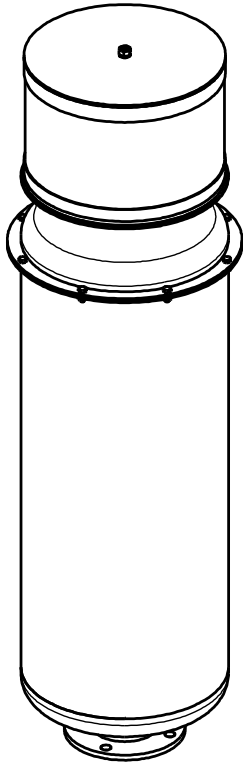
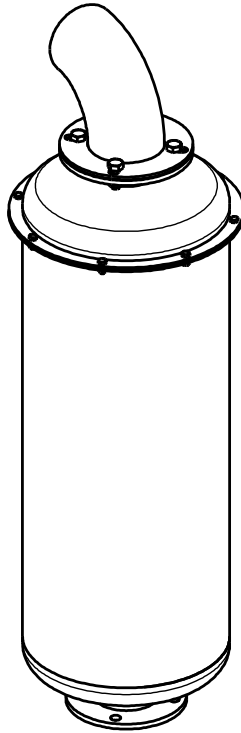


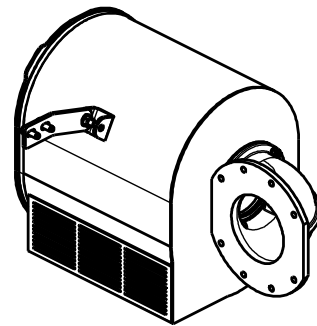
ORIGINAL INSTRUCTIONS



STANDARD PVT-HELIX SILENCERS
(INJECTION/DISCHARGE)

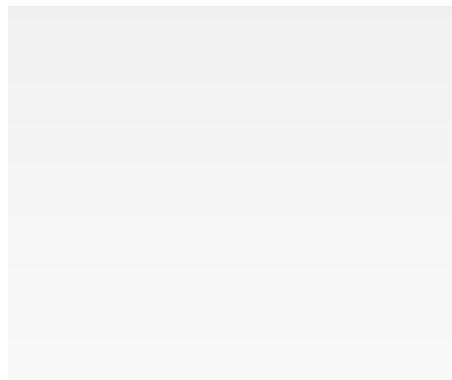


STANDARD PVT-HELIX SILENCERS
(DISCHARGE)



COMPACT PVT-HELIX MUFFLER
(INJECTION)

TECHNICAL DATA SHEET



1. General warnings

This technical data sheet contains technical information concerning silencers for PVT and HELIX series lobe vacuum pumps and the main installation and maintenance instructions.

Complying with the instructions contained in this technical data sheet is crucial for the warranty on defective parts. Upon receiving the goods, ensure that they are intact and have not been accidentally damaged during transport. In the event parts of the accessory must be replaced, **only use original spare parts**.

2. Technical data

The PVT and HELIX silencers are designed to be installed in correspondence with the discharge (standard silencers) or injection line (both standard and compact silencers) of lobe vacuum pumps without lubrication (typically of the PVT-HELIX Series), used to create a vacuum inside tanks.

The compact injection muffler replaces the standard injection muffler. It is installed on the PVT-HELIX side. The suction group is developed to make the installation easier on stationary or mobile vacuum-pressure plants, conveying air.

The PVT-HELIX silencers carry out two main functions:

- Attenuate the noise produced by decompressor operation;
- Filter the suctioned air (at injection) in order to prevent powdery particles over a determined size from entering the pump, thus compromising its operation.

Standard PVT-HELIX silencers are available in six categories:

- **Standard PVT200-280, HELIX140-...-300 Silencers** made of painted S235JR mild steel and Stainless Steel AISI 304L;
- **Standard PVT400, HELIX450 Silencers** made of painted S235JR mild steel and Stainless Steel AISI 304L;
- **Standard PVT700, HELIX550-750 Silencers** made of painted S235JR mild steel and composite material (“ultralight”);
- **Standard PVT1000, HELIX1200 Silencers** made of painted S235JR mild steel and Stainless Steel AISI 304L;
- **Standard HELIX1500 Silencers** made of painted S235JR mild steel and Stainless Steel AISI 304L;
- **Standard HELIX2000 Silencer** made of painted S235JR mild steel.

Each category has the following two types:

- **Filtered:** for injection installation (for all pumps) or to the discharge (for ATEX pumps, should they also be able to work under pressure, e.g. during tank draining operations);
- **Non-filtered:** for discharge installations (with the exception of ATEX pumps in which operation under pressure is provided for).

All silencers are equipped with UNI 2277-67 coupling flanges.

Filtered silencers have a Mesh 120 filtering degree.

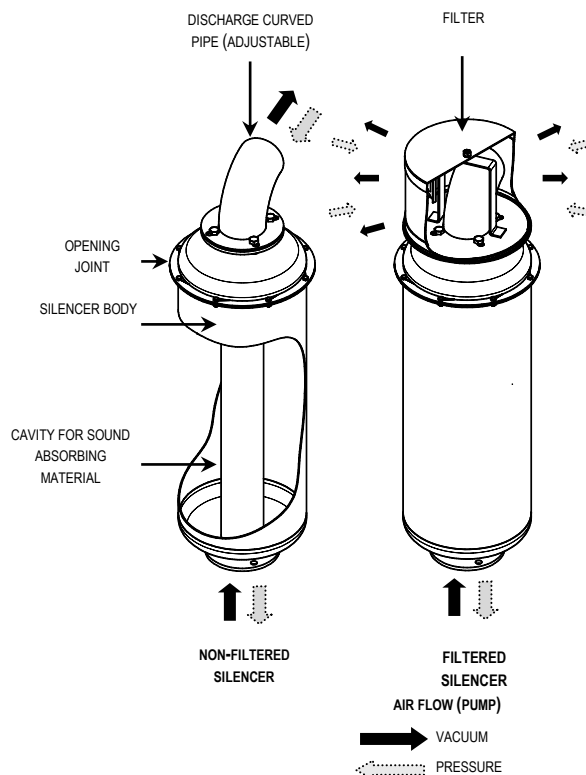
The figure to the side displays a schematic diagram of two standard silencers (e.g. installed to the discharge), highlighting the main features.

The **Compact PVT / HELIX Silencers** are made of painted S235JR mild steel and are available for the following vacuum pumps: PVT200-280-400-700 and HELIX140-180-220-300-450-550-750.

Each category has the following two types:

- **Filtered:** for injection installation (for all pumps) or to the discharge (for ATEX pumps, should they also be able to work under pressure, e.g. during tank draining operations);
- **Non-filtered:** for discharge installations (with the exception of ATEX pumps in which operation under pressure is provided for).

Filtered silencers have a Mesh 120 filtering degree.



The following table shows the main operation parameters and the possible combinations with different types of Jurop pumps:

SILENCERS						PVT / HELIX PUMP	
Model	Flow	Installation	Code	Material	Weight	Standard	ATEX pumps
STANDARD SILENCER PVT 200-280 HELIX 140-180-220-300	850 m³/h 1850 m³/h	INJECTION/DISCHARGE	1414014700	mild steel	57,0 kg	●	●
			1414014900	stainless steel	57,0 kg	●	●
		DISCHARGE	1414014600	mild steel	46,0 kg	●	○
			1414014800	stainless steel	46,0 kg	●	○
COMPACT SILENCER PVT 200 - HELIX 140-180-220	850-1280 m³/h	INJECTION	1847000300	mild steel	29,5 kg	●	
			1847000500	mild steel	33,0 kg		●
COMPACT SILENCER PVT 280 – HELIX 300	1850 m³/h	INJECTION	1847000400	mild steel	29,5 kg	●	
			1847000600	mild steel	32,5 kg		●
STANDARD SILENCER PVT 400 – HELIX 450	2600 m³/h	INJECTION/DISCHARGE	1414014300	mild steel	64,0 kg	●	●
			1414014500	stainless steel	64,0 kg	●	●
		DISCHARGE	1414014200	mild steel	52,0 kg	●	○
			1414014400	stainless steel	52,0 kg	●	○
COMPACT SILENCER PVT 400 – HELIX 450	2600 m³/h	INJECTION	1847000400	mild steel	29,5 kg	●	
			1847000600	mild steel	32,5 kg		●
STANDARD SILENCER PVT 700 – HELIX 550-750	3060-4150 m³/h	INJECTION/DISCHARGE	1414013900	mild steel	135,0 kg	●	●
			14140072E0	stainless steel	135,0 kg	●	●
		INJECTION	141404N4C0	composite material	32,0 kg	●	●
			DISCHARGE	1414013800	mild steel	108,0 kg	●
1414013500	stainless steel	108,0 kg		●	○		
COMPACT SILENCER PVT 700 – HELIX 750	4150 m³/h	INJECTION	1414012700	mild steel	82,0 kg	●	
			1414013700	mild steel	78,5 kg		●
COMPACT SILENCER HELIX 550	3060 m³/h	INJECTION	14140063E0	mild steel	75,0 kg	●	
STANDARD SILENCER PVT 1000 – HELIX 1200	6400 m³/h	INJECTION/DISCHARGE D.600	1414014100	mild steel	220,0 kg	●	●
			1414015200	stainless steel	220,0 kg	●	●
		DISCHARGE D.500 ¹	14140048E0	mild steel	195,0 kg	●	○
			14140049E0	stainless steel	195,0 kg	●	○
		DISCHARGE D.600 ¹	1414014000	mild steel	193,0 kg	●	○
			14140038E0	stainless steel	193,0 kg	●	○
STANDARD SILENCER HELIX 1500	8495 m³/h	INJECTION/DISCHARGE	14140065E0	mild steel	230,0 kg	●	●
			14140066E0	stainless steel	230,0 kg	●	●
		INJECTION	14140050E0	mild steel	222,0 kg	●	○
			14140064E0	stainless steel	222,0 kg	●	○
STANDARD SILENCER HELIX 2000	10860 m³/h	DISCHARGE	14140058E0	mild steel	306,0 kg	●	

○ Ab Only possible to couple if the pump is without 4-way valves (decompressor operation under pressure is not allowed).

