



CRANE

FLUID SYSTEMS

OUR GENIUS IS VALVES

PICV DOMINATOR

FOR VARIABLE FLOW SYSTEMS

REACHING FOR NEW HEIGHTS

PART OF THE
ProBalance
RANGE

Peak Pro™

MEA EDITION 2022

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The Crane Fluid Systems ProBalance range offers a wide variety of dynamic and static balancing valves as well as flow management systems – including, PICV Peak Pro, DPCV, and Dominator Peak Pro, providing the ultimate in precision and reliability.

Qatar National Rail Scheme, Qatar

The Rail Doha scheme consists of a 300-kilometre metro network with four lines (red, gold, green & blue) with 80 stations; and light rail networks serving residential developments, such as Lusail, Education City and West Bay. The Lusail LRT (Light Rail) project consists of four lines totalling 30km, 8 underground stations and 25 at-grade stations. Red Line North will extend approximately 13 km northward from Musherib station, and has 7 underground stations. Two parallel tunnels will be excavated for a length of about 11.6 km and an internal diameter of 6.17 metres. Red Line South has 12 km long underground sections between Doha City Centre and the Airport. Green Line, has 15 km long underground sections which run north-south through the city. An over-ground extension to the underground tunnel section will have a total length of 3.2 km, of which 2.7 km will be a bridge from prefabricated components.

LOCATION

Qatar

CLIENT

Qatar Railways Development Company

CONSULTANTS

Jacobs Engineering, Louis Berger, Egis, Hill Int'l, Italferr SpA, WSP Parsons, Brinckerhoff, Astad, Atkins.

CHANNEL PARTNER

AlRiyadh Trading & Contracting

CONTRACTORS

ANEL MEP, Redco Int'l, Abantia, ALYSJ joint venture, Saudi Bin Laden Group/Porr/HBK JV, TCS.

SPECIFICATION

Crane FS Pressure Independent Control Valves PICV, Balancing Valves & a wide selection of General Valves and Strainers.





PRESSURE INDEPENDENT CONTROL VALVE

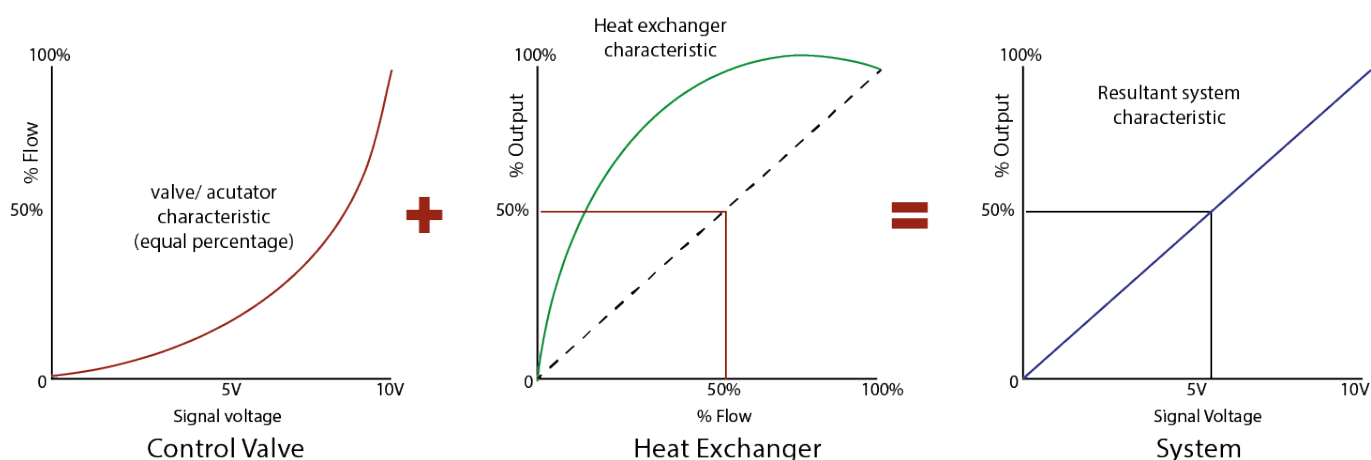
In modern Building Services projects, the desire for energy efficiency is a primary consideration for designers, installers, manufacturers, and end users. HVAC systems offer an excellent opportunity for energy savings if the correct products are specified, selected and installed and the use of these products is clearly understood. For installations incorporating items such as fan coil units (FCU) or chilled beams, the Crane Fluid Systems PICV offers an excellent solution for control of water flow rates, and therefore comfort control and energy savings when used as part of a variable volume system design. For the installer, we offer a range of solutions which are easy to select, install and commission.

Developed in the UK, tested to BSRIA PICV standards and utilising high-quality materials, these valves can provide equal percentage performance which delivers optimum control valve authority. Crane FS go further to give you the flexibility, offering various actuator options and measuring points, along with a wide differential pressure and flow rate range available.

All these factors combine to ensure our product will help you to design, deliver and maintain a system, which closes the performance gap and enables energy and cost reduction over its lifetime.

Control Characteristics

The D995 Peak Pro PICV is designed with a linear control characteristic to ensure good control over the flow rate at all settings. Our intelligent actuator controls the linear valve characteristics to an equal percentage characteristic at all valve settings.

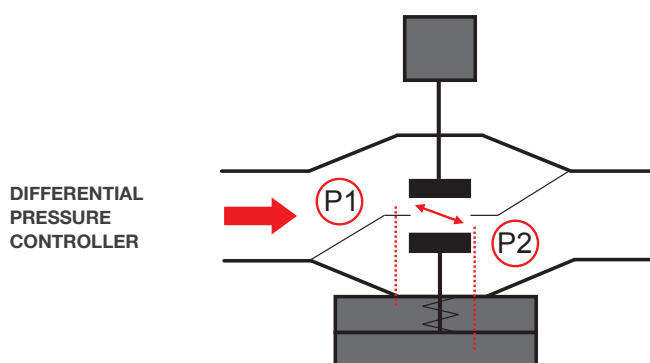


HOW DOES THE CRANE FS PICV WORK?

1. Differential Pressure Control

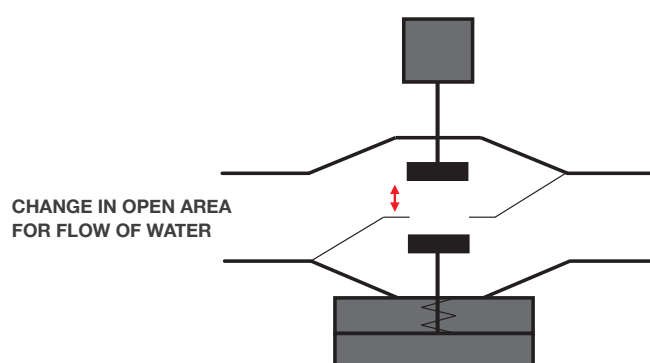
As the flow rates in the distribution pipework fluctuate to match demand, the available pressure at individual terminal units varies. This variation in available pressure has the effect of changing the flow rate through the terminal sub-circuit, i.e. an increase in pressure gives an increased flow rate.

To negate these fluctuating pressures, the PICV maintains a constant pressure drop across its seat P1 to P2, therefore maintaining a constant flow rate to the terminal.



2. Flow Regulation

By changing the open space, through which the water flows within the valve, the flow rate can be adjusted and set. The pressure across the seat of the PICV is held constant by the differential pressure controller. Whilst setting, the open area around the disk will change, resulting in a change to the flow rate. The new set flow rate recreates the constant seat differential pressure P1 to P2. Having set a new flow rate, it will stay constant at the new set value.

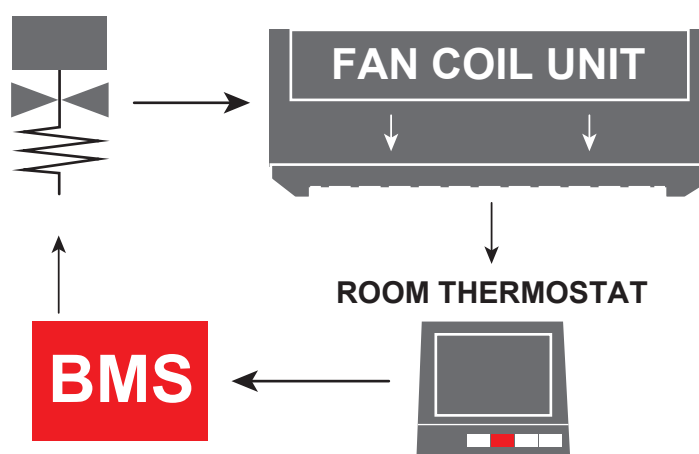


3. Comfort Control

The use of a PICV, as with all 2 port control valves, allows for the variation of the flow rate to vary the heat output of the terminal unit. The PICV is an integral part of the control loop.

