

# Safety relief valves for thermal, hydraulic and domestic water systems

**311-312-313-314-513-  
514-527 EST 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 pressure control on heat generators in heating systems, on hot water storage units in hydraulic and domestic water 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.

527 EST series valves are fail-safe devices, i.e. they are guaranteed to operate even in the case of wear or breakage of the diaphragm.



## 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"
527 EST series	Certified standard safety relief valve. F-F connections.	_____	size 1/2"x3/4", 3/4"x1", 1"x1 1/4", 1 1/4"x 1 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
Diaphragm:		EPDM
Spring:		steel EN 12270-1
Control knob:	- 311-312-313-314-513 (1/2")-514:	ABS
	- 513 (1" and 1 1/4")-527 EST:	PA6G20
Nominal pressure:		PN 10
Working temperature range:		5-110 °C

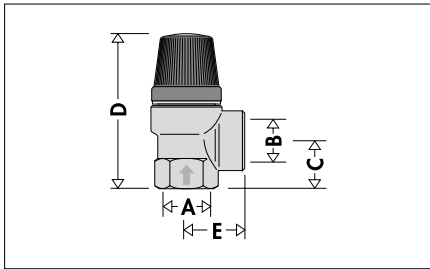
### Performance:

Opening overpressure:	527 EST; $P_{set} +10 \% \cdot P_{set}$
	311-312-313-314-513-514; $P_{set} +20 \% \cdot P_{set}$
Closing differential:	$P_{set} -20 \% \cdot P_{set}$
Medium:	water, air
PED category:	IV

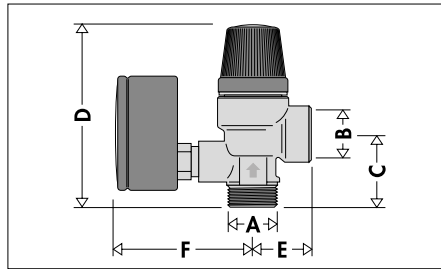
### Settings:

311 series	1,5-2-2,5-3-3,5-4-5-5,5-6-7-8-9 bar (1,5 bar only 1/2") (2-5,5-9 bar only 3/4")
312 series	1,8-2,5-3-3,5-4-5-6-7-8 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	1,5-2-2,5-3-3,5-4 - 5,5-6-7-8-9 bar (1,5-2 only 1/2" and 1")(4-5,5-9 only 1")
514 series	2-2,5-3-3,5-4-5-6-7-8 bar
527 EST series standard	2,25-2,5-2,7-3-3,5-4-4,5-5-5,4-6 bar
527 EST series special settings	1-1,5-2-7-8 bar

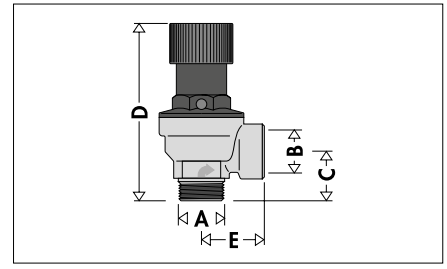
## Dimensions



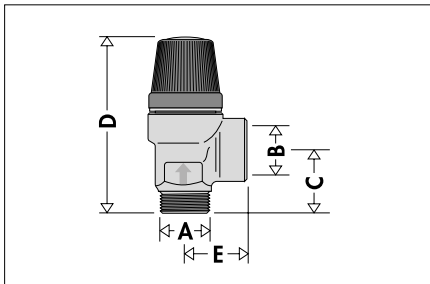
Code	A	B	C	D	E	Mass (kg)
3114..	1/2"	1/2"	19,5	65,5	25,5	0,13
3115..	3/4"	3/4"	24	74,5	27,5	0,21



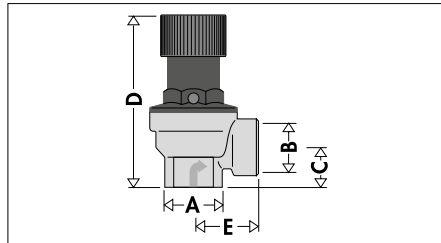
Code	A	B	C	D	E	F	Mass (kg)
3144..	1/2"	1/2"	32	78	25,5	61	0,24



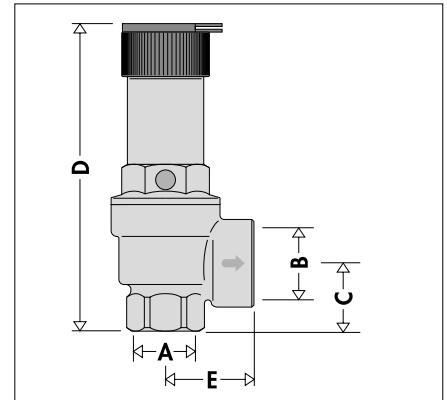
Code	A	B	C	D	E	Mass (kg)
5144..	1/2"	1/2"	23	81,5	29,5	0,18



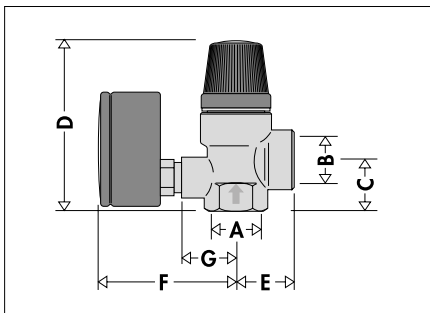
Code	A	B	C	D	E	Mass (kg)
3124..	1/2"	1/2"	23,5	69,5	25,5	0,13