1 When choosing between a radial / axial silencer (D.500) and a radial / radial silencer (D.600), it is recommended to consider the vacuum line type and diameter of the tank. The D.500 silencers are recommended in case of large tankers set-ups.

3. Installation

PVT-HELIX silencers are designed to be installed in correspondence with the discharge and injection line (depending on the choice of model) of lobe vacuum pumps (without lubrication).

To ensure attenuation of the noise produced by the decompressor, we recommend installing the silencer as close as possible to it and minimising the hose sections in the line.

The discharge silencer (when assailed by decompressor discharge airflows) is subjected to the passage of high-temperature air that may cause overheating.



Attention: place the silencer out of the reach of operators or provide suitable guards.

An adjustable curved pipe is installed on the outlet of the silencer, in order to prevent rain from entering and to enable positioning of the output airflow. Pay special attention to the fumes suctioned by the vacuum pump and emitted through the silencer.



Attention: direct the silencer discharge away from operators and from the intake duct of the vehicle engine.

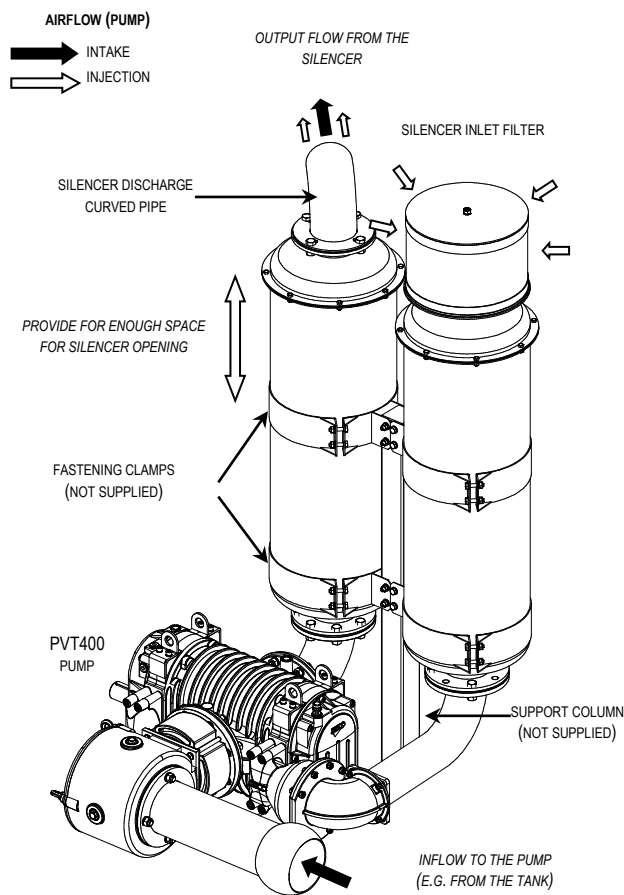
Direct the silencer discharge output away from the silencer suction inlet in order to prevent the input of hot fluids into the injection inlet.

The following table shows the correct installation position for the different types of standard PVT-HELIX silencers (input always facing downwards).

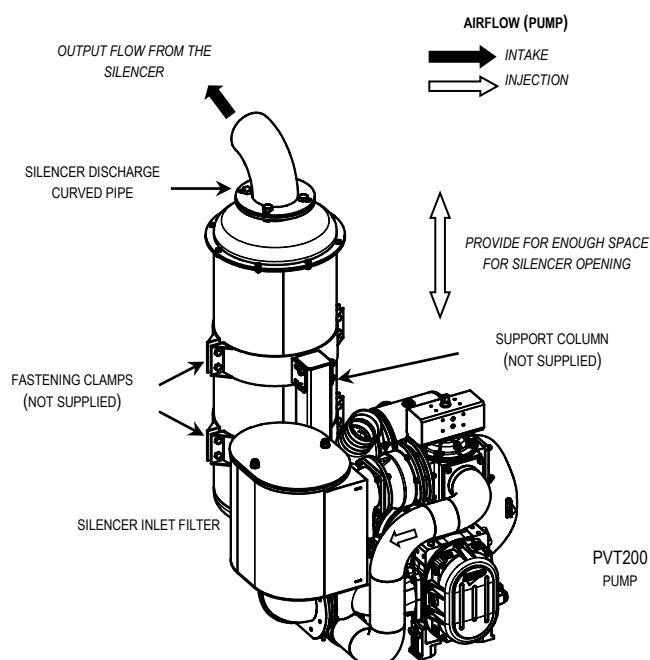
Silencer	Horizontal Inst.	Vertical Inst.
PVT200-280, HELIX140-...-300		•
PVT400, HELIX450		•
PVT700, HELIX550-750	•	• (*)
PVT1000, HELIX1200	•	
HELIX1500	•	
HELIX2000	•	

(*) Installation is only permitted for silencers in mild steel; for vertical installations, provide for a discharge valve for any accumulated materials in the silencer in correspondence with the threaded sleeve placed below.

The figure below shows a schematic diagram of a possible correct installation of silencers for a *standard PVT400 pump* (therefore, the use of a non-filtered silencer to the discharge is permissible). In order to be installed correctly, silencers must be supported by means of clamping points, e.g., with metal clamps (refer to the figure on the side), or with special support systems.



The figure below shows a schematic diagram of a possible correct installation of compact silencer for a *standard PVT200 pump* (therefore, the use of a non-filtered silencer to the discharge is permissible). In order to be installed correctly, silencers must be supported by means of clamping points, e.g., with metal clamps (refer to the figure on the side), or with special support systems.



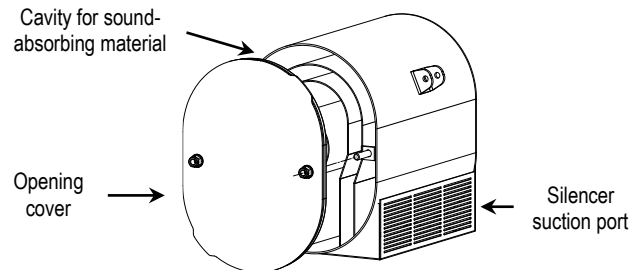
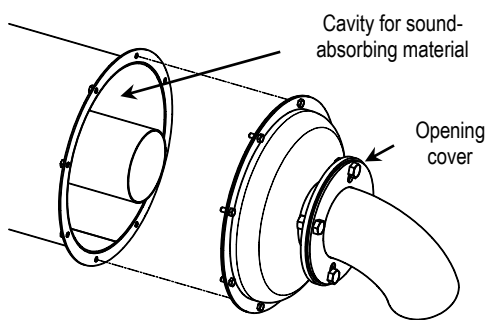
PVT-HELIX series silencers can be opened (with the exception of the compound material version), thus enabling any worn sound-absorbing material to be replaced. You are, therefore, advised to position the silencer in such a way that the removable cover is sufficiently accessible.

The compact injection silencer is installed on the PVT-HELIX side. Provide enough space for air injection. An inefficient air injection could cause the vacuum pump overheating during the vacuum operation.

4. Maintenance

PVT-HELIX silencers are equipped with an opening cover (with the exception of compound material versions) to enable replacement of the worn sound-absorbing material (mineral wool) inside.

Remove the fastening screws (8 or 12, depending on the model) of the cover and open the silencer. Replace the worn sound-absorbing material inside. Once the worn material has been removed, proceed in washing the inside of the silencer.



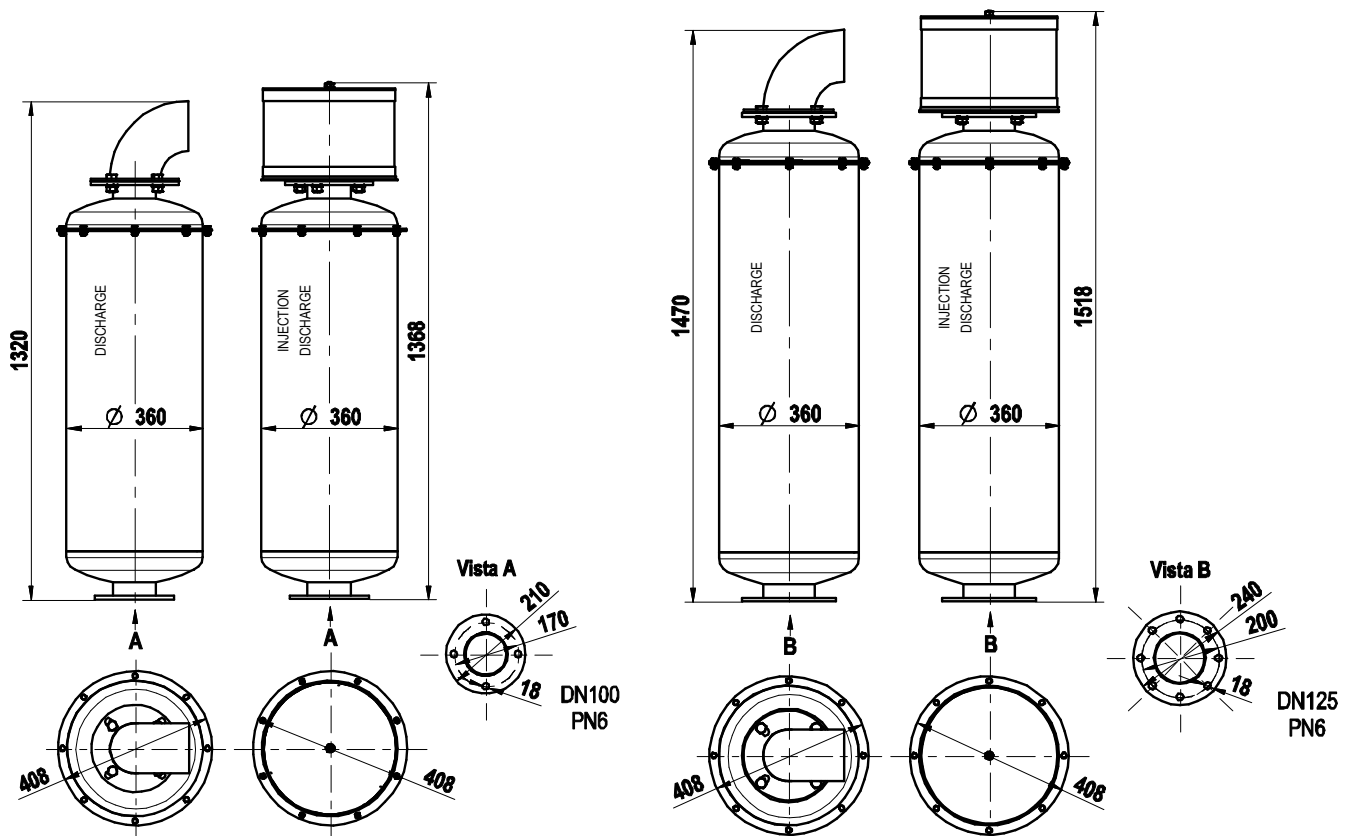
To order replacement material, supply the following code:
Mineral wool code 4022213600, refer to the following page for quantities.

