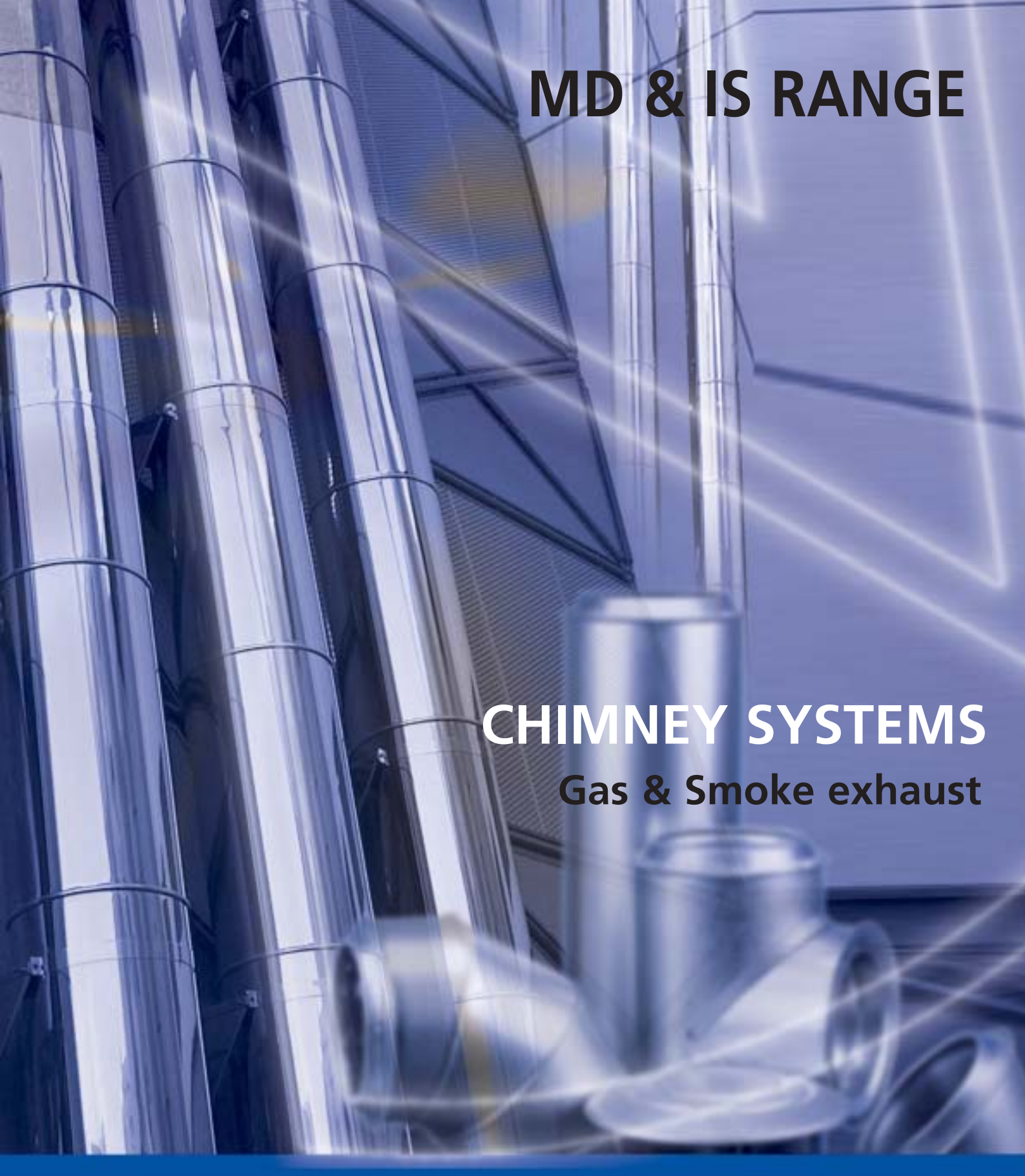


MD & IS RANGE

CHIMNEY SYSTEMS

Gas & Smoke exhaust

Innovating Solutions

NEGARRA

NEGARRA S.A. was born in a village close to Bilbao in the middle 20th century with a strong industrial skill and as an entrepreneur in the metallurgic field. During the 80s the company settles as one of the main manufacturers for gas and smoke exhaust, and ventilation systems, laying the firm in Lemona (in the North of Spain). Is during the 90s, with the development of individual and collective chimney systems when there is a strong increase of investments, product range, distributors and targets.

At the end of the 90s the second firm is inaugurated very close to the already existing one, which main activity is Inox chimney systems. Besides, another building is opened for the central offices of NEGARRA Team and a robotic warehouse pioneer in it´s field due to its technological innovation.

Since the very beginning NEGARRA's mail goal has been to meet customer's needs and the compromise of global quality, manufacturing according to UNE-EN normative ISO 9001 and owning many certificates of very well known companies in our field.

Single Wall Flue System Range IS

IS MASTER

Manufactured in stainless steel AISI 304 18/10 CrNi

Characteristics:
Continuous working temperature until 300 °C for external or internal covered systems and until 150 °C for internal non - covered systems.

Applications:
Domestic central heating boilers, warm air & water heater (oil & gas), ventilation and air conditioning

Finishings:
Refractory AISI 310 Stainless steel
Certified by XP D 35-308
T-120 - D - N - C1 - E250 for all diameters.

IS PLUS

Manufactured in stainless steel AISI 316 L.

Characteristics:
Continuous working temperature until 300 °C for external or internal covered systems and until 150 °C for internal non - covered systems.

Applications:
Domestic central heating boilers, warm air & water heater (oil & gas), ventilation and air conditioning.

Finishings:
AISI 444 Stainless steel
(IS QUATRO range)

IS CLIMA

Manufactured in aluminised steel

Characteristics:
Continuous working temperature 250ºC

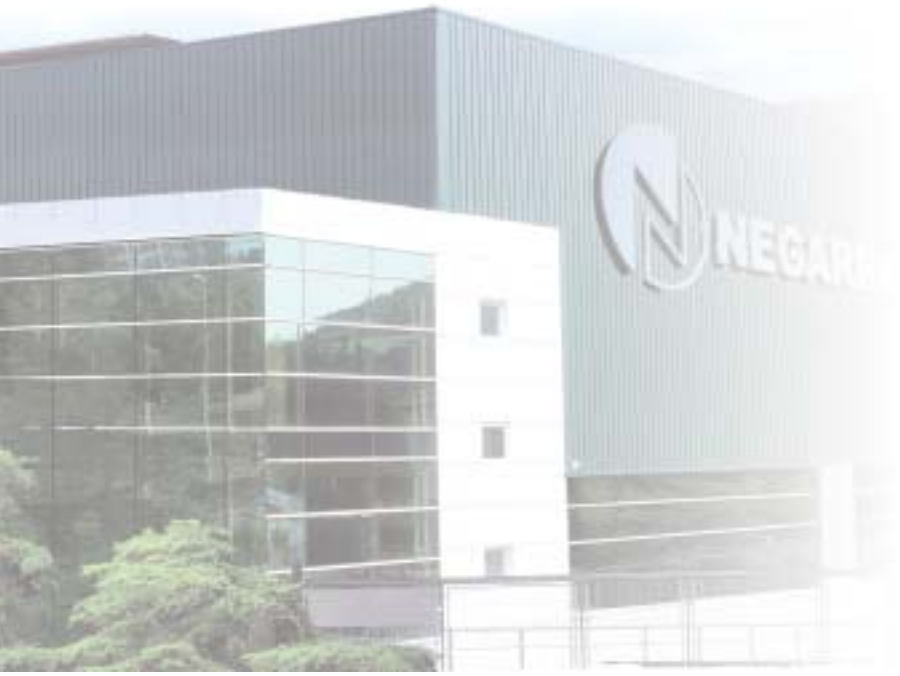
Applications:
Ventilation and air conditioning

IS CUPRA

Manufactured in stainless steel AISI 316 or AISI 304 coppered.

Characteristics:
Continuous working temperature until 300 °C for external or internal covered systems and until 150 °C for internal non - covered systems.

Applications:
Domestic central heating boilers, warm air & water heater (oil & gas), ventilation and air conditioning.



