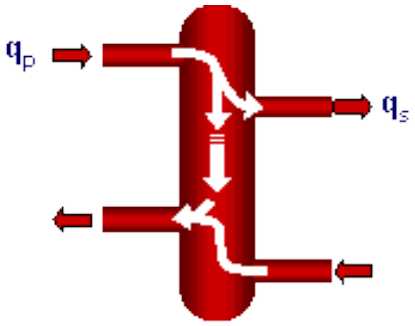
Name : **Date:**

HVAC Learning.com

Exercise Booklet

Print this exercise booklet before studying the lesson on-line. It will enable you to write your answers to the HVAC learning exercises. You will thus be able to switch between reading or listening to the file on-line and writing in the booklet.



HYDRAULIC DECOUPLING CYLINDERS

English lesson
https://hvac-learning.com/hydraulics/hydraulic-distribution-training/hydraulic-decoupling-cylinders/

French version:
https://formation.xpair.com/cours/bouteilles-decouplage.htm
https://formation.xpair.com/cours/comportement-thermique-des-bouteilles-de-decouplage.htm

For each exercise, you will write your answer, then you will study its correction on-line before going to the next exercise.
If you cannot do an exercise, you will be able to study its correction directly, but ***force yourself to write your answer*** *as often as possible.*

Note that between 2 exercises, you will find it necessary to study the course. As a warning, in the booklet, you will sometimes find the following indication:

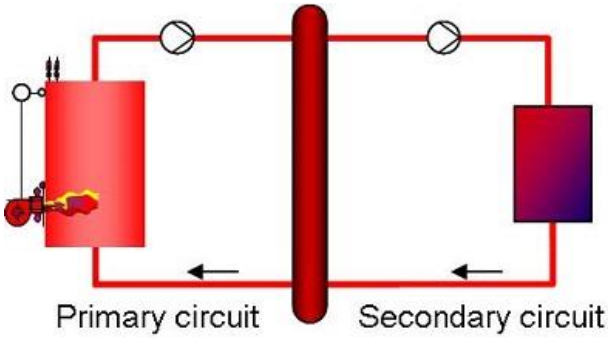
- *"* ***Study the course on-line before doing the next exercise****" or*
- *"* ***Study the course on-line before going to the next paragraph****"*

Only study the paragraphs or the exercises which have an equal or a lower level than the one your training requires.
NVQ Level = Vocational Certificate
A Level = High school Diploma
HND Level = Associate's Degree
MSC Level = Engineering Schools

Then, when you have completed a file, you will be able to assess your level on-line through a Multiple Choice Questionnaire in which you will only answer the questions related to the themes you have studied.
So now off you go and work well!
Good luck!
The Authors.

N°1 – Operating principles of training of the hydraulic decoupling cylinders – NVQ level

Study the course on-line.

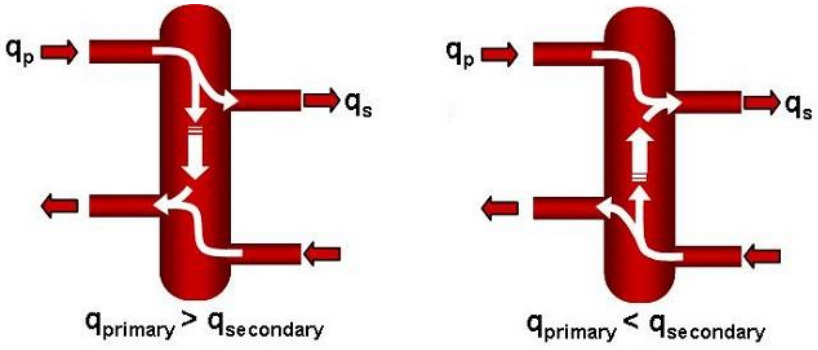


N°2 – Commonly used names training – NVQ level

Study the course on-line.

