



BSI Standards Publication

Planning for functional performance testing for building commissioning

Part 1: Secondary hydronic pump, system and associated controls

National foreword

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**Planning for functional performance
testing for building commissioning —**

**Part 1:
Secondary hydronic pump, system and
associated controls**





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Foreword

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A list of all parts in the ISO 19455 series can be found on the ISO website.

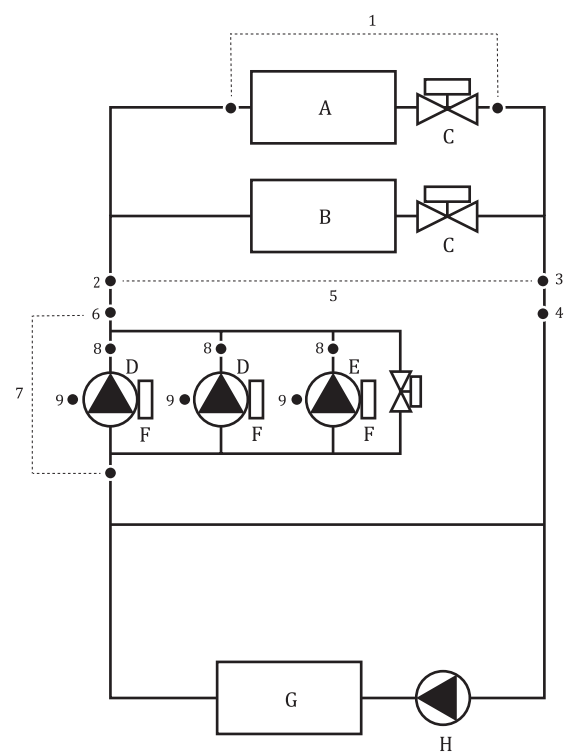
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Introduction

This document gives a methodology of planning for functional performance testing of secondary hydronic pump, system and associated controls for building commissioning, and has been prepared for building designers, i.e. architects, environmental designers and building system designers, as well as building clients, contractors, commissioning providers, government officials, and academic staff.

The aim of this document is to assist the building designers in applying a commissioning plan and a commissioning test, which are defined in ISO 16813. In order to achieve effective energy saving in building equipment systems that consume a large amount of energy, it is important not only to introduce energy efficient technologies to the system but also to verify their functional performance by tests and adjustments after the completion whether the system works properly according to its design intent. This document makes it possible to verify performance of secondary hydronic pump, system and associated controls with clear and specific processes.

As well as the intended usage for heating, ventilation and air conditioning (HVAC) systems, the secondary hydronic pump system targeted by this document is described in [Figure 1](#).



Key

- | | | | |
|---|----------------------------|---|--|
| A | farthest air handling unit | 1 | dP_{w_AHU} : end-pressure difference (in Pa) |
| B | air handling units | 2 | T_{w_AHUin} : inlet water temperature of air handling units (in °C) |
| C | valve | 3 | T_{w_AHUout} : outlet water temperature of air handling units (in °C) |
| D | secondary hydronic pumps | 4 | V_{w_AHUout} : water flow rate of air handling units (in kg/s) |
| E | reserve hydronic pumps | 5 | Q_{w_AHU} : amount of heat exchanged in air handling units (in kW) |
| F | inverter | 6 | P_{w_PSout} : supply-side pressure (in Pa) |
| G | heat source equipment | 7 | dP_{w_PS} : pump pressure difference (in Pa) |
| H | primary hydronic pump | 8 | V_{w_PS} : water flow rate of each secondary hydronic pump (in kg/s) |
| | | 9 | E_{PS} : energy consumption of each secondary hydronic pump (in kW) |

Figure 1 — Secondary hydronic pump system targeted by this document