SECESPOL

>>> effective
heat transfer >>>

DNA
recovery heat exchangers

SCAMBIATORE DI CALORE DNA

DNA
patented
geometry

flash steam

heat
recovery

60 m²
heat transfer
area available

SECESPOL

>>> effective
heat transfer >>>

DNA
recovery heat exchangers

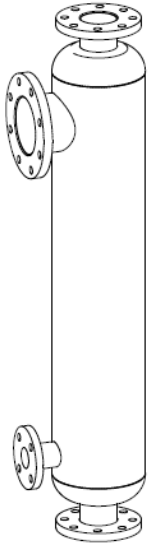
DNA
SCAMBIATORI
DI CALORE DI
RECUPERO

DNA
patented
geometry

flash steam

Disponibilitá del DNA

- Linea standard
  - 19 grandezze di modelli standard
  - 38 standard models
  - Parametri di lavoro molto diversi
- Soluzioni su misura del cliente

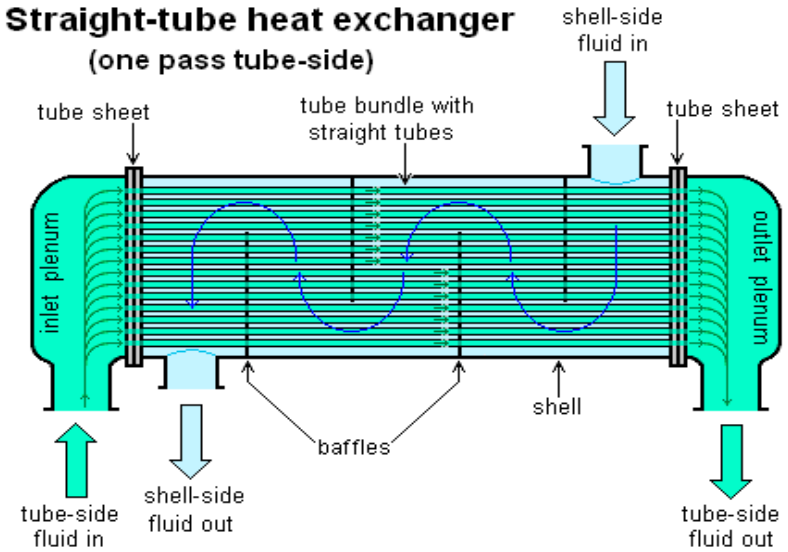


DNA
patented
geometry

flash steam

Caratteristche principali del DNA

- **Fluido scaldante generalmente lato mantello,**
- **Caratteristiche principali simili allo scambiatore a fascio tubiero.**

