HEAT EXCHANGERS | aico

LENS MODULAR

About AIC

Established in 2001, AIC S.A. is a renowned specialist in the design, engineering and fabrication of stainless steel and titanium heat exchangers.

With two manufacturing locations and team of seasoned in-house engineers, designers, and manufacturing specialist, AIC is leading the way in the field of advanced heat transfer solutions.

With proven design products, “no compromise on quality” attitude and automated production processes, we are able to carry out the most complex and technologically advanced projects.

Our state-of-the-art facilities utilize the most leading edge processes, advanced automated and robotic systems, and well sourced materials for the most stringent of applications. CFD analysis and simulation software improve our modelling capabilities and help analyze multiple design variations.

Our own in-house tube mills and sophisticated CNC equipment provide substantial cost savings and shorter product development times.

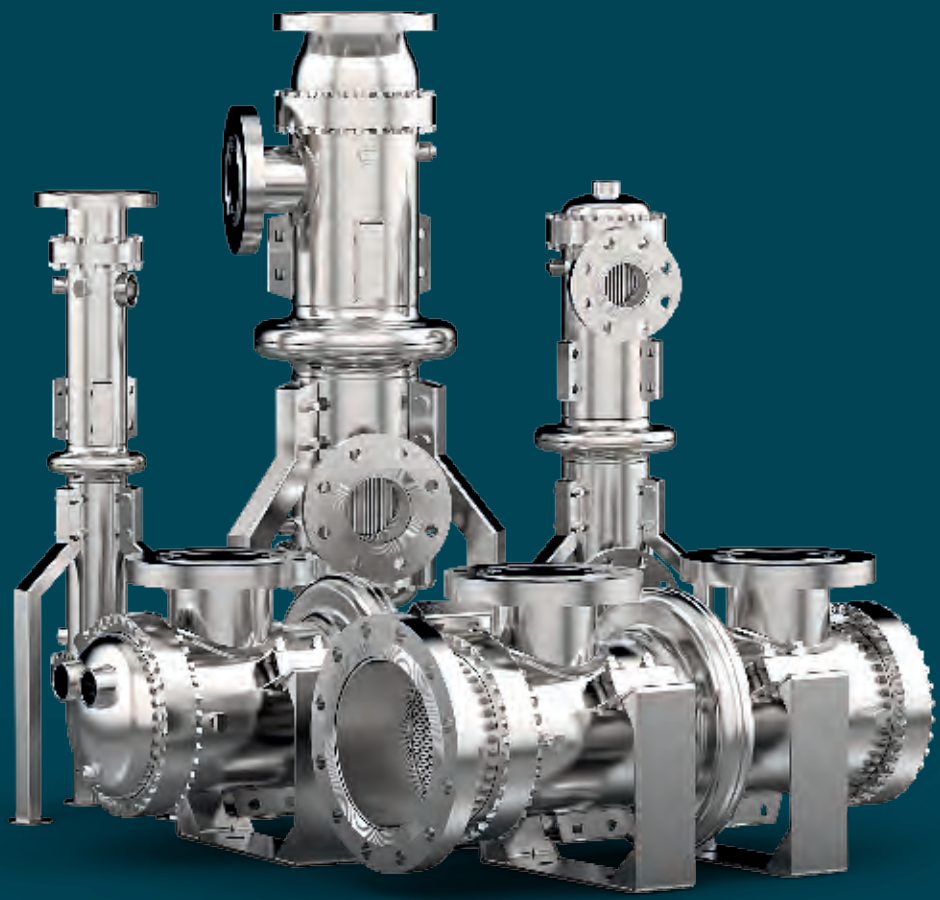
AIC products are manufactured in accordance with the guidelines of ASME and PED industry design codes.

Our stringent quality management system ensures that we continue our dominance in providing top quality products that clients have come to associate with the AIC brand.

LENS heat exchangers

Blend of technical excellence, creative ingenuity, and experience in thermal technology resulted in a carefully crafted AIC design.

Modular concept of a heat transfer system built with high attention to detail, rich in characteristics, and practical features.