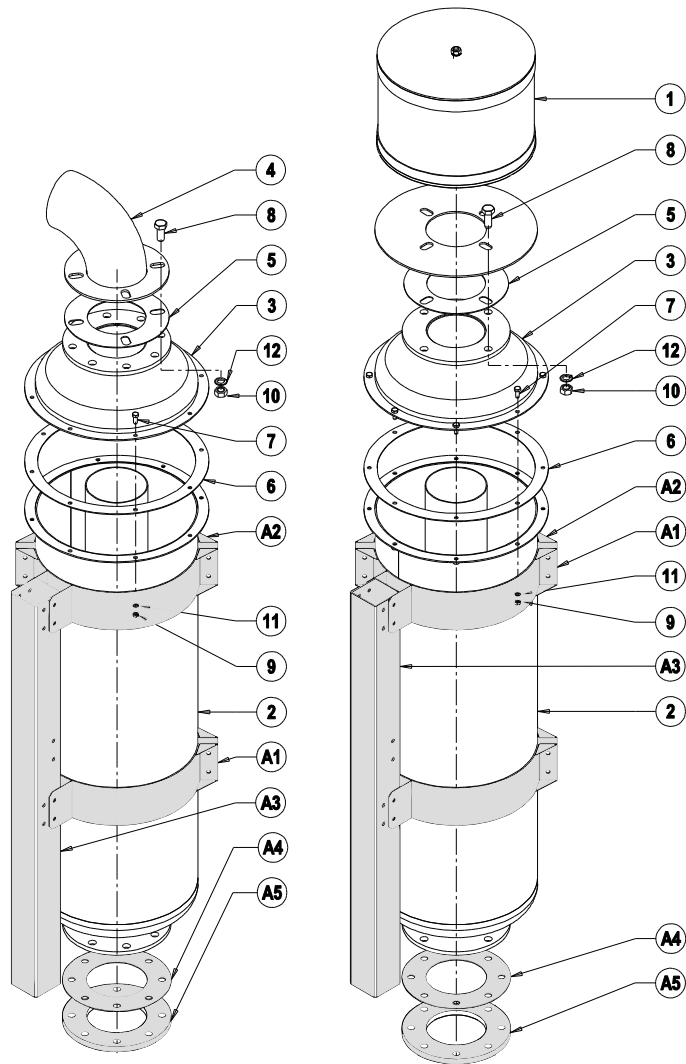
Check weekly the cleanliness of the silencer suction port. Remove all the filth that obstruct the air-flow.

STANDARD PVT-HELIX SILENCER

Standard PVT 200-280, HELIX 140-180-220-300 silencer

Standard PVT 400, HELIX 450 silencer



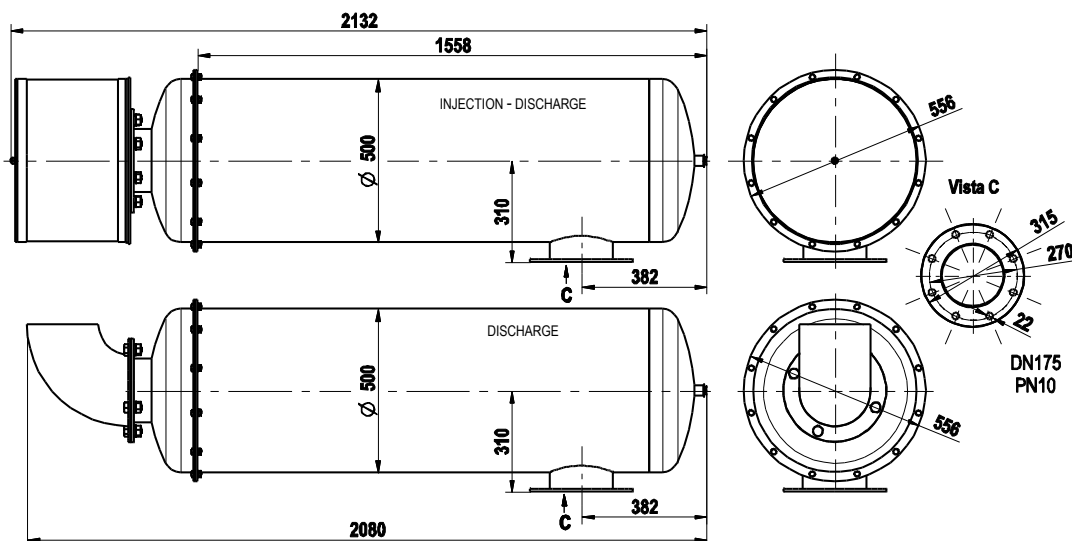


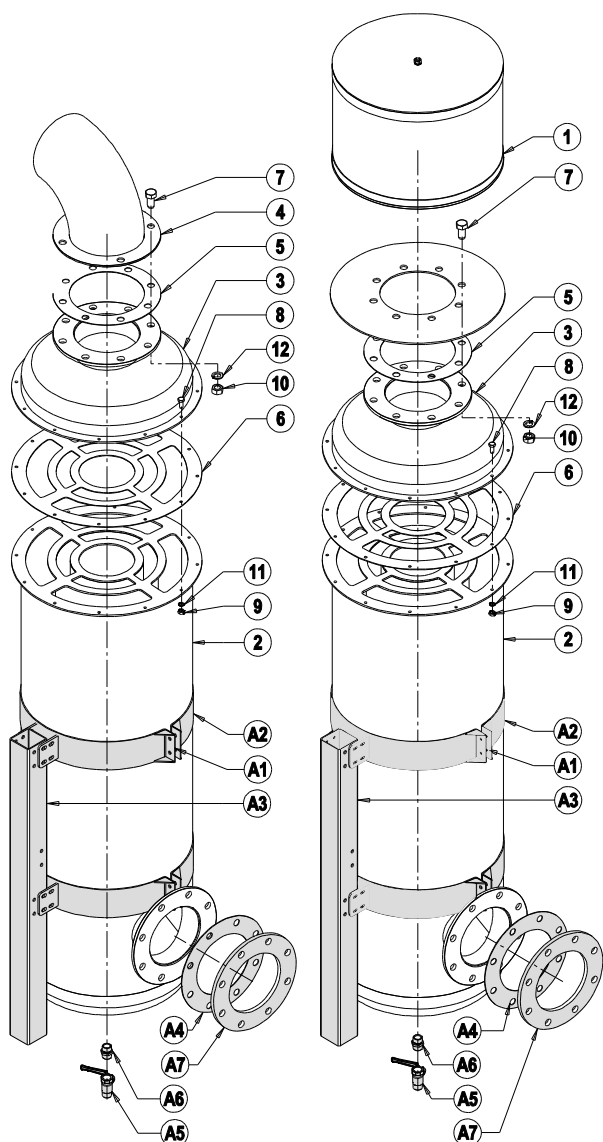
Pos.	Code	Description	Q.ty
1	1445007100	FILTER SILENCER	1
2	15470ZTQB0	PVT200-280 – H140-...-300 SILENCER FE	1
	15470ZTWB0	PVT200-280 – H140-...-300 SILENCER INOX	1
	15470ZSQB0	PVT400 - H450 SILENCER FE	1
	15470ZTMB0	PVT400 - H450 SILENCER INOX	1
3	15470ZTRB0	PVT200-280 – H140-...-300 COVER INOX	1
	15470ZTXB0	PVT200-280 – H140-...-300 COVER INOX	1
	15470ZSRB0	PVT400 - H450 COVER FE	1
	15470ZTDB0	PVT400 - H450 COVER FE	1
4	1563001NC0	CURVED PIPE	1
5	1680701LC0	GASKET	1
6	16807ZSYB0	GASKET	1
7	4026102806	SCREW TE M8X20 ZINC.	8
	4026150407	SCREW TE M8X20 INOX	8
	4026103209	SCREW TE M16X35 ZINC.	4
8	4026150811	SCREW TE M16X40 INOX	4
	4026308005	NUT M8 ESAG. ZINC.	8
	4026310007	NUT M8 ESAG. INOX	8
9	4026308009	NUT M16 ESAG. ZINC.	4
	4026310011	NUT M16 ESAG. INOX	4
	4026350706	WASHER GROWER 8 ZINC.	8
10	4026350405	WASHER GROWER 8 INOX	8
	4026350711	WASHER GROWER 16 ZINC.	4
	4026350410	WASHER GROWER 16 INOX	4

Accessories available upon request. Nuts and bolts not included.

