

DISSOLVED AIR FLOTATION



Product Specifications



Anaconda®: Dissolved Air Flotation System for physical-chemical treatment.

Advanced FADAR® Flotation technology. Solid removal performance levels of up to 99%.

Anaconda is made of FRP with high resistance chemical and mechanical resins.

Accessibility and safety.

ANACONDA®, HIGH PERFORMANCE DISSOLVED AIR FLOTATION

Anaconda® FRC-2, FRC-5



Flows and Dimensions



MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)	Installed power (kW)		Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (Nl/min) *	
FRC-2	2 m³/h	1.555	2.338+100	2.416	3,3		DN50	DN65	DN100	DN50	18	
FRC-5	5 m³/h	2.202	2.350+100	2.947	SCP-BPS	VESSEL	DN80	DN100	DN125	DN65	SCP-BPS	VESSEL
					4,5-7	3,9					36	28

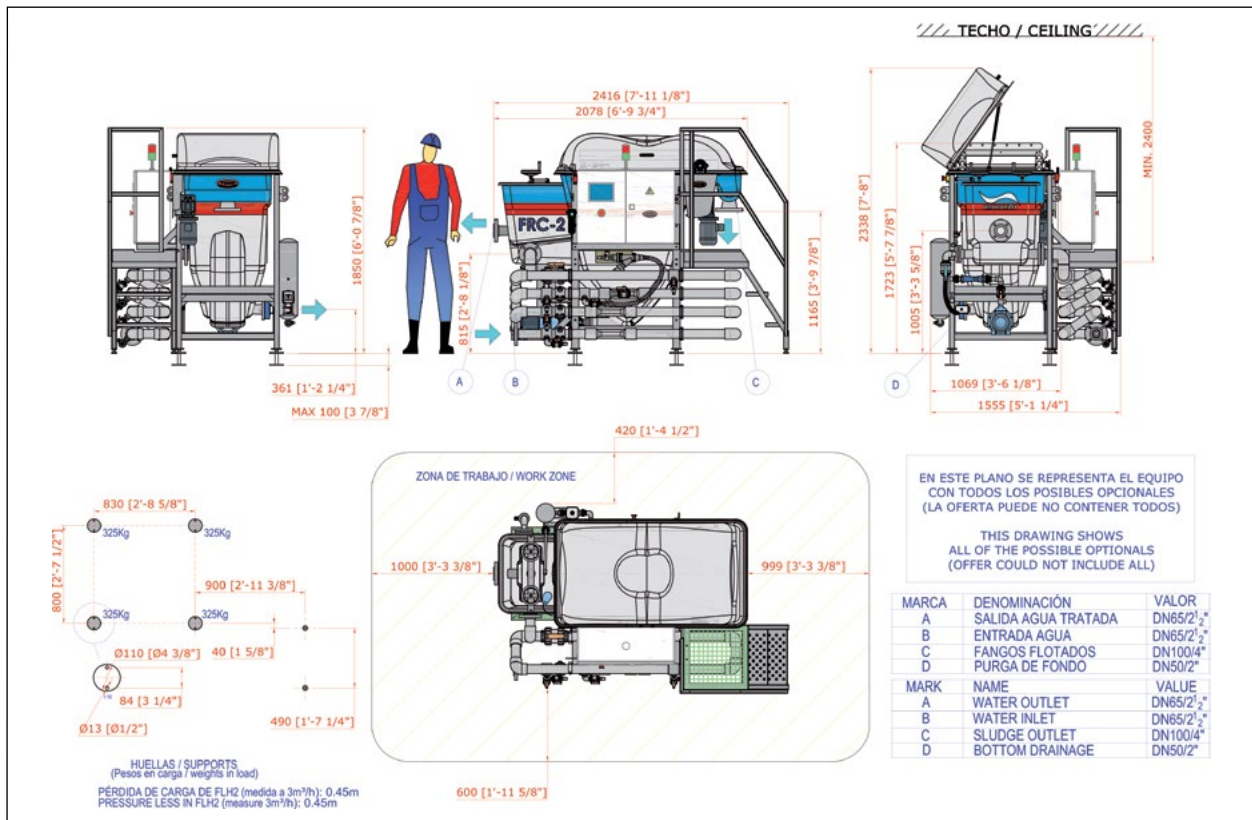


MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)	Installed power (kW)		Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (Nl/min) *	
FRC-2	1 m³/h	1.555	2.338+100	2.416	3,3		DN65	DN65	DN100	DN50	18	
FRC-5	3 m³/h	2.202	2.350+100	2.947	SCP-BPS	VESSEL	DN80	DN100	DN125	DN65	SCP-BPS	VESSEL
					4,5-7	3,9					36	28