Twin Wall Insulated System Range MD

MD MASTER

Manufactured in stainless steel AISI 304 18/10 Cr Ni with 25mm high density insulation
Characteristics: Continuous working temperature 450ºC
Applications: Domestic central heating boilers, warm air & water heater (oil & gas), ventilation and air conditioning
Finishings: Inner wall in refractory AISI 310 Stainless steel

MD PLUS

Inner wall manufactured in stainless steel AISI 316 and outer wall manufactured in stainless steel AISI 304 18/10 Cr Ni with 25mm high density insulation
Characteristics: Continuous working temperature 450ºC. Recommended for liquid and solid combustibles.
Applications: Domestic central heating boilers, warm air & water heater (oil & gas), ventilation and air conditioning
Finishings: Inner wall in AISI 444 Stainless steel (IS QUATRO range) or in refractory AISI 310 Stainless steel

MD ALU

Inner wall manufactured in stainless steel AISI 304 18/10 Cr Ni and outer wall manufactured in aluminised steel with 25mm high density insulation
Characteristics: Continuous working temperature 450ºC.
Applications: Same applications than MD MASTER but recommended for internal installations

MD CLIMA

Inner and outer wall manufactured in aluminised steel with 25mm high density insulation
Characteristics: Continuous working temperature 250ºC
Applications: Ventilation and air conditioning

MD CUPRA

Inner wall manufactured in aluminised steel AISI 316 and outer wall manufactured in copper with 25mm high density insulation
Characteristics: Continuous working temperature 450ºC
Applications: Same applications than MD PLUS.

GENERAL INSTRUCTIONS FOR MD & IS Ranges ASSEMBLY

• We recommend installers to know about current compulsory rules and normatives.

• Tees (90° or 135°) with cap must be used at the basis of the installation, so as to provide an access for inspection and cleaning. NEGARRA always recommends teecaps with drain in order to provide the most effective evacuation of condensates.

• Chimney must be perfectly hold up by the different system components:

• Adjustable floor support at the basis, which holds the first 12 mts of the chimney.

• Wall supports: every 10 mts

• Adjustable pipes cannot support any freight , therefore immediately next upper pipe must be adjusted by a wall support.

• All sections are joined by locking bands providing total water tightness to the installation.

• Wall brackets every 2,5 mts for lateral stability, without supporting any weigth.

• Guy wire brackets are available to provide necessary support for more than 1,5 mts free standing sections.

• Next to an elbow or inclined section a wall support is recommended in order to support the weight.

• The ending of the chimney must fill the current normative (See drawings)

• Chimney flue outlet must be always located at least 1m over the roof , wall or any other obstacle or structure at less than 10mts.

• Flue outlets for chimneys sited in distances between 10 & 15 mts of any other construction, must be at a no lower level than the upper hollow of the closest building.

• The above mentioned distances will be calculated in an horizontal surface containing smoke exhaust without hoods, reductions or any other accessories or endings.

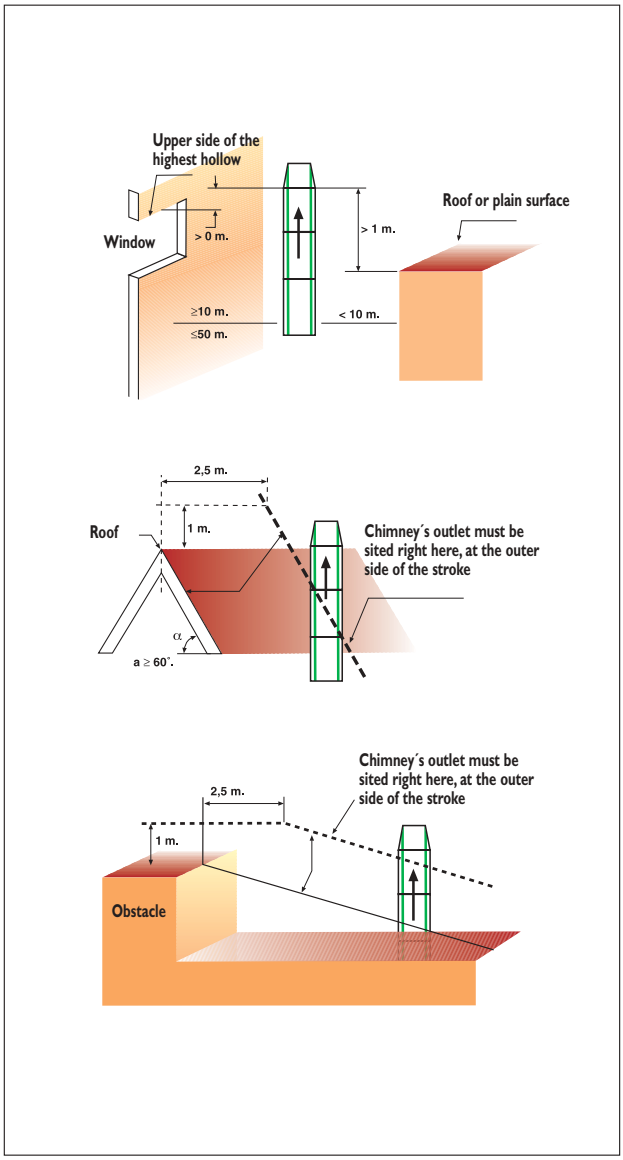
• Free height of the chimney over each cover, depends on its geometry

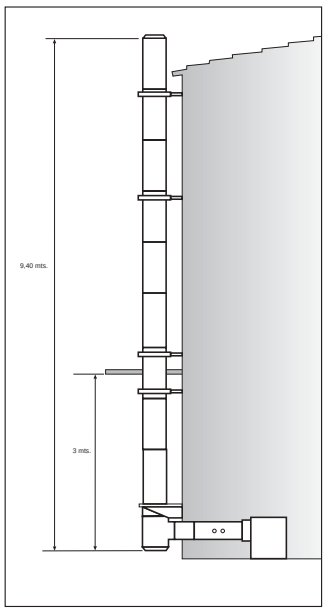
• In case requiring any compensation at the roof eave, elbows will be used for outer installations, in order to reduce the angle as much as possible.

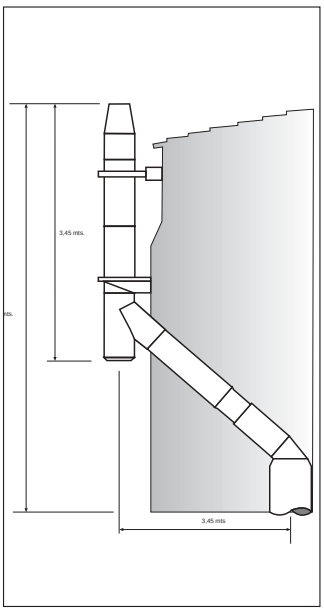
• Sole smoke exhaust for boilers with power higher than 100kw.

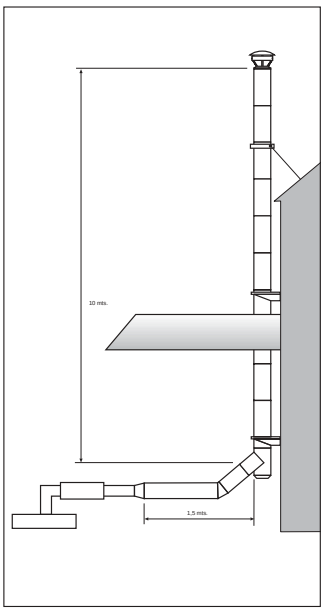
• Sleeves of 4cms more than the chimney's diameter will be used for piercing façades & partitions, and the hollow must be filled with fireproof material. Firestop plates are also recommended.

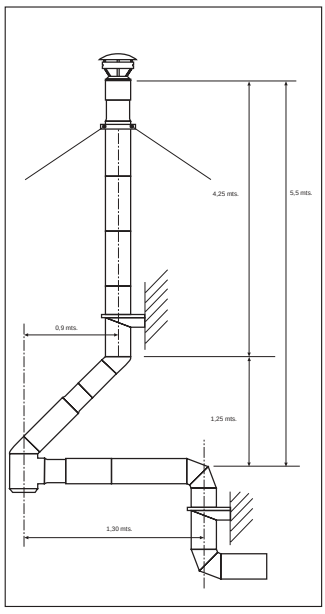
• Due to the flashing adaptability for the different roof inclinations, this will always require a storm collar siliconed to the chimney.











TECHNICAL CHARACTERISTICS OF MD & IS Ranges

OPTIMAL ROUND SECTION

Twin wall insulated system has been designed to meet different installations requirements, in order to minimize charge losses and facilitate the correct draft of the system, even at the most adverse working conditions.

LOW INTERNAL RUGOSITY NEGARRA twin wall insulated system contributes with a minimum friction coefficient to an optimal working of the chimney, avoiding unnecessary flue gases resistance to the movement.

RESISTANCE TO CORROSSION

NEGARRA twin wall insulated system is manufactured in austenitic AISI 304 stainless steel increasing so the corrosion resistance and providing the most effective evacuation of combustion products. Therefore, a long installation durability is ensured avoiding pollution risks caused by gas & smoke exhausts.