A1	15130164B0	IRON CLAMP D.360 FE WITH SUPPORT	2
A2	15130165B0	IRON CLAMP D.360	2
A3	1613043600	STANDING SUPPORT	1
A4	16807X7VA0	GASKET DN100 PN6	1
A5	4026713007	FLANGE DN100 PN6 PVT200-280 – H140-...-300 FE	1
	4026713707	FLANGE DN100 PN6 PVT200-280 – H140-300 INOX	1
	4026713008	FLANGE DN125 PN6 PVT400 - H450 FE	1
	16100PNPB0	FLANGE DN125 PN6 PVT400 - H450 INOX	1
	4022213600	MINERAL WOOL PVT200-280 – H140-...-300 SIL.	9kg
	4022213600	MINERAL WOOL PVT400 – H450 SIL.	11kg

Standard PVT 700, HELIX 550-750 silencer (mild steel)



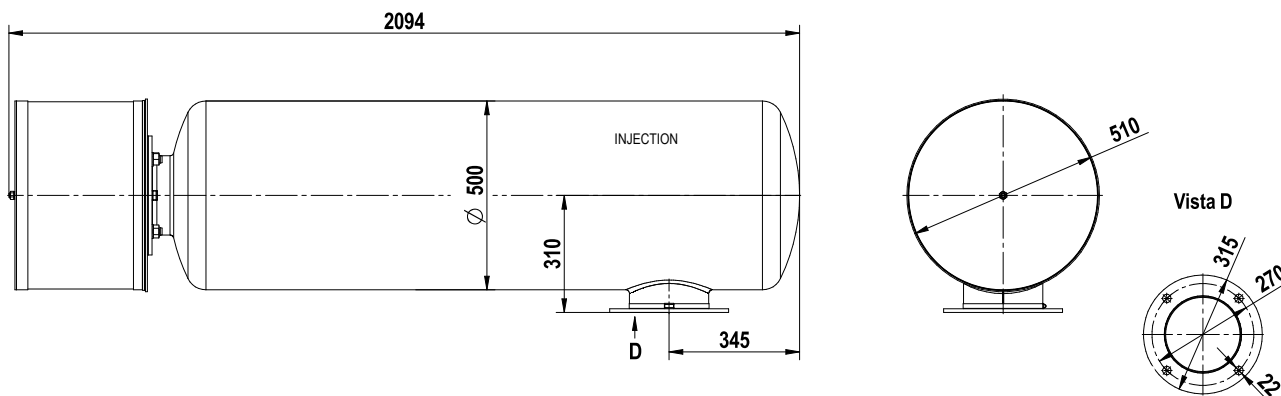


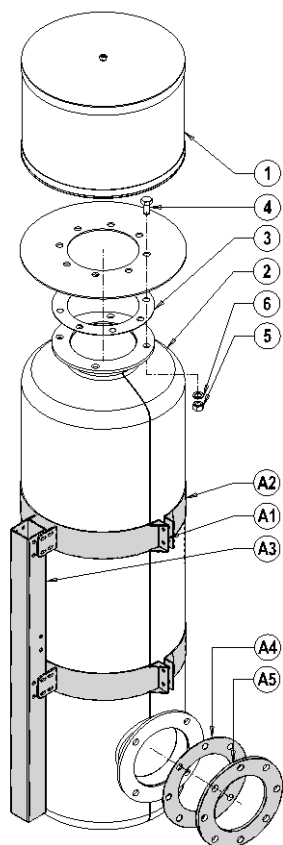
Pos.	Code	Description	Q.ty
1	1445007000	FILTER SILENCER	1
2	15470ZR4B0	SILENCER (IRON)	1
3	15470ZRNBO	COVER (IRON)	1
4	15630027C0	CURVED PIPE	1
5	16807026C0	GASKET SILENCER PVT700	1
6	16807ZRRB0	GASKET SILENCER PVT700	1
7	4026101811	SCREW TE M20X40 GALV.	8
8	4026102907	SCREW TE M10X25 GALV.	12
9	4026308006	NUT M10 ESAG. GALV.	12
10	4026308011	NUT M20 ESAG. GALV.	8
11	4026350708	WASHER GROWER 10 GALV.	12
12	4026350713	WASHER GROWER 20 GALV.	8

Accessories available upon request. Nuts and bolts not included.

A1	15130A81B0	IRON CLAMP D.500 WITH SUPPORT	2
A2	15130A82B0	IRON CLAMP D.500	2
A3	1613043600	STANDING SUPPORT	1
A4	1680711900	GASKET DN175 PN10	1
A5	4024409903	BALL VALVE M/F 3/4"	1
A6	4026740004	NIPPLE 3/4"	1
A7	16100L4KB0	8-HOLES FLANGE DN175 PN10 TH.12 (IR)	1
	4022213600	MINERAL WOOL	32kg

Standard PVT 700, HELIX 550-750 silencer (composite material)

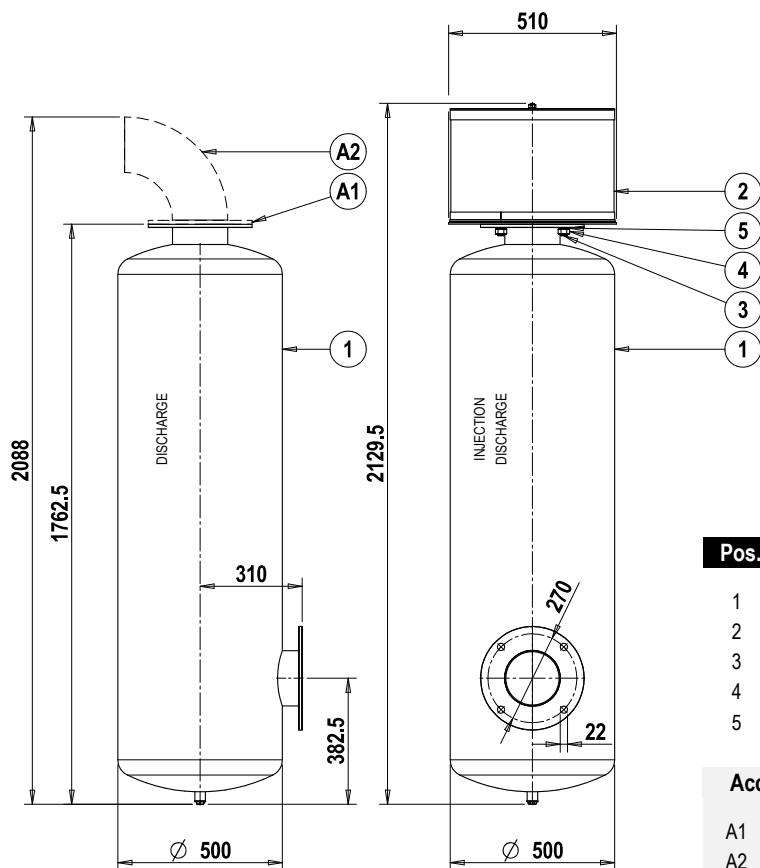




Pos.	Code	Description	Q.ty
1	1445007000	FILTER SILENCER	1
2	1547004500	SILENCER (COMPOSITE MATERIAL)	1
3	16807026C0	GASKET SIL. PVT700	1
4	4026101811	SCREW TE M20X40 GALV.	8
5	4026308011	NUT M20 ESAG. GALV.	8
6	4026357011	WASHER M20 GALV. (SIL. INJ.)	8

Accessories available upon request. Nuts and bolts not included.

A1	15130A81B0	IRON CLAMP D.500 WITH SUPPORT	2
A2	15130A82B0	IRON CLAMP D.500	2
A3	1613043600	STANDING SUPPORT	1
A4	1680711900	GASKET DN175 PN10	1
A5	4026713610	8-HOLES FLAN. DN175 PN10 TH.14 (INOX)	1
	16100L4KB0	8-HOLES FLAN. DN175 PN10 TH.12 (IRON)	1
	4022213600	MINERAL WOOL	32kg

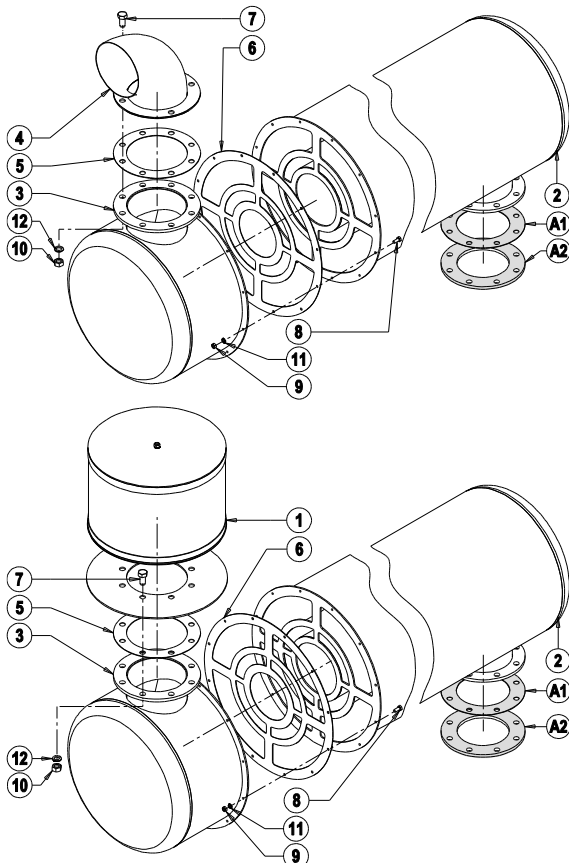
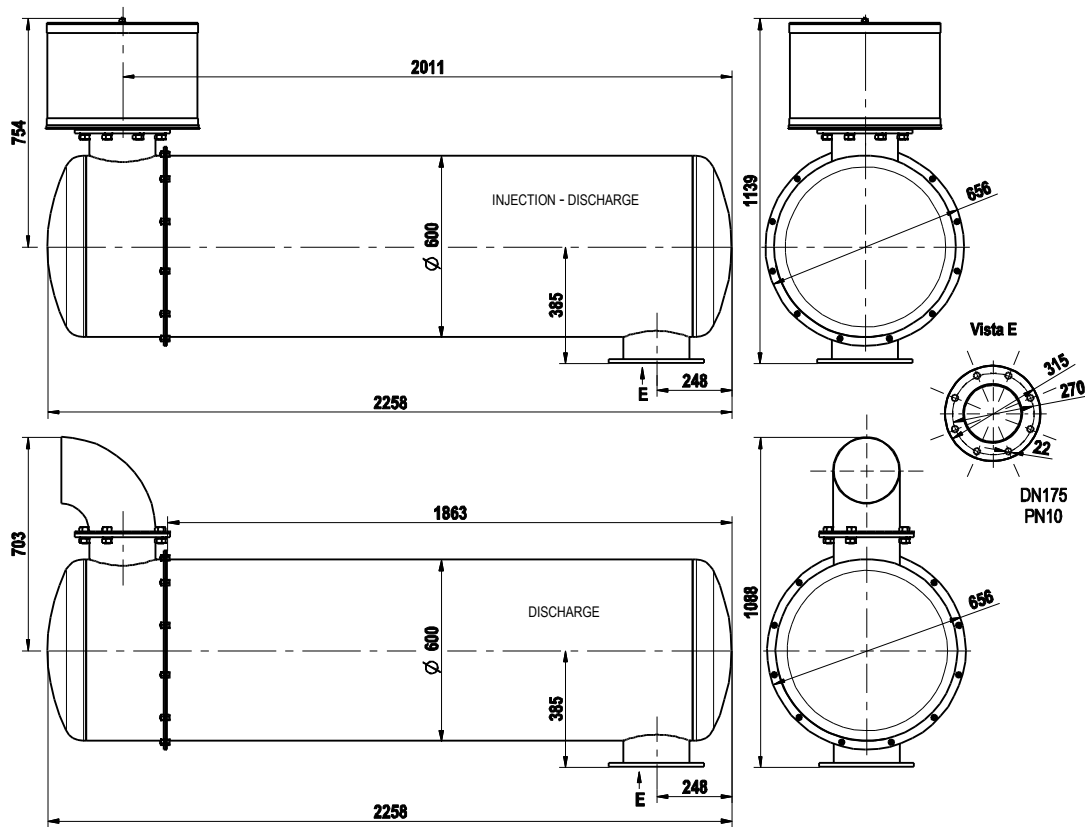
Standard PVT 700, HELIX 550-750 silencer (stainless steel)