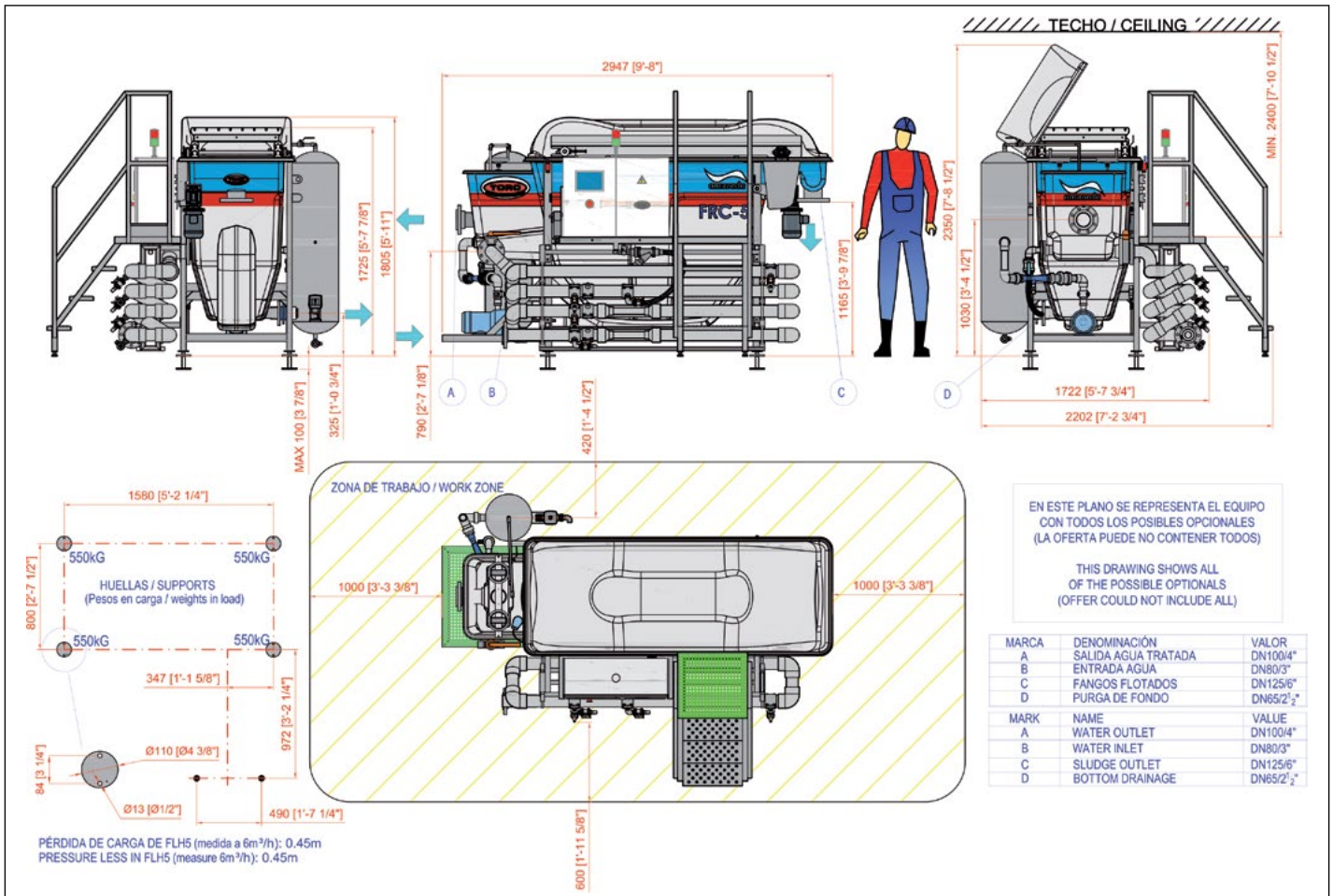
* The air pressure will be between 6-8 bar on all models.

The dimensions and product specifications might vary slightly, due to the normal development of products by the engineering department of Toro Equipment SL. More specific data can be found on our website at www.toroequipment.com.

Anaconda® FRC-2



Anaconda® FRC-5



Anaconda® FRC-10, FRC-20



 anaconda®

 fatflot®

 sludgeway®

Flows and Dimensions

 anaconda®

MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)	Installed power (kW)		Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (NI/min) *	
					SCP-BPS	VESSEL					SCP-BPS	VESSEL
FRC-10	10 m³/h	2.509	2.902+100	4.201	4,5-7	4,5	DN100	DN125	DN125	DN65	67	52
FRC-20	20 m³/h	3.224	2.880+100	5.735	4,5-7,63	5,43	DN100 DN150	DN150	DN150	DN80	83	64

 fatflot®

MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)	Installed power (kW)	Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (NI/min) *
FSG-10	10 m³/h	2.415	2.902+100	3.414	4,5	DN100	DN125	DN125	DN65	52
FSG-20	20 m³/h	2.859	2.880+100	4.814	5,43	DN150	DN150	DN150	DN80	64