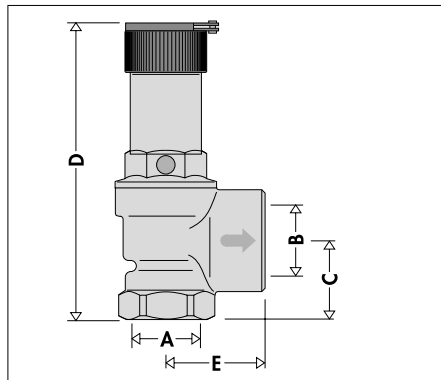
Code	A	B	C	D	E	Mass (kg)
5134..	1/2"	1/2"	19	78,5	29,5	0,18



Code	A	B	C	D	E
5274.. EST	1/2"	3/4"	26	93	33
5275.. EST	3/4"	1"	30	136	39,5
5276.. EST	1"	1 1/4"	39	166	48
5277.. EST	1 1/4"	1 1/2"	42,5	185	56



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	5.4	54
1.5	15	3	30	5.5	55
1.8	28	3.5	35	6	60
2	20	4	40	7	70
2.25	22	4.5	45	8	80
2.5	25	5	50	9	90

## Safety relief valve for thermal systems, (527 EST series)

### Functional details

#### Discharge overpressure <10 %

Full valve discharge flow rate should occur at pressure values  $P_S < 1,1 \cdot P_{\text{setting}}$ . This feature, combined with the special range of settings, allows the correct valve to be available as per the maximum working pressure value of the system or generator.

#### Closing differential <20 %

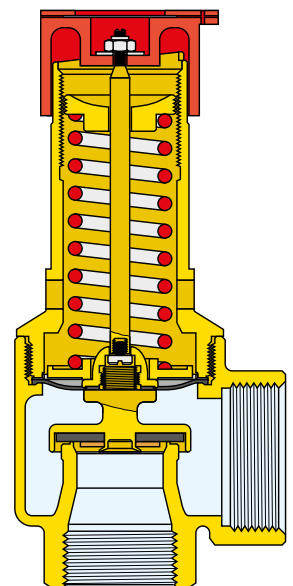
The valve must close within pressure values  $P_r > 0,8 \cdot P_{\text{setting}}$ . This feature allows minimizing the loss of water from the system if the valve is opened.

#### Positive safety

Valve performance is guaranteed even in the event of diaphragm deterioration or breakage.

#### Increased outlet diameter

This feature renders negligible the decrease in the discharge capacity or the change in behaviour on opening or closing due to the presence of the conveyance pipe.