LOW THERMAL INERTIA

Due to the small total mass and its facility for heat absorbing, stainless steel pipes allow high conduct temperatures in minimal times, reaching so a fast thermal flow settling.

This means a better output of the installation, plus a considerable energetic and economical saving.

WATER TIGHTNESS

Stainless steel modules are completely tight against water steam diffusion, avoiding insulation moisture problems (between inner and outer wall).

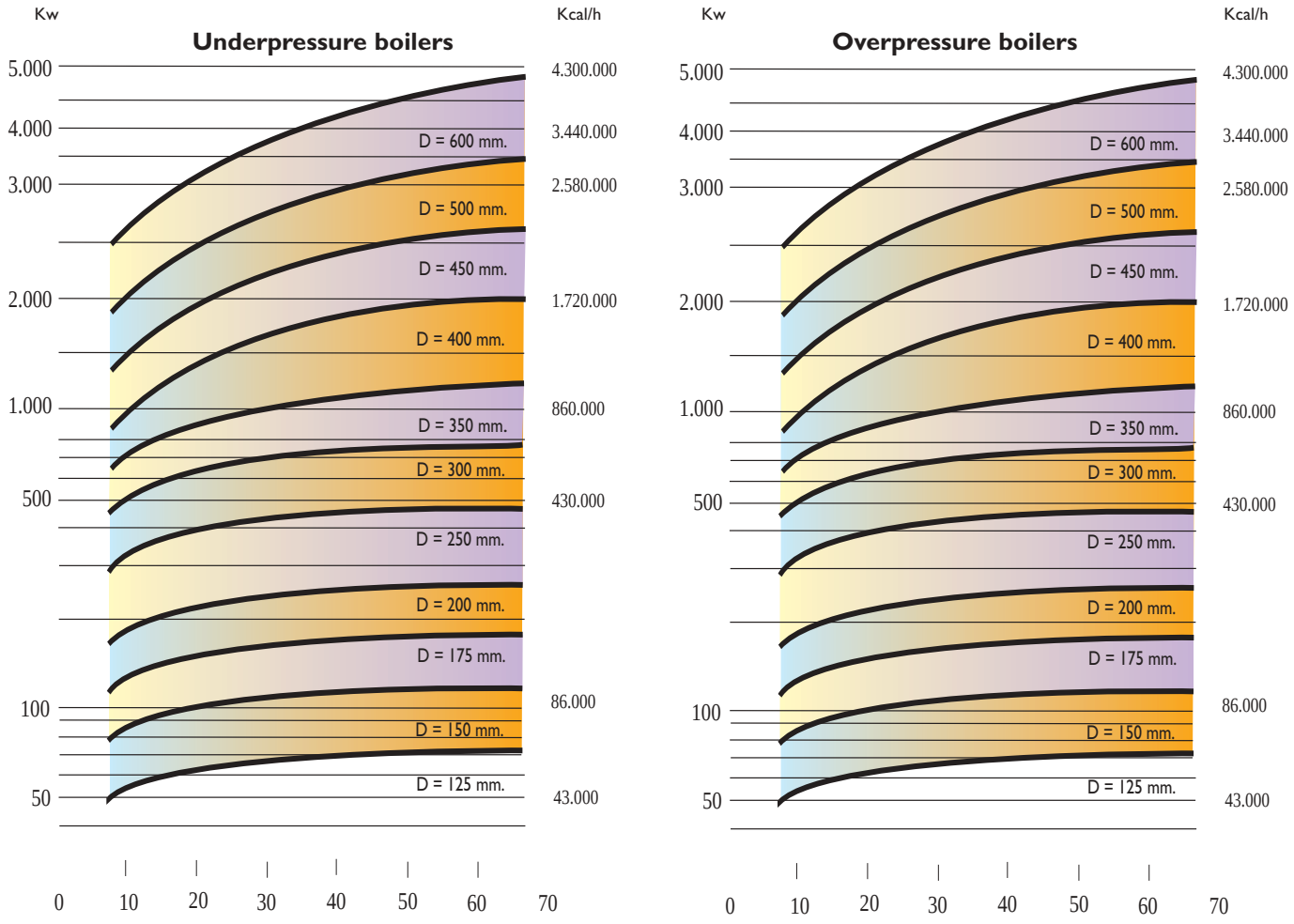
NEGARRA´s male-female joint system is specially engineered and designed in order to ensure minimum resistance to flue gases and a quick drain down of condensates.

THERMAL INSULATION

Insulation reduces the cooling of combustion products, keeping the optimal temperature and achieving the correct performance of the appliance.

The insulation between outer and inner walls ensures a strong draft at the start of firing to minimize condensation, as well as low external surface temperature.

SIZING SCHEME



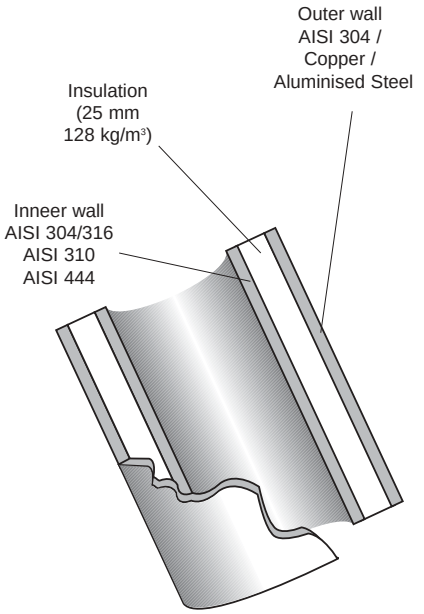
ASSEMBLY INSTRUCTIONS

IS Range

•Female side of the modules has to be sited in ascendant position in relation to smokes exhaust direction avoiding so outlet condensates. Using of bilabial joints for reaching total water tightness is optional.
•When locating modules in the opposite direction for ventilation systems, a female-female adaptor will be required in the final raincap for ending the chimney.

MD Range

• Modules are used with a male adaptor sited in ascendant position in relation to smokes exhaust direction, always assembled by locking bands.

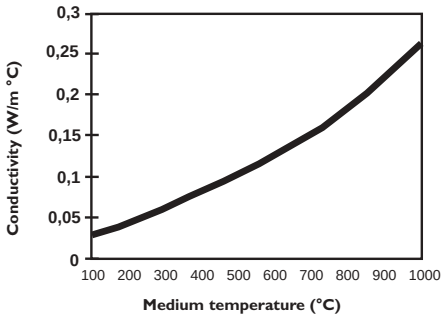


NEGARRA'S pipe section
Manufacturing materials

Insulation components

Inner and outer wall are separated by 25mm thickness and 128kg/m3 density ceramic fiber .
The basis of the insulation is a light & flexible blanket, made of spinned ceramic fibers. The strength of the product is due to its extra large fibers. This is a high density insulation resisting up to 1200ºC. This material is considered as NON COMBUSTIBLE according to IMCO Rule.
It is considered to be completely inorganic, with high resistance insulation, low contraction , also low capacity for heat keeping and total resistance to thermal changes.
This is not affected by chemical products, except for hydrofluoric & phosphoric acids and alkaline concentrate products.
It is specially designed for reaching high thermal resistance, fast temperature settling in inner pipe and low temperature in outer pipe & accessories, which main characteristics are:

- High tension resistance
- It does not shrink
- Heat resistance
- High elasticity
- Low thermal conductivity
- Resistance to thermal changes
- Optimal noise absorption
- High heat reflectance



Variation of the insulation´s thermal conductivity according to the temperature

CHEMICAL ANALYSIS IN %

$Si O_2$	$Al O_2$	$Fe_2 O_3$	$Ti O_2$	Alkaline
54,80	45,00	0,03	0,02	0,15

PHYSICAL SKILLS

Colour	Temperature classification	Fusion point	Fibre's diameter (μm)	Specific heat 1090 °C (J/kg °C)	Specific gravity	Resistance to tension (KN/m²)		
						s/density kg/m²		
						64	96	126
White	1260 °C	1760 °C	2,5 - 3,5	1130,00	2,73	38,00	68,00	86,00

