

Thermal Systems / Oil/Water Coolers ST Series

Shell tube heat exchanger







be different. make a difference.

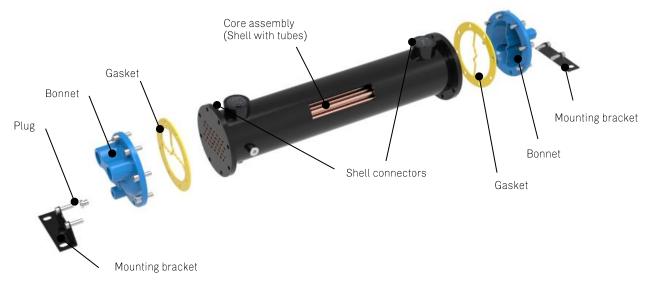


Function

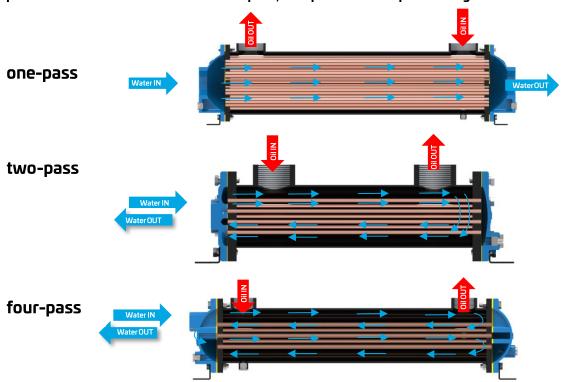
Our ST series is a modular range of shell and tube design heat exchangers. The main benefits of this design are the versatility of applications more independent of the used fluid quality and good maintenance ability compared to other heat exchanger types. Our modular setup allows the best suitable connection and flow principle for lowest pressure drop at highest cooling performance. We supply single or more pass configurations as well as different material combinations. For raising efficiency we offer all these configurations with hybrid finned tube technology.

Design

A bundle of tubes are brazed at both the end flanges to create two fluid circuits, for heat exchanging purpose. The end flanges are sealed with a gasket and the connection to the hydraulic system is implemented in the bonnet. One side flows through the tubes (the tube side) and the other inside the outer tube (shell side), separated from each other. The heat transfers from one fluid to another through the tube walls, either from tube side to shell or the other way round.



Apart from different sizes we offer one-pass, two pass and four pass configuration:



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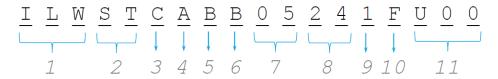


Material and Limits

Depending on the projected application we offer different material configurations to all of our ST series modules.

Materials	Α	В	C	D
shell	carbon steel	carbon steel	stainless steel	carbon
tube sheet	carbon steel	carbon steel	stainless steel	carbon
tube	copper	copper/nickel 90/10	stainless steel	admiralty (brass)
bonnet	cast iron	cast iron	stainless steel	cast iron
extended fins	aluminium	aluminium	aluminium	no fins
Pressure				
shell side	max. 290 PSI			
tube side	max. 145 PSI			
Temperatures/Sealings				
compress fiber (F)	302 °F			
PTFE (P)	212 °F			
NBR (N)	176 °F			
Viton (V)	248 °F			
Fluid Compatibility for mate	rial configuration	A		
mineral oils with water or v	water/glycol as a coolan	t		

Order Code



1 Product Series

I	Industrial Application
L	Heat exchanger
W	Oil/Water cooling

2 Product Series

ST shell tube cooler series

3 Tube diameter

nybrid	a with tin
С	0.20 in tube \emptyset – with fin / only shell 03 & 05
D	0.37 in tube \emptyset – with fin / only shell 05, 06 & 08

4 Material configuration

	· · · · · · · · · · · · · · · · · · ·
Α	Hydraulic / standard configuration
В	Marine / standard configuration
С	Chemicals / stainless steel tube configuration
D	Industrial / admiralty tube configuration
	any other configuration and material on request

