*30years Accumulated know-how*

Since 1992


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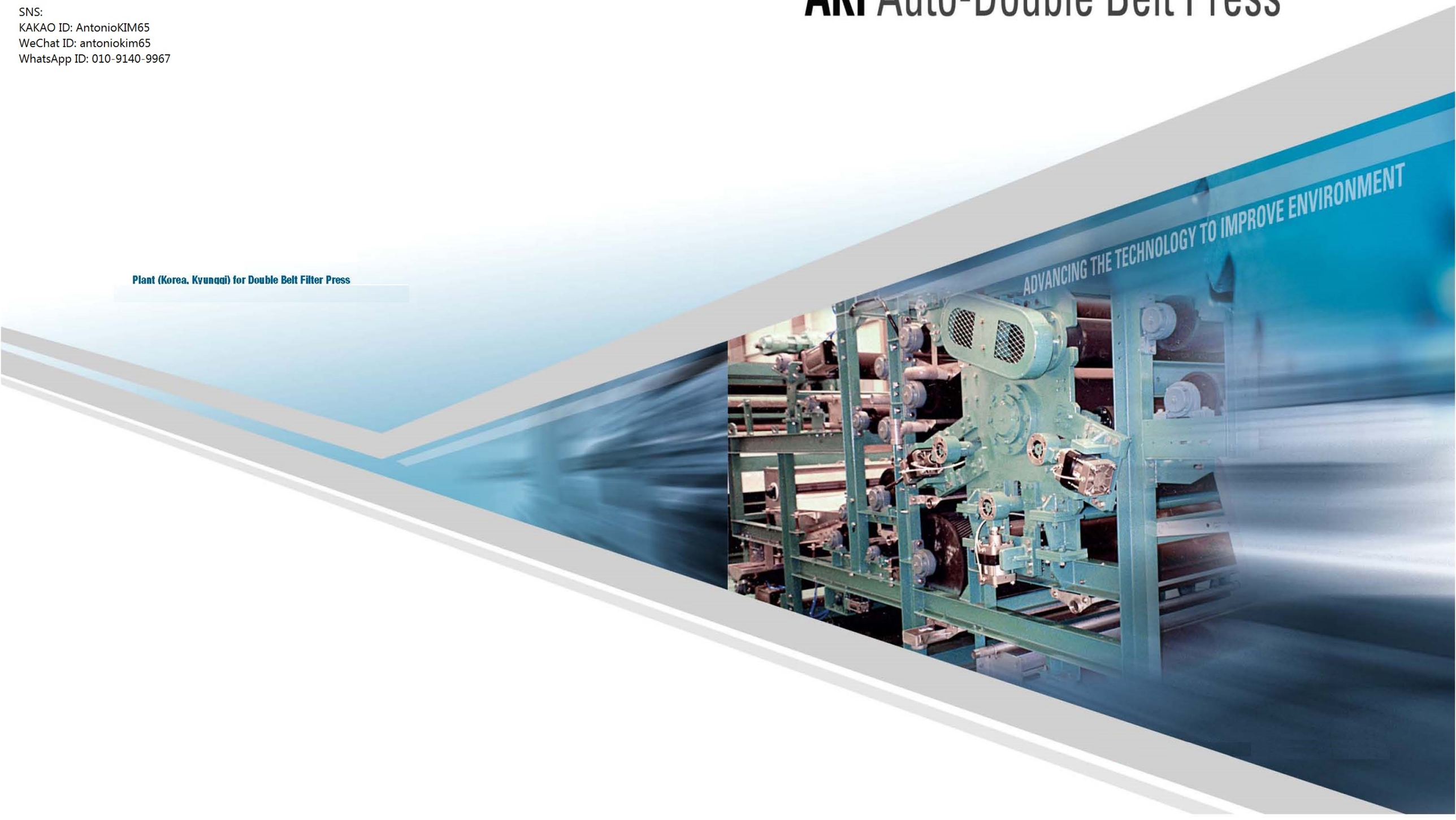
SLUDGE DEWATERING MACHINE

