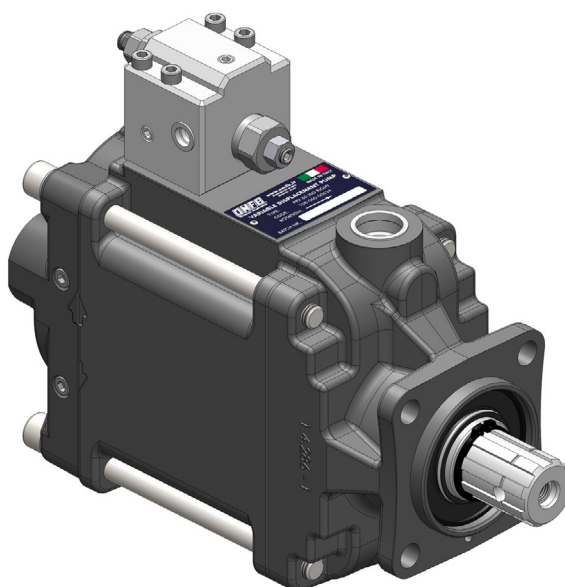
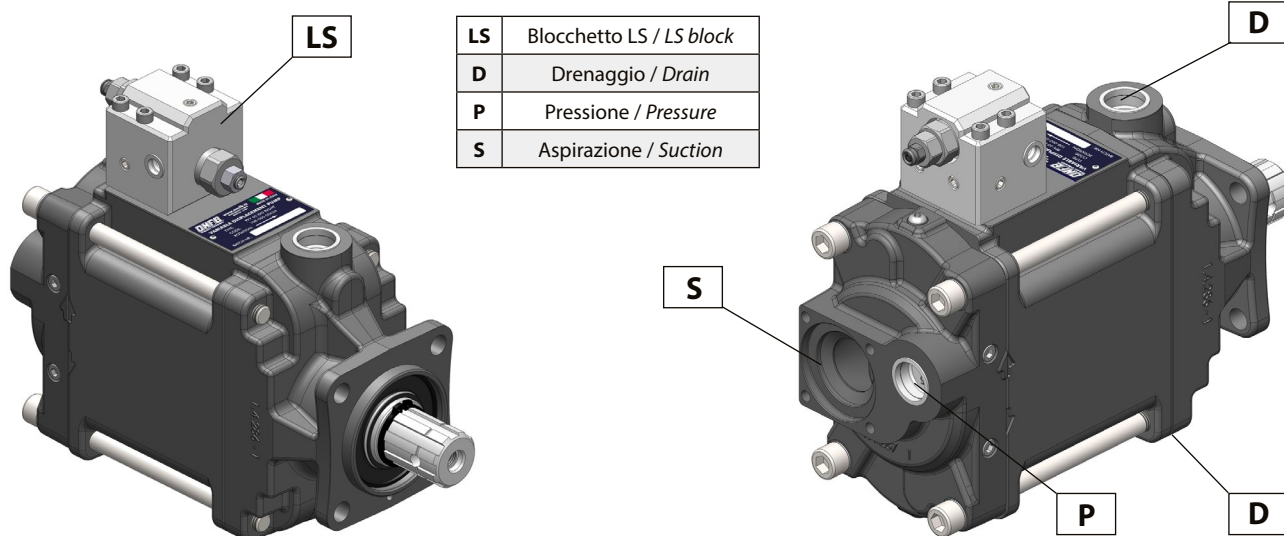




Pompe a cilindrata variabile
Variable displacement pumps

• Introduzione e dati tecnici		
<i>Introduction and technical features</i>		pag. 03
• GAMMA PPV		
PPV RANGE		
	PPV 60	pag. 07
	PPV 90-110	pag. 15
	PPV 130	pag. 23
	PPV 150	pag. 27
• Regolatori		
<i>Controls</i>		pag. 31
• Valvola di flussaggio		
<i>Flushing valve</i>		pag. 39
• Regolatore portata costante		
<i>Constant flow control</i>		pag. 40
• Applicazioni PPV TANDEM		
<i>TANDEM PPV applications</i>		pag. 41
• Ricambi / Spare parts		pag. 45
• Accessori / Accessories		pag. 47
• Codifica versioni		
<i>Versions coding</i>		pag. 48



La pompa a pistoncini assiali a cilindrata variabile OMFB è di tipo a piatto oscillante.

La cilindrata della pompa dipende dalla corsa dei pistoncini pompanti, che a sua volta dipende dall'inclinazione del piatto oscillante. La pompa all'avviamento si trova in cilindrata massima per effetto di due molle che spingono il piatto oscillante. La cilindrata della pompa viene ridotta agendo su due pistoncini comandati idraulicamente in grado di vincere la forza delle molle. Un corpo cilindrico ruota solidale con l'albero e costringe i pistoncini a ruotare anch'essi alla stessa velocità dell'albero ed a compiere il percorso circolare sul piatto oscillante che ne provoca il movimento alternativo. La pompa in questo modo è in grado di erogare portata dal valore massimo fino ad un valore nullo.

La variazione della cilindrata è comandata dal regolatore che si trova montato sulla pompa stessa.

Sono pompe adatte a funzionare in circuito aperto. Permettono di avere tempi di reazione brevi e, grazie alla loro larghezza ridotta, il montaggio diretto sulle prese di forza (PTO) dei veicoli commerciali.

In fase d'ordine è necessario specificare il senso di rotazione della pompa.

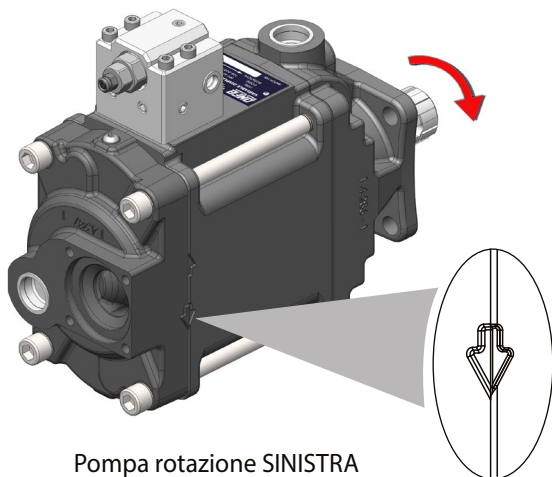
The OMFB variable displacement axial piston pump has got a swash plate.

The displacement of the pump depends on the stroke of the pistons, which is determined by the inclination of the swash plate. At the start, the pump is at its maximum displacement position because of the springs pushing against the swash plate. The displacement of the pump is reduced by means of two pistons hydraulically operated that win the force of the springs. The cylinders block rotates together with the shaft forcing the pistons to rotate at the same speed of the shaft and make a circular path on the swash plate that causes the reciprocating movement. In this way, the pump is able to deliver from the maximum to zero flow rate.

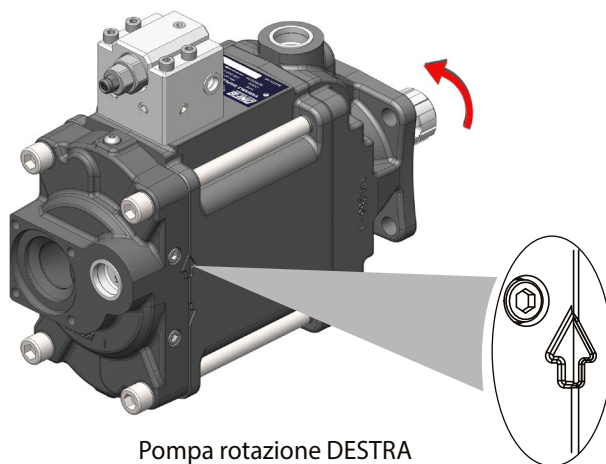
The variation of the displacement is controlled by a regulator, which is fitted on the pump itself.

These pumps are designed to operate in open circuit. They allow very quick reaction time and thanks to its compact size they can be coupled directly onto PTO's of commercial vehicles.

When ordering please specify the required direction of rotation.



Pompa rotazione SINISTRA
LEFT Hand rotating pump



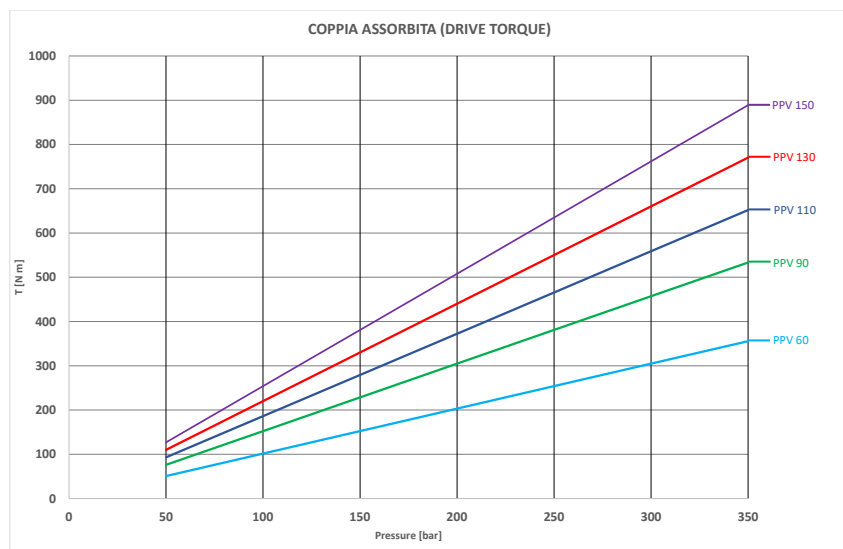
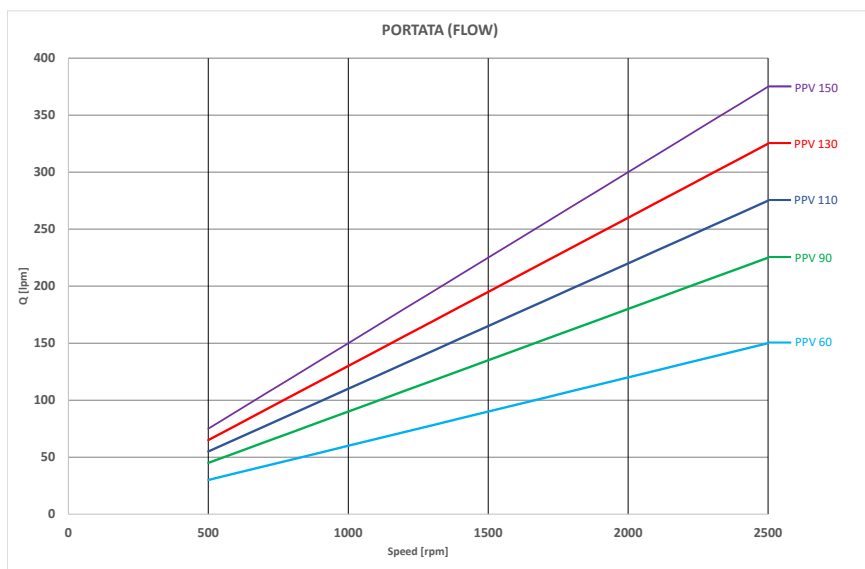
Pompa rotazione DESTRA
RIGHT Hand rotating pump

Pompe a cilindrata variabile

Variable displacement pumps

PPV 60-90-110-130-150

DATI TECNICI / TECHNICAL FEATURES	PPV 60		PPV 90		PPV 110		PPV 130		PPV 150	
Portata / Flow	60 l/min.		90 l/min.		110 l/min.		130 l/min.		150 l/min.	
Angolo di regolazione massima / Max. swash plate angle	21,5°									
Pressione di lavoro / Working pressure	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent
	375 bar	400 bar	375 bar	400 bar	375 bar	400 bar	375 bar	400 bar	300 bar	320 bar
Pressione d'ingresso assoluta necessaria nel circuito aperto Absolute inlet pressure required in open circuit	0,85 bar									
Pressione massima ammissibile sul corpo (statica/dinamica) Max. permissible housing pressure (static/dynamic)	1 bar		3 bar							
Pressione d'ingresso massima ammissibile Max. permissible inlet pressure (static/dynamic)	2 bar									
Numero di giri max. con angolo di regolazione max.a una pressione d'ingresso assoluta di 1 bar. Max. speed during suction operation and max. swash plate angle at 1 bar abs. Inlet pressure	2500 rpm		2300 rpm		2200 rpm		2100 rpm		1800 rpm	
Numero giri max. in annullamento e pressione d'ingresso assoluta 1bar. Max. speed with zero stroke and 1 bar abs. Inlet pressure	3000 rpm									
Numero di giri minimo in funzionamento continuo Min. speed in continuous operation	500 rpm									
Coppia motrice necessaria a 100 bar Required drive torque at 100 bar	100 Nm		150 Nm		185 Nm		220 Nm		250 Nm	
Potenza motrice a 250 bar e 2000 rpm Drive power at 250 bar and 2000 rpm	53 kW		80 kW		100 kW		120 kW		125 kW	
Peso / Weight	24 Kg		29 Kg		30 Kg		27 Kg		27 Kg	



La versione **ADJUSTABLE**, prevede una vite di regolazione posteriore che limita la cilindrata massima della pompa a valori inferiori a quella nominale.

The **ADJUSTABLE** version consists of a rear setting screw that limits the max. displacement of the pumps to lower values than the nominal one.

