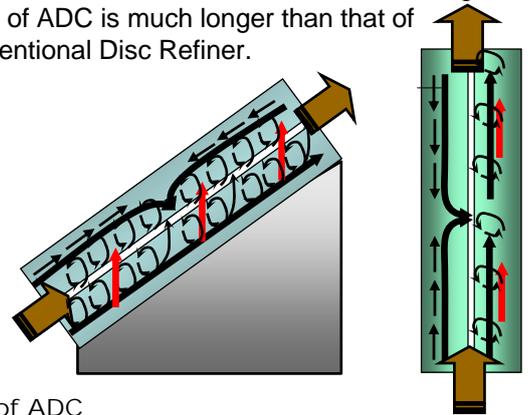
AWN. Double Disc Refiner

OPERATION



Stock is introduced through two inlets, and discharged through one outlet. The ADC consists of a **rotating runner**, which floats smoothly in the direction of the rotating shaft, **two stationary conical fillings** which locate on both side, and a **sliding part**. The position of the sliding part is controlled in the axial direction by the **Refining Control System**.

The retention time of fibers within the refining zone of ADC is much longer than that of conventional Disc Refiner.



Standard Specification & Capacity of ADC

	(A) Through-put (T/D)			(B) Through-put (T/D)			Insta- -lled	Motor KW	Motor RPM		Rotor Dia.	No Load	
	Min	Max	Standard	Min	Max	Standard			50Hz	60Hz			
ADC	20	30	230	50-80	20	150	33-55	250	280	1000	900	439	35
	22	38	250	55-88	25	185	40-65	300	355	1000	900	483	41
ADC	26	48	450	77-130	32	300	53-85	400	450	750	720	572	47
	30	68	500	85-145	45	330	72-120	520	630	600	600	673	59
ADC	34	86	750	140-230	57	500	95-150	720	800	600	600	749	62
	38	102	810	160-275	68	540	110-180	855	950	500	514	838	62
ADC	42	130	1100	210-350	87	736	140-226	1000	1200	500	514	924	90
	44	145	1200	235-390	97	800	160-260	1250	1350	428	450	970	90

Capacity (A) = Hard Wood Kraft Pulp, Capacity (B) = Soft Wood Kraft Pulp

Stock consistency: 4.5% for Hard Wood, 3.5 % for Soft Wood

Min. Capacity means the minimum throughput required to return a part of the accept of refiner to the feed side.

Max. Capacity means the maximum throughput of the refiner, not considering refining performance.

Standard Capacity means the throughput (T/D) recommended to obtain optimum refining performance.

Minimum required motor KW is calculated as follows;

Specific Power Consumption (KWh/T/100cc) x (Required Freeness Drop, cc /100cc) x Throughput (Ton/hour)



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ADF Double Flaker

The Latest Developed High Speed Deflaker



FEATURES AND BENEFITS

The ADF Double Flaker is the latest developed High Speed Twin Flow Type Deflaker, which provides larger capacity and higher defibering efficiency compared to the conventional deflaker.

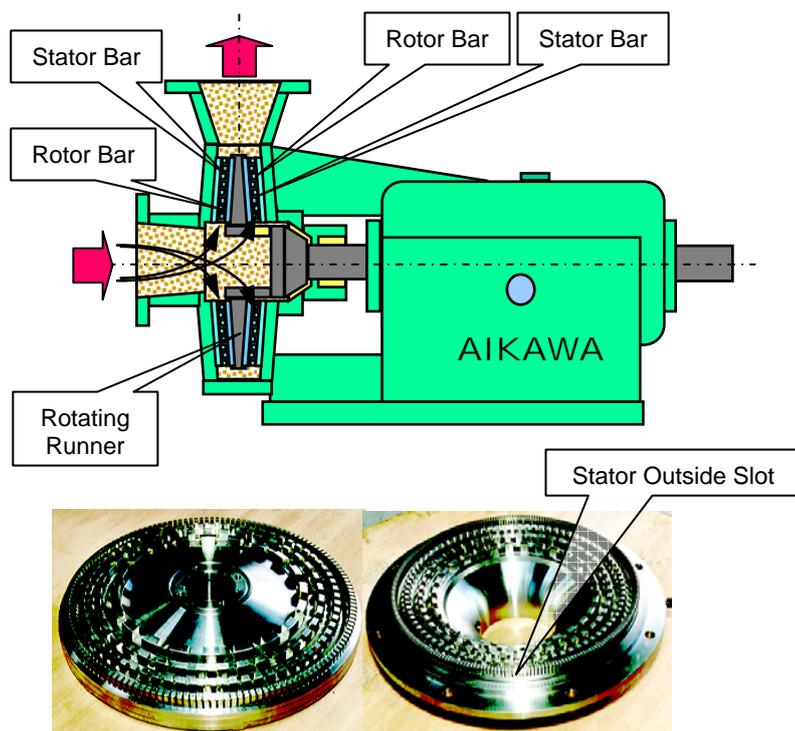
1. Larger throughput, resulting in saving a floor space.
2. Available in operation at high back pressure
3. Defibering due to hydrodynamic shock, resulting in less damage and less cutting of fibers.
4. Easy replacement of fillings and maintenance
5. Several kinds of fillings are available depending on the required defibering degree and furnish to be treated.