# AKI Auto-Double Belt Press




Plant (Korea, Kyunggi) for Double Belt Filter Press

# AKI Auto-Double Belt Press

## SLUDGE DEWATERING MACHINES

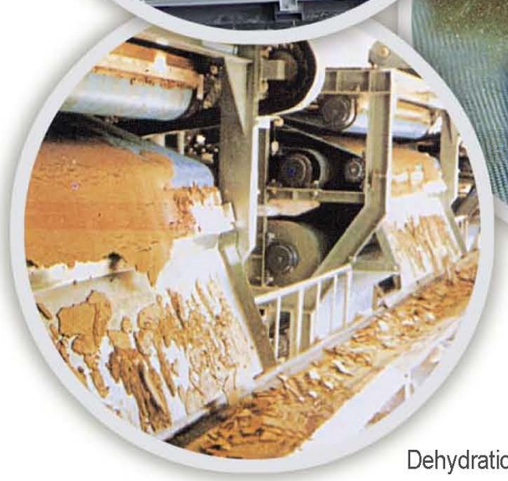
## Main Feature

**Standard for :**

- Efficient sludge dewatering
- Cake solid up to 50% depends on sludge conditions
- Low investment and operating costs
- Minimum polymer consumption
- Easy maintenance
- Low power consumption
- Auto washing & cleaning nozzle system

Overview


Auto Self Cleaning Nozzle System



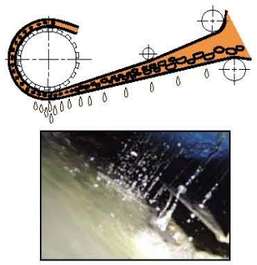
Dehydration Cake-Out



## Main Effect of Roller Stage

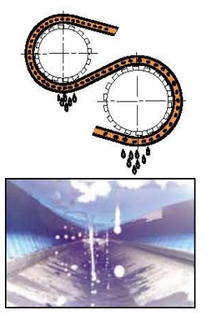
### 1. Drainage Zone

In the drainage zone, the well conditioned sludge is fed on the upper belt and distributed evenly in a thin layer.In this zone, filterate water drains out of the sludge and through the belt medium by gravity alone. Most of the free water released from the flocculated sludge is drained here resulting in a volume reduction of approx. 1/2 The appearance underneath is that of a heavy rainstorm.



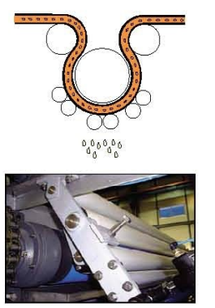
### 2. Wedge Zone

The thickened sludge passes through the wedge zone where the cake is formed and stabilized before being subject to further combined increasing pressure and shear in the next shear zone. Prepressing is performed as the two belt come together.



### 3. Squeeze Zone

The partly pressed sludge enters the squeeze zone. As the belts travel around rollers of smaller diameter, the pressure increases, more and more water squeezed out. The water is pressed out here by the combination of gradually increasing pressure and shearing force up to near physical limits.

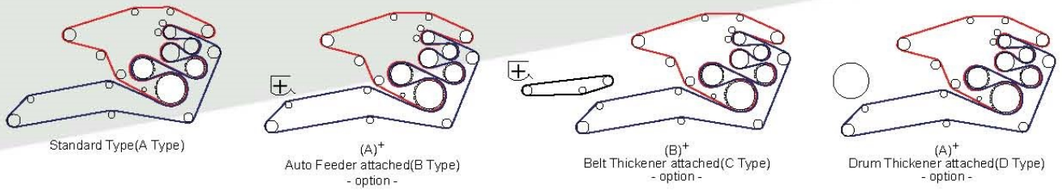


### 4. High pressure Zone

In case of rigid sludge such as fibrous, pulpy strong sludge, higher pressure(2kg/cm$^2$~3kg/cm$^2$) can be applied for lower moisture content in cake. The higher tension is created by tensioning a metal mesh belt hydraulically. And this higher tension produces higher pressure around the high press roller which compresses the sludge between the belts resulting in further dewatering in discharge cake.