5 Shell connection / compatible bonnet connection

В	BSP thread / only with BSP bonnet
N	NPT cone thread / only with NPT bonnet
U	SAE o-ring (UNF) / only with NPT bonnet
S	4-bold SAE flange / only with NPT bonnet
F	Pipe flange (on request) / only with pipe flange bonnet

6 Bonnet connection

В	BSP thread
Ν	NPT cone thread
F	Pipe flange (on request)

7 Shell inner diameter / compatible tube lengths)

	,
02	2.36 in / only with 8 & 10
03	3.15 in / only with 14 & 24
05	4.92 in / only with 24 & 36
06	5.91 in / only with 24, 36 & 48
08	7.87 in / only with 36, 48, & 60

8 Tube length

08	8 in
10	10 in
12	12 in
14	14 in
18	18 in
24	24 in
36	36 in
48	48 in
60	60 in

9 Flow passes

1	One pass
2	Two pass
4	Four pass

10 Gasket material

F	Compress fiber (standard)
Р	PTFE (on request)
Ν	NBR (on request)
V	Viton / FPM (on request)

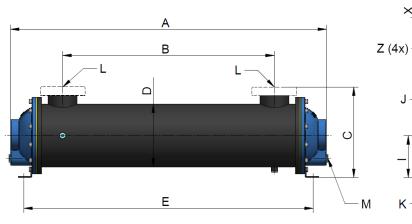
11 Index /customized

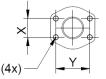
U00	Standard US sales kit			
UXX	To be advised by asa			

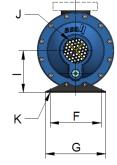
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Dimension







SAE Flange	Х	Υ	Z
1 ½"	1.42	2.76	M12
2"	1.69	3.07	M12
3"	2.44	4.17	M16

Technical Data

order number	А	В	(D	E	F	G	I	J	K	L	-	М	weight
	[in]	[in]	BSPP [in]	SAE [in]	Ø [in]	[in]	[in]	[in]	[in]	BSPP/ NPT	slot [in]	BSPP/ NPT	SAE	BSPP	[lbs]
ILWSTCA02081FU00	10.39	3.86	3.90	n/a	2.56	10.43	2.52	3.50	1.61	3/4"	0.31x0.63	3/4"	n/a	n/a	6.6
ILWSTCA02101FU00	12.40	5.59	3.90	n/a	2.56	12.44	2.52	3.50	1.61	3/4"	0.31x0.63	3/4"	n/a	n/a	6.6
ILWSTCA03141FU00	17.13	8.98	5.47	5.71	3.50	16.69	2.99	5.00	2.60	1 1/4"	0.43x0.75	1 ½"	1 ½"	1/4"	19.8
ILWSTCA03241FU00	27.13	18.98	5.47	5.71	3.50	26.73	2.99	5.00	2.60	1 1/4"	0.43x0.75	1 ½"	1 ½"	1/4"	26.5
ILWSTCA05181FU00	21.34	12.20	7.68	8.31	5.00	21.46	4.02	6.50	4.02	1½"	0.43x0.98	1 ½"	2"	1/4"	41.9
ILWSTCA05241FU00	27.32	18.19	7.68	8.31	5.00	27.44	4.02	6.50	4.02	1 ½"	0.43x0.98	1 ½"	2"	1/4"	50.7
ILWSTCA05361FU00	39.33	30.20	7.68	8.31	5.00	39.45	4.02	6.50	4.02	1½"	0.43x0.98	1 ½"	2"	1/4"	66.1
ILWSTDA05241FU00	30.00	20.12	7.48	7.99	5.24	27.44	4.02	5.24	4.02	2"	0.51x0.75	1 ½"	2"	3/8"	44.1
ILWSTDA05361FU00	42.01	32.13	7.48	7.99	5.24	39.45	4.02	5.24	4.02	2"	0.51x0.75	1 ½"	2"	3/8"	66.1
ILWSTDA06241FU00	30.12	19.02	8.74	9.37	6.26	28.11	5.00	6.26	4.49	3"	0.51x0.75	2"	2"	3/8"	99.2
ILWSTDA06361FU00	42.13	30.98	8.74	9.37	6.26	40.12	5.00	6.26	4.49	3"	0.51x0.75	2"	2"	3/8"	125.7
ILWSTDA06481FU00	54.13	42.99	8.74	9.37	6.26	52.13	5.00	6.26	4.49	3"	0.51x0.75	2"	2"	3/8"	149.9
ILWSTDA08361FU00	45.24	30.75	11.61	12.52	8.62	41.89	7.01	8.27	5.75	4"	0.63x0.87	3"	3"	3/8"	200.6
ILWSTDA08481FU00	57.24	42.76	11.61	12.52	8.62	53.90	7.01	8.27	5.75	4"	0.63x0.87	3"	3"	3/8"	251.3
ILWSTDA08601FU00	69.25	54.76	11.61	12.52	8.62	65.91	7.01	8.27	5.75	4"	0.63x0.87	3"	3"	3/8"	302.0

