

VZ*19*

VZ219E, VZ319E, VZ419E
VZ219C, VZ319C, VZ419C



SPECIFICATIONS

Design

PN16, Two-way, Three-way and Three-way with bypass (Linear operation)

Function Normally Closed (A-AB)
[Without actuator fitted]
Stroke 5.5 mm
Max fluid speed 3 m/s
(quiet operation 2m/s)
Max Glycol concentration 30%
Media Temperature. 2°C to 95°C
Rangeability 50:1
Leakage 0%, Tight close off (A-AB & B-AB)

Flow Characteristic

Equal percentage (EQM). . . . on direct (A-AB) way
Linear. on by-pass (B-AB) way

Connection

VZ219E, VZ319E, VZ419E External thread to
ISO 228/1 (flat face seal)
VZ219C, VZ319C, VZ419C 15mm and 22mm
O/D tube compression

Materials

Valve body Brass (EN 12165 CW 617 N)
Stem Stainless steel (AISI 303)
Stem packing double EPDM O-ring
Plug material. PPS Glass Fiber Reinforced
Seat/cartridge material . PPS Glass Fiber Reinforced
Seat Sealing EPDM

It is the responsibility of the installer or product specifier to verify media compatibility of the valves construction materials with the supplier of water treatment/heat transfer solution.

Recommendations

It is recommended to fit a strainer upstream of the valve to increase reliability and to follow water treatment guidelines as detailed in VDI 2035.

Valves should be installed in the return pipe to reduce exposure to media temperature extremes.

Small linear Zone valves

These small linear zone valves are used for the fine control of hot or chilled water in terminal units such as fan coils, radiator heating; or for small re-heaters, re-coolers. The range consists of two-way, three-way and three-way with bypass.

The 5.5mm stroke length coupled with the high resolution MZ20 electro-mechanical actuator provides good hydronic control.

The valves utilise a double O-ring design on the plug to ensure a leak tight seal on both valve ports, this ensures no loss of energy leakage through the valve.

An adjustment cap for manually operating the valves, e.g. for priming the system upon installation, is provided with all models.

Suitable Actuators

All VZ*19* valves are designed to be used with the MZ20 family of electro-mechanical actuators, these actuators are available in 3 point floating and modulating control. Modulating control types have 7 different command signals including 0-10V and 4-20mA.

MZ20B, 24V and 230V, 3 Point floating control (data sheet 03-00085)
MZ20A, 24V, 0-10V modulating control (data sheet 03-00086)

Compression Ended Valves (VZ*19C)

VZ219C, VZ319C and VZ419C are integral compression ended valves. Single pack ordering of these valve types are delivered with the nuts and olives and manual adjustment caps. For economic ordering on large projects, multipacks of 5 pcs are also available. Multipack versions do not include the Compression nuts, olives or manual adjustment caps. Multipacks are not stocked so should be pre-ordered on projects.

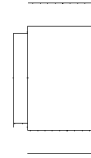
Spare nuts, olives and adjustment caps are available as accessories in multipack bags of 10 pcs

Externally threaded Valves (VZ*19E)

VZ219E, VZ319E and VZ419E are BSP male threaded valves with flat face seals, a range of connection sets are available to mate onto pipe.

Multipacks are not available on the externally threaded VZ*19E valves

PART NUMBER ORDERING - EXTERNALLY THREADED VALVES



Two-way valves, VZ219E

Size	Connection	Kvs		External threads, Flat face sealing		Max. Close-off MZ20 actuator
		A-AB		Part Number	Type Designation	
DN 15	G1/2A	0.25		VZ219E-15BP01	VZ219E-15BP 0.25E SU 00	350 kPa
		0.4		VZ219E-15BP02	VZ219E-15BP 0.4E SU 00	
		0.6		VZ219E-15BP03	VZ219E-15BP 0.6E SU 00	
		1		VZ219E-15BP04	VZ219E-15BP 1.0E SU 00	
		1.6		VZ219E-15BP05	VZ219E-15BP 1.6E SU 00	
		2		VZ219E-15BP06	VZ219E-15BP 2.0E SU 00	
DN20	G3/4A	2.5		VZ219E-20BP07	VZ219E-20BP 2.5E SU 00	250 kPa
		4		VZ219E-20BP08	VZ219E-20BP 4.0E SU 00	
		6		VZ219E-20BP09	VZ219E-20BP 6.0E SU 00	