# Variety in models to meet your specific requirements

## 6 stage With High Pressure AKI-BFS



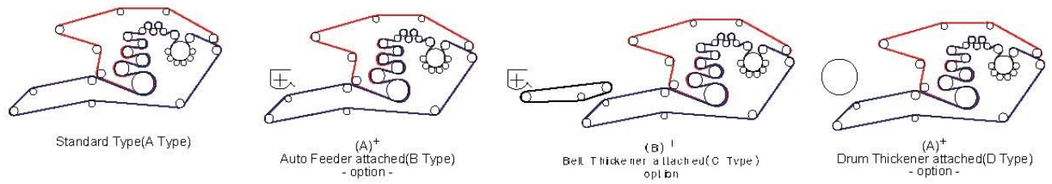
Standard Type(A Type)

(A)+ Auto Feeder attached(B Type) - option -

(B)+ Belt Thickener attached(C Type) - option -

(A)+ Drum Thickener attached(D Type) - option -

## 8 stage With High Pressure AKI-BFSH



Standard Type(A Type)

(A)+ Auto Feeder attached(B Type) - option -

(B)+ Belt Thickener attached(C Type) - option -

(A)+ Drum Thickener attached(D Type) - option -

## Low operating costs owing to technical know-how and experience in sludge dewatering

**Continuous, intensive dewatering and trouble free operation as a result of ;**

- **Perfect flocculation**
- **Uniform sludge distribution**
- **Inhibition of rewetting**
- **Gradually increasing pressure**
- **Maxim utillzation of shearing force**

The AKI belt press meets all these requirements. Hundreds of delivery and commissioning experience have resulted in a sludge dewatering system with optimal operation and ideal sequence.

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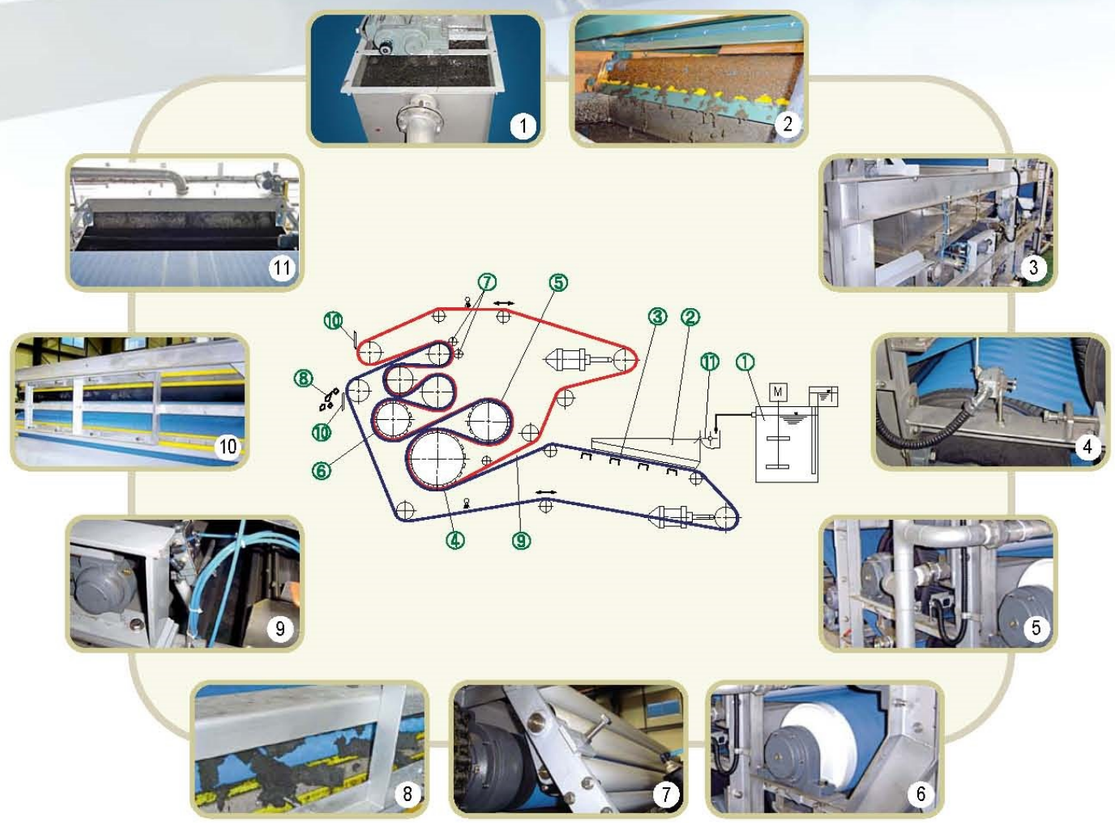
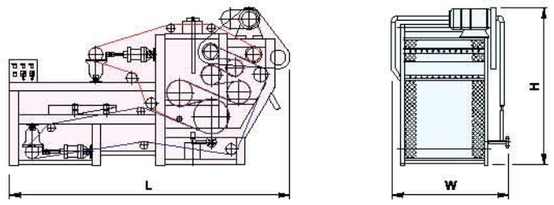