LENS MODULAR

LENS construction

removable interchangeable single or multi-pass reduction heads

high grade VITON gasket handles spectrum of fluids for chemical processes

support brackets for vertical or horizontal installation

SS 316 L welded, fully passivated and externally electropolished

expansion joint handles extreme temperature differences

densely packed 6mm precision tubing

unique segmental baffles for even and complete flow distribution

Advantages

- dense heat transfer area packed in a compact construction
- high flows with low pressure drops
- small footprint
- multiple configurations of removable single or multi-pass heads
- possibility of large connections for low density vapours
- close temperature approach and condensate sub-cooling
- versatile working positions and connection orientation

Typical applications

- steam condensers (flooded heat exchangers)
- oil / gas coolers
- chilled water systems
- process cooling
- district energy
- hydronic heating

LENS

Modular LENS heat transfer system

Effortlessly create a customized heating system using modular LENS components. Whether to optimize a single design, or to construct a multi-sectional, integrated structure, the potential is boundless.

The strength of LENS system lies in its adaptive and modular nature, easily modified for maximum effectiveness in varying applications.

From hydronic heating to steam condensers, and all processes in between, the LENS offers clients unrivalled quality with the highest degree of flexibility.

Construction

The rugged, yet refined, stainless steel LENS heat exchanger features elements that are intrinsic to the heightened aptitude of the product.

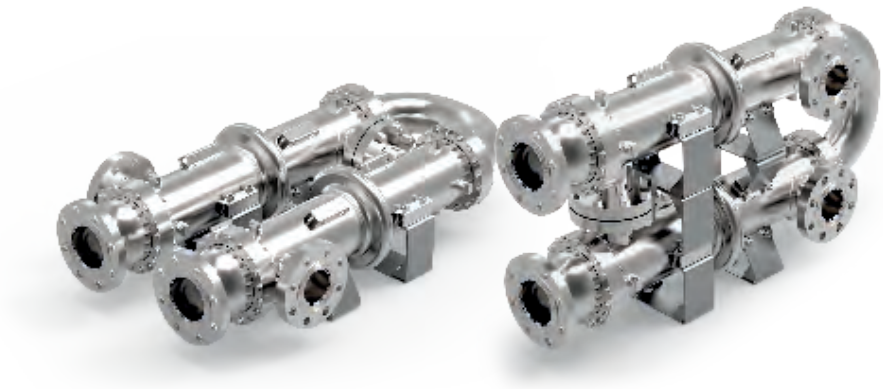
The innovative use of 6mm stainless steel precision tubing in the mainstream heat recovery market, especially in the construction of steam condensers, elevates the level of product performance to new standards, allowing for a higher breadth of functionality.

The densely packed tube bundle maintains a compact structure with smaller footprint requirements, while delivering more uniform heating and greater heat transfer potential.

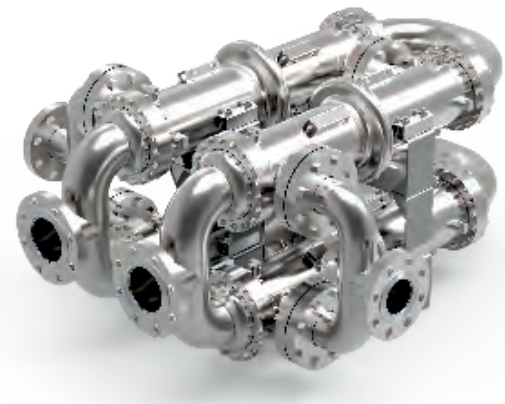
Multiple stainless steel, interchangeable heads, readily fitted in the field, with a selection of configuration options, adjust for diversity in flow requirements.

For maintenance purposes, heads are removable for unfettered access to the tube bundles.

