

Safety relief valves for thermal, hydraulic and domestic water systems



01253/13 GB

311-312-313-314-513-514 series



General

The 311, 312, 313, 314, 513 and 514 series safety relief valves are made by Caleffi S.p.A. in compliance with the essential safety requirements laid down by Directive 97/23/CE of the European Parliament and the Council of the European Union for harmonisation of member States with regard to pressurised equipment.

Function

Safety relief valves are typically used for controlling pressure on generators in heating systems, in domestic hot water storage systems and in hydraulic systems. On reaching the setting pressure, the valve opens and, by discharging into the atmosphere, prevents the pressure in the system from reaching dangerous levels for the generator and for the components installed in the system.



Product range

311 series	Certified standard safety relief valve. F-F Connections.	_____	sizes 1/2", 3/4"
312 series	Certified standard safety relief valve. M-F Connections.	_____	size 1/2"
313 series	Certified standard safety relief valve with pressure gauge or pressure gauge connection. F-F connections.	_____	sizes 1/2", 3/4"
314 series	Certified standard safety relief valve with pressure gauge or pressure gauge connection. M-F connections.	_____	size 1/2"
513 series	Certified standard safety relief valve. F-F Connections.	_____	sizes 1/2"x1/2", 1"x1 1/4", 1 1/4"x1 1/2"
514 series	Certified standard safety relief valve. M-F Connections.	_____	size 1/2"

Technical specifications

Materials:

Body:	- 1/2"-3/4":	brass EN 12165 CW617N
	- 1"-1 1/4":	brass EN 1982 CB753S
Cover:		brass EN 12165 CW617N
		513-514 (1/2"); PA6G30
Control stem:		brass EN 12164 CW614N
Obturator seal:		EPDM
Membrane:		EPDM
Spring:		steel EN 12270-1
Control knob:	- 311-312-313-314-513 (1/2")-514:	ABS
	- 513 (1" and 1 1/4"):	PA6G20
Nominal pressure:		PN 10
Working temperature range:		5-110°C

Threaded connections:

- 311 series:	1/2"x1/2" - 3/4"x3/4" FxF
- 312 series:	1/2" Mx1/2" F
- 313 series:	1/2"x1/2" - 3/4"x3/4" FxF
- 314 series:	1/2" Mx1/2" F
- 513 series:	1/2"x1/2" - 1"x1 1/4" - 1 1/4"x1 1/2" FxF
- 514 series:	1/2" Mx1/2" F

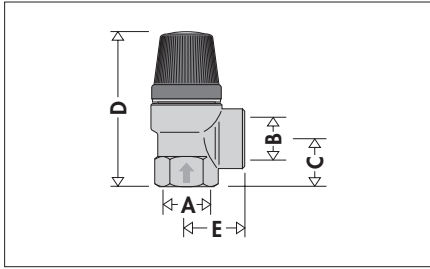
Performance:

Medium:	water, air
PED category:	IV
Opening overpressure:	20%
Closing differential:	20%

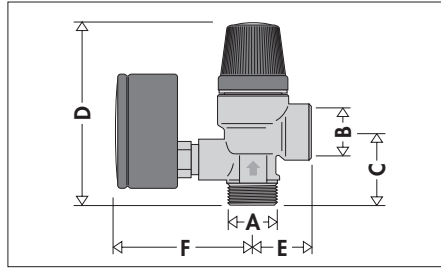
Settings:

311 series	2-2,5-3-3,5-4-5-6-7-8 bar (2 only 3/4")
312 series	2,5-3-3,5-4-5-6-7-8 bar
313 series with pressure gauge	2,5-3-6-7-8 bar
313 series with pressure gauge connection	3 bar
314 series with pressure gauge	2,5-3-6-7-8 bar
314 series with pressure gauge connection	3-6 bar
513 series 1/2"	1,5-2-2,5-3-3,5-6-7-8 bar
513 series 1"-1 1/4"	2,5-3-3,5-6-7-8 bar
	1,5-2-4 bar only 1"x1 1/4"
514 series	2-2,5-3-3,5-4-5-6-7-8 bar