Three-way valves, VZ319E

Size	Connection	Kvs		External threads, Flat face sealing		Max. Close-off MZ20 actuator
		A-AB	B-AB	Part Number	Type Designation	
DN 15	G1/2A	0.25	0.25	VZ319E-15BP01	VZ319E-15BP 0.25E SU 00	350 kPa
		0.4	0.25	VZ319E-15BP02	VZ319E-15BP 0.4E SU 00	
		0.6	0.4	VZ319E-15BP03	VZ319E-15BP 0.6E SU 00	
		1	0.6	VZ319E-15BP04	VZ319E-15BP 1.0E SU 00	
		1.6	1	VZ319E-15BP05	VZ319E-15BP 1.6E SU 00	
		2	1.6	VZ319E-15BP06	VZ319E-15BP 2.0E SU 00	
DN20	G3/4A	2.5	1.6	VZ319E-20BP07	VZ319E-20BP 2.5E SU 00	250 kPa
		4	2.5	VZ319E-20BP08	VZ319E-20BP 4.0E SU 00	
		6	4	VZ319E-20BP09	VZ319E-20BP 6.0E SU 00	

Three-way valves with integral by-pass (4 ports), VZ419E

Size	Connection	Kvs		External threads, Flat face sealing		Max. Close-off MZ20 actuator
		A-AB	B-AB	Part Number	Type Designation	
DN 15	G1/2A	0.25	0.25	VZ419E-15BP01	VZ419E-15BP 0.25E SU 00	350 kPa
		0.4	0.25	VZ419E-15BP02	VZ419E-15BP 0.4E SU 00	
		0.6	0.4	VZ419E-15BP03	VZ419E-15BP 0.6E SU 00	
		1	0.6	VZ419E-15BP04	VZ419E-15BP 1.0E SU 00	
		1.6	1	VZ419E-15BP05	VZ419E-15BP 1.6E SU 00	
		2	1.6	VZ419E-15BP06	VZ419E-15BP 2.0E SU 00	
DN20	G3/4A	2.5	1.6	VZ419E-20BP07	VZ419E-20BP 2.5E SU 00	250 kPa
		4	2.5	VZ419E-20BP08	VZ419E-20BP 4.0E SU 00	
		6	4	VZ419E-20BP09	VZ419E-20BP 6.0E SU 00	

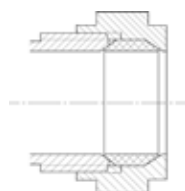
Close-off = Max differential pressure allowed across the valve seat for reliable operation.

Connections Sets for VZ*19E valves

Drawing	Connection type	P i p e Size	DN	a	b	Part number	Pack quantity
	VZ*19E to solder (1)	12 mm	15 (1/2")	G1/2	12 mm	911-2076-000	1
		15 mm	20 (3/4")	G3/4	15 mm	911-2077-000	
	VZ*19E to External Thread	R 3/8"	15 (1/2")	G1/2	R 3/8	911-2078-010	10
		R 1/2"	20 (3/4")	G3/4	R 1/2	911-2079-010	
	VZ*19E to compression	15 mm	15 (1/2")	G1/2	15 mm	911-2080-000	1
		22 mm	20 (3/4")	G3/4	22 mm	911-2081-000	

¹WARNING. The valve must not be over heated: solder the pipes to the connection bush before connecting the valve - ²Olive and nut included For valves VZ219E two connection sets are required, for valves VZ319E three and for valves VZ419E four connection sets. Each set consists of a union nut, a solder bush (soldering) or tailpiece (external thread), and a gasket.

PART NUMBER ORDERING - Compression Valves



Two-way valves VZ219C

Size	End Connection	Kvs			Single Pack - with nuts olives and adj. Caps		5 Multipacks - no nuts olives and adj. Caps		Max. Close-off
		A-AB	B-AB	Part Number	Type Designation	Part number	Type Designation		
DN 15	15 mm O/D	0.25		VZ219C-15BP01	VZ219C-15BP 0.25E SU 00	VZ219C-15BP51	VZ219C-15BP 0.25E SU M5	350 kPa	
		0.4		VZ219C-15BP02	VZ219C-15BP 0.4E SU 00	VZ219C-15BP52	VZ219C-15BP 0.4E SU M5		
		0.6		VZ219C-15BP03	VZ219C-15BP 0.6E SU 00	VZ219C-15BP53	VZ219C-15BP 0.6E SU M5		
		1		VZ219C-15BP04	VZ219C-15BP 1.0E SU 00	VZ219C-15BP54	VZ219C-15BP 1.0E SU M5		
		1.6		VZ219C-15BP05	VZ219C-15BP 1.6E SU 00	VZ219C-15BP55	VZ219C-15BP 1.6E SU M5		
		2		VZ219C-15BP06	VZ219C-15BP 2.0E SU 00	VZ219C-15BP56	VZ219C-15BP 2.0E SU M5	250 kPa	
DN20	22 mm O/D	2.5		VZ219C-20BP07	VZ219C-20BP 2.5E SU 00	VZ219C-20BP57	VZ219C-20BP 2.5E SU M5		

