

CAPITOLO 08

SERBATOI

oil tanks

ITALIAN QUALITY SINCE 1989



CAPITOLO 08

Serbatoi

oil tanks

Serbatoi in plastica e in acciaio, rettangolari, cilindrici e stagni, da 1,5 a 30 litri, con le indicazioni per l'orientamento sulla centralina.

Plastic and steel tanks, rectangular, cylindrical and sealed, from 1.5 to 30 liters, with the positioning options on the power pack.

IN QUESTO CAPITOLO *in this chapter*

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Serbatoi oil tanks

Modello - type

Serie LMS - acciaio stagno
LMS serie - watertight steel

Serie PC - plastica cilindrico
CP serie - cylindrical plastic

Serie PE - plastica
PE serie - plastic

Serie LM - acciaio rettangolare
LM serie - rectangular steel

Serie CS - acciaio cilindrico
CS serie - cylindrical steel

Codice ordinazione - ordering code

P E 1 2 V
1 2 3

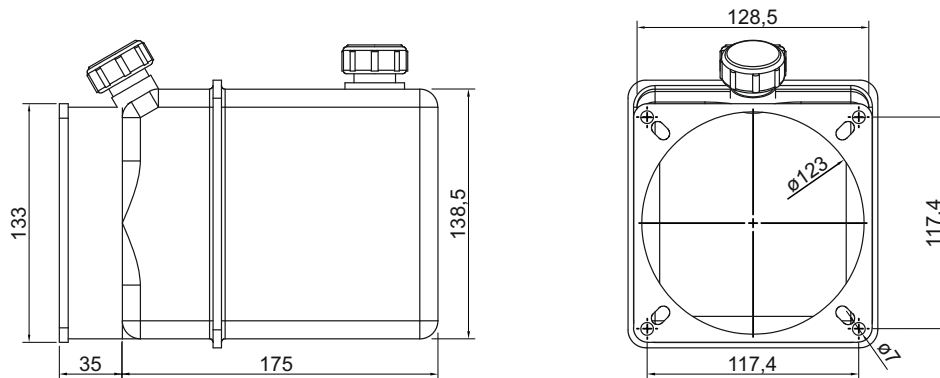
1 Serie - series	2 Volume serbatoio - tank volume					3 Tappo di carico - filler cap
PE	PE	LM	LMS	CS	PC	O = Orizzontale - horizontal
LM	02 = 2,5 lt	07 = 7,0 lt	15 = 15,0 lt	01 = 1,5 lt	05 = 5,0 lt	V = Verticale - vertical
CS	05 = 5,0 lt	15 = 15,0 lt	20 = 20,0 lt	02 = 2,5 lt	07 = 7,0 lt	TF= Stagno (solo LM07)
PC	08 = 8,0 lt	20 = 20,0 lt	30 = 30,0 lt	05 = 5,0 lt	09 = 9,0 lt	watertight (LM07 only)
	12 = 12,0 lt	30 = 30,0 lt		08 = 8,0 lt	11 = 11,0 lt	
				10 = 10,0 lt		
				12 = 12,0 lt		

Serbatoi plastica plastic oil tanks

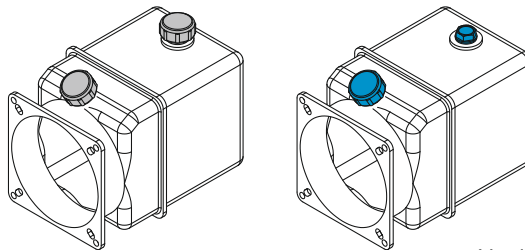
08

PE02

Serbatoio in plastica capacità 2,5 litri
Plastic tank 2,5 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G3/8"

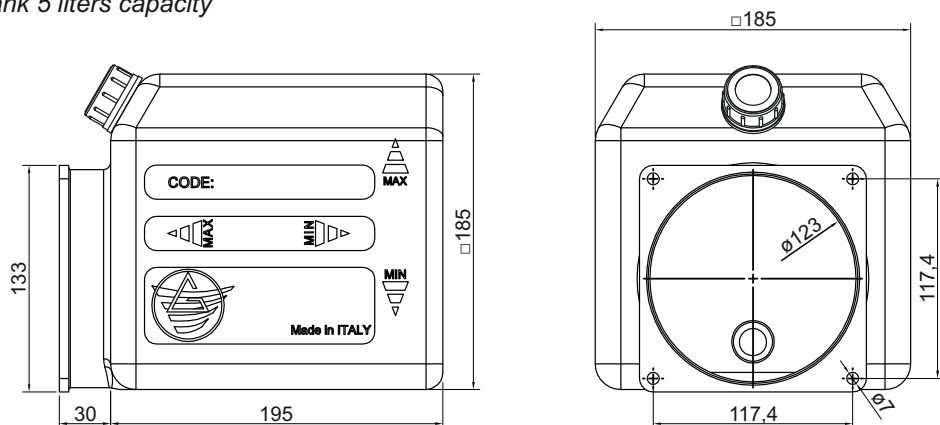


Versione - version

○ = Orizzontale - horizontal
■ = Verticale - vertical

PE05

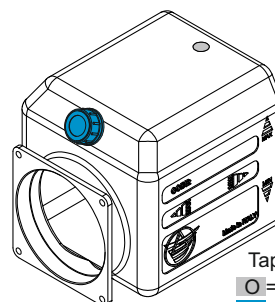
Serbatoio in plastica capacità 5 litri
Plastic tank 5 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting

A richiesta, è inoltre possibile avere un ulteriore foro di scarico sul retro del serbatoio. In questo caso la cavità verrà tappata da tappo cieco G1/2".
Tutte le variazioni rispetto allo standard sono da specificare in fase d'ordine.
On request, is possible to have an additional unloading hole on the rear of the tank. In this case the cavity will be capped by G1/2" plug.
All changes compared to the standard, must be specified during the order phase.



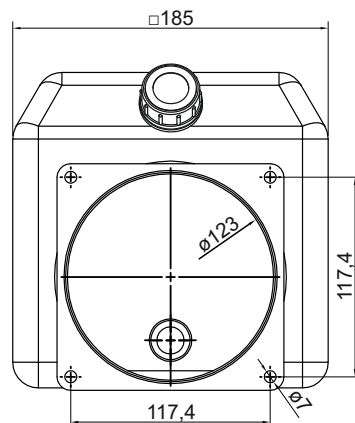
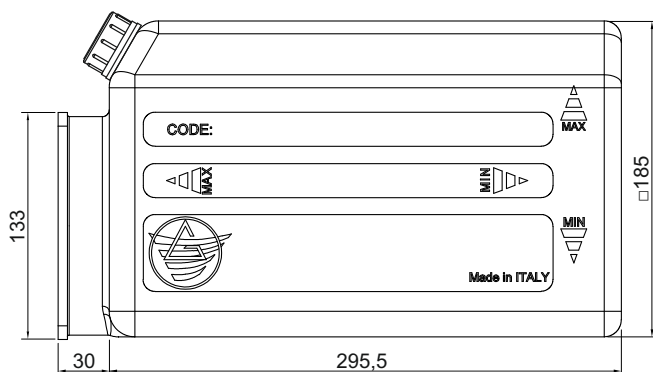
Tappo di carico - filler cap

