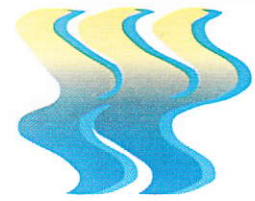


# BLUE RIVER



TYPE : BRS (SEDIMENTATION)



## Water Treatment Plant Package

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**GPE**



# PENGANTAR

# INTRODUCTION



Blue River Sedimentation™ adalah Instalasi Pengolahan Air Bersih yang kompak. Selama bertahun-tahun telah terbukti sebagai solusi untuk mengolah air dengan berbagai karakteristik dan kondisi geografis. IPA ini berupa paket yang mencakup keseluruhan sistem proses dengan luas area yang relatif kecil. Penggunaan static mixer, flokulator tipe jet, dan tube settler menjamin air olahan akan memenuhi baku mutu Pemerintah tentang air bersih. Blue River Sedimentation™ tersedia dalam rentang kapasitas yang lebar, satu keuntungan lain bagi pengguna untuk menentukan pilihan yang sesuai dengan kebutuhannya.

*Blue River Sedimentation™ is a compact Water Treatment Plant. It is a proven solution based on years of experience at various geographic locations with different raw water characteristic. The plant is a package treatment with complete process contained within small footprint. The use of quality static mixer, jet flocculator and high efficiency tube settler ensure treated water quality meet government standard for clean water. Blue River Sedimentation™ is available in wide range of capacity, another advantage for user to select a suitable unit.*

# FITUR

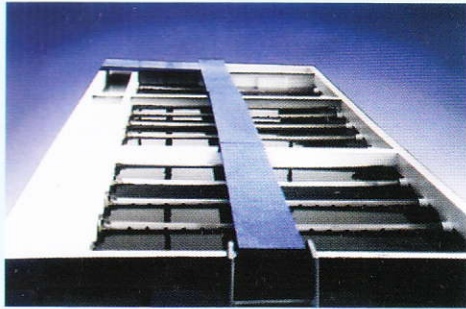
# FEATURES

- Sistem modular dan kompak *Modular system and compact*
- Daya adaptasi yang baik *Good adaptability*
- Perawatan mudah dan cepat *Quick and easy maintenance*
- Pengoperasian dan perawatan sederhana *Simple operation and maintenance*
- Mudah ditransportasikan *Easy to transport*