Multi-LENS Concept



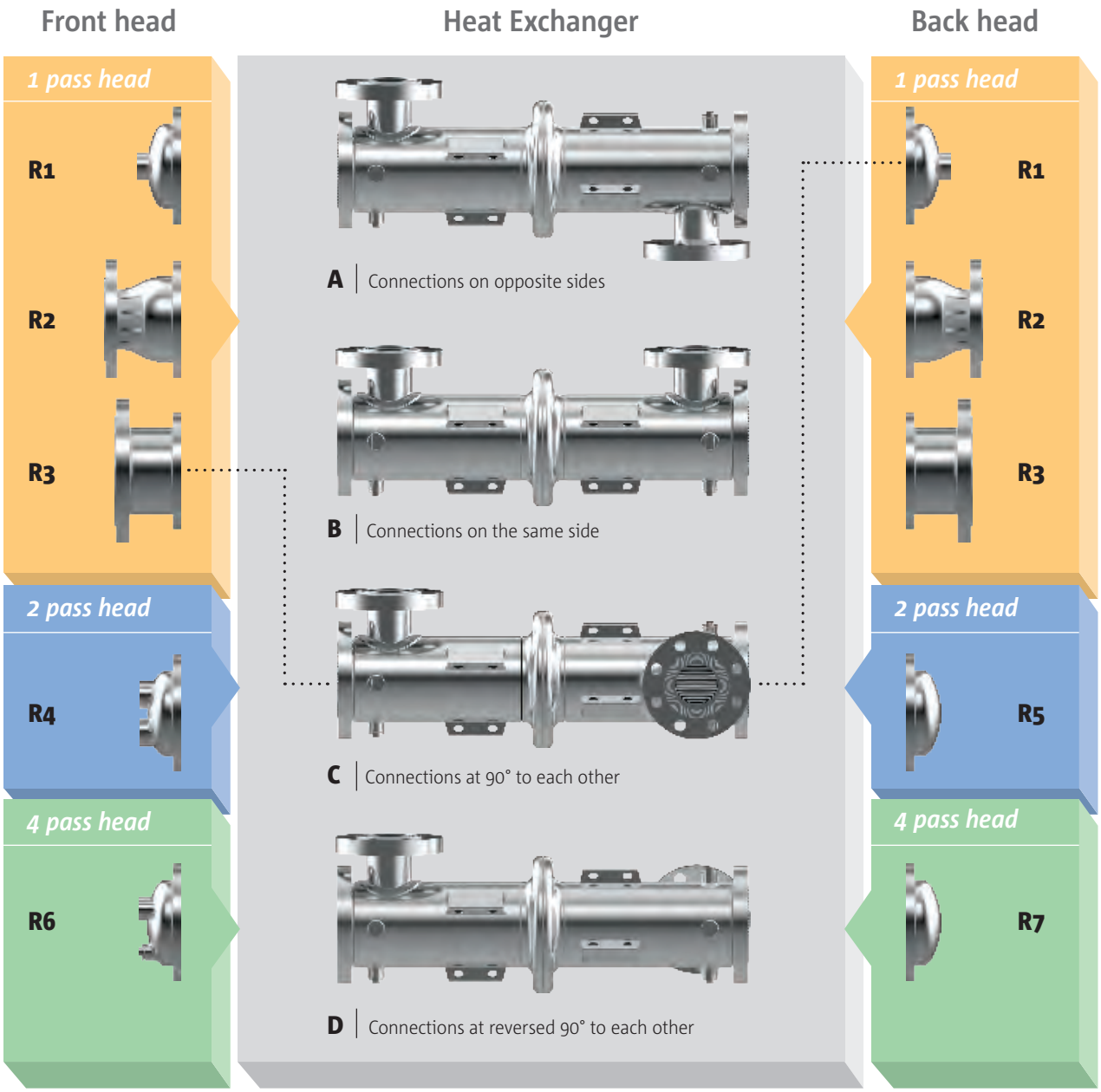
Hairpin modules.



Cube module of 4 units in a series-parallel arrangement.

LENS Matrix

Over 100 configurations available in single or multi-pass designs



Materials

The reliability and sturdiness of the LENS heat exchangers rest on their materials of construction, and application support features.

All LENS components are fabricated from grade 316 L stainless steel for strength of structure. Complete units are fully passivated and externally electropolished for advanced corrosion resistance.

High grade VITON gaskets are used for superior sealing and for handling a broad spectrum of fluids in chemical processes.

Expansion joints are built in to handle a wide range of temperature differentials, while unique segmental baffles serve even and complete flow distributions.

Versatility

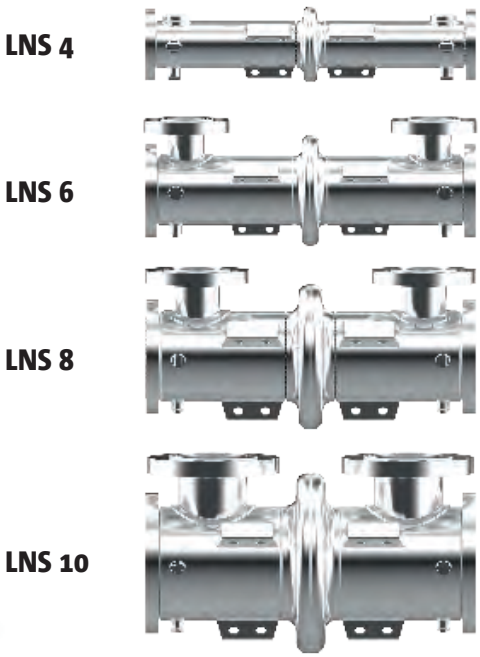
While most heat exchangers are developed to function in a singular position, the LENS system is designed to operate in both horizontal and vertical modes.