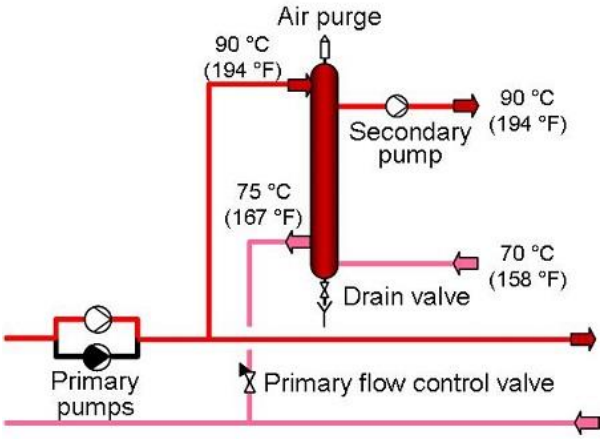
N°3 – Vertical circulation of water inside the cylinders training – NVQ level

Study the course on-line.



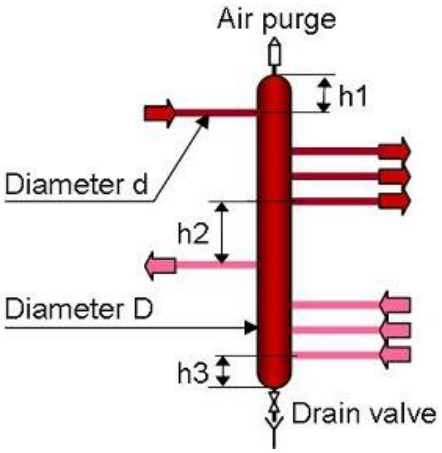
N°4 – Installation of decoupling cylinders training – NVQ level

Study the course on-line.



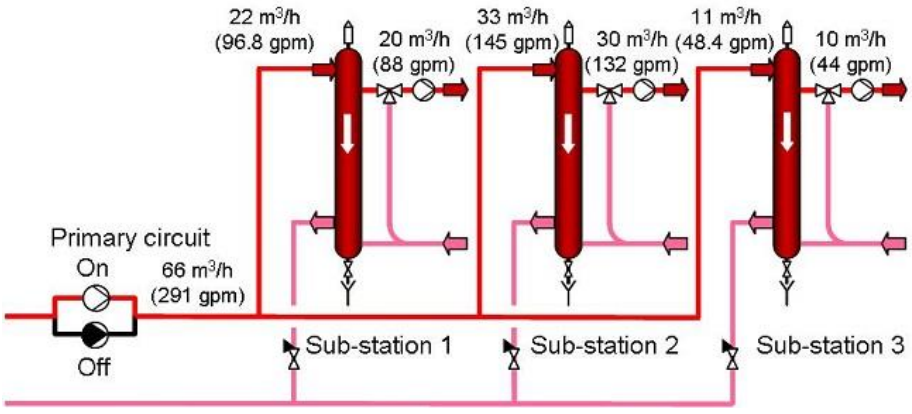
N°5 – Design and sizing of the cylinders training – NVQ level

Study the course on-line.



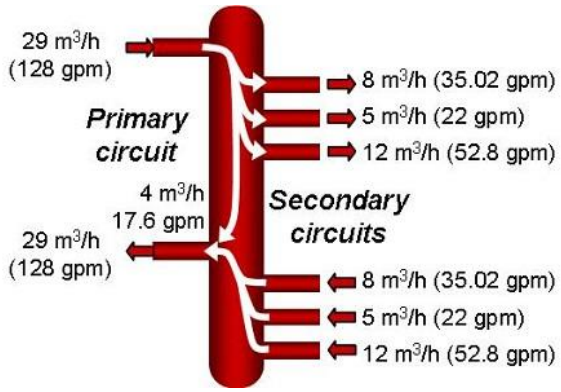
N°6 – Flow speed of primary networks training – NVQ level

Study the course on-line.



N°7 – Decoupling cylinder with several different secondary circuits training – NVQ level

Study the course on-line.



