Compression MBR VS MBBR VS FBBR

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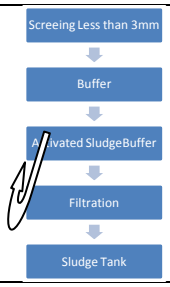
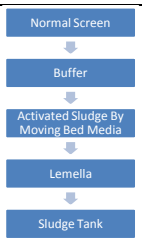
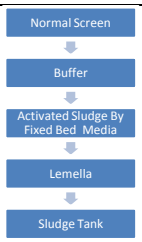
Technology	MBR	MBBR	FBBR	Cost relation
Process Diagram				MBR Less Space but more Area for Good Screen
Screening - Grease Requirement	MBR Requires Excellent Screening Grit Grease Removal and Automatic Sizes 2-3 mm. An Important Factor	Normal Screening. Can be Manual Can be Above 3 mm	Normal Screening. Can be Manual Can be Above 3 mm	MBR MORE COST FOR SCREENING SYSTEM
Process of Treatment	Mechanical - Physical Separation for the Impurities by Ultra Filtration. Remove up to the separation of Germs. The Fresh Sewage go first to Screening, Than Aeration for Sludge Activation	The Bio impurities attached to the Suspended Materials and form biofilm. The Biomass degrade the Biomass to an Acceptable Levels	The Bio impurities attached to the Fixed Bed Materials and form biofilm. The Biomass degrade the Biomass to an Acceptable Levels	MBR is Physical Process and Biofilm is 100% Biological
PRESSURE	Requires Negative Pressure for the Filtration	Not Needed	Not Needed	MBR HIGHER ENERGY
BACKWASH	Requires Backwash for Cleaning	Not Needed	Not Needed	MBR HIGHER ENERGY
Aeration	Buffer Mixing Activated Sludge than filtration	Buffer - Bioreactor	Buffer Bio reactor	
Sludge Settlement	Not Required	Lamella	Lamella	ADVANTAGE MBR LAMELLA TECHNOLOGY REQUIRES

				MUCH LESS SPACE
Sludge Production	More	Less	Less	The Biofilm depends on Feeding on the Biomass
Trained Service	Constant and Trained Service			HIGHER COST
Sludge Return	The Activated Young Sludge Return to the Aeration Tank, to contribute to the Active Biomass			Higher Energy , Pumping Sludge require Maintenance too
Spare Parts	Costly - Periodic	Cheaper and Long Lasting	Cheaper and Long Lasting	Small Scratch MBR Element than No Fix Need to Change BIOFIL is Sturdy and Replaceable at Cheap Cost
Quality of Treated Sewage Effluent TSE	Superior	Acceptable for Irrigation	Acceptable for Irrigation	MBR BEST TSE QUALITY
Over All Cost	Service - Energy- Parts and Cost of Plant	Less	Best	FBBR BEST COST OVER 5 YEARS
Energy	The Highest	Middle	Lowest	FBBR the Materials not Need to Move, it is Fixed
Electrical Shut Down	Can Hold 24Hours	Form Bio Cakes if Electricity is Down more than 10 Hours. This Will require Change Materials, Clean Take and 10 Dats Start Up	No Cakes Formed the Biomass stationary	ADEVANTAGE FBBR
Grease Leak	BIG PROBLEM Membrane Need to Be cleaned well and Can be replaced	BIG PROPBLEM MATEROALS TO CHANGE AND 10 DAYS START UP	The Oil leaked will stay on the top, easy to remove	