○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi plastica plastic oil tanks

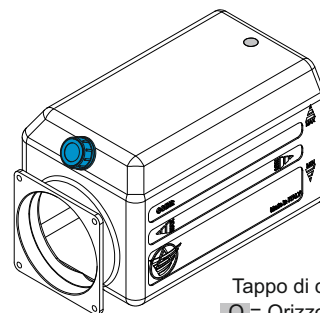
PE08

Serbatoio in plastica capacità 8 litri
Plastic tank 8 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G1/2"

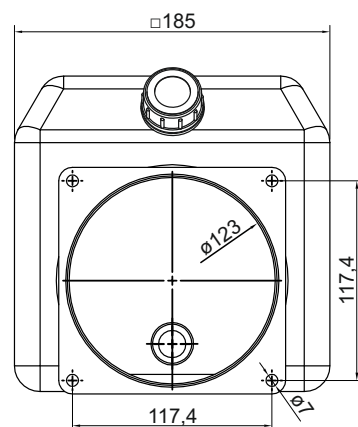
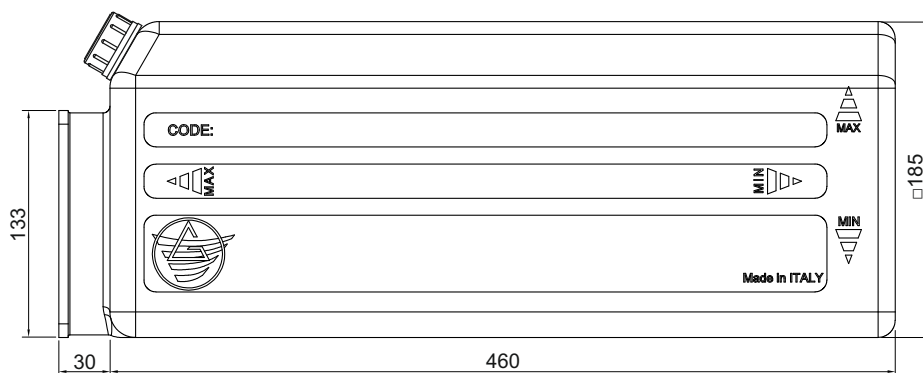
Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting
*vedi nota PE12 per foro di scarico aggiuntivo
*see note PE12 for additional unloading hole



Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

PE12

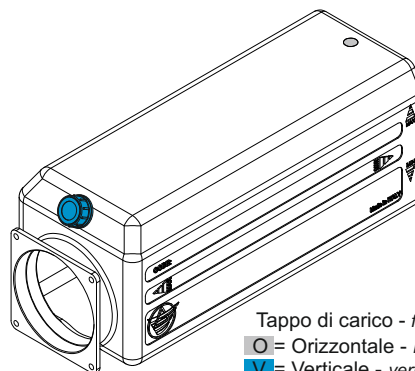
Serbatoio in plastica capacità 12 litri
Plastic tank 12 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting

*A richiesta, è inoltre possibile avere un ulteriore foro di scarico sul retro del serbatoio. In questo caso la cavità verrà tappata da tappo cieco G1/2".
Tutte le variazioni rispetto allo standard sono da specificare in fase d'ordine.
*On request, is possible to have an additional unloading hole on the rear of the tank. In this case the cavity will be capped by G1/2" plug.
All changes compared to the standard, must be specified during the order phase.



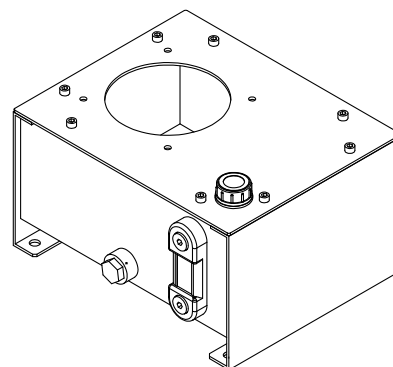
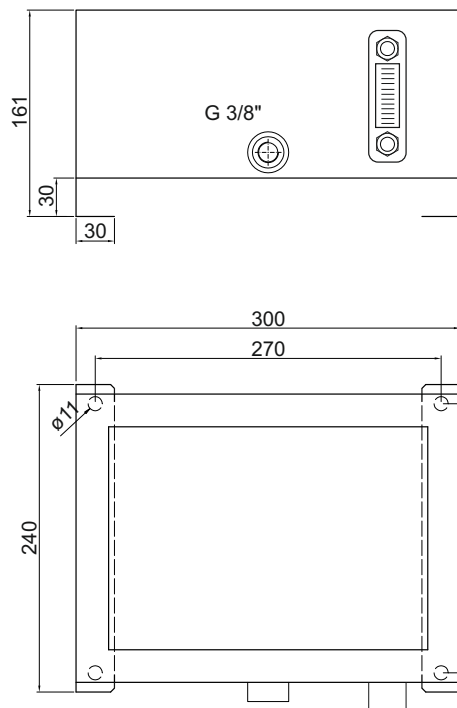
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi acciaio steel oil tanks

08

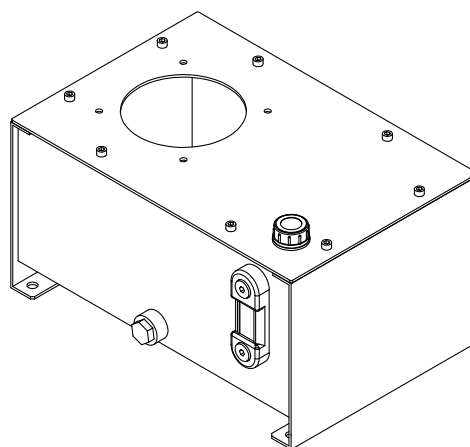
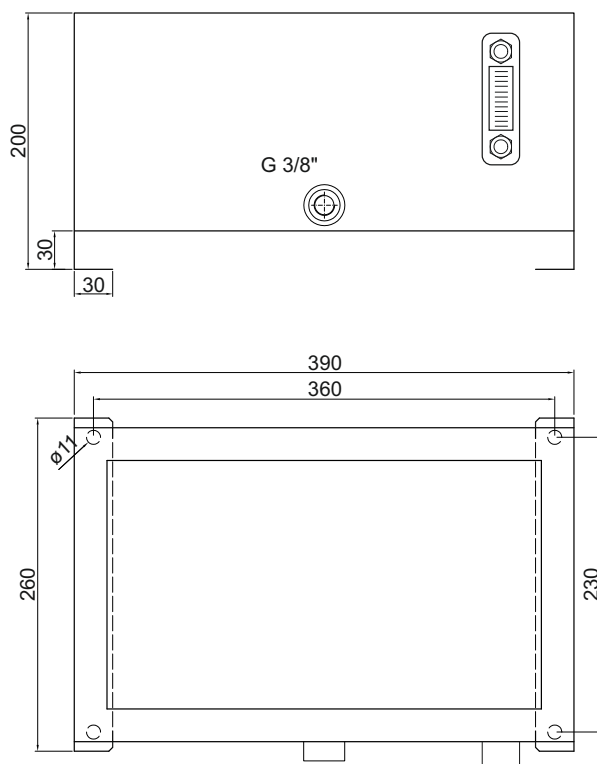
LM07