# DESKRIPSI PROSES



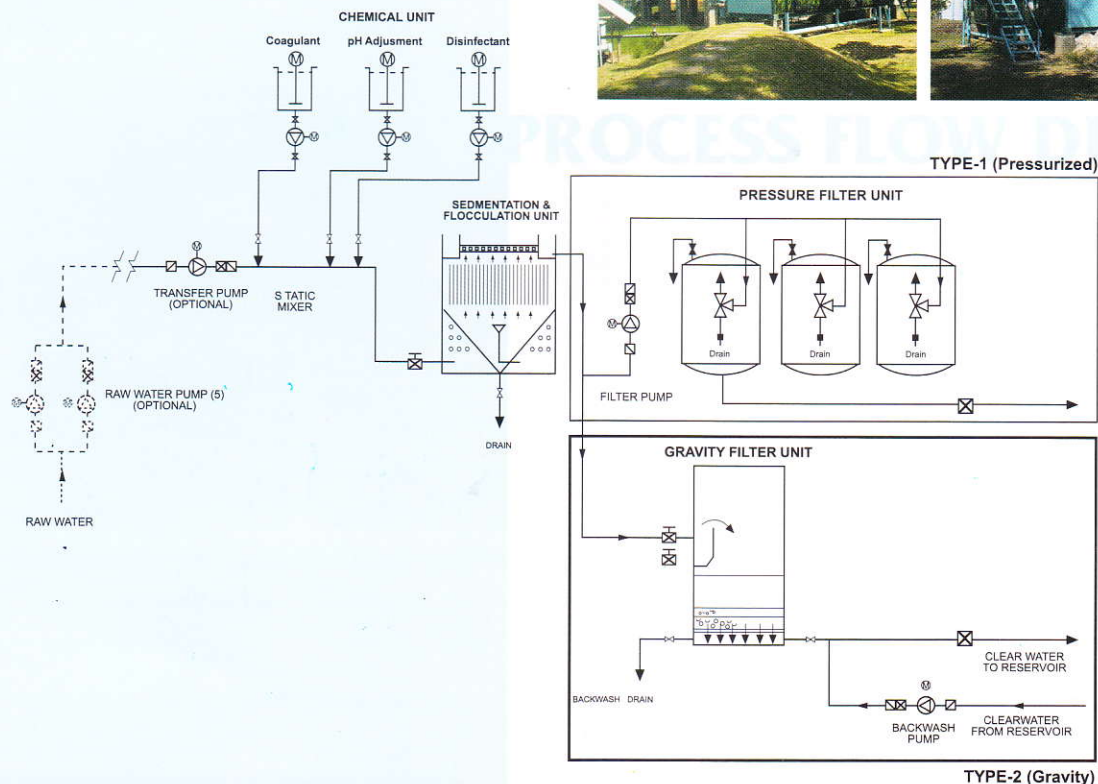
Raw water will be treated through several stages of processes. Coagulation process takes place after the injection of coagulant in the specially designed quick mixer, resulting in the formation of microflocs. pH adjustment follows shortly after coagulation. Disinfectant chemical is dosed before the water enters flocculation occurs. The macroflocs formed are then settled in sedimentation chamber with the aid of tube settler. The released clear water is delivered to filtration unit to remove remaining suspended solids. There are two options for filtration unit:

1. Pressurized, where clear water from sedimentation tank is delivered to filter tanks, operate in parallel, by means of a filter pump. This unit is able to operate at high filtration rate, thus requires smaller footprint. Another advantage of pressurized unit is that the filter pump can also be used as backwash pump.
2. Gravity, where clear water from sedimentation tank flows into the filter due to difference in height (level). This unit operates at lower filtration rate, thus requires larger footprint. In this option user can choose whether to use a separate pump for better efficiency of backwash process, or self-backwash unit for more economical process.

Air baku akan mengalami beberapa tahapan proses. Koagulasi terjadi di dalam static mixer setelah injeksi koagulan, menghasilkan flok-flok halus. Injeksi pengatur pH dilakukan setelah koagulasi. Bahan kimia disinfektan diinjeksikan sebelum air memasuki flokulator, tempat berlangsungnya proses flokulasi. Flok-flok besar yang dihasilkan dari proses ini diendapkan di ruang sedimentasi dengan bantuan tube settler. Air bersih yang dihasilkan dikirim ke unit filtrasi untuk menghilangkan sisa-sisa padatan tersuspensi. Ada dua pilihan unit filtrasi:

1. Bertekanan, air bersih dari tangki sedimentasi dikirim ke tangki filter yang bekerja secara paralel menggunakan pompa filter. Unit ini mampu beroperasi pada laju yang tinggi sehingga memerlukan luas lahan yang relatif lebih kecil. Satu keuntungan lain dari unit filter bertekanan adalah bahwa pompa filter dapat juga difungsikan menjadi pompa backwash.
2. Gravitasi, air bersih dari tangki sedimentasi mengalir ke filter karena perbedaan ketinggian muka air. Unit ini beroperasi pada laju yang lebih rendah, sehingga memerlukan luas lahan yang lebih besar. Pengguna bisa memilih menggunakan pompa backwash terpisah untuk efisiensi proses pencucian filter, atau unit yang self-backwash demi pertimbangan keekonomian.

