## CUSTOMER: Starwood Hotels and Resorts Worldwide

CASE STUDY

INDUSTRY: HOSPITALITY

LOCATION: Stamford, Connecticut, USA



## SCOPE OF AGREEMENT:

Armstrong

Starwood Hotels and Resorts Worldwide has selected The Brain® Digital Re-Circulating Valve from Armstrong International as its corporate standard domestic hot water temperature control device for all Starwood hotels and resorts. The Brain® is specifically designed to be the primary water temperature controller in a continuously pumped recirculating hot water system. The Brain® will control within a +/-2°F (1°C) accuracy and provide flow capacities from 0-188 gpm (0-712 lpm). The Starwood Hotel and Resorts Worldwide Design Standard pertains to New Construction and Engineered Renovation projects for the Starwood hotels and resorts.

## STARWOOD DESIGN STANDARD:

Digital Re-Circulating Valve (DRV): Provide DRVs for the following hot water system applications; systems with a maximum simultaneous demand (MSD) less than or equal to 3.8l/sec (60 gpm), provide one DRV40R-BS-DS, systems up to 7.2 l/sec (115 gpm), provide either two DRV40R-BS-DS in parallel or one DRV80R-BS-DS, systems up to 11 l/sec (175 gpm), provide one DRV40R-BS-DS and one DRV80R-BS-DS in parallel, and systems up to 14.5 l/sec (230 gpm), provide two DRV80R-BS-DS in parallel.

Installation: Install valve in compliance with manufacturer's published instructions at www.armstronginternational.com/brain.

Valves shall be installed exactly as indicated in the following installation schematics:

- Plan A on page 4 indicates a single valve installation schematic.
- Plan B on page 4 indicates a two valve installation schematic.

Designer and installer may also consider a fully pre-piped "Digital Mixing Center" (DMC).

Armstrong International

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THE BRAIN®:



DRV40



- +/- 2°F water temperature control at points of use 25' downstream during demand
- +/-  $2^{\circ}F$  water temperature control at the DRV during zeo system dmand "idling" periods
- 2°F minimum valve inlet to outlet temperature requirement (system ٠ recirculation temperature loss)
- Automatic shutoff of hot water flow in the event of a power failure •
- Programmable set point range of 81-158°F (27-70°C)
- Programmable thermal disinfection mode ٠
- Programmable 1st level hi/lo temp alarm display
- Programmable temperature error level for safety shutdown
- ASSE

DMC80-80-80-BS-

DS

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399

	armstronginternational.com/brain					
Recirculation Systems - Digital (gpm)						
Model	Pressure Drop (psi)		Minimum System Draw-	Maximum Elour @75 ft/coc	C	
	5	10	Off	Maximum Flow @7.5 h/sec.	C <sub>V</sub>	
DRV40/R-BS-DS	48	70	0	41	22	
DMC40-BS-DS	48	70	0	41	22	
DMC40-40-BS-DS	96	140	0	115	44	
DRV50/R-BS-DS	94	133	0	73	42	
DMC50-BS-DS	94	133	0	73	42	
DRV80/R-BS-DS	94	133	0	165	42	
DMC80-BS-DS	94	133	0	165	42	
DMC80-80-BS-DS	188	266	0	294	84	

0

For Drawings, Piping Schematics, and Revit Compatible Files, please visit:

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armstronginternational.com

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Stamford, CT

John Lapins SVP Design and Technical Services Starwood Hotels and Resorts Worldwide Office: (203) 964-4499 john.lapins@starwoodhotels.com

June 2, 2015

Mr. Ryan Bloss Director of Global Hospitality Armstrong International 816 Maple Street Three Rivers, MI 49093

Ryan,

Starwood Hotels and Resorts Worldwide has selected The Brain<sup>®</sup> Digital Re-Circulating Valve from Armstrong International, as its corporate standard domestic hot water temperature control device for all brands of Starwood Hotels and Resorts. We have selected the Brain<sup>®</sup> since it is a fully digital recirculation valve (DRV) designed specifically to be the primary water temperature controller in a continuously pumped recirculating hot water system.

The sizing criteria as stated in Starwood Hotels and Resorts Design Standards for all brands requires Digital Re-Circulating Valve (DRV); Provide DRVs for the following hot water system applications; systems with a maximum simultaneous demand (MSD) less than or equal to 3.8I/sec (60 gpm), provide one DRV40R-BS-DS, systems up to 7.2 I/sec (115 gpm), provide either two DRV40R-BS-DS in parallel or one DRV80R-BS-DS, systems up to 11 I/sec (175 gpm), provide one DRV40R-BS-DS and one DRV80R-BS-DS in parallel, and systems up to 14.5 I/sec (230 gpm), provide two DRV80R-BS-DS in parallel. Designer and installer may also consider a fully pre-piped "Digital Mixing Center" (DMC).

Please feel free to advise all parties involved in hot water system design and installation for all Starwood projects that Starwood Hotels and Resorts Design Standard is now in effect and should be strictly adhered to.

Starwood Hotels and Resorts Worldwide Contacts:

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Sincerely,

John Lapins SVP Design and Technical Services

Plan A - One Valve Installation Schematic







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