Sludg and polymer are well mixed and conditioned in mixing tank ①. A variable speed agitator makes it possible to mix polymer and sludge with the speed of the best conditioning of floc, results in minimum polymer consumption. The flocculated sludge flows onto the filter belt in the drainage zone ②. The inclined inlet pool causes the floc to distribute evenly over the full width of the filter belt. Auto feeder ⑪. is to be recommended to ensure the uniform distribution even though the sludge has characteristics of rapid sedimentation, as an option. While the free water is draining off, the sludge floc settle and build up to a uniform cake. Noncorrosive belt support ③. skims off the water drop. At the end of drainage zone, the sludge cake enter to the wedge zone ⑨. In this wedge zone, the cake is gwntly prepressed and equalized. The first roller ④. of the shear zone is machined with Helical flute(patent pending) in order to obtain filtrate flow through both belts without rewetting the cake. The same as the second roller ⑤. and the third roller ⑥. The arrangement of roller is S-shaped in order to drop the filtrate without wetting the cake again. As an option, the additional pressing roller ⑦. can be provided which apply additional pressure against the cake and therefore enable dewatering up to the physical limits. At the discharge end, the cake ⑧. is removed from the belts by pivotable doctor blades ⑩. and dropped onto a suitable conveyor system.

# Technical Data

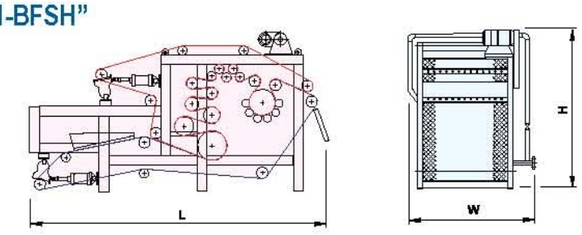
**AKI** produces the belt press in various kinds of sizes from 500mm to 3000mm belt width as standard and special order made available. The belt width choice depends on the required throughput and the specific dewaterbility of the sludge. Sludges which are difficult to dewater can be tested in the **AKI** laboratories. For Pre-testing purposes, a mobile demonstration unit equipped with a 500mm full size **AKI** belt press is available.(Pilot Machine Pretesting Available)