Pos.	Code	Description	Q.ty
1	1414013500	SILENCER LIGHT INOX	1
2	1445007000	FILTER SILENCER	1
3	4026101811	SCREW TE 8.8 M20X40 ZINC.	4
4	4026308011	NUT M20 ESAG.ZINC.	4
5	4026350713	WASHER GROWER 20 ZINC.	4

Accessories available upon request. Nuts and bolts not included.

A1	16100MNXB0	FLANGE DN175 PN10	1
A2	4026731422	CURVED PIPE	1

Standard PVT 1000, HELIX 1200 silencer D.600 (mild steel)

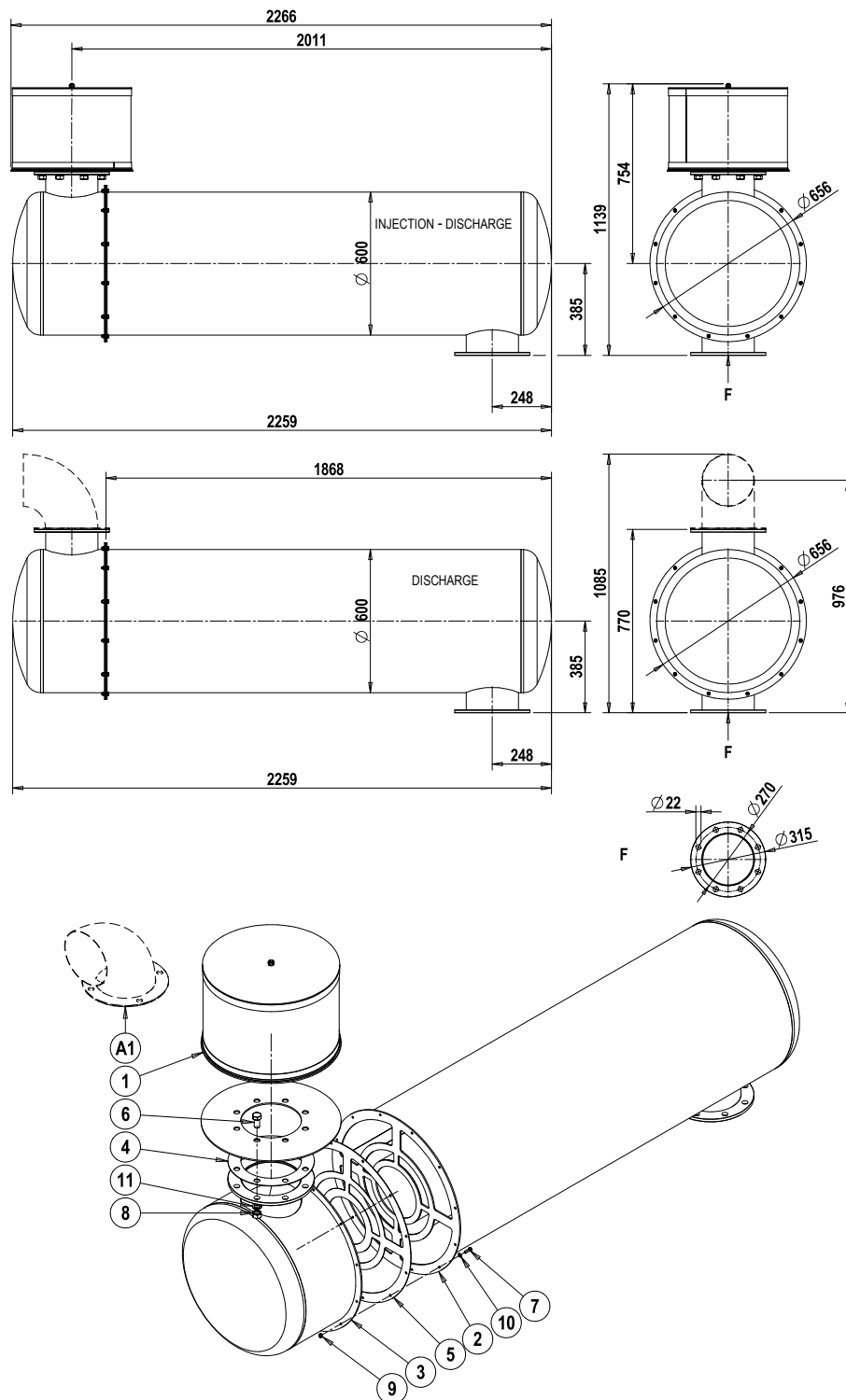


Pos.	Code	Description	Q.ty
1	1445007000	FILTER SILENCER	1
2	15470ZGUB0	SILENCER (IRON)	1
3	15470ZH3B0	COVER (IRON)	1
4	15630027C0	CURVED PIPE	1
5	16807026C0	GASKET SIL. PVT1000	1
6	16807ZJTBO	GASKET SIL. PVT1000	1
7	4026101811	SCREW TE M20X40 GALV.	8
8	4026102907	SCREW TE M10X25 GALV.	12
9	4026308006	NUT M10 ESAG. GALV.	12
10	4026308011	NUT M20 ESAG. GALV.	8
11	4026350708	WASHER GROWER 10 GALV.	12
12	4026350713	WASHER GROWER 20 GALV.	8

Accessories available upon request. Nuts and bolts not included.

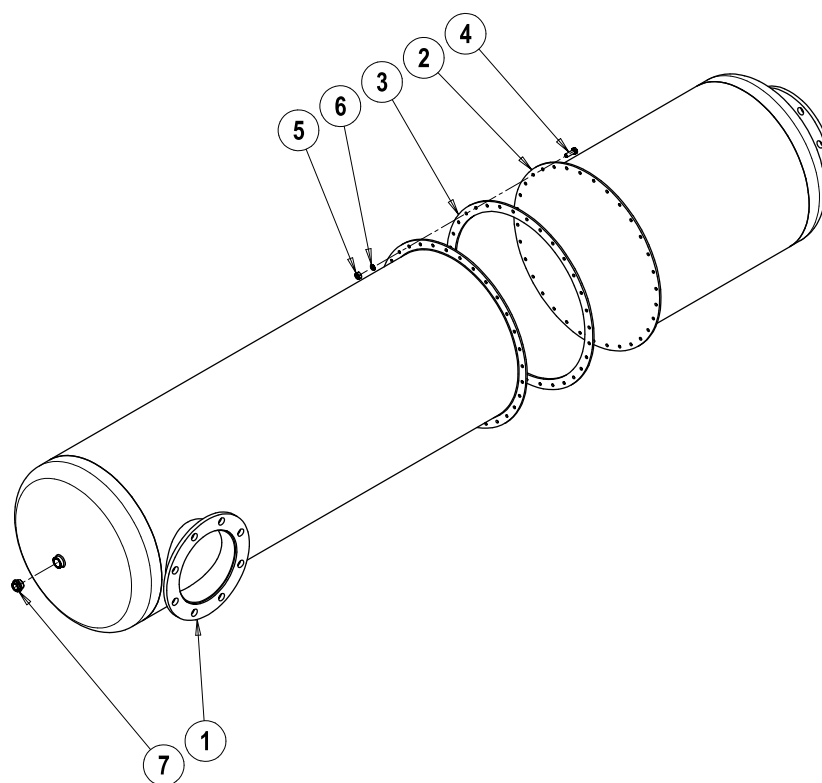
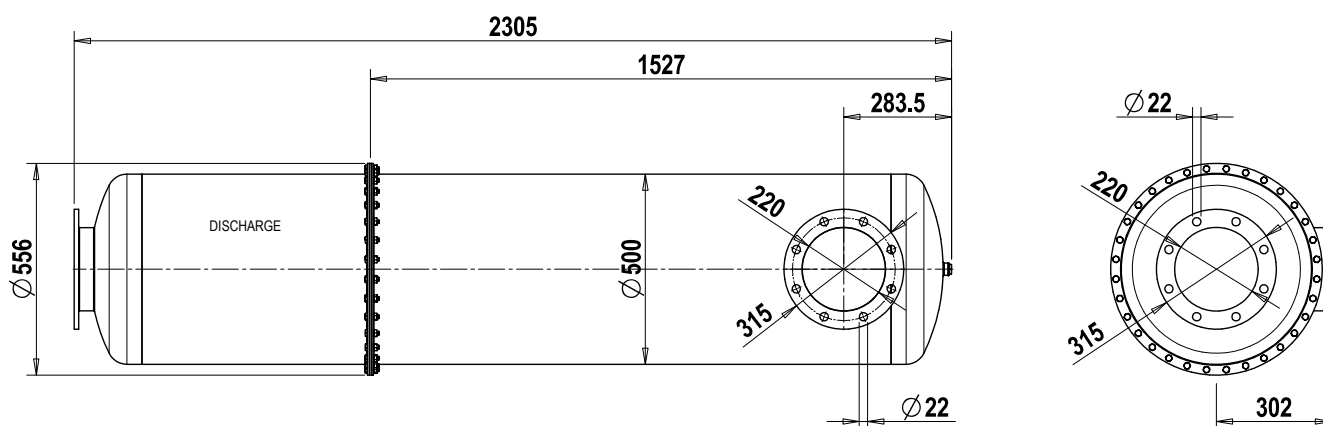
A1	1680711900	GASKET DN175 PN10	1
A2	16100L4KB0	8-HOLES FLANGE DN175 PN10 TH.12 IRON	1
	4022213600	MINERAL WOOL	60kg

