Plate Heat Exchanger

Fluid Dynamics
Heat Exchange Solutions
since 1981

Technical specification

Application : : **Milk Cooler**
Model : **FDMC-6-FMCW-47**
Project: : **PHE 2-1**
Item : **5000 l/h**
Date : **2022/1/28**

Product Group: FD0705
Item Code: FD0510
Painted Frame: YES
Triclamp Connections: YES

		Hot side	Cold side
Fluid		Milk	Water
Density	kg/m3	1021	1001
Specific heat capacity	kJ/(kg*K)	3.93	4.21
Thermal conductivity	W/(m*K)	0.538	0.579
Viscosity inlet	cP	1.39	1.57
Viscosity outlet	cP	3.29	1.35
Volume flow rate	m3/h	5.0	27.4
Inlet temperature	°C	35.0	4.0
Outlet temperature	°C	6.0	9.0
Pressure drop	kPa	5.77	116
Heat Exchanged	kW	160.4	
L.M.T.D.	K	9.4	
O.H.T.C clean conditions	W/(m2*K)	3578	
O.H.T.C service	W/(m2*K)	2541	
Heat transfer area	m2	6.8	
Fouling resistance* 10000	m2*K/W	1.1	
Duty margin	%	40.8	
Relative directions of fluids		Countercurrent	
Number of plates		47H	
Effective plates		45	
Number of passes		1	1
Extension capacity		32	
Plate material / thickness		SS316 / 0.50 mm	
Sealing material		NBRFF CLIP-ON	NBRFFCLIP-ON
Connection material		Stainless steel	Stainless steel
Connection diameter		2” Tri-clamp	2” Tri-clamp
Nozzle orientation		S1 -> S2	S4 <- S3
Pressure vessel code		PED	
Flange rating		DIN	
Design pressure	bar	6.0	6.0
Test pressure	bar	7.8	7.8
Design temperature	°C	50.0	50.0
Overall length x width x height	mm	750 x 320 x 920	
Liquid volume	dm3	6.9	6.9
Net weight, empty / operating	kg	126 / 140	

Performance is conditioned on the accuracy of customers data and customers ability to supply equipment.

Fluid Dynamics Pty Ltd:
25 Star Crescent, Hallam, VIC 3803
Tel: +61 (3) 8786 4900: Local 1800 58 58 59:
Email: sales@fluiddynamics.com.au : Web: www.fluidynamics.com.au

Plate Heat Exchanger

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Technical specification

Application : : **Milk Cooler**
Model : **FDMC-6-FMCW-57**
Project: : **PHE 2-2**
Item : **6000 l/h**
Date : **2022/1/28**

Product Group: FD0705
Item Code: FD0510
Painted Frame: YES
Triclamp Connections: YES

		Hot side	Cold side
Fluid		Milk	Water
Density	kg/m3	1021	1001
Specific heat capacity	kJ/(kg*K)	3.93	4.21
Thermal conductivity	W/(m*K)	0.538	0.579
Viscosity inlet	cP	1.39	1.57
Viscosity outlet	cP	3.29	1.35
Volume flow rate	m3/h	6.0	32.9
Inlet temperature	°C	35.0	4.0
Outlet temperature	°C	6.0	9.0
Pressure drop	kPa	5.69	114
Heat Exchanged	kW	192.4	
L.M.T.D.	K	9.4	
O.H.T.C clean conditions	W/(m2*K)	3546	
O.H.T.C service	W/(m2*K)	2501	
Heat transfer area	m2	8.3	
Fouling resistance* 10000	m2*K/W	1.2	
Duty margin	%	41.8	
Relative directions of fluids		Countercurrent	
Number of plates		57H	
Effective plates		55	
Number of passes		1	1
Extension capacity		22	
Plate material / thickness		SS316 / 0.50 mm	
Sealing material		NBRFF CLIP-ON	NBRFFCLIP-ON
Connection material		Stainless steel	Stainless steel
Connection diameter		2” Tri-clamp	2” Tri-clamp
Nozzle orientation		S1 -> S2	S4 <- S3
Pressure vessel code		PED	
Flange rating		DIN	
Design pressure	bar	6.0	6.0
Test pressure	bar	7.8	7.8
Design temperature	°C	50.0	50.0
Overall length x width x height	mm	750 x 320 x 920	
Liquid volume	dm3	8.4	8.4
Net weight, empty / operating	kg	134 / 151	

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Plate Heat Exchanger

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Technical specification

Application : : **Milk Cooler**
Model : **FDMC-6-FMCW-71**
Project: : **PHE 2-3**
Item : **7500 l/h**
Date : **2022/1/28**

Product Group: FD0705
Item Code: FD0510
Painted Frame: YES
Triclamp Connections: YES