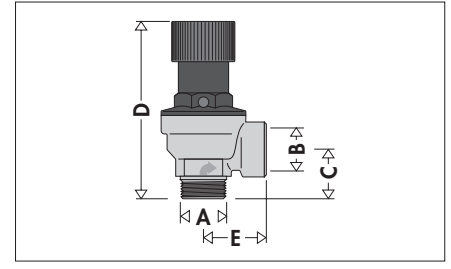
Dimensions



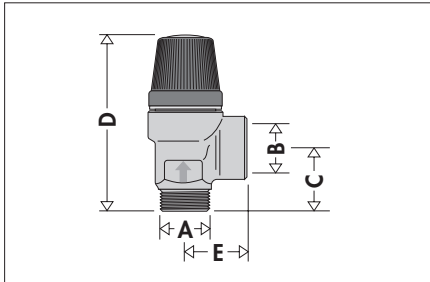
Code	A	B	C	D	E	Mass (kg)
3114..	1/2"	1/2"	19,5	65,5	25,5	0,13
3115..	3/4"	3/4"	24	74,5	27,5	0,21



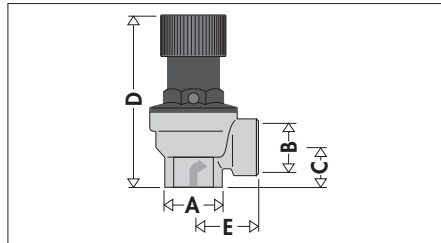
Code	A	B	C	D	E	F	Mass (kg)
3144..	1/2"	1/2"	32	78	25,5	61	0,24



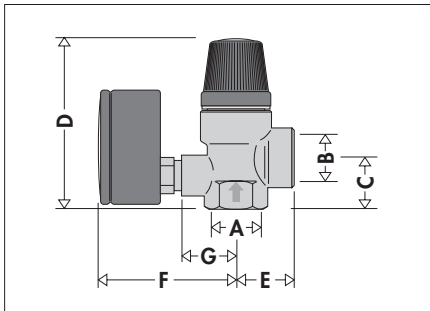
Code	A	B	C	D	E	Mass (kg)
5144..	1/2"	1/2"	23	81,5	29,5	0,18



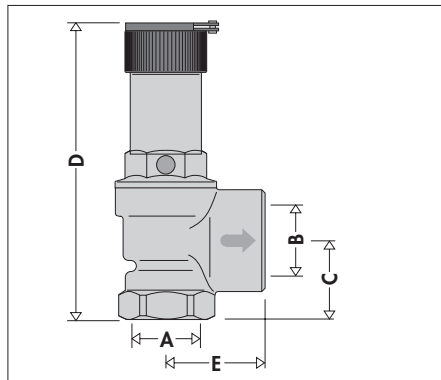
Code	A	B	C	D	E	Mass (kg)
3124..	1/2"	1/2"	23,5	69,5	25,5	0,13



Code	A	B	C	D	E	Mass (kg)
5134..	1/2"	1/2"	19	78,5	29,5	0,18



Code	A	B	C	D	E	F	G	Mass (kg)
3134..	1/2"	1/2"	21,5	72	25,5	61	24	0,24
3135..	3/4"	3/4"	24	74,5	27,5	61	24	0,29



Code	A	B	C	D	E	Mass (kg)
5136..	1"	1 1/4"	38	144	48	0,85
5137..	1 1/4"	1 1/2"	44	187	57,5	2,1

•• Code completion

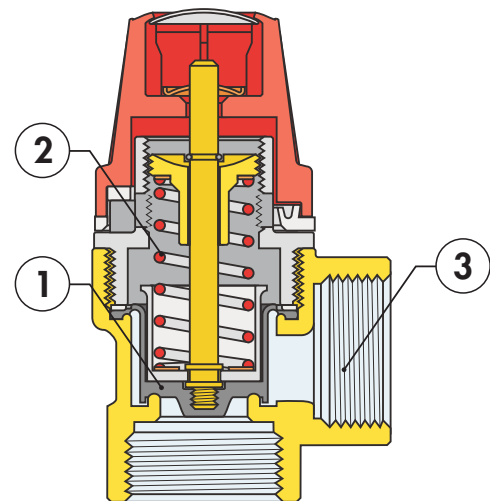
bar	••	bar	••	bar	••
1	10	2,7	27	5	50
1,5	15	3	30	5,4	54
2	20	3,5	35	6	60
2,25	22	4	40	7	70
2,5	25	4,5	45	8	80

Operating principle

The obturator (1), opposed by a set spring (2), rises on reaching the setting pressure and fully opens the outlet. The setting pressure is chosen according to the maximum permissible pressure in the system.