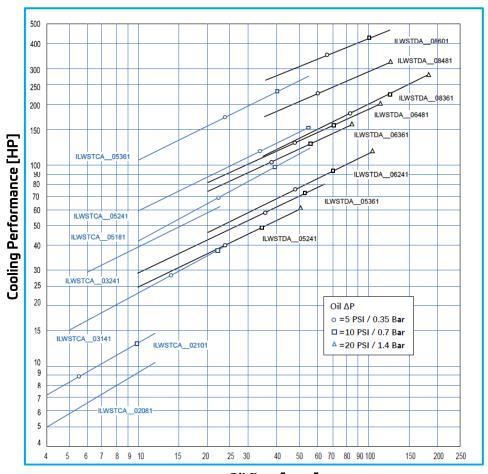


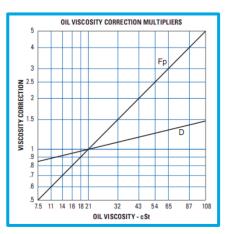
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Performance

1:1 Oil to Water Ratio-High Water Usage





Oil flow [gpm]

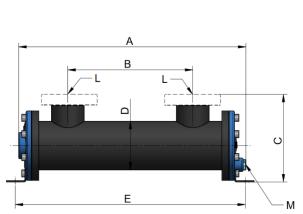
Maximum Water Flow Rates 1 Pass								
size	[gpm]							
2"	1.93							
3"	3.58							
5" (5mm)	8.35							
5" (9,5 mm)	9.69							
6"	17.87							
8"	32.80							

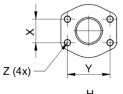
Oil Pressure Drop

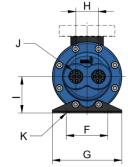
- Most systems can tolerate a pressure drop through the heat exchanger of 1 to 2 Bar.
- > Excessive pressure drop should be avoided.