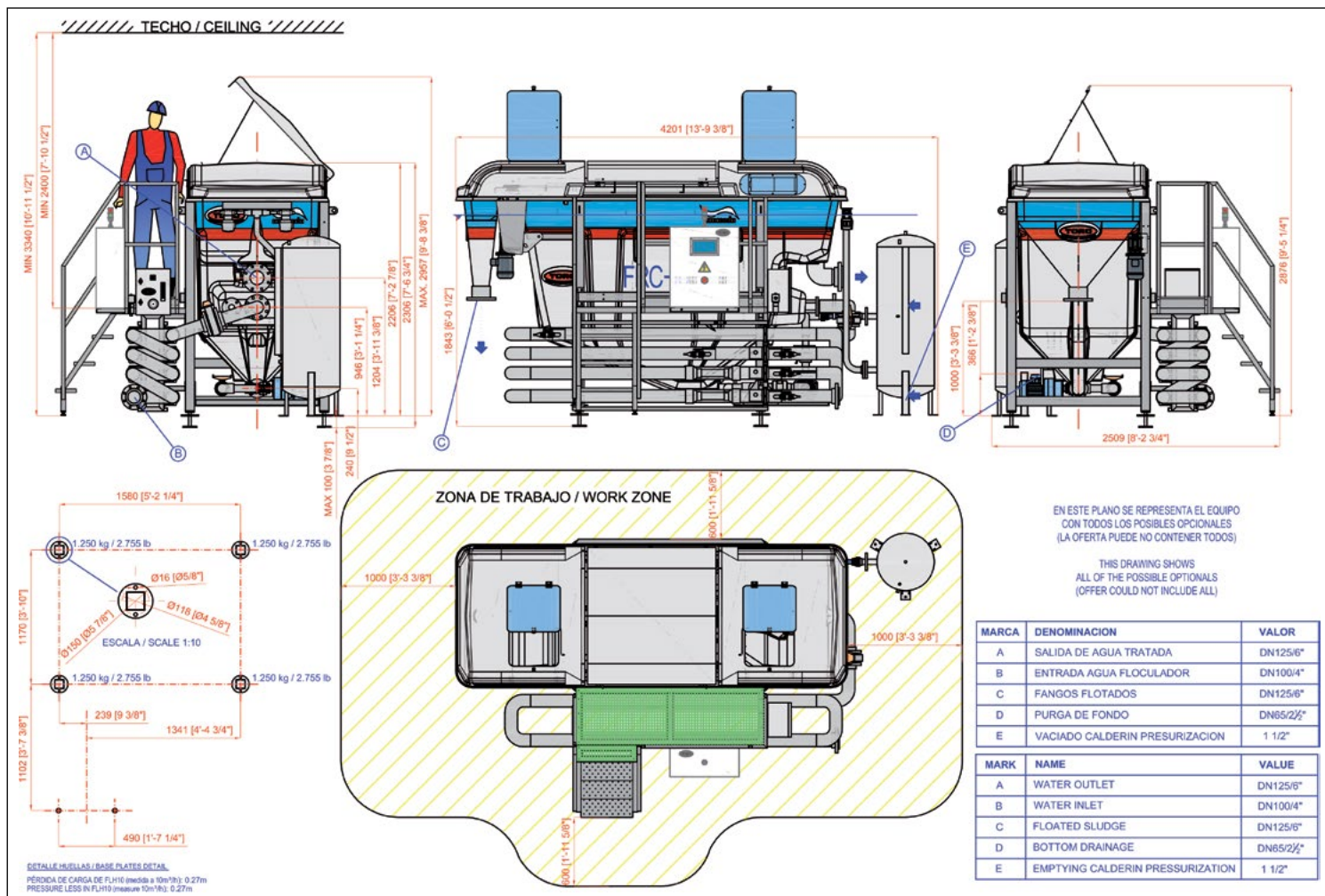
 sludgeway®

MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)	Installed power (kW)		Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (NI/min) *	
					SCP-BPS	VESSEL					SCP-BPS	VESSEL
FRC-10	10 m³/h	2.509	2.902+100	4.201	4,5-7	4,5	DN100	DN125	DN125	DN65	67	52
FRC-20	20 m³/h	3.224	2.880+100	5.735	4,5-7	4,5	DN100 DN150	DN150	DN150	DN80	83	64

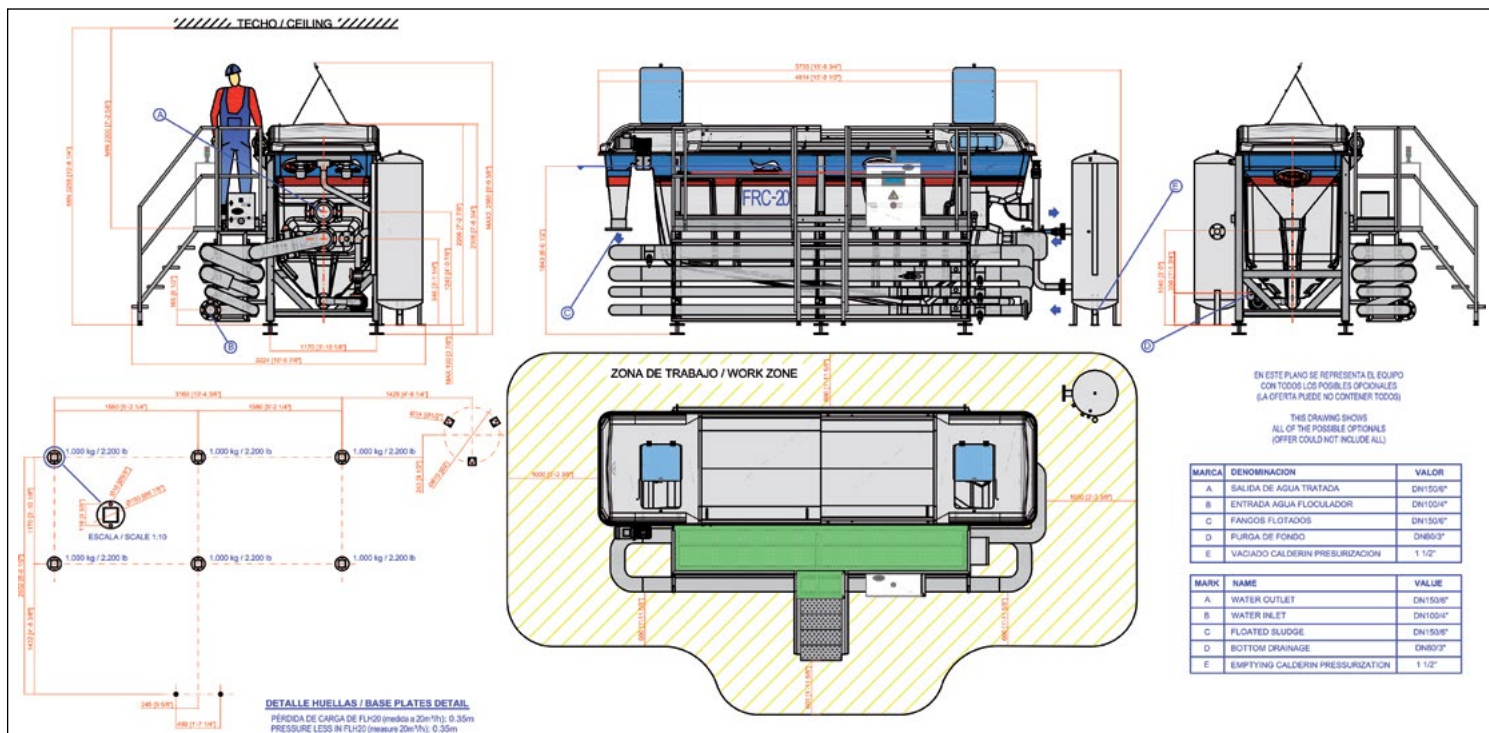
* The air pressure will be between 6-8 bar on all models.

The dimensions and product specifications might vary slightly, due to the normal development of products by the engineering department of Toro Equipment SL.
More specific data can be found on our website at www.toroequipment.com.

Anaconda® FRC-10



Anaconda® FRC-20



Anaconda® FRC-30, FRC-60, FRC-90



Flows and Dimensions



MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)		Installed power (kW)		Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (NI/min) *	
FRC-30	30 m³/h	3.765	3.176+100	SCP-BPS	VESSEL	SCP-BPS	BALÓN	DN150	DN200	DN150	DN80	SCP-BPS	VESSEL
				5.334	5.969	6,57	6,57					123	95
FRC-60	60 m³/h	4.445/3.535	3.181+100	SCP-BPS	VESSEL	SCP-BPS	BALÓN	DN200	DN200	DN150	2x DN80	SCP-BPS	VESSEL
				8.610	9.445	12	14,05					280	217
FRC-90	90 m³/h	4.448/3.535	3.181+100	SCP-BPS	VESSEL	SCP-BPS	BALÓN	DN200	DN250	DN250	3x DN80	SCP-BPS	VESSEL
				11.931	12.805	20	15,37					402	309