Applications

- Defibering of market pulp (Soft & Hard Wood).
- Defivering of various other market pulp.
- Defibering of printing/writing broke paper.
- Defibering of news broke paper.
- Defibering of recycling paper such as news.



ADF. Double Flaker



OPERATION

Stock is introduced through one inlet pipe and then separated to two parallel flow. The rotor bars are fixed on both side of the rotating runner, the stator bars are also fixed on both side, door side and back side. By rotating at very high speed, hydrodynamic shock wave is created between rotor and stator, and then paper flakes are defibered during passage through those bars. Several slot sizes are available for the outside of the stator bar mentioned below.

Model A: 3mm, 2mm (Standard), 1.5mm, 1.2mm

Model B: 3mm, 2mm, 1.5mm, 1.0mm, 1.2mm (Standard)

Standard Specification & Capacity of ADF

ADF Double Flaker	Model A		Model B	
	A50DF	A60DF	B50DF	B60DF
Model & Size	A50DF	A60DF	B50DF	B60DF
Motor (KW), Standard (Maximum)	300(355)	300(355)	150(190)	150(190)
Rotation Number (R.P.M.)	1500	1800	3000	3600
Peripheral Speed (m/s)	34.5	35.4	41.9	43.3
Rotor Diameter (mm)	440	376	267	230
Inlet & Outlet Pipe Diameter	200A	200A	125A	125A
Min. Required Feed Pressure (MPa)	0.1	0.1	0.1	0.1
Max. Acceptable Back Pressure (MPa)	0.25	0.25	0.25	0.25
Min. Required Flow Rate (m3/min)	1.0	1.0	0.6	0.6
Production Rate (Ton/day)	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Printing Writing Broke Paper (4.0-4.5%)	200/150	280/200	125/97	180/125
News Waste Broke Paper (4.0-4.5%)	210/160	300/210	135/100	185/135
Liner Board Broke Paper (3.5-4.0%)	180/135	250/180	120/85	165/120
Hard Wood Market Pulp (4.0-4.5%)	235/180	330/235	160/115	220/160
Soft Wood Market Pulp (3.5-4.0%)	165/125	235/165	90/65	130/90



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TopFiner, Deflaker

High Speed Fine Deflaker



FEATURES AND BENEFITS

The TopFiner is a single flow type high speed deflaker, which gives superior defibering efficiency without any damage of fibers.