## 527 EST SERIES TECHNICAL SPECIFICATIONS

Size	Ø Outlet (mm)	Net cross section (cm <sup>2</sup> )	Setting press. (bar)	Nominal disch. press. (bar)	Closing press. (bar)	Outflow coeff. K	Discharge flow rate W (kg/h)	Maximum generator potential (kW)	Maximum generator potential (kcal/h)
1/2"	15	1,767	1	1,10	0,80	0,79	140,38	81,6	70.100
1/2"	15	1,767	1,50	1,65	1,20	0,79	175,73	102,1	87.800
1/2"	15	1,767	2	2,20	1,60	0,79	211,17	122,7	105.500
1/2"	15	1,767	2,25	2,475	1,80	0,79	226,39	131,6	113.100
1/2"	15	1,767	2,50	2,75	2,00	0,79	246,36	143,2	123.100
1/2"	15	1,767	2,70	2,97	2,16	0,79	261,76	152,2	130.800
1/2"	15	1,767	3	3,30	2,40	0,79	282,35	164,1	141.100
1/2"	15	1,767	3,50	3,85	2,80	0,79	318,09	184,9	159.000
1/2"	15	1,767	4	4,40	3,20	0,79	353,93	205,8	176.900
1/2"	15	1,767	4,50	4,95	3,60	0,79	386,60	224,8	193.200
1/2"	15	1,767	5	5,50	4,00	0,79	425,91	247,6	212.900
1/2"	15	1,767	5,40	5,94	4,32	0,79	456,89	265,6	228.400
1/2"	15	1,767	6	6,60	4,80	0,79	483,25	281,0	241.600
1/2"	15	1,767	7	7,70	5,60	0,79	558,42	324,7	279.200
1/2"	15	1,767	8	8,80	6,40	0,79	628,22	365,3	314.100
3/4"	20	3,1416	1	1,10	0,80	0,67	211,66	123,0	105.800
3/4"	20	3,1416	1,50	1,65	1,20	0,67	264,95	154,0	132.400
3/4"	20	3,1416	2	2,20	1,60	0,67	318,38	185,1	159.100
3/4"	20	3,1416	2,25	2,475	1,80	0,67	341,33	198,4	170.600
3/4"	20	3,1416	2,50	2,75	2,00	0,67	371,45	215,9	185.700
3/4"	20	3,1416	2,70	2,97	2,16	0,67	394,66	229,4	197.300
3/4"	20	3,1416	3	3,30	2,40	0,67	425,70	247,5	212.800
3/4"	20	3,1416	3,50	3,85	2,80	0,67	479,59	278,8	239.700
3/4"	20	3,1416	4	4,40	3,20	0,67	533,63	310,3	266.800
3/4"	20	3,1416	4,50	4,95	3,60	0,67	582,89	338,9	291.400
3/4"	20	3,1416	5	5,50	4,00	0,67	642,16	373,4	321.000
3/4"	20	3,1416	5,40	5,94	4,32	0,67	688,87	400,5	344.400
3/4"	20	3,1416	6	6,60	4,80	0,67	728,61	423,6	364.300
3/4"	20	3,1416	7	7,70	5,60	0,67	841,95	489,5	420.900
3/4"	20	3,1416	8	8,80	6,40	0,67	947,19	550,7	473.500
1"	25	4,9087	1	1,10	0,80	0,88	434,38	252,5	217.100
1"	25	4,9087	1,50	1,65	1,20	0,88	543,74	316,1	271.800
1"	25	4,9087	2	2,20	1,60	0,88	653,40	379,9	326.600
1"	25	4,9087	2,25	2,475	1,80	0,88	700,49	407,3	350.200
1"	25	4,9087	2,50	2,75	2,00	0,88	762,30	443,2	381.100
1"	25	4,9087	2,70	2,97	2,16	0,88	809,94	470,9	404.900
1"	25	4,9087	3	3,30	2,40	0,88	873,65	508,0	436.800
1"	25	4,9087	3,50	3,85	2,80	0,88	984,23	572,3	492.100
1"	25	4,9087	4	4,40	3,20	0,88	1095,13	636,8	547.500
1"	25	4,9087	4,50	4,95	3,60	0,88	1196,22	695,6	598.100
1"	25	4,9087	5	5,50	4,00	0,88	1317,87	766,3	658.900
1"	25	4,9087	5,40	5,94	4,32	0,88	1413,72	822,0	706.800
1"	25	4,9087	6	6,60	4,80	0,88	1495,28	869,5	747.600
1"	25	4,9087	7	7,70	5,60	0,88	1727,88	1004,7	863.900
1"	25	4,9087	8	8,80	6,40	0,88	1943,86	1130,3	971.900
1 1/4"	32	8,0424	1	1,10	0,80	0,74	598,47	348,0	299.200
1 1/4"	32	8,0424	1,50	1,65	1,20	0,74	749,13	435,6	374.500
1 1/4"	32	8,0424	2	2,20	1,60	0,74	900,22	523,4	450.100
1 1/4"	32	8,0424	2,25	2,475	1,80	0,74	965,10	561,2	482.500
1 1/4"	32	8,0424	2,50	2,75	2,00	0,74	1050,25	610,7	525.100
1 1/4"	32	8,0424	2,70	2,97	2,16	0,74	1115,89	648,8	557.900
1 1/4"	32	8,0424	3	3,30	2,40	0,74	1203,66	699,9	601.800
1 1/4"	32	8,0424	3,50	3,85	2,80	0,74	1356,02	788,5	678.000
1 1/4"	32	8,0424	4	4,40	3,20	0,74	1508,81	877,3	754.400
1 1/4"	32	8,0424	4,50	4,95	3,60	0,74	1648,09	958,3	824.000
1 1/4"	32	8,0424	5	5,50	4,00	0,74	1815,69	1055,8	907.800
1 1/4"	32	8,0424	5,40	5,94	4,32	0,74	1947,74	1132,6	973.800
1 1/4"	32	8,0424	6	6,60	4,80	0,74	2060,11	1197,9	1.030.000
1 1/4"	32	8,0424	7	7,70	5,60	0,74	2380,57	1384,3	1.190.200
1 1/4"	32	8,0424	8	8,80	6,40	0,74	2678,14	1557,3	1.339.000

## Certification

### CE Mark

The 527 series safety relief valves meet the requirements of Directive 2014/68/CE for pressurised equipment (also referred to as PED). They are therefore classified as category IV and are CE marked. Certificates and decisions issued by conformity assessment bodies under Directive 97/23/CE shall be valid under the Directive 2014/68/CE.



**CERTIFICATO DI  
ESAME CE DEL TIPO  
EC TYPE EXAMINATION  
CERTIFICATE**

N. PA56 - 97/23/CE - B Rev. 4

Consorzio Pascal Srl è socio unico  
Organismo Notificato n. 1115  
Via A. Scavolini, 13 - 20151 Milano ITALY  
Tel. 02 4541 8101 - Fax 02 4541 8142  
email: info@consorzio-pascal.it

Consorzio PASCAL s.r.l. a socio unico, quale Organismo Notificato n. 1115  
Consorzio PASCAL s.r.l. a socio unico, acting as Notified Body n. 1115

**ATTESTA  
ATTESTS**

che il progetto presentato da  
that the design submitted by

**FABBRICANTE  
MANUFACTURER** CALEFFI S.p.A.  
S.R. 229 n. 25 - 28010 Fontaneto D'Agogna (NO)

soddisfa le disposizioni dell'Allegato III, Modulo B della Direttiva 97/23/CE  
satisfies the requirements of Annex III, Module B of the Pressure Equipment Directive 97/23/EC

**ATTREZZATURA  
EQUIPMENT** VALVOLE DI SICUREZZA

Modelli coperti Covered models Serie 513 (N°: 1; 11/4"), 527 (N°: 3/4"; 1; 11/4"); 527BOL (N°)  
4031/14  
Fascicolo Tecnico Technical File L'elenco della documentazione tecnica rilevante è riportata in appendice A.  
A list of the relevant technical documentation is summarized in appendix A.

