



IT

Immersion Tubes

Description

Spirax Sarco immersion tubes may be:

- Connected directly to the pipeline, to distribute condensate into feedtanks.
- Used with a mixing unit to form a flash condensing de-aerator head (not applicable to the IT100 unit).

Note: A flash condensing de-aerator head can be used to mix flash steam (from a TDS control system), cold make-up water, and condensate, and sparge it into a feedtank. It is described in separate literature.

Immersion tubes offer a much neater solution than traditional sparge pipes, and can reduce many of the problems associated with them, for example vibration, rusting, and waterhammer.

Immersion tubes are suitable for both new and retrofit applications where the feedtank is adequately constructed and braced.

Available types

Available as types IT100_, IT150_, IT200_, IT250_, IT300_, and IT400_ with an integral inside bolt circle sandwich flange to suit ANSI 150 or EN 1092 PN16. They are available in lengths to suit TM metric feedtanks. Other lengths can be made to special order.

Immersion tubes are designated by IT followed by DN followed by length of immersion tube in mm. e.g. IT250-1600 is DN250 and is 1 600 mm long from the underside of the flange. It is suitable for a 2 000 mm deep tank.

Capacity - when used without a Mixing Unit (MU)

IT type	DN	* Gravity condensate (with 5% Flash)	Pumped condensate	* For other quantities of flash steam the capacity may be determined pro rata i.e. for 10% flash capacity is half that shown.
		kg/h	kg/h	
IT100_	100	1 015	2 500	
IT150_	150	2 285	5 000	
IT200_	200	4 065	10 000	
IT250_	250	6 350	20 000	
IT300_	300	9 145	30 000	
IT400_	400	16 255	50 000	

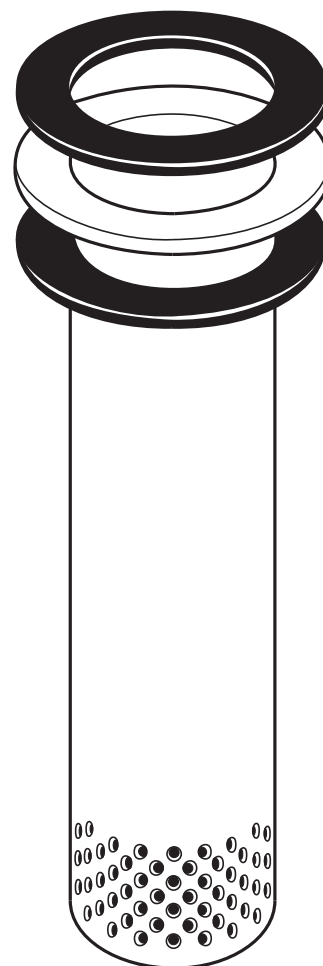
As a general rule the size of an immersion tube should be at least one DN larger than the condensate return main.

Important note:

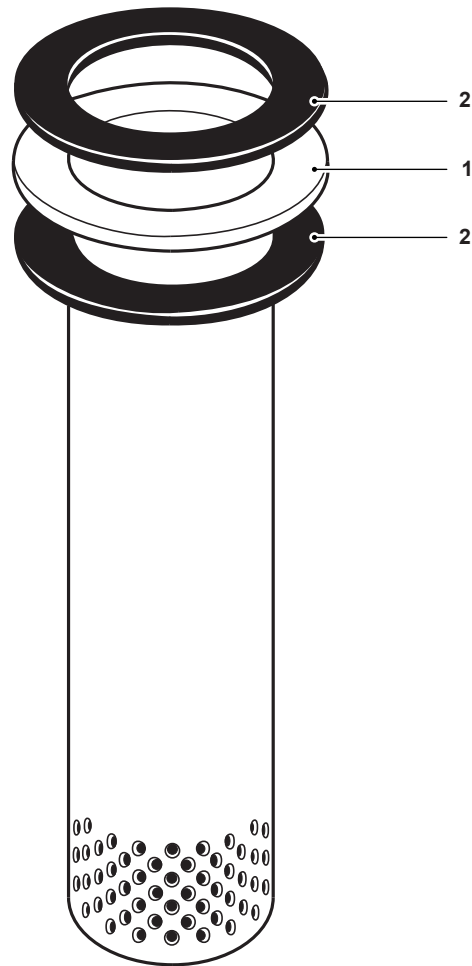
The above table is only valid for condensate, where the flash steam content has to be considered. When sizing an immersion tube for use with a de-aerator head, use the guidelines in the flash condensing de-aerator head TI. The DH/IT has a higher overall capacity as it is able to condense the flash steam content of the fluid before it enters the tank. We do not make a mixing unit to suit the IT100.

Limiting conditions

PN2.5 rating. Suitable for condensate at up to 1 bar g, 120 °C.



Materials



No.	Part	Material
1	Immersion tube	Austenitic stainless steel
2	Gaskets	Silicone rubber (colour may vary)

Installation

We recommend the immersion tube is positioned in the middle of the top of the tank. The immersion tube can be fitted to a boiler feedtank by the following methods:

1. Using an existing flange.

The immersion tube is designed so that it can pass through an aperture with dimensions according to BS 1600 Schedule 40. The sandwich flange of the immersion tube is equal to the raised face diameter of the flange for which it is suitable. Gaskets are to be placed above and below the sandwich flange.