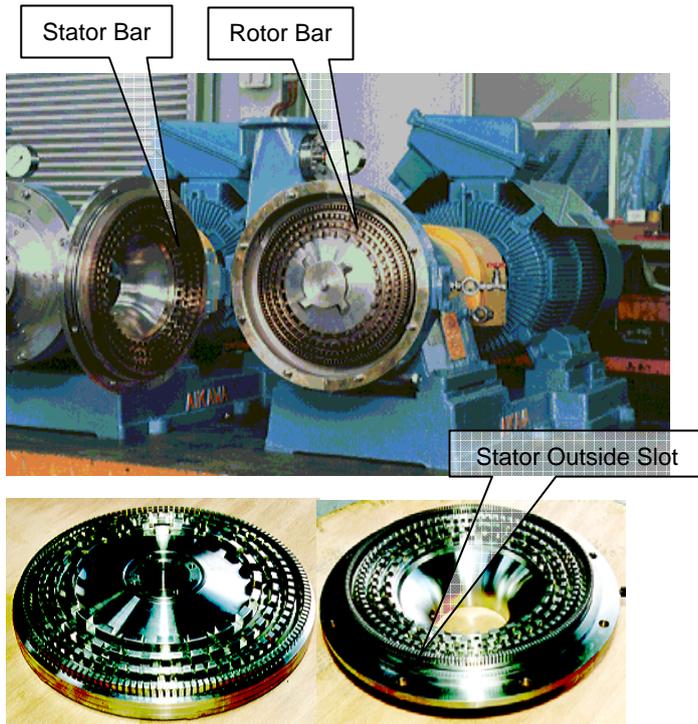
1. Superior deflaking efficiency with high speed rotating fillings.
2. No cutting and no damage fibers, because of defibewring by hydrodynamic shock waves.
And Less freeness drop.
3. High capacity for a minimum space requirement.
4. Simplified design and easy maintenance.
5. Easy replacement of rotor and stator.

Applications

- Defibering of market pulp (Soft & Hard Wood).
- Defivering of various other market pulp.
- Defibering of printing/writing broke paper.
- Defibering of news broke paper.
- Defibering of recycling paper such as news.



TopFiner, High Speed Deflaker



OPERATION

Stock is introduced through the feed pipe and then the stock passes through the clearance between rotor and stator. By rotating at very high speed, hydrodynamic shock wave is created between rotor and stator, and then paper flakes are defibered during passage through those bars.

Several slot sizes are available for the outside of the stator bar mentioned below.

Model A: 3mm, 2mm (Standard), 1.5mm, 1.2mm

Model B: 3mm, 2mm, 1.5mm, 1.0mm, 1.2mm (Standard)

Standard Specification & Capacity of TopFiner

Model & Size	Model A		Model B	
	A50	A60	B50	B60
Motor (KW), Standard (Maximum)	110(132)	110(132)	55(75)	55(75)
Rotation Number (R.P.M.)	1500	1800	3000	3600
Peripheral Speed (m/s)	34.5	35.4	41.9	43.3
Rotor Diameter (mm)	440	376	267	230
Inlet / Outlet Pipe Diameter	150/125A	150/125A	100/100A	100/100A
Min. Required Feed Pressure (MPa)	0.1	0.1	0.1	0.1
Max. Acceptable Back Pressure (MPa)	0.1	0.1	0.1	0.1
Min. Required Flow Rate (m ³ /min)	0.5	0.5	0.3	0.3
Production Rate (Ton/day)	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Printing Writing Broke Paper (4.0-4.5%)	90/66	126/90	58/43	81/58
News Waste Broke Paper (4.0-4.5%)	95/70	133/95	61/45	85/61
Liner Board Broke Paper (3.5-4.0%)	80/60	112/80	54/40	76/54
Hard Wood Market Pulp (4.0-4.5%)	105/78	147/105	72/53	100/72
Soft Wood Market Pulp (3.5-4.0%)	74/55	104/74	42/31	59/42



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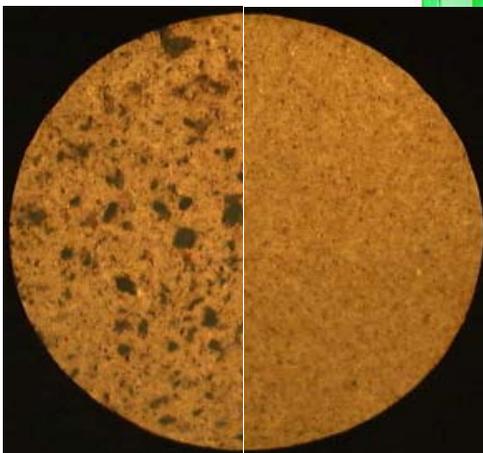
SevenFiner, Deflaker

High Speed Coarse Stock Deflaker

The SevenFiner is a high speed deflaker, used mainly for defibering recycled pulp, broke and flakes from coarse screen. To obtain high quality products and better strength characteristics, the furnish must be perfectly deflaked before refining. With the SevenFiner, fiber bundles and flakes are completely deflaked into individual fibers by hydrodynamic shock waves created with specially designed fillings which consists of conical gear part and disc part, and rotates at a high speed. Since the fibers are never cut nor damaged, the freeness drop is quite small as 20 to 30 C.S.F..