Serbatoio rettangolare in acciaio capacità 7 litri
7 liters capacity rectangular steel tank



LM15

Serbatoio rettangolare in acciaio capacità 15 litri
15 liters capacity rectangular steel tank

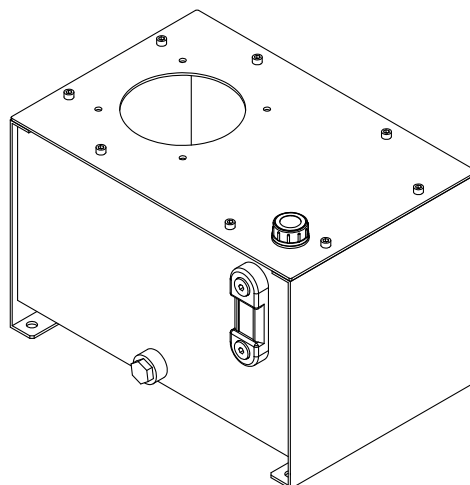
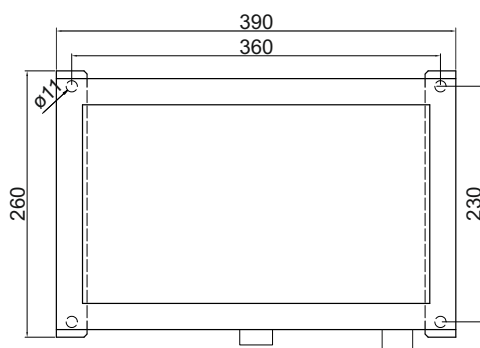
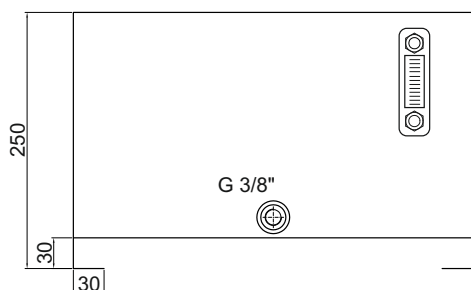


Serbatoi acciaio steel oil tanks



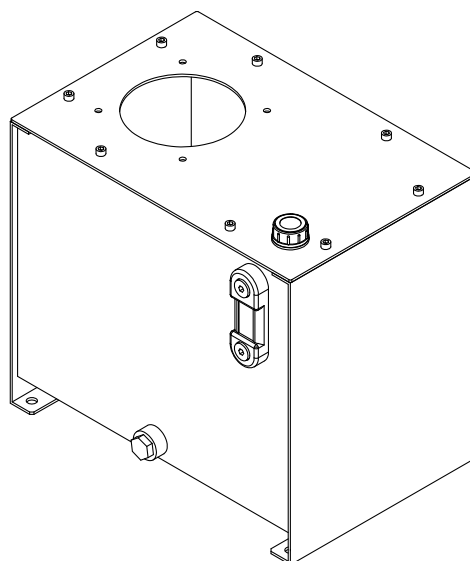
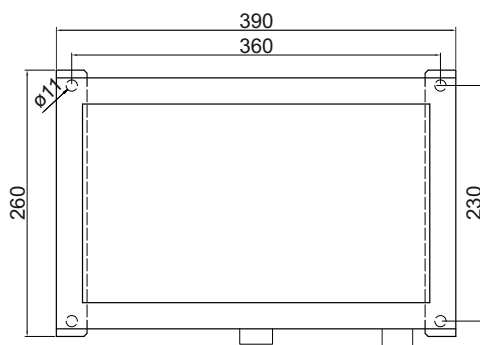
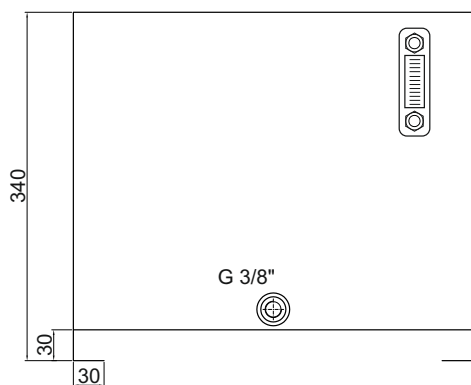
LM20

Serbatoio rettangolare in acciaio capacità 20 litri
20 liters capacity rectangular steel tank



LM30

Serbatoio rettangolare in acciaio capacità 30 litri
30 liters capacity rectangular steel tank

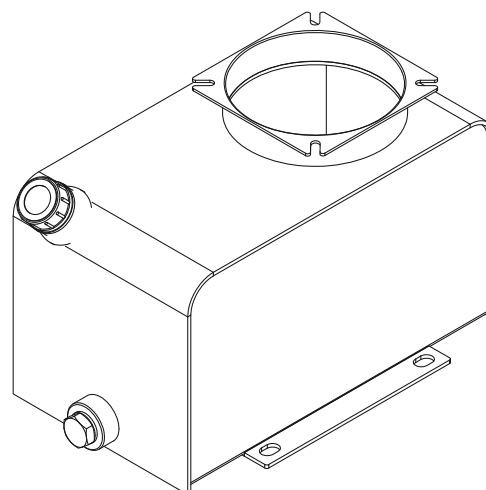
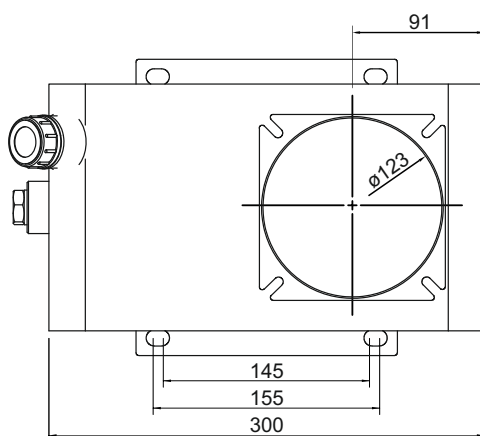
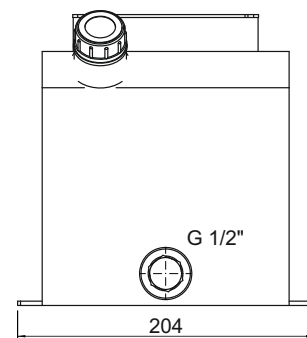
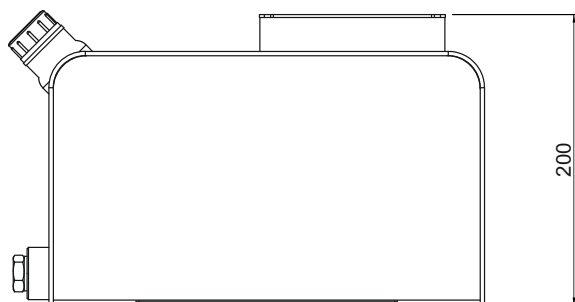


