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SAND FILTER COMPARISON CHART

Characteristic	Traditional Slow Sand Filter (TSSF)	Rapid Sand Filter (RSF)	Pressure Sand Filter (PSF)	Manz Slow Sand Filter™/Manz Polishing Filter™ (MSF) (MPF)
Effectiveness in removing:				
Pathogens				
Parasites	Very effective	Possible	Possible	Very effective
Bacteria	Very effective	Not effective	Not effective	Very effective
Viruses	Very effective	Not effective	Not effective	Very effective
Particulates				
Silt Clay Organic	Very effective and practical at low turbidity	Effective as part of conventional treatment systems. (These include use of coagulants and clarification prior to filtration.)	Effective as part of conventional treatment systems. (These include use of coagulants and clarification prior to filtration.)	Very effective and practical at all turbidities. Pre-treatment may be useful.
Oxidized				
Iron Manganese	Effective but not usually practical.	Not sufficiently effective or normally used.	Not sufficiently effective or normally used.	Very effective and practical.
Arsenic	Not used because pre-treatment impractical.	Not sufficiently effective or normally used.	Not sufficiently effective or normally used.	Very effective and practical with required pre-treatment.
Fluoride	Not used because pre-treatment impractical.	Not sufficiently effective or normally used.	Not sufficiently effective or normally used.	Very effective and practical with required pre-treatment.
Dissolved Organics	Not used because pre-treatment impractical.	Very effective and practical with required pre-treatment.	Very effective and practical with required pre-treatment.	Very effective and practical with required pre-treatment.
Opportunity for Breakthrough	Not possible.	Normal. Used to indicate need to clean.	Normal. Used to indicate need to clean.	Not possible.
Structural Issues				
Relative surface area.	Very large.	Small.	Very Small.	Large.
Relative height.	Deep.	Very deep.	Shallow.	Shallow.
Piping Requirements.	Minimal.	Extensive.	Extensive.	Minimal.
Engineering and Construction Complexity.	Minimal.	Complex.	Minimal.	Minimal.

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Rel. Production Capacity Practical Range.	Community scale.	Community scale. (Impractical at small scales.)	Small community. (Impractical at large scales.)	Household to community scale.
Operational Complexity	Very Simple.	Complex.	Relatively complex.	Simple.
Relative Construction Cost	Low.	High.	Relatively high. (Usually come as assembled components or package plants.)	Very low.
Need for cover in winter.	Yes.	Yes.	Yes.	Yes.
Relative Operating and Cleaning Cost.				
Manpower - skill level required to successfully operate filter in long term.	Low.	High.	High.	Low.
Manpower.	Low but can be significant if water has high concentration of suspended solids. (Not convenient to clean.)	Low.	Low.	Very low.
Method of Cleaning.	Manual scraping.	Vigorous backwash usually automatically initiated with filtration to waste.	Vigorous backwash usually automatically initiated with filtration to waste.	Limited backwash intended to clean filter surface layer that may be automatically or manually initiated.
Filter to waste requirements.	Not required (suspended solids and parasites removed without formation of biolayer)	Required to flush filter media and until properly conditioned.	Required to flush filter media and until properly conditioned.	Not required (suspended solids and parasites removed without formation of biolayer)
Chemicals in wastewater.	Nil, as pre-treatment is not practical.	Present because pre-treatment using coagulants is required to achieve system performance.	Typically present because pre-treatment using coagulants is required to achieve system performance.	Nil, if pre-treatment is not used. Pre-treatment is often not necessary for adequate filter performance.
Wastewater generation.	Almost nil.	Very high.	Very high.	Very low.
Energy (pumps, etc.)	Very low.	High.	Very high.	Low.
Overall cost of op./maint.	Low.	High.	High.	Low.