Standard PVT 1000, HELIX 1200 silencer D.600 (stainless steel)



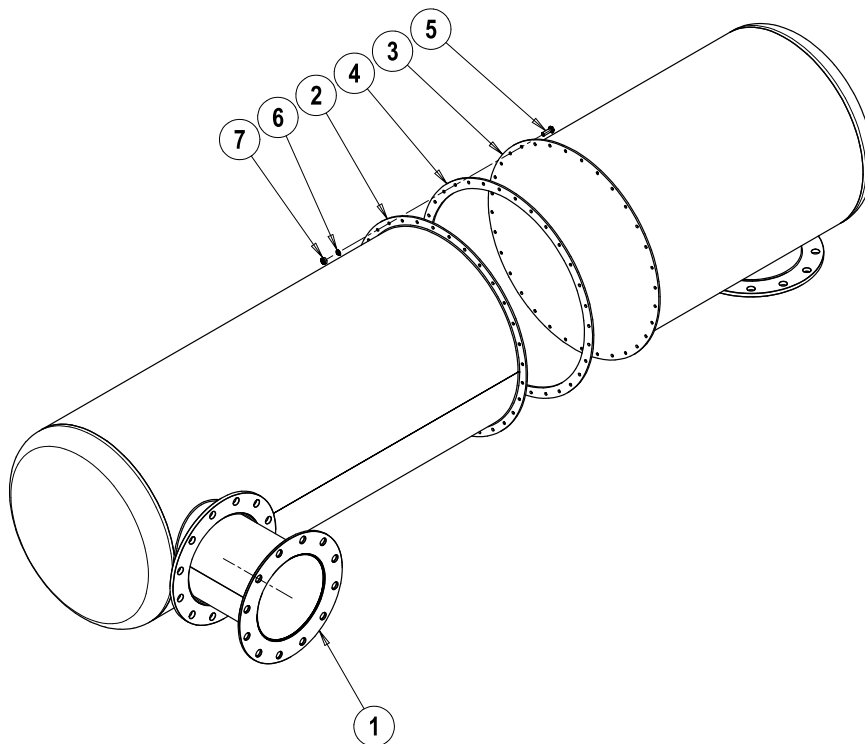
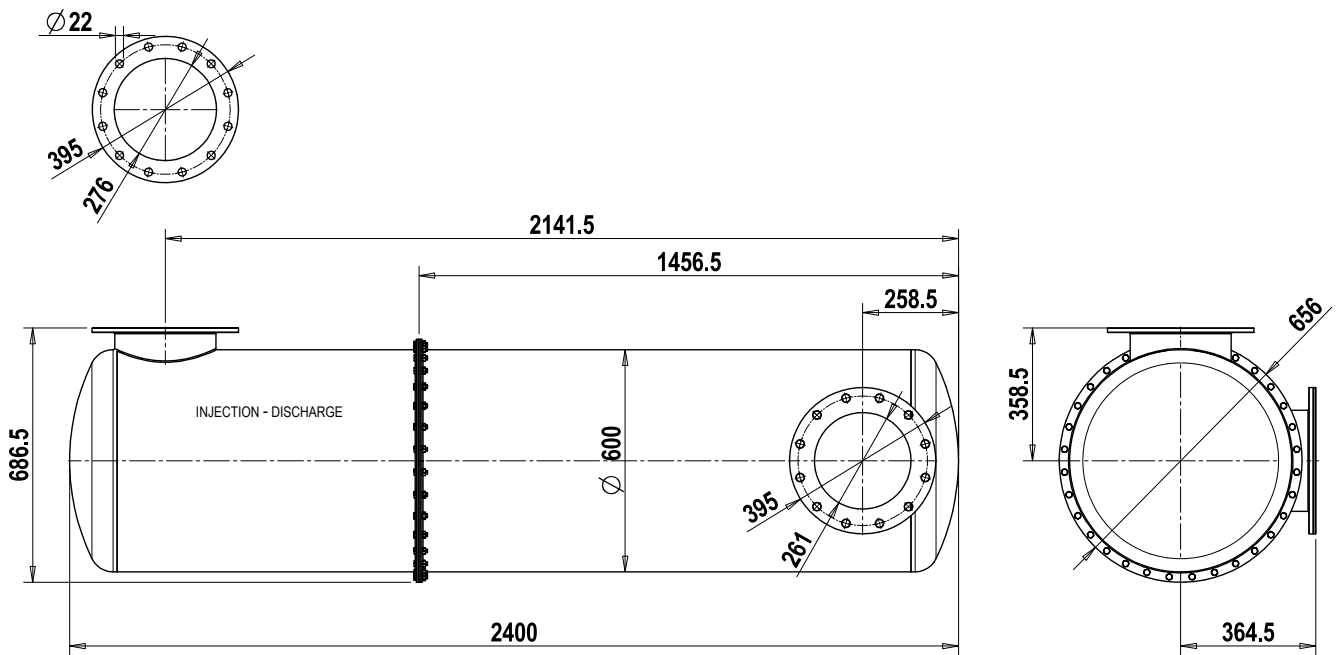
Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1445007000	FILTER SILENCER	1	9	4026310007	NUT M8 ESAG.	12
2	15470004E0	SILENCER 1	1	10	4026350405	WASHER GROWER M8	12
3	15470005E0	SILENCER 2	1	11	4026350713	WASHER GROWER 20 ZINC.	8
4	16807026C0	GASKET DN175 PN10	1	Accessories available upon request. Nuts and bolts not included.			
5	16807ZJT B0	GASKET	1				
6	4026101811	SCREW TE 8.8 M20X40 ZINC.	8	A1	15630027C0	CURVED PIPE	1
7	4026150408	SCREW TE M8X25	12		4022213600	MINERAL WOOL	1 kg
8	4026308011	NUT M20 ESAG. ZINC.	8				

Standard PVT 1000, HELIX 1200 silencer D.500



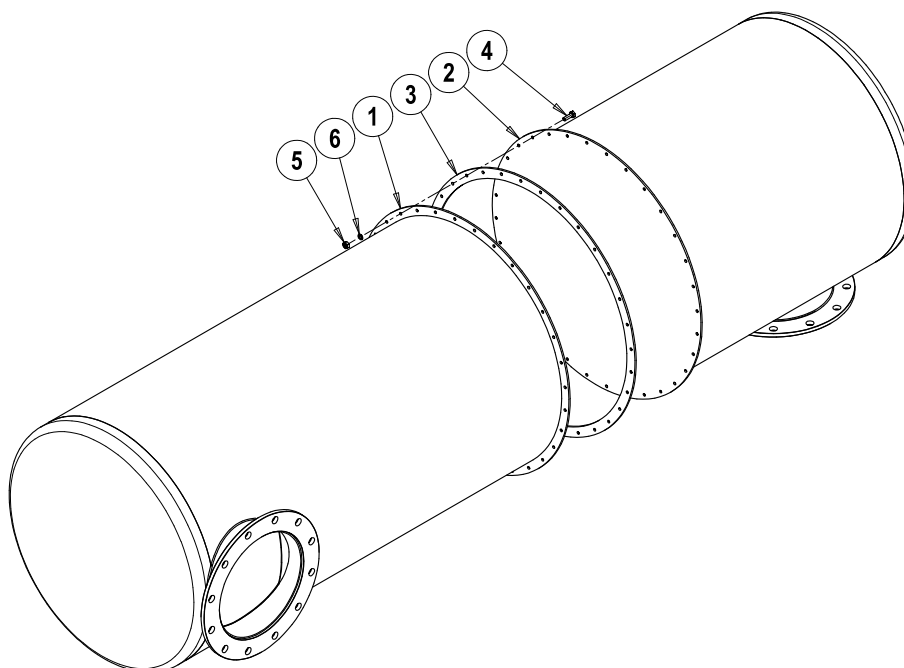
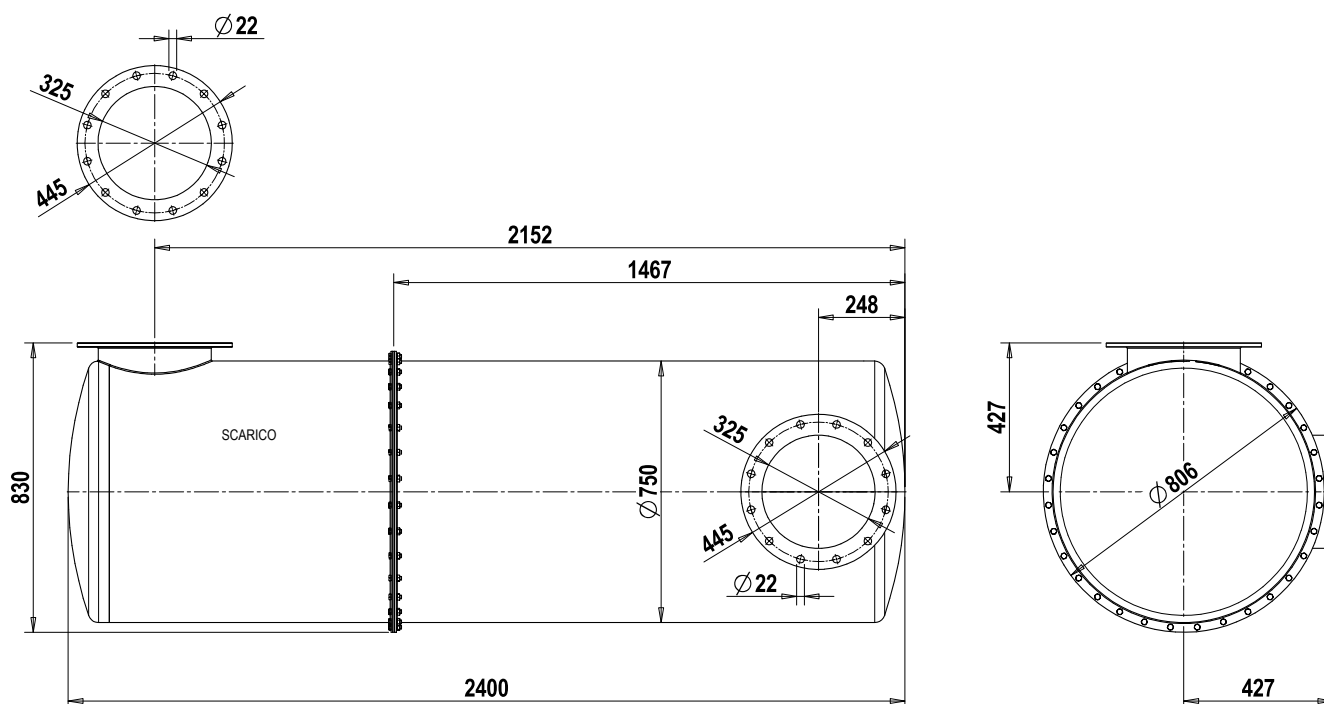
Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	15476007E0	SILENCER MILD STEEL	1	4	4026102908	SCREW TE 8.8 M10X30 ZINC.	32
	15470007E0	SILENCER STAINLESS STEEL	1	5	4026308006	NUT M10 ESAGONALE ZINC.	32
2	15476008E0	SILENCER MILD STEEL	1	6	4026350708	WASHER GROWER 10 ZINC.	32
	15470008E0	SILENCER STAINLESS STEEL	1	7	4026904002	PLUG 3/4" ZINC.	1
3	16807057E0	GASKET	1		4022213600	MINERAL WOOL	19 kg