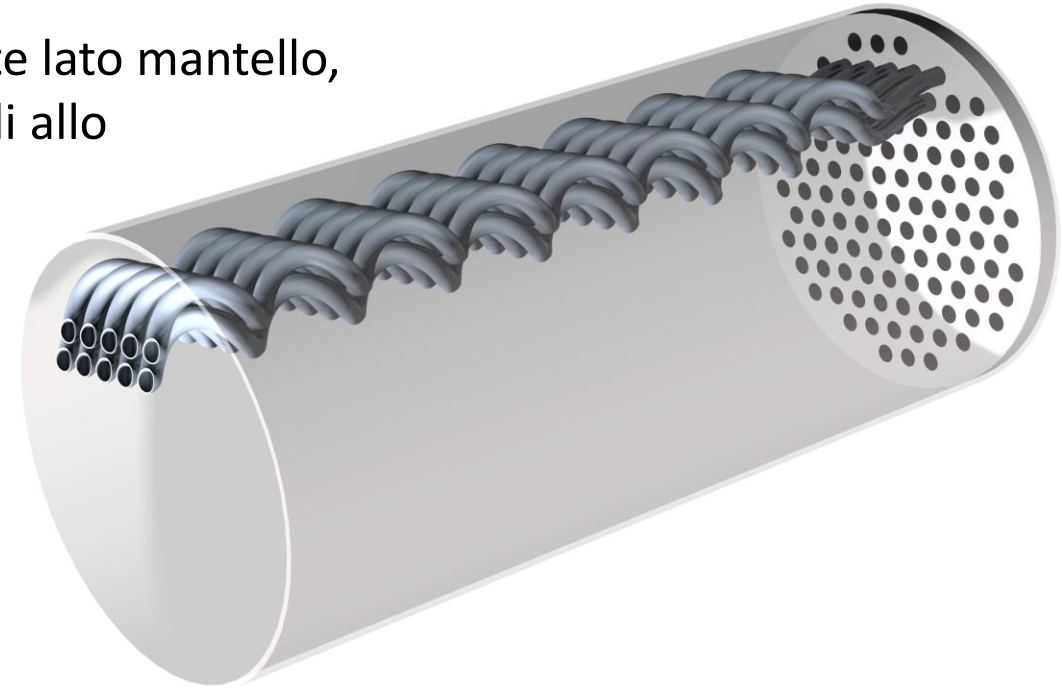


DNA
patented geometry

flash steam

Caratteristiche principali del DNA

- Fluido scaldante generalmente lato mantello,
- Caratteristiche principali simili allo scambiatore a fascio tubiero,
- **Disegno libero da deflettori,**
- **La costruzione robusta, parete del tubo 0,8 mm,**
- **L´elasticitá del fascio tubiero compensa l´allungamento termico.**



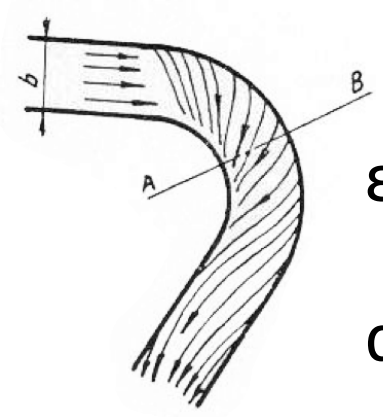
Caratteristiche prestazionali principali del DNA

- Alta efficienza di condensazione grazie a:
  - Lunghezza termica del tubo – lunghezza doppia,
  - Geometria unica del tubo – spirale,
  - Alto rendita del trasferimento di calore dovuto al flusso trasversale lato mantello,
  - Condensazione verticale – effetto scorrere delle goccie.