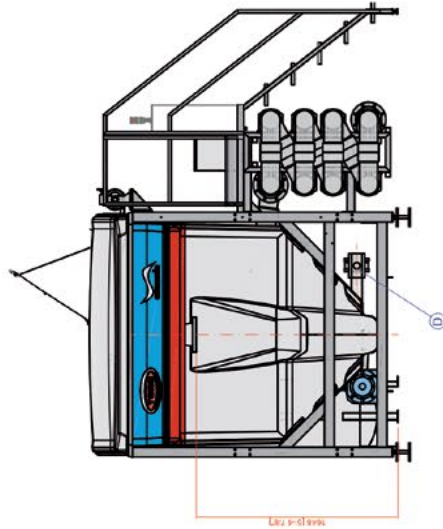
MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)	Installed power (kW)	Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (NI/min) *
FSG-30	30 m³/h	3.765	3.176+100	4.907	6,57	DN150	DN200	DN150	DN80	95
FSG-60	60 m³/h	3.535	3.181+100	8.610	14.04	DN200	DN200	DN150	2x DN80	217
FSG-90	90 m³/h	3.535	3.181+100	11.931	15,37	DN200	DN250	DN250	3x DN80	309



MODEL	Flow	Maximum width A (mm)	Maximum height B (mm)	Length L (mm)		Installed power (kW)		Water inlet	Water outlet	Sludge outlet	Drainage	Compressed air consumption (NI/min) *	
FRC-30	30 m³/h	3.765	3.176+100	SCP-BPS	VESSEL	SCP-BPS	BALÓN	DN150	DN200	DN150	DN80	SCP-BPS	VESSEL
				5.334	5.969	6,57	6,57					123	95
FRC-60	60 m³/h	4.445/3.535	3.181+100	SCP-BPS	VESSEL	SCP-BPS	BALÓN	DN200	DN200	DN150	2x DN80	SCP-BPS	VESSEL
				8.610	9.445	12	14,05					280	217
FRC-90	90 m³/h	4.448/3.535	3.181+100	SCP-BPS	VESSEL	SCP-BPS	BALÓN	DN200	DN250	DN250	3x DN80	SCP-BPS	VESSEL
				11.931	12.805	20	15,37					402	309

* The air pressure will be between 6-8 bar on all models.

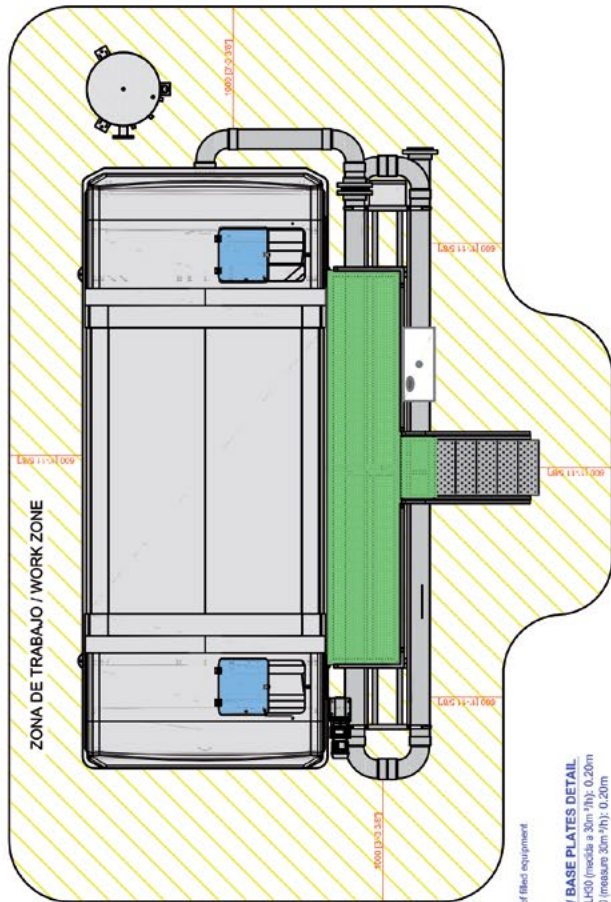
The dimensions and product specifications might vary slightly, due to the normal development of products by the engineering department of Toro Equipment SL.
More specific data can be found on our website at www.toroequipment.com.



EN ESTE PLANO SE REPRESENTA EL EQUIPO
CON TODOS LOS POSIBLES OPCIONALES
(LA OFERTA PUEDE NO CONTENER TODOS)

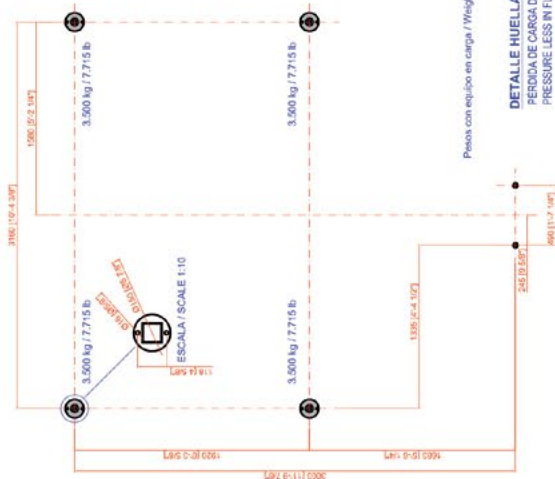
MARCA	DENOMINACION	VALOR
A	SALIDA DE AGUA TRATADA	DN200/8"
B	ENTRADA AGUA FLOCULADOR	DN150/6"
C	FANGOS FLOTADOS	DN150/6"
D	PURGA DE FONDO	DN80/3"
E	VACIADO CALDERIN PRESURIZACION	1/2"

