NSIE

SHELL AND TUBE HEAT EXCHANGERS

URS

UKAS QUALITY MANAGEMENT 043-A

ISO 9001:2000 CERTIFIED ORGANISATION

NSI EQUIPMENTS

Shell and Tube Heat Exchangers

NSI EQUIPMENTS PVT. LTD. manufactures heat exchangers / condensers with strict quality assurance system, designing & producing heat exchangers in full compliance with international code and standard like ASME section VIII and TEMA.

We have served many clients from various industrial segments like Chemical- process industries, bulk drugs, fine chemicals, agro chemical, pesticides & insecticides, resin plants, polyester plants, dyes & intermediates etc.

NSI EQUIPMENTS offers varied range of shell and tube type heat exchanger from standard fixed tube shell type to floating head or U tube bundle type to suit different process conditions.

STRESS ANALYSIS AND EXPANSION JOINT

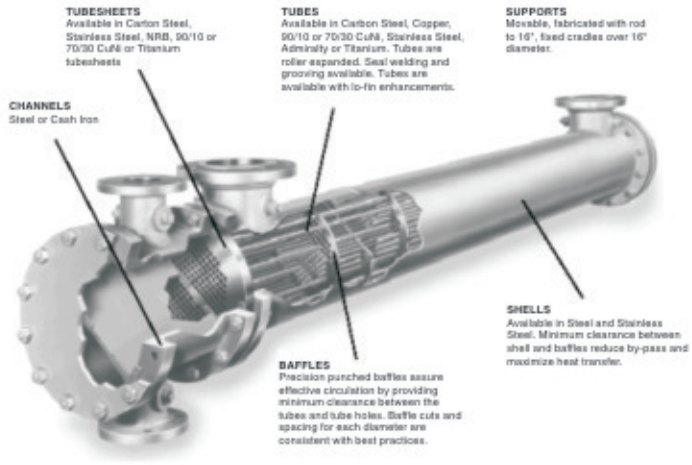
Depending on the application, the heat exchanger is analyzed for stresses & expansion joint.

In certain cases , the shell has a potential to expand longitudinally if the delta t is large enough between the fluid and cooling media. Under these circumstances , stresses develop & provision of suitable expansion below in main shell becomes necessary. At NSI EQUIPMENTS we pay careful attention to thermal expansion at designing stage. Detail stress analysis and design of expansion bellow is carried out for batch of continuous operation with & without start up / shut down condition.

BAFFLES & NOZZLE DETAILING

In order to avoid unproductive product drop & ensuring uniform velocity distribution in heat exchangers due importance is given to Selection to nozzles & baffles arrange.

Baffles pitch, type and percentage of cut, nozzles sizes and their position are determined based on service. Heat exchangers is required to perform the condensing, boiling, cooling or heating.



STANDARD TYPES OF HEAT EXCHANGERS

Fixed Tubeplate

This type of heat exchanger is used more often than any other type .The tubeplates are welded to the shell, and serve as flanges to which the channels and covers are bolted. There is no limitation on the number of tube-side passes; shell-side passes can be one or more, although shells with more than two shell-side passes are rarely used. The heat exchanger construction is simple and economical. The tube bores can be cleaned mechanically or chemically, but the out side surface of the tuber are inaccessible except to chemical cleaning.

If a large temperature difference exists between the shell and tube materials, it may be necessary to incorporate an expansion bellow in the shell, to eliminate excessive stress caused by expansion. A number of different types of

bellows can be used depending of the internal pressure in the heat exchanger shell. The tube plate material must be suitable for welding to the shell, but where necessary it can be faced with a corrosion-resisting material to match the tubes and channels.

U TUBE

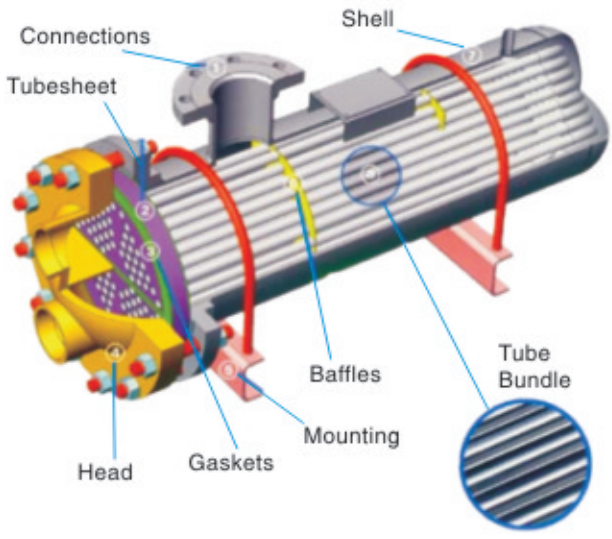
Heat exchanger of this design is only slightly more expensive than the fixed tubeplate type, and tube bundle can be removed from the shell for cleaning or maintenance. Internal cleaning of the tubes by mechanical means is difficult and it is usual to apply this type of heat exchanger where the tube side fluids are clean.