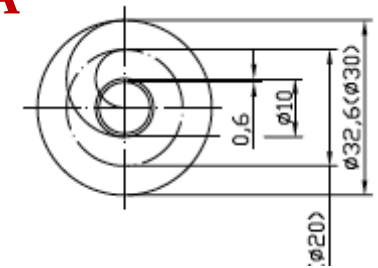
DNA
patented
geometry

flash steam

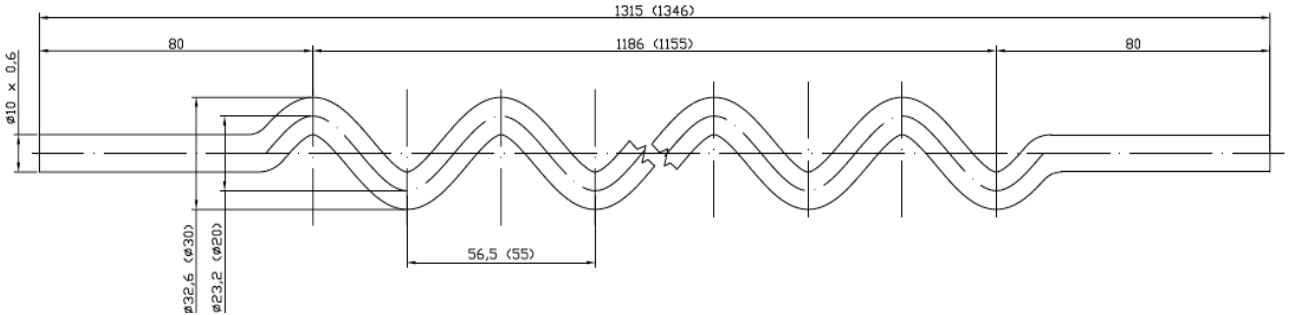
CONCEZIONE DNA



$$\varepsilon = 1 + 1{,}77\,\frac{d}{\rho}$$



$$\alpha_{DNA} = \alpha_{STR}\,\varepsilon \qquad \varepsilon = 1{,}805$$



DNA
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geometry

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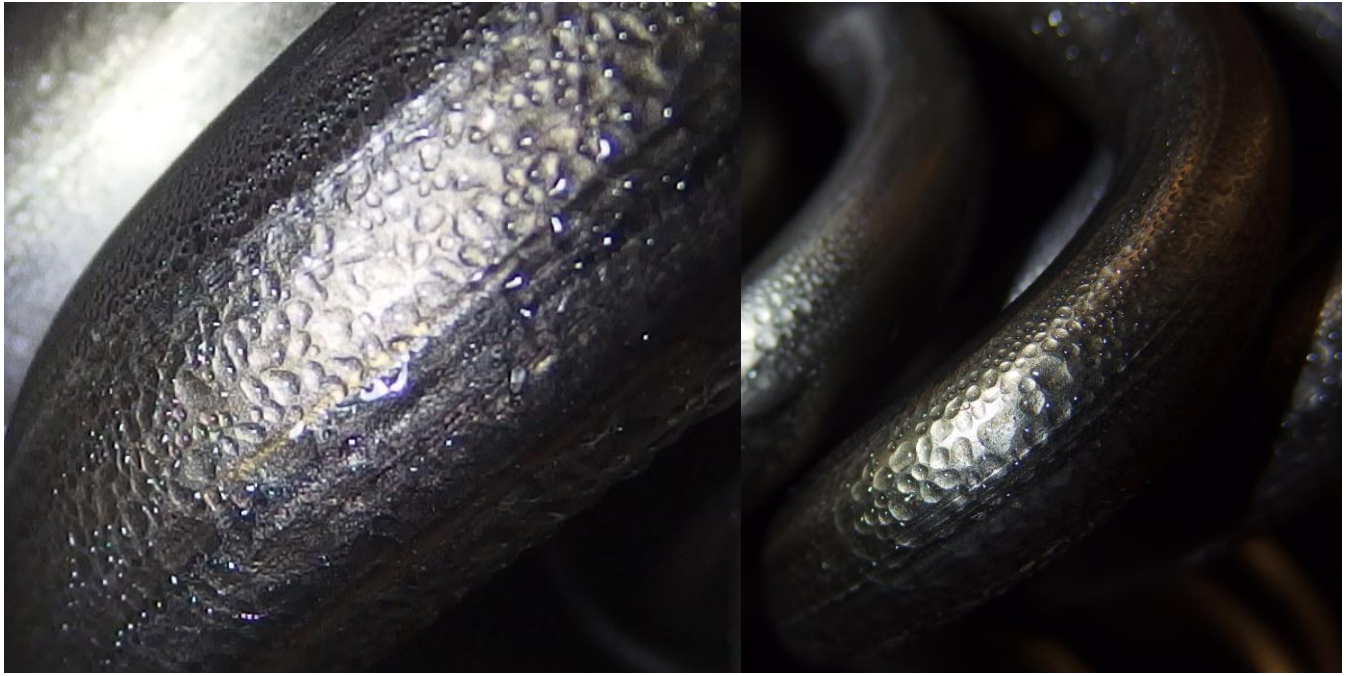
>>> effective
heat transfer >>>

DNA

recovery heat exchangers

Condensazione



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geometry

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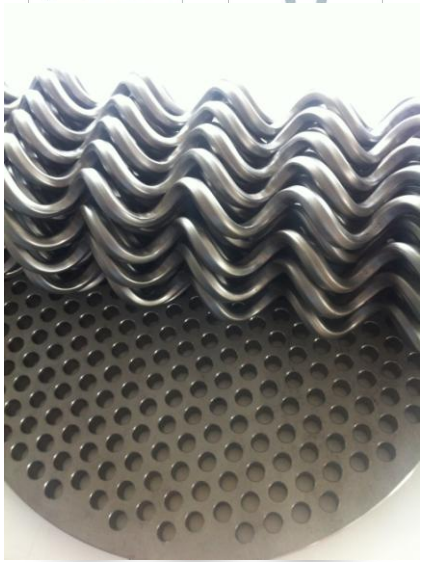
recovery heat exchangers

CONDENSATORE DNA – 5MW

DNA

patented



DNA per industria alimentare

Produzione della Mostarda

DNA
patented
geometry

flash steam

60 m²

SECESPOL
>>> effective
heat transfer >>>

DNA
recovery heat exchangers

GAS DI SCARICO - COGENERAZIONE
400 kW stabilimento Iveco MOTORE
trattamento delle acque reflue