Three-way valves, VZ319C

Size	End Connection	Kvs		Single Pack - with nuts olives and adj. Caps		5 Multipacks - no nuts olives and adj. Caps		Max. Close-off
		A-AB	B-AB	Part Number	Type Designation	Part number	Type Designation	
DN 15	15 mm O/D	0.25	0.25	VZ319C-15BP01	VZ319C-15BP 0.25E SU 00	VZ319C-15BP51	VZ319C-15BP 0.25E SU M5	350 kPa
		0.4	0.25	VZ319C-15BP02	VZ319C-15BP 0.4E SU 00	VZ319C-15BP52	VZ319C-15BP 0.4E SU M5	
		0.6	0.4	VZ319C-15BP03	VZ319C-15BP 0.6E SU 00	VZ319C-15BP53	VZ319C-15BP 0.6E SU M5	
		1	0.6	VZ319C-15BP04	VZ319C-15BP 1.0E SU 00	VZ319C-15BP54	VZ319C-15BP 1.0E SU M5	
		1.6	1	VZ319C-15BP05	VZ319C-15BP 1.6E SU 00	VZ319C-15BP55	VZ319C-15BP 1.6E SU M5	
		2	1.6	VZ319C-15BP06	VZ319C-15BP 2.0E SU 00	VZ319C-15BP56	VZ319C-15BP 2.0E SU M5	250 kPa
DN20	22 mm O/D	2.5	1.6	VZ319C-20BP07	VZ319C-20BP 2.5E SU 00	VZ319C-20BP57	VZ319C-20BP 2.5E SU M5	

Three-way valves with integral by-pass (4 ports), VZ419C

Size	End Connection	Kvs		Single Pack - with nuts olives and adj. Caps		5 Multipacks - no nuts olives and adj. Caps		Max. Close-off
		A-AB	B-AB	Part Number	Type Designation	Part Number	Type Designation	
DN 15	15 mm O/D	0.25	0.25	VZ419C-15BP01	VZ419C-15BP 0.25E SU 00	VZ419C-15BP51	VZ419C-15BP 0.25E SU M5	350 kPa
		0.4	0.25	VZ419C-15BP02	VZ419C-15BP 0.4E SU 00	VZ419C-15BP52	VZ419C-15BP 0.4E SU M5	
		0.6	0.4	VZ419C-15BP03	VZ419C-15BP 0.6E SU 00	VZ419C-15BP53	VZ419C-15BP 0.6E SU M5	
		1	0.6	VZ419C-15BP04	VZ419C-15BP 1.0E SU 00	VZ419C-15BP54	VZ419C-15BP 1.0E SU M5	
		1.6	1	VZ419C-15BP05	VZ419C-15BP 1.6E SU 00	VZ419C-15BP55	VZ419C-15BP 1.6E SU M5	
		2	1.6	VZ419C-15BP06	VZ419C-15BP 2.0E SU 00	VZ419C-15BP56	VZ419C-15BP 2.0E SUM5	250 kPa
DN20	22 mm O/D	2.5	1.6	VZ419C-20BP07	VZ419C-20BP 2.5E SU 00	VZ419C-20BP57	VZ419C-20BP 2.5E SU M5	

Close-off = Max differential pressure allowed across the valve seat for reliable operation.

Connections Sets for VZ*19C valves

Drawing	Connection type	Pipe Size	DN	a	b	Part number	Pack quantity
	Compression nut and olive	15 mm	15 (1/2")	G1/2	1 5 mm	911-2082-000	10
		22 mm	20 (3/4")	Withworth 1 1/8" - 14	2 2 mm	911-2083-000	

Ordering: Adjustment Caps, M30 x 1.5, 10pc multi-pack, code No.: 911-4000-000.

FUNCTION

The main spring on the valve, provides a tight close-off against the pressure values given in the ordering table. The valve with no actuator force applied is in a closed state.

An O-ring between seat and plug ensures zero leakage on both direct and angle way designs.