Serbatoi acciaio steel oil tanks

08

LM07TF

Serbatoio stagno in acciaio capacità 7 litri
7 liters capacity watertight steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Tappo di sfiato std std filler breather	G3/4"
Tappo di sfiato LM07TF LM07TF filler breather	G1/2"

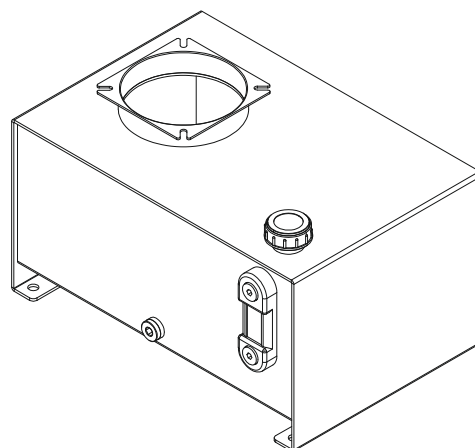
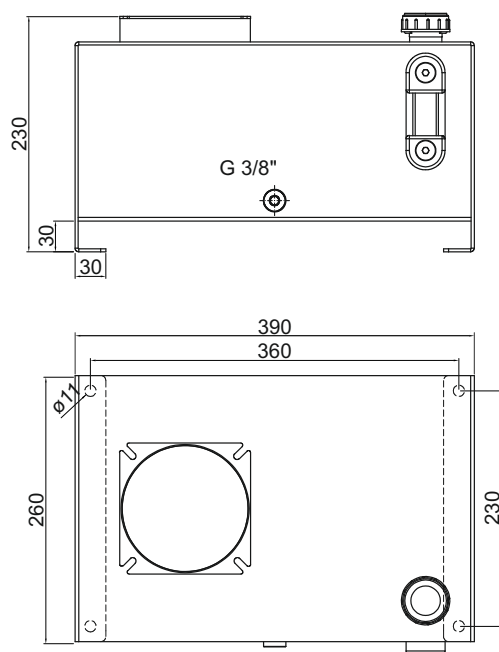


Serbatoi acciaio steel oil tanks



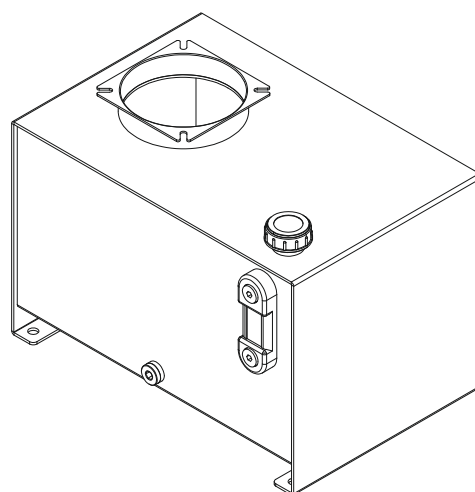
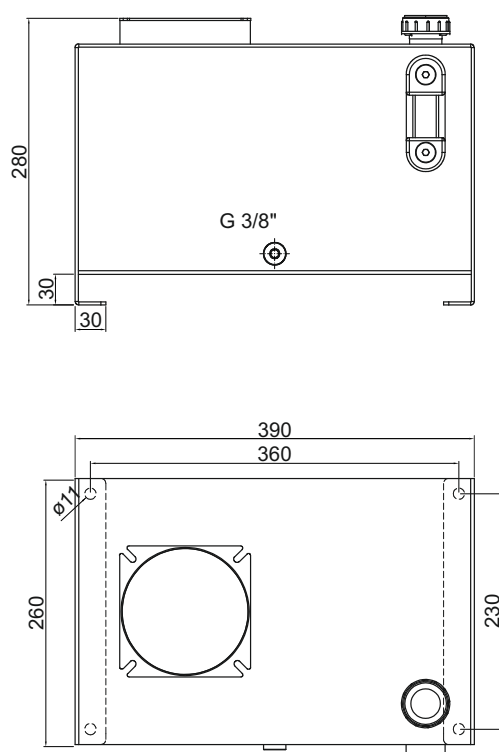
LMS15

Serbatoio rettangolare stagno in acciaio capacità 15 litri
15 liters capacity rectangular watertight steel tank



LMS20

Serbatoio rettangolare stagno in acciaio capacità 20 litri
20 liters capacity rectangular watertight steel tank

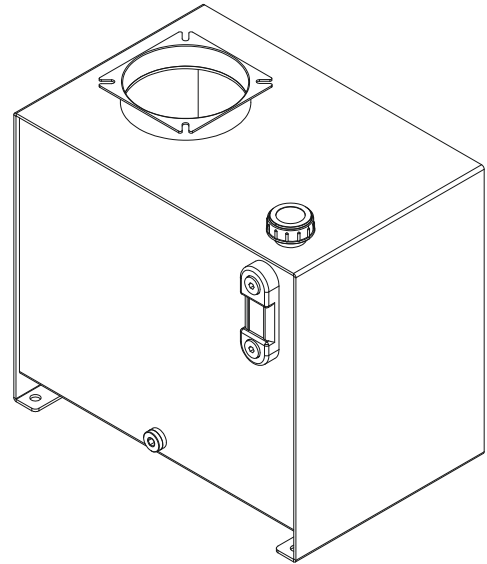
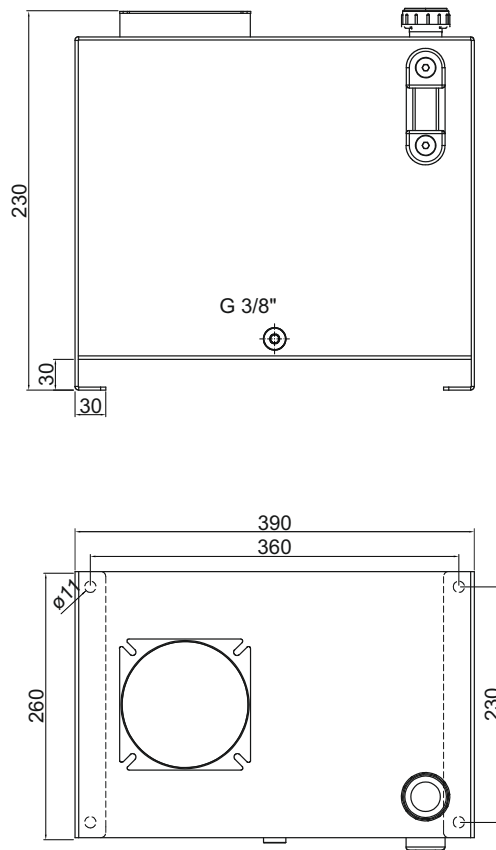


Serbatoi acciaio steel oil tanks

08

LMS30

Serbatoio rettangolare stagno in acciaio capacità 30 litri
30 liters capacity rectangular watertight steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Tappo di sfiato filler breather	G3/4"