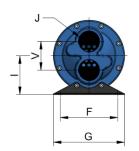
Dimension







SAE Flange	X	Υ	Z
1 ½"	1.42	2.76	M12
2"	1.69	3.07	M12
3"	2.44	4.17	M16



Technical Data

order number	А	В	С	[)	Е	F	G	Н	I	J	K	L		М	V	weight
	[in]	[in]	BSPP [in]	SAE [in]	Ø [in]	[in]	[in]	[in]	[in]	[in]	BSPP/ NPT	slot [in]	BSPP/ NPT	SAE	BSPP	[in]	[lbs]
ILWSTCA02082FU00	10.39	3.86	3.90	n/a	2.56	10.43	2.52	3.50	1.14	1.61	3/8"	0.35x0.63	3/4"	n/a	n/a	-	6.6
ILWSTCA02102FU00	12.40	5.59	3.90	n/a	2.56	12.44	2.52	3.50	1.14	1.61	3/8"	0.35x0.63	3/4"	n/a	n/a	-	6.6
ILWSTCA03142FU00	16.18	8.98	5.47	5.71	3.50	16.38	2.99	5.00	1.61	2.60	3/4"	0.43x0.75	1 ½"	1 ½"	1/4"	-	19.8
ILWSTCA03242FU00	26.18	18.98	5.47	5.71	3.50	26.73	2.99	5.00	1.61	2.60	3/4"	0.43x0.75	1 ½"	1 ½"	1/4"	-	26.5
ILWSTCA05182FU00	20.55	12.20	7.68	8.31	5.00	21.46	4.02	6.50	2.40	4.02	1"	0.43x0.98	1 ½"	2"	1/4"	-	41.9
ILWSTCA05242FU00	26.54	18.19	7.68	8.31	5.00	27.44	4.02	6.50	2.40	4.02	1"	0.43x0.98	1 ½"	2"	1/4"	-	50.7
ILWSTCA05362FU00	38.54	30.20	7.68	8.31	5.00	39.45	4.02	6.50	2.40	4.02	1"	0.43x0.98	1 ½"	2"	1/4"	-	66.1
ILWSTDA05242FU00	30.00	20.12	7.48	7.99	5.24	27.44	4.02	5.24	1.50	4.02	1 ½"	0.51x0.75	1 ½"	2"	1/4"	1.50	44.1
ILWSTDA05362FU00	42.01	32.13	7.48	7.99	5.24	39.45	4.02	5.24	1.50	4.02	1 ½"	0.51x0.75	1 ½"	2"	1/4"	1.50	66.1
ILWSTDA06242FU00	30.12	19.02	8.74	9.37	6.26	28.11	6.26	7.76	1.57	4.49	2"	0.51x0.75	2"	2"	3/8"	1.57	99.2
ILWSTDA06362FU00	42.13	30.98	8.74	9.37	6.26	40.12	6.26	7.76	1.57	4.49	2"	0.51x0.75	2"	2"	3/8"	1.57	125.7
ILWSTDA06482FU00	54.13	42.99	8.74	9.37	6.26	52.13	6.26	7.76	1.57	4.49	2"	0.51x0.75	2"	2"	3/8"	1.57	149.9
ILWSTDA08362FU00	45.24	30.75	11.50	12.52	8.62	41.89	8.27	10.51	2.24	5.75	2 ½"	0.63x0.87	3"	3"	3/8"	2.24	200.6
ILWSTDA08482FU00	57.24	42.76	11.50	12.52	8.62	53.90	8.27	10.51	2.24	5.75	2 ½"	0.63x0.87	3"	3"	3/8"	2.24	251.3
ILWSTDA08602FU00	69.25	54.76	11.50	12.52	8.62	65.91	8.27	10.51	2.24	5.75	2 ½"	0.63x0.87	3"	3"	3/8"	2.24	302.0

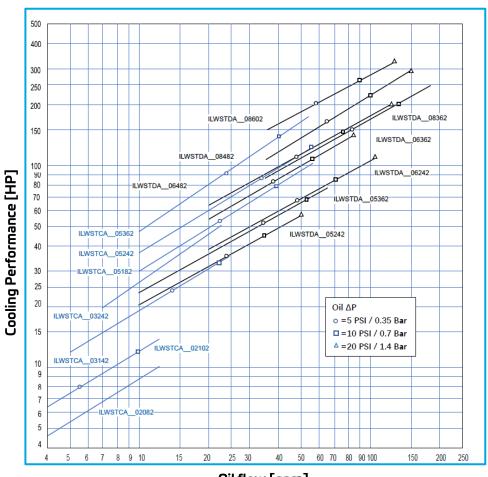


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Performance

2:1 Oil to Water Ratio-Medium Water Usage



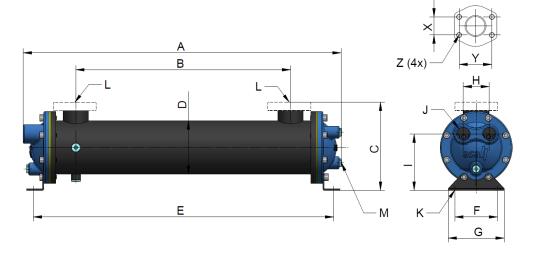
Oil flow [gpm]