Cilindrata / Displacement 60cc

Campo regolazione cilindrata Displacement limitation range	40 - 60 cm ³
Limitazione della cilindrata Displacement limitation range	4,3 cm ³ /rev

Cilindrata / Displacement 90cc

Campo regolazione cilindrata Displacement limitation range	55 - 90 cm ³
Limitazione della cilindrata Displacement limitation range	5,7 cm ³ /rev

Cilindrata / Displacement 110cc

Campo regolazione cilindrata Displacement limitation range	85 - 110 cm ³
Limitazione della cilindrata Displacement limitation range	6,6 cm ³ /rev

Cilindrata / Displacement 130cc

Campo regolazione cilindrata Displacement limitation range	90 - 130 cm ³
Limitazione della cilindrata Displacement limitation range	7,1 cm ³ /rev

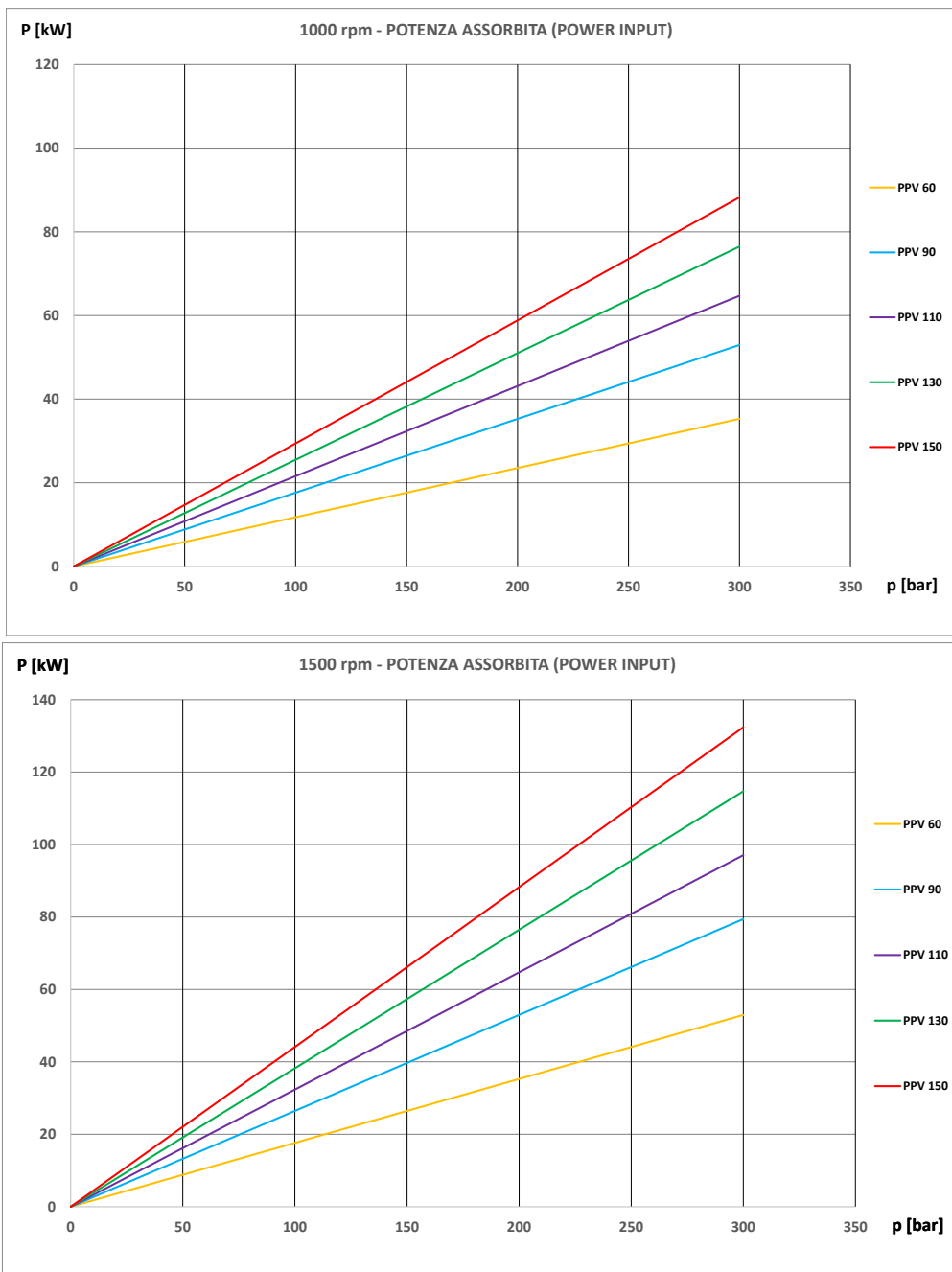
Cilindrata / Displacement 150cc

Campo regolazione cilindrata Displacement limitation range	100 - 150 cm ³
Limitazione della cilindrata Displacement limitation range	7,9 cm ³ /rev

Pompe a cilindrata variabile

Variable displacement pumps

PPV 60-90-110-130-150



Fluido idraulico / Fluid	Minerale o sintetico compatibile con guarnizioni: Mineral or synthetic compatible with the following seals: HNBR				
Temperatura di lavoro/Working temperature	-32 +80 °C				
Temperatura ambiente/Ambient temperature	-40 +60 °C				
Viscosità cinematica consigliata Kinematic viscosity suggested	T media ambiente (°C) Average ambient temp. (°C)	< -40	-40÷10	10÷35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Viscosità cinematica ottimale di esercizio Optimale kinematic viscosity		VG= 10 cSt ÷ 100 cSt			
Viscosità cinematica max consentita all'avviamento Max kinematic viscosity suggested at the start-up		VG= 750 cSt			
Indice di viscosità consigliato Viscosity index suggested		VI > 100			

Filtrazione / Filtration			
Pressione di lavoro/Working pressure (bar)	ΔP<140	140<ΔP<210	ΔP>210
Contaminazione classe NAS 1638 Contamination class NAS 1638	9	8	7
Contaminazione classe ISO 4406-1999 Contamination class ISO 4406-1999	20/18/15	19/17/14	18/16/13
Da ottenere con filtro βx >75 secondo ISO 16889 To be obtained with filter βx >75 according ISO 16889	10 μm		

Grandezze nominali

Nominal values

Portata

Flow

Coppia motrice

Torque

Potenza motrice

Power

$$Q [lpm] = \frac{V \cdot n \cdot \eta_v}{1000}$$

$$T [N \cdot m] = \frac{V \cdot \Delta p}{20 \cdot \pi \cdot \eta_{hm}}$$

$$P [kW] = \frac{2 \cdot \pi \cdot T \cdot n}{60000} = \frac{Q \cdot \Delta p}{600 \cdot \eta_{tot}}$$

V = cilindrata [cm³ / rev] / displacement

Δp = salto di pressione [bar] / pressure drop

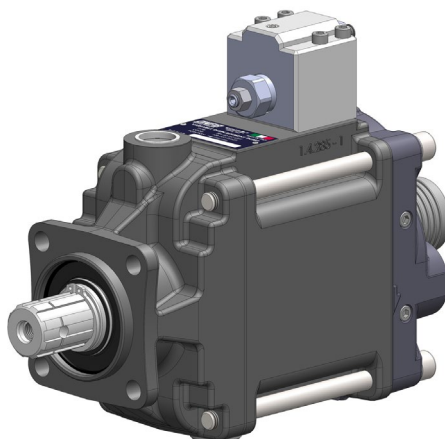
n = velocità di rotazione [rpm] / rotation speed

η_v = rendimento volumetrico / volumetric efficiency

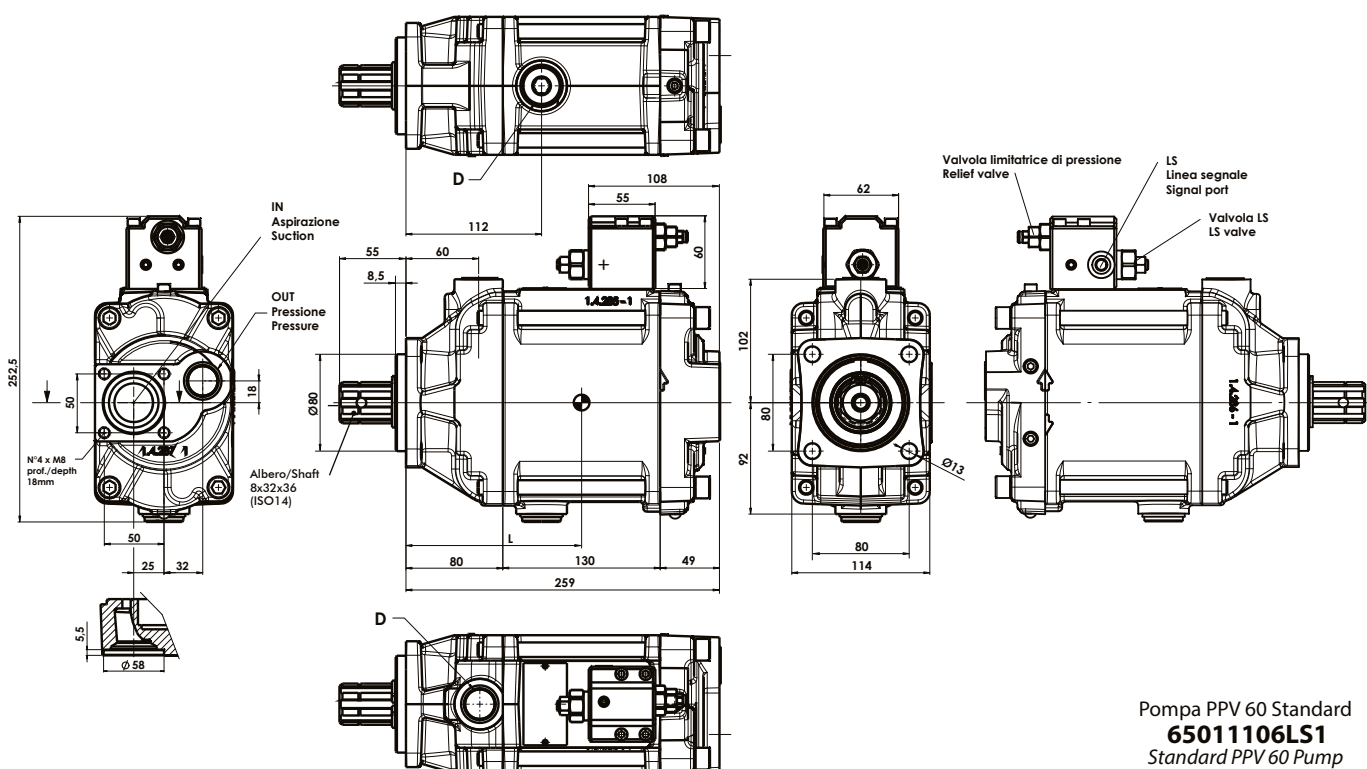
η_{hm} = rendimento idro-meccanico / hydro-mechanical efficiency

η_{tot} = η_v × η_{hm} = rendimento totale / overall efficiency

FORMULE / FORMULAS



Ingombro / Dimensions

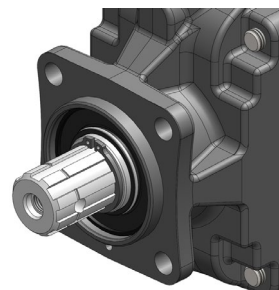
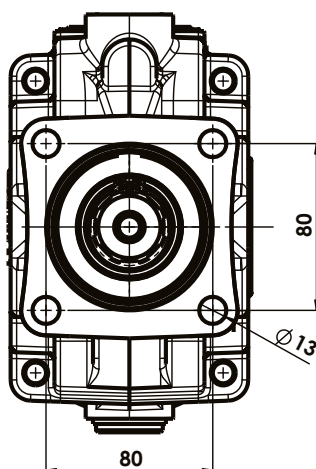
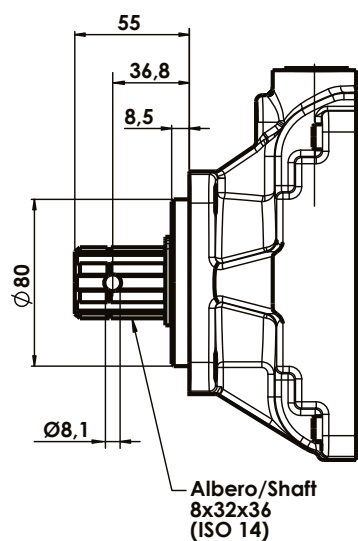


Pompa PPV 60 Standard
65011106LS1
Standard PPV 60 Pump

Dati tecnici / Technical data

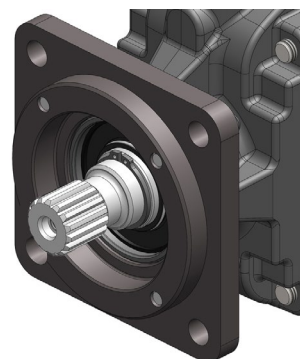
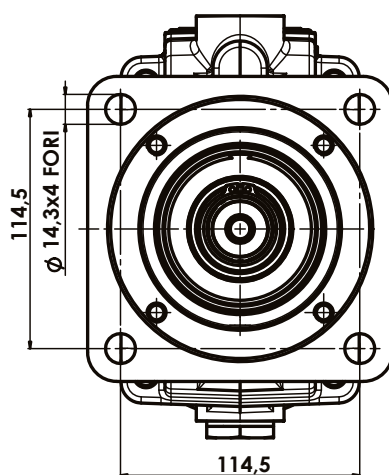
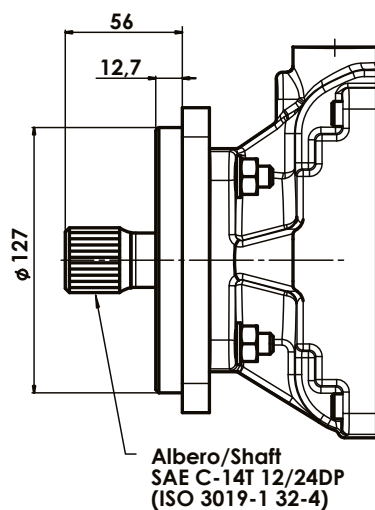
		BSPP (GAS)	UNF
LS	Blocchetto LS/ LS block	G 1/4	
D	Drenaggio / Drain	G 3/4	1 1/16-12 UN-2B
OUT	Pressione / Pressure	G 3/4	1 5/16-12 UN-2B
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50 mm	
L	Baricentro / Center of mass	145 mm circa/approx	

ISO 7653 - Ø 80 - 4fori / holes



Coppia trasmissibile
massima 900 Nm
Max. torque 900 Nm

ISO 3019-1 SAE C - 4fori / holes



Coppia trasmissibile
massima 640 Nm
Max. torque 640 Nm

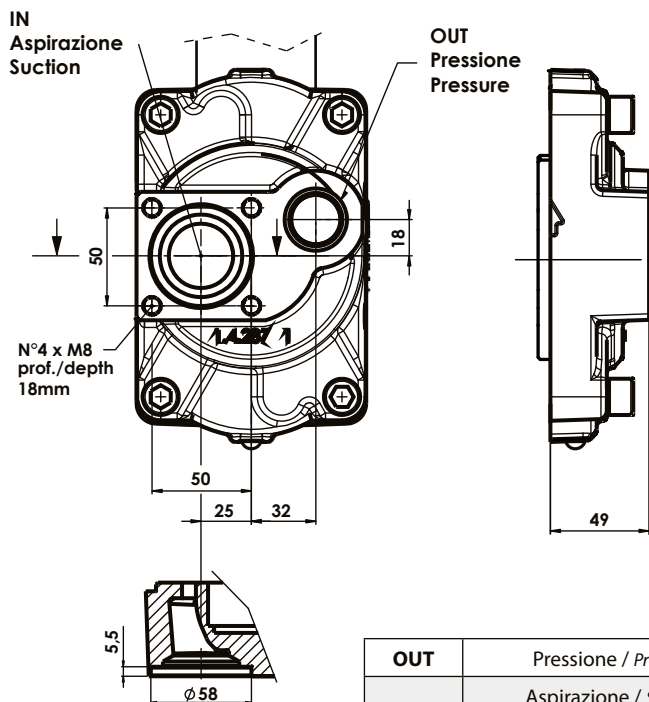
Fondello posteriore

Rear cover

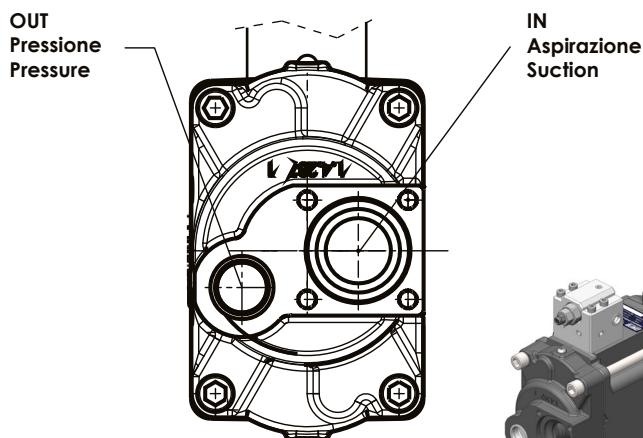
PPV 60 - AX

Assiale / Axial (STANDARD)