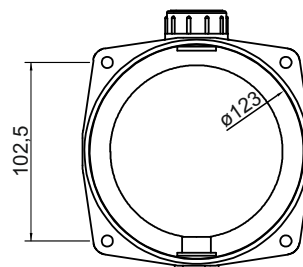
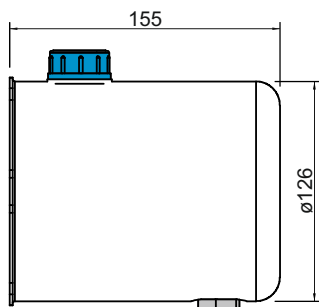


Serbatoi acciaio steel oil tanks

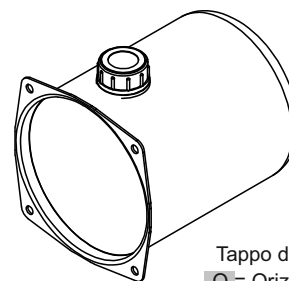


CS01

Serbatoio cilindrico in acciaio capacità 1,5 litri
1,5 liters capacity cylindrical steel tank



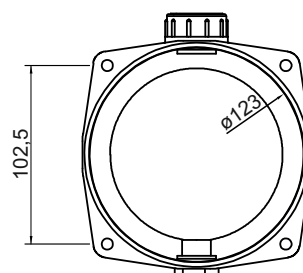
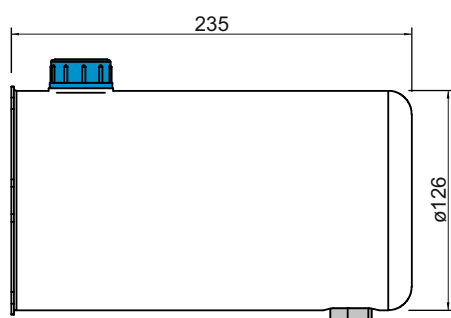
Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



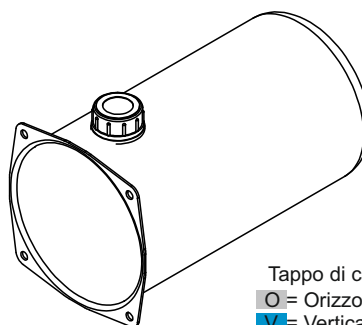
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

CS02

Serbatoio cilindrico in acciaio capacità 2,5 litri
2,5 liters capacity cylindrical steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



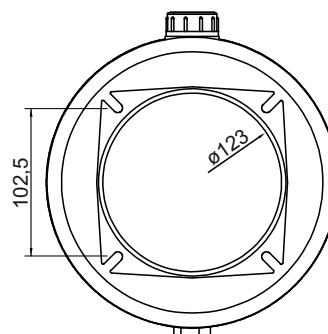
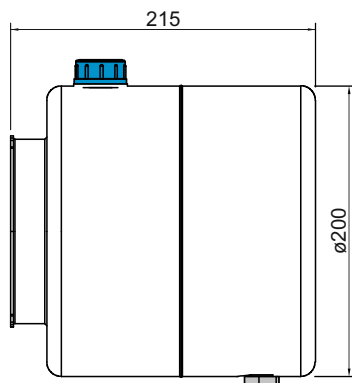
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi acciaio steel oil tanks

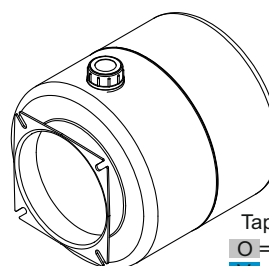
08

CS05

Serbatoio cilindrico in acciaio capacità 5 litri
5 liters capacity cylindrical steel tank



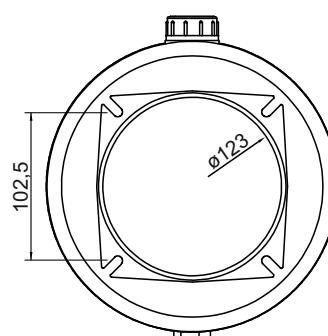
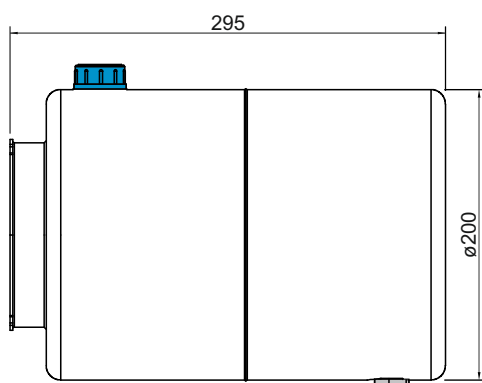
Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



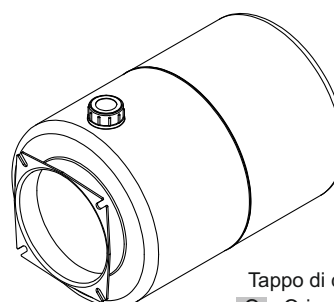
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

CS08

Serbatoio cilindrico in acciaio capacità 8 litri
8 liters capacity cylindrical steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



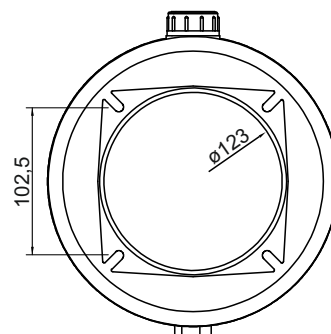
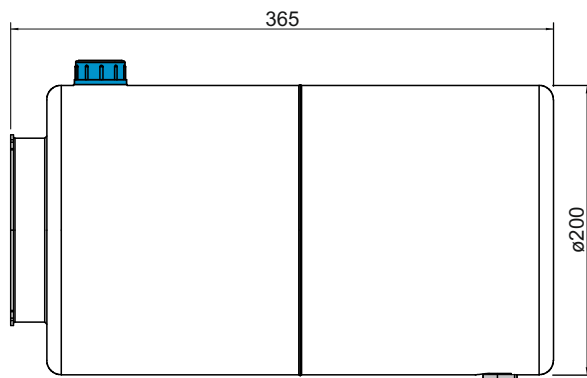
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical



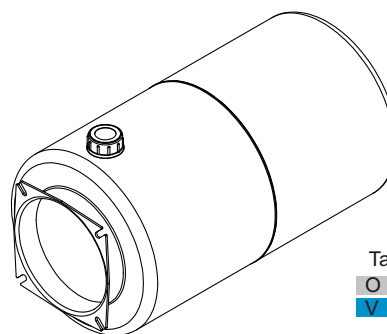
Serbatoi acciaio steel oil tanks

CS10

Serbatoio cilindrico in acciaio capacità 10 litri
10 liters capacity cylindrical steel tank



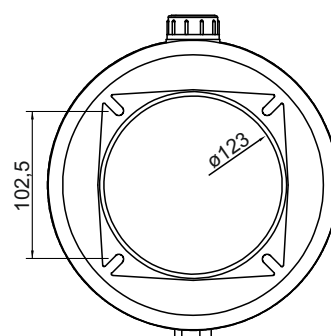
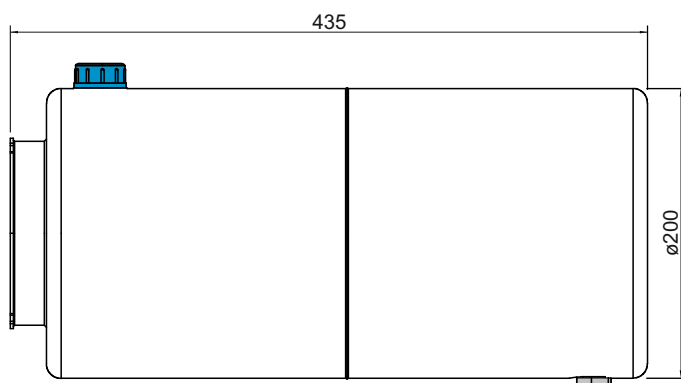
Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