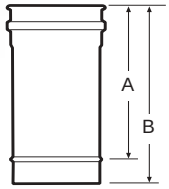
APPLICATIONS NEGARRA'SRANGE

LINES		APPLICATIONS	Floor boilers	Floor boilers	Ovens	Dryers	Ventilation system / air conditioning	Cogeneration	High pressure diessel groups	Incinerators	Atmospheric boiler	Tight mural boiler-biflow	Tight mural boiler	Extractor hood	Collective chimneys for atmospheric boilers	Collective chimneys for closed camera boilers
IS	**IS MASTER**	GAS	●		●	●										
		GAS OIL	○		○	○										
		FIREWOOD / COAL		○												
	IS PLUS	GAS	●		●	●										
		GAS OIL	●		●	●										
		FIREWOOD / COAL		●												
	IS CLIMA						●									
MD	**MD MASTER**	GAS	●		●	●										
		GAS OIL	○		○	○										
		FIREWOOD / COAL		○												
	MD PLUS	GAS	●		●	●										
		GAS OIL	●		●	●										
		FIREWOOD / COAL		●												
	MD ALU	GAS	●		●	●										
		GAS OIL	○		○	○										
		FIREWOOD / COAL		○												
	MD CUPRA	GAS	●		●	●										
		GAS OIL	●		●	●										
		FIREWOOD / COAL		○												
	MD CLIMA						●									
GC	**GC MASTER**	GAS	●		●	●		●	●	●						
		GAS OIL	○		○	○		○	○	○						
	GC PLUS	GAS	●		●	●		●	●	●						
		GAS OIL	●		●	●		●	●	●						
	GC ALU	GAS	●		●	●		●	●	●						
		GAS OIL	○		○	○		○	○	○						
	EUROSHUNT AT	GAS													●	
	EUROSHUNT ES	GAS														●
	EUROSHUNT TP	GAS														●
	ALU•STAR	GAS									●	●				
		GAS OIL														
		FIREWOOD / COAL														
	NEGARPLUS	GAS									●	●				
		GAS OIL														
		FIREWOOD / COAL														
	COAXIAL	GAS											●			
		GAS OIL														
		FIREWOOD / COAL														
	BLACK	GAS														
		GAS OIL														
		FIREWOOD / COAL		●												
	VENTILATION													●		
	V. RECT. MET.													●		

Recommended use ● Technical deparment advice ○

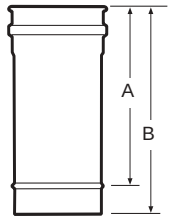
IS RANGE

(Single Wall Flue System)



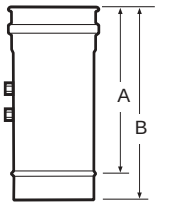
Pipe 500 mm.

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.105	230.105	231.105	241.105	232.105	233.105	234.105	235.105	236.105	237.105	238.105	239.105	240.105	242.105	243.105	244.105	245.105	247.105
A	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430
B	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480



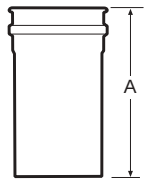
Pipe 1.000 mm.

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.106	230.106	231.106	241.106	232.106	233.106	234.106	235.106	236.106	237.106	238.106	239.106	240.106	242.106	243.106	244.106	245.106	247.106
A	930	930	930	930	930	930	930	930	930	930	930	930	930	930	930	930	930	930
B	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980	980



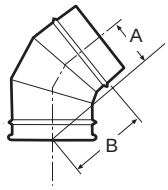
Inspection pipe

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.120	230.120	231.120	241.120	232.120	233.120	234.120	235.120	236.120	237.120	238.120	239.120	240.120	242.120	243.120	244.120	245.120	247.120
A	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430
B	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480



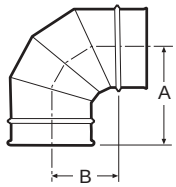
Adjustable pipe 250 mm. / Adjustable pipe 500 mm.

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.108	230.108	231.108	241.108	232.108	233.108	234.108	235.108	236.108	237.108	238.108	239.108	240.108	242.108	243.108	244.108	245.108	247.108
A	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
Ref.	229.107	230.107	231.107	241.107	232.107	233.107	234.107	235.107	236.107	237.107	238.107	239.107	240.107	242.107	243.107	244.107	245.108	247.107
A	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480



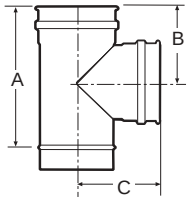
45° Elbow

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.045	230.045	231.045	241.045	232.045	233.045	234.045	235.045	236.045	237.045	238.045	239.045	240.045	242.045	243.045	244.045	245.045	247.045
A	73	76	80	82	83	87	91	98	105	113	120	127	135	142	149	157	164	179
B	132	139	148	153	157	166	175	192	210	228	245	263	281	298	316	334	351	387



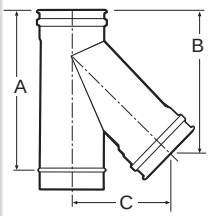
90° Elbow

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.090	230.090	231.090	241.090	232.090	233.090	234.090	235.090	236.090	237.090	238.090	239.090	240.090	242.090	243.090	244.090	245.090	247.090
A	156	165	178	186	191	203	216	241	266	291	316	341	366	391	416	441	466	516
B	111	121	134	141	146	159	171	196	221	246	271	296	321	346	371	396	421	471



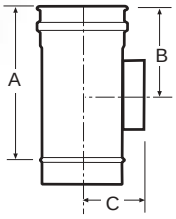
90° Tee

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.109	230.109	231.109	241.109	232.109	233.109	234.109	235.109	236.109	237.109	238.109	239.109	240.109	242.109	243.109	244.109	245.109	247.109
A	210	210	210	220	250	260	285	335	385	450	500	550	600	600	695	745	795	895
B	106	116	130	135	142	155	168	193	218	250	275	300	325	351	376	401	426	476
C	130	130	130	138	143	155	167	192	215	250	275	300	325	347	372	397	422	472



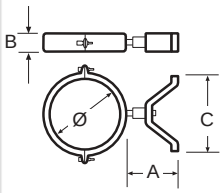
135° Tee

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.110	230.110	231.110	241.110	232.110	233.110	234.110	235.110	236.110	237.110	238.110	239.110	240.110	242.110	243.110	244.110	245.110	247.110
A	215	246	286	305	320	355	390	450	540	610	695	744	813	894	964	1034	1105	1246
B	178	225	270	278	285	320	344	396	456	502	561	638	687	724	777	830	882	989
C	96	140	176	180	184	211	233	273	326	361	410	475	513	540	583	625	668	718



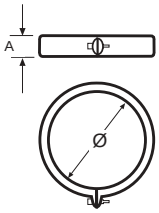
Inspection pipe squared door

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	740.350	741.350	751.350	742.350	743.350	744.350	745.350	746.350	747.350	748.350	749.350	750.350	752.350	753.350	754.350	755.350	757.350
A	-	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480
B	-	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
C	-	176	122	130	135	147	160	185	210	235	260	285	310	334	360	385	410	460



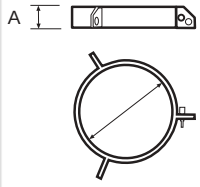
Adjustable wall bracket

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.115	230.115	231.115	241.115	232.115	233.115	234.115	121.115	122.115	123.115	124.115	125.115	240.115	242.115	243.115	244.115	245.115	247.115
A	72	72	72	72	72	72	72	47-86	29-68	36-75	75	75	75	75	75	75	75	75
B	25	25	25	25	25	25	25	43	43	43	50	50	50	50	50	50	50	50
C	95	95	95	95	95	95	95	172	235	235	530	580	630	680	730	780	830	880



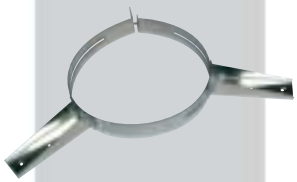
Locking band

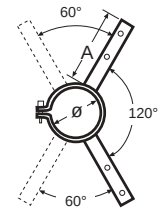
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.114	230.114	231.114	241.114	232.114	233.114	234.114	235.114	236.114	237.114	238.114	239.114	240.114	242.114	243.114	244.114	245.114	247.114
A	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17



Guy wire bracket

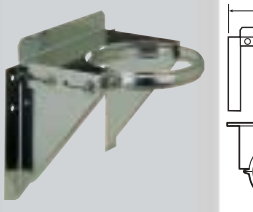
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.117	230.117	231.117	241.117	232.117	118.117	119.118	121.117	122.117	123.117	124.117	125.117	240.117	242.117	243.117	244.117	245.117	247.117
A	35	35	35	35	35	35	35	35	50	50	50	50	50	65	65	65	65	65

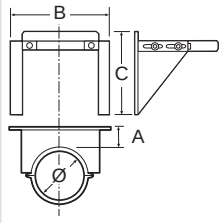




Level bracket

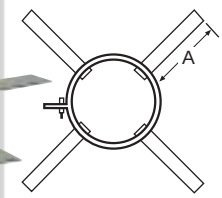
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	-	231.118	-	232.118	118.118	119.118	121.118	122.118	123.118	124.118	125.118	240.118	242.118	243.118	244.118	245.118	247.118
A	-	-	250	-	250	250	250	250	250	250	250	250	250	250	250	250	250	250