The diameter of the outlet connection (3) is the same or greater in order to help discharge the required potential.

As the pressure decreases there is the opposite action, with the valve subsequently reclosing within the set tolerances.

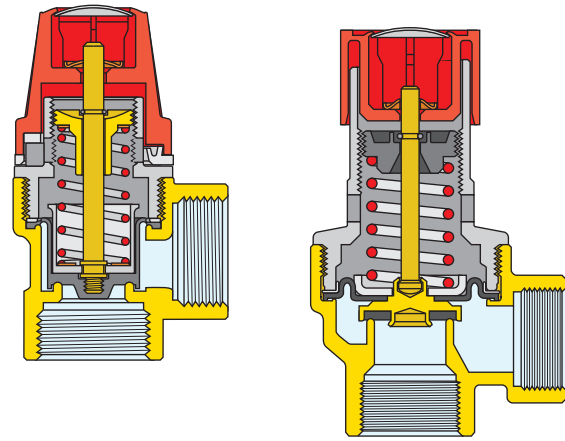


Standard safety relief valves

The standard safety relief valves 311, 312, 313, 314, 513 and 514 series are used in heating systems, in domestic water systems to protect the hot water storage and in hydraulic systems.

Heating systems

In compliance with Italian legislation, standard safety relief valves may be applied to heat generators with ratings lower than 35 kW.

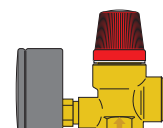


TECHNICAL DATA 311-312-313-314 SERIES

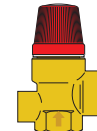
Size	Ø Outlet mm	Net area cm ²	Setting press. (bar)	Nom. disch. press. (bar)	Clos. press. (bar)	Outfl. coeff. K	Disch. flow rate (W) kg/h	Max. generator rating kW	kcal/h
1/2"	13	1,327	2,50	3,00	2,00	0,5	124,4	72,3	62.200
1/2"	13	1,327	3	3,60	2,40	0,5	142,17	82,5	71.000
1/2"	13	1,327	3,50	4,20	2,80	0,5	161,39	93,6	80.600
1/2"	13	1,327	4	4,80	3,20	0,5	178,25	103,3	89.000
1/2"	13	1,327	5	6	4	0,5	213,26	103,3	106.600
1/2"	13	1,327	6	7,20	4,80	0,5	248,81	144,6	124.400
1/2"	13	1,327	7	8,40	5,60	0,5	284,35	165,2	142.100
1/2"	13	1,327	8	9,60	6,40	0,5	322,78	187,5	161.300
3/4"	13	1,327	2	2,40	1,60	0,5	106,63	61,8	53.300
3/4"	13	1,327	2,50	3,00	2,00	0,5	124,4	72,3	62.200
3/4"	13	1,327	3	3,60	2,40	0,5	142,17	82,5	71.000
3/4"	13	1,327	3,50	4,20	2,80	0,5	161,39	93,6	80.600
3/4"	13	1,327	4	4,80	3,20	0,5	178,25	103,3	89.000
3/4"	13	1,327	5	6,00	4,00	0,5	213,26	123,6	106.600
3/4"	13	1,327	6	7,20	4,80	0,5	248,81	144,6	124.400
3/4"	13	1,327	7	8,40	5,60	0,5	284,35	165,2	142.100
3/4"	13	1,327	8	9,60	6,40	0,5	322,78	187,5	161.300



- 311425 1/2" 2,5 bar
- 311430 1/2" 3 bar
- 311435 1/2" 3,5 bar
- 311440 1/2" 4 bar
- 311450 1/2" 5 bar
- 311460 1/2" 6 bar
- 311470 1/2" 7 bar
- 311480 1/2" 8 bar
- 311520 3/4" 2 bar
- 311525 3/4" 2,5 bar
- 311530 3/4" 3 bar
- 311535 3/4" 3,5 bar
- 311540 3/4" 4 bar
- 311550 3/4" 5 bar
- 311560 3/4" 6 bar
- 311570 3/4" 7 bar
- 311580 3/4" 8 bar