GAS di scarico 410°C
75 kW per acqua a 80 °C

DNA
patented
geometry

flash steam

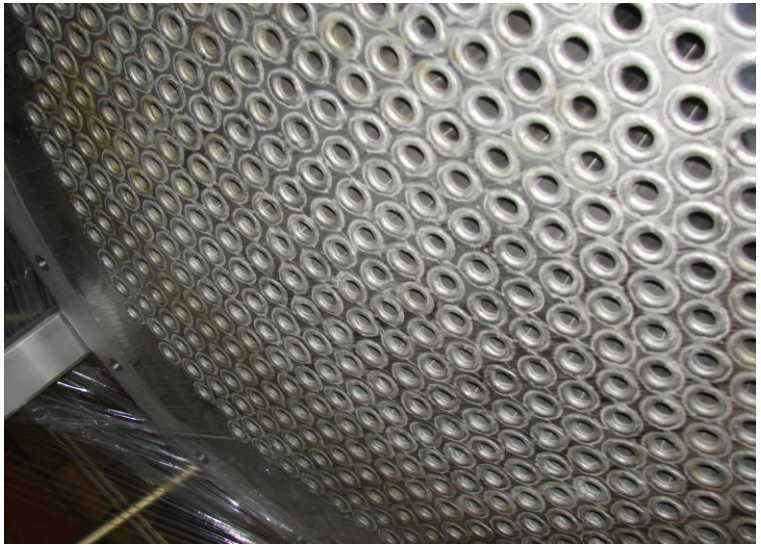
SECESPOL

>>> effective
heat transfer >>>

DNA

recovery heat exchangers

GAS DI SCARICO DI RECUPERO 650°C 150kW



DNA
patented
geometry

flash steam

SECESPOL

>>> effective
heat transfer >>>

DNA

recovery heat exchangers

EVAPORE ISTANTANEO 105 ° C
CONDENSATORE
2 x 2 MW (2 x 21 mq)
Per l'acqua 60/80 ° C

DNA
patented
geometry

flash steam

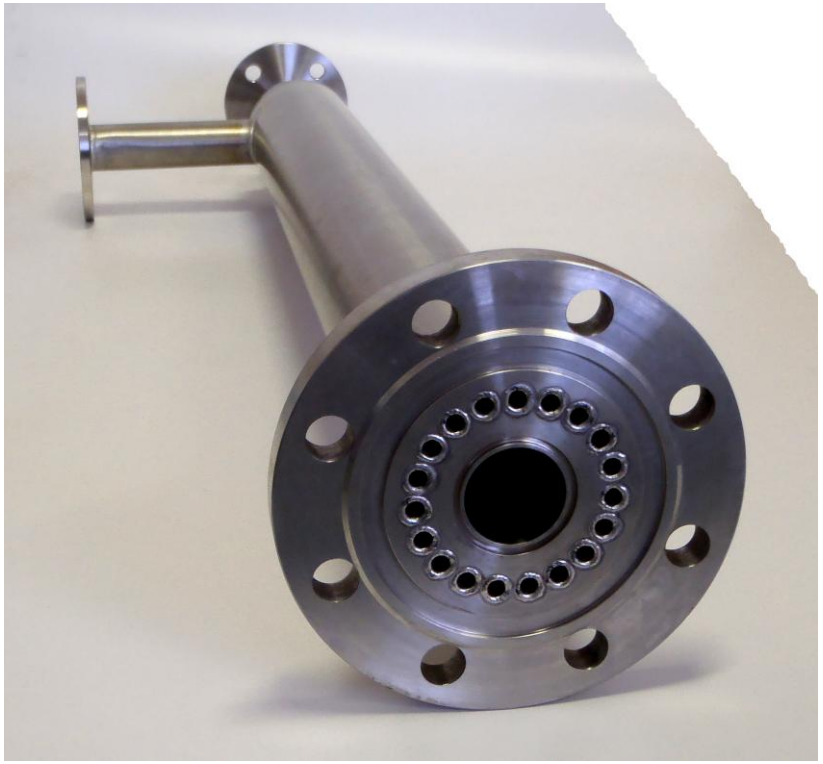
SECESPOL
>>> effective
heat transfer >>>