# PROCESS FLOW DIAGRAM





# TECHNICAL SPECIFICATION

GENERAL TECHNICAL SPECIFICATION <sup>6</sup>							
<b>Sedimentation Unit</b>							
Capacity, l/sec	5	10	15	20	30	40	50
m <sup>3</sup> /h	18	36	54	72	108	144	180
Dimension of container (L x W, m)	6 x 2.4	6 x 2.4	6 x 2.6	7.2 x 2.6	6 x 2.6	7.2 x 2.6	7.2 x 2.6
Number of container	1	1	1	1	2	2	3
Approx. total empty weight <sup>1)</sup> (kg)	7600	11500	11800	17000	23600	34000	51000
Area required <sup>2)</sup> (m <sup>2</sup> )	8 x 4	8.4 x 8	8.56 x 8	9.23 x 8	11.5 x 8.56	13 x 8.72	14 x 12.88
Inlet-Outlet connection size (inch)	2.5 - 3	3 - 4	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
Flowmeter size (inch)	2.5	4	5	6	6	8	8
Static mixer size (inch)	2.5	4	5	6	6	8	8
Electric power consumption <sup>3)</sup> (kW)	0,80	1,05	1,06	1,53	2,03	2,09	2,92
<b>Filtration Unit</b>							
<b>1. Pressure filter<sup>4)</sup></b>							
Diameter of filter tank, OD (mm)	800	1000	1300	1500	1800	1920	2300
Approx. height (mm)	2400	2560	2665	2800	2900	2950	3200
Number of filter tank	3						
Approx. empty weight (kg)	2200	2900	4100	4800	6000	7500	8900
Approx. weight of sand (kg)	2200	2500	4200	5600	8100	9200	13200
<b>Filter Pump (also functions as backwash pump)</b>							
Total Head (m)	20						
Pump motor and speed (kW/rpm)	3.7/1450	5.5/1450	7.5/1450	7.5/1450	11/1450	15/1450	18.5/1450
Number of filter pump	1 (standard) or 2 (optional)						
<b>2. Gravity filter</b>							
Dimension of container (L x W, m)	2.1 x 2.4	4 x 2.4	6 x 2.4	6 x 2.4	5 x 2.4	6 x 2.4	7.1 x 2.6
Number of container	1	1	1	1	2	2	2
Approx. total empty weight (kg)	2300	4800	9700	9700	8000	19400	26000
Approx. weight of sand (kg)	8100	15500	23500	23500	38800	47000	58800
<b>Backwash Pump</b>							
Total Head (m)	12						
Pump motor and speed (kW/rpm)	3.7/1450	5.5/1450	7.5/1450	7.5/1450	7.5/1450	7.5/1450	7.5/1450
Number of backwash pump	1						
<b>Chemical dosing system</b>							
Consists of chemical tanks, dosing pumps, and electric agitator for each chemical tank. Chemicals include: coagulant, pH adjustment, and disinfectant. Dosage of chemicals may vary according to raw water characteristics.							
<b>Optional equipment</b>							
<ul style="list-style-type: none"> <li>• Raw water pump</li> <li>• Carbon or multimedia filter</li> <li>• Water meter</li> <li>• Fully automatic control system</li> <li>• Aeration and presedimentation<sup>5)</sup></li> <li>• Polyelectrolyte dosing system</li> </ul>							
<b>Remarks :</b>							
1) Total empty weight without filter tanks, except for Blue River 5 l/sec include filter tanks.							
2) Area required not include chemical storage building, operator building, etc.							
3) Power consumption for dosing pumps and electric agitator (mixer). Not include filter pump(s), backwash pump, etc.							
4) All filter tanks (for pressure filter type), are free standing, except for Blue River 5 l/sec mounted inside the container.							
5) For raw water with turbidity value between 200 - 600 NTU, no presedimentation tank required.							
6) All information are subject to change without prior notice.							

## APLIKASI

- Perusahaan Daerah air *Minum Water works, City municipal*
- Real Estat, Kawasan Industri *Real Estate, Industrial Estate*
- Lapangan Golf, Resor dan Bumi Perkemahan *Golf Course, Resort and Camping Ground*
- Hotel, Rumah Sakit, Kampus/Sekolah *Hotel, Hospital, Campus Complex*
- Lokasi Penambangan *Mining, Construction Camp*
- Berbagai Industri *Industries*

## GAE Water Treatment Product

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