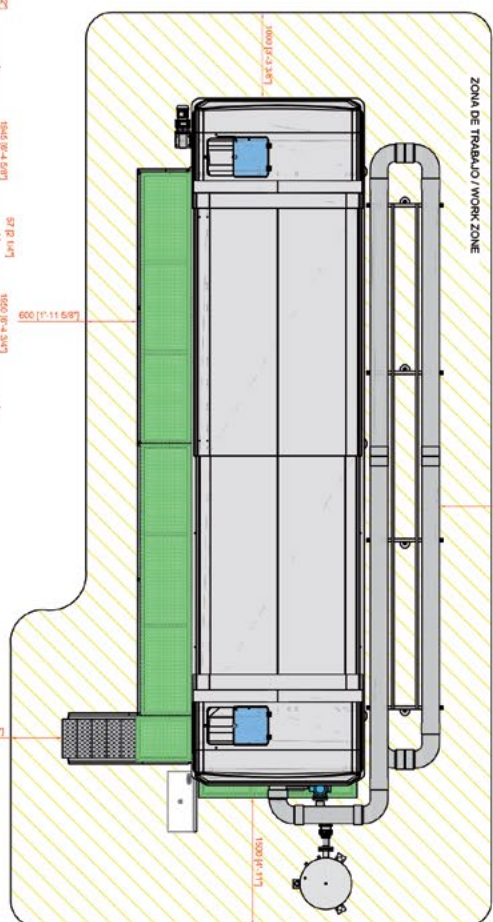
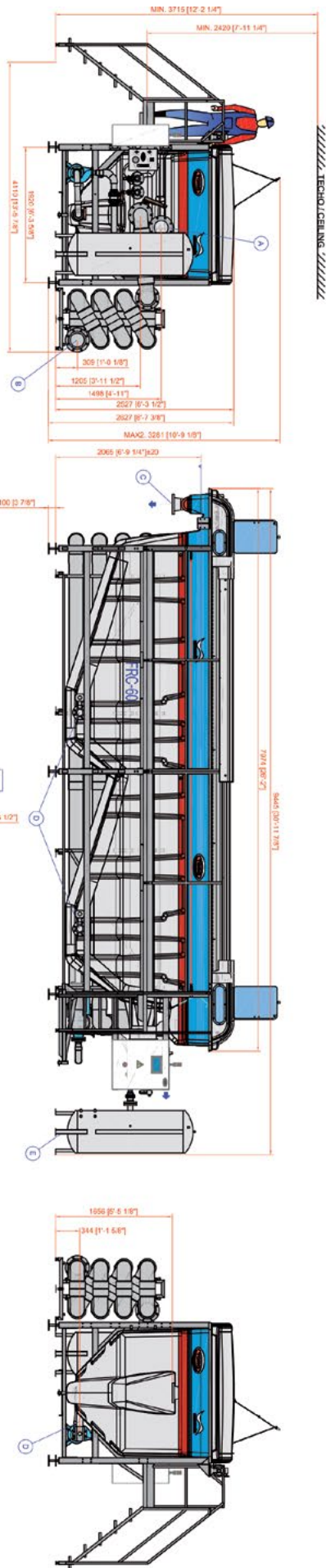
MARK	NAME	VALUE
A	WATER OUTLET	DN200/8"
B	WATER INLET	DN150/6"
C	FLOATED SLUDGE	DN150/6"
D	BOTTOM DRAINAGE	DN80/3"
E	EMPTYING CALDERIN PRESSURIZATION	1 1/2"



Pesos con equipo en carga / Weights of filled equipment

DETALLE HUELLAS / BASE PLATES DETAIL
PÉRDIDA DE CARGA DE FLH30 (medida a 30m ³/h): 0.20m
PRESSURE LOSS IN FLH30 (measure 30m ³/h): 0.20m



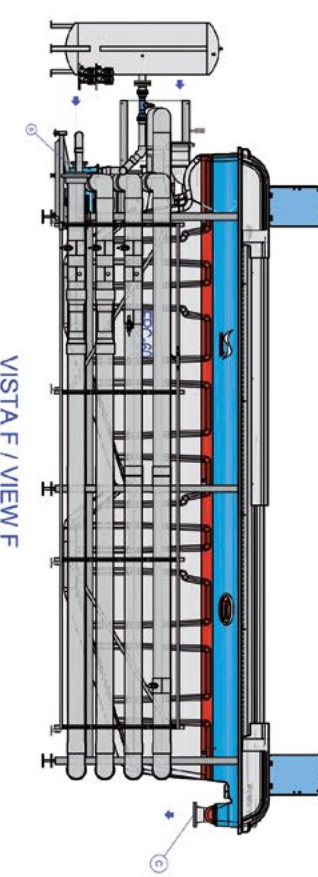
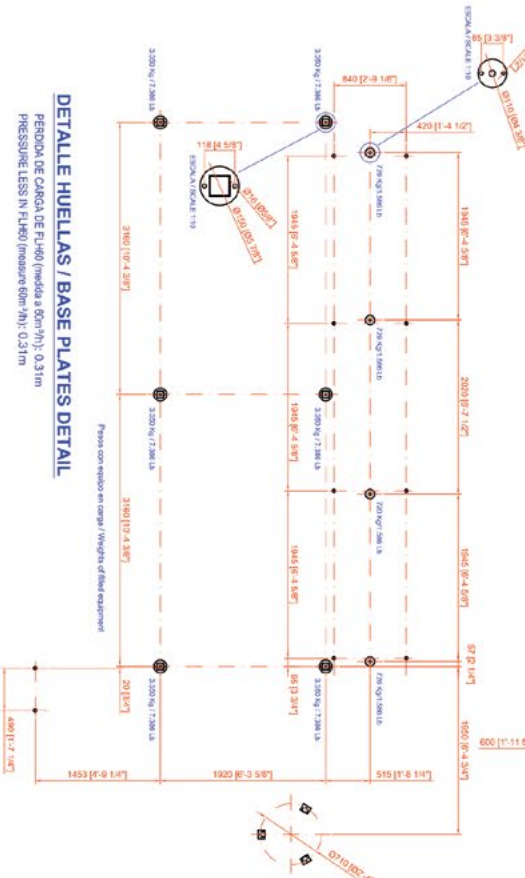


EN ESTE PLANO SE REPRESENTA EL EQUIPO CON TODOS LOS POSIBLES OPCIONALES (LA OFERTA PUEDE NO CONTENER TODOS)

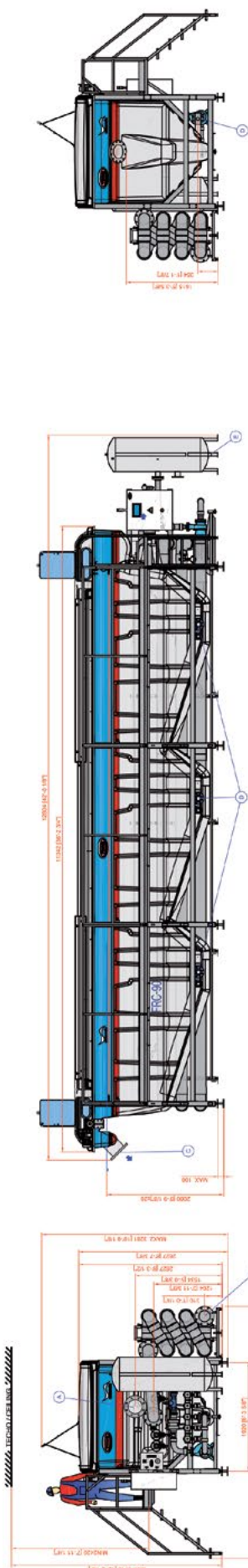
THIS DRAWING SHOWS ALL OF THE POSSIBLE OPTIONALS (OFFER COULD NOT INCLUDE ALL)