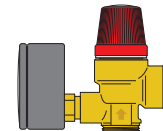
- 313425 1/2" 2,5 bar
- 313430 1/2" 3 bar
- 313460 1/2" 6 bar
- 313470 1/2" 7 bar
- 313480 1/2" 8 bar
- 313525 3/4" 2,5 bar
- 313530 3/4" 3 bar
- 313560 3/4" 6 bar
- 313570 3/4" 7 bar
- 313580 3/4" 8 bar



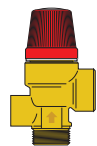
- 313432 1/2" 3 bar
- 313532 3/4" 3 bar



- 312425 1/2" 2,5 bar
- 312430 1/2" 3 bar
- 312435 1/2" 3,5 bar
- 312440 1/2" 4 bar
- 312450 1/2" 5 bar
- 312460 1/2" 6 bar
- 312470 1/2" 7 bar
- 312480 1/2" 8 bar



- 314425 1/2" 2,5 bar
- 314430 1/2" 3 bar
- 314460 1/2" 6 bar
- 314470 1/2" 7 bar
- 314480 1/2" 8 bar



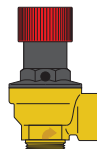
- 314432 1/2" 3 bar
- 314462 1/2" 6 bar

TECHNICAL DATA 513-514 SERIES

Size	Ø Outlet mm	Net area cm ²	Setting press. (bar)	Nom. disch. press. (bar)	Clos. press. (bar)	Outfl. coeff. K	Disch. rate (W) kg/h	Maximum generator rating kW	kcal/h
1/2"	15	1,767	1,50	1,80	1,20	0,5	117,80	68,3	58.900
1/2"	15	1,767	2	2,40	1,60	0,5	141,99	82,3	70.900
1/2"	15	1,767	2,50	3,00	2,00	0,5	165,65	96,2	82.800
1/2"	15	1,767	2,70	3,24	2,16	0,5	176,70	102,4	88.300
1/2"	15	1,767	3	3,60	2,40	0,5	189,32	110,0	94.600
1/2"	15	1,767	3,50	4,20	2,80	0,5	214,90	124,6	107.400
1/2"	15	1,767	4	4,80	3,20	0,5	237,35	137,6	118.600
1/2"	15	1,767	5	6	4	0,5	296,98	172,6	148.490
1/2"	15	1,767	6	7,20	4,80	0,5	331,31	192,5	165.600
1/2"	15	1,767	7	8,40	5,60	0,5	378,64	220,1	189.300
1/2"	15	1,767	8	9,60	6,40	0,5	429,81	249,8	214.900



- 513415 1/2" 1,5 bar
- 513420 1/2" 2 bar
- 513425 1/2" 2,5 bar
- 513430 1/2" 3 bar
- 513435 1/2" 3,5 bar
- 513460 1/2" 6 bar
- 513470 1/2" 7 bar
- 513480 1/2" 8 bar



- 514420 1/2" 2 bar
- 514425 1/2" 2,5 bar
- 514427 1/2" 2,7 bar
- 514430 1/2" 3 bar
- 514435 1/2" 3,5 bar
- 514440 1/2" 4 bar
- 514450 1/2" 5 bar
- 514460 1/2" 6 bar
- 514470 1/2" 7 bar
- 514480 1/2" 8 bar

Installation

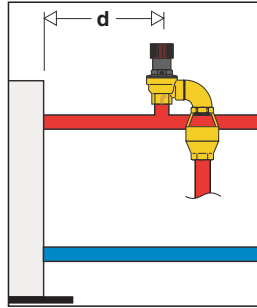
Before installing a safety relief valve, correct sizing must be carried out by specialist technical personnel in accordance with the current legislation governing the specific applications. It shall not be used other than for its stated purpose.

Safety relief valves must be installed by competent technical personnel qualified in accordance with current legislation.

The safety relief valve must be installed in line with the flow direction indicated by the arrow on the valve body.

