COMPANY

KAVOSH AFAGH

DEWAXING DRUM FILTER

Scope

These specifications are for horizontal drum type continuous vacuum filter in which the drum rotates partially submerged in a chilled solution of oil and solvent, containing wax crystals.
The filter shall be suitable for continuous operation in open air.

Filter Characteristics

- The filter is designed for an application involving the use of a solvent mix such as MEK and Toluene and inside inert gas atmosphere.
- The filter is designed for 50% circumferential drum submergence
- The filters will be right hand or left hand, as required by the Purchaser.
- The filter drum dimensions are: 3352 mm diameter by 2000 mm to 10000 mm face
- The filter operating surface is: 20 m2 to 100 m2
- The filter net weight is : 20.000 Kg to 50.000 Kg

Basic Conditions

1. Temperature

Design : - 35 C to + 90 C

Operating : - 20,5 C to + 75 C

2. Pressure

Design : 0.07 bar g

Operating : 0.02 to 0.04 bar g

Test : 0.105 bar g

Description of operation

The filter is designed for dewaxing oil by continuous filtration of crystalline wax from chilled slurry of wax, oil and solvent. The chilled slurry feed, which goes into the bottom of filter tank, is automatically controlled so as to maintain its level constant in the tank.
The filtrate is collected through the filter internal piping system and is directed through the automatic filtrate valve, to the discharge. The wax crystal phase, suspended in the chilled slurry, forms a cake on the filtering medium fitted on the drum face.
The filtration cycle is composed of five stages: cake pick-up, cake washing, cake drying, purge, and cake discharge.

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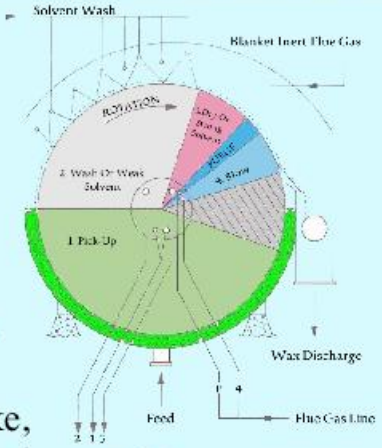
KAVOSHAFAGH

Dewaxing Drum Filter

OPERATION

ACake Pick-up

The flow of liquid is induced through the filter medium, fitted to the surface of the rotating drum by the application of vacuum through the drum internal pipes located beneath the filter medium. The wax then accumulates on the filter medium, forming the cake.



Cake washing

After the pick-up phase, the wax cake is washed continuously and uniformly by chilled solvent.

The washing solvent, spread as a continuous film over the wax cake, removes the oil.The washing solvent and displaced oil are collected through the drum inner pipes.

Cake drying

After the cake washing phase, the wax cake is partially dried by inert gas, passing through the cake, into the vacuum system.

Intra-Compartment purge

Inert gas is blown into the trailing pipe, while vacuum is still being applied to the leading pipe, in order to purge any residual liquid from each drum compartment and internal filtrate piping.

Cake discharge

The release of the wax cake from the filter medium is achieved by means of the blow back of inert gas through the trailing pipe. A steep smooth deflector blade directs the cake into the collecting trough, where a helical screw conveyor moves the wax to the outlet.

Mechanical Data					Material Specification	
Design temperature		-42/+90	°C		Tank & Hood	ASTM No.
Design pressure		0.07	barg		Shell & Head	A 516 gr 70
Operating vacuum pressure		600	mm Hg max		Tank/ Hood flange	A 516 gr 70
Test pressure	Vat & Hood Internal	1.5	psig(air)		Drum	
	Vat & Hood External	0	psig(air)		Shell & Head	A 516 gr 70
	Drum Internal	5	psig		Valve end trunion	A 516 gr 70
	Drum Piping Internal	30	psig(air)		Valve	
Drum diameter		3352	mm		Valve head	A 516 gr 70
Drum length		6000	mm	1	Wear plate	Aluminum Bronze
Number of drum section		30			Blade	
Valve End Trunnion Diameter		33	inch		Blade	PTFE
Valve Connections	Filtrate	1-6"			Wax Scrol	
	Wash	1-6"			Trough	A 516 gr 70
	Dry	1-6"			Bushing	Bronze

No. of Effective Section at 50% Drum Submergence	Below	1-3"			Piping	AISI 304 SS	
	Purge	1- 1 ½"			Nozzle	AISI 304 SS	
	Filtrate	13			Electrical Specification		
	Wash	10.5			Drum Drive	7.5 kw	(3)
	Dry	1			Wax Scroll Drive(VFD)	5.5 kw	(3)
	Below	1			Lubricator Drive	0.18 kw	(3)
	Purge	4.5			Motor type	Eexd IIB T4	
Washing Arrangment	Drip Pipes	2 row					
	Spray Pipes	6 row					
Design Code		ASME					
Inspection by							
Reference Drawings							
Insulation	None	Cold Insulation					
Speed Range of Drum		0.4 to 2 RPM					
Scroll Rotating Speed		40 to 90 RPM					

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