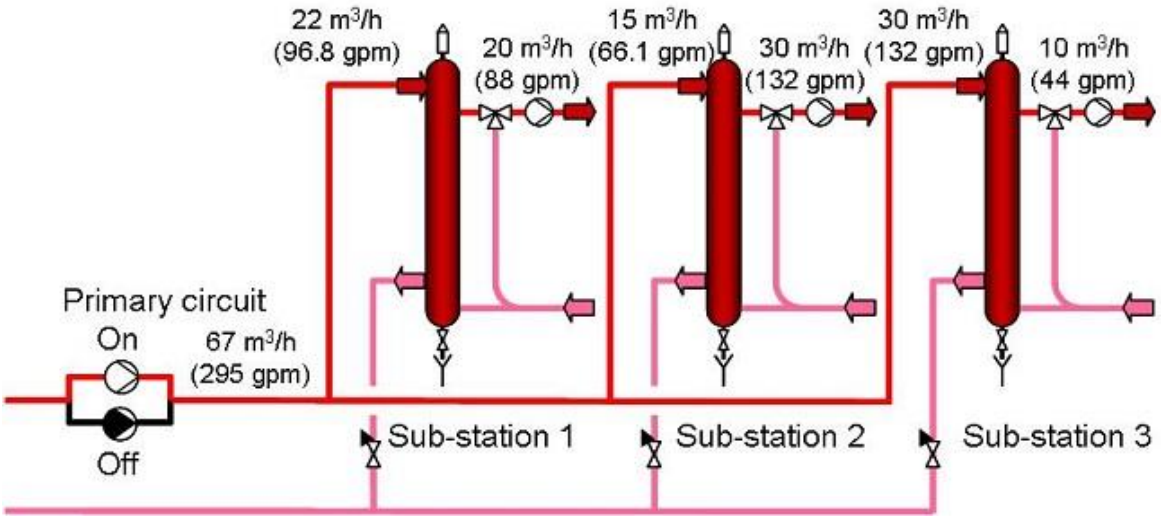
N°8 – Studying the circulation direction flow in the cylinders training – NVQ level

As we have seen in the previous paragraph, the vertical flow direction in the cylinder depends on the difference between the primary and secondary flows. The flow direction has thermal implications which we will study later on in the section.

Let us determine the flow direction in a few cylinders with some examples.

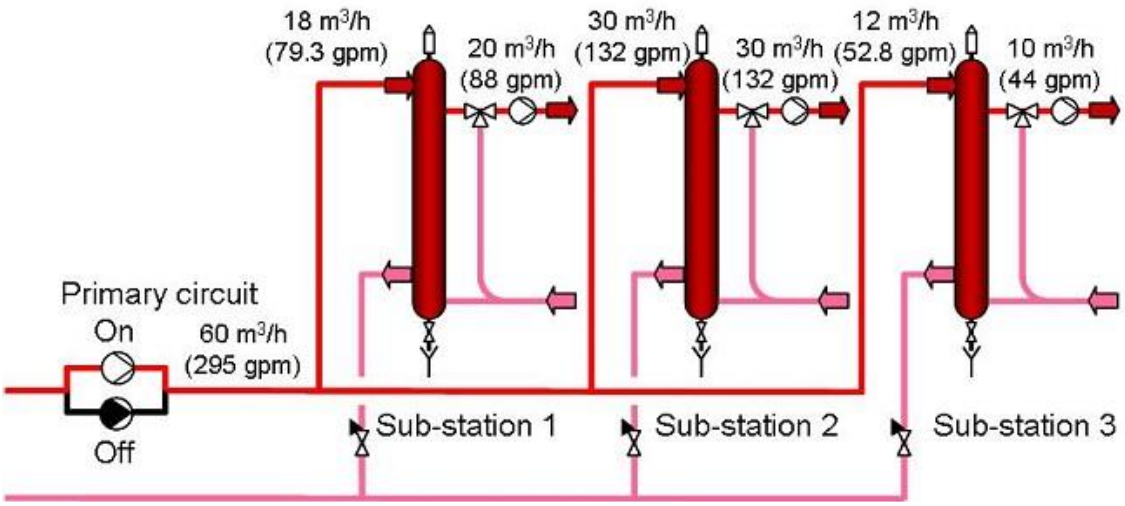
Question 1

Determine the vertical flow directions in the cylinders, using arrows (the three way valves are fully open).