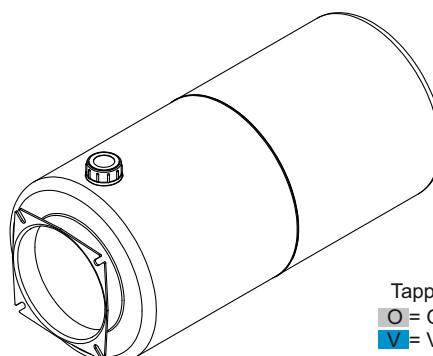
Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

CS12

Serbatoio cilindrico in acciaio capacità 12 litri
12 liters capacity cylindrical steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



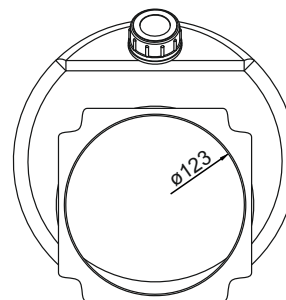
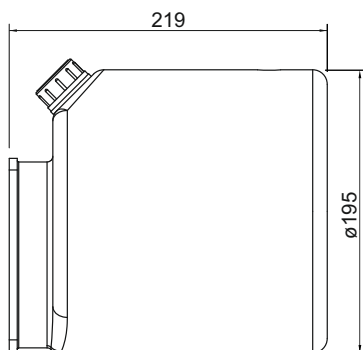
Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

Serbatoi plastica plastic oil tanks

08

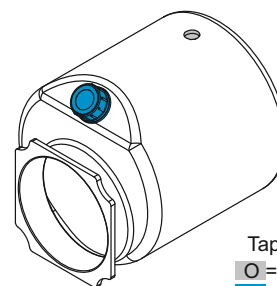
PC05

Serbatoio cilindrico in plastica capacità 5 litri
5 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

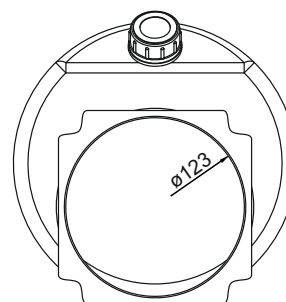
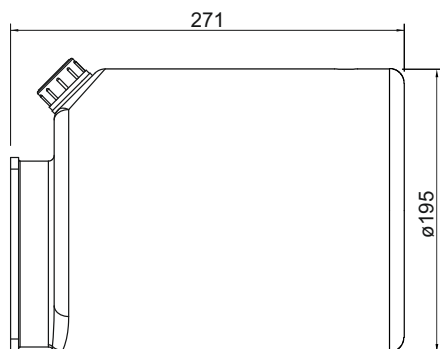
Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

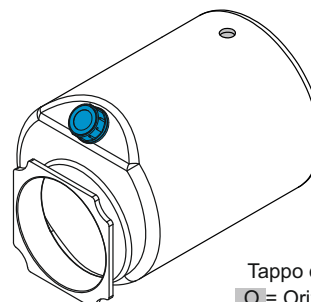
PC07

Serbatoio cilindrico in plastica capacità 7 litri
7 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



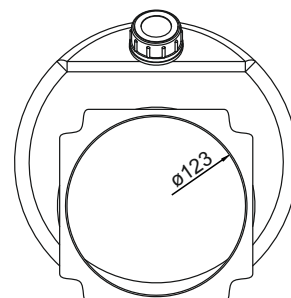
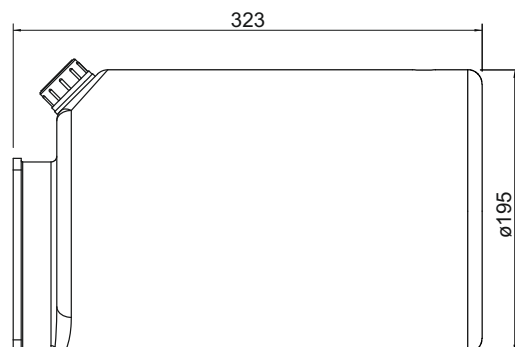
Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

Serbatoi plastica plastic oil tanks



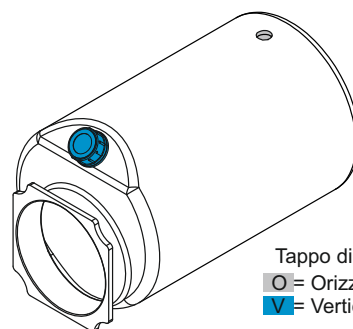
PC09

Serbatoio cilindrico in plastica capacità 9 litri
9 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

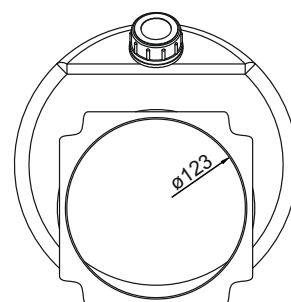
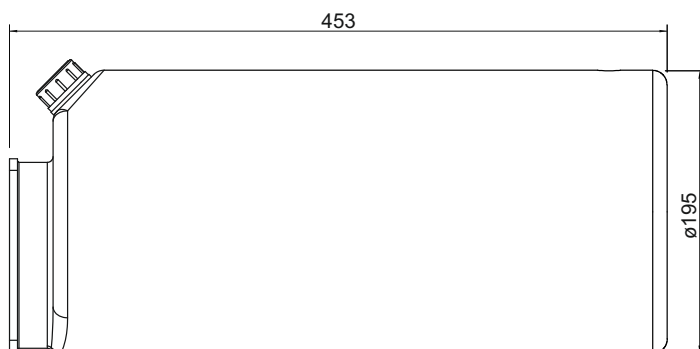
Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

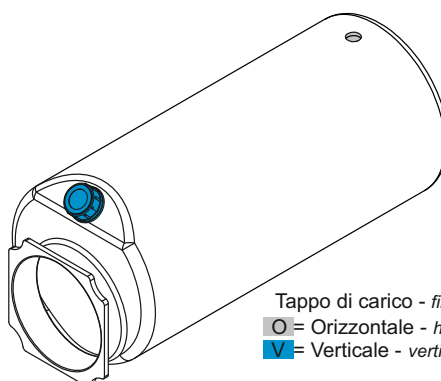
PC11

Serbatoio cilindrico in plastica capacità 11 litri
11 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



