DDI-Heat Exchangers Inc

www.ddi-heatexchangers.com

www.EnergyRecoverySolution.com

"RECTANGULAR, SQUARE, CUBE" TM

Don't WASTE the WASTE, use DDI HEAT RECOVERY Exchangers

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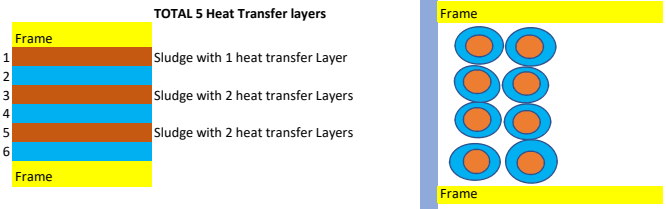
Comparison of DDI RECTANGULAR channels to Tube-in-Tube Heat Exchangers

Note: REF DDI -CASE STUDY in India

ITEM	DDI RECTANGULAR CHANNELES	UNIT	TUBE in TUBE	Units	NOTES
DESIGN SIZE - Heat Duty	3,171 10.8	KW MBTUH	3,171 10.8	KW MBTUH	
% Solids	6	%	6	%	
Heat Tranfer Area	214 2,300	Meter Square Ft Square	330 3,552	Meter Square Ft Square	DDI Much lower due to the OUTSIDE bends mixing of 4 x 90 Deg. Much better Turbulance
Sludge GAP	100 x 147 4" x 5.8"	MM Inches	100 4	MM Inches	
Water Gap	45 x 147 1.75" x 5.8"	MM Inches	22 0.875	MM Inches	Tube in Tube CAN NOT HAVE there SLUDGE, Can not have Direct- Sludge-to-Sludge When Tube in Tube has Outside Pipe 6" - less inside pipe out pipe of 4.25". The gap is only 1.75" /2
Shear Rate	236	1/Sec	100	1/Sec	DDI MUCH BETTER. Not linear
Viscosity	3	CPs	50	CPs	At 55 Deg C (131 deg F) Sludge, DDI much better due to More Turbulance and better mixing and better Shear rates
Flow Speed	2.2 7.3	Meter/Sec Ft/Sec	0.9 3	Meter/Sec Ft/Sec	Faster flow reduces the risk of Baking and Plugging
Out side bends per layer	4 / layer. 90 Deg bend each x 4		NONE		DDI OUTSIDE BENDS creates Mixing, so much less risk of STRUVITE setteling in DDI
Reynold Number	24,000	RE	2,000 - 5,000	RE	HUGE DDI much better -results in better Heat transfer
Over All Length	5.5 18	Meter Ft	7.3 24	Meter Ft	DDI Shorther
Extra Length required for cleaning	1 3	Meter Ft	5 15	Meter Ft	DDI has HUGE SPACE SAVINGS
Cleanning method	Easy Cleanning Ports System ECPS tm		Many Bolts-Long Space, Long Time		DDI require a few Minutes compared to Hours in Tube-in-Tube
OverAll Width	4.8 1.5	Meter Ft	4.8 1.5	Meter Ft	
Overall Height	7.2 2.2	Meter Ft	7.2 2.2	Meter Ft	

SAMPLE view

Layers



Shown nozzles on top- usually as extension

"ECPS" tm **"EASY CLEANING PORT SYSTEM"** tm of DDI

DDI has the ECPS "Easy Cleaning Ports System" that takes Only seconds to open and clean inside

The FLOW in DDI Heat Exchangers Inc. RECTANGULAR pateneted Channels.

90 Deg bends- 4 TIMES- to increase Turbulence & Mixing & Heat Transfer & less Plugging & less Struvite risks.

Heat Exchanger and Heat RECOVERY Systems.

1) Larger Circumference compared to Tube in Shell (round).
For the same flow area, LARGER Heat Transfer Surface.
2) Smaller foot print than Tube. Less area required (about 1/3).
3) More Turbulence flow than in Tube-in-Tube or Spiral.
. i.e. better Heat Transfer in zigzag channels. Outside bends
4) Non-Block design, no spacers (obstacles) as in Spiral type.
5) Gaps of 2, 3, 4 Inches Min, no Sludge blockage.
6) No need for expensive Macerator & Blades to grind Sludge.
7) ECPS tm "Easy Cleaning Ports System" to clean inside in minutes
8) Designed for Optimum Height (Non Plug) for each liquid,
And Optimum Width (for best flow speed, to avoid BAKING).
9) Quotes with realistic Viscosities estimate.
10) VERY LOW MAINTENANCE (once in a few years).
(Some competition requires back flush every shift..).
11) Can be used in Municipal, Agriculture, Pulp & Paper, Industrial etc.
12) Can be manufactured from different metals or alloys.
13) Modular system, Can be used for Water-to-Sludge or
Sludge-to-Sludge Heat Recovery. Stackable to save space.
14) HEAT RECOVERY, can have Payback ROI within 1 year.
15) Tested, in Use for 18 years, 42 installation, with NO need clean inside.