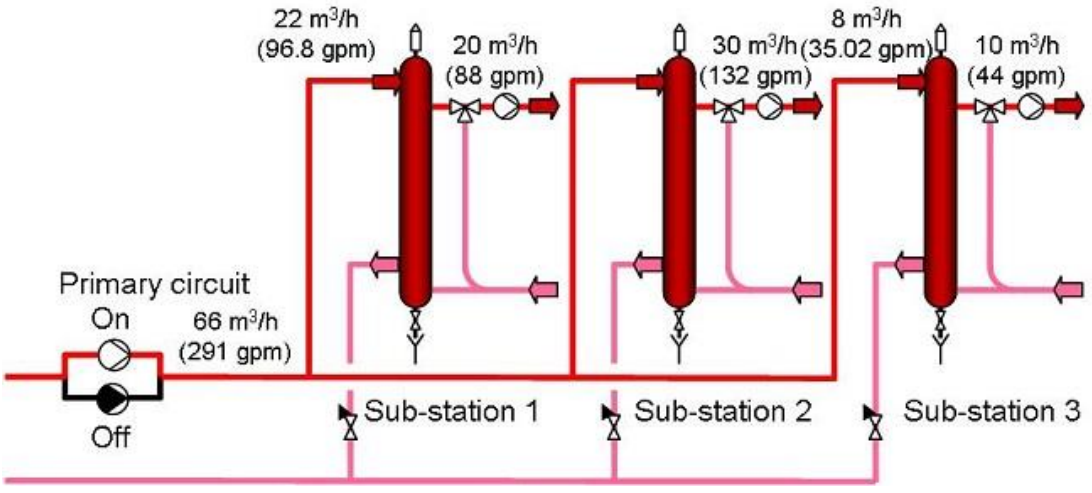
Question 2

Determine the vertical flow directions in the cylinders, using arrows (the three way valves are fully open).



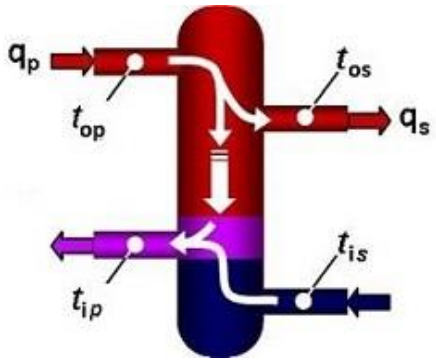
Question 3

Determine the vertical flow directions in the cylinders, using arrows (the three way valves are fully open).



N°9 – Thermal reactions of decoupling cylinders training – NVQ to A level

Study the course on-line.

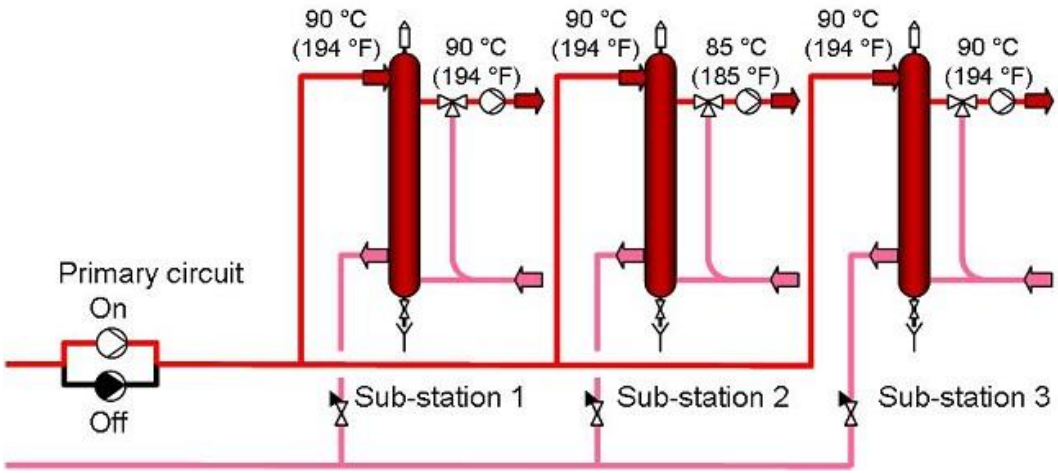


N°10 – Study of circulation flow directions by measuring temperature training – NVQ to A level