The tube bundle consists of a stationary type plate, U-tubes baffles, or support plates, tie rods and spacers. Thermal expansion is absorbed by the V-bends, which perform the same function as a floating head. The arrangement offers the advantage of reducing the number of joints, which in high pressure construction becomes of considerable importance in reducing both initial and maintenance costs.

Tube replacement is more difficult than with straight tube exchanger, since it may be necessary to remove a number of tubes before a tube in the center of the bundle can be replaced.

FLOATING HEAD

This type of heat exchanger is suitable for the rigorous duties associated with high It is suitable for all duties and the only limitations are those of available materials. The

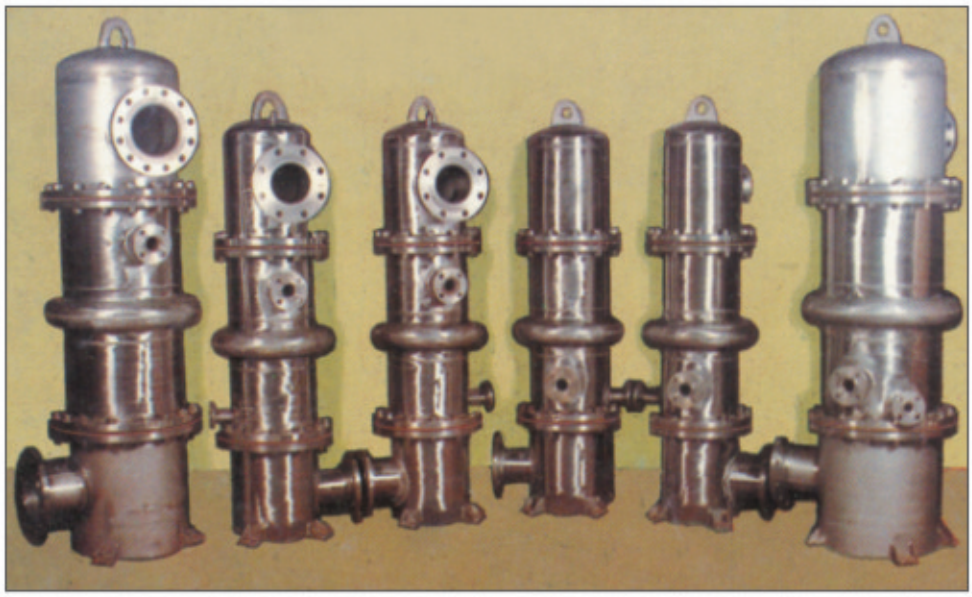


tube bundle consists of straight tubes expanded onto tube plates at each end. The floating head is fitted to the tube plate remote from the channel end and the cover is held in position by a split backing ring. The floating head tube plate dose not carry the bolting for the floating head cover, but it dose carry the gasket. The floating tubes plate is only slightly smaller in diameter than the bore of the shell and the floating head can only be assembled after the tube bundle is in position in the shell. The tube bundle is easily removed for cleaning or maintenance requirements by removing the shell cover, floating head cover and backing ring. The tube bundle can then be pulled through the shell form the channel end.

PACKED GLAND FLOATING HEAD

The shell and tube- side fluids are separated at the floating head end by a circular lantern ring which fits round the floating tube plate and is packed by two glands, one on the tube side and one on the shell side. The lantern ring is grooved on the inside face and drilled radially with vent holes, thus leakage from either gland is apparent from outside inspection and the fluids are prevented from mixing, since they can only leak to waste and not into one another.

They tube bundle can be withdrawn for cleaning or maintenance re-equipment and tube replacement is simple. The presence of the packed gland in this construction makes it unsuitable for volatile or toxic fluids, because of possible leakage and this type of construction is limited.



OTHER RANGE OF PRODUCT

CENTRIFUGES	ROTARY VACUUM DRIERS
# MANUAL TOP DISCHARGE	BUCKET ELEVATORS
# BAG LIFTING TYPE	SCREW CONVEYORS
# BOTTOM DRIVEN BOTTOM DISCHARGE	RIBBON BLENDERS
WITH SCRAP	BELT CONVEYORS
REACTION VESSEL	FLUID BED DRIERS
FLUID ENERGY MILLS (JET MILLS)	DRUM DRIERS AND FLAKERS
AIR CLASSIFYING MILLS (ACM)	ROTARY DRIERS
	ROTARY KILNS

NSI EQUIPMENTS PVT LTD

(An ISO 9001:2000 Certified Company)

ISO 9001:2000 CERTIFIED ORGANISATION

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