Codice Progetto Design Code Metodo sperimentale  
Rapporti di valutazione Evaluation Reports 046\_RED\_2014\_08\_06

**LIMITI ESSENZIALI AMMISSIBILI  
ESSENTIAL ALLOWABLE LIMITS**

PS (bar a) 15  
TS min/max (°C) +5 / +110  
Volume (L)/DN Vedere app. B  
Fluido Fluid Arie, acqua  
Gruppo del Fluido Fluid Group 2  
Categorie di Rischio Risk Category IV

**CONDIZIONI DI VALIDITA'  
VALIDITY TERMS AND  
CONDITIONS**

Tutte le modifiche al progetto approvato sono soggette ad ulteriore approvazione.  
Il presente certificato deve ritenersi nullo ed il fabbricante ne assumeva tutte le conseguenze del suo inibito utilizzo. In caso di modifiche che influiscano la conformità ai requisiti essenziali di sicurezza e, in generale, se il fabbricante non rispetta tutti e ciascuno degli obblighi o i suoi carichi previsti dalla direttiva 97/23/CE, come recepita dalla legislazione nazionale vigente.  
All the modifications to the approved design are subjected to further approval.  
This certificate shall be deemed to be void and the Manufacturer shall alone bear any consequences pursuant to its use, in case of modifications which affect conformity to the essential safety requirements, and generally, where the Manufacturer fails to comply with each and every of his obligations under directive 97/23/CE as transposed in the applicable national laws.

4	Aggiunta nuove pressioni taratura	Added new set pressures
3	Rinnovo	Renewed
2	Aggiunta nuovi modelli	Added new models
1	Aggiunta nuovi modelli	Added new models
0	Emissione	Emission
Rev.	Descrizione	Description


La presente revisione annulla e sostituisce le precedenti - This revision supersedes previous ones



Prima Emissione First issue  
**14/05/2002**

Emissione corrente Current issue  
**05/06/2014**

Data di Scadenza Expiring date  
**13/05/2022**



REG. N° 1888  
 Numero degli Ispezioni di Rilascio Homologation  
 Es. UNI 9540  
 Conformità a CE, IAF and IAC Actual  
 Registered Equipment

Il presente Certificato non è da ritenersi valido se non completo di tutte le sue pagine e può essere sospeso o recesso a richiesta del fabbricante. L'autenticità e la validità del presente attestato può essere verificata contattando il Consorzio PASCAL.  
 This Certificate is not valid without all its pages and can be suspended or withdrawn at any time in the event of manufacturer's non-fulfillment. To verify authenticity and validity of this Certificate please contact Consorzio PASCAL.

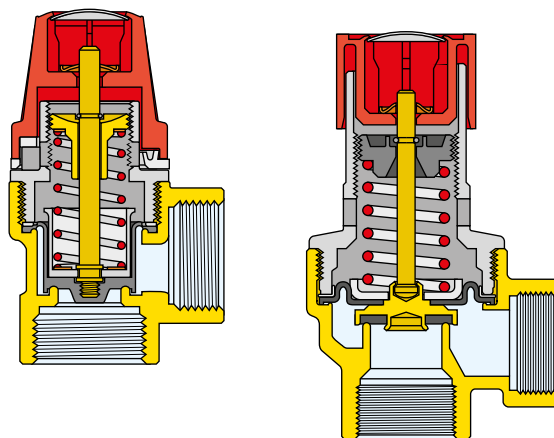
Pagina Page 1 di 3  
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## Standard safety relief valves

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.

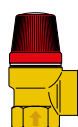


### 311-312-313-314 SERIES TECHNICAL SPECIFICATIONS

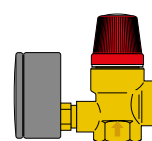
Size	Ø Outlet mm	Cross Section net cm <sup>2</sup>	Press. of setting (bar)	Nom. disch. press. (bar)	Press. of closing (bar)	Coeff. of outflow K	Flow rate of discharge (W) kg/h	Maximum potential of the generator kW	Maximum potential of the generator kcal/h
1/2"	13	1,327	1,5	1,80	1,2	0,5	88,49	51,3	44.200
1/2"	13	1,327	1,8	2,16	1,44	0,5	99,38	57,6	49.600
1/2"	13	1,327	2,50	3,00	2,00	0,5	124,44	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	213,32	123,7	106.400
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	124,44	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	5,5	6,60	4,4	0,5	234,23	135,9	116.900
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
3/4"	13	1,327	9	10,80	7,2	0,5	364,20	211,2	181.700

### 513-514 SERIES TECHNICAL SPECIFICATIONS

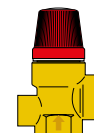
Size	Ø Outlet mm	Cross Section net cm <sup>2</sup>	Press. of setting (bar)	Nom. disch. press. (bar)	Press. of closing (bar)	Coeff. of outflow K	Flow rate of discharge (W) kg/h	Maximum potential of the generator kW	Maximum potential of the generator kcal/h
1/2"	15	1,767	1,50	1,80	1,20	0,5	117,80	68,3	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	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	284,01	164,7	141.700
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



- 311415 1/2" 1,5 bar
- 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
- 311555 3/4" 5,5 bar
- 311560 3/4" 6 bar
- 311570 3/4" 7 bar
- 311580 3/4" 8 bar
- 311590 3/4" 9 bar



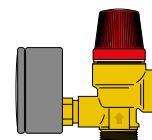
- 313425 1/2" 2,5 bar
- 313430 1/2" 3 bar
- 313460 1/2" 6 bar
- 313470 1/2" 7 bar
- 313480 1/2" 8 bar
- 313525 3/4" 2,5 bar
- 313530 3/4" 3 bar
- 313560 3/4" 6 bar
- 313570 3/4" 7 bar
- 313580 3/4" 8 bar