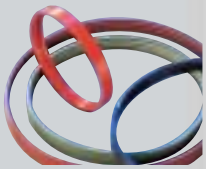
Adjustable wall support

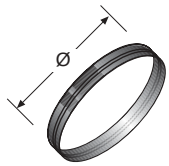
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.121	231.121	241.121	232.121	118.121	119.121	121.121	122.121	123.121	124.121	125.121	240.121	242.121	243.121	244.121	245.121	247.121
A	-	58-91	58-91	58-91	58-91	58-91	58-91	56-100	56-100	56-100	56-100	56-100	56-100	56-100	56-100	56-100	56-100	56-100
B	-	224	249	264	274	299	324	374	424	474	524	574	624	574	624	574	624	574
C	-	176	198	210	214	230	249	287	324	262	399	437	474	516	586	625	664	704



Descend bracket

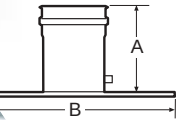
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.181	230.181	231.181	241.181	232.181	118.181	119.181	121.181	122.181	123.181	124.181	125.181	240.181	-	-	-	-	-
A	250	250	250	250	250	250	250	250	250	250	250	250	250	-	-	-	-	-





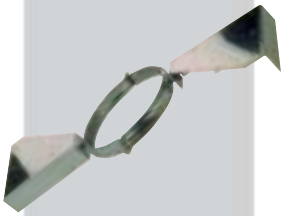
Silicone joint

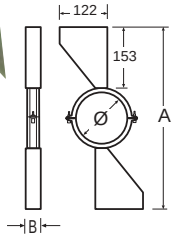
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	191.180	192.180	231.175	241.175	232.175	233.175	234.175	235.175	236.175	237.175	238.175	239.175	240.175	242.175	243.175	244.175	245.175	247.175



Base support with chain

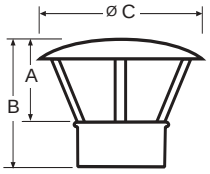
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.119	231.119	241.119	232.119	233.119	234.119	235.119	236.119	237.119	238.119	239.119	240.119	242.119	243.119	244.119	245.119	247.119
A	-	150	150	150	150	150	150	150	150	200	200	200	200	200	200	200	200	200
B	-	200	225	240	250	275	300	350	400	450	500	600	650	700	750	800	850	950





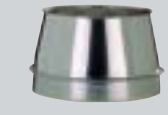
Roof support

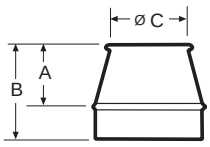
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.136	231.136	-	232.136	118.136	119.136	121.136	122.136	123.136	-	-	-	-	-	-	-	-
A	-	413	438	-	463	488	513	566	617	666	-	-	-	-	-	-	-	-
B	-	32	32	-	32	32	32	32	32	32	-	-	-	-	-	-	-	-



Rain cap

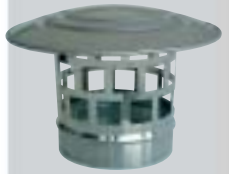
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.112	230.112	231.112	241.112	232.112	233.112	234.112	235.112	236.112	237.112	238.112	239.112	-	-				
A	98	100	155	160	140	160	160	219	263	268	298	298	-	-	-	-	-	-
B	158	160	200	200	210	221	220	264	308	313	343	343	-	-	-	-	-	-
C	160	210	240	260	260	310	360	410	460	510	560	600	-	-	-	-	-	-

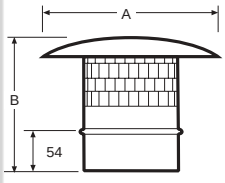




Conical terminal

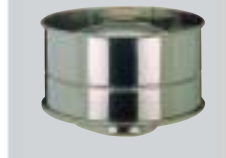
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.111	230.111	231.111	241.111	232.111	233.111	234.111	235.111	236.111	237.111	238.111	239.111	240.111	242.111	243.111	244.111	245.111	247.111
A	45	62	62	72	72	87	93	127	127	147	147	172	172	200	200	200	200	200
B	78	102	102	108	108	122	122	162	162	182	182	208	208	232	232	257	257	257
C	60	75	100	115	125	150	175	200	250	300	350	400	450	475	525	575	625	725

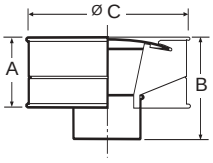




Anti-birds Top terminal

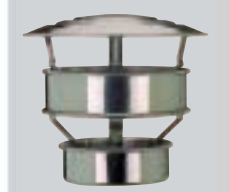
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	-	231.127	-	232.127	233.127	234.127	235.127	236.127	237.127	238.127	239.127	-	-	-	-	-	-
A	-	-	240	-	240	260	310	360	410	460	510	560	-	-	-	-	-	-
B	-	-	177	-	180	238	240	246	244	250	249	254	-	-	-	-	-	-

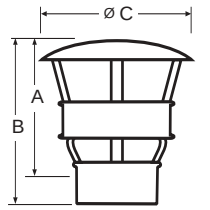




Anti-wind Top terminal

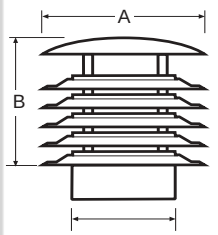
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.125	231.125	-	232.125	233.125	234.125	235.125	236.125	237.125	238.125	239.125	240.125	-	-	-	-	-
A	-	160	160	-	160	160	160	185	185	260	260	260	260	-	-	-	-	-
B	-	206	206	-	206	206	231	231	306	306	306	306	306	-	-	-	-	-
C	-	260	285	-	310	335	360	410	460	510	560	660	710	-	-	-	-	-





Anti-rain Top terminal

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.123	231.123	-	232.123	233.123	234.123	235.123	236.123	-	-	-	-	-	-	-	-	-
A	-	173	125	-	190	220	220	250	250	-	-	-	-	-	-	-	-	-
B	-	242	245	-	257	291	294	317	331	-	-	-	-	-	-	-	-	-
C	-	235	240	-	260	310	360	410	460	-	-	-	-	-	-	-	-	-



Static Terminal

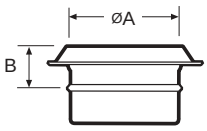
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.131	231.131	-	232.131	233.131	234.131	235.131	236.131	-	-	-	-	-	-	-	-	-
A	-	245	245	-	260	313	313	363	411	-	-	-	-	-	-	-	-	-
B	-	272	272	-	277	288	288	297	302	-	-	-	-	-	-	-	-	-

Male-male adaptor

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.171	230.171	231.171	241.171	232.171	233.171	234.171	235.171	236.171	237.171	238.171	239.171	240.171	242.171	243.171	244.171	245.171	247.171
A	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88

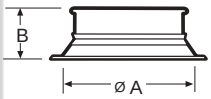
Female-female adaptor

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.170	230.170	231.170	241.170	232.170	233.170	234.170	235.170	236.170	237.170	238.170	239.170	240.170	242.170	243.170	244.170	245.170	247.170
A	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98



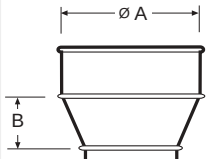
Single-twin adaptor

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	-	118.148	-	119.148	120.148	121.148	122.148	123.148	124.148	125.148	-	-	-	-	-	-	-
A	-	-	125	-	150	175	200	250	300	350	400	-	-	-	-	-	-	-
B	-	-	50	-	50	50	50	50	50	50	50	-	-	-	-	-	-	-



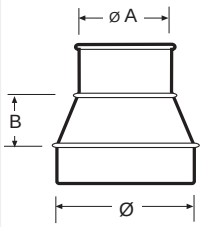
Twin-single adaptor

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	-	118.149	-	119.149	120.149	121.149	122.149	123.149	124.149	125.149	-	-	-	-	-	-	-
A	-	-	125	-	150	175	200	250	300	350	400	-	-	-	-	-	-	-
B	-	-	85	-	85	80	80	80	80	80	80	-	-	-	-	-	-	-