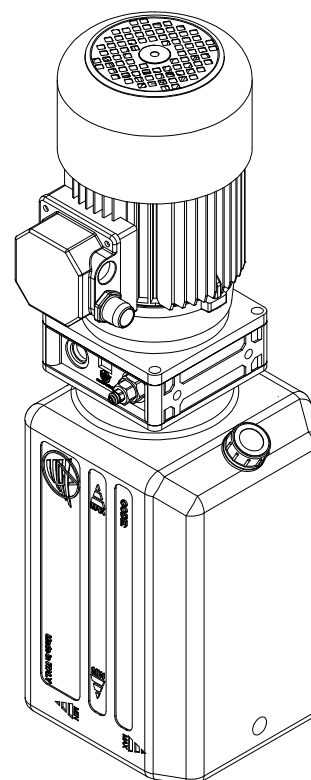
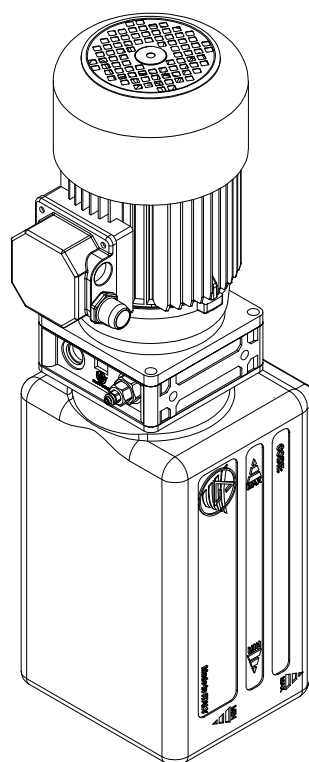
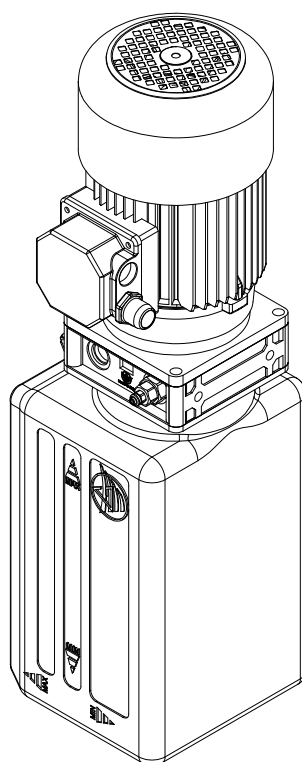
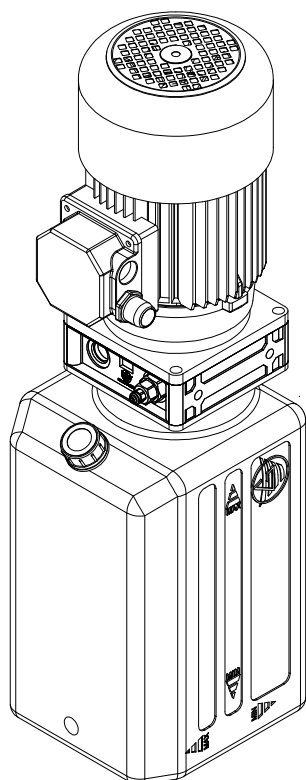
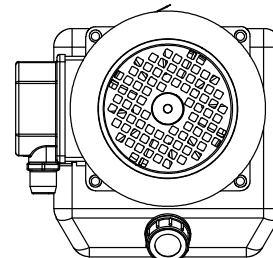
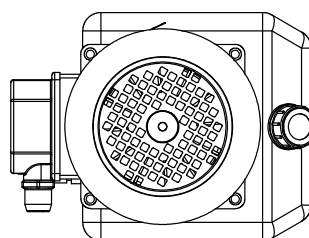
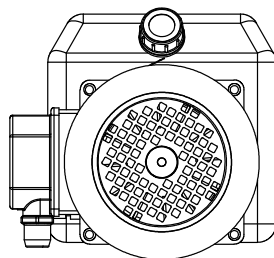
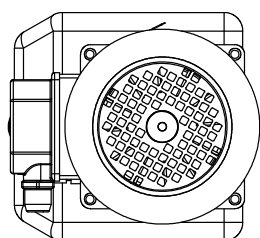
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi oil tanks

08

Orientamento Serbatoi - tanks positioning

Serie PE - CS - PC



1 Sinistra - left (std)

2 Anteriore - front

3 Destra - right

4 Posteriore - rear

tappo di carico stesso lato
della valvola di massima
filler cap same side of the relief
valve

tappo di carico lato blocchi
modulari
filler cap on modular blocks side

tappo di carico lato opposto
della valvola di massima
filler cap on opposite side of the
relief valve

tappo di carico lato opposto
blocchi modulari
filler cap on opposite side modular
blocks

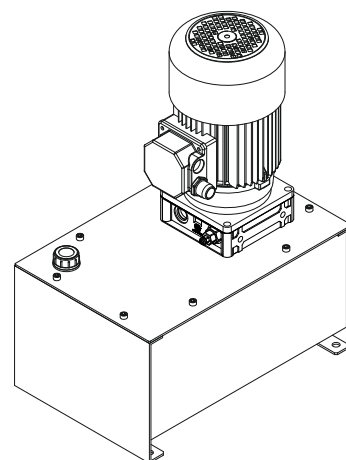
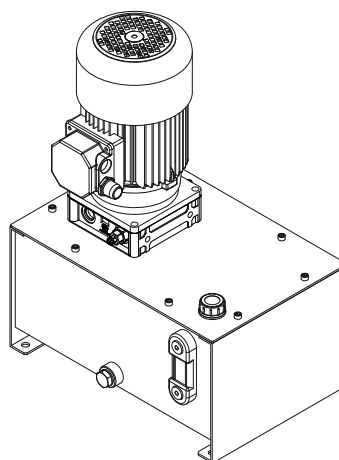
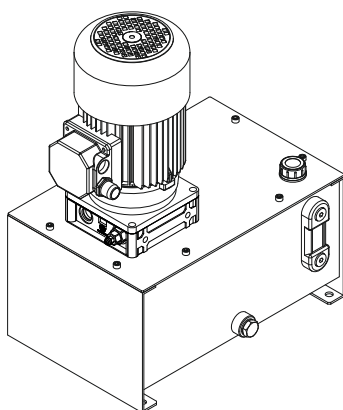
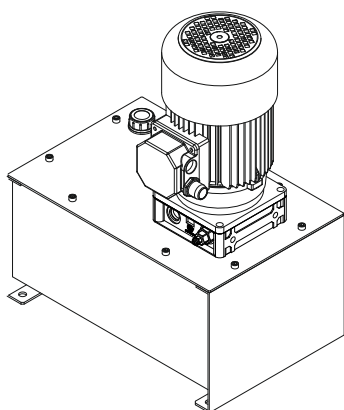
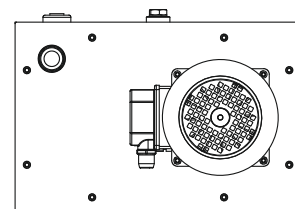
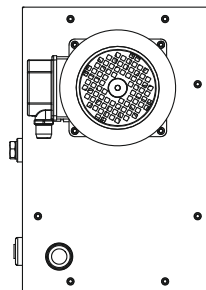
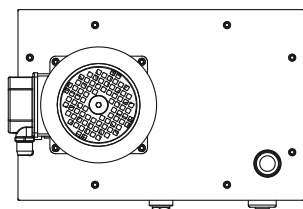
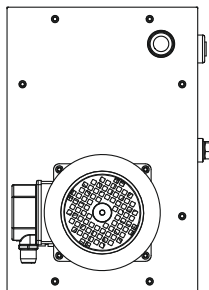