The valve assembly with MZ20 actuators is easily made thanks to its threaded ring nut, which allows a comfortable cable positioning (See MZ20 data sheets, 03-00085 / 03-00086).

MOUNTING AND TYPICAL OPERATION

When installing the valve, care must be taken to ensure the valve is mounted with the flow direction in accordance to the flow arrows on the valve body. Always mount the valve on the return of the heat exchanger.

The valve must not be mounted with the stem pointing downwards and the actuator thus upside down.

The adjustment cap should be removed from the valve only when the actuator is fitted. The adjustment cap can be screwed down to prime and fill the system.

The valve should be mounted with minimum stress onto the connecting pipe work. Mounting the valve connectors should not exceed a tightening torque of 25 to 30 Nm (18 to 22 lbf-ft).

Two-way valves, VZ219

Direction of flow always from port A to port B.

Three-way valves, VZ319

The valves should be installed as mixing valves, with ports connected as:

Port AB: Combined flow outlet

Port A: Controlled flow inlet

Port B: Bypass inlet

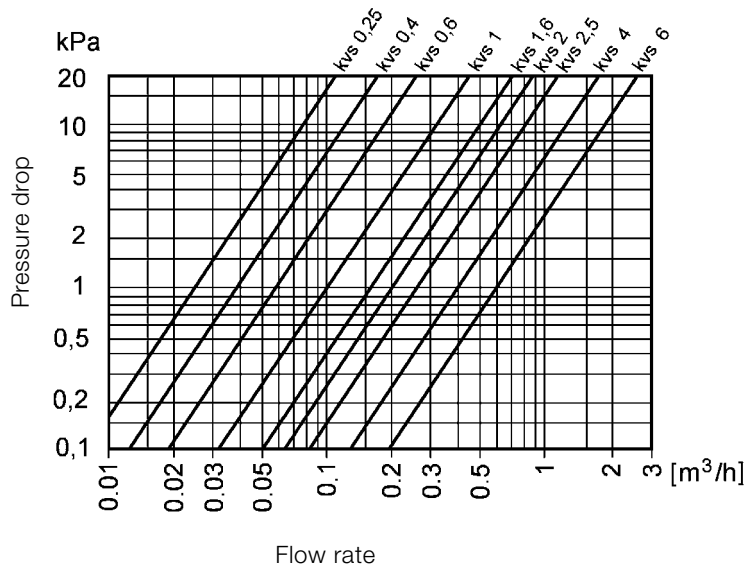
Valves should preferably be mounted in the return flow to reduce the media temperature exposed to the valve and actuator. If the Delta p values exceed 60 kPa (or 2m/s) attention should be paid to the development of noise and cavitations.

Three-way valves with integral bypass, VZ419

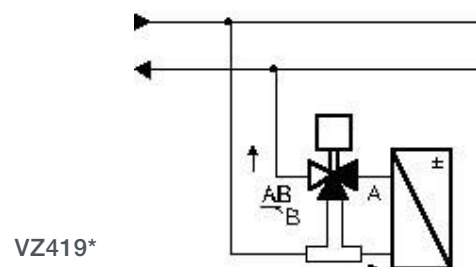
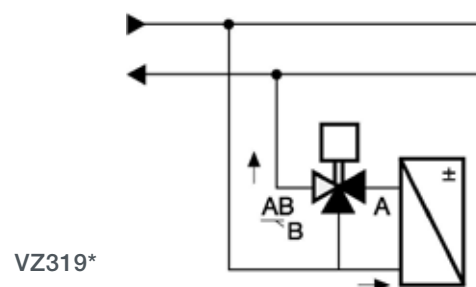
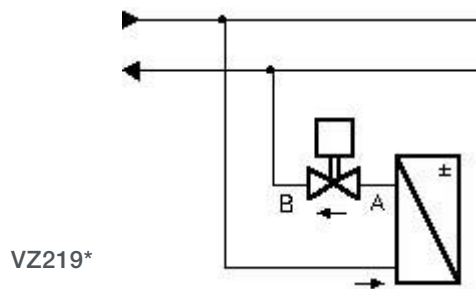
These Versions can simplify and reduce the installation time, since the bypass pipe is an integral part of the valve.

The port connections as for the 3 way valves also apply for these bypass types.