4. Thermostat, BMS, PICV & Terminal Unit

By varying the flow rate we can control the heat output of the terminal. For PICVs with an equal percentage characteristic, there is a direct relationship between valve position and heat output, i.e. half open = half heat output.



WHY CHOOSE THE CRANE FS PICV?

SIMPLE FLOW SETTING DIAL

- Easy to set by hand for commissioning purposes
- Quick fit actuator connection - no tools required

FLOW CONTROL

- Accurate over a wide ΔP range – up to 800 kPa
- Guaranteed performance & repeatability - hassle free commissioning
- Linear or equal percentage control available through actuator offering flexibility on site
- Class IV leakage*
- Flow range 0.008-3.80l/s

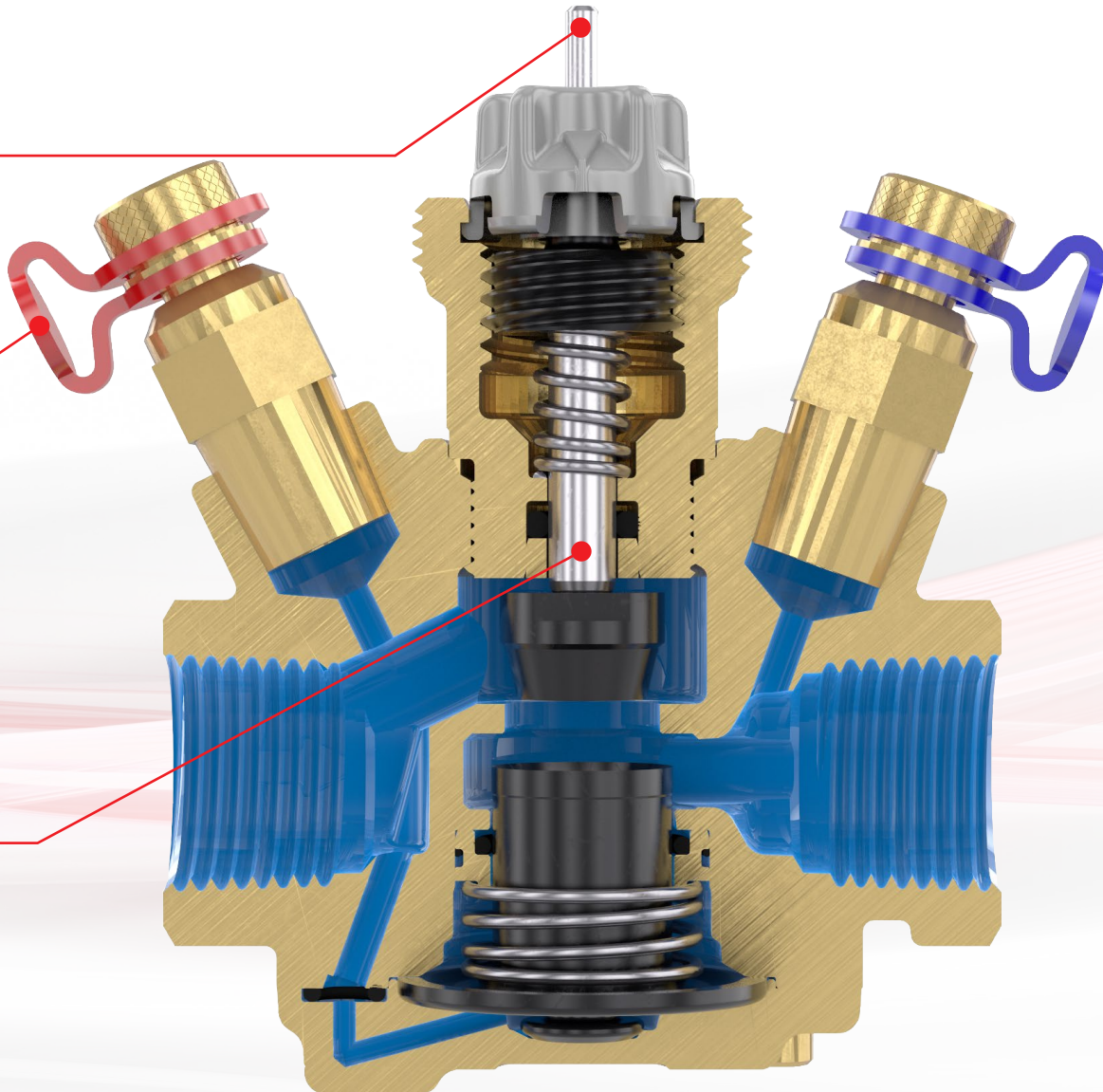
*Note: Applicable to DN15 only.

QUALITY

- These valves have been categorised in accordance with the PED (The fluid to be transported is limited to group 2 liquids i.e. non-hazardous. On no account must these valves be used on any group 1 liquids, group 1 gases or group 2 gases.)
- Comprehensive testing undertaken for each valve - pressure tested to BS EN 12266-1 and performance tested in accordance with BSRIA BTS01 (10,000 cycles test which is equal to a design life of 15 years)
- Pressure tested to BS EN 12266-1
- Performance tested in accordance with BSRIA BTS01
- Witness testing and verification of data carried out by Bureau Veritas