These inherent product advantages eliminate the need for ill-equipped, over or undersized products, by accounting for changes of fluid phases and space constraints.

Alternating tube side connections enhances the thermal performance of the heat exchanger, without the need to compromise product selection.

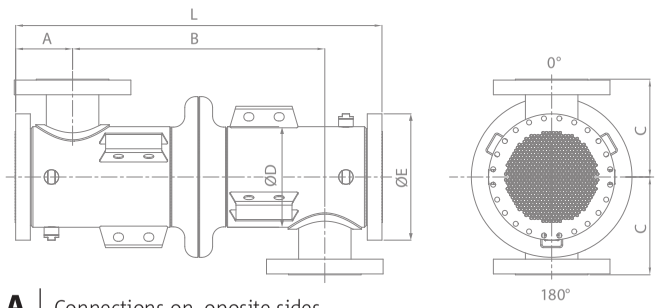
Large connection sizes on smaller diameter models are particularly useful for low pressure vapour applications. Same side or alternating connection arrangements are possible to support existing piping infrastructure.

Designed for horizontal and vertical modes.

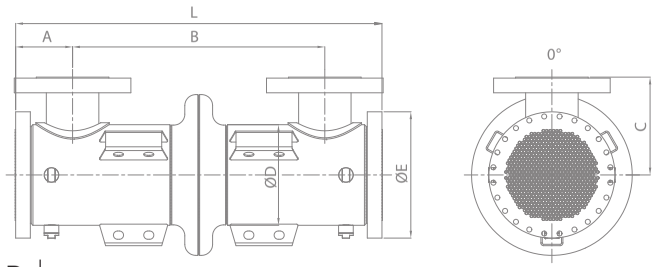


LENS available in four sizes - 4", 6", 8", 10".