Standard HELIX 1500 silencer



Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	15450102E0	CARTRIDGE (INJ SILENCER)	1	4	16806045E0	GASKET	1
2	15470010E0	SILENCER MILD STEEL	1	5	4026102908	SCREW TE 8.8 M10X30 ZINC.	32
	15470015E0	SILENCER STAINLESS STEEL	1	6	4026308006	NUT M10 ESAGONALE ZINC.	32
3	15470011E0	SILENCER MILD STEEL	1	7	4026350708	WASHER GROWER 10 ZINC.	32
	15470016E0	SILENCER STAINLESS STEEL	1		4022213600	MINERAL WOOL	41 kg

Standard HELIX 2000 silencer

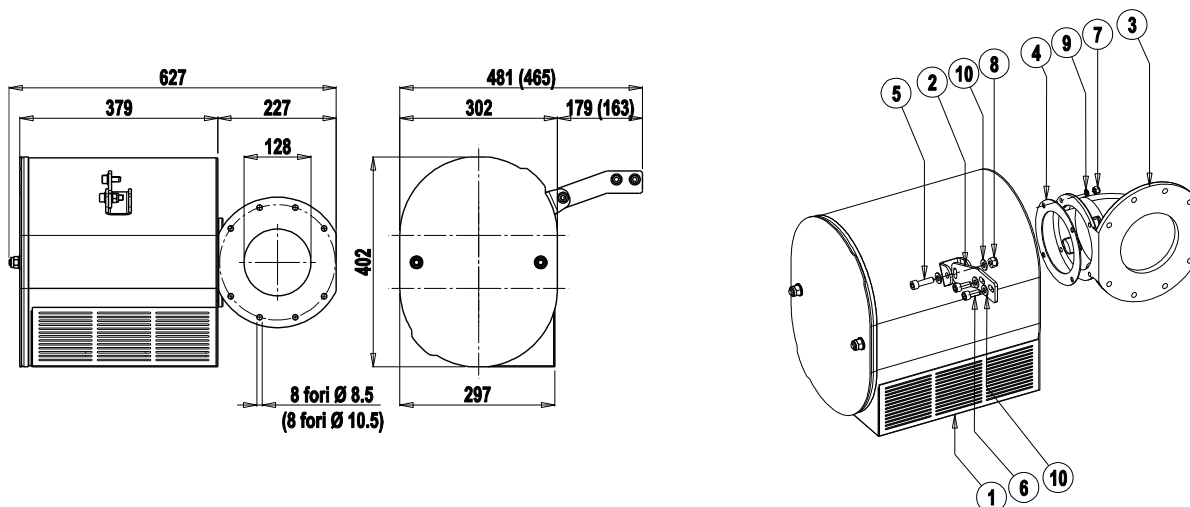


Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	15470013E0	SILENCER	1	5	4026308006	NUT M10 ESAGONALE ZINC.	32
2	15470014E0	SILENCER	1	6	4026350708	WASHER GROWER 10 ZINC.	32
3	16806051E0	GASKET	1				
4	4026102908	SCREW TE 8.8 M10X30 ZINC.	32		4022213600	MINERAL WOOL	70 kg

COMPACT PVT-HELIX SILENCERS

Compact silencer without filter for PVT 200, HELIX 140-180-220

Compact silencer without filter for PVT 280-400, HELIX 300-450

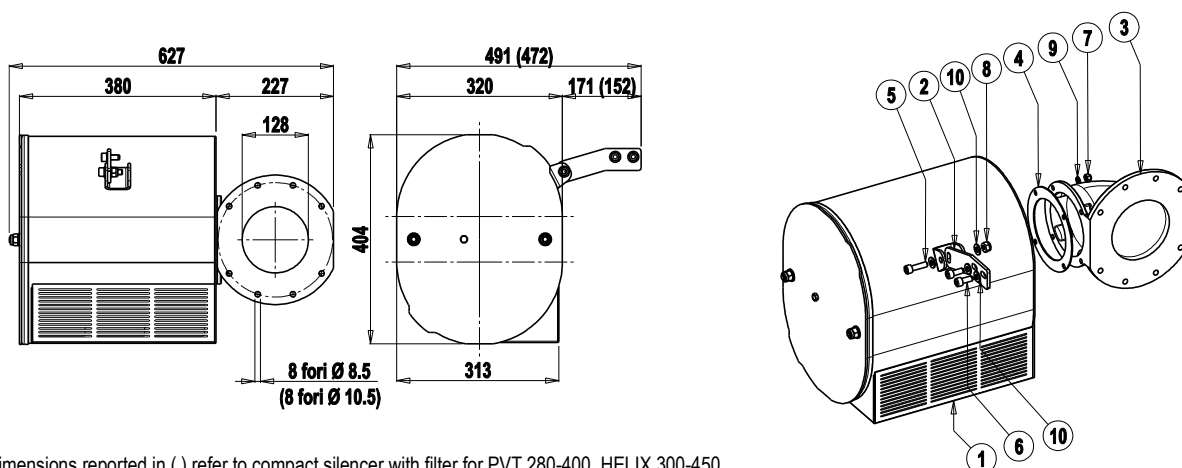


Dimensions reported in () refer to compact silencer without filter for PVT 280-400, HELIX 300-450.

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1414012800	INJECTION SILENCER	1	6	4026121808	SCREW TCEI M10X25	2
2	16120MJJB0	STANDING SUPPORT (SIL. PVT200)	1	7	4026305504	NUT M8 SELF-BLOCKING	4
	16120MJMB0	STANDING SUPPORT (SIL. PVT280-400)	1	8	4026305507	NUT M10 SELF-BLOCKING	1
3	1627105300	COLLECTOR (SIL. PVT200)	1	9	4026350706	WASHER GROWER 8	4
	1627104200	COLLECTOR (SIL. PVT280-400)	1	10	4026357006	WASHER M10	4
4	1680712700	GASKET	1				
5	4026120507	SCREW TCEI M10X35	1		4022213600	MINERAL WOOL	2,5kg