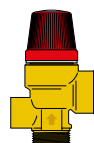
- 313432 1/2" 3 bar
- 313532 3/4" 3 bar



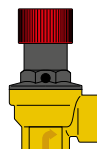
- 312428 1/2" 1,8 bar
- 312425 1/2" 2,5 bar
- 312430 1/2" 3 bar
- 312435 1/2" 3,5 bar
- 312440 1/2" 4 bar
- 312450 1/2" 5 bar
- 312460 1/2" 6 bar
- 312470 1/2" 7 bar
- 312480 1/2" 8 bar



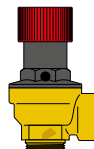
- 314425 1/2" 2,5 bar
- 314430 1/2" 3 bar
- 314460 1/2" 6 bar
- 314470 1/2" 7 bar
- 314480 1/2" 8 bar



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



- 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
- 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

## Domestic water systems

513 and 514 series valves comply with the requirements of "Section R" for safety standards of equipment containing hot liquids under pressure (Italian legislation):

"in the case of water heaters intended for domestic use, the expansion system protecting the storage may consist of a discharge valve, with an outlet having a diameter, in mm, of not less than:

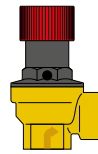
$$D_{min} = \sqrt{\frac{V}{5}}$$

where V is the volume of the heater in litres, with a minimum of 15 mm",

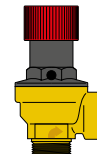
To illustrate the above, see the table with the hot water storage capacity limits for each type of valve.

## 513-514 SERIES TECHNICAL SPECIFICATIONS

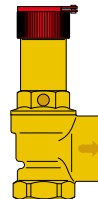
Size	Ø Outlet mm	Net cross section cm <sup>2</sup>	Setting press. (bar)	Nom disch. press. (bar)	Closing press. (bar)	Boiler capacity l
1/2"	15	1,767	6	7,20	4,80	1.000
1/2"	15	1,767	7	8,40	5,60	1.000
1/2"	15	1,767	8	9,60	6,40	1.000
1"	25	4,9087	6	7,20	4,80	3.000
1"	25	4,9087	7	8,40	5,60	3.000
1"	25	4,9087	8	9,60	6,40	3.000
1"	25	4,9087	9	10,8	7,20	3.000
1 1/4"	32	8,0424	6	7,20	4,80	5.000
1 1/4"	32	8,0424	7	8,40	5,60	5.000
1 1/4"	32	8,0424	8	9,60	6,40	5.000



513460 1/2" 6 bar  
513470 1/2" 7 bar  
513480 1/2" 8 bar



514460 1/2" 6 bar  
514470 1/2" 7 bar  
514480 1/2" 8 bar



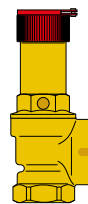
513660 1" 6 bar  
513670 1" 7 bar  
513680 1" 8 bar  
513690 1" 9 bar  
513760 1 1/4" 6 bar  
513770 1 1/4" 7 bar  
513780 1 1/4" 8 bar

## Hydraulic systems

The safety relief valves can also be used for discharging cold water; in this case, the indicated discharge flow rates are the results of experimental testing, without the use of any conversion formula for fluids of different types.

## 513 SERIES TECHNICAL SPECIFICATIONS

Size	Ø Outlet mm	Net cross section cm <sup>2</sup>	Setting press. (bar)	Nom disch. press. (bar)	Closing press. (bar)	Discharge flow rate m <sup>3</sup> /h
1"	25	4,9087	1,5	1,80	1,20	7,6
1"	25	4,9087	2	2,40	1,60	8,0
1"	25	4,9087	2,50	3,00	2,00	8,3
1"	25	4,9087	3	3,60	2,40	8,7
1"	25	4,9087	3,50	4,20	2,80	9,1
1"	25	4,9087	4	4,80	3,20	9,4
1"	25	4,9087	5,5	6,60	4,40	10,4
1"	25	4,9087	6	7,20	4,80	10,5
1"	25	4,9087	7	8,40	5,60	11,5
1"	25	4,9087	8	9,60	6,40	12,3
1"	25	4,9087	9	10,80	7,20	12,9
1 1/4"	32	8,0424	2,50	3,00	2,00	13,2
1 1/4"	32	8,0424	3	3,60	2,40	13,8
1 1/4"	32	8,0424	3,50	4,20	2,80	14,1
1 1/4"	32	8,0424	6	7,20	4,80	17,5
1 1/4"	32	8,0424	7	8,40	5,60	18,6
1 1/4"	32	8,0424	8	9,60	6,40	19,4



513615 1" 1,5 bar  
513620 1" 2 bar  
513625 1" 2,5 bar  
513630 1" 3 bar  
513635 1" 3,5 bar  
513640 1" 4 bar  
513655 1" 5,5 bar  
513660 1" 6 bar  
513670 1" 7 bar  
513680 1" 8 bar  
513690 1" 9 bar  
513725 1 1/4" 2,5 bar  
513730 1 1/4" 3 bar  
513735 1 1/4" 3,5 bar  
513760 1 1/4" 6 bar  
513770 1 1/4" 7 bar  
513780 1 1/4" 8 bar

## Certification

### CE Mark

The 311, 312, 313, 314, 513 and 514 series safety relief valves meet the requirements of Directive 2014/68/EU for pressurised equipment (also referred to as PED). They are therefore classified as category IV and are CE marked.