Maximum Water Flow Rates 2 Pass								
size	[gpm]							
2"	6.1							
3"	11.9							
5" (5mm)	28.0							
5" (9,5 mm)	32.0							
6"	60.0							
8"	109.9							

FOUR PASS

Dimension





SAE Flange	Х	Υ	Z
1 ½"	1.42	2.76	M12
2"	1.69	3.07	M12
3"	2.44	117	M16

Technical Data

i ecililicai Data																
order number	А	В			D	Е	F	G	Н	I	J	K	L		М	weight
	[in]	[in]	BSPP [in]	SAE [in]	Ø [in]	[in]	[in]	[in]	[in]	[in]	BSPP/ NPT	slot [in]	BSPP/ NPT	SAE	BSPP	[lbs]
ILWSTCA03144FU00	16.18	8.98	5.47	5.71	3.50	16.69	2.99	5.00	1.77	3.31	1/2"	0.43x0.75	1 ½"	1 ½"	1/4"	19.8
ILWSTCA03244FU00	26.18	18.98	5.47	5.71	3.50	26.73	2.99	5.00	1.77	3.31	1/2"	0.43x0.75	1 ½"	1 ½"	1/4"	26.5
ILWSTCA05184FU00	20.55	12.20	7.68	8.31	5.00	21.46	4.02	6.50	2.52	4.92	3/4"	0.43x0.98	1 ½"	2"	1/4"	41.9
ILWSTCA05244FU00	26.54	18.19	7.68	8.31	5.00	27.44	4.02	6.50	2.52	4.92	3/4"	0.43x0.98	1 ½"	2"	1/4"	50.7
ILWSTCA05364FU00	38.54	30.20	7.68	8.31	5.00	39.45	4.02	6.50	2.52	4.92	3/4"	0.43x0.98	1 ½"	2"	1/4"	66.1
ILWSTDA05244FU00	30.00	20.12	7.48	7.99	5.24	27.44	4.02	5.24	2.44	5.28	1"	0.51x0.75	1 ½"	2"	1/4"	44.1
ILWSTDA05364FU00	42.01	32.13	7.48	7.99	5.24	39.45	4.02	5.24	2.44	5.28	1"	0.51x0.75	1 ½"	2"	1/4"	66.1
ILWSTDA06244FU00	30.12	19.02	8.74	9.37	6.26	28.11	6.26	7.76	2.87	5.91	1 ½"	0.51x0.75	2"	2"	3/8"	99.2
ILWSTDA06364FU00	42.13	30.98	8.74	9.37	6.26	42.95	6.26	7.76	2.87	5.91	1 ½"	0.51x0.75	2"	2"	3/8"	125.7
ILWSTDA06484FU00	54.13	42.99	8.74	9.37	6.26	52.13	6.26	7.76	2.87	5.91	1 ½"	0.51x0.75	2"	2"	3/8"	149.9
ILWSTDA08364FU00	45.24	30.75	11.50	12.52	8.62	41.89	8.27	10.51	4.25	7.48	2"	0.63x0.87	3"	3"	3/8"	200.6
ILWSTDA08484FU00	57.24	42.76	11.50	12.52	8.62	53.90	8.27	10.51	4.25	7.48	2"	0.63x0.87	3"	3"	3/8"	251.3
ILWSTDA08604FU00	69.25	54.76	11.50	12.52	8.62	65.91	8.27	10.51	4.25	7.48	2"	0.63x0.87	3"	3"	3/8"	302.0