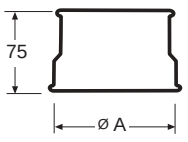
Increaser

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.160	230.160	231.160	241.160	232.160	233.160	234.160	235.160	236.160	237.160	238.160	239.160	240.160	242.160	243.160	244.160	-	-
A	100	125	150	175	175	200	250	300	350	400	450	500	550	600	650	700	-	-
B	80	75	60	75	60	75	75	75	75	75	75	75	75	75	75	100	-	-
Ref.	229.161	230.161	231.161	241.161	232.161	233.161	234.161	235.161	236.161	237.161	238.161	-	-	-	-	-	245.161	-
A	125	150	175	200	200	250	300	350	400	450	500	-	-	-	-	-	800	-
B	65	75	75	75	75	90	100	75	100	100	100	-	-	-	-	-	100	-



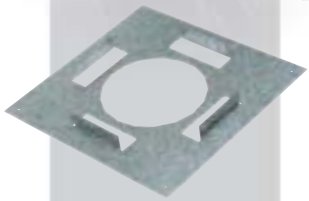
Decreaser

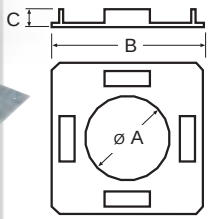
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.165	231.165	-	232.165	233.165	234.165	235.165	236.165	237.165	238.165	239.165	240.165	242.165	243.165	244.165	245.165	-
A	-	80	100	-	125	150	175	200	250	300	350	400	450	500	550	600	650	-
B	-	75	75	-	60	60	75	75	75	75	75	75	75	75	75	75	75	-
Ref.	-	-	231.166	-	232.166	233.166	234.166	235.166	236.166	237.166	238.161	239.166	240.166	-	-	-	-	247.166
A	-	-	80	-	100	125	150	175	200	250	300	350	400	-	-	-	-	700
B	-	-	65	-	75	75	75	90	100	75	100	100	100	-	-	-	-	100



Boiler adaptor

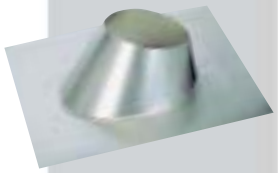
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	-	230.150	231.150	241.150	232.150	233.151	234.150	235.152	236.151	-	-	-	-	-	-	-	-	-
A	-	125	135	139	160	200	210	200	350	-	-	-	-	-	-	-	-	-
Ref.	-	-	231.151	241.151	232.151	232.151	234.152	235.152	235152	-	-	-	-	-	-	-	-	-
A	-	-	140	153	175	150	250	300	250	-	-	-	-	-	-	-	-	-
Ref.	-	-	231.152	231.151	232.152	233.153	233.151	-	-	-	-	-	-	-	-	-	-	-
A	-	-	150	125	200	180	175	-	-	-	-	-	-	-	-	-	-	
Ref.	-	-	231.153	241.153	231.152	-	234.153	-	-	-	-	-	-	-	-	-	-	-
A	-	-	120	130	125	-	180	-	-	-	-	-	-	-	-	-	-	-
Ref.	-	-	231.154	-	232.153	-	-	-	-	-	-	-	-	-		-	-	-
A	-	-	130	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-

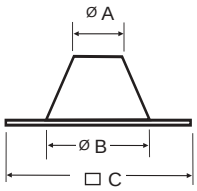




Firestop plate

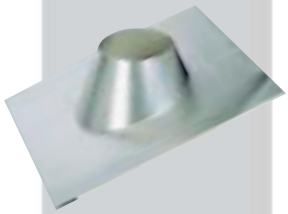
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.140	230.140	231.140	241.140	232.140	118.140	119.140	121.140	122.140	123.140	124.140	125.140	240.140	242.140	243.140	244.140	245.140	247.140
A	100	120	145	160	175	195	220	270	320	370	420	470	520	570	620	670	720	820
B	280	300	325	340	350	375	400	450	500	550	600	650	700	750	800	850	900	1.000
C	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38

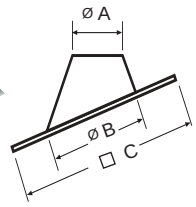




0° - 10° Flashing

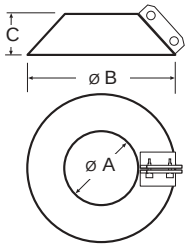
ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.129	230.129	231.129	241.129	232.129	118.129	119.129	121.129	122.129	123.129	124.129	125.129	240.129	242.129	243.129	244.129	245.129	247.129
A	90	110	135	150	160	185	210	260	310	360	415	465	515	565	615	665	715	815
B	225	225	265	225	225	264	288	344	423	495	495	616	616	700	700	850	850	850
C	666	666	666	666	666	666	666	700	800	900	900	1.000	1.000	1.200	1.200	1.200	1.200	1.200





5° - 35° Flashing

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.130	230.130	231.130	241.130	232.130	118.130	119.130	121.130	122.130	123.130	124.130	125.130	240.130	242.130	243.130	244.130	245.130	247.130
A	90	110	135	150	160	185	210	260	310	360	415	465	515	565	615	665	715	815
B	225	225	264	288	288	321	344	423	495	556	616	700	700	800	800	900	900	900
C	666	666	666	666	666	666	700	800	900	1.000	1.000	1.000	1.000	1.200	1.200	1.200	1.200	1.200

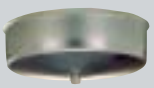


Storm collar

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.132	230.132	231.132	241.132	232.132	118.132	119.132	121.132	122.132	123.132	124.132	125.132	240.132	242.132	243.132	244.132	245.132	247.132
A	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
B	200	217	242	260	267	320	317	407	497	547	637	687	737	790	840	890	940	1.040
C	60	60	60	60	60	80	60	80	100	100	120	120	120	120	120	120	120	120

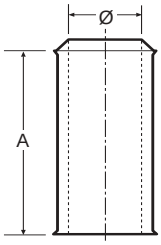
Teecap

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.113	230.113	231.113	241.113	232.113	233.113	234.113	235.113	236.113	237.113	238.113	239.113	-	-	-	-	-	-
A	65	65	45	65	53	85	85	85	85	85	85	85	-	-	-	-	-	-



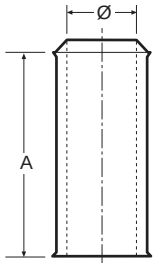
Teecap with chain

ø	80	100	125	140	150	175	200	250	300	350	400	450	500	550	600	650	700	800
Ref.	229.145	230.145	231.145	241.145	232.145	233.145	234.145	235.145	236.145	237.145	238.145	239.145	240.145	242.145	243.145	244.145	245.145	247.145
A	65	65	45	65	53	85	85	85	85	85	85	85	85	85	85	85	85	85

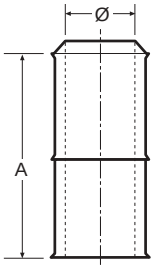
Pipe 100, 250 mm.

Ø	125	150	175	200	250	300	350	400
Ref.	118.103	119.103	120.103	121.103	122.103	123.103	-	-
A	85	85	85	85	85	85	-	-
Ref.	118.104	119.104	120.104	121.104	122.104	123.104	124.104	125.104
A	235	235	235	235	235	235	235	235

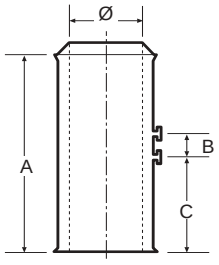
Pipe 500, 1.000 mm.

Ø	125	150	175	200	250	300	350	400
Ref.	118.105	119.105	120.105	121.105	122.105	123.105	124.105	125.105
A	485	485	485	485	485	485	485	485
Ref.	118.106	119.106	120.106	121.106	122.106	123.106	124.106	125.106
A	985	985	985	985	985	985	985	985

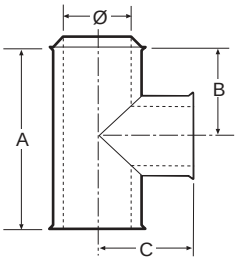
Adjustable pipe 250-450 mm. / 500-950 mm.