PASCAL		ATTESTATO DI ESAME CE DEL TIPO	
N. PA055 Rev. 6		Secondo il modulo 8 della direttiva 97/23/CE	
Foglio n°2			
<b>Dati dell'Organismo Notificatore</b>			
Consorzio PASCAL S.r.l. a socio unico			
VIA SCARLETTI, 13 - 20131 - MILANO - ITALIA			
Numero Identificativo CE 1115			
<b>Dati del Costruttore/Produttore</b>			
COSTRUTTORE CALEFFI S.p.A.			
Indirizzo S.R. 239 N. 25			
Mandatario ZENIT FONTANETO D'ADOGNA (NO)			
Indirizzo			
<b>Dati</b>			
TIPO		Valvole di sicurezza	
Serie 201, 211, 311, 312, 314, 315, 316, 317, 318, 319, 320, 321, 322		Mod. 5137 e 513	
CATEGORIE DI ESERCIZIO		Pressione massima nominale	
ESERCIZIO		Temperatura massima nominale	
Categorie di appartenenza		IV	
<b>Elenco dei documenti applicativi del fascicolo tecnico di cui PASCAL conserva una copia</b>			
Progetto di fabbricazione		X	
Progetto di installazione		X	
Attestato per l'uso		X	
Documenti specifici dei materiali utilizzati nei vari punti di controllo		X	
Categorie di appartenenza		IV	
<b>Condizioni di validità dell'attestato</b>			
L'attestato è valido per le apparecchiature sottoposte ai requisiti applicativi del presente modulo 8 della direttiva 97/23/CE, in quanto conformi alle norme CE applicabili in materia di sicurezza delle apparecchiature sottoposte a pressione.			
DATA		12/05/2010	
Firma		[Firma]	
Data		12/05/2010	

PASCAL		ATTESTATO DI ESAME CE DEL TIPO	
N. PA055 Rev. 1		Secondo il modulo 8 della direttiva 97/23/CE	
Foglio n°1			
<b>Dati dell'Organismo Notificatore</b>			
Società Consorzio PASCAL S.r.l.			
VIA GIARDINO, 4 - 20132 - MILANO - ITALIA			
Numero Identificativo CE 1115			
<b>Dati del Costruttore/Produttore</b>			
COSTRUTTORE CALEFFI S.p.A.			
Indirizzo S.R. 239 - via 24			
Mandatario ZENIT FONTANETO D'ADOGNA (NO)			
Indirizzo			
<b>Dati</b>			
TIPO		Valvole di sicurezza	
Serie 201, 211, 311, 312, 314, 315, 316, 317, 318, 319, 320, 321, 322		Mod. 5137 e 513	
CATEGORIE DI ESERCIZIO		Pressione massima nominale	
ESERCIZIO		Temperatura massima nominale	
Categorie di appartenenza		IV	
<b>Elenco dei documenti applicativi del fascicolo tecnico di cui PASCAL conserva una copia</b>			
Progetto di fabbricazione		X	
Progetto di installazione		X	
Attestato per l'uso		X	
Documenti specifici dei materiali utilizzati nei vari punti di controllo		X	
Categorie di appartenenza		IV	
<b>Condizioni di validità dell'attestato</b>			
L'attestato è valido per le apparecchiature sottoposte ai requisiti applicativi del presente modulo 8 della direttiva 97/23/CE, in quanto conformi alle norme CE applicabili in materia di sicurezza delle apparecchiature sottoposte a pressione.			
DATA		12/05/2010	
Firma		[Firma]	
Data		12/05/2010	

## Installation

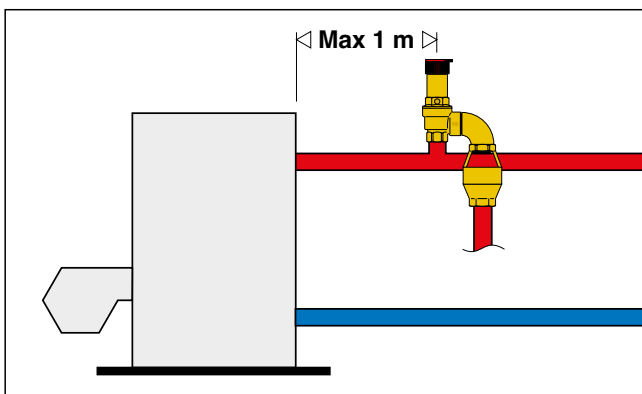
Before installing a safety relief valve, it must be correctly sized by qualified technical personnel in accordance with the current regulations governing the specific applications. Any use other than the intended use is prohibited.

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.