		Hot side	**Cold side**
Fluid		Milk	Water
Density	kg/m3	1021	1001
Specific heat capacity	kJ/(kg*K)	3.93	4.21
Thermal conductivity	W/(m*K)	0.538	0.579
Viscosity inlet	cP	1.39	1.57
Viscosity outlet	cP	3.29	1.35
Volume flow rate	m3/h	7.5	41.1
Inlet temperature	°C	35.0	4.0
Outlet temperature	°C	6.0	9.0
Pressure drop	kPa	5.80	118
Heat Exchanged	kW	240.5	
L.M.T.D.	K	9.4	
O.H.T.C clean conditions	W/(m2*K)	3545	
O.H.T.C service	W/(m2*K)	2482	
Heat transfer area	m2	10.4	
Fouling resistance* 10000	m2*K/W	1.2	
Duty margin	%	42.8	
Relative directions of fluids		Countercurrent	
Number of plates		71H	
Effective plates		69	
Number of passes		1	1
Extension capacity		8	
Plate material / thickness		SS316 / 0.50 mm	
Sealing material		NBRFF CLIP-ON	NBRFFCLIP-ON
Connection material		Stainless steel	Stainless steel
Connection diameter		2” Tri-clamp	2” Tri-clamp
Nozzle orientation		S1 -> S2	S4 <- S3
Pressure vessel code		PED	
Flange rating		DIN	
Design pressure	bar	6.0	6.0
Test pressure	bar	7.8	7.8
Design temperature	°C	50.0	50.0
Overall length x width x height	mm	750 x 320 x 920	
Liquid volume	dm3	10.5	10.5
Net weight, empty / operating	kg	145 / 166	

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Plate Heat Exchanger

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Heat Exchange Solutions since 1981

Technical specification

Application : : **Milk Cooler**
Model : **FDMC-6-FMCW-77**
Project: : **PHE2-4**
Item : **8000 l/h**
Date : **2022/1/28**

Product Group: FD0705
Item Code: FD0510
Painted Frame: YES
Triclamp Connections: YES

		Hot side	Cold side
Fluid		Milk	Water
Density	kg/m3	1021	1001
Specific heat capacity	kJ/(kg*K)	3.93	4.21
Thermal conductivity	W/(m*K)	0.538	0.579
Viscosity inlet	cP	1.39	1.57
Viscosity outlet	cP	3.29	1.35
Volume flow rate	m3/h	8.0	43.8
Inlet temperature	°C	35.0	4.0
Outlet temperature	°C	6.0	9.0
Pressure drop	kPa	5.68	116
Heat Exchanged	kW	256.6	
L.M.T.D.	K	9.4	
O.H.T.C clean conditions	W/(m2*K)	3503	
O.H.T.C service	W/(m2*K)	2436	
Heat transfer area	m2	11.3	
Fouling resistance* 10000	m2*K/W	1.3	
Duty margin	%	43.8	
Relative directions of fluids		Countercurrent	
Number of plates		77H	
Effective plates		75	
Number of passes		1	1
Extension capacity		2	
Plate material / thickness		SS316 / 0.50 mm	
Sealing material		NBRFF CLIP-ON	NBRFFCLIP-ON
Connection material		Stainless steel	Stainless steel
Connection diameter		2” Tri-clamp	2” Tri-clamp
Nozzle orientation		S1 -> S2	S4 <- S3
Pressure vessel code		PED	
Flange rating		DIN	
Design pressure	bar	6.0	6.0
Test pressure	bar	7.8	7.8
Design temperature	°C	50.0	50.0
Overall length x width x height	mm	750 x 320 x 920	
Liquid volume	dm3	11.4	11.4
Net weight, empty / operating	kg	149 / 172	

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Plate Heat Exchanger

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Technical specification

Application : : **Milk Cooler**
Model : **FDMC-6-FMCW-97**
Project: : **PHE 2-5**
Item : **10000 l/h**
Date : **2022/1/28**

Product Group: FD0705
Item Code: FD0510
Painted Frame: YES
Triclamp Connections: YES

		Hot side	Cold side
Fluid		Milk	Water
Density	kg/m3	1021	1001
Specific heat capacity	kJ/(kg*K)	3.93	4.21
Thermal conductivity	W/(m*K)	0.538	0.579
Viscosity inlet	cP	1.39	1.57
Viscosity outlet	cP	3.29	1.35
Volume flow rate	m3/h	10.0	54.8
Inlet temperature	°C	35.0	4.0
Outlet temperature	°C	6.0	9.0
Pressure drop	kPa	5.79	120
Heat Exchanged	kW	320.7	
L.M.T.D.	K	9.4	
O.H.T.C clean conditions	W/(m2*K)	3479	
O.H.T.C service	W/(m2*K)	2403	
Heat transfer area	m2	14.3	
Fouling resistance* 10000	m2*K/W	1.3	
Duty margin	%	44.8	
Relative directions of fluids		Countercurrent	
Number of plates		97H	
Effective plates		95	
Number of passes		1	1
Extension capacity		18	
Plate material / thickness		SS316 / 0.50 mm	
Sealing material		NBRFF CLIP-ON	NBRFFCLIP-ON
Connection material		Stainless steel	Stainless steel
Connection diameter		2” Tri-clamp	2” Tri-clamp
Nozzle orientation		S1 -> S2	S4 <- S3
Pressure vessel code		PED	
Flange rating		DIN	
Design pressure	bar	6.0	6.0
Test pressure	bar	7.8	7.8
Design temperature	°C	50.0	50.0
Overall length x width x height	mm	1055 x 320 x 920	
Liquid volume	dm3	14.4	14.4
Net weight, empty / operating	kg	208 / 237	