2. On new installations a specific connection should be incorporated, as described in separate literature.

It is essential that a vacuum breaker is fitted to the condensate return main near to the immersion tube. Consider the use of a Spirax Sarco VB14 vacuum breaker.

How to order example:

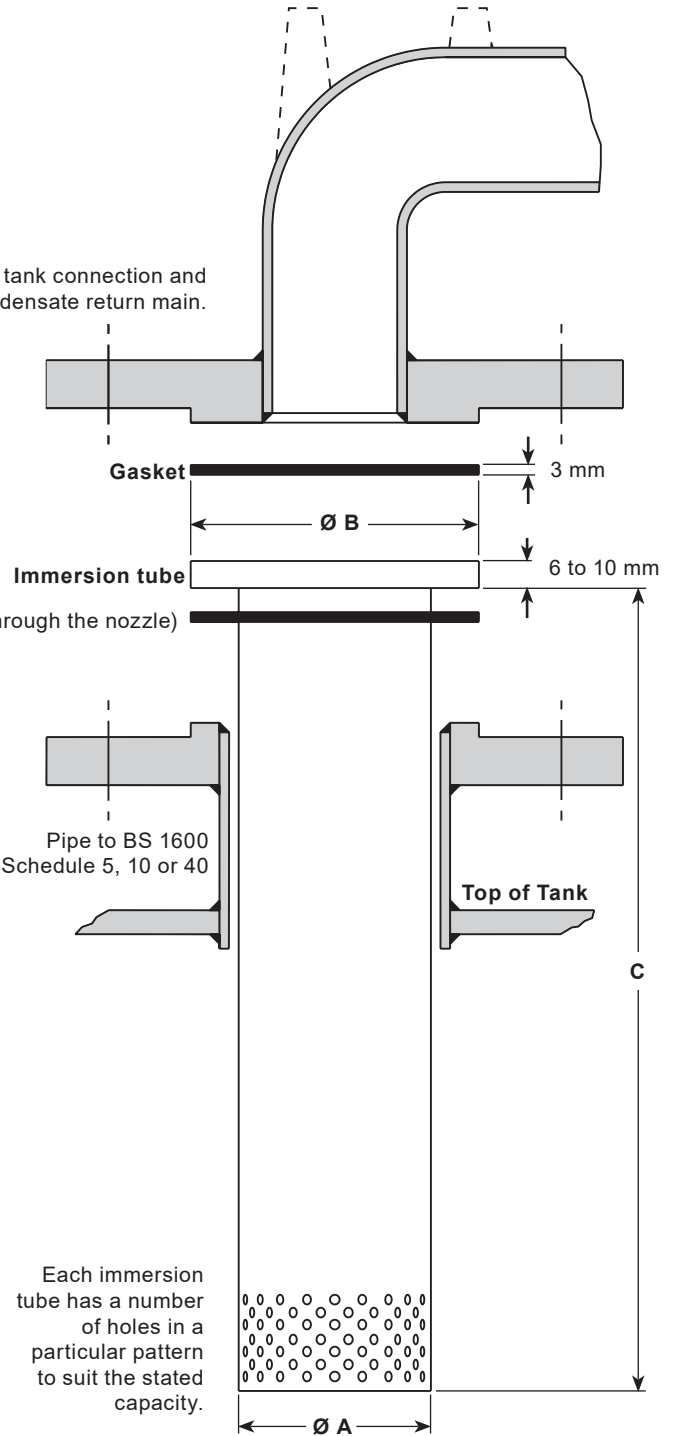
1. Immersion tube IT150-950 in austenitic stainless steel to suit DN150, PN16 flanges complete with:
2. Silicone rubber gaskets to suit DN150, PN16.

Dimensions/weights (approximate) in mm and kg

Alternatively, fit a vacuum breaker here, as near to the elbow as possible.

Ideally fit a vacuum breaker here

Use a blind flange of same DN as tank connection and drill a hole to suit DN of condensate return main.



Gasket (to be installed prior to passing the immersion tube through the nozzle)

Model	A	B PN16	B ANSI 150	C	Weight
IT100 - 950	114	162	157	950	7
IT100 - 1200				1200	9
IT100 - 1600				1600	11
IT150 - 950	168	212	216	950	10
IT150 - 1200				1200	12
IT150 - 1600				1600	16
IT200 - 950	219	268	270	950	13
IT200 - 1200				1200	16
IT200 - 1600				1600	21
IT200 - 2000				2000	28
IT250 - 1200	273	320	324	1200	20
IT250 - 1600				1600	27
IT250 - 2000				2000	35
IT300 - 1200	323	378	381	1200	24
IT300 - 1600				1600	32
IT300 - 2000				2000	42
IT400 - 1200	406	490	470	1200	29
IT400 - 1600				1600	39
IT400 - 2000				2000	51

Each immersion tube has a number of holes in a particular pattern to suit the stated capacity.