Ø	125	150	175	200	250	300	350	400
Ref.	118.108	119.108	120.108	121.108	122.108	123.108	124.108	125.108
A	290-420	290-420	290-420	290-420	290-420	290-420	290-420	290-420
Ref.	118.107	119.107	120.107	121.107	122.107	123.107	124.107	125.107
A	620-950	620-950	620-950	620-950	620-950	620-950	620-950	620-950

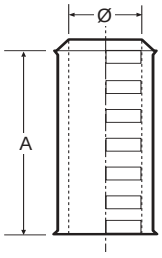
Inspection pipe

Ø	125	150	175	200	250	300	350	400
Ref.	118.120	119.120	120.120	121.120	122.120	123.120	124.120	125.120
A	485	485	485	485	485	485	485	485
B	50	50	50	50	50	50	50	50
C	217	217	217	217	217	217	217	217

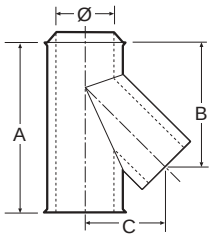
90° Tee

Ø	125	150	175	200	250	300	350	400
Ref.	118.109	119.109	120.109	121.109	122.109	123.109	124.109	125.109
A	280	320	345	370	420	470	540	590
B	140	160	173	185	210	235	270	295
C	140	152	165	177	210	235	270	295

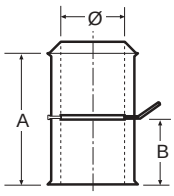
Silencer

Ø	125	150	175	200	250	300	350	400
Ref.	118.133	119.133	120.133	121.133	122.133	123.133	-	-
A	985	985	985	985	985	985	-	-

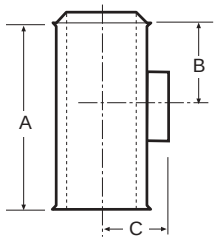
135° Tee

Ø	125	150	175	200	250	300	350	400
Ref.	118.110	119.110	120.110	121.110	122.110	123.110	124.110	125.110
A	440	475	525	560	612	700	775	845
B	339	315	353	375	421	460	589	642
C	243	264	295	317	359	385	446	489

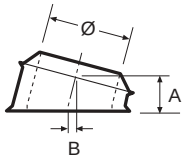
Damper

Ø	125	150	175	200	250	300	350	400
Ref.	118.134	119.134	120.134	121.134	122.134	123.134	124.134	125.134
A	235	235	235	235	235	235	485	485
B	118	118	118	118	118	118	243	243

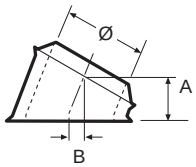
Inspection pipe squared door

Ø	125	150	175	200	250	300	350	400
Ref.	720.350	721.350	722.350	723.350	724.350	725.350	726.350	727.350
A	485	485	485	485	485	485	485	485
B	240	240	240	240	240	240	240	240
C	245	270	295	320	370	420	470	520

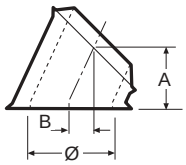
15° Elbow

Ø	125	150	175	200	250	300	350	400
Ref.	118.015	119.015	120.015	121.015	122.015	123.015	124.015	125.015
A	63	67	70	73	79	86	92	99
B	8	9	9	10	10	11	12	13

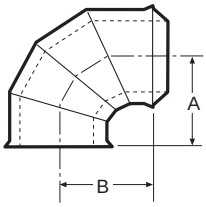
30° Elbow

Ø	125	150	175	200	250	300	350	400
Ref.	118.030	119.030	120.030	121.030	122.030	123.030	124.030	125.030
A	83	90	96	102	115	127	140	152
B	22	24	26	27	31	35	38	41

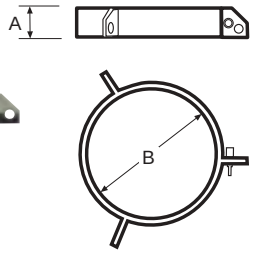
45° Elbow

Ø	125	150	175	200	250	300	350	400
Ref.	118.045	119.045	120.045	121.045	122.045	123.045	124.045	125.045
A	100	109	117	126	144	162	179	197
B	41	45	48	52	60	67	74	82

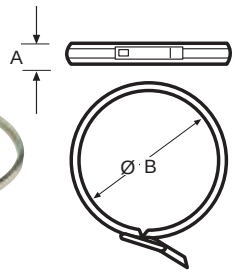
90° Elbow

Ø	125	150	175	200	250	300	350	400
Ref.	118.090	119.090	120.090	121.090	-	-	-	-
A	184	200	212	230	-	-	-	-
B	165	205	117	225	-	-	-	-

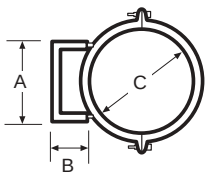
Guy wire bracket

Ø	125	150	175	200	250	300	350	400
Ref.	118.117	119.117	120.117	121.117	122.117	123.117	124.117	125.117
A	35	35	35	35	50	50	50	50
B	175	200	225	250	300	350	400	450

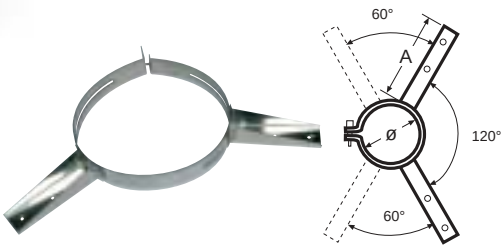
Locking band

Ø	125	150	175	200	250	300	350	400
Ref.	118.114	119.114	120.114	121.114	122.114	123.114	124.114	125.114
A	13	13	13	13	13	13	17	17
B	175	200	225	250	300	350	400	450

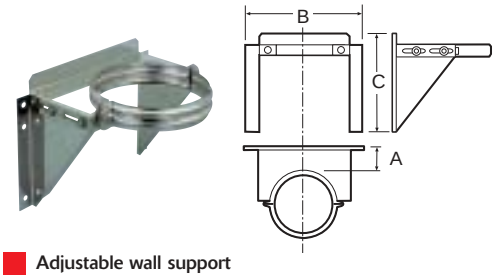
Adjustable wall bracket

Ø	125	150	175	200	250	300	350	400
Ref.	118.115	119.115	120.115	121.115	122.115	123.115	124.115	125.115
A	119	145	172	172	235	235	460	510
B	57-96	51-90	44-83	47-86	29-68	36-75	72	72
C	175	200	225	250	300	350	400	450



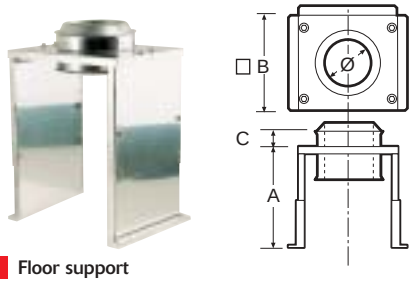
Level bracket

Ø	125	150	175	200	250	300	350	400
Ref.	118.118	119.118	120.118	121.118	122.118	123.118	124.118	125.118
A	250	250	250	250	250	250	250	250



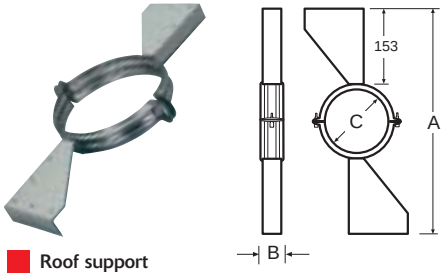
Adjustable wall support

Ø	125	150	175	200	250	300	350	400
Ref.	118.121	119.121	120.121	121.121	122.121	123.121	124.121	125.121
A	58-91	58-91	56-100	56-100	56-100	56-100	56-100	56-100
B	299	324	360	374	424	474	524	574
C	230	249	263	287	324	362	399	437



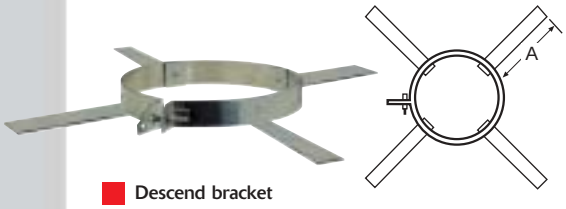
Floor support

Ø	125	150	175	200	250	300	350	400
Ref.	118.124	119.124	120.124	121.124	122.124	123.124	-	-
A	370-545	370-545	370-545	370-545	370-545	370-545	-	-
B	275	300	325	350	400	450	-	-
C	50	50	50	50	50	50	-	-



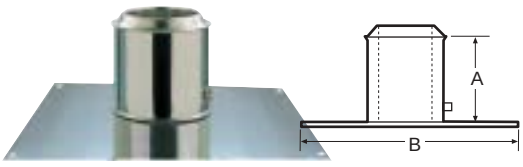
Roof support

Ø	125	150	175	200	250	300	350	400
Ref.	118.136	119.136	120.136	121.136	122.136	123.136	-	-
A	488	513	542	566	617	666	-	-
B	32	32	32	32	32	32	-	-
C	175	200	225	250	300	350	-	-



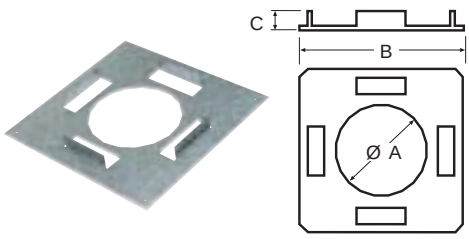
Descend bracket

Ø	125	150	175	200	250	300	350	400
Ref.	118.181	119.181	120.181	121.181	122.181	123.181	124.181	125.181
A	250	250	250	250	250	250	250	250