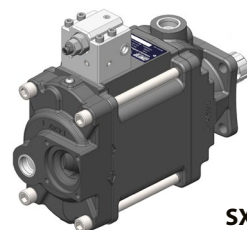
Rotazione destra / Right rotation
Senza limitazione / No adjustment



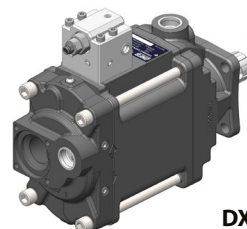
Rotazione sinistra / Left rotation
Senza limitazione / No adjustment



OUT	Pressione / Pressure	G 3/4	1 5/16-12 UN-2B
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	



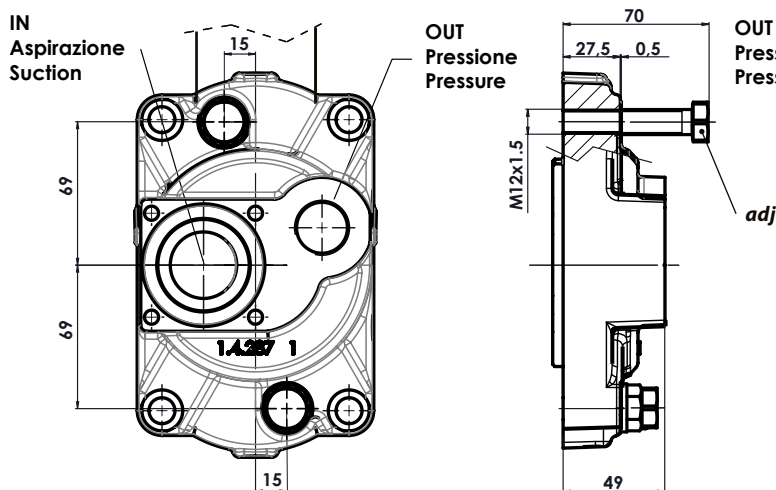
SX



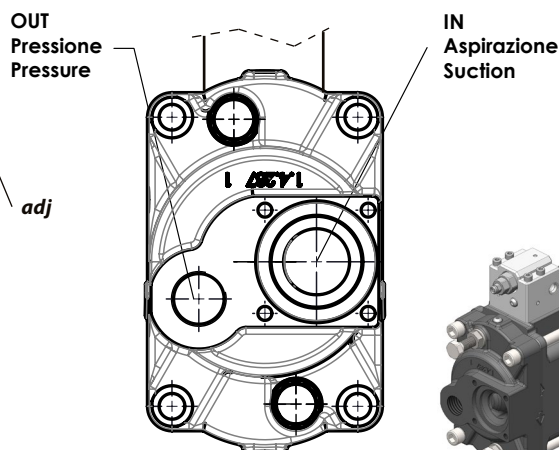
DX

Assiale / Axial (ADJUSTABLE)

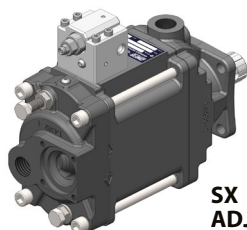
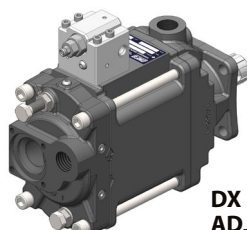
Rotazione destra / Right rotation
Con limitazione / With adjustment



Rotazione sinistra / Left rotation
Con limitazione / With adjustment



OUT	Pressione / Pressure	G 3/4	1 5/16-12 UN-2B
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	

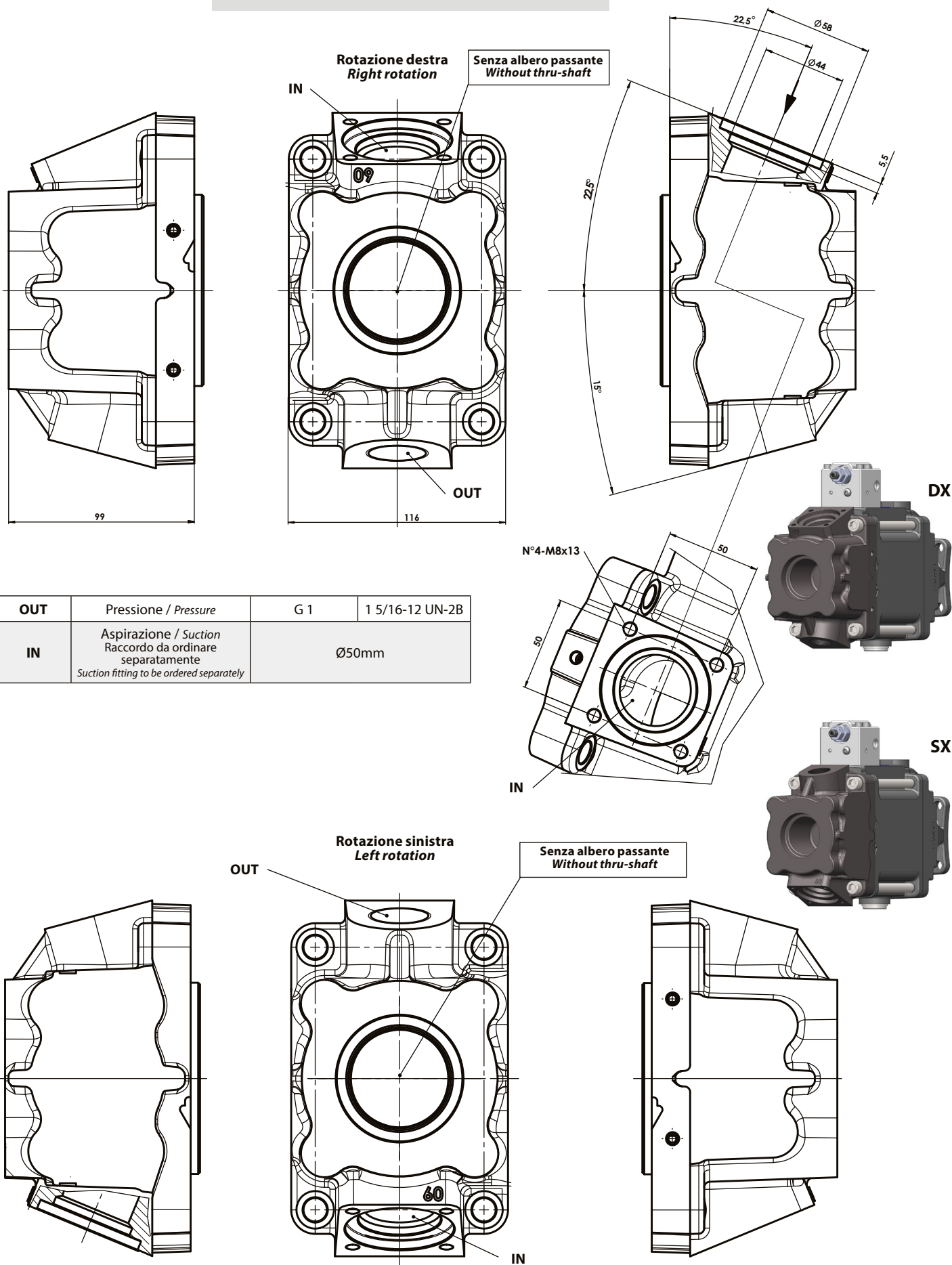

SX
ADJ

DX
ADJ

Fondello posteriore

Rear cover

PPV 60 - RV

Radiale verticale senza albero passante
Vertical radial without thru-shaft

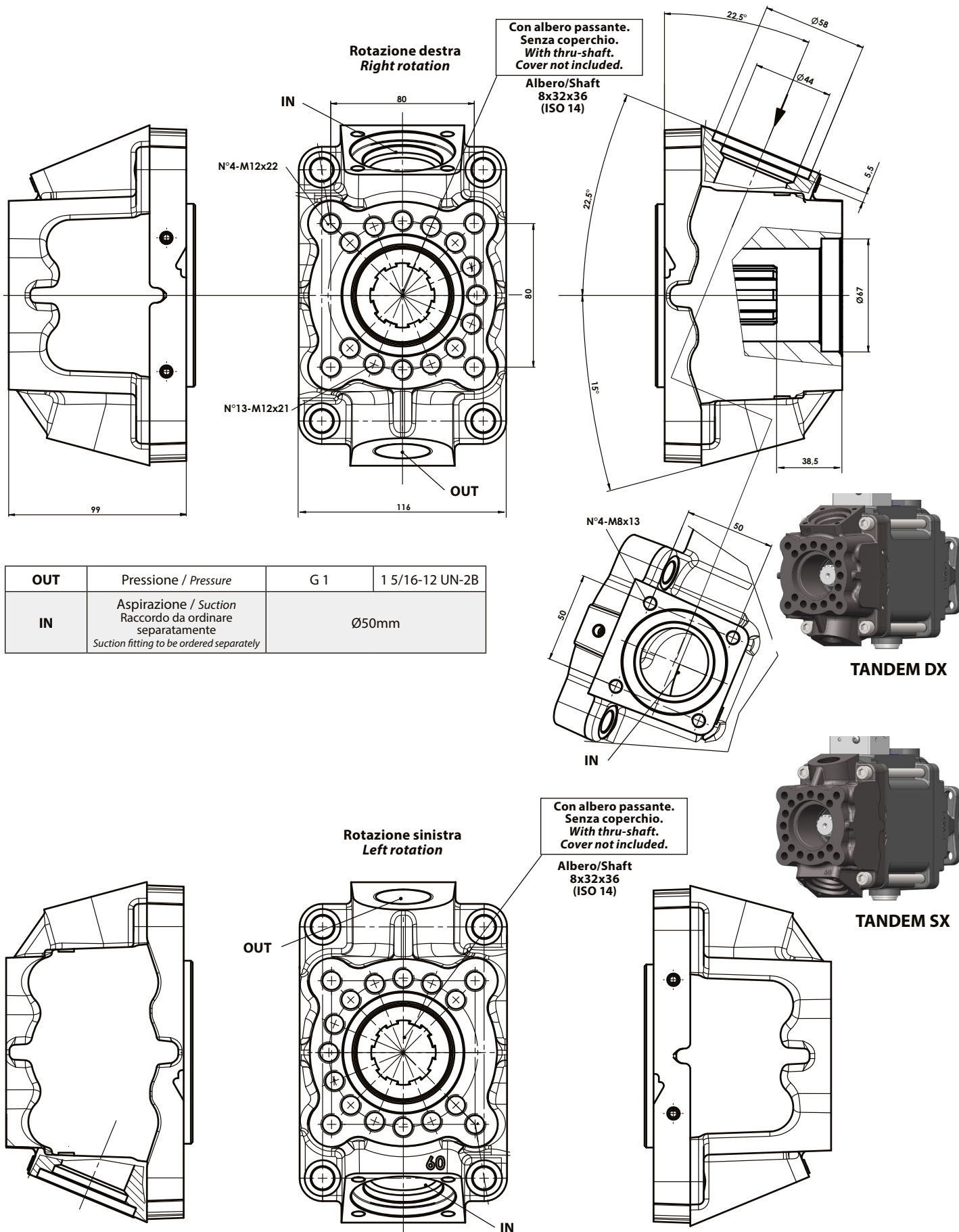


Fondello posteriore

Rear cover

PPV 60 - PV

Radiale verticale con albero passante (TANDEM)
Vertical radial with thru-shaft



Fondello posteriore

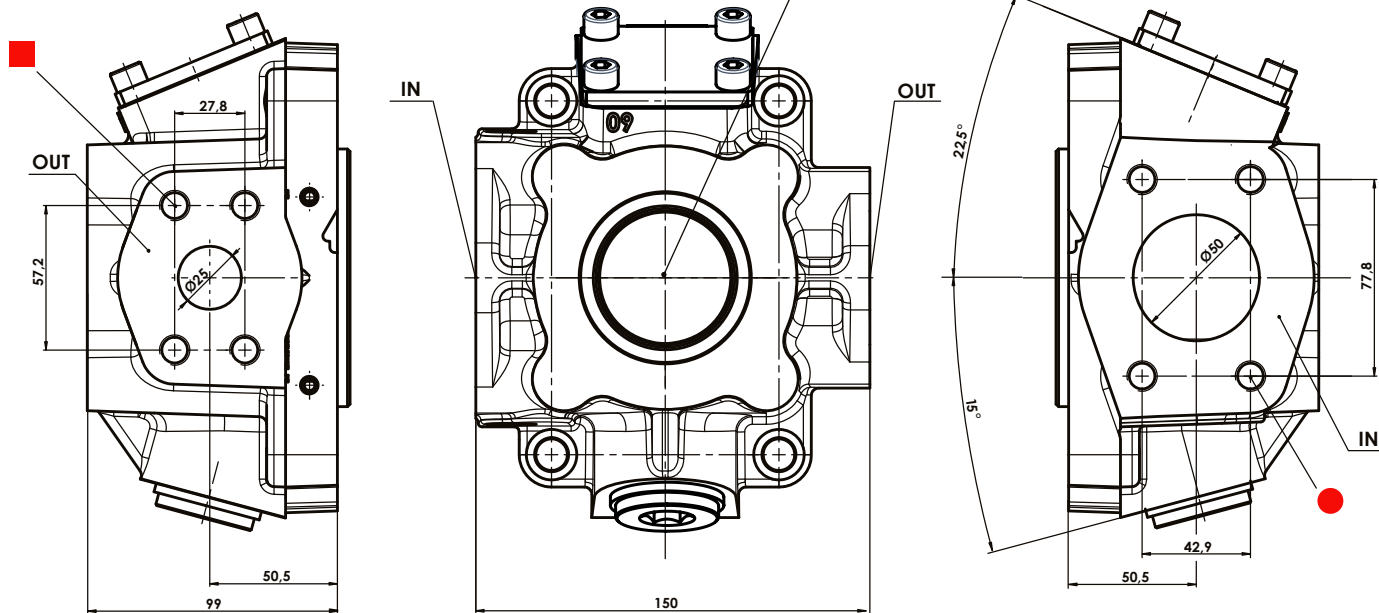
Rear cover

PPV 60 - RO

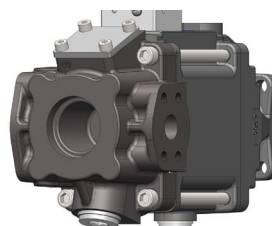
Radiale orizzontale SAE senza albero passante
Horizontal SAE radial without thru-shaft

Rotazione destra
Right rotation

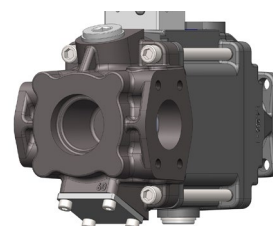
Senza albero passante.
Without thru-shaft.