FEATURES AND BENEFITS

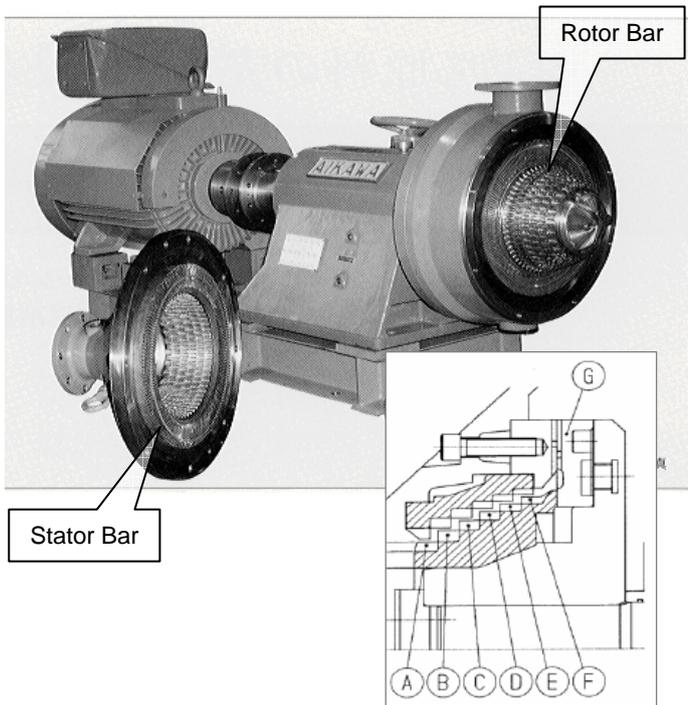
1. Superior deflaking efficiency with high speed rotating fillings.
2. No cutting and no damage fibers, because of defibering by hydrodynamic shock waves.
3. Easy adjustment of disc clearance by a wheel.
3. High capacity for a minimum space requirement.
4. Simplified design and easy maintenance.
5. Easy replacement of rotor and stator.



Applications

- Defibering of printing/writing broke paper.
- Defibering of liner board, corrugated medium broke.
- Defibering of news broke paper.
- Defibering of OCC, Mixed waste, Magazine etc.

SevenFiner High Speed Deflaker



OPERATION

The SevenFiner consists of conical fillings, disc plate and rotating mechanism. The conical fillings are 6 square steps ("A" to "F") on the conical part and a disc plate is located at the last step "G".

The furnish is fed through multi steps on the conical part, and then, disc plate as the final deflaking zone.

The disc plate clearance can be adjusted and the number of pattern are available for the disc palte according to the application and quality requirements.

Standard Specification & Capacity of SevenFiner

SevenFiner	Model 100		Model 200	
Model & Size	100-50	100-60	200-50	200-60
Motor (KW), Standard (Maximum)	75	75	150	150
Rotation Number (R.P.M.)	1500	1800	1500	1800
Peripheral Speed (m/s)	33	34	40.8	42.8
Rotor Outside Diameter (mm)	420	365	520	455
Inlet / Outlet Pipe Diameter	100/100A	100/100A	150/150A	150/150A
Min. Required Feed Pressure (MPa)	0.1	0.1	0.1	0.1
Max. Acceptable Back Pressure (MPa)	0.1	0.1	0.1	0.1
Min. Required Flow Rate (m ³ /min)	0.5	0.5	0.3	0.3
Production Rate (Ton/day)	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Printing Writing Broke Paper (4.0-4.5%)	63/44	90/63	152/105	200/152
News Waste Broke Paper (4.0-4.5%)	66/46	94/66	160/110	210/160
Liner Board Broke Paper (3.5-4.0%)	58/40	83/58	141/97	185/141
Hard Wood Market Pulp (4.0-4.5%)	78/54	110/78	189/130	248/189
Soft Wood Market Pulp (3.5-4.0%)	46/32	65/46	110/76	145/110



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