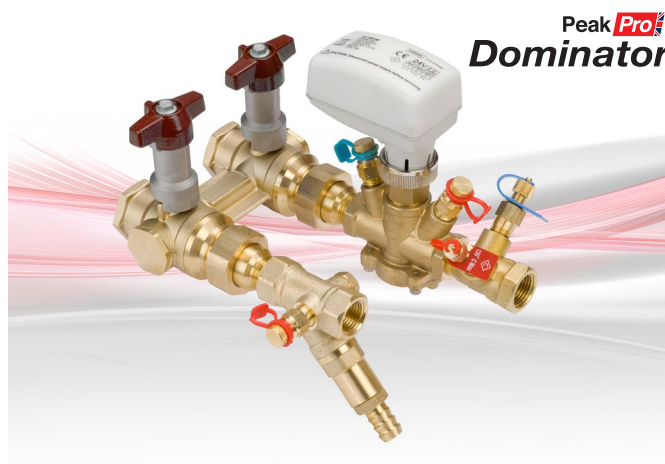


Peak **Pro** ™



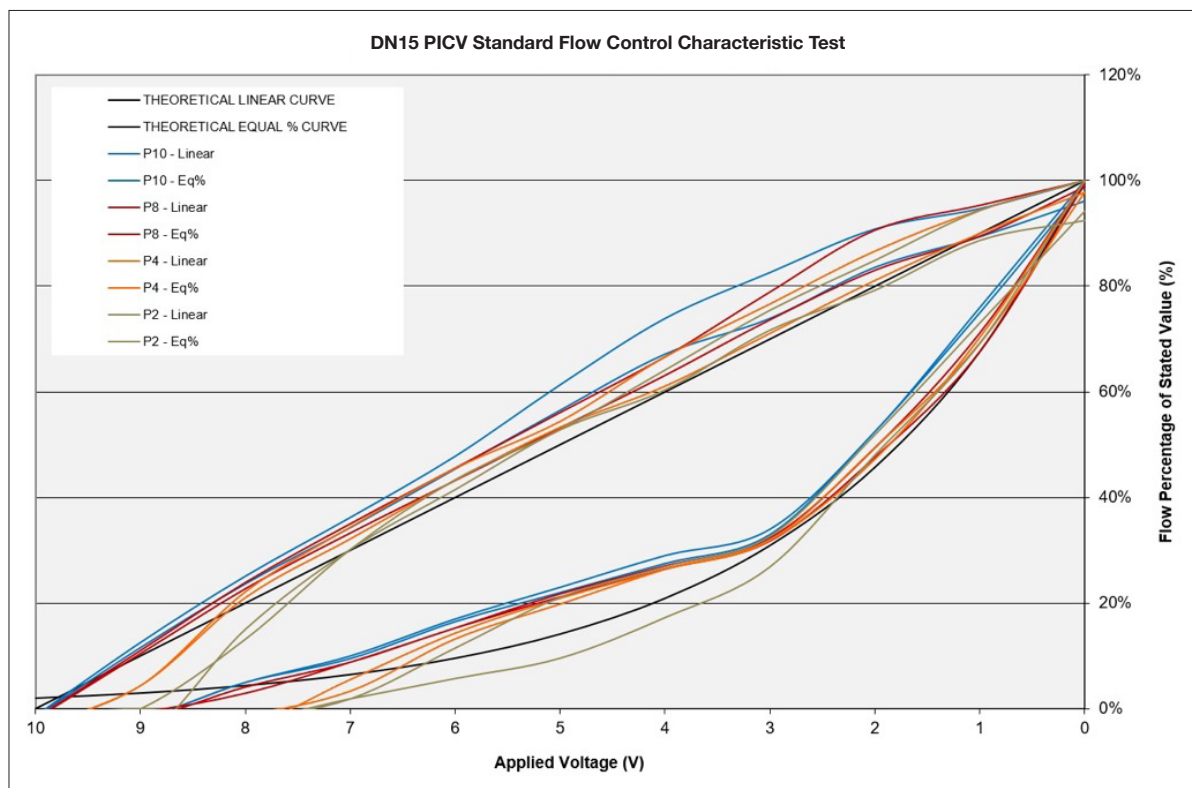
TECHNICAL DESCRIPTION SUMMARY

APPLICATION	DIFFERENTIAL PRESSURE		VARIANTS / FLOW RANGE
Heating and cooling hydronic systems.	Activation up to 800kPa		Peak Pro PICV
FUNCTIONS:	Activation		DN15
Flow Control	DN15 LF 20 kPa		LF 0.008 – 0.080 l/s
- Equal percentage control characteristics (default)	SF 25 kPa		SF 0.060 – 0.200 l/s
- Linear control characteristic	HF 50 kPa		HF 0.010 – 0.370 l/s
- Both available with position Feedback signal	DN20 SF 27kPa		DN20
- Multiple control signal compatibility	HF 40kPa		SF 0.070-0.350 l/s
	DN25 SF 40kPa		HF 0.075-0.420 l/s
LEAKAGE RATE:	DN32 SF 65kPa		DN25
Class IV to EN 1349 0.01% of stated max flow	HF 70kPa		SF 0.120-0.600 l/s
LF Class III (0.1% of Kv Max)	DN32 HF 70kPa		HF 0.360-0.850 l/s
SF Class IV (0.01% of Kv Max)	DN40 SF 50kPa		DN32
HF Class IV (0.01% of Kv Max)	DN50 SF 40kPa		SF 0.52-1.35 l/s
			HF 0.63-1.73 l/s
			DN40
			SF 0.39-3.00 l/s
			DN50
			SF 0.69-3.80 l/s
TEMPERATURE RANGE:			Dominator Peak Pro
0°C to 90°C			DN15 X DN15
			DN20 X DN20
			DN25 X DN25

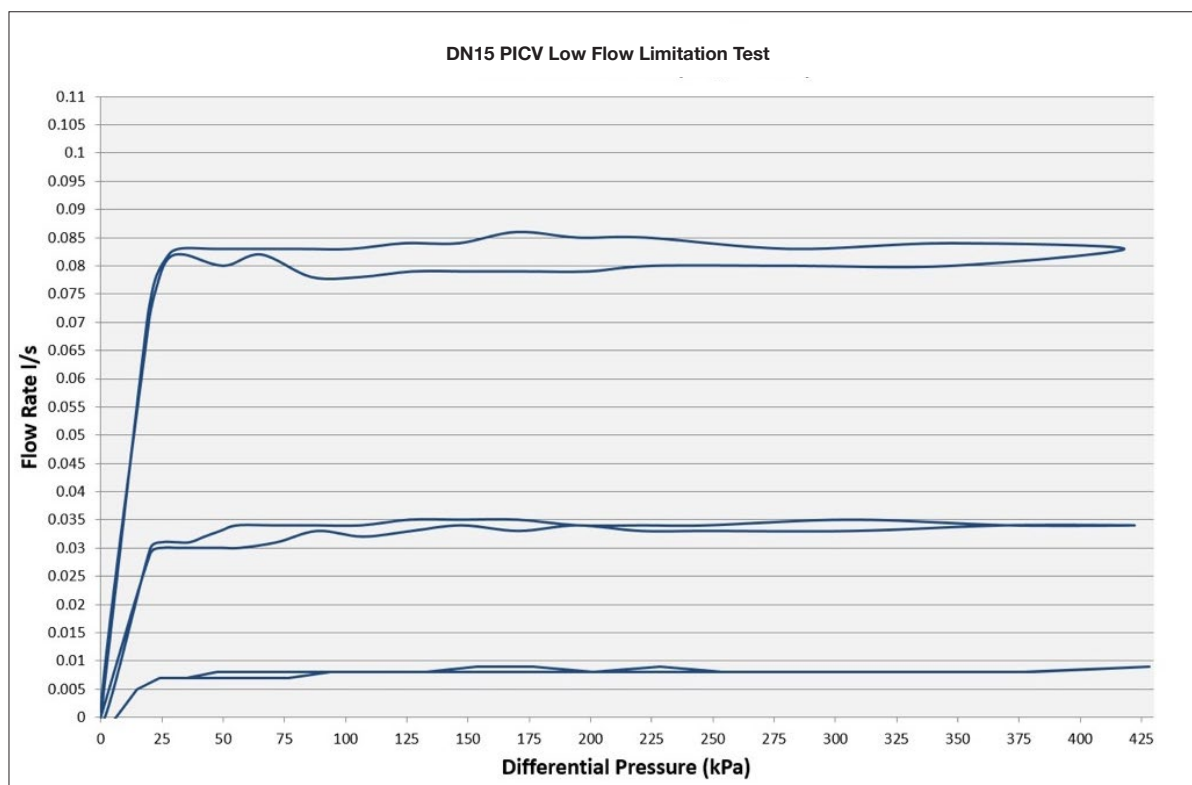


EXAMPLE FLOW PERFORMANCE GRAPHS

Peak Pro Pressure Independent Control Valve



Control Characteristics Test Data



Nine Elms

London, UK

The Nine Elms N8 Tower development comprises of one, two & three-bedroom flats and penthouses, plus commercial & retail space on the lower levels.

Crane FS Dominator Peak Pro with PICV, BSRIA Flushing Drain & FMD along with a range of general valves were chosen for this modern mixed-use project.

SECTOR

Mixed Development

LOCATION

New Covent Garden Market, London

CLIENT

St Modwen

CHANNEL PARTNER

BSS

D995 DN15-DN25

Pressure Independent Control Valve

PN25

Features & Benefits

- Comprehensive flow range available, allowing for cost effective valve selections. The PICV Peak Pro has up to 70% higher max flow compared to the previous model
- Accurate over a wide ΔP range - available in both 400 and 800kPa variants
- Class IV leakage*
- PN25 rated product, suitable for high pressure applications
- Design validation testing to BSRIA BTS01. As per Cyclic Testing requirements, valve subjected to 10,000 cycles (equivalent to 15 years** of typical service)
- Comprehensive testing undertaken for each valve - pressure tested to BS EN 12266-1
- Integral test points for verification of ΔP and valve performance
- Built in convoluted integral diaphragm
- Smaller and lighter design suits applications with a small footprint

Materials

No.	Part	Material
1	Body	DZR Brass BS EN 12165 (CW602N)
2	Bonnet	DZR Brass BS EN 12165 (CW602N)
3	End Cap	DZR Brass BS EN 12165 (CW602N)
4	P84 Test Point	DZR Brass BS EN 12165 (CW602N)
5	Setting Dial	Nylon 6
6	DP Controller	Stainless Steel 303
7	Springs	Stainless Steel 302
8	Diaphragm	EPDM
9	O-Rings	EPDM
10	O-Ring Insert	DZR Brass BS EN 12165 (CW602N)
11	Stem	Stainless Steel 303

*DN15 LF Class 3 **based on two full stroke cycles per day

Dimension & Weights

	A (mm)	B (mm)	C (mm)	C2 (mm)	D (mm)	End Connections	Weight (kg)
DN15	74	36	63	120	27	½" BSP Female Taper to BS EN 10226-2	0.52
DN20	90	47	75	130	30	¾" BSP Female Taper to BS EN 10226-2	0.82
DN25	112	63	75	130	51	1" BSP Female Taper to BS EN 10226-2	1.55

Flow Range

	Low Flow (l/s)	STD Flow (l/s)	High Flow (l/s)
DN15	0.008-0.080	0.060 - 0.200	0.10 - 0.370
DN20	-	0.070 - 0.350	0.075 - 0.420
DN25	-	0.120 - 0.600	0.360 - 0.850

Pressure/Temperature Ratings

Temperature (°C)	0°C to 90°C
Pressure (Bar)	25 Bar

PRESSURE RATING: PN25

MEDIUM: Group 2 Liquids

END CONNECTIONS:

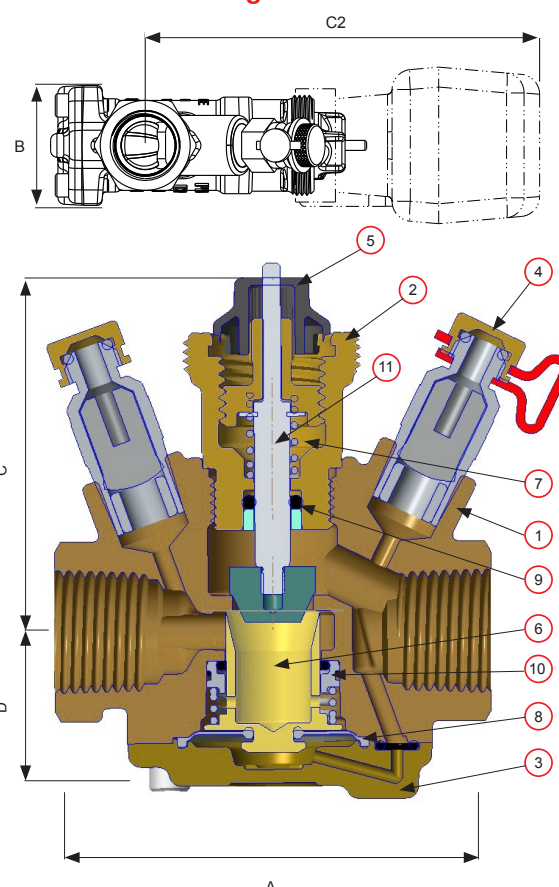
BSP Female Taper to BS EN 10226-2

SPECIFICATION: The PICV shall have a constant control characteristic at all flow settings and control flow rates at differential pressures up to 800kPa. Flow rates will be externally adjustable, and set point recordable. Integral test points will be fitted to verify setting pressure allowing pumps to be set at optimum speed to maximise energy savings. Shall be manufactured from DZR Brass, with Stainless Steel springs, and an EPDM diaphragm. Shall be rated to PN25 and operate at temperatures to 90°C. As per Crane FS Peak Pro (Fig D995).

SPARES: Isolating cap part number 0ED13666H.



Dimensional Drawings



Differential Pressure Range

	Low Flow (kPa)	STD Flow (kPa)	High Flow (kPa)
DN15	20-400 20-800	25-400 20-800	40-400 40-800
DN20	- 27-800	27-400 27-800	40-400 40-800
DN25	- 40-800	40-400 40-800	70-400 70-800

Please request max ΔP on order

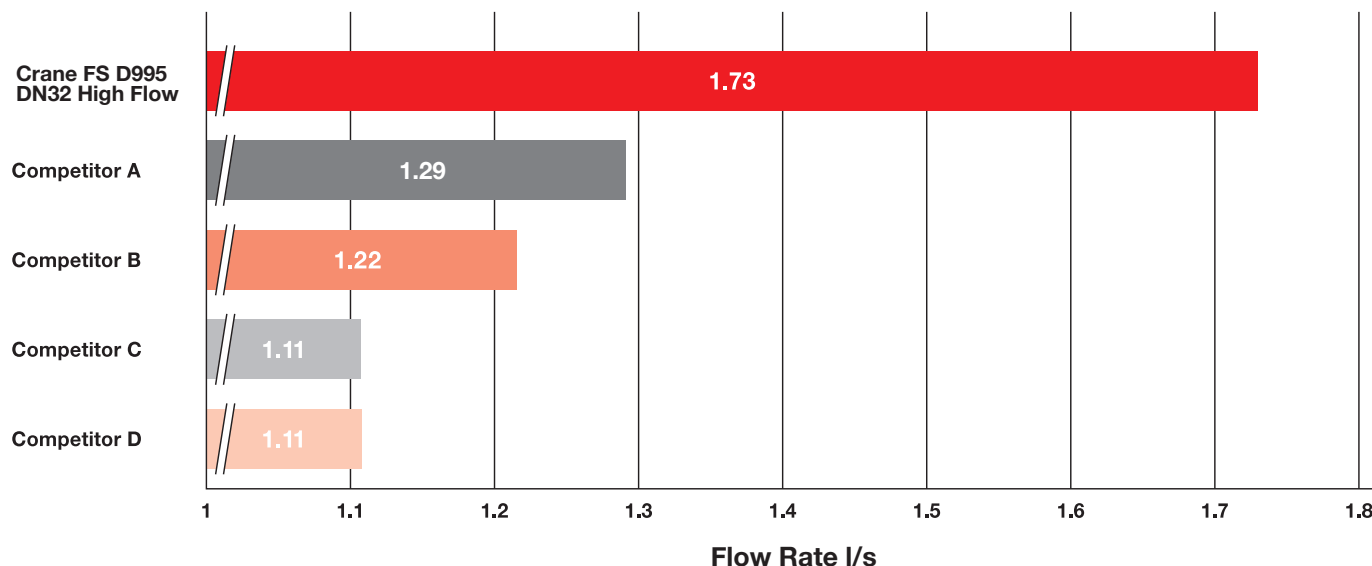
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Next Generation PICV D995 DN32

Peak Pro

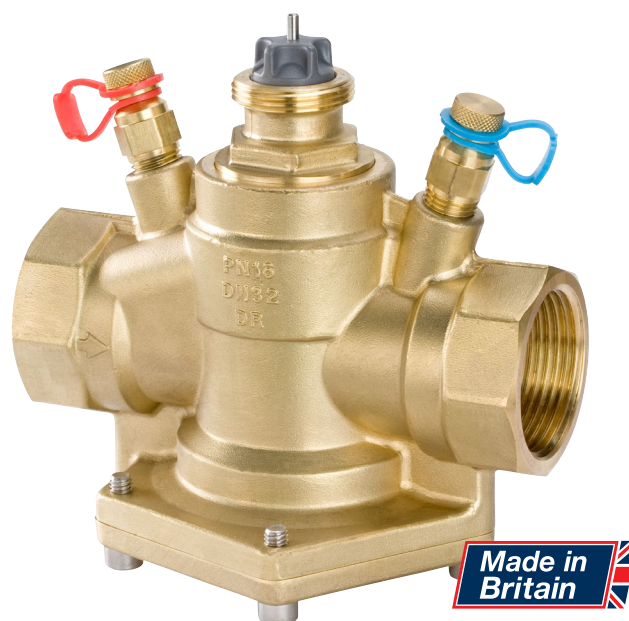
High performance valve
with greater flow rates.

BEST IN CLASS - FLOW RATE vs SIZE¹



FEATURES & BENEFITS

- Low activation & low hysteresis are consistent across the operating range. The PICV responds quickly to maintain a consistent flow which improves pump efficiency, resulting in energy savings & lower running costs.
- Excellent performance coverage from the DN32 ensures smaller pipework can be specified, compared to using larger sized valves. A real saving for the contractor & end user.
- Reductions in weight and footprint allow the valves to be used within smaller voids.
- Available with a range of actuators to suit fan coil units and chilled beam applications.



FLOW MEASUREMENT

- The PICV Peak Pro has up to 80% higher max flow compared to the previous model
- Accurate over a wide ΔP range - up to 800kPa

PERFORMANCE

- Comprehensive testing undertaken for each valve - pressure tested to BS EN 12266-1
- PN16 rated product
- Flow Range
Standard Flow: 0.53 - 1.35 l/s
High Flow: 0.62 - 1.73 l/s

DESIGN

- Design validation testing to BSRIA BTS01. As per cyclic testing requirements, valve subjected to 10,000 cycles (equivalent to 15 years² of typical service)
- Integral test points for verification of ΔP and valve performance

¹Data sourced from published competitor flow rates as of February 2021.

²Based on two full stroke cycles per day

D995 DN32

Pressure Independent Control Valve

PN16

Features & Benefits

- Comprehensive flow range available, allowing for cost effective valve selections. The PICV Peak Pro has up to 80% higher max flow compared to the previous model
- Accurate over a wide ΔP range - up to 800kPa
- Class IV leakage
- PN16 rated product, suitable for high pressure applications
- Design validation testing to BSRIA BTS01. As per Cyclic Testing requirements, valve subjected to 10,000 cycles (equivalent to 15 years* of typical service)
- Comprehensive testing undertaken for each valve - pressure tested to BS EN 12266-1
- Integral test points for verification of ΔP and valve performance
- Built in convoluted integral diaphragm
- Smaller and lighter design suits applications with a small footprint

*based on two full stroke cycles per day

Materials

No.	Part	Material
1	Body	DZR Brass BS EN 12165 (CW602N)
2	Bonnet	DZR Brass BS EN 12165 (CW602N)
3	End Cap	DZR Brass BS EN 12165 (CW602N)
4	P84 Test Point	DZR Brass BS EN 12165 (CW602N)
5	Setting Dial	Nylon 6
6	DP Controller	Stainless Steel 303
7	Springs	Stainless Steel 302
8	Diaphragm	EPDM
9	O-Rings	EPDM
10	O-Ring Insert	DZR Brass BS EN 12165 (CW602N)
11	Stem	Stainless Steel 303