OUT	Pressione Pressure	1" SAE 6000	■ M12	■ 7/16"UNC
IN	Aspirazione Suction	2" SAE 3000	● M12	● 1/2"UNC



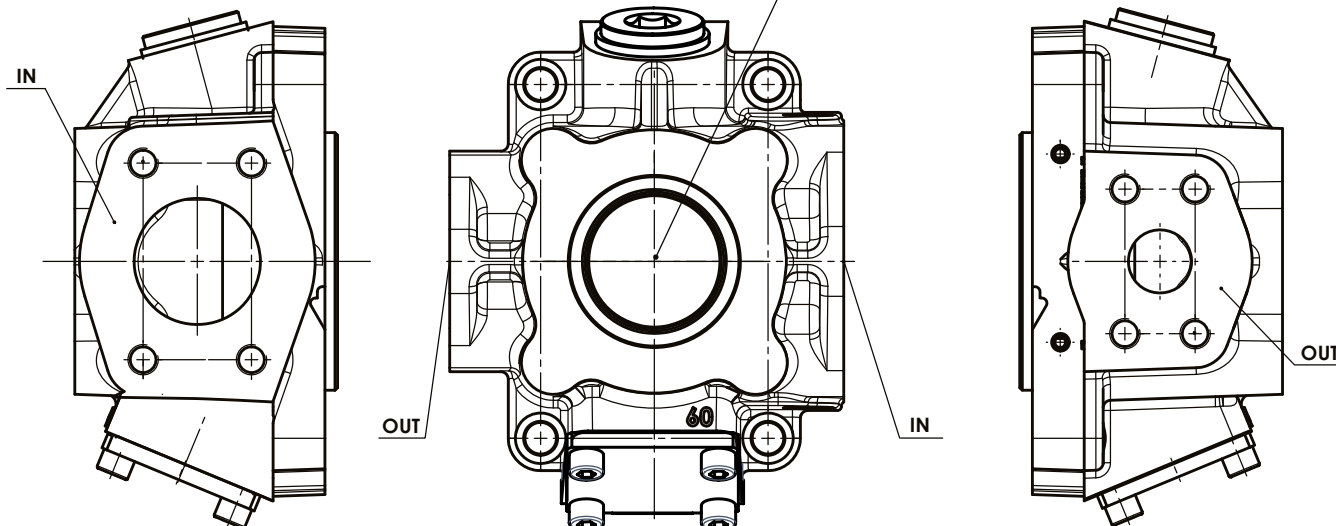
DX



SX

Rotazione sinistra
Left rotation

Senza albero passante.
Without thru-shaft.

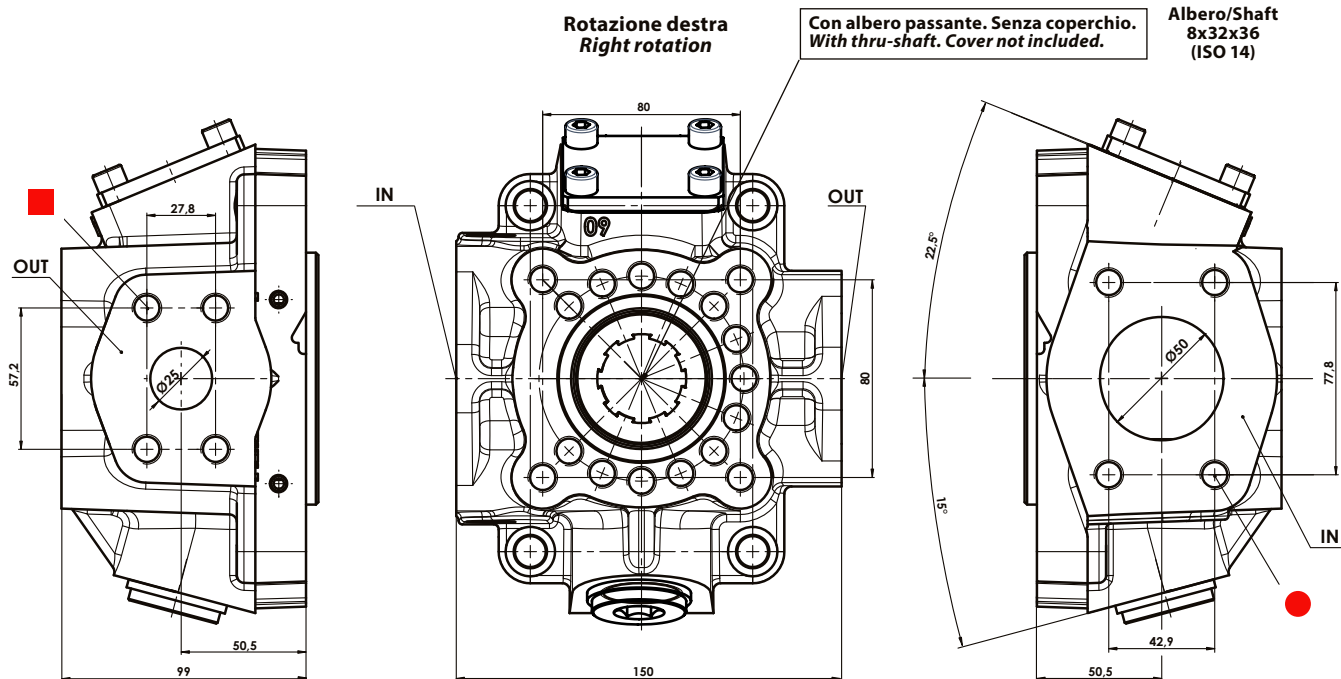


Fondello posteriore

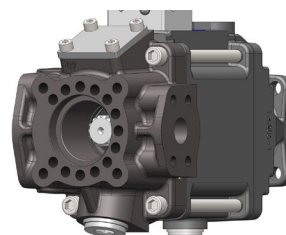
Rear cover

PPV 60 - PO

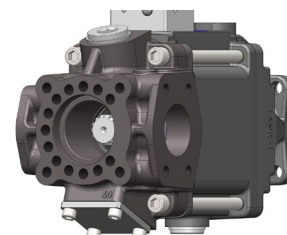
Radiale orizzontale SAE con albero passante (TANDEM) Horizontal SAE radial with thru-shaft



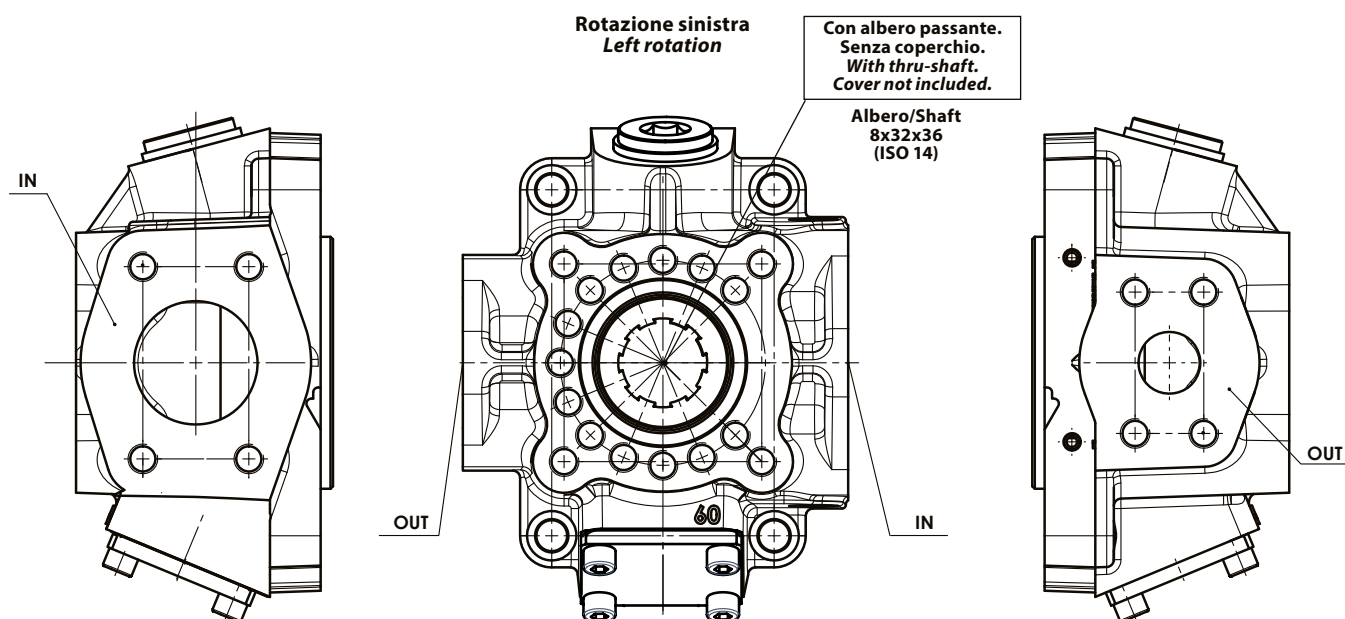
OUT	Pressione Pressure	1" SAE 6000	■ M12	■ 1/2"UN
IN	Aspirazione Suction	2 1/2" SAE 3000	● M12	● 1/2"UN

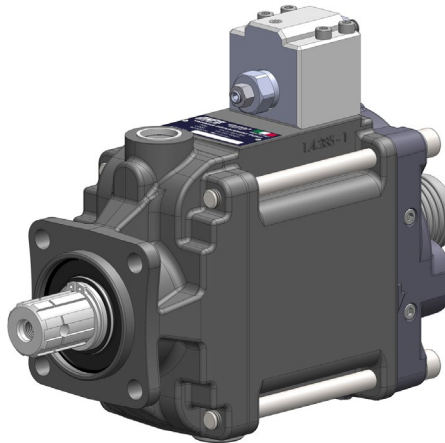


TANDEM DX

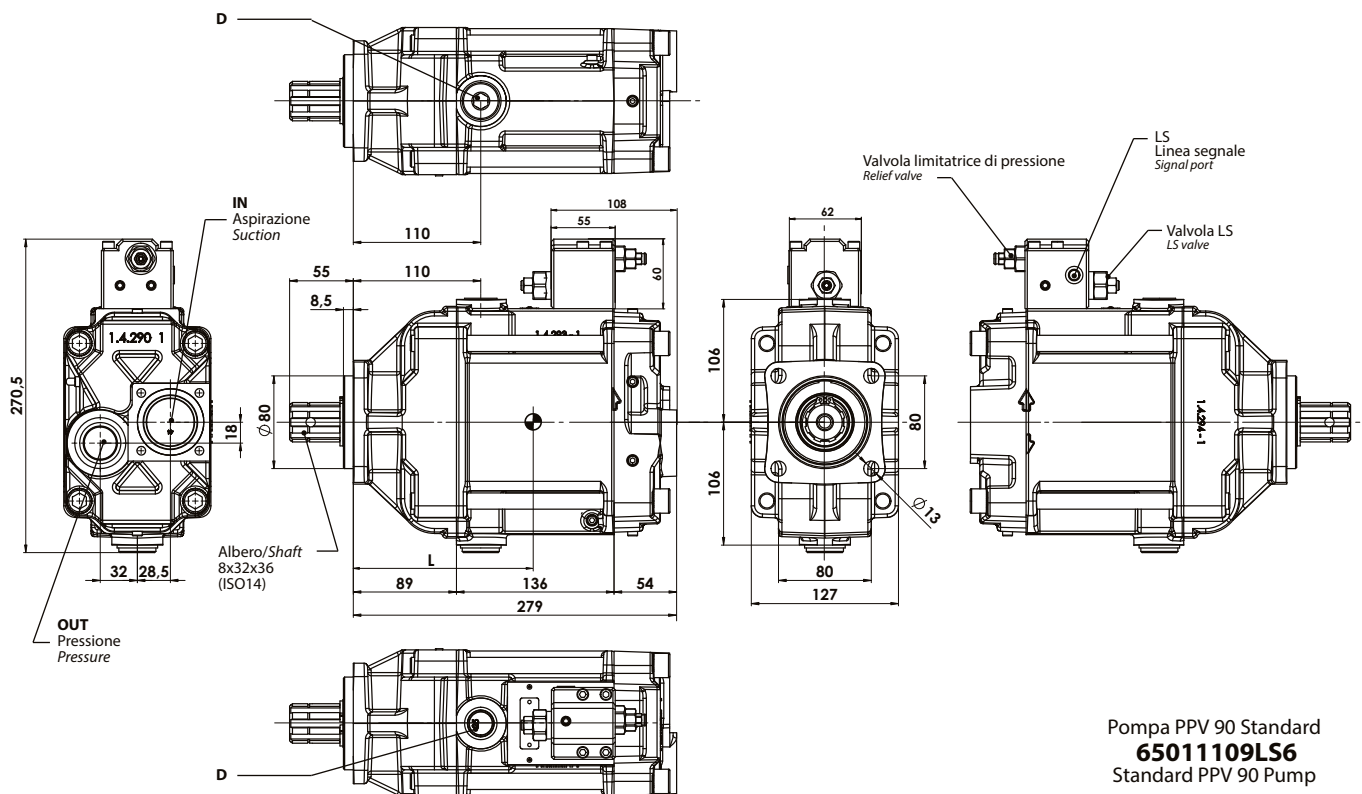


TANDEM SX





Ingombro / Dimensions



Pompa PPV 90 Standard
65011109LS6
 Standard PPV 90 Pump

Dati tecnici / Technical data

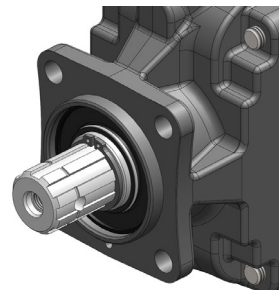
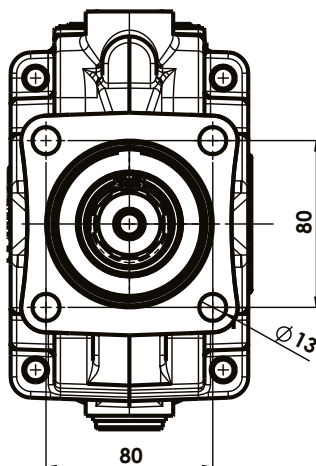
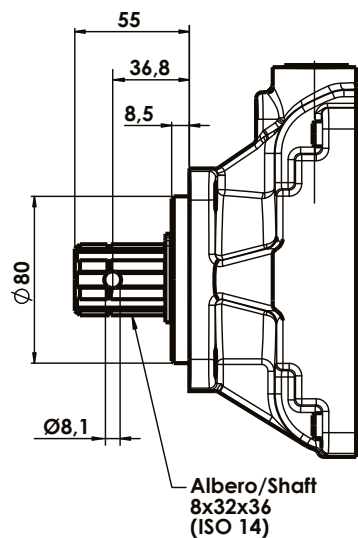
		BSPG (GAS)	UNF
LS	Bloccetto LS/ LS block	G 1/4	
D	Drenaggio / Drain	G 3/4	1 1/16-12 UN-2B
OUT	Pressione / Pressure	G 1	1 5/16-12 UN-2B
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50 mm	
L	Baricentro / Center of mass	148 mm circa/approx	

Flangiatura anteriore

Front flange

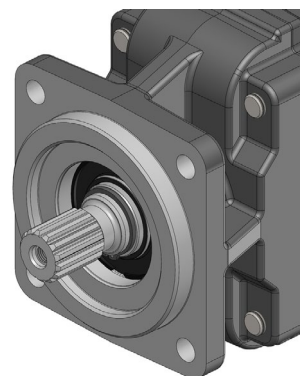
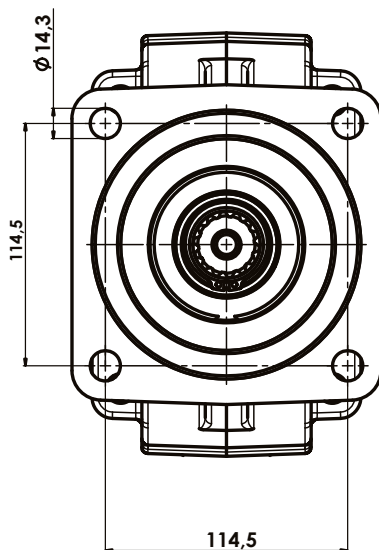
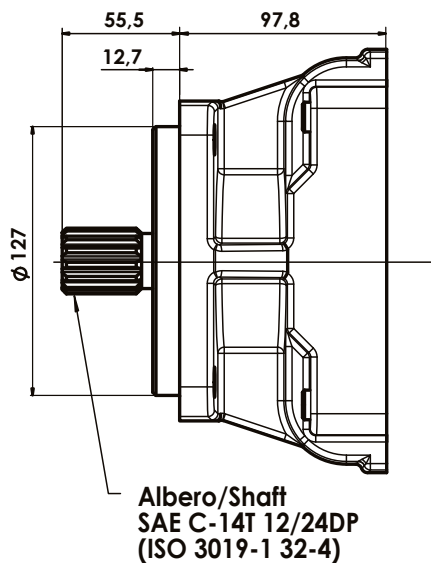
PPV 90 - 110