FLOW CAPACITY / PRESSURE DROP CHART

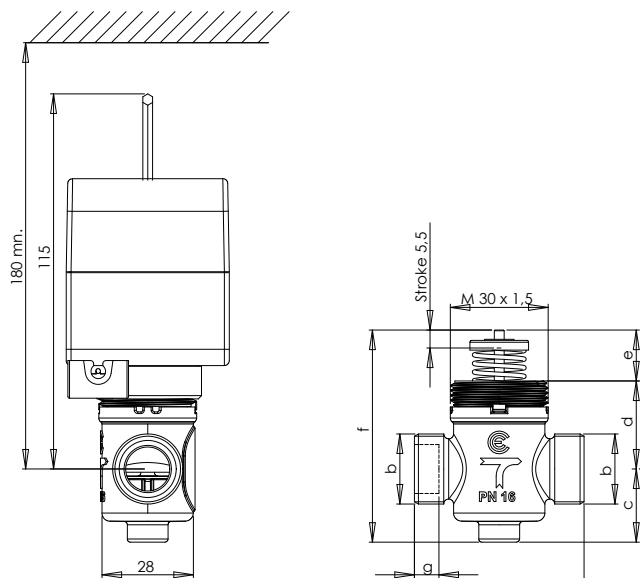


MOUNTING

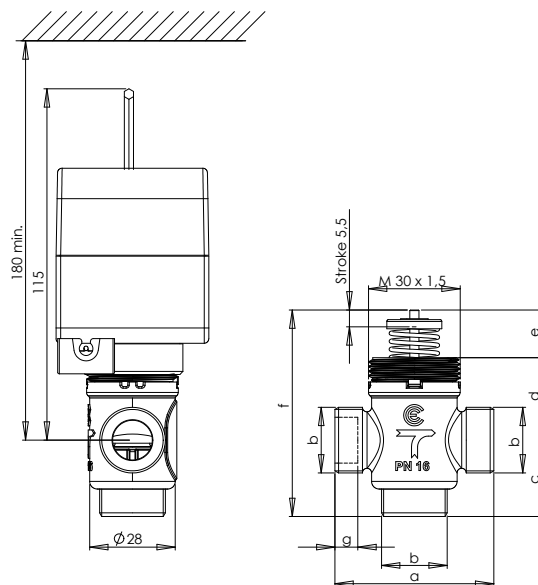


DIMENSIONS mm (in)

Two-way valve
VZ219*



Three-way valve
VZ319*

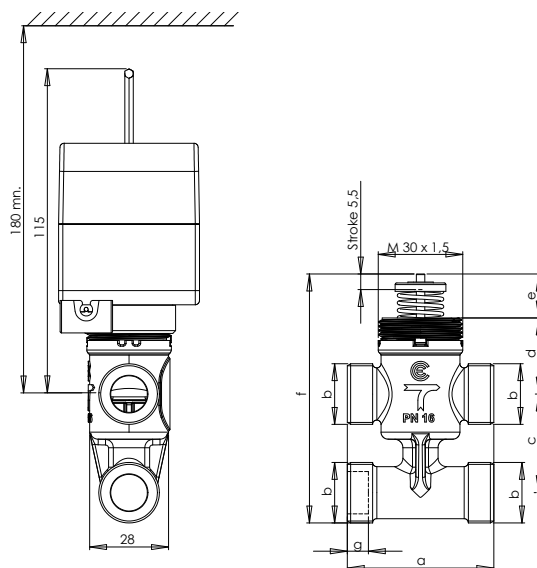


Valve	Actuator	a	b	c	d	e	f	g ³
VZ219*-15BP01 to 15BP06	MZ20	52	G1/2"A	22,5	27	15,6	65	7,5
VZ219*-20BP07		56	G3/4"A	23,6	25,8			9,5
VZ219*-20BP08 /20BP09		56	G3/4"A	23,6	25,8	11		

Valve	Actuator	a	b	c	d	e	f	g ³
VZ319*-15BP01 to -15BP06	MZ20	52	G1/2"A	25	27	15,6	67,6	7,5
VZ319*-20BP07		56	G3/4"A	34	25,8			9,5
VZ319*-20BP08/-20BP09		56	G3/4"A	34	25,8	11		

Three-way valve with integral by-pass (4 ports)