MARCA	DENOMINACION	VALOR
A	SALIDA DE AGUA TRATADA	DN200/6"
B	ENTRADA AGUA FLOCULADOR	DN200/6"
C	FANGOS FLOTADOS	DN150/6"
D	PURGA DE FONDO	DN80/3"
E	VACIADO CALDERIN PRESURIZACION	1 1/2"

MARK	NAME	VALUE
A	WATER OUTLET	DN200/6"
B	WATER INLET	DN200/6"
C	FLOATED SLUDGE	DN150/6"
D	BOTTOM DRAINAGE	DN80/3"
E	EMPTYING CALDERIN PRESSURIZATION	1 1/2"



VISTA F / VIEW F

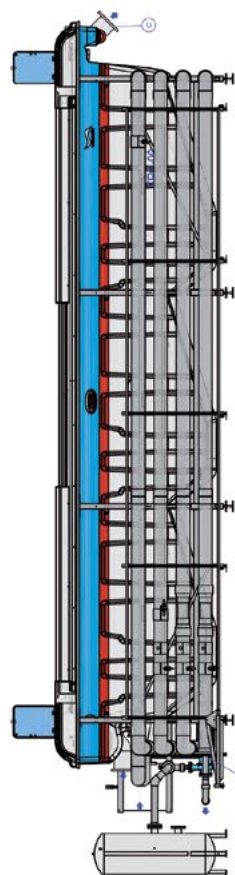
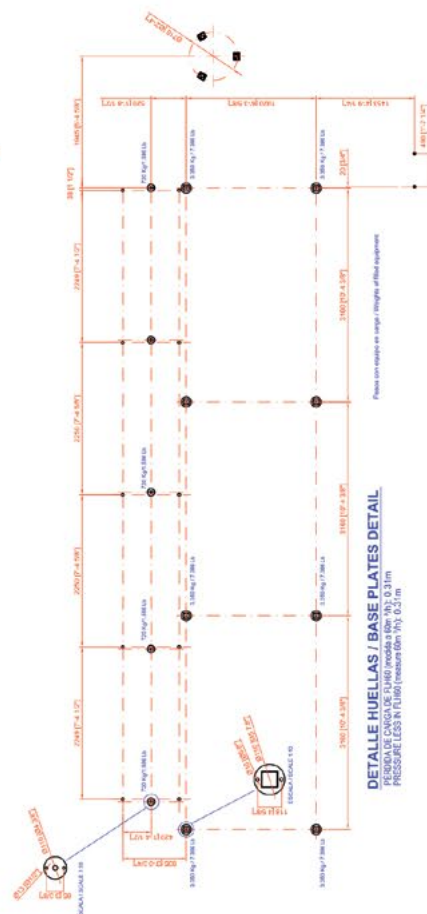
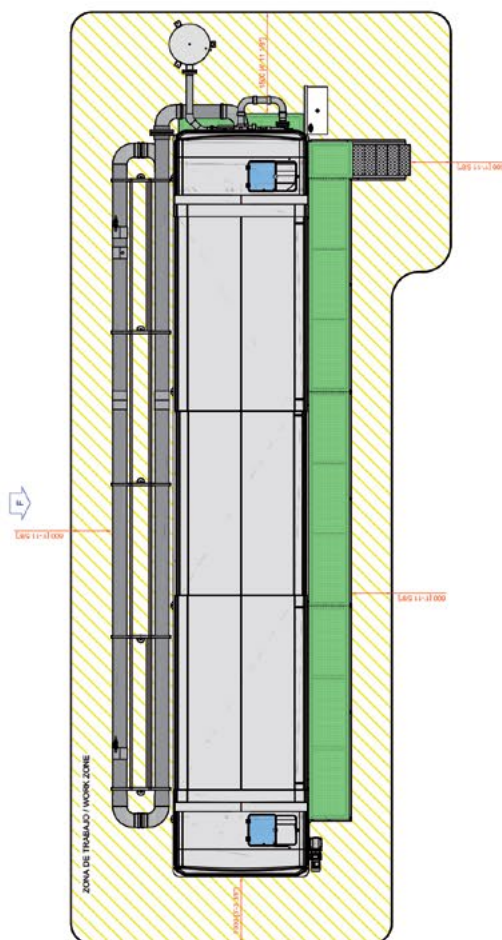


EN ESTE PLANO SE REPRESENTA EL EQUIPO
CON TODOS LOS POSIBLES OPCIONALES
(LA OFERTA PUEDE NO CONTENER TODOS)

THIS DRAWING SHOWS
ALL OF THE POSSIBLE OPTIONS
(OFFER COULD NOT INCLUDE ALL)