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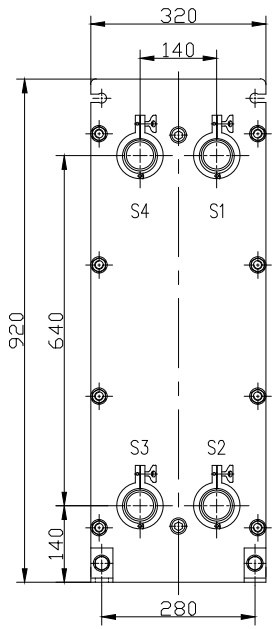

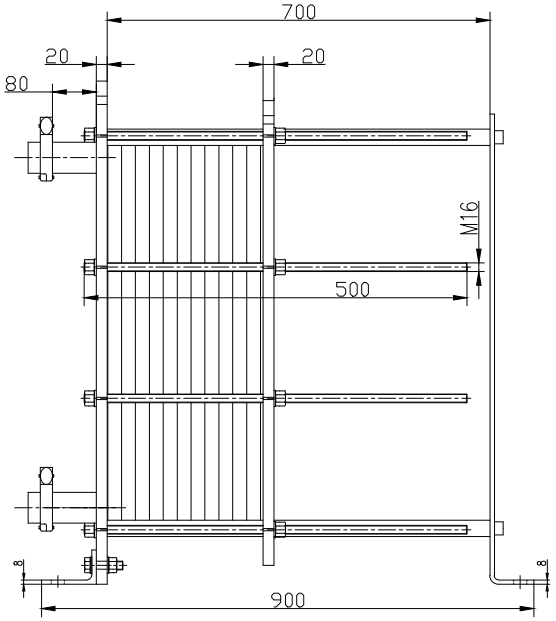

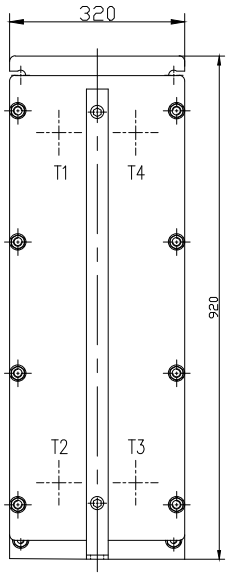

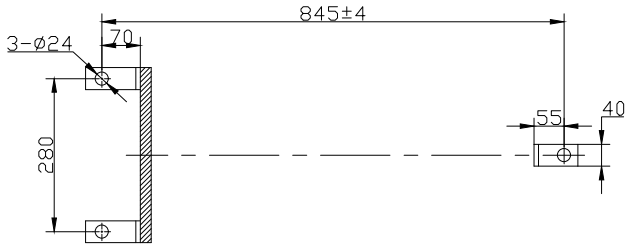

DESIGN DATA	
PLATE MATERIAL	SS316
PLATE THICKNESS	0.5mm
GASKET MATERIAL	NBRFF
FRAME MATERIAL	CS(Q235)
NUMBER OF PLATES	47/57/71/77/97
PLATE GROUP	//
HEAT TRANSFER AREA	//
DESIGN TEMPERATURE	50.0 ℃
DESIGN/TEST PRESSURE	6.0/7.8 bar
EMPTY/OPERATING WEIGHT	//

Milk Cooling Model Single Bank Chilled Water	
Unit 1	FD0705-PHE-2.1 5000l/h-47Plt
Unit 2	FD0705-PHE-2.2 6000l/h-57Plt
Unit 3	FD0705-PHE-2.3 7500l/h-71Plt
Unit 4	FD0705-PHE-2.4 8000l/h-77Plt
Unit 5	FD0705-PHE-2.5 10000l/h-97Plt

CONNECTION DATA			
No.	Size	Type	Application
S1	2	2 inch Tri-clamp SS316	Hot In
S2	2	2 inch Tri-clamp SS316	Hot Out
S3	2	2 inch Tri-clamp SS316	Cold In
S4	2	2 inch Tri-clamp SS316	Cold Out

REV.	ITEM	DESIGNATION	SIGNATURE	DATE

DESIGNED		STANDARDIZED APPR	
CHECKED		FINAL APPR	
APPROVED		APPROVAL	
TECHNICAL AUDIT		DATE	2022.02.15

Fluid Dynamics Pty. Limited
ABN 77 013 600 864
HEAT EXCHANGERS • OIL COOLERS
INDUSTRIAL • AUTOMOTIVE • MARINE
25-27 Star Crescent, Hallam, VIC, 3803, AUSTRALIA
Tel + 61 3 8786 4900 Fax +61 3 9796 5777
www.fluiddynamics.com.au

NO.	WEIGHT	SCALE
Single Bank Milk Cooler Chilled Water		DNS
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INSTALLAION DRAWING