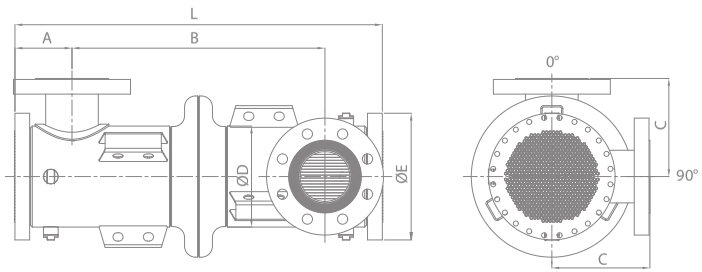
Dimensions



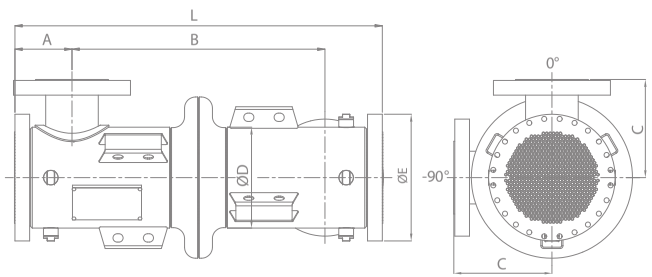
A | Connections on oposite sides



B | Connections on the same side

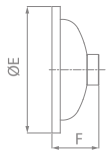


C | Connections at 90° to each other

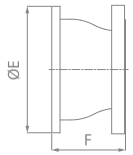


D | Connections at reversed 90° to each other

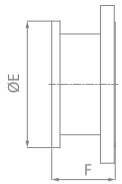
R1



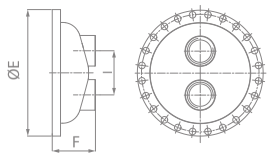
R2



R3

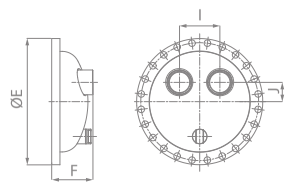


R4



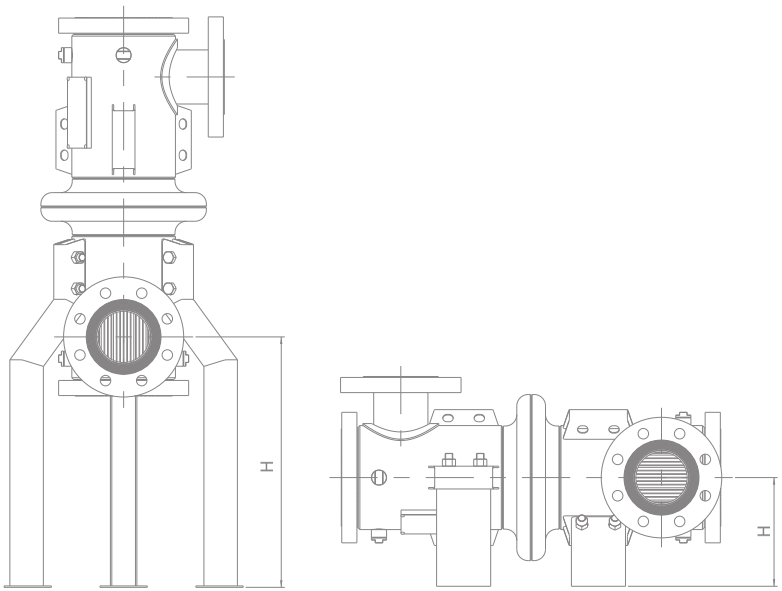
R5

R6



R7

Floor support	Vertical position				Horizontal position			
Shell Size	LNS4	LNS6	LNS8	LNS10	LNS4	LNS6	LNS8	LNS10
	mm [in.]				*mm [in.]*			
H	338,3 [13.32]	393,3 [15.48]	529,4 [20.84]	579,4 [22.81]	153,0 [6.02]	173,0 [6.81]	229,0 [9.02]	239,0 [9.41]