Compact silencer with filter for PVT 200, HELIX 140-180-220

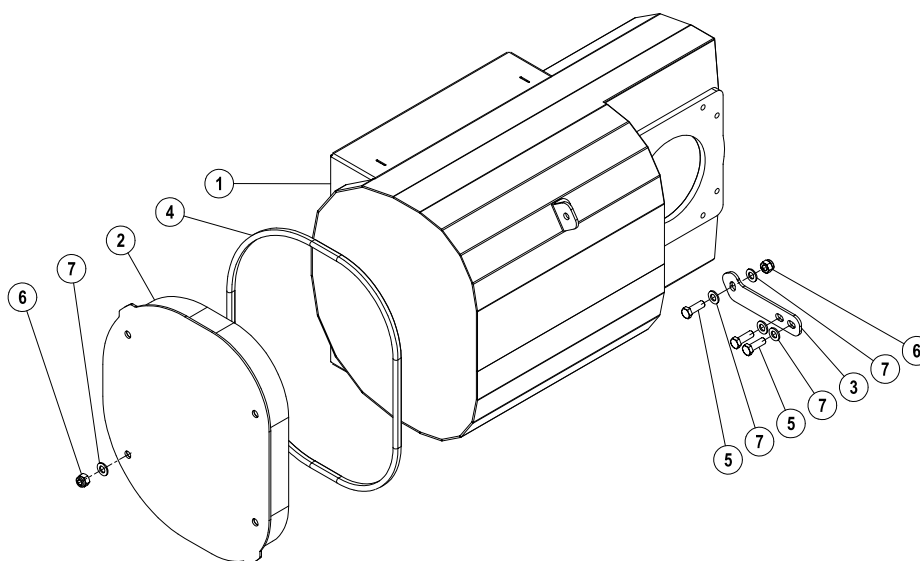
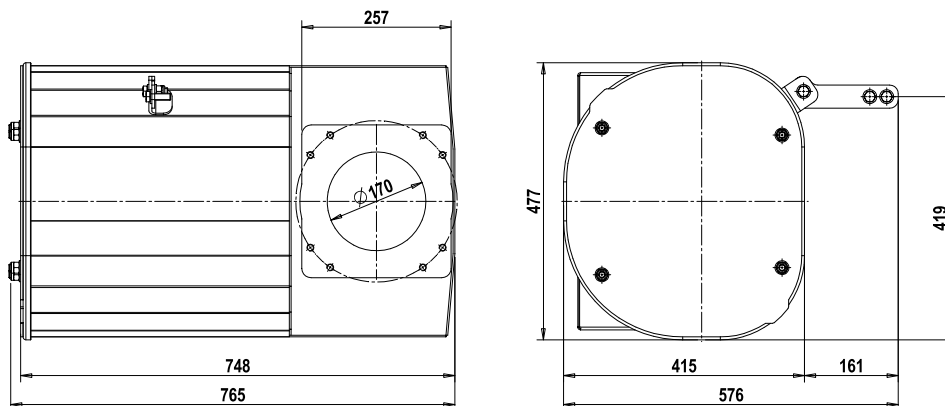
Compact silencer with filter for PVT 280-400, HELIX 300-450



Dimensions reported in () refer to compact silencer with filter for PVT 280-400, HELIX 300-450.

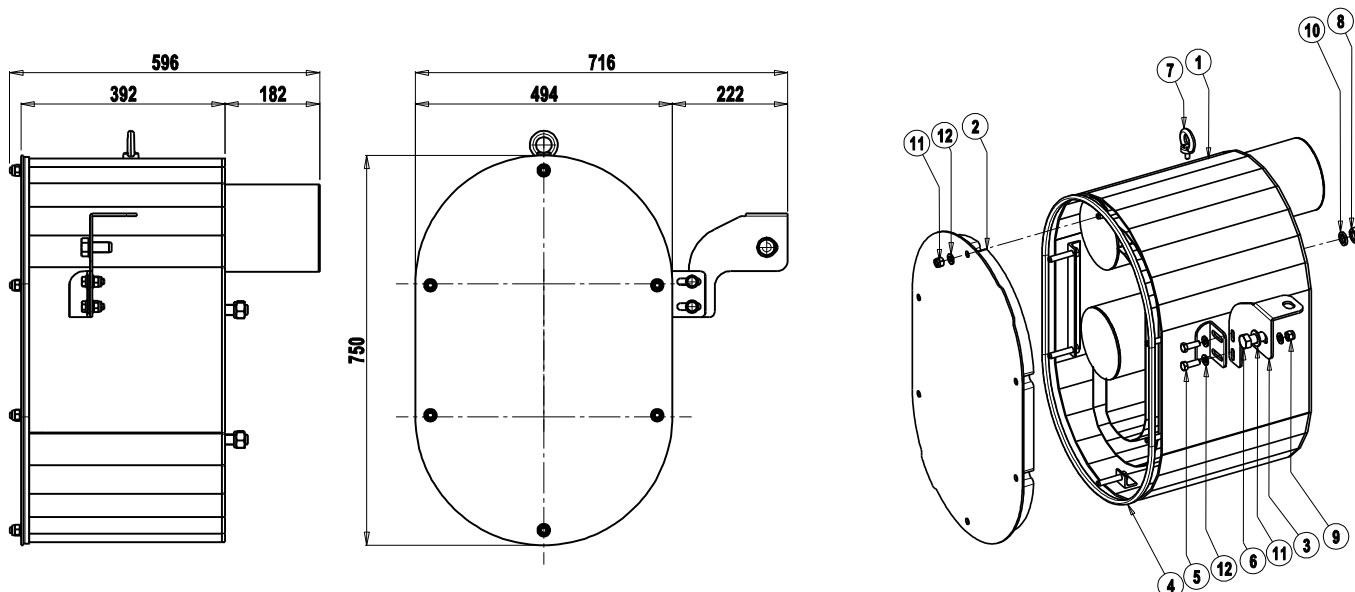
Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1414013600	INJECTION SILENCER	1	6	4026121808	SCREW TCEI M10X25	2
2	16120MJJB0	STANDING SUPPORT (SIL. PVT200)	1	7	4026305504	NUT M8 SELF-BLOCKING	4
	16120ZDWB0	STANDING SUPPORT (SIL. PVT280-400)	1	8	4026305507	NUT M10 SELF-BLOCKING	1
3	1627105300	COLLECTOR (SIL. PVT200)	1	9	4026350706	WASHER GROWER 8	4
	1627104200	COLLECTOR (SIL. PVT280-400)	1	10	4026357006	WASHER M10	4
4	1680712700	GASKET	1				
5	4026120507	SCREW TCEI M10X35	1		4022213600	MINERAL WOOL	2,5kg

Compact silencer without filter for HELIX 550

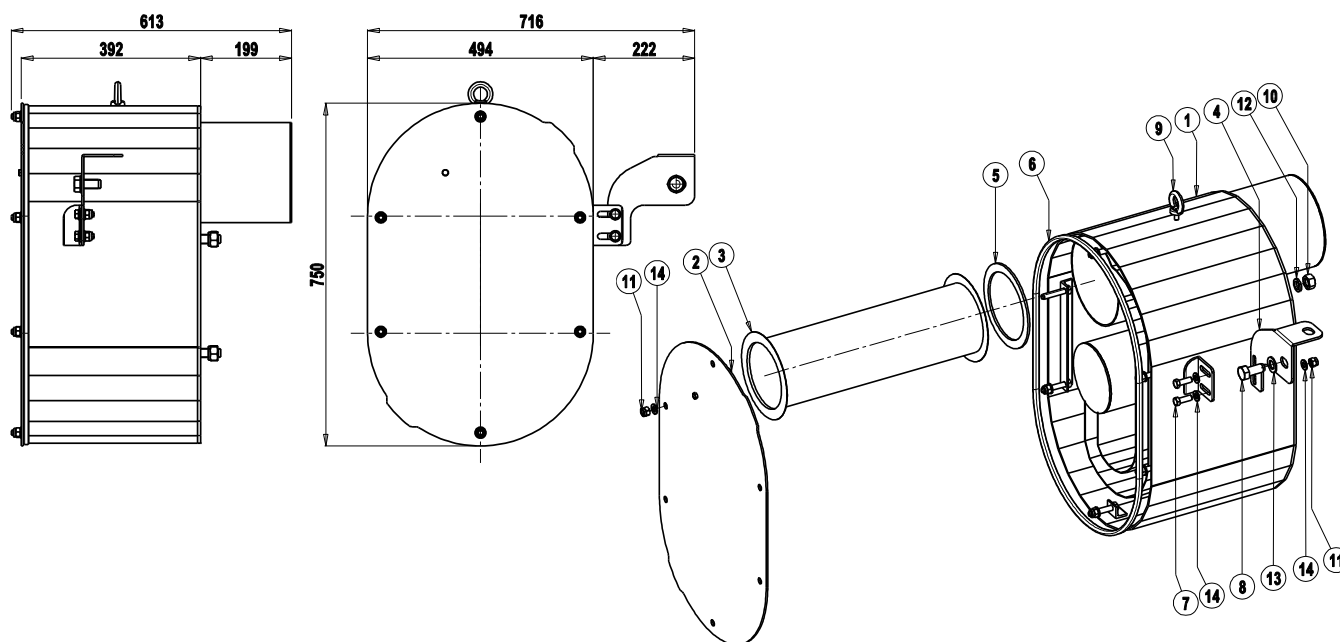


Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	15120385E0	SILENCER BOX	1	5	4026103003	SCREW TE 8.8 M12X35 ZINC.	5
2	15406007E0	SILENCER COVER	1	6	4026305508	SELF-LOCKING NUT M12	5
3	16120790K0	STANDING SUPPORT	1	7	4026356107	WASHER M12	8
4	4022212101	RUBBER EXTRUSION	1 mt		4022213600	MINERAL WOOL	7,5kg

Compact Silencer without filter for PVT 700, HELIX 750



Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	15120KHZB0	COMPACT SILENCER BOX	1	8	4026300811	NUT M20	4
2	15400KHXB0	COMPACT SILENCER COVER	1	9	4026305508	NUT M12 SELF-BLOCKING	8
3	16120KH5B0	STANDING SUPPORT (SIL. PVT700)	1	10	4026350512	WASHER GROWER 20	4
4	4022212101	SECTIONS 10X13,6	2,06mt	11	4026356111	WASHER M20	1
5	4026103003	SCREW TE M12X35	2	12	4026357007	WASHER M12	10
6	4026107712	SCREW TE M20X45	1				
7	4026190100	EYE-BOLT M10	1	4022213600	MINERAL WOOL		8,5kg

Compact silencer with filter for PVT 700, HELIX 750


Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	15120YWCB0	COMPACT SILENCER BOX	1	9	4026190100	EYE-BOLT M10	1
2	15400ZE7B0	COMPACT SILENCER COVER	1	10	4026300811	NUTM20	4
3	15450YWJB0	CARTRIDGE	1	11	4026305508	NUT M12 SELF-BLOCKING	8
4	16120KH5B0	STANDING SUPPORT	1	12	4026350512	WASHER GROWER 20	4
5	4022210002	MOUSSE (FOAM RUBBER) 20X5	0,6mt	13	4026356111	WASHER M20	1
6	4022212101	SECTIONS 10X13,6	2,06mt	14	4026357007	WASHER M12	10
7	4026103003	SCREW TE M12X35	2				
8	4026107712	SCREW TE M20X45	1	4022213600	MINERAL WOOL		8,5kg