Dimension & Weights

	A (mm)	B (mm)	C (mm)	C2 (mm)	D (mm)	End Connections	Weight (kg)
DN32	135	100	76	135	56	1-1/4" BSP Taper	2.3

Flow Range

	STD Flow (l/s)	High Flow (l/s)
DN32	0.52-1.35	0.63-1.73

Pressure/Temperature Ratings

Temperature (°C)	0°C to 90°C
Pressure (Bar)	16 Bar

PRESSURE RATING: PN16

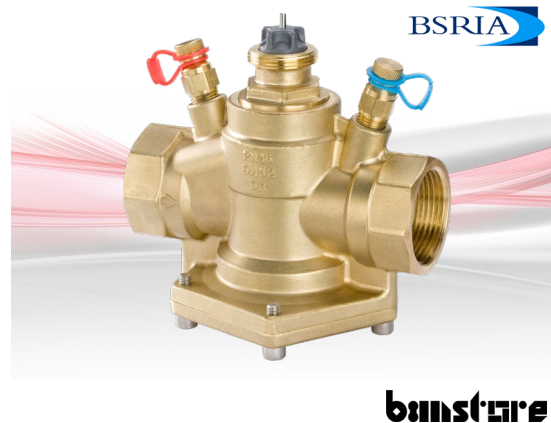
MEDIUM: Group 2 Liquids

END CONNECTIONS:

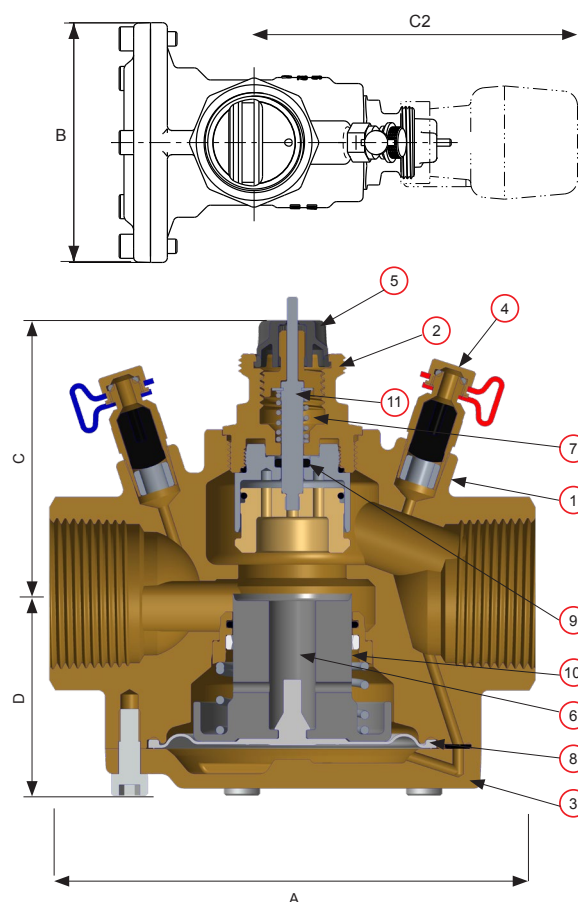
BSP Female Taper to BS EN 10226-2

SPECIFICATION: The PICV shall have a constant control characteristic at all flow settings and control flow rates at differential pressures up to 800kPa. Flow rates will be externally adjustable, and set point recordable. Integral test points will be fitted to verify setting pressure allowing pumps to be set at optimum speed to maximise energy savings. Shall be manufactured from DZR Brass, with Stainless Steel springs, and an EPDM diaphragm. Shall be rated to PN16 and operate at temperatures to 90°C. As per Crane FS Peak Pro (Fig D995).

SPARES: Isolating cap part number 0ED13666H.



Dimensional Drawings



Differential Pressure Range

	STD Flow (kPa)	High Flow (kPa)
DN32	65-800	70-800

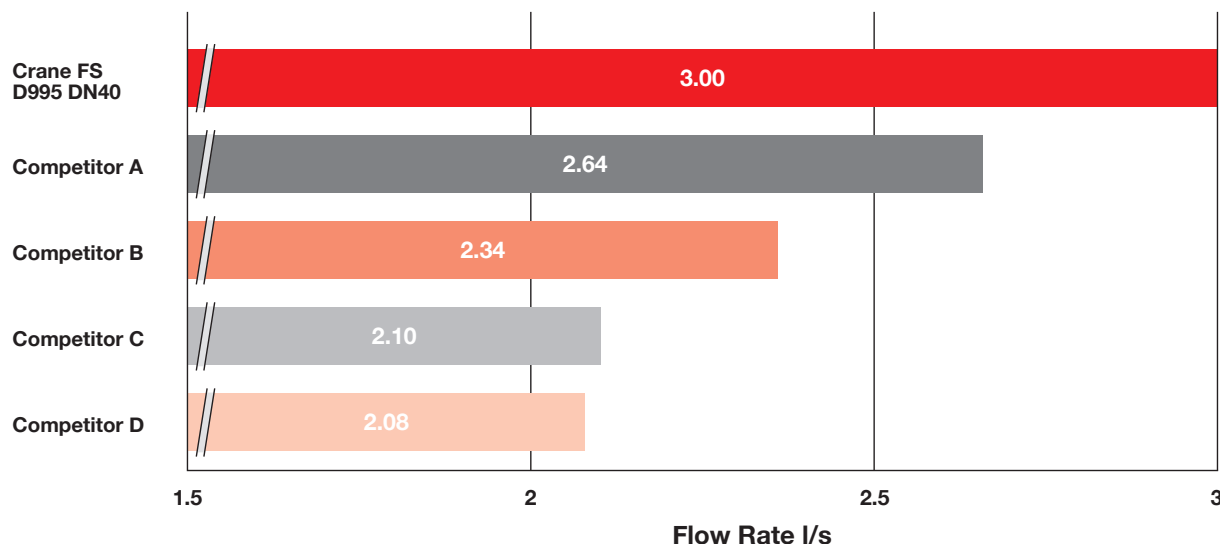


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Valid as of 100221

Next Generation PICV D995 DN40 & DN50

DN40 BEST IN CLASS - FLOW RATE vs SIZE¹



FEATURES & BENEFITS

Low Activation

The PICV responds very quickly to maintain a consistent flow, ultimately improving pump efficiency, helping reduce energy usage across the system, resulting in energy savings and lower running costs.

Low Hysteresis & Great Control

The impact of high hysteresis can result in an inefficient systems that can cause a time delay in temperature settings that will affect the environment that you are in.

With low hysteresis and great control the PICV ensures the system can respond quickly and efficiently resulting in a comfortable environment for the end user and ultimately reducing energy consumption.

Compact Design, Better For The Planet

The new D995 Peak Pro PICV DN40 & DN50 are lighter than the previous models, reducing its carbon footprint (Scope3 emissions), but offers higher maximum flow rates.

- DN40 - 20% weight reduction
- DN50 - 37% weight reduction

Less raw materials, eco-friendly packaging and lower freight impact all contribute to limit CO₂ emissions.



¹DN40 Data sourced from published competitor flow rates as of September 2021.

²Based on two full stroke cycles per day

D995 DN40 & DN50

Pressure Independent Control Valve

PN16



Features & Benefits

- Comprehensive flow range available, allowing for cost effective valve selections. The PICV Peak Pro has up to 25% higher max flow compared to the previous model
- Accurate over a wide ΔP range - up to 800kPa
- Class IV leakage
- PN16 rated product, suitable for high pressure applications
- Design validation testing to BSRIA BTS01. As per Cyclic Testing requirements, valve subjected to 10,000 cycles (equivalent to 15 years* of typical service)
- Comprehensive testing undertaken for each valve - pressure tested to BS EN 12266-1
- Integral test points for verification of ΔP and valve performance
- Built in convoluted integral diaphragm
- Smaller and lighter design suits applications with a small footprint

*based on two full stroke cycles per day

Materials

No.	Part	Material
1	Body	Bronze BS EN 1982 (CC491K)
2	Bonnet	Bronze BS EN 1982 (CC491K)
3	End Cap	Bronze BS EN 1982 (CC491K)
4	P84 Test Point	DZR Brass BS EN 12165 (CW602N)
5	Setting Dial	Nylon 6
6	DP Controller	Stainless Steel 303
7	Springs	Stainless Steel 302
8	Diaphragm	EPDM
9	O-Rings	EPDM
10	O-Ring Insert	Stainless Steel 303S
11	Stem	Stainless Steel 303S

Dimensions & Weights

Size (DN)	A (mm)	B (mm)	C1 (mm)	C2 (mm)	D (mm)	E (mm)	End Connections	Weight (kg)
DN40	137.1	118	94	145	104	72	1 1/2" BSP Female Taper to BS EN 10226	3.60
DN50	161.5	118	99	150	106.5	78	2" BSP Female Taper to BS EN 10226	4.25