DNA
recovery heat exchangers

Soluzione speciale

650 °C

Progetto pilota
della tecnologia
di un incerenitore
di rifiuti



DNA
patented
geometry

flash steam

Condensatore DNA – ispezionabile e pulibile

372 kW, condensa 170-> 85 °C, acqua 10->90 °C

DNA
patented
geometry

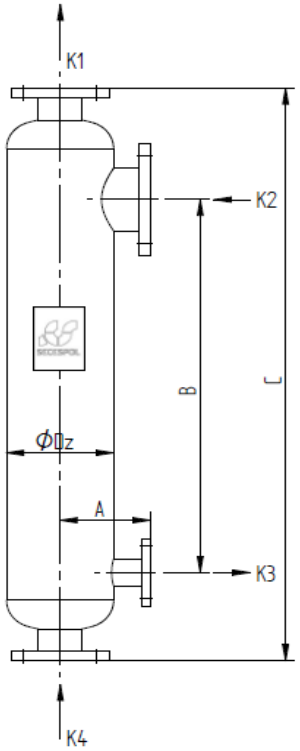
flash steam

Tipologie DNA standard

19 modelli standard

TYPE	SHELL SIDE		TUBE SIDE	
	K2	K3	K1	K4
DNA 159	DN100	DN80	DN80	DN80
DNA 219	DN125	DN100	DN100	DN100
DNA 273	DN150	DN125	DN125	DN125
DNA 324	DN150	DN125	DN125	DN125
DNA 406	DN200	DN150	DN150	DN150
DNA 508	DN250	DN200	DN150	DN150
DNA 600	DN300	DN250	DN200	DN200

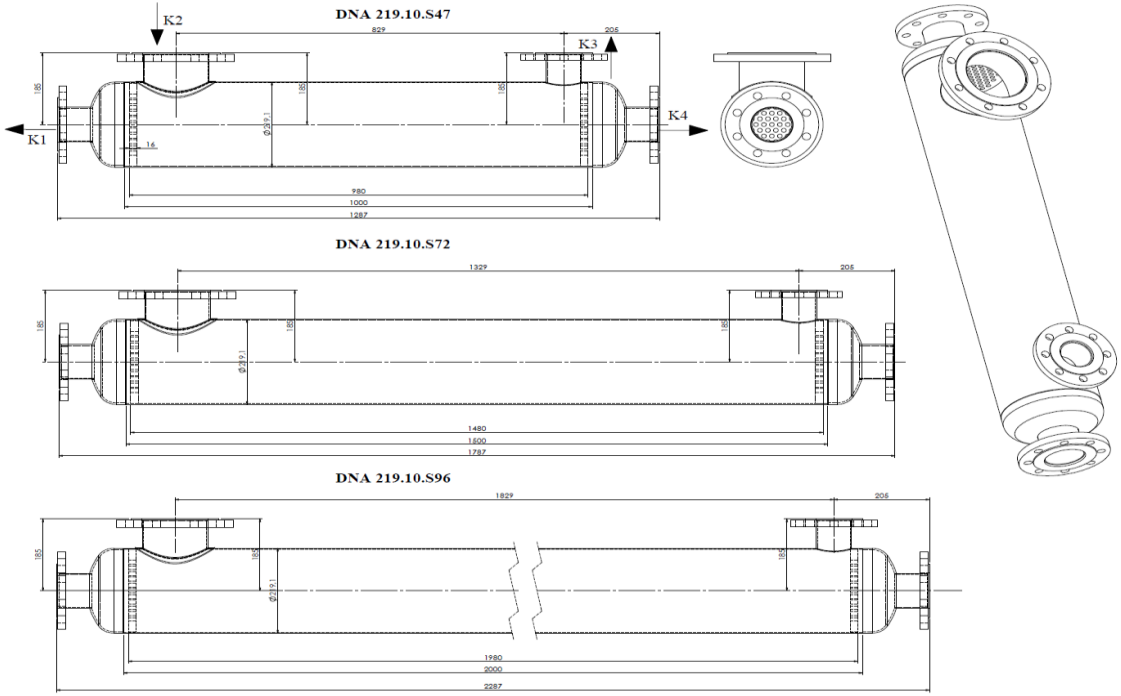
3 modelli di ogni tipo
dal DNA 159 al DNA 508