Sample configuration

LNS10 - R3R1BH

LNS10 - R6R7CH

LNS4 - R3R1CV

LNS8 - R2R1DV

Technical Product Specifications

	Front Head / Top Head						Heat Exchanger									Back Head / Bottom Head					
			Dimensions			Connections	Dimensions (all models Type A / Type B / Type C / Type D)						Type of connection (shell side)	Heat transfer area	Volume shell side	Volume tube side		Dimensions			Connections
			F	I	J		D	L	A	B	C	E						F	I	J	
Shell Size	Type		mm [in.]				mm [in.]							m² [sq. ft]	liter [cu. ft]		Type		mm [in.]			
LNS4	1 PASS	R1	68 [2.68]	-	-	Nozzle 1" FNPT	114.3 [4.50]	798 [31.42]	76.5 [3.01]	645 [25.39]	71.2 [2.80]	174 [6.85]	Nozzle 2" FNPT	2.1 [22.6]	3.6 [0.13]	2.5 [0.09]	1 PASS	R1	68 [2.68]	-	-	Nozzle 1" FNPT
		R2	-															R2	-			
		R3	106 [4.17]	-	-	Flange 4" NPS Cl.150												R3	106 [4.17]	-	-	Flange 4" NPS Cl.150
	2 PASS	R4	64 [2.53]	50 [1.97]	-	Nozzle 1" FNPT											2 PASS	R4	64 [2.53]	50 [1.97]	-	Nozzle 1" FNPT
		R5	51 [2.01]	-	-	-												R5	51 [2.01]	-	-	-
	4 PASS	R6	61 [2.40]	46 [1.81]	22 [0.87]	Nozzle 3/4" FNPT											4 PASS	R6	61 [2.40]	46 [1.81]	22 [0.87]	Nozzle 3/4" FNPT
		R7	51 [2.01]	-	-	-												R7	51 [2.01]	-	-	-
LNS6	1 PASS	R1	85.5 [3.37]	-	-	Nozzle 1 1/2" FNPT	168.3 [6.63]	798 [31.42]	100.5 [3.96]	597 [23.51]	173 [13.62]	228.3 [8.99]	Flange 3" NPS Cl.300	5.1 [54.90]	8.2 [0.29]	5.8 [0.21]	1 PASS	R1	85.5 [3.37]	-	-	Nozzle 1 1/2" FNPT
		R2	147.7 [5.82]	-	-	Flange 4" NPS Cl.150												R2	147.7 [5.82]	-	-	Flange 4" NPS Cl.150
		R3	128 [5.04]	-	-	Flange 6" NPS Cl.150												R3	128 [5.04]	-	-	Flange 6" NPS Cl.150
	2 PASS	R4	80 [3.15]	72 [2.84]	-	Nozzle 1 1/2" FNPT											2 PASS	R4	80 [3.15]	72 [2.84]	-	Nozzle 1 1/2" FNPT
		R5	66 [2.60]	-	-	-												R5	66 [2.60]	-	-	-
	4 PASS	R6	81 [3.20]	64 [2.52]	28 [1.10]	Nozzle 1" FNPT											4 PASS	R6	81 [3.20]	64 [2.52]	28 [1.10]	Nozzle 1" FNPT
		R7	66 [2.60]	-	-	-												R7	66 [2.60]	-	-	-
LNS8	1 PASS	R1	102 [4.02]	-	-	Nozzle 2" FNPT	219.1 [8.63]	798 [31.42]	124 [4.89]	550 [21.65]	213 [8.39]	275 [10.83]	Flange 4" NPS Cl.300	9.3 [100.10]	13.7 [0.48]	10.5 [0.37]	1 PASS	R1	102 [4.02]	-	-	Nozzle 2" FNPT
		R2	160.4 [6.32]	-	-	Flange 6" NPS Cl.150												R2	160.4 [6.32]	-	-	Flange 6" NPS Cl.150
		R3	138 [5.43]	-	-	Flange 8" NPS Cl.150												R3	138 [5.43]	-	-	Flange 8" NPS Cl.150
	2 PASS	R4	94 [3.70]	96 [3.78]	-	Nozzle 2" FNPT											2 PASS	R4	94 [3.70]	96 [3.78]	-	Nozzle 2" FNPT
		R5	79 [3.11]	-	-	-												R5	79 [3.11]	-	-	-
	4 PASS	R6	90 [3.54]	88 [3.46]	42 [1.65]	Nozzle 1 1/2" FNPT											4 PASS	R6	90 [3.54]	88 [3.46]	42 [1.65]	Nozzle 1 1/2" FNPT
		R7	79 [3.11]	-	-	-												R7	79 [3.11]	-	-	-
LNS10	1 PASS	R1	117 [4.61]	-	-	Nozzle 2" FNPT	273 [10.75]	798 [31.42]	164 [6.46]	470 [18.50]	254 [10.00]	333 [13.11]	Flange 6" NPS Cl.300	15.0 [161.50]	23.0 [0.80]	16.7 [0.59]	1 PASS	R1	117 [4.61]	-	-	Nozzle 2" FNPT
		R2	185.8 [7.32]	-	-	Flange 8" NPS Cl.150												R2	185.8 [7.32]	-	-	Flange 8" NPS Cl.150
		R3	144 [5.67]	-	-	Flange 10" NPS Cl.150												R3	144 [5.67]	-	-	Flange 10" NPS Cl.150
	2 PASS	R4	114 [4.49]	116 [4.57]	-	Nozzle 2 1/2" FNPT											2 PASS	R4	114 [4.49]	116 [4.57]	-	Nozzle 2 1/2" FNPT
		R5	93 [3.66]	-	-	-												R5	93 [3.66]	-	-	-
	4 PASS	R6	106 [4.17]	100 [3.94]	55 [2.17]	Nozzle 2" FNPT											4 PASS	R6	106 [4.17]	100 [3.94]	55 [2.17]	Nozzle 2" FNPT
		R7	93 [3.66]	-	-	-												R7	93 [3.66]	-	-	-

Original. Effective. Versatile.

Surpassing conventional heat exchangers with its fresh, inventive design, the LENS heat exchanger system skillfully incorporates in all the 'must-have' thermal features valued in the heat recovery market, excelling in all competencies through uncompromising quality and fine craftsmanship.

MATERIAL OF CONSTRUCTION
STAINLESS STEEL 316L

STANDARD DESIGN PARAMETERS		
	TUBES	SHELL
TEMPERATURE	217°C (422°F)	217°C (422°F)
PRESSURE	10 bar (150 PSI)	21 bar (300 PSI)

We are certified by renowned international inspection authorities. Our quality process and management systems fulfill the requirements of ISO 9001 Quality Management System. AIC heat exchangers are designed, tested and manufactured in accordance with ASME (Section IV and VIII) and PED (97/23/UE) regulations.

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