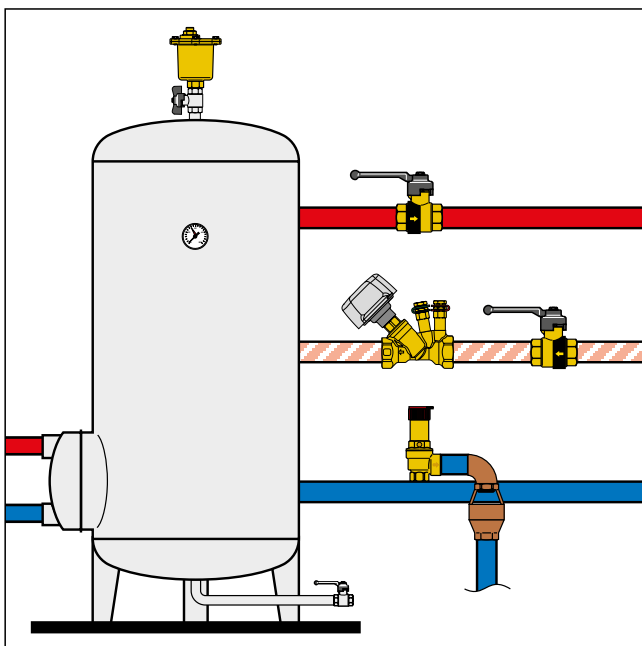
## Heating system

The safety relief valves must be installed on the top of the generator or on the flow pipe no more than one metre from the generator (Section R). 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.

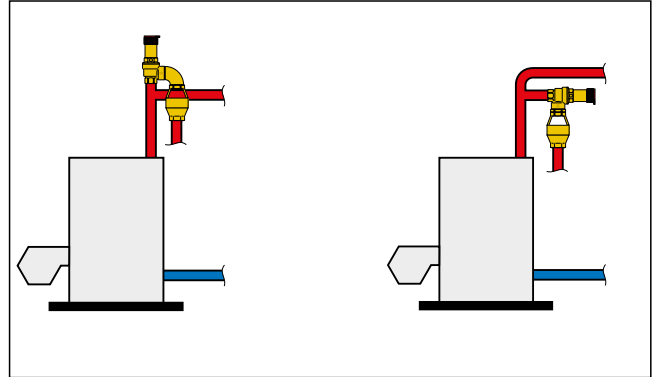


## Mounting

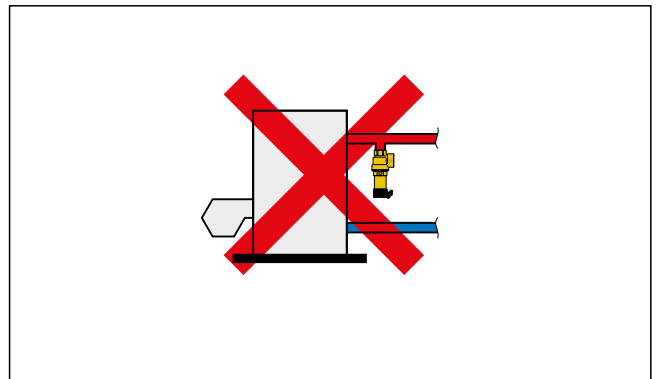
Safety relief valves can be fitted vertically or horizontally, but not upside down.

This prevents deposits of impurities from affecting correct functioning.

## Correct installation



## Incorrect installation



## Discharge pipework

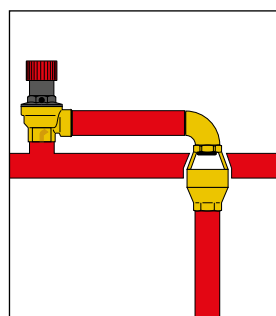
The discharge pipework from the safety relief valve must be fitted in such a way as not to prevent the correct operation of the valve and not to cause damage or injury.

In accordance with current legislation, the safety relief valve discharge must be visible and carried in suitable collection pipework.

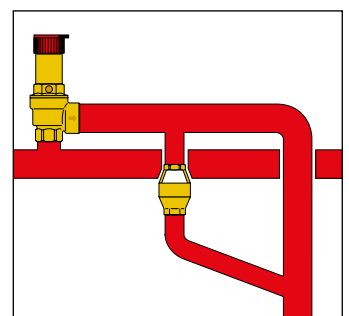
As shown in the diagrams, it is advisable to install a tundish directly in the discharge pipework for low capacity valves, as diagram 1.

In the case of larger capacities, proceed as shown in diagram 2.

## Diagram 1



## Diagram 2





## SPECIFICATION SUMMARY

### 311 series

Certified, standard membrane safety relief valve. Bearing CE mark as per Directive 2014/68/EU. Threaded connections 1/2" F x 1/2" F (and 3/4" x 3/4"). Available setting values: 1,5 - 2 - 2,5 - 3 - 3,5 - 4 - 5 - 5,5 - 6 - 7 - 8 - 9, 1,5 bar only for 1/2", 2 - 5,5 - 9 bar only for 3/4". Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. ABS knob. Opening overpressure 20 %, closing differential 20 %.

### 312 series

Certified standard membrane safety relief valve. Bearing CE mark as per Directive 2014/68/EU. Threaded connections 1/2" M x 1/2" F. Available setting values: 1,8 - 2,5 - 3 - 3,5 - 4 - 6 - 7 - 8. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. ABS control knob. Opening overpressure 20 %, closing differential 20 %.

### 313 series

Certified standard membrane safety relief valve with pressure gauge connection. Bearing CE mark as per Directive 2014/68/EU. Threaded connections 1/2" F x 1/2" F (1/2" and 3/4"). Available setting values: 3 bar. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. ABS control knob. Opening overpressure 20 %, closing differential 20 %.

### 313 series

Certified standard membrane safety relief valve with pressure gauge. Bearing CE mark as per Directive 2014/68/EU. Threaded connections 1/2" M x 1/2" F. Available setting values: 3 bar. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. ABS control knob. Opening overpressure 20 %, closing differential 20 %.