As we have seen previously, the vertical circulation flow in a cylinder can be determined by comparing primary and secondary flow rates. However, the flow direction can also be determined by studying the temperatures, which is easier to do on site.

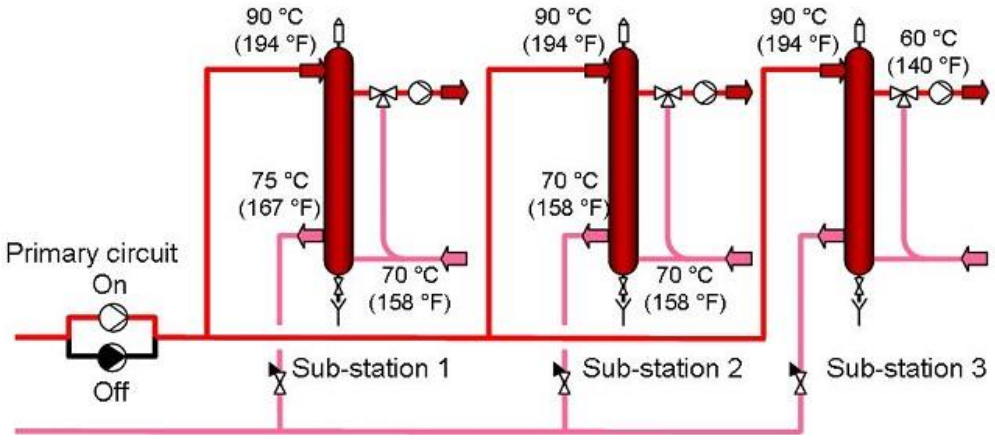
Question 1

Determine the vertical flow circulation directions in the cylinders (the three way valves are fully open).



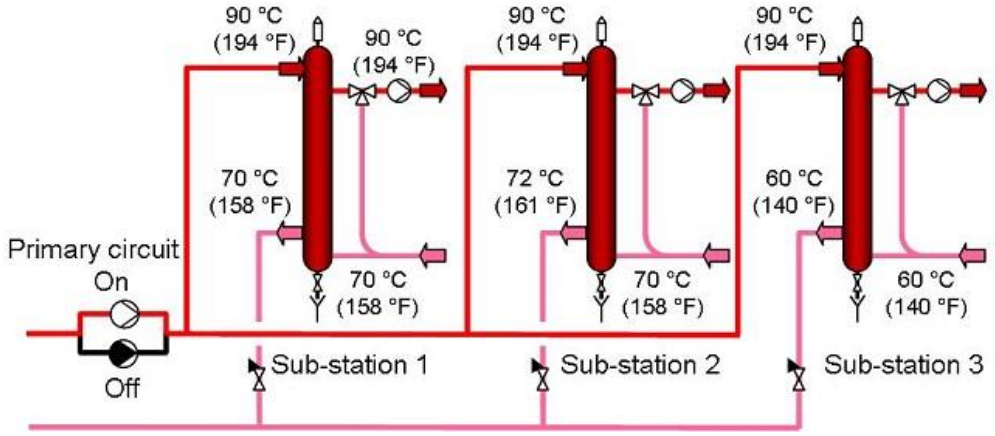
Question 2

Determine the vertical flow circulation directions in the cylinders (the three way valves are fully open).