## Standard Medium Pressure Model "AKI-BFS"




| | AKI-BFS 50W | AKI-BFS 70W | AKI-BFS 100W | AKI-BFS 150W | AKI-BFS 200W | AKI-BFS 250W | AKI-BFS 300W |
|---|---|---|---|---|---|---|---|
| Belt Width (mm) | 500 | 700 | 1000 | 1500 | 2000 | 2500 | 3000 |
| Overall Length (mm) | 3981 | 4182 | 4182 | 4412 | 4561 | 4375 | 4440 |
| Machine Width (mm) | 1080 | 1280 | 1580 | 2240 | 2760 | 3240 | 3820 |
| Machine Height (mm) | 2130 | 2277 | 2277 | 2426 | 2479 | 2530 | 2625 |
| Weight (kg) | 1750 | 2200 | 2900 | 4100 | 5300 | 7400 | 10000 |
| Power Consumption (kw) | 0.54 | 0.4 | 0.75 | 0.75 | 1.5 | 1.9 | 2.6 |
| Wash Water Consumption ($M^3$/hr) | 4.11 | 5.93 | 8.21 | 12.77 | 16.42 | 21.00 | 25.08 |

## High Pressure Model "AKI-BFSH"




| | AKI-BFSH 100W | AKI-BFSH 150W | AKI-BFSH 200W | AKI-BFSH 250W | AKI-BFSH 300W |
|---|---|---|---|---|---|
| Belt Width (mm) | 1000 | 1500 | 2000 | 2500 | 3000 |
| Overall Length (mm) | 4905 | 5105 | 5495 | 6070 | 6070 |
| Machine Width (mm) | 1580 | 2240 | 2760 | 3240 | 3820 |
| Machine Height (mm) | 2800 | 2800 | 3000 | 3200 | 3200 |
| Weight (kg) | 4500 | 7000 | 8000 | 12000 | 14000 |
| Power Consumption (kw) | 1.5 | 1.5 | 2.2 | 3.7 | 3.7 |
| Wash Water Consumption ($M^3$/hr) | 8.21 | 12.77 | 16.42 | 21.00 | 25.08 |



# Performance Data

## Standard Type for AKI-BFS

| Kind of Sludge | | Sludge Concentration (%) | Polymer Dosing Rate (% DS) | Capacity ($m^3$/m · hr) | Filtering Speed (kg · DS/m · hr) | Water Content Cake (%) |
|---|---|---|---|---|---|---|
| Urban Sewage | Mixed | 2.0~6.0 | 0.4~0.9 | 2.0~5.0 | 100~320 | 65~75 |
| | Digested | 2.0~5.8 | 0.6~1.2 | 2.0~5.0 | 90~280 | 60~70 |
| | Excess | 1.0~2.7 | 0.5~1.2 | 3.0~6.0 | 90~170 | 76~83 |
| Night Soil | Digested | 3.0~7.0 | 0.5~1.2 | 4.0~8.0 | 120~600 | 58~63 |
| | Excess | 1.0~2.5 | 0.6~1.2 | 2.5~6.0 | 75~150 | 75~83 |
| Scrubbing Waste | | 1.2~2.5 | 0.5~1.0 | 2.5~5.0 | 70~120 | 78~84 |
| Starch Plant | | 0.7~1.2 | 0.5~1.2 | 3.0~4.0 | 30~50 | 82~84 |
| Marine Product Processing | | 1.5~8.7 | 0.5~1.0 | 1.8~4.0 | 50~160 | 65~75 |
| Parer Mill(fragile) | | 1.5~2.8 | 0.3~0.6 | 3.4~7.0 | 100~180 | 68~70 |
| Food Processing | | 0.8~1.6 | 0.4~0.8 | 3.0~6.0 | 30~90 | 75~84 |
| Textile Dying | | 1.5~2.0 | 0.4~0.6 | 2.5~5.0 | 40~100 | 78~85 |
| Beverage Plant | | 0.6~1.0 | 0.4~0.9 | 2.4~4.0 | 30~50 | 78~83 |
| Pharmacy | | 0.8~1.5 | 0.5~1.0 | 3.0~6.0 | 30~90 | 75~84 |
| Metal Hydroxides | | 2.0~4.5 | 0.2~0.4 | 3.0~4.0 | 60~120 | 75~83 |
| Leather Processing | | 3.0~5.0 | 0.3~1.0 | 2.5~5.0 | 100~350 | 62~78 |

## Dewatering System Flow Sheet