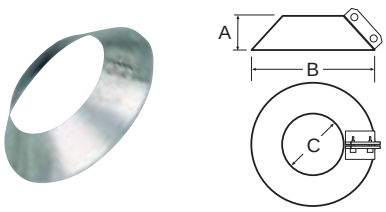
Base support with drain

Ø	125	150	175	200	250	300	350	400
Ref.	118.119	119.119	120.119	121.119	122.119	123.119	124.119	125.119
A	150	150	150	150	150	150	150	150
B	300	325	350	375	425	475	600	650



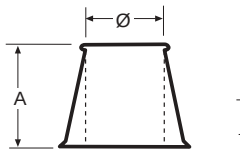
Firestop plate

Ø	125	150	175	200	250	300	350	400
Ref.	118.140	119.140	120.140	121.140	122.140	123.140	124.140	125.140
A	195	220	245	270	320	370	420	470
B	375	400	425	450	500	550	600	650
C	38	38	38	38	38	38	38	38



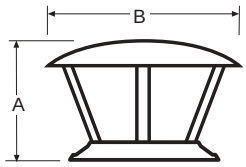
Storm collar

Ø	125	150	175	200	250	300	350	400
Ref.	118.132	119.132	120.132	121.132	122.132	123.132	124.132	125.132
A	80	60	80	80	100	100	120	120
B	320	317	382	407	497	547	637	687
C	175	200	225	250	300	350	400	450

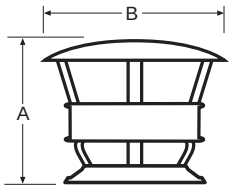
Conical Terminal

Ø	125	150	175	200	250	300	350	400
Ref.	118.111	119.111	120.111	121.111	122.111	123.111	124.111	125.111
A	200	225	225	245	245	245	305	305

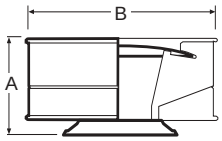
Rain cap

Ø	125	150	175	200	250	300	350	400
Ref.	118.112	119.112	120.112	121.112	122.112	123.112	124.112	125.112
A	150	152	165	186	206	245	260	297
B	240	260	313	354	402	460	510	560

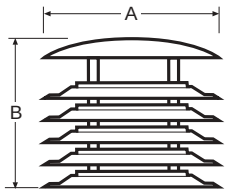
Anti-Rain Top Terminal

Ø	125	150	175	200	250	300	350	400
Ref.	118.123	119.123	120.123	121.123	122.123	123.123	-	-
A	213	215	251	251	268	289	-	-
B	240	260	313	354	402	460	-	-

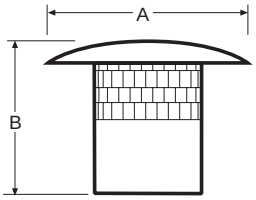
Anti-wind Top Terminal

Ø	125	150	175	200	250	300	350	400
Ref.	118.125	119.125	120.125	121.125	122.125	123.125	124.125	125.125
A	170	170	170	170	170	195	245	245
B	285	310	335	360	410	460	500	550

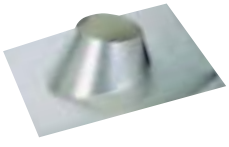
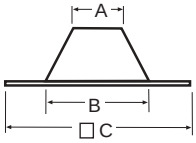
Static Terminal

Ø	125	150	175	200	250	300	350	400
Ref.	118.131	119.131	120.131	121.131	122.131	123.131	-	-
A	245	260	313	313	363	411	-	-
B	212	217	228	228	237	242	-	-

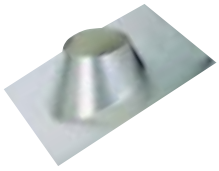
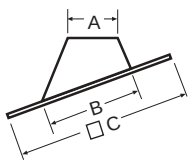
Anti-birds Top Terminal

Ø	125	150	175	200	250	300	350	400
Ref.	118.127	119.127	120.127	121.127	122.127	123.127	124.127	125.127
A	310	310	310	360	410	460	560	600
B	234	236	247	242	240	246	255	260

0° - 10° Flashing

Ø	125	150	175	200	250	300	350	400
Ref.	118.129	119.129	120.129	121.129	122.129	123.129	124.129	125.129
A	185	210	235	265	310	360	415	465
B	264	288	321	344	423	495	495	616
C	666	666	666	700	800	900	900	1000

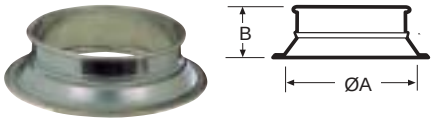



5° - 35° Flashing

Ø	125	150	175	200	250	300	350	400
Ref.	118.130	119.130	120.130	121.130	122.130	123.130	124.130	125.130
A	185	210	240	260	310	360	415	465
B	321	344	372	423	495	556	616	700
C	666	666	800	800	900	1000	1000	1000

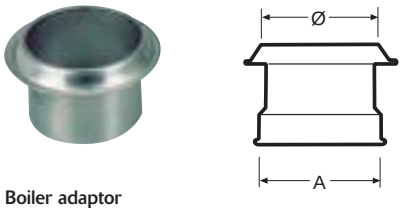
Single-Double adaptor

Ø	125	150	175	200	250	300	350	400
Ref.	118.148	119.148	120.148	121.148	122.148	123.148	124.148	125.148
A	100	100	100	100	100	100	100	100
B	50	50	50	50	50	50	50	50



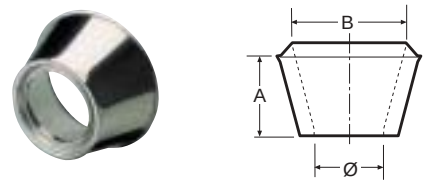
Double-Single adaptor

Ø	125	150	175	200	250	300	350	400
Ref.	118.149	119.149	120.149	121.149	122.149	123.149	124.149	125.149
A	125	150	175	200	250	300	350	400
B	85	85	100	100	100	100	80	80



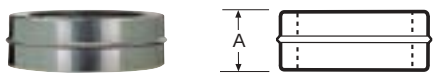
Boiler adaptor

Ø	125	150	175	200	250	300	350	400
Ref.	-	119.150	120.150	121.150	122.150	123.150	124.150	125.150
A	-	125	150	175	200	250	350	400
Ref.	118.151	119.151	120.151	121.151	122.151	123.151	-	-
A	125	140	175	200	250	300	-	-
Ref.	118.152	119.152	120.152	121.152	122.152	123.152	-	-
A	130	150	200	250	300	350	-	-
Ref.	118.153	119.153	120.153	121.153	-	-	-	-
A	135	160	180	150	-	-	-	-
Ref.	118.154	119.154	-	121.154	-	-	-	-
A	140	175	-	180	-	-	-	-
Ref.	118.155	119.155	-	-	-	-	-	-
A	150	130	-	-	-	-	-	-
Ref.	118.156	119.156	-	-	-	-	-	-
A	120	135	-	-	-	-	-	-
Ref.	118.157	119.157	-	-	-	-	-	-
A	100	200	-	-	-	-	-	-



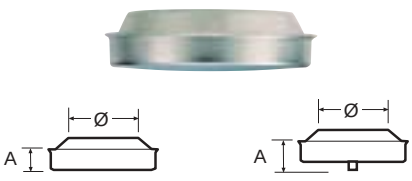
Increaser

Ø	125	150	175	200	250	300	350	400
Ref.	118.160	119.160	120.160	121.160	122.160	123.160	124.160	125.160
A	65	65	65	130	130	195	130	130
B	150	175	200	250	300	350	400	450
Ref.	118.161	119.161	120.161	121.161	122.161	123.161	-	-
A	130	130	195	260	200	260	-	-
B	175	200	250	300	350	400	-	-
Ref.	118.162	119.162	-	-	-	-	-	-
A	195	200	-	-	-	-	-	-
B	200	250	-	-	-	-	-	-



Adaptor MD to GC

Ø	125	150	175	200	250	300	350	400
Ref.	527.171	528.171	529.171	530.171	531.171	532.171	533.171	534.171
A	60	75	75	75	75	75	75	75



Teecap / Teecap with chain

Ø	125	150	175	200	250	300	350	400
Ref.	118.113	119.113	120.113	121.113	122.113	123.113	124.113	125.113
A	63	66	80	71	76	73	50	55
Ref.	118.145	119.145	120.145	121.145	122.145	123.145	124.145	125.145
A	73	76	90	81	86	83	60	65

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