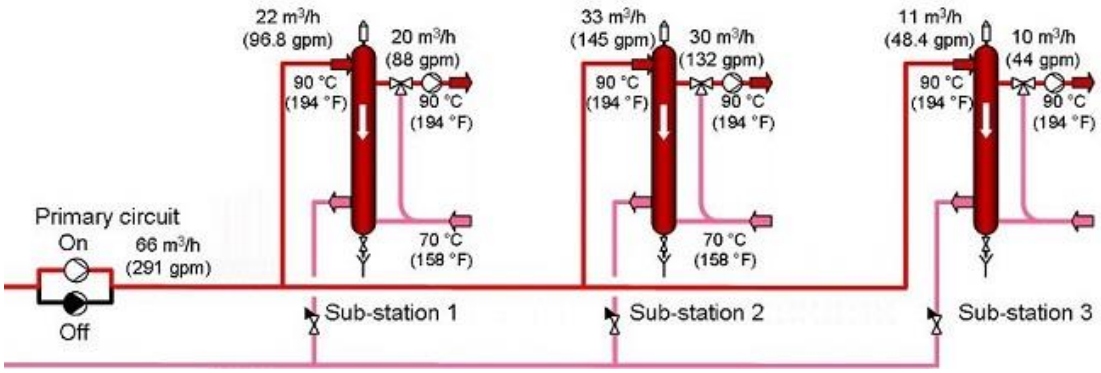
Question 3

Determine the vertical circulation flow directions in the cylinders (three way valve fully open).



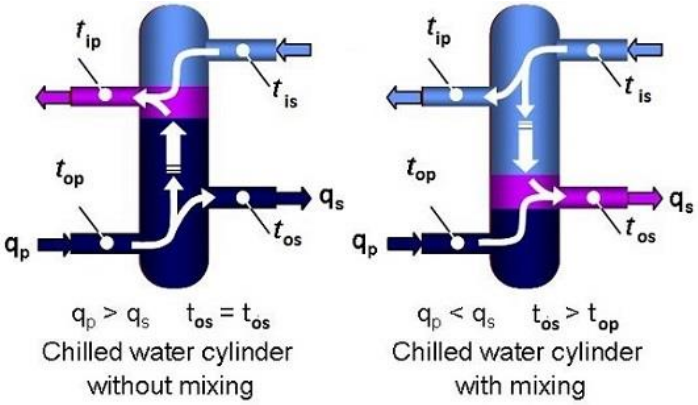
N°11 – Primary network malfunctions training – A to HND level

Study the course on-line.



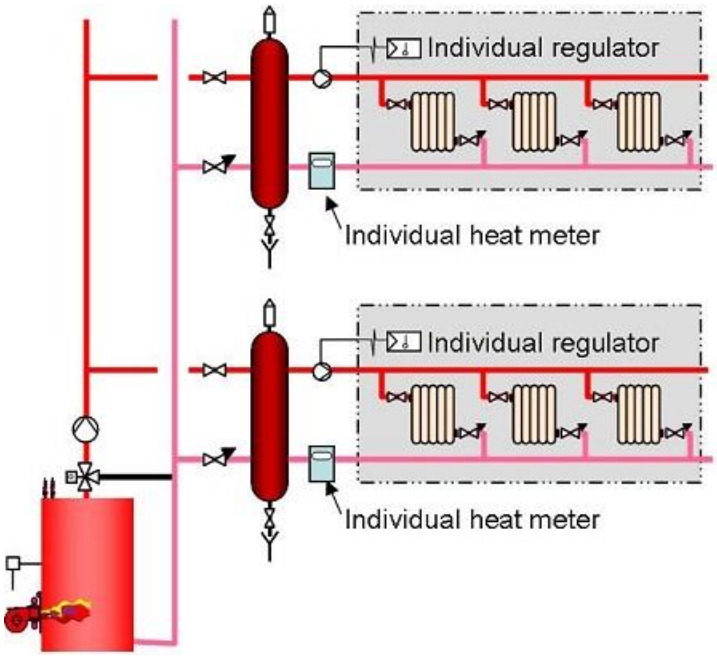
N°12 – Use of decoupling cylinders in chilled water systems training – A to HND level

Study the course on-line.



N°13 – Use of decoupling cylinders in collective heating systems for housing training – NVQ to A level

Study the course on-line.



English lesson
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