ISO 7653 - Ø 80 - 4fori / holes



**Coppia trasmissibile
massima 900Nm
Max. torque 900Nm**

ISO 3019-1 SAE C - 4fori / holes



**Coppia trasmissibile
massima 640Nm
Max. torque 640Nm**

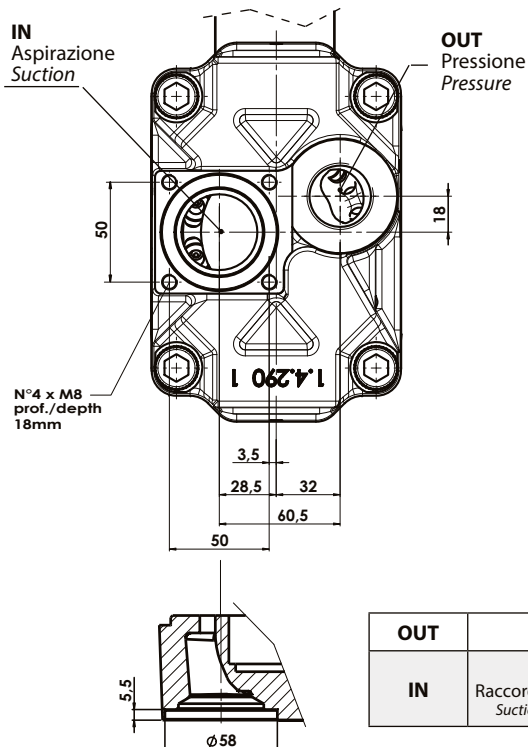
Fondello posteriore

Rear cover

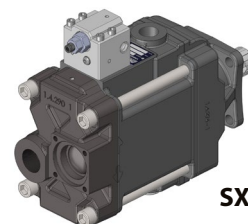
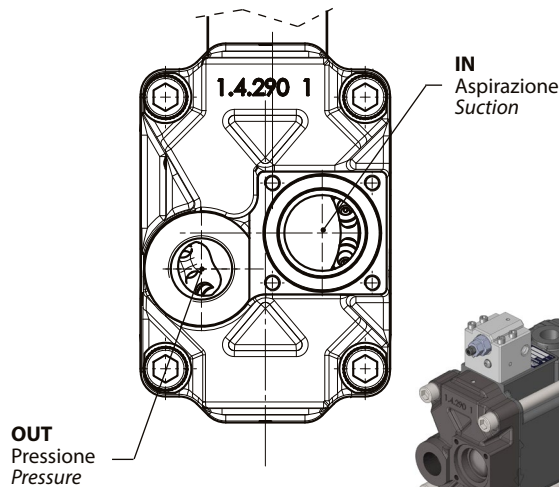
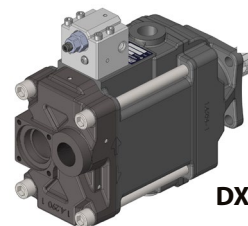
PPV 90 - 110 - AX

Assiale / Axial (STANDARD)

Rotazione destra / Right rotation
Senza limitazione / No adjustment



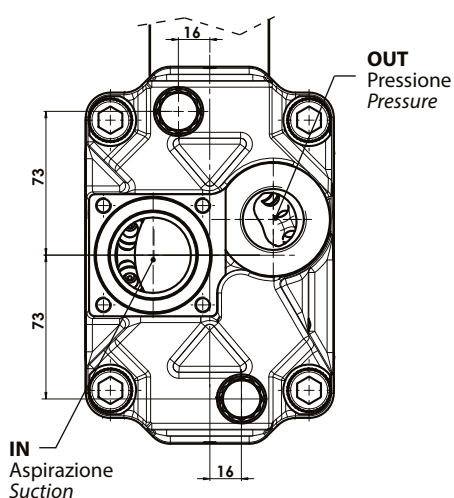
Rotazione sinistra / Left rotation
Senza limitazione / No adjustment


SX

DX

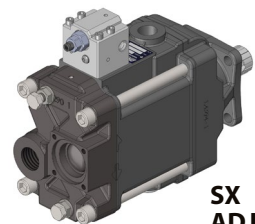
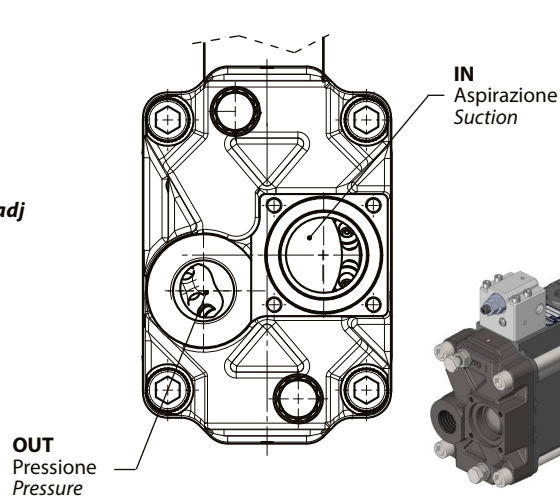
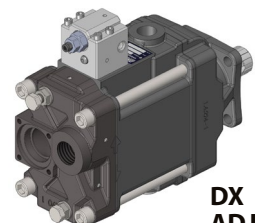
OUT	Pressione / Pressure	G 1	1 5/16-12 UN-2B
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	

Assiale / Axial (ADJUSTABLE)

Rotazione destra / Right rotation
Con limitazione / With adjustment



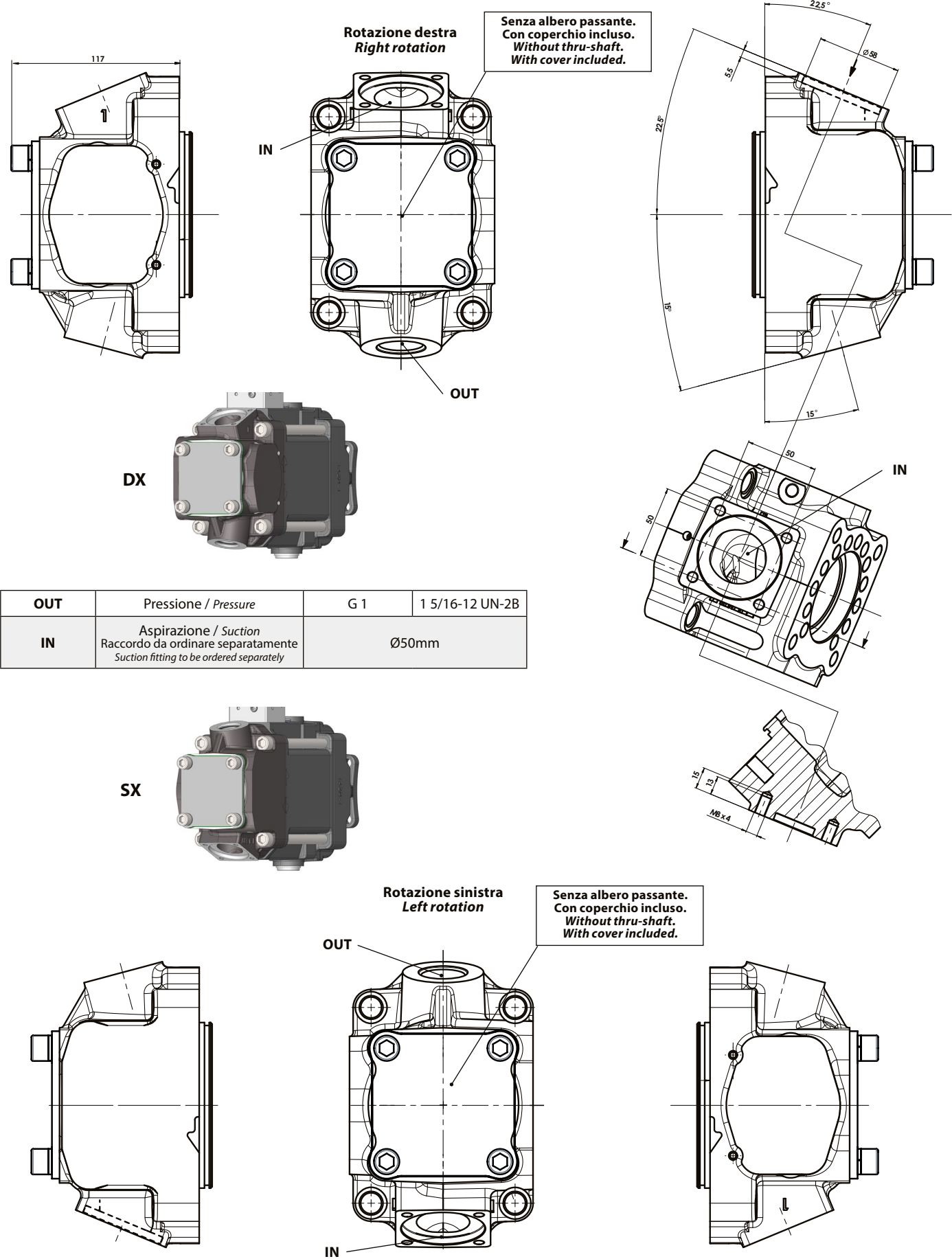
Rotazione sinistra / Left rotation
Con limitazione / With adjustment


**SX
ADJ**

**DX
ADJ**

OUT	Pressione / Pressure	G 1	1 5/16-12 UN-2B
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	