### 314 series

Certified standard membrane safety relief valve with pressure gauge connection. Bearing CE mark as per Directive 2014/68/EU. Threaded connections 1/2" F x 1/2" F (1/2" and 3/4"). Available setting values: 2,5 - 3 - 6 - 7 - 8 bar. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. ABS control knob. Opening overpressure 20 %, closing differential 20 %.

### 314 series

Certified standard membrane safety relief valve with pressure gauge. Bearing CE mark as per Directive 97/23/EC. Threaded connections 1/2" M x 1/2" F. Available setting values: 2,5 - 3 - 6 - 7 - 8 bar. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. ABS control knob.

### 513 series

Certified standard membrane safety relief valve. Bearing CE mark as per Directive 2014/68/EU. Threaded connections 1/2" M x 1/2" F. Available setting values: 1,5 - 2 - 2,5 - 3 - 3,5 - 6 - 7 - 8 bar. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. Knob and control knob in glass-fibre reinforced nylon.

### 513 series

Certified standard membrane safety relief valve. Bearing CE mark as per Directive 2014/68/EU. Connections 1" F x 1 1/4" F (1" x 1 1/4" and 1 1/4" x 1 1/2"). Available setting values: 1,5 - 2 - 2,5 - 3 - 3,5 - 6 - 7 - 8 - 9 bar (1,5 - 2 bar only 1/2" and 1")(4 - 5,5 - 9 bar only 1"). Maximum working temperature 110 °C. Brass body and cover. Diaphragm and seal in EPDM. Knob and control knob in glass-fibre reinforced nylon.

### 514 series

Certified standard membrane safety relief valve. Bearing CE mark as per Directive 2014/68/EU. Connections 1/2" M x 1/2" F. Available setting values: 2 - 2,5 - 3 - 3,5 - 4 - 5 - 6 - 7 - 8 bar. Maximum working temperature 110 °C. Brass body. Diaphragm and seal in EPDM. Cover in glass-fibre reinforced nylon, control knob in ABS.

### 527 EST Series

Certified standard membrane safety relief valve. Bearing CE mark as per Directive 2014/68/EU. Connections 1/2" F x 3/4" F (available 1/2" x 3/4", 3/4" x 1", 1" x 1 1/4", 1 1/4" x 1 1/2"). Available setting values: 1 - 1,5 - 2 - 2,25 - 2,5 - 2,7 - 3 - 3,5 - 4 - 4,5 - 5 - 5,4 - 6 - 7 - 8 bar. Maximum working temperature 110 °C. Brass body and cover. Diaphragm and seal in EPDM. Knob and control knob in glass-fibre reinforced nylon. Opening overpressure 10 %, closing differential 20 %. Fail-safe. Accompanied by bench calibration report.

## Accessories



### 5521

Tundish with adjustable elbow connection, male-female.

Sizes: 1/2", 3/4", 1", 1 1/4".



### 5520

Discharge tundish, female-female.

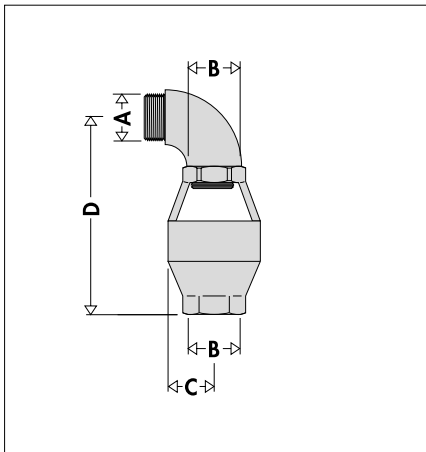
Sizes: 3/4" and 1 1/4".



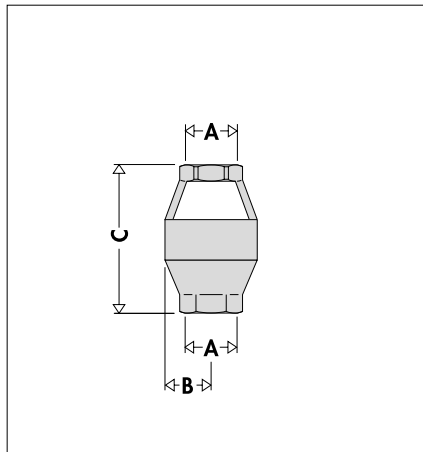
### 5520

Pre-formed special tundish. Bowl-type. Made of painted sheet steel. Size: 1 1/2".

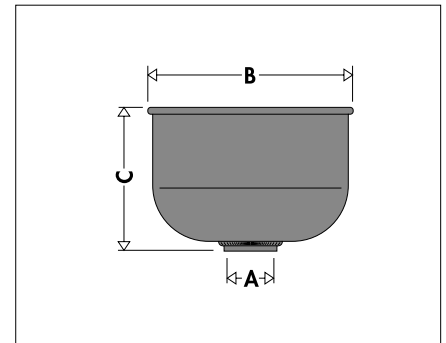
## Dimensions



Code	A	B	C	D
552140	1/2"	3/4"	25	125
552150	3/4"	1"	25	125
552160	1"	1 1/4"	40	180
552170	1 1/4"	1 1/2"	40	180



Code	A	B	C
552050	3/4"	25	96
552070	1 1/4"	40	134



Code	A	B	C
552080	1 1/2"	210	150

## SPECIFICATION SUMMARY

### 5521 series

Tundish with adjustable elbow connection. 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"). Die-cast aluminium body. 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"). Die-cast aluminium body. 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 our products and the related technical data in this publication, at any time and without prior notice.