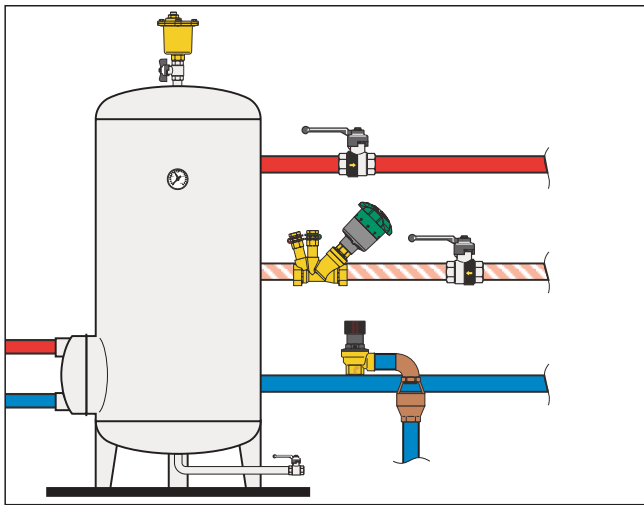
Heating system

The safety relief valve must be installed on the top of the generator or on the flow pipe as close as possible to the generator or within the distance "d" where specified by the applicable standards. The connecting pipework between the safety relief valve and the generator must not be interrupted.



Hydraulic and domestic water system

Safety relief valves must be installed close to the hot water storage, taking care not to fit any shut-off devices between the valve and the storage.



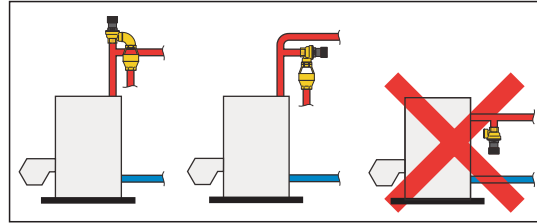
Compressed air system

Safety relief valves are compatible for use in compressed air systems.

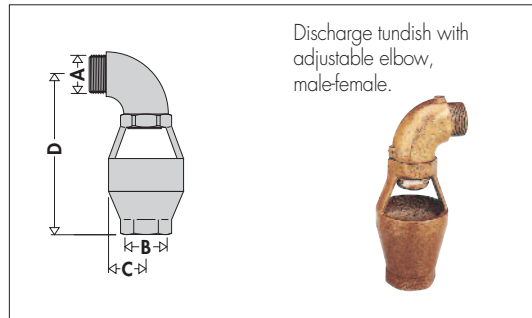
Fitting

Safety relief valves can be fitted vertically or horizontally, but not upside down.

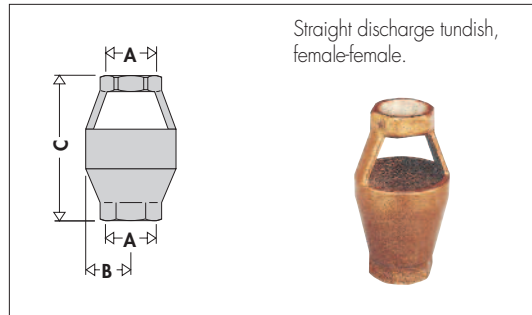
This prevents deposits of impurities from affecting correct functioning.



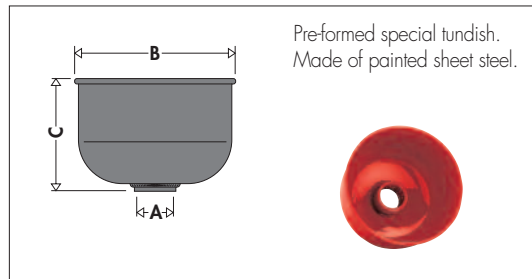
Accessories



Code	A	B	C	D	Mass (kg)
552140	1/2" M	3/4" F	25	125	0,18
552150	3/4" M	3/4" F	25	125	0,18
552160	1" M	1 1/4" F	40	180	0,49
552170	1 1/4" M	1 1/4" F	40	180	0,49