Radiale verticale senza albero passante

Vertical radial without thru-shaft

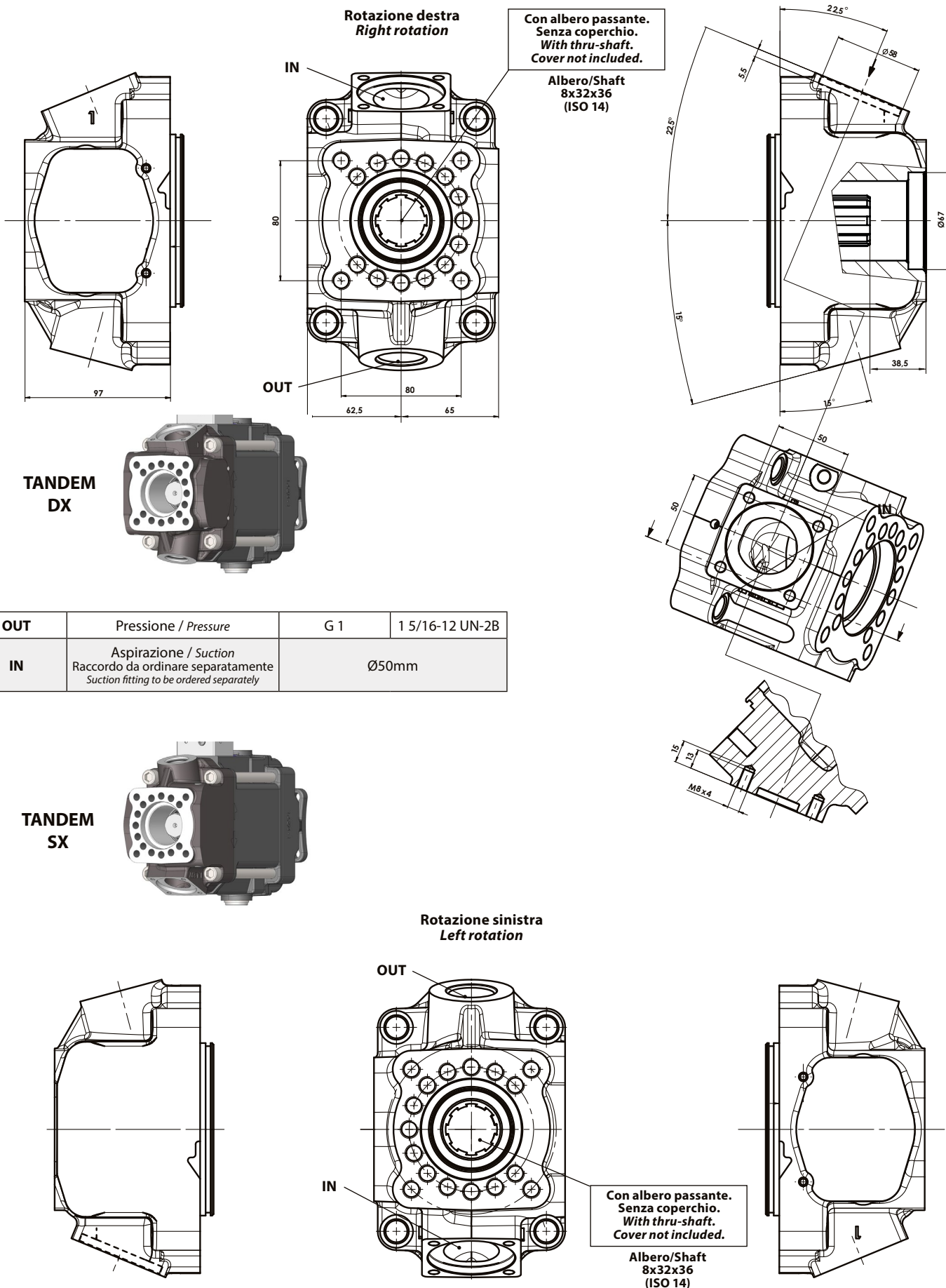


Fondello posteriore

Rear cover

PPV 90 - 110 - PV

Radiale verticale con albero passante (TANDEM)
Vertical radial with thru-shaft

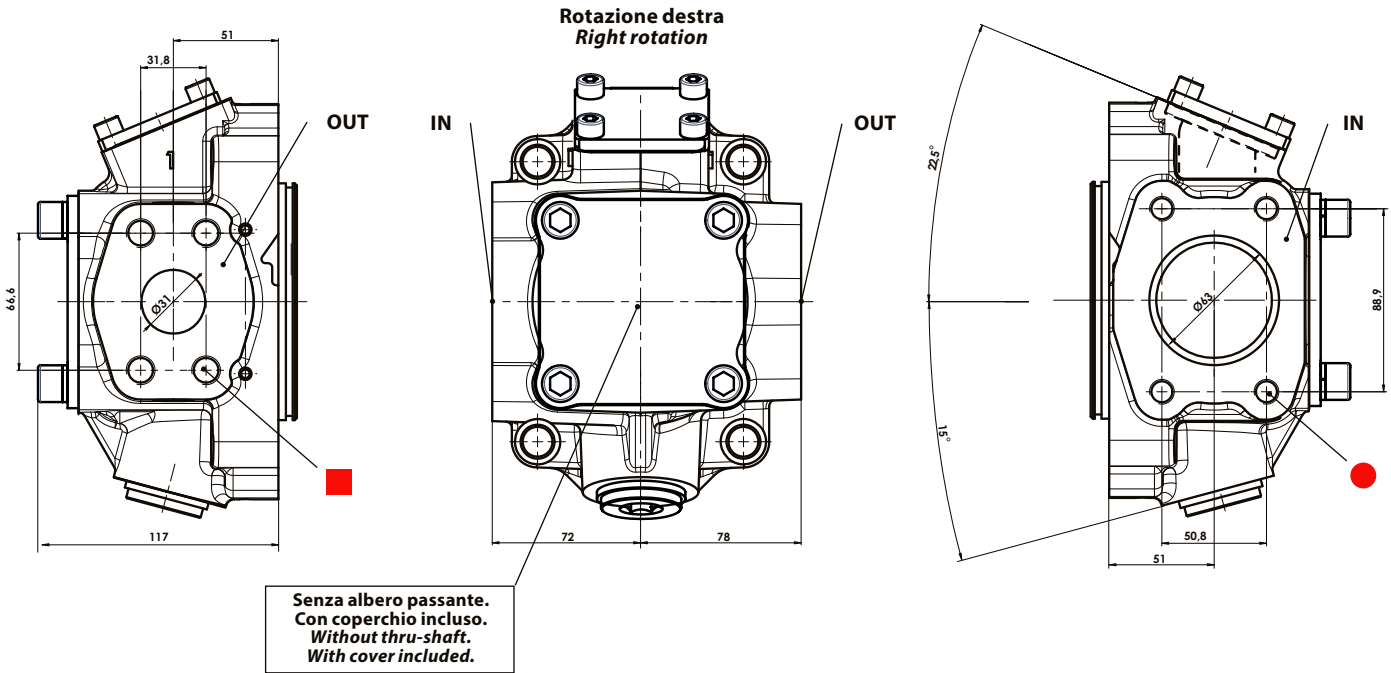


Fondello posteriore

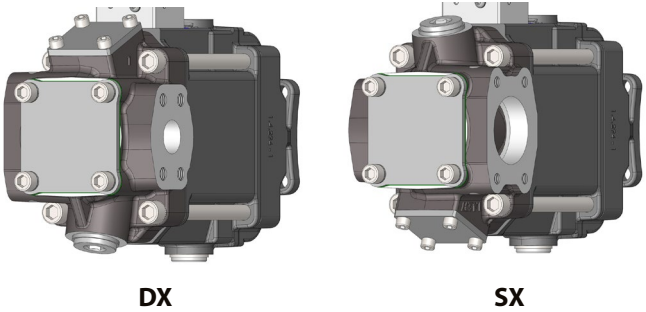
Rear cover

PPV 90 - 110 - RO

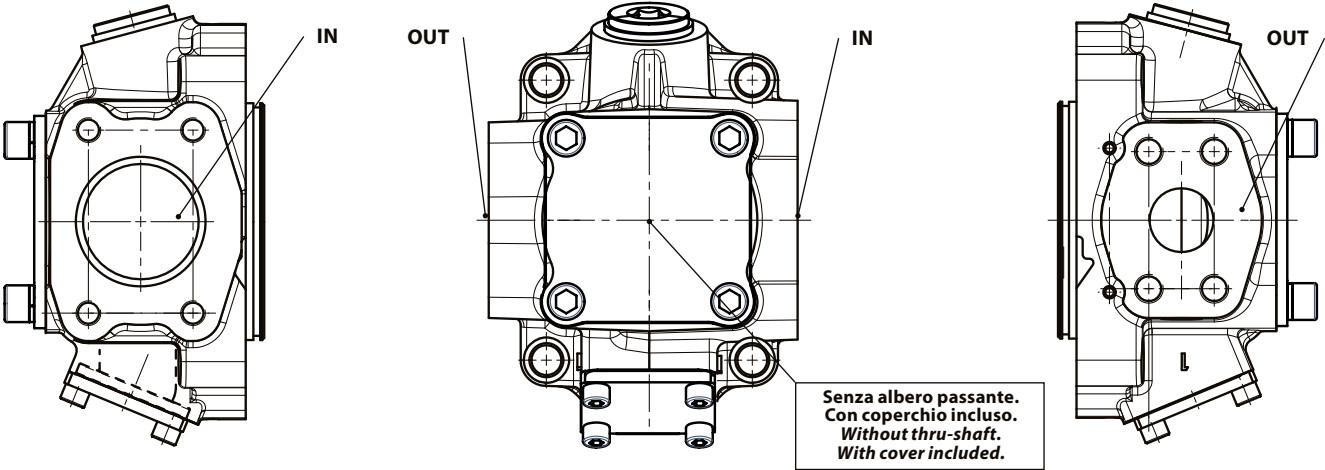
Radiale orizzontale SAE senza albero passante
Horizontal SAE radial without thru-shaft



OUT	Pressione Pressure	1 1/4" SAE 6000	■ M14	■ 1/2"UN
IN	Aspirazione Suction	2 1/2" SAE 3000	● M12	● 1/2"UN



Rotazione sinistra
Left rotation



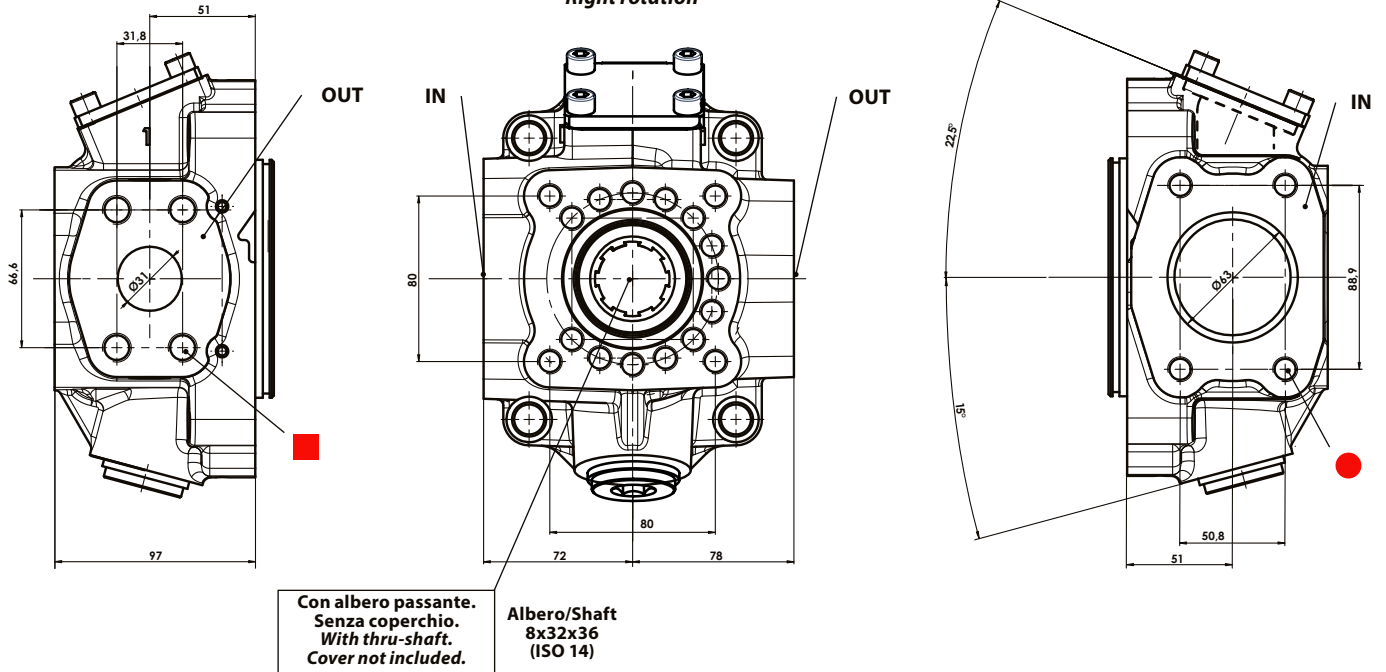
Fondello posteriore

Rear cover

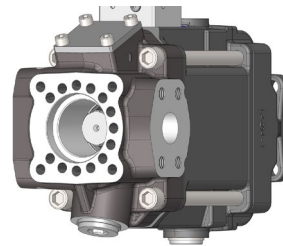
PPV 90 - 110 - PO

Radiale orizzontale SAE con albero passante (TANDEM)
Horizontal SAE radial with thru-shaft

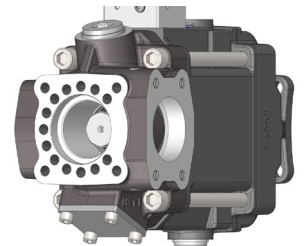
Rotazione destra
Right rotation



OUT	Pressione Pressure	1 1/4" SAE 6000	■ M14	■ 1/2"UNC
IN	Aspirazione Suction	2 1/2" SAE 3000	● M12	● 1/2"UNC

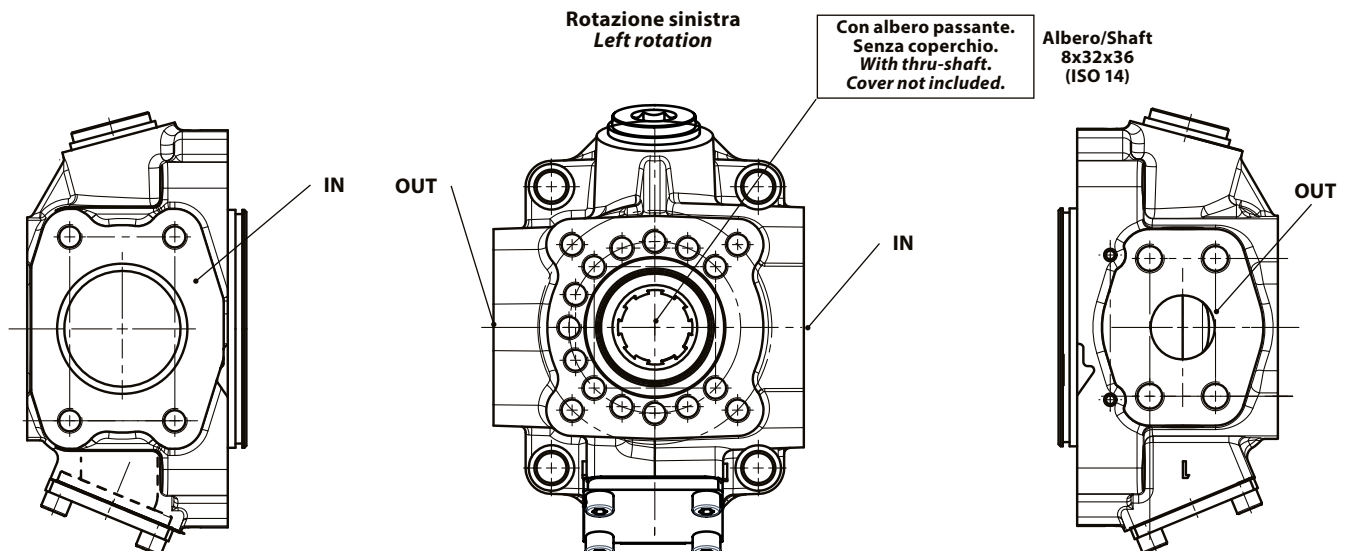


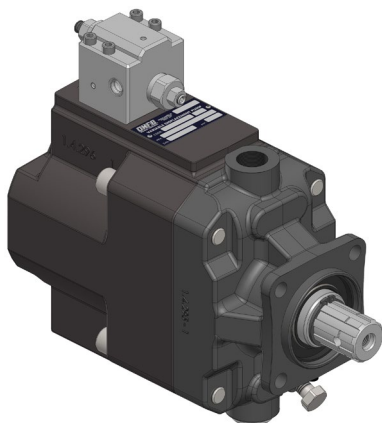
TANDEM DX



TANDEM SX

Rotazione sinistra
Left rotation

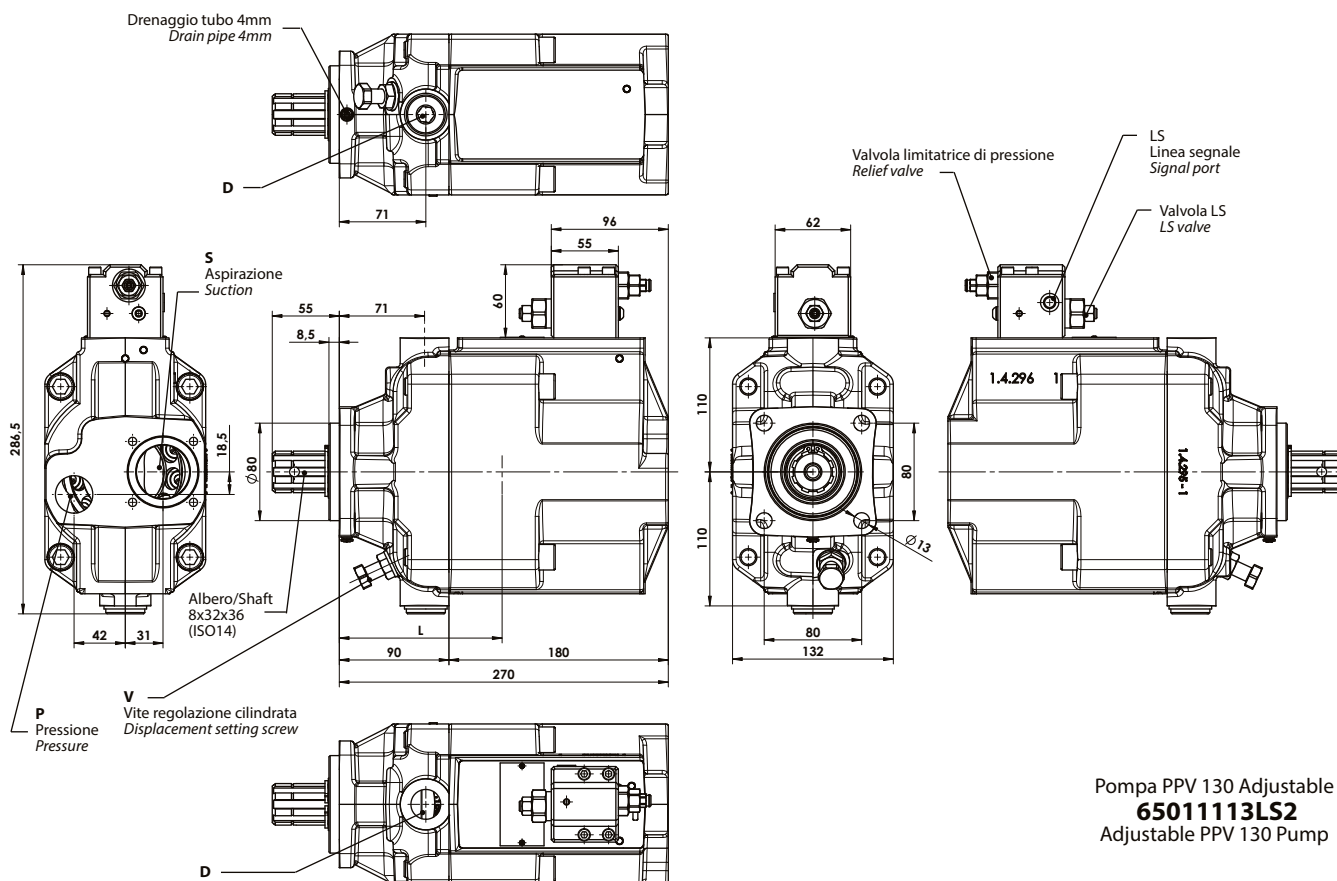




Dati tecnici / Technical data

		BSPG (GAS)
LS	Blocchetto LS/ <i>LS block</i>	G 1/4
D	Drenaggio / <i>Drain</i>	G 3/4
OUT	Pressione / <i>Pressure</i>	G 1
IN	Aspirazione / <i>Suction</i> Raccordo da ordinare separatamente <i>Suction fitting to be ordered separately</i>	Ø50 mm
L	Baricentro / <i>Center of mass</i>	145 mm circa/ <i>approx</i>