VZ419*



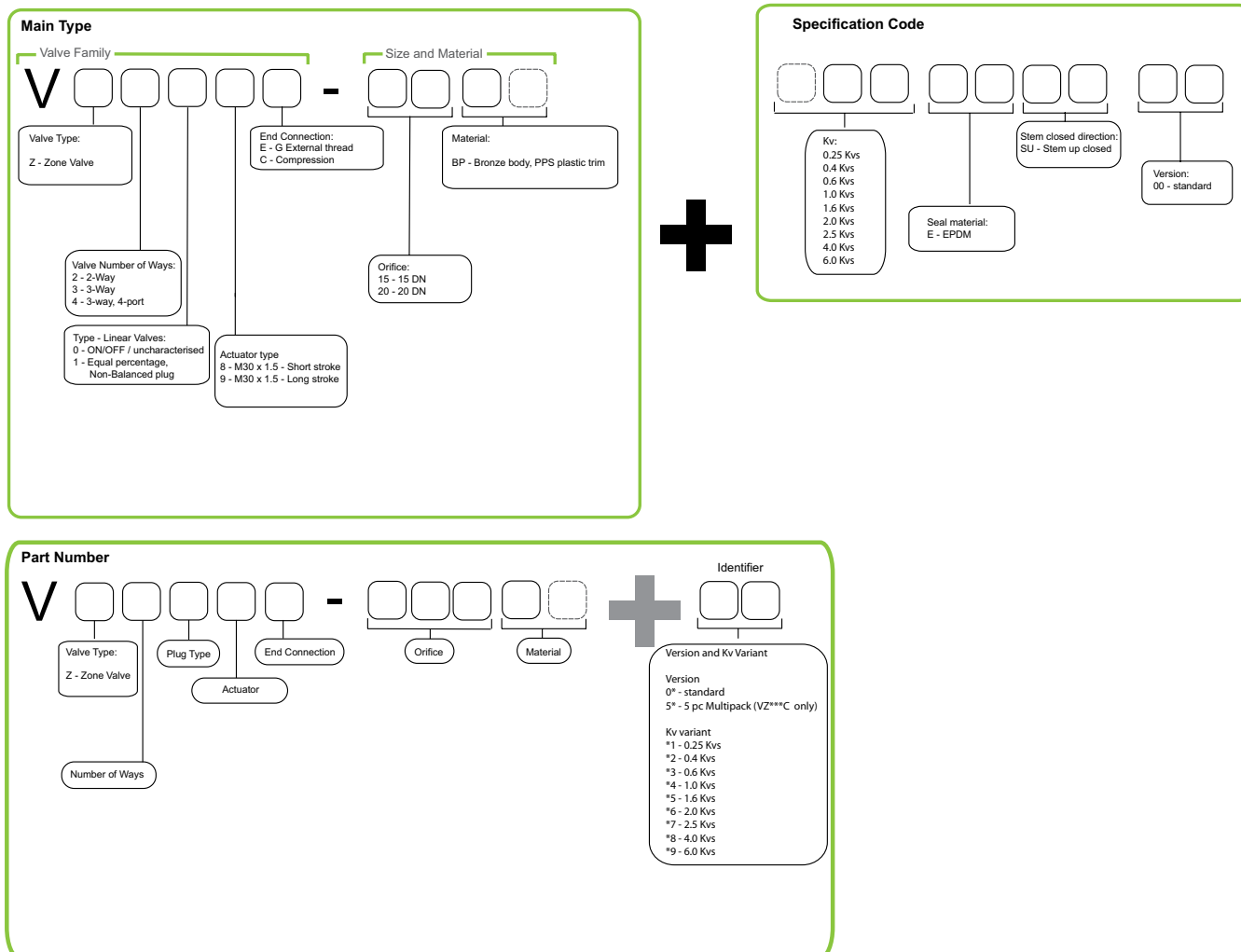
Valve	Actuator	a	b	c	d	e	f	g ³
VZ419*-15BP01 to 15BP06	MZ20	52	G1/2"A	40	27	15,6	88,4	7,5
VZ419*-20BP07		56	G3/4"A	50	25,8		98,4	9,5
VZ419*-20BP08 / 20BP09		56	G3/4"A	44	25,8	11		

NoteNotes for VZ*19C valves

The overall dimensions for V*19C models are without fittings mounted.

³g dimensions relevant only for compression models (VZ*19C).

TYPE DESIGNATION AND PART NUMBER CONSTRUCTION



On October 1st, 2009, TAC became the Buildings Business of its parent company Schneider Electric. This document reflects the visual identity of Schneider Electric, however there remains references to TAC as a corporate brand in the body copy. As each document is updated, the body copy will be changed to reflect appropriate corporate brand changes. All brand names, trademarks and registered trademarks are the property of their respective owners.

Schneider Electric Telephone Europe: Malmö, Sweden +46 40 38 68 50 Telephone Asia Pacific: Singapore +65 6776 3166 www.schneider-electric.com/buildings