08

Serbatoi oil tanks

Orientamento Serbatoi - tanks positioning

Serie LM e LMS



1 Sinistra - left (std)

tappo di carico verso blocchi modulari
filler cap toward modular blocks

2 Anteriore - front

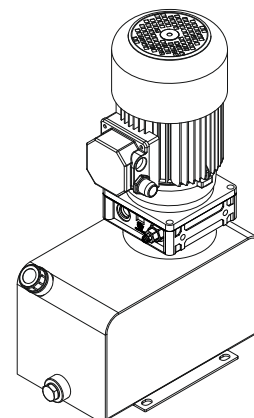
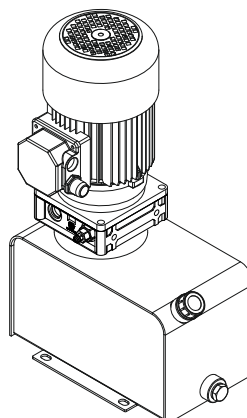
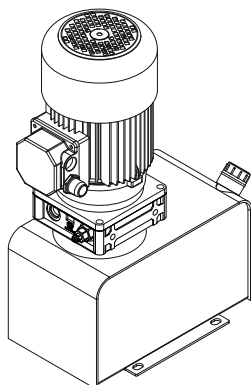
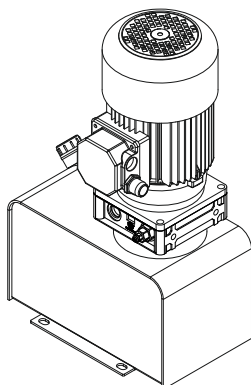
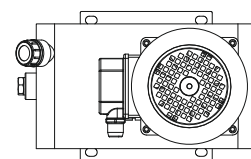
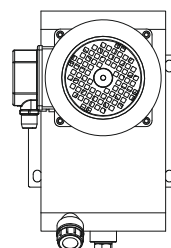
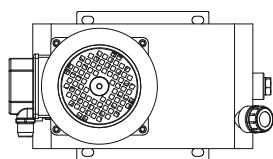
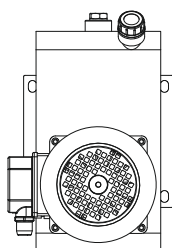
tappo di carico opposto alla valvola di massima
filler cap on opposite side of the relief valve

3 Destra - right

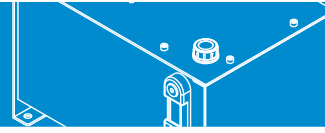
tappo di carico opposto a blocchi modulari
filler cap on opposite side of the modular blocks

4 Posteriore - rear

tappo di carico verso valvola di massima
filler cap toward relief valve



Serbatoi oil tanks



08

Dimensionamento serbatoio - tank sizing

Il serbatoio deve contenere l'olio che i cilindri richiedono quando sono tutti estesi, più un riserva che tenga il filtro di aspirazione sempre immerso e lasci spazio alla dilatazione dell'olio.

The tank must hold the oil required by the cylinders when fully extended, plus a reserve that keeps the suction filter always submerged and leaves room for oil expansion.

1. Volume d'olio dei cilindri oil volume of the cylinders

$$V [l] = 3,14 \times D^2 \times C / 4.000.000 \quad D = \text{alesaggio del cilindro [mm]} \quad C = \text{corsa [mm]}$$

D = cylinder bore [mm] C = stroke [mm]. Con più cilindri si sommano i volumi. Per i cilindri a doppio effetto conta il lato con il volume maggiore.

D \ C [mm]	200	300	500	800	1000
Ø 40	0,25 l	0,38 l	0,63 l	1,01 l	1,26 l
Ø 50	0,39 l	0,59 l	0,98 l	1,57 l	1,96 l
Ø 63	0,62 l	0,94 l	1,56 l	2,49 l	3,12 l
Ø 80	1,01 l	1,51 l	2,51 l	4,02 l	5,03 l
Ø 100	1,57 l	2,36 l	3,93 l	6,28 l	7,85 l

2. Come scegliere il serbatoio how to choose the tank

- Volume utile, tra il livello massimo e il minimo, almeno pari al volume dei cilindri.

Usable volume, between maximum and minimum level, at least equal to the cylinder volume.

- Con i cilindri tutti estesi il filtro di aspirazione deve restare immerso di almeno 30 - 50 mm (quota A): così la pompa non aspira aria.

With all cylinders extended the suction filter must stay at least 30 - 50 mm under the oil (A), so the pump does not draw air.

- Non riempire oltre il livello massimo: lo spazio libero serve alla dilatazione dell'olio e alla separazione dell'aria.

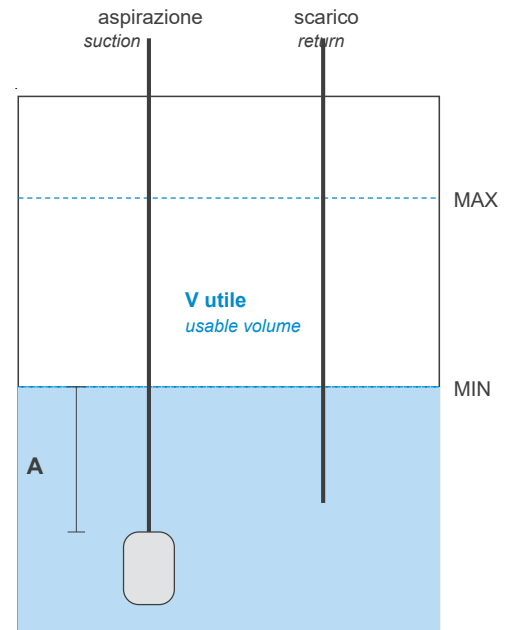
Do not fill above the maximum level: the free space is needed for oil expansion and air release.

- Servizio intermittente (S3): volume dei cilindri più una riserva del 20 - 30%. Servizio continuo: indicativamente 3 - 5 volte la portata della pompa al minuto, oppure uno scambiatore di calore.

Intermittent duty (S3): cylinder volume plus a 20 - 30% reserve. Continuous duty: about 3 - 5 times the pump flow per minute, or a heat exchanger.

- Il tubo di scarico deve finire sotto il livello minimo, lontano dall'aspirazione.

The return pipe must end below the minimum level, away from the suction.



3. Esempio example

Cilindro a semplice effetto Ø 50, corsa 500 mm: $V = 3,14 \times 50^2 \times 500 / 4.000.000 = 0,98 \text{ l}$. Con il 30% di riserva servono circa 1,3 l di volume utile: si sceglie il serbatoio con volume utile subito superiore.

Single-acting cylinder Ø 50, stroke 500 mm: $V = 0.98 \text{ l}$. With a 30% reserve about 1.3 l of usable volume is needed: choose the tank with the next larger usable volume.