Ingombro / Dimensions



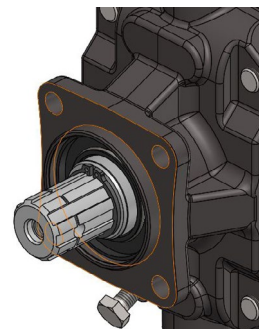
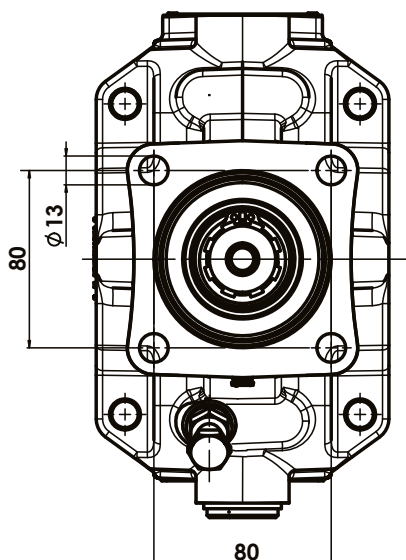
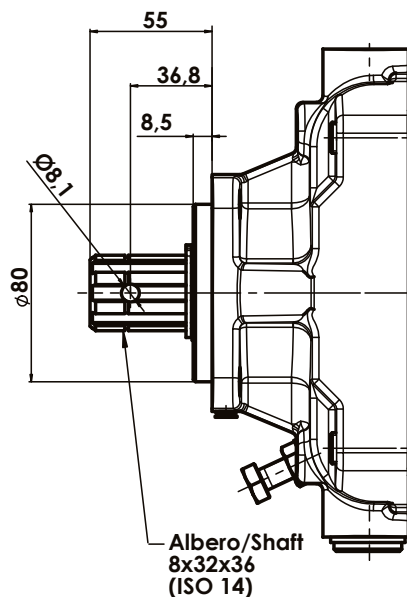
L'inversione della rotazione della pompa può essere effettuata solo presso il produttore o distributore autorizzato.
The change of pump rotation can only be carried out at the authorized producer's or distributor's.

Flangiatura anteriore

Front flange

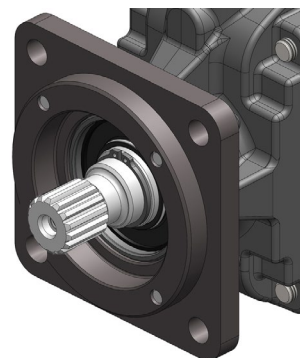
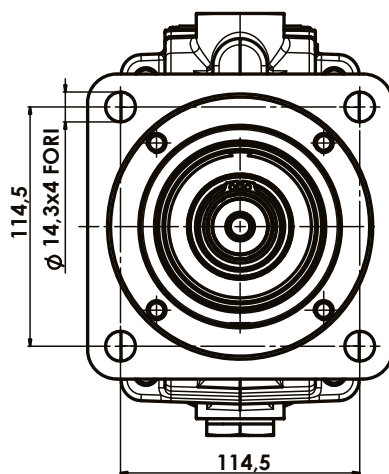
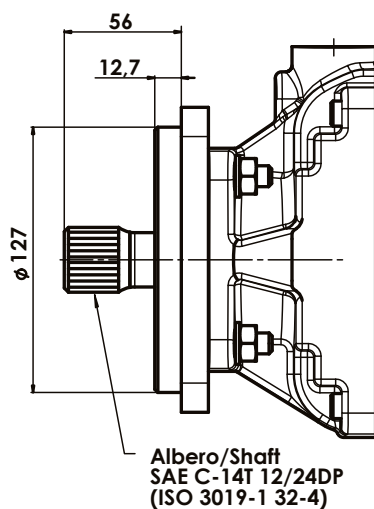
PPV 130 adjustable

ISO 7653 - Ø 80 - 4fori / holes



Coppia trasmissibile
massima 900Nm
Max. torque 900Nm

ISO 3019-1 SAE C - 4fori / holes



Coppia trasmissibile
massima 640Nm
Max. torque 640Nm

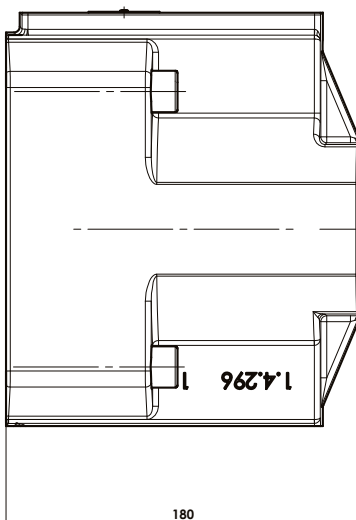
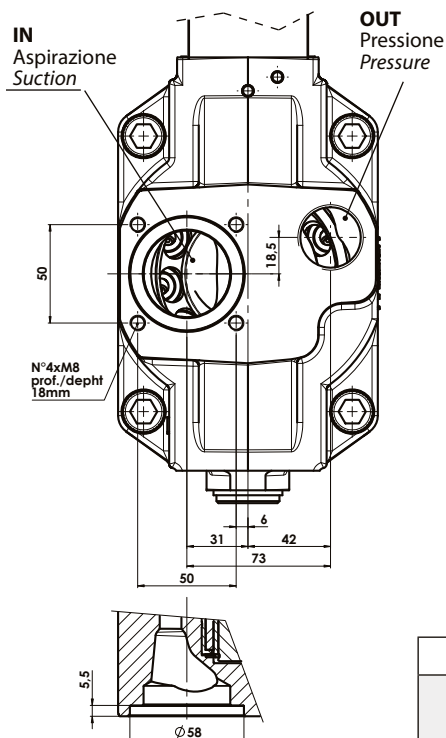
Fondello posteriore

Rear cover

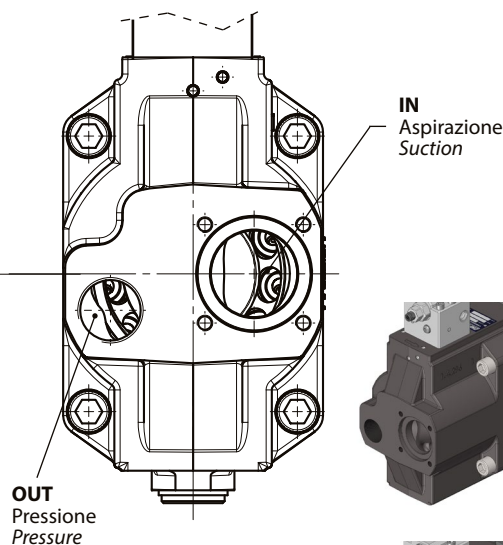
PPV 130 adjustable - AX - PV

Assiale / Axial (STANDARD)

Rotazione destra / Right rotation
Con limitazione / With adjustment



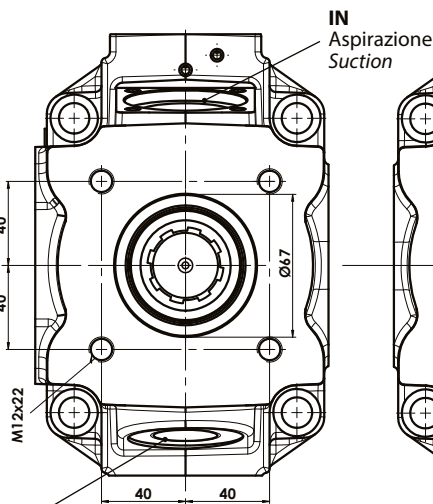
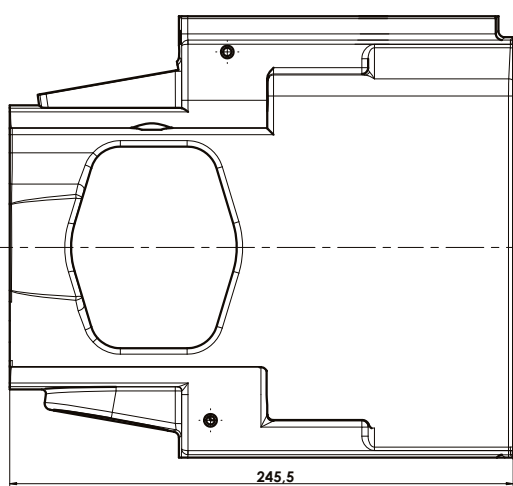
Rotazione sinistra / Left rotation
Con limitazione / With adjustment



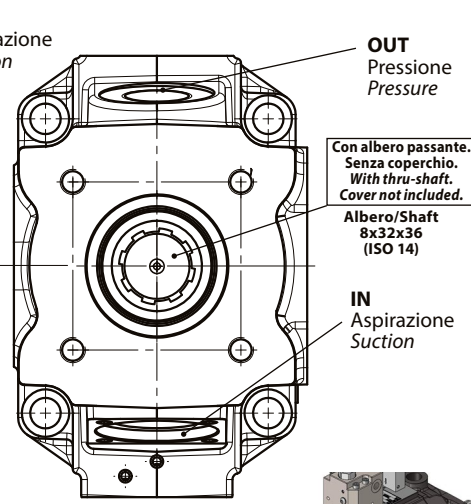
OUT	Pressione / Pressure	G 1
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm

Radiale verticale con albero passante (TANDEM)

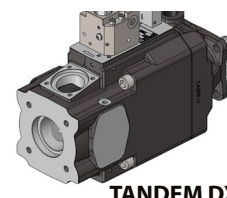
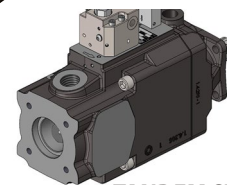
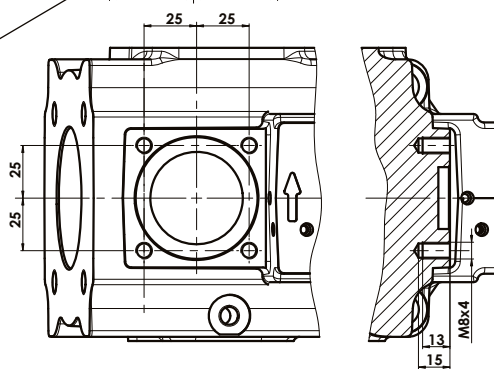
Rotazione destra / Right rotation
Con limitazione / With adjustment



Rotazione sinistra / Left rotation
Con limitazione / With adjustment



OUT	Pressione / Pressure	G 1
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm

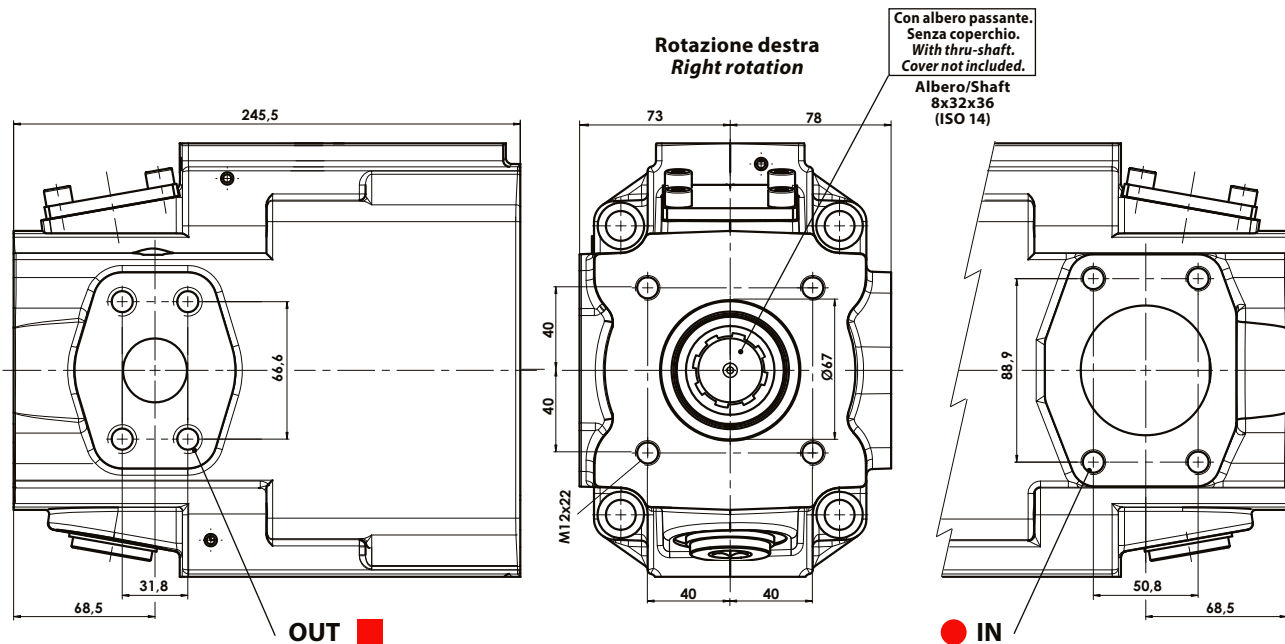


Fondello posteriore

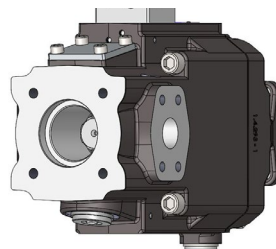
Rear cover

PPV 130 adjustable - PO

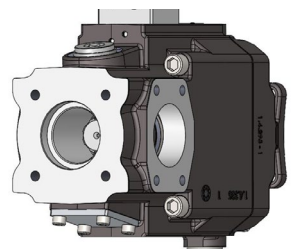
Radiale orizzontale SAE con albero passante (TANDEM)
Horizontal SAE radial with thru-shaft