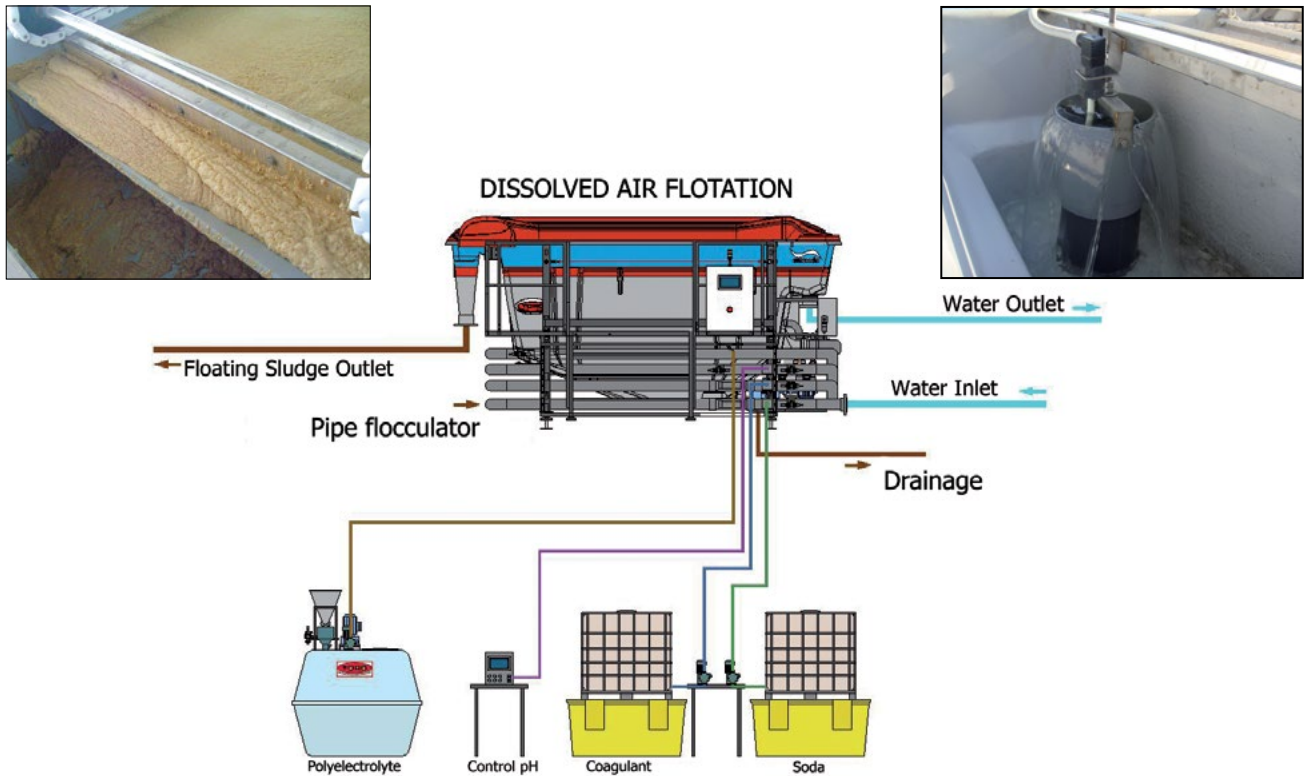
MARCA	DENOMINACION	VALOR
A	SALIDA DE AGUA TRATADA	DN250/10"
B	ENTRADA AGUA	DN200/8"
C	FANGOS FLOTADOS	DN250/10"
D	PURGA DE FONDO	DN80/3"
E	VACIADO CALDERIN PRESURIZACION	1 1/2"

MARK	NAME	VALUE
A	WATER OUTLET	DN250/10"
B	WATER INLET	DN200/8"
C	FLOATED SLUDGE	DN250/10"
D	BOTTOM DRAINAGE	DN80/3"
E	EMPTYING CALDERIN PRESSURIZATION	1 1/2"



VISTA F / VIEW F

Process Description



Applications

- Pretreatment: Anaconda®.

- Sewage and industrial wastewater. In urban wastewater fat and oil reduction of up to 60% of pollution load.
- Drinking and industrial water process.

- Physical-Chemical: Anaconda®.

- In sewage, the performance depends on application, volume and type of prior equalization.
- In industrial water such as solid-liquid separators:

Slaughterhouse	Metal finishing
Dairy	Timber industry
Pulp & paper	Mining
Precooked product	Textile industry
Biofuel	Vegetable oil
Canned fish	Pharmaceutical

- Sludge thickening: Sludgeway®.

- Fat and oil separation: Fatflot®.





Outfit

STANDARD



OPTIONAL



STRUCTURE:		OTHERS:	
Structure AISI-304	☒	Air sludge pre-chamber contact	☒
Gangway	In 2 & 5 ☐ others ☒	Reflocculation system in flotation chamber	☒
Stairs	In 2 & 5 ☐ others ☒	Sludge thickening lamellas	☒
Flanges in FRP, DIN 2501	☒	Acetal scraper chain	☒
Tramex gangway in FRP	☒	Rigid scraping system in FRP	☒
Protection cover and safety	☐	Automatic drainage	☒
Modification regarding standard gateway	☐	Sludge level regulating system	☒
Height adjuster 0-100 mm	☒	Pneumatic control box. Automatic purgator	☒
Structure elevation (1 m)	☐	Emergency stop	☒
Structure AISI-316	☐		
Epoxy painted structure	☐	FLOCCULATOR PIPE, INCLUDES:	☐
Metallic parts in contact with water AISI-316	☐	- Reagent injection 2 units	☒
Metallic parts in contact with water DUPLEX	☐	- Polyelectrolyte injection 1 unit	☒
Tank in other colours	☐	- Flock sponge system	☒
		- Inlet taps samples 3 units	☒
		- Legs adjuster	☒
		- Manufacture inox AISI-304/PVC	☒
		- Replacement in inox AISI-304-316	☐
		- Replacement in PVC-P.E.H.D.	☐
		- Replacement in PVC-PP	☐
PRESSURIZATION SYSTEMS:		INTEGRATION OF ELECTRICAL CABINET INCLUDE:	☒
Cast iron SCP Pump + spare pump body	☒	- Electric cabinet integration	☒
SCP pump AISI-304, free of charge	☐	- Touch-sensitive panel in colour	☒
Vessel, free of charge	☐	- Dynamic PLC software	☒
BPS (Bach Pressurization System), free of charge	☐		
Double SCP pump (1 in reserve)	☐		
Double centrifugal pump (1 in reserve)	☐		
SCP pump marine bronze	☐		
SCP pump AISI-316	☐		
Auto-cleaning injectors system	☒	SIGNALING:	
Pressurization tank FRP	☐	Bright alarm beacon	☒
Pressurization tank PP	☐	Ethernet communication	☒
Pressurization Piping PP	☐	Starting process by remote signal	☒
Compressor	☐	Electric box for power and control wiring (without electrical cabinet)	☒

* Nominal flow in normal conditions of temperature and salinity. Temperature of 15° - 25°, Anaconda supports up to 3,000 mg/l of solids (TSS) in FRC2 and FRC5, rest of models support up to 5,000 mg/l of solids.

* Flow rates higher or lower depending on the application and rate air/solid. Contact us.

The dimensions and technical specifications may vary slightly due to the normal development of products by the technical team at Toro Equipment SL. When ordering, request the specification drawings. More specific values can be found on our website at www.toroequipment.com.

Options

Structure and Materials

- Other materials can be used in the construction of Anaconda®.

- Equipments are made of polyester resin reinforced in isophthalic fibreglass with high chemical resistance. Higher chemical resistance than stainless steel.
- Standard steel items are AISI 304 grade, other options being available.
- Working temperature up to 50° C in continuous. Other material can be use to work under higher temperature conditions. Request more information on our website, www.toroequipment.com or consult our technical staff.