Code	A	B	C	Mass (kg)
552050	3/4"	25	96	0,1
552070	1 1/4"	40	134	0,32



Code	A	B	C	Mass (kg)
552080	1 1/2"	210	150	1,18

SPECIFICATION SUMMARY

311 series

Certified, standard membrane safety relief valve. Equipped with CE mark as per Directive 97/23/EC. Threaded connections 1/2" F x 1/2" F (and 3/4" x 3/4"). Brass body. Membrane and seal in EPDM. ABS control knob. Setting 2,5 bar (settings available: 2,5 - 3 - 3,5 - 4 - 5 - 6 - 7 - 8 for 1/2" and 3/4", 2 bar only for 3/4"). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

312 series

Certified, standard membrane safety relief valve. Equipped with CE mark as per Directive 97/23/EC. Threaded connections 1/2" M x 1/2" F. Brass body. Membrane and seal in EPDM. ABS control knob. Setting 2,5 bar (settings available: 2,5 - 3 - 3,5 - 4 - 5 - 6 - 7 - 8). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

313 series

Certified, standard membrane safety relief valve with pressure gauge connection. Equipped with CE mark as per Directive 97/23/EC. Threaded connections 1/2" F x 1/2" F (and 3/4" x 3/4"). Brass body. Membrane and seal in EPDM. ABS control knob. Setting 3 bar. Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

313 series

Certified, standard membrane safety relief valve with pressure gauge. Equipped with CE mark as per Directive 97/23/EC. Threaded connections 1/2" M x 1/2" F (and 3/4" x 3/4"). Brass body. Membrane and seal in EPDM. ABS control knob. Setting 2,5 bar (settings available: 2,5 - 3 - 6 - 7 - 8). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

314 series

Certified, standard membrane safety relief valve with pressure gauge connection. Equipped with CE mark as per Directive 97/23/EC. Threaded connections 1/2" M x 1/2" F. Brass body. Membrane and seal in EPDM. ABS control knob. Setting 3 bar (settings available: 3 and 6). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

314 series

Certified, standard membrane safety relief valve with pressure gauge. Equipped with CE mark as per Directive 97/23/EC. Threaded connections 1/2" M x 1/2" F. Brass body. Diaphragm and seal in EPDM. ABS control knob. Setting 2,5 bar (settings available: 2,5 - 3 - 6 - 7 - 8). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

513 series

Certified, standard membrane safety relief valve. Equipped with CE mark as per Directive 97/23/EC. Connections 1/2" F x 1/2" F. Brass body. Membrane and seal in EPDM. Cover and knob in fibreglass-reinforced plastic. Setting 1,5 bar (settings available: 1,5 - 2 - 2,5 - 3 - 3,5 - 6 - 7 - 8). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

513 series

Certified, standard membrane safety relief valve. Bearing CE mark as per Directive 97/23/EC. Connections 1" F x 1 1/4" F (and 1 1/4" x 1 1/2"). Brass body and cover. Membrane and seal in EPDM. Knob in fibreglass-reinforced plastic. Setting 2,5 bar (settings available: 2,5 - 3 - 3,5 - 6 - 7 - 8 for 1" x 1 1/4" and 1 1/4" x 1 1/2", 1,5 - 2 - 4 bar only for 1" x 1 1/4"). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

514 series

Certified, standard membrane safety relief valve. Equipped with CE mark as per Directive 97/23/EC. Connections 1/2" M x 1/2" F. Brass body. Membrane and seal in EPDM. Cover in fibreglass-reinforced plastic. ABS control knob. Setting 2,5 bar (settings available: 2,5 - 3 - 3,5 - 4 - 5 - 6 - 7 - 8). Working temperature range 5-110°C. Opening overpressure 20%, closing differential 20%.

5521 series

Discharge tundish with adjustable elbow. Connections 1/2" M x 3/4" F (1/2" x 3/4", 3/4" x 3/4", 1" x 1 1/4", 1 1/4" x 1 1/4"). Body in die-cast aluminium. Visible discharge.

5520 series

Straight discharge tundish. Connections 3/4" F x 3/4" F (3/4" x 3/4" and 1 1/4" x 1 1/4"). Body in die-cast aluminium. Visible discharge.

5520 series

Pre-formed special tundish Connection 1 1/2" F. Body in coated sheet metal.

We reserve the right to make changes and improvements to the products and related data in this publication, at any time and without prior notice.