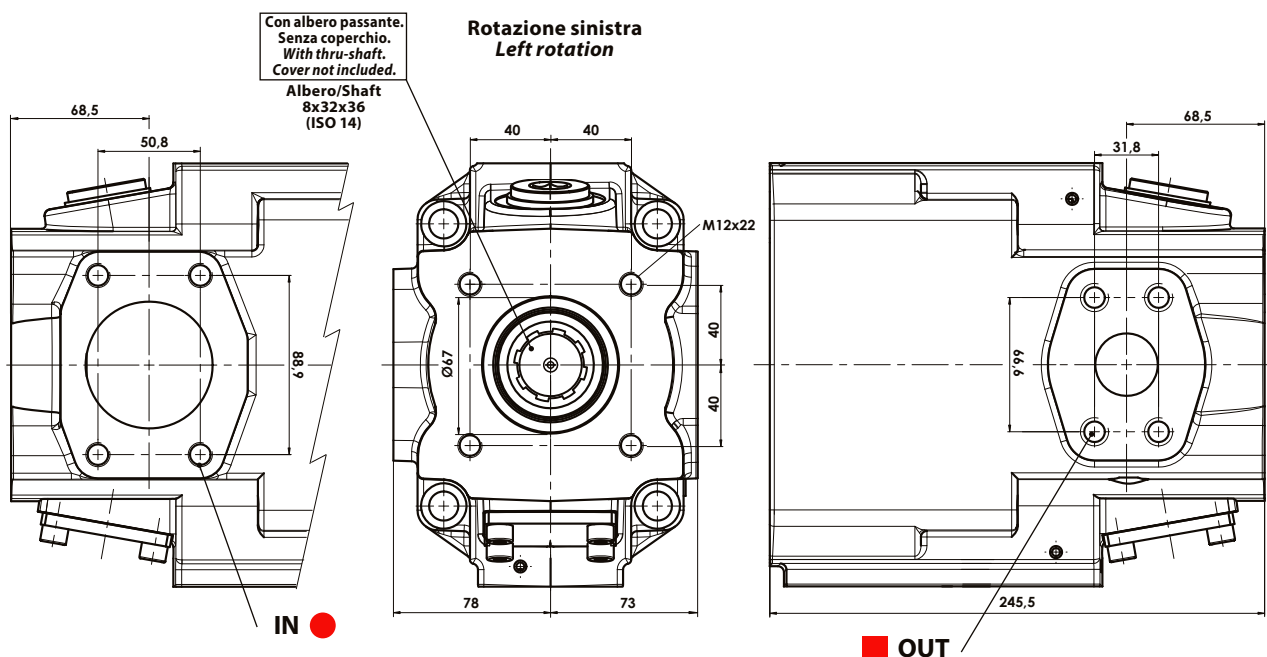
OUT	Pressione <i>Pressure</i>	1-1/4" SAE 6000	■ M14
IN	Aspirazione <i>Suction</i>	2 1/2" SAE 3000	● M12

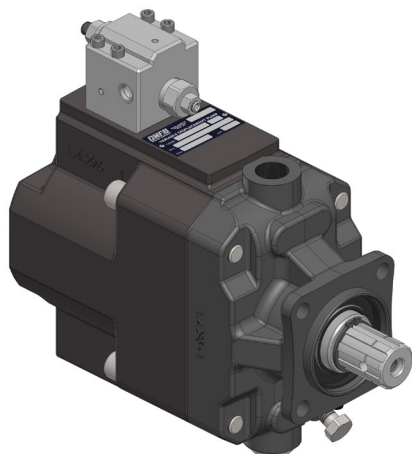


TANDEM DX



TANDEM SX

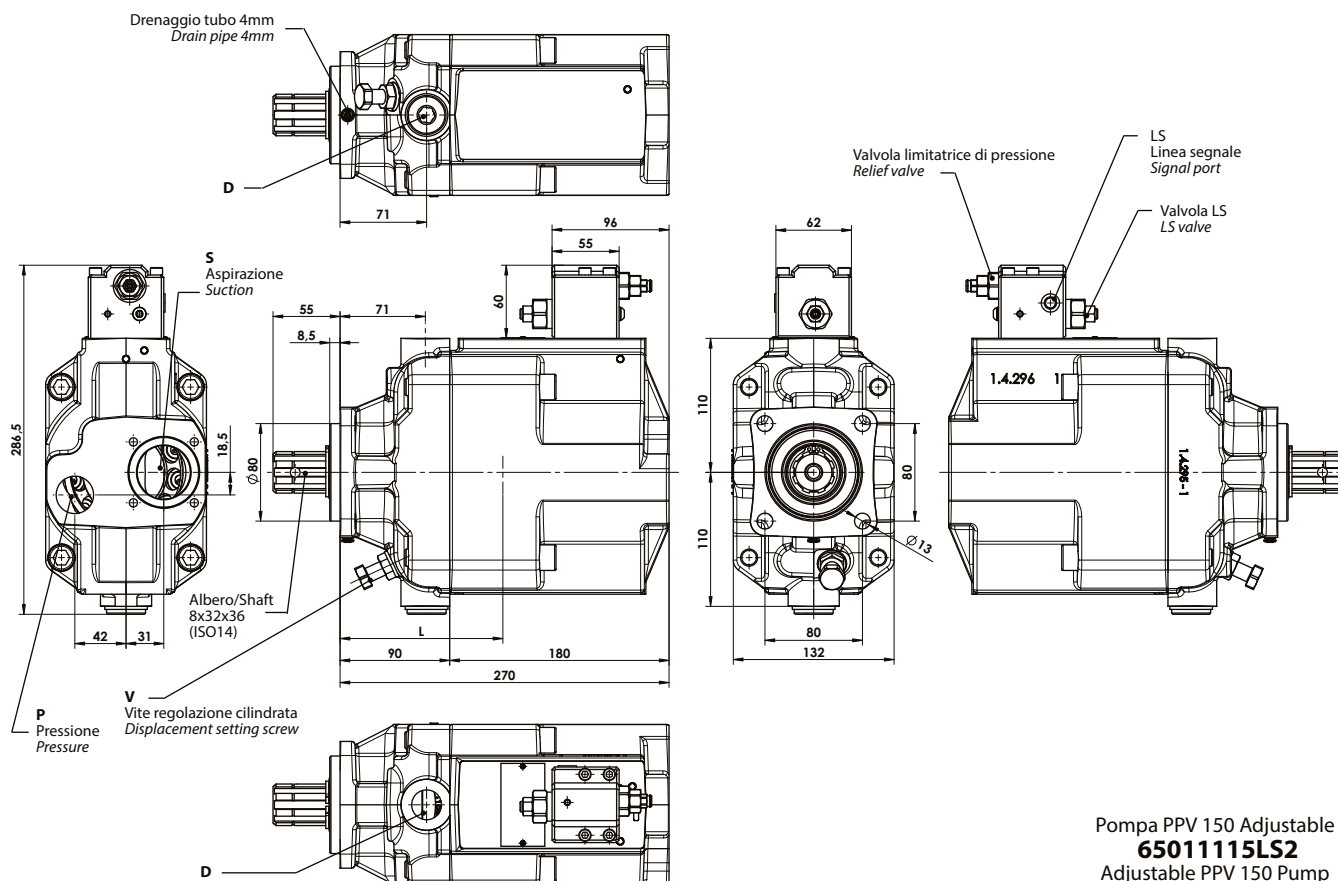




Dati tecnici / Technical data

		BSPP (GAS)
LS	Blocchetto LS/ LS block	G 1/4
D	Drenaggio / Drain	G 3/4
OUT	Pressione / Pressure	G 1
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50 mm
L	Baricentro / Center of mass	145 mm circa/approx

Ingombro / Dimensions



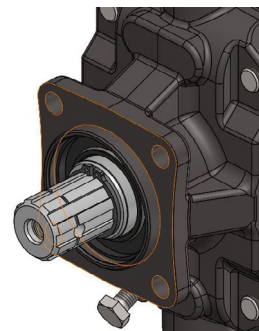
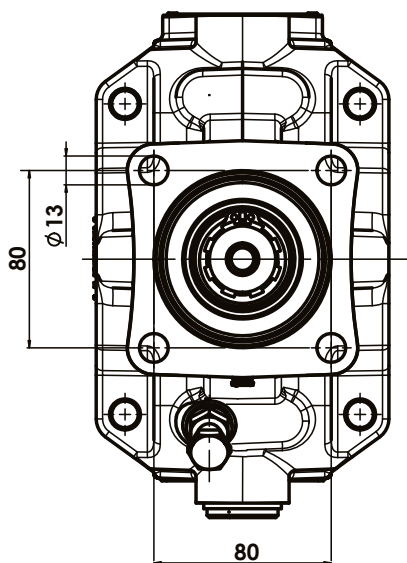
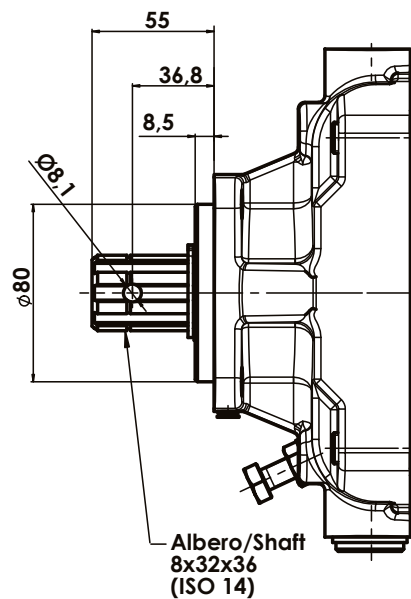
L'inversione della rotazione della pompa può essere effettuata solo presso il produttore o distributore autorizzato.
The change of pump rotation can only be carried out at the authorized producer's or distributor's.

Flangiatura anteriore

Front flange

PPV 150 adjustable

ISO 7653 - Ø 80 - 4fori / holes



Coppia trasmissibile
massima 900Nm
Max. torque 900Nm

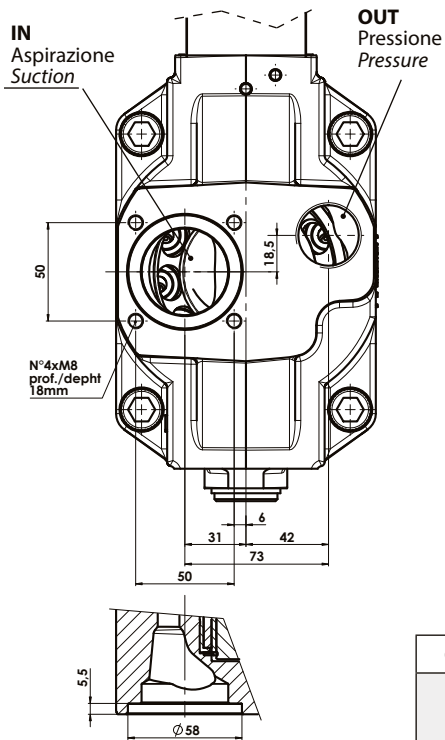
Fondello posteriore

Rear cover

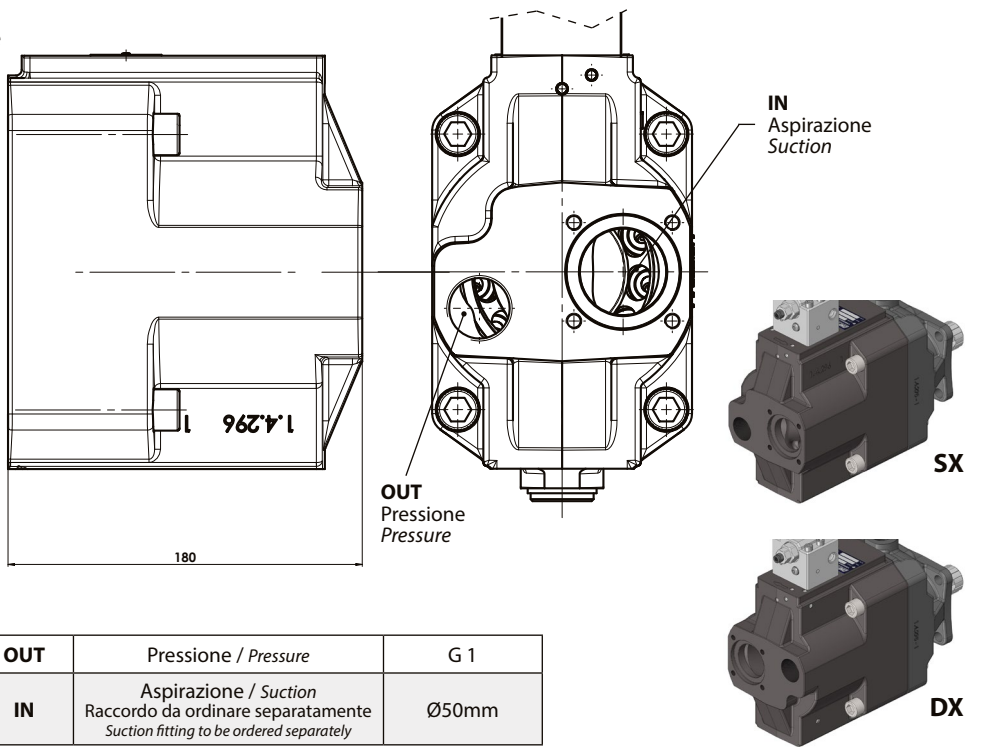
PPV 150 adjustable

Assiale / Axial (STANDARD)

Rotazione destra / Right rotation
Con limitazione / With adjustment

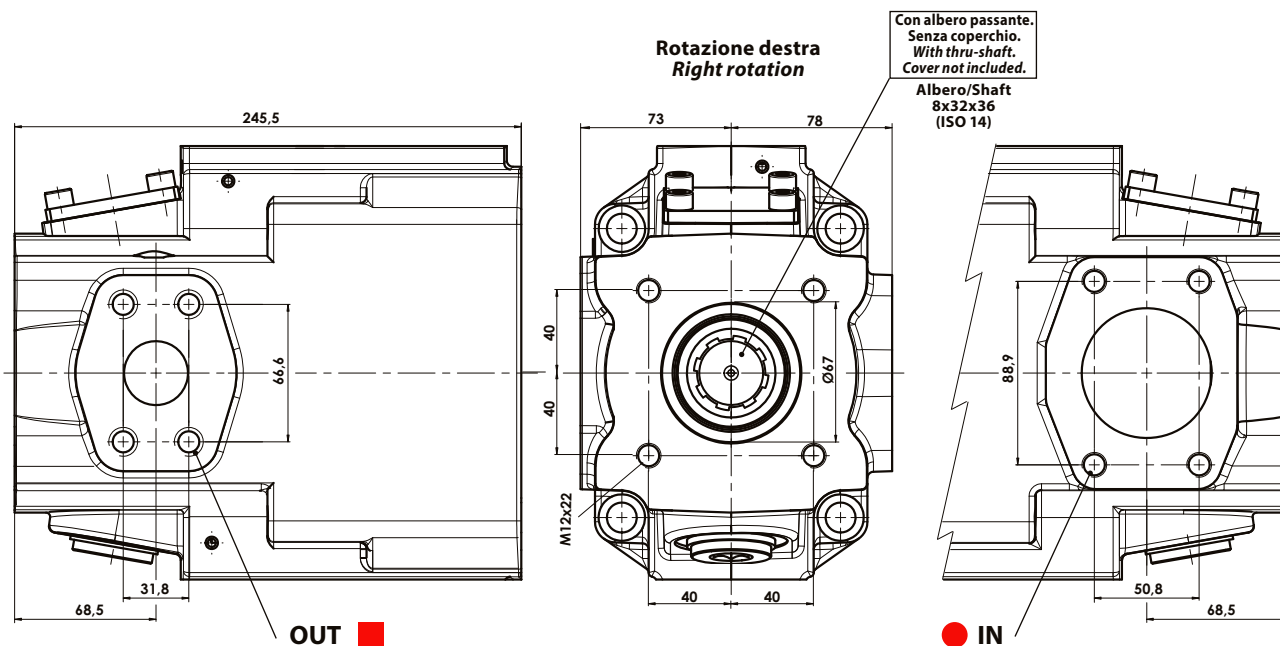


Rotazione sinistra / Left rotation
Con limitazione / With adjustment