Flow Range

Size (DN)	Flow (l/s)
DN40	0.39 - 3.00
DN50	0.69 - 3.80

Differential Pressure Range

Size (DN)	Flow (kPa)
DN40	50 - 800 kPa
DN50	40 - 800 kPa

PRESSURE RATING: PN16**END CONNECTIONS:**

BSP Female Taper to BS EN 10226-2

MEDIUM: Group 2 Liquids

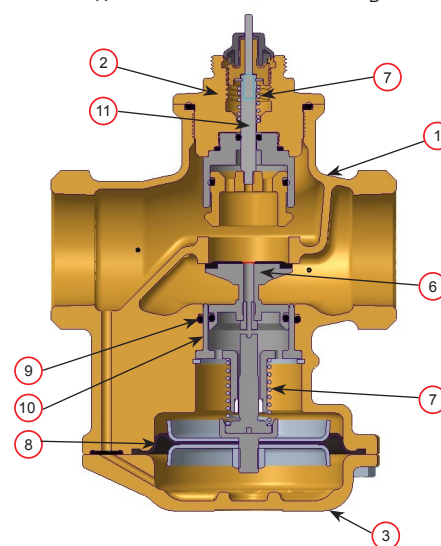
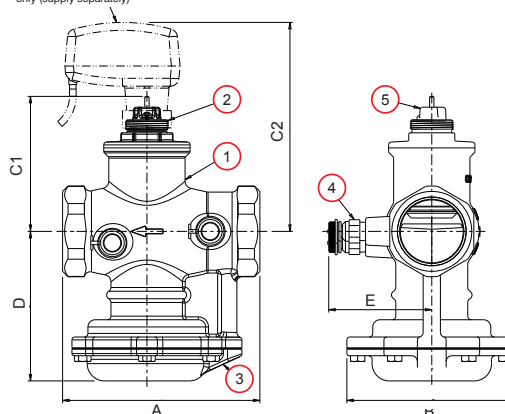
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SPARES: Isolating cap part number 0ED13666H

bmsstore

Dimensional Drawing

Actuator shown for reference only (supply separately)



Pressure/Temperature Ratings

Temperature (°C)	0°C to 90°C
Pressure (Bar)	16



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DPIC992F DN50-DN150

Pressure Independent Control Valves

PN16

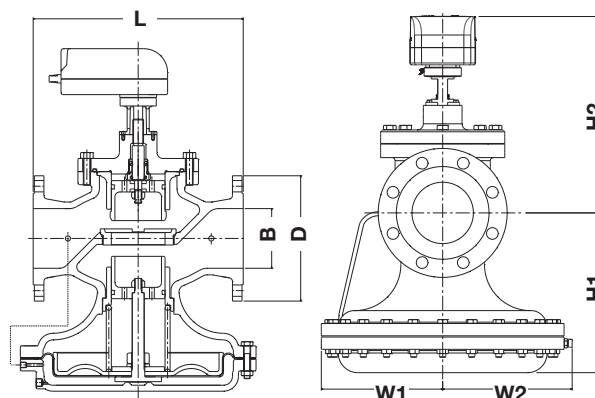
Features & Benefits

- Optimal control creates energy savings when used as part of a variable flow system.
- Easy to install in limited and difficult site conditions, for use with large plant items such as air Handling Units (AHU)
- Built-in differential pressure controller ensures accurate system design flow rates are achieved and eliminates overflows caused by fluctuating system pressures, which in turn reduces the system running costs.
- No balancing method needed for commissioning, saving time on site
- Linear or equal percentage characteristics, settable with an actuator, contribute to precise environmental temperature control
- Constant, high valve authority for maximum efficiency, available in sizes: DN50 to DN150


banstore

Materials

No.	Part	Material	Specification
1	Body	Ductile Iron	EN-GJS-450-10 (GCD450)
2	Bonnet	Ductile Iron	EN-GJS-450-10 (GCD450)
3	Bottom Cover	Ductile Iron	EN-GJS-450-10 (GCD450)
4	O-Rings	EPDM	-
Flow Controller			
5	Seat	Bronze	BS EN 1982: CC491K
6	Plug	Bronze	BS EN 1982: CC491K
7	Stem	Stainless Steel	304S15 / 1.4301
8	Bearing Sleeve	Nylon	PA66
9	Guide Bush	Stainless Steel	304S15 / 1.4301
Pressure Controller			
11	Plug / Stem / Guide	Nylon	PA66
12	Diaphragm	EPDM	-
13	Diaphragm Plate	Stainless Steel	304S15 / 1.4301
14	Springs	Spring Steel	-



Note: This Valve is designed to function only with the actuator fitted and cannot be used as a Constant Flow Regulator i.e. without the actuator fitted.

All dimensions are nominal.

Dimensions & Weights

Size (DN)	L (mm)	W1 (mm)	W2 (mm)	H1 (mm)	H2 (mm)	D (mm)	B (mm)	Weight (kg)	Max Flow Rate (m ³ /hr)
DN50	254	139	154	101	291	165	50	33	20
DN65	272	139	154	185	300	185	65	40	30
DN80	272	139	154	185	300	200	65	43	30
DN100	352	139	212	260	320	220	100	74	55
DN125	400	139	212	266	346	250	125	93	90
DN150	451	139	212	350	400	285	150	162	150

Pressure/Temperature Ratings

Temperature (°C)	5°C to 120°C
Pressure (Bar)	16
Operating Pressure Range Across Valve (kPa)	50-400 at 100% Flow 40-400 at 80% Flow 30-400 at 30% Flow

PRESSURE RATING: PN16

END CONNECTIONS: Flanges to BS EN 1092-2 PN16

OPERATOR: Actuator supplied and fitted. Can be configured to Modulating / 3 Point / On-Off
Linear and Equal Percentage control characteristic

IP RATING: IP54

FLOW ACCURACY: +/-10%

SEAT LEAKAGE: LINEAR: Class IV (0.01% of Max flow)
Equal %: 2% of Max Flow

Z9801P



Dominator Peak Pro with PICV & Strainer Drain

Z9801PF

Dominator Peak Pro with
PICV, Strainer Drain and FMD

PN16

Features & Benefits

- Compact, pre-fabricated unit – now available with Peak Pro PICV with a wide range of settable flows to suit all applications
- All valves are subject to both a pressure test, in accordance with BS EN 12266-1, as well as a flow limitation test, in accordance to BSRIA BTS1. This provides reassurance of performance and accuracy within each valve provides accurate flow rates & differential pressure control as well as flow measurement (Z9801PF), system flushing and isolation
- DZR H Body tested to 3.1X Design Working Pressure (DWP) during development for design robustness and tested to EN12516-2 to comply with the Pressure Equipment Directive (PED)
- Fully assembled & factory tested unit reduces installation time, costs and specification risks
- Available with and without extension stems to suit customer specification
- Available in 400kPa & 800kPa rated variants
- On-Off, modulating or feedback actuators are available separately to match specification



Materials

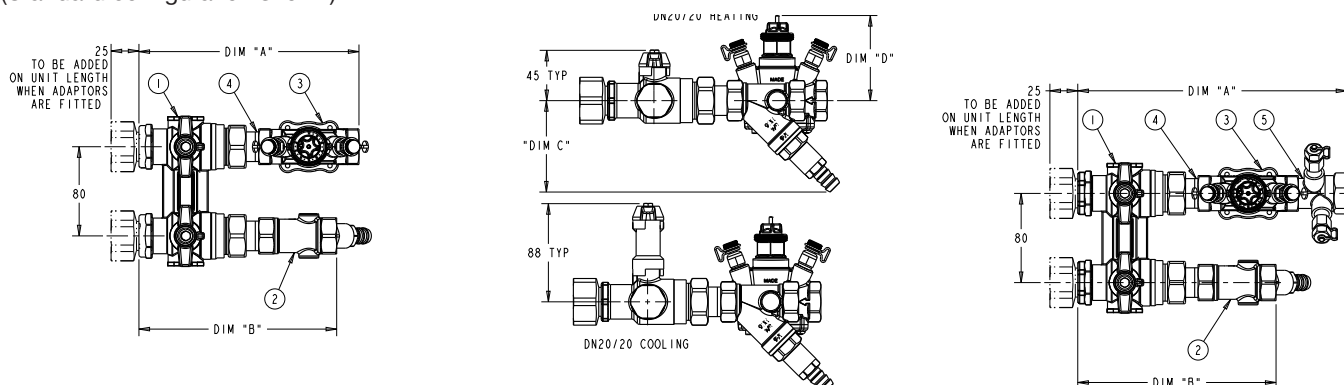
No.	Part	Material	Specification
1	Bypass H-Body	DZR Brass	BS EN 12165 (CW602N)
2	D299P Strainer Drain	DZR Brass	BS EN 12165 (CW602N)
3	D995 PICV	DZR Brass	BS EN 12165 (CW602N)
4	Tailpiece	DZR Brass	BS EN 12165 (CW602N)
5	D901/ D902 FMD	DZR Brass	BS EN 12165 (CW602N)