DNA
patented
geometry

flash steam

Tipologie del DNA standard



DNA
patented
geometry

flash steam

Parametri di lavoro del DNA

Parametry pracy/Work parameter									
Przestrzeń /Side	Płaszcz/Shell				Rury/Tube				Jednostka/ Unit
Maksymalne ciśnienie robocze/ Max.working pressure	3	10	10	10	6	16	16	16	bar
Minimalne ciśnienie robocze/ Min.working pressure	-1	-1	-1	-1	-1	-1	-1	-1	bar
Maksymalna temperatura robocza/ Max.working temperature	203	203	203	203	203	203	203	203	°C
Minimalna temperatura robocza/ Min.working temperature	-20/5	-20/5	-20/5	-20/5	-20/5	-20/5	-20/5	-20/5	°C
Stan skupienia w 1,5 bar w maks. temp. pracy/ Physical state in 1,5 bar in max. working temp.	Gas/ Gaz	Gas/ Gaz	Ciecz/ Liquid	Ciecz/ Liquid	Gas/ Gaz	Gas/ Gaz	Ciecz/ Liquid	Ciecz/ Liquid	
Grupa płynu/ Medium group	1	2	1	2	1	2	1	2	
Kategoria wymiennika dla grupy płynu/ Heat exchanger category for medium group	I	I	SEP	SEP	I	I	SEP	SEP	

DNA
patented geometry

flash steam

SECESPOL
>>> effective
heat transfer >>>

DNA
recovery heat exchangers

GEOMETRIA ESAGONALE
DEL DNA

- Il risultato della ricerca di uno scambiatore di calore piú efficiente,
- Secespol é un nostro brevetto per 5 anni.

DNA
patented
geometry

flash steam

GEOMETRIA ESAGONALE del DNA

Esempio d´applicazione

DNA
patented
geometry

flash steam

Conclusione

- Gli scambiatori di calore DNA sono superbi nelle applicazioni:
  - Riscaldatori a vapore a bassa pressione,
  - Applicazioni sotto vuoto o sotto pressione,
  - Generalmente in condizioni difficili dovute alla costruzione robusta ed alla elasticitá del fascio tubiero.

- Condizioni d´uso:
  - Compatibilitá dei fluidi con l´acciaio inossidabile AISI 316L

DNA
patented
geometry

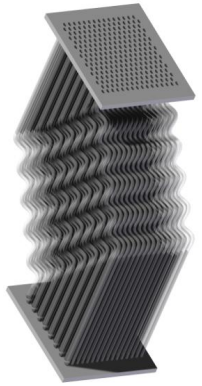
flash steam

DNA ECO

ECONOMIZZATORE D´ALTISSIMA EFFICIENZA

DNA
patented geometry

heat recovery



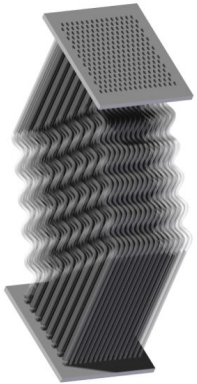
DNA ECO

Utilizzi principali:

- **Economizzatori per caldaie a gas**

DNA
patented
geometry

heat
recovery

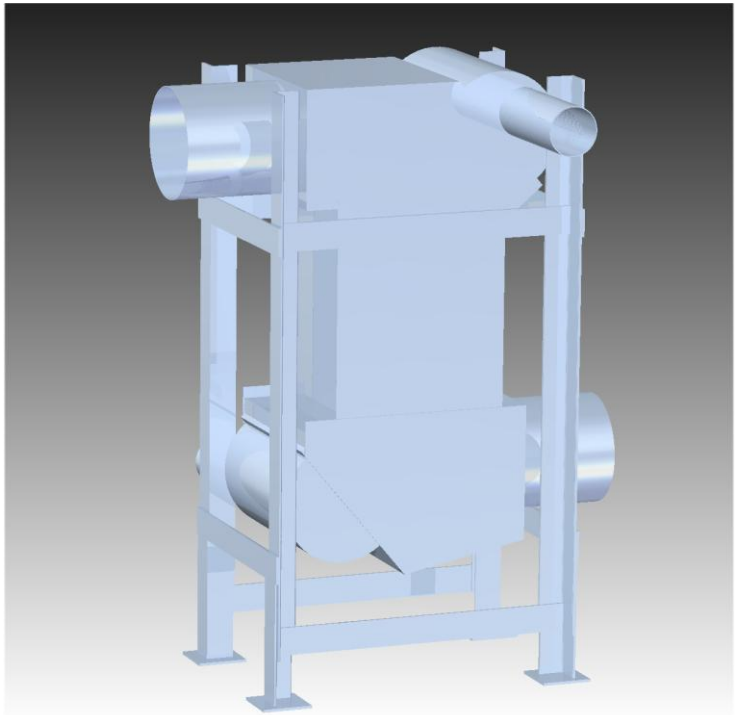


DNA ECO

Utilizzi principali:

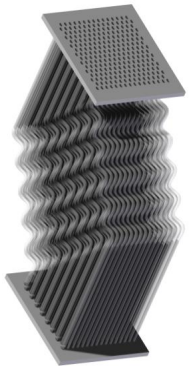
- Economizzatori per caldaie a gas
- **Recupero del calore dall´ aria senza pressione „contaminata"**

DNA economizzatore – concetto del disegno

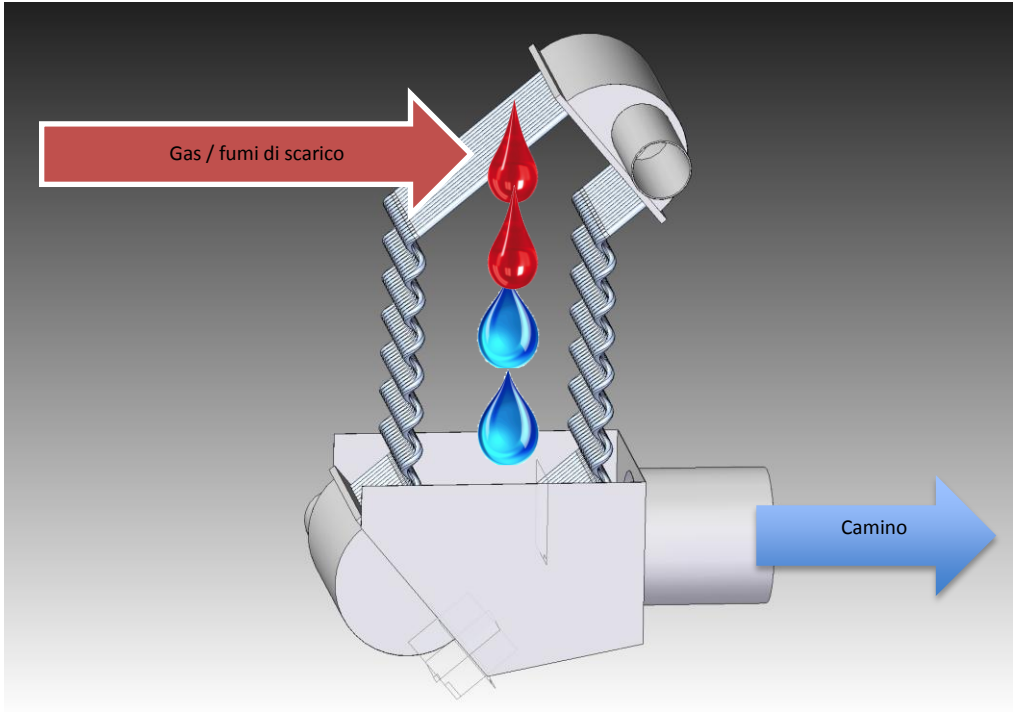


DNA
patented
geometry

heat
recovery

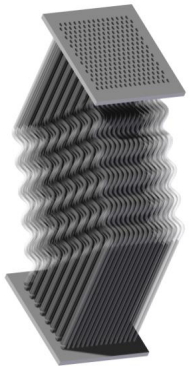


DNA economizzatore – componenti principali



DNA
patented
geometry

heat
recovery

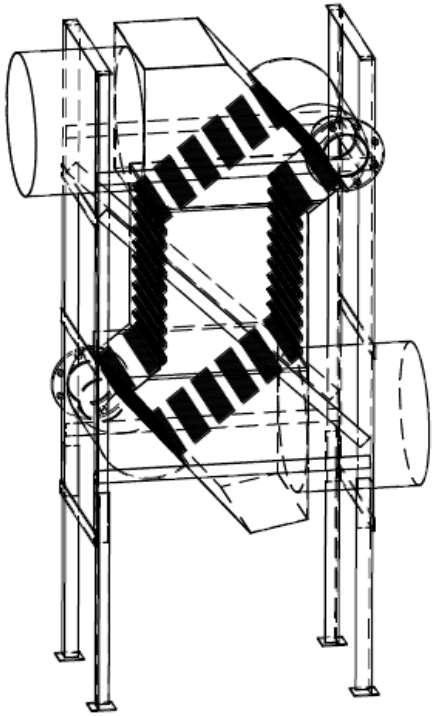


SECESPOL
>>> effective
heat transfer >>>

DNA
recovery heat exchangers

Construito completamente in acciaio inossidabile

AISI 316L



DNA
patented
geometry

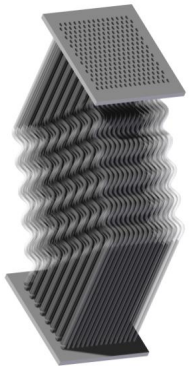
heat
recovery

Principali caratteristiche tecniche del DNA ECO

- Completamente d´acciaio inossidabile AISI316L,
- La flessibilitá del fascio tubiero compensa le tensioni,
- Ispezionabile e pulibile,
- L´installazione verticale riduce le esigenze di spazio,
- Bassi costi di manutenzione.