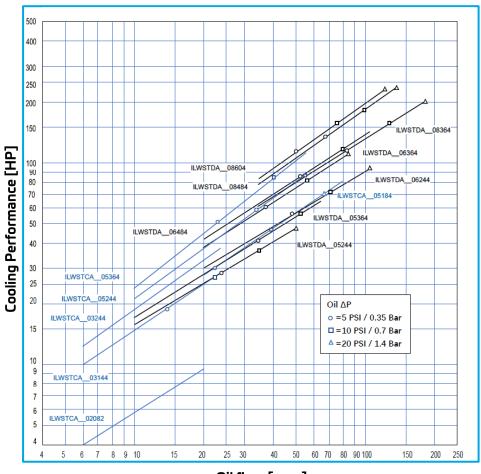


This data sheet and the corresponding scale drawings are to be used as a general guideline and technical overview of our products. Please contact us if more exact information is needed. As we are constantly improving our products, their characteristics, dimensions and weights may also change, although we do our best to incorporate these changes continually, as a assumes no liability for any information therein, any errors, omissions, misprints, nor any direct or indirect damages, losses or costs resulting therefrom. Any cooling performances and general technical values indicated in this catalogue are measured at a test bench according to asa testing procedures or calculated, based on such tests. They represent a basis for your product selection. Due to different conditions in testing and application environments the performance may also vary by +/- 15%. All sound values are determined in accordance with ISD 9614-2, DIN EN ISO 11203 accuracy class 3 or Machinery Directive 2006/42/EG and are A-rated. At some of the performance data, possible differences to competition data are possible. The reason to that are no existing standardized testing procedures on individual subjects, e.g., for cooling performance measurements. Therefore, we recommend all products to be checked under the system operating conditions. This is also true of vibrations and measurements. Therefore, we recommend all products to be checked under the system operating conditions. This is also true of vibrations and measurements. Therefore, we recommend all products to be checked under the system operating conditions. This is also true of vibrations and measurements. Therefore, we recommend all products to be checked under the system operating conditions. This is also true of vibrations and measurements. Therefore, we recommend all products to the sist of used to the vide to the vide of the conditions. This is also true of vibrations and measurements are according to DIN 150 2768-v. General tolerances for casted parts according to 150 800-21. (CITG



Performance

4:1 Oil to Water Ratio-Medium Water Usage



Oil flow [gpm]

Maximum Water Flow Rates 4 Pass								
size	[gpm]							
2"	n/a							
3"	6.1							
5" (5mm)	14.0							
5" (9,5 mm)	16.1							
6"	30.1							
8"	65.0							

Customized to your applications

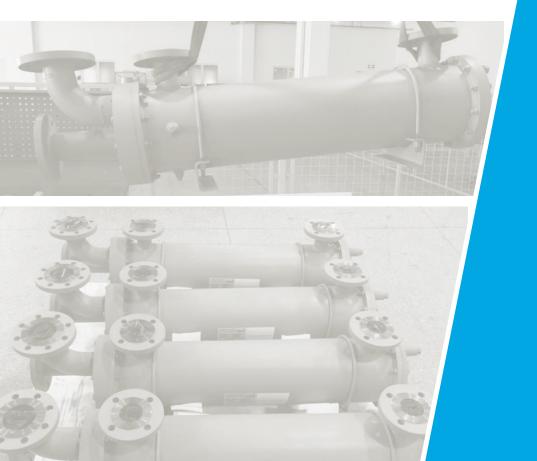
Apart from the actual application parameters of the fan drive, ambient conditions and scope of delivery, we offer customized heat exchanger solutions for many types of fluids. Please contact us with your specific requirements and use our benefits regarding consultation and most realistic verification.

Selection	Application
Type of fluids	Ambient / fluid conditions for material configuration
Flow rates	Connection size and flange types
In/outlet temperatures or heat load data	Space restrictions and mounting situation
Allowable pressure drops	Possible specified water fouling factors
Operating and design pressure	

your advantages:

- ✓ project management
- ✓ calculation and simulation
- ✓ verification on test bench
- ✓ procurement option system
- ✓ approved quality







discover reliable technology!



be different. make a difference.











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