Dimensions & Weights

Size (DN)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)
Z9801P 15/15	160	148	76	67	2.15
Z9801P 20/15	184	173	76	67	2.54
Z9801P 20/20	197	178	82	77	2.91
Z9801P 25/20	197	178	82	77	2.91
Z9801P 25/25	248	224	89	77	4.22
Z9801PF 15/15	204	148	76	67	2.35
Z9801PF 20/15	229	173	76	67	2.75
Z9801PF 20/20	241	178	82	77	3.21
Z9801PF 25/20	261	198	82	77	3.51
Z9801PF 25/25	298	224	89	77	4.55

Dimensional Drawings

(Standard configuration shown)



PRESSURE RATING: PN16

TEMPERATURE RATING: -10 to 100°C

END CONNECTIONS:

Flushing By-pass body - BSP Taper,
Strainers & Tailpieces - BSP Taper

SPECIFICATION: DZR Brass (BS EN 12165) fan-coil valve/ terminal unit valve assembly. Preassembled to the requirements of each individual terminal unit to include a flushing by-pass with integral isolation valves, Peak Pro Pressure Independent Control Valve (PICV), with options for low flow to high flow, flow measurement device, strainer, drain and pressure test points as and where specified. Extended handles will be fitted for Chilled Water applications. On-Off or modulating actuator is required to control the PICV. Valve assembly will be labelled to include the terminal unit reference number and flow rate. Generally as Crane FS Z9801P & Z9801PF Dominator Peak Pro system with PICV.



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INSULATION JACKET FOR Z9801P & Z9801PF

DN15 to DN25

Features & Benefits

Compact insulation solution - resulting in high performance, energy saving valves.

- **Installation** - Easy to install & remove.
When servicing or inspection is required the Hook & Loop fastenings & pull string allow easy access or removal.
- **Sustainability** - Removable and reusable, the jackets are a fantastic way to help protect the environment.
Insulating the Dominator with a jacket instead of hard insulation prevents unnecessary waste being discarded once removed for servicing or inspection.
- **Footprint** - Designed to be compact with a small foot print.
Ensures storage and shipping emissions are reduced throughout the supply chain.
- **Energy Saving** - Saves money on energy bills.
Compared to hard insulation versions, the jacket significantly reduces the gaps around the valve, reducing heat loss & increasing system efficiency.
- **Safety** - Fire Safety rating BS EN13501-1 Class A1
We pride ourselves on providing the highest safety rating on the market.
- **Performance** - 72hr continuous ambient temperature testing.
Rigorous steam ambient testing to ensure the jacket gives you the highest performance.

Item	Material Properties
Insulating Material	• 25mm Thick Glass Wool • Fire Protection to BS EN13501-1 Class A1 • Thermal Conductivity (0.034 W/mK at 0°C to 0.042 W/mK at 50°C) BS EN12667
Covering	• 25mm Thick Glass Wool • Fire Protection to BS EN13501-1
Hook & Loop	• 100% Polyamide • Woven with cold cutting sewing edges • Temperature range -30°C to 140°C
Pull Cord	• Braided Spun Polyester Cord • Melting point 230°C

Weather Resistance

ISO Accreditations

ISO 20340:2009 – performance requirements for protective paint systems for offshore Structures for 4,200 hours in cycles of

- 72 hours accelerated UV weathering ISO 11507
- 72 hours neutral salt spray exposure ISO 9227
- 24hrs steady state low- temperature testing at -20°C



Insulation hoses are offered as a separate item and are not covered in this data sheet.

Care instructions:

When installing insulation jackets sometimes they can become dirty, sticky, or dusty.

✓	• Wash with mild soap or detergent mixed with warm water. • Rinse with clean water adequately. • Wipe the surface completely clean with dry cloth or dry towel.
✗	• Do not leave any water stains or markings on the surface of the jacket. • Do not use abrasive cleaners that will scratch the surface.* • Do not use Steel Wool / Steel Brushes. • Do not drag rough items across the surface. • Do not use Bleach or other cleaners that contain chlorine.

*scratches are not visible depending on what has scratched it.

Part Numbers

Insulation Jacket for Z9801P Dominator without FMD	
Size	Part Number
DN15	0JG93322D
DN20	0JG93323E
DN25	0JG93324F

Insulation Jacket for Z9801PF Dominator with FMD	
Size	Part Number
DN15	0JG93458U
DN20	0JG93459V
DN25	0JG93460N

300MM INSULATED BRAIDED HOSES

DN15 to DN25

Features & Benefits

- Flexible design of the hose enables the connection between the fan coil unit and the pump with using no additional fitting requirement (elbows etc.), reducing the time spent on assemblies and overall cost.
- Insulated hoses prevent sweating which may exist in heating and cooling systems.
- Braided hoses reduce noise and vibration.
- Special welding process prevents potential corrosion caused by moisture around the connection points.
- Available in male x male and male x female configurations.
- Hose Length: 300mm
- Temperature Range: -270/600°C
- Insulation Thickness: 9mm
- Tube Material: Stainless Steel AISI 304
- Hose Material: EDPM
- Connections: Carbon Steel/Stainless Steel



PN16 Rated

Part Number	Description	Hose I/D	Threaded Connection I/D	Connections
0JG93462Q	DN15x15 MxM	15mm	15mm	1/2" BSP male x 1/2" BSP male
0JG93463R	DN20x20 MxM	19mm	19mm	3/4" BSP male x 3/4" BSP male
0JG93464S	DN25x25 MxM	25mm	25mm	1" BSP male x 1" BSP male
0JG93465T	DN15x15 MxF	15mm	15mm	1/2" BSP male x 1/2" BSP female
0JG93466U	DN20x20 MxF	19mm	19mm	3/4" BSP male x 3/4" BSP female
0JG93467V	DN25x25 MxF	25mm	25mm	1" BSP male x 1" BSP female



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ACTUATOR OPTIONS

Electro-Mechanical Actuators – Modulating

Forced convection (active) terminal units, i.e. FCU (Fan Coil Units) and active Chilled Beams are designed to be very responsive to changes in room temperature. Modulating actuators enable flow rate changes, and consequently heat output changes, to quickly match demand requirements, therefore, modulating actuators should be chosen for forced convection terminal units. Modulating actuators allow all intermediate flow rates between full flow and no flow.



Feedback

ACTD995FB is a Feedback actuator allowing modulating control with 0-10V positional feedback signal function.

The feedback signal can be used by an external monitoring system to compare with control signal in order to check for ensure system is functioning correctly.

Fail Safe

ACTD995FS is a Fail Safe actuator designed to protect the equipment and the system from damage, while enhancing overall efficiency.

In the event of a disruption to the power supply the actuator will drive either open or closed, powered by an internal super capacitor.

The failsafe actuator can be fully configured using the user-friendly configuration tool (available separately).

Failsafe models include 0-10V positional feedback signal function.

Application	Fig No.	Part No	Function	Voltage	Cable Length	IP Rating	PICV SIZE
FAN COIL UNIT & ACTIVE CHILLED BEAMS	ACT991M	0EA08739E	MODULATING GAP DETECTION	24VAC/DC (0-10V CONTROL SIGNAL)	1.5m	IP54	DN15-50
	ACTD995FB	0JG93140Y	FEEDBACK MODULATING GAP DETECTION				
	ACTD995FS	0JG93442L (OPEN)	FAIL SAFE MODULATING GAP DETECTION (OPEN/ CLOSED)				
		0JG93443M (CLOSED)					
FAN COIL UNIT	ACT991TP	0EA08740W (24V)	3 POINT FLOATING	24VAC/DC or 230V	0.65m	IP44	DN15-25
		0JG92774A (230V)					
PASSIVE CHILLED BEAMS	ACT991TH	0JG93474U (24V)	THERMAL ON/OFF (NORMALLY CLOSED)				
		0JG93475V (230V)					

ACTUATORS

ACT991M / ACTD995FB / ACTD995FS / ACT991TP / ACT991TH

Features & Benefits

- **ACT991M** is a modulating actuator providing proportional (equal percentage) control. This now includes a stem gap detection innovation, which reduces onsite adjustments and results in easier installation and commissioning. The gap detection feature matches the stroke length of the valve during calibration, ensuring the actuator conversion to equal percentage is accurate and gives the desired flow control across all valve settings for the operating differential pressure range.
- **ACTD995FB** is a Feedback actuator allowing proportional control with 0-10V with position feedback signal function.
- **ACTD995FS** is a Fail Safe actuator designed to protect the equipment and the system from damage, while enhancing overall efficiency
- **ACT991TP** is a 3-point actuator (or floating point) electromechanical actuator for use where thermal actuators are not suitable.
- **ACT991TH** is a thermal actuator designed for ON/OFF control. Thermal actuators are small, light, and therefore a good choice for confined spaces.
- All feature an LED for the indication of the operating status*.