DNA
patented
geometry

heat
recovery

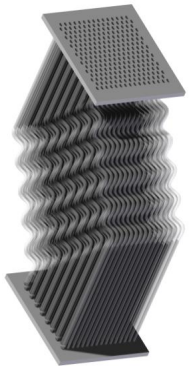


DNA economizzatori – tipologie standard

DNA ECO	Camino [mm]	acqua	Carico termico caldaia [kW]
DNA ECO.10.S56	299	DN80	420
DNA ECO.10.S74	299	DN80	530
DNA ECO.10.S100	400	DN125	1500
DNA ECO.10.S140	400	DN125	2000
DNA ECO.10.S170	450	DN150	2500
DNA ECO.10.S225	500	DN150	3000
DNA ECO.10.S270	550	DN150	3500
DNA ECO.10.S300	550	DN200	4000
DNA ECO.10.S340	600	DN200	5000

DNA
patented geometry

heat recovery



SECESPOL

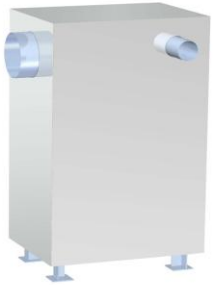
>>> effective
heat transfer >>>

DNA
recovery heat exchangers

SECESPOL >>> effective heat transfer >>>

DNA ECO.10.S74

SHELL AND TUBE HEAT EXCHANGER



Nominal power: 50-90 kW (water 30°C)
42 kW (water 60°C)

Nominal boiler power: 530 kW

Heat exchanger sizes
Height: 1065 mm
Width: 675 mm

Nozzle sizes
Flue gas 299 mm
water DN80

EXEMPLAR DESIGNATION

DNA ECO.10.S74

- Size of heat exchanger
- Tube diameter
- Economizer
- Type of heat exchanger

TECHNICAL DATA

Working conditions:	
Max. working pressure:	0,5 bar - shell side 6 bar - tube side
Max. working temp.:	250 °C - shell side 110 °C - tube side
Heat transfer area:	7,4 m^2
Materials:	
Heat transfer area:	EN 1.4571 / 1.4404
Heat exchanger body:	EN 1.4404
Cover:	steel / mineral wool
Aprox.weight (empty):	93 kg

SECESPOL >>> effective heat transfer >>>

DNA ECO.10.S74

SHELL AND TUBE HEAT EXCHANGER

DESCRIPTION

Tubular heat exchanger with pure counter-flow and stainless steel materials of all parts with contact of working media. Heat exchanger construction selfcompensate temperature stress, without need of special mounting procedure. Specially formed tubes enhances the heat transfer and decreases heat exchanger dimensions. Demountable construction ensures possibility of cleaning of inner tube bundle. Heat exchanger is delivered insulated within steel cover.

OPERATIONAL POINT

Heat exchanger **DNA ECO.10.S74**
Heat load **90,0 kW** *

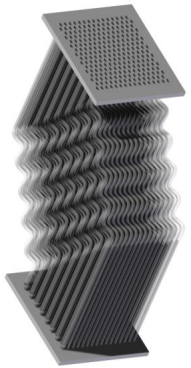
	Media	Place	Flowrate (kg/h)	Pressure (bar-a)	Temperat. (°C) inlet / outlet	Dew point temperature (°C)	Pressure drop (kPa)
Primary	Flue gas	shell	859	1,035	250 / 44	(57)	0,3
Secondary	Water	tubes	44865	2	30 / 31,7	-	11

*water content in flue gas stream assumed min. 10 % (wt.) with condensation temperature above 56°C

DNA ECO.10.S74

DNA
patented geometry

heat recovery



Technologia

100 % prove idrauliche
di ciascun tubo formato.

DNA
patented
geometry

flash steam

Grazie

☺

DNA
patented
geometry

heat
recovery