Tramex gangway in FRP

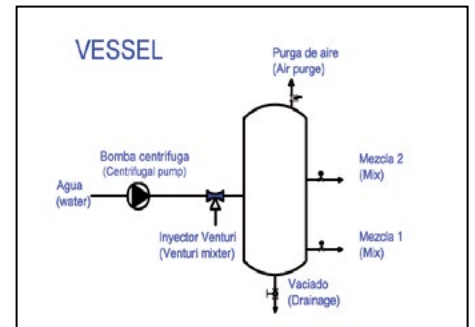
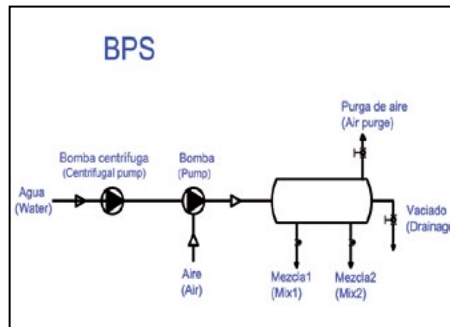
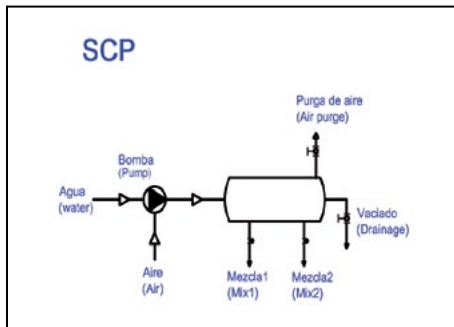


Height adjuster



Ladder

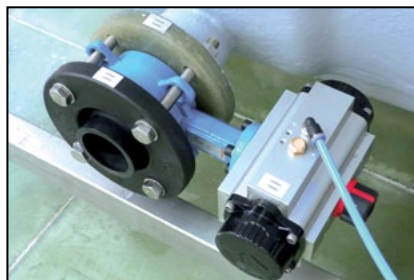
Pressurization Systems



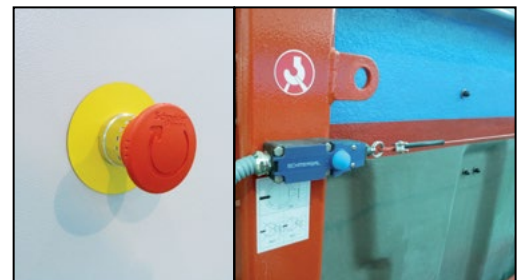
Others



Rigid scraper system in FRP



Automatic drainage



Emergency stop systems

Flocculator Pipe

- The flocculator pipe manufactured by Toro Equipment is made of PVC, polypropylene, polyethylene or stainless depending of the application.
- The flocculator is a system that allows online dosing of chemicals in the water.
- Each section has a samples taking tap to control the amount of chemical injected.



FLH in PP



FLH in PVC



FLH in polyethylene



FLH in Inox

Electrical & Pneumatic Cabinet



Dynamic graphic cabinet: PLC touch screen, alarm history, status, hour meter...



Electrical and pneumatic control in the same cabinet.

Packaging and Transport

- FRC-2 & FRC-5 fully enclosed protective wooden crate.
- Protective plastic wrapping of equipment for shipping.
- FRC 2/5/10/20 transportable in 20ft container.
- FRC 30/60/90 transportable in 40ft container, High Cube.



FRC-2 with protective wooden crate



Wooden crate



40ft container H.C.



Equipment plasticized

Compact Plant

- At the request of the customer, we supply compact plant in containers. Please request information to our commercial department.



- 40ft, with ground in FRP.



- Containers insulated with sandwich panel. Coated steel sheet 0.4 mm. 30mm PUR foam. Conditioning by heat pump, ventilation and illumination.

- Implementing the Anaconda® in a raised plant allows the sludge to fall by gravity into the TAF (Sludge Conditioning Tank), thereby saving pumping. (See TAF file).
- Ask for polypropylene cover and pipe options in outside installations.
- Consider the problems of reagent freezing and process water, especially in stopping.
- For hot or salt water consult the application, since the solubility of air in water decreases. The pressurization system shall be over-sized.
- The blowdown returns to the preliminary pumping or homogenization. It is advisable to do this through a small chamber sandbox, which collects very large dense solids.
- Raw water prior to flotation will have to be screened to at least a 1 mm aperture.
- It is advisable to install constant and adjustable flow pumping systems. This is achieved through a flow meter and a frequency inverter that operates the pump. We can as an option include it in the supply. (Diagram of pump / Frequency inverter / Magnetic flowmeter).
- The pre-flotation tanks shall be stirred. In many applications, stirring with air will be a great advantage for the process (see DBF file).
- The amount accumulated in these tanks will vary from one process to another. A minimum of 6-10 hours is recommended. It is also recommended to have a fixed or slave amount of 2-4 hours.
- If the preliminary tank is higher than the DAF Anaconda®, an automatic shutoff valve should be available.
- Ask our sales department or in our website **www.toroequipment.com** drawing dwg.



Worldwide References



Argentina
 Australia
 Austria
 Belgium
 Bolivia
 Brazil
 Bulgaria
 Canada
 Chile
 China
 Colombia
 Costa Rica
 Croatia
 Denmark
 Egypt
 Estonia
 Finland
 France
 Germany
 Greece
 Holland
 Hungary
 India
 Indonesia
 Ireland
 Israel
 Italy
 Japan
 Jordan
 Latvia
 Lebanon
 Lithuania
 Luxembourg
 Malaysia
 Mexico
 Moldova
 Morocco
 Pakistan
 Panama
 Peru
 Poland
 Portugal
 Romania
 Russia
 Saudi Arabia
 Seychelles
 Singapore
 South Africa
 Spain
 Switzerland
 Thailand
 Trinidad and Tobago
 Tunisia
 Turkey
 UAE
 UK
 Ukraine
 Uruguay
 US
 Venezuela

Factory Villavaquerín - Valladolid



Factory La Cistèrniga - Valladolid



Tel +34 983 403047 Fax +34 983 403048
 toro@toroequipment.com
 www.toroequipment.com

TORO EQUIPMENT S.L. (Factory)
 Ctra. Nacional VP-3302, Km 11.
 471329, Villavaquerín
 Valladolid-Spain

TORO EQUIPMENT S.L. (Factory & Offices)
 C/ Sauce s/n.
 47193 La Cistèrniga
 Valladolid-Spain



© TORO EQUIPMENT 2016
 ANACONDA® DISSOLVED AIR FLOTATION
 FATFLOT® FAT AND OIL SEPARATOR
 SLUDGEWAY® SLUDGE THICKENING