* Excludes ACT991TH

Materials

	Material
Cover	Thermoplastic
Yoke	PA66 - Glass Mineral filled
Thread Nut	Brass CuZn40Pb2 Thermoplastic - ACT991TH Only

Dimensions & Weights

Fig No.	Cable Length	A (mm)	B (mm)	C (mm)	Weight (kg)
ACT991M	1.5m	79.5	80	49	0.2
ACTD995FB					
ACTD995FS					
ACT991TP					
ACT991TH	0.65m	70	46	38.5	0.1

Technical Specification

Actuator Type	Power Supply	Control Signal	Configurations	Control Type	Nominal Force	Stroke Length	Running Time	Protection Class	Connections	Calibration
ACT991M	24VAC/DC	0 - 10V DC 0 - 5V DC 2 - 10V DC 4 - 20mA	Direct acting	Proportional	140N	6.3mm max	8 sec/mm	IP54	M30 x 1.5	Self Calibrating
ACTD995FB			Direct acting		160N					
ACTD995FS			Reverse acting		160N		13 sec			
ACT991TP	24VAC/DC (230V Available)	N/A	N/A	Raise / Lower	140N	4mm max (nominal)	5 min	IP44		
ACT991TH				ON/OFF	170N					

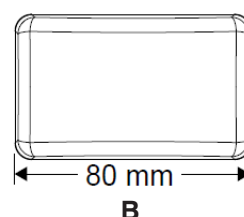
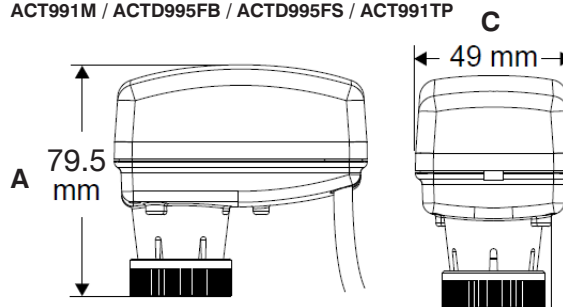
ACT991M / ACTD995FB /
ACTD995FS / ACT991TP

ACT991TH

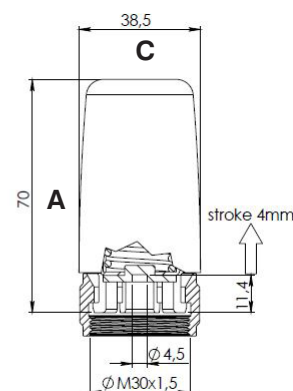
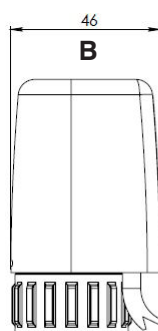


Dimensional Drawing

ACT991M / ACTD995FB / ACTD995FS / ACT991TP



ACT991TH



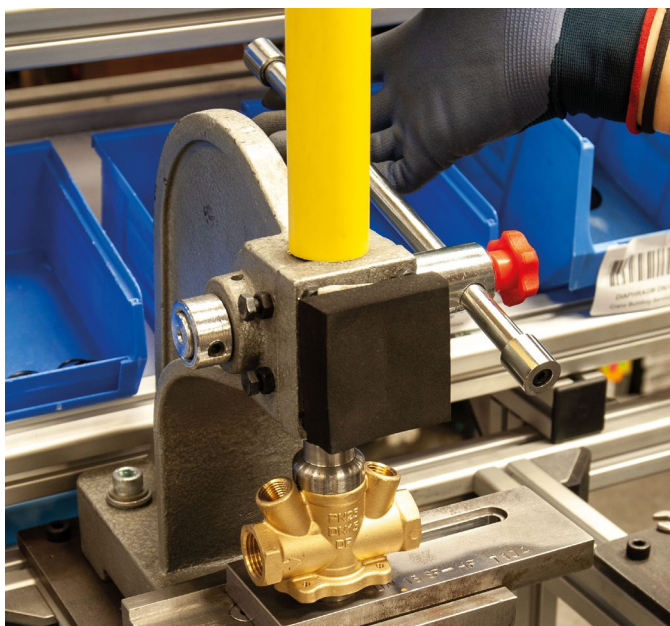
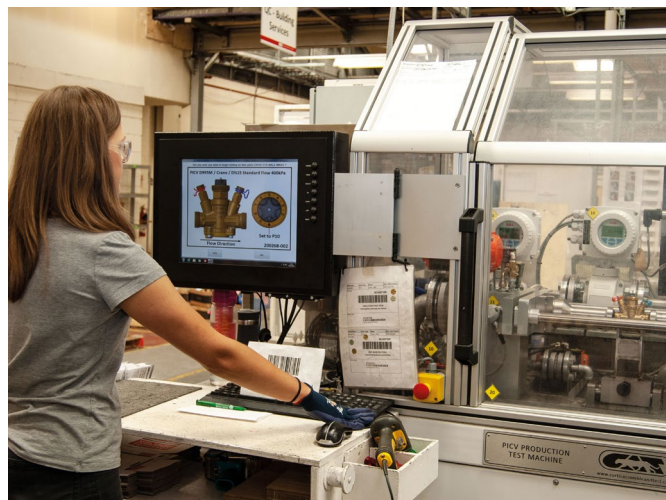
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UK DESIGN & MANUFACTURE



Crane Fluid Systems has a long history and rich pedigree – its origins dated back to the turn of the century when James E. Bennett established a coppersmith business in London. Today the portfolio of products and solutions has grown considerably and Crane FS is now a leading manufacturer of HVAC valves.

The new Peak Pro PICV range is made in Great Britain – designed and developed in Ipswich and manufactured in dedicated facilities in Hitchin using high-quality precision-made DZR components.



5 Step Process to Ensure Top Quality

The new Peak Pro undergoes a 5 key step process for the manufacturing build and each valve is tested in accordance with BSRIA BTS01 guidance.

1. Assembly of shell & bonnet
2. Assembly of diaphragm
3. Assembly of top valve works
4. Furness Controls Pressure Test
5. Curtis Assemble and Test

In step 4, the Furness Controls Pressure Test is looking for any leakages utilizing a pneumatic pressure decay system. All the valves are individually pressure tested to BS EN 12266-1.

Finally, in step 5, the PICV must undergo flow testing on a specially designed Curtis assembly & test performance rig. In the case of the Peak Pro PICV DN15 standard model, there are 14 key criteria in total which must all be passed. These tests cover verification of flow performance across differential pressure range and hysteresis check.





Practical Training

At Crane Fluid Systems we offer fantastic practical training in the form of a live demonstration rig. These training programmes are run by our Technical Sales Manager. Often run alongside our CPD training programme these sessions are a great way for us to offer hands-on training.

- Accredited by CIBSE
- Available at customer's premises or hosted at Crane facilities
- Training day available with chosen CPD, demonstration rig and factory tour

At Crane FS we are pleased to offer an opportunity to visit our manufacturing site, based in Hitchin, Herefordshire, to view first-hand how these valves are manufactured and tested in accordance to the latest standards and professional body guidelines (e.g. BSI, BSRIA, CIBSE etc.).

A day can be organised to the customers' bespoke requirements, combining your chosen CPD session with practical experience using the training rig and a factory tour.

PROPORTIONAL BALANCING	VARIABLE VOLUME SYSTEM – UTILISING DPCVS	VARIABLE VOLUME SYSTEM – UTILISING PICVS	VARIABLE VOLUME SYSTEM UTILISING DPCVS AND PICVS (OPTION 2 AND 3 COMBINED)	SAFETY VALVES
To give an overview of Proportional Balancing within the commission process. This process applies to both constant & variable flow heating and chilled water systems.	To give an overview of Variable Volume systems within the scope of Differential Pressure Control Valves. Covers History, Application, Selection and Commissioning.	To give an overview of Variable Volume Systems within the scope of Pressure Independent Control Valves. Covers History, Application, Selection and Commissioning.	A combination of the DPCV and PICV modules.	Overview of history of NABIC Safety Valves with information on application and selections.
CIBSE Accredited (1 Hour)	CIBSE Accredited (1.5 Hours)	CIBSE Accredited (1.5 Hours)	CIBSE Accredited (2.5 Hours)	CIBSE Accredited (1.5 Hours)



To visit our Video Library go to:
www.youtube.com/user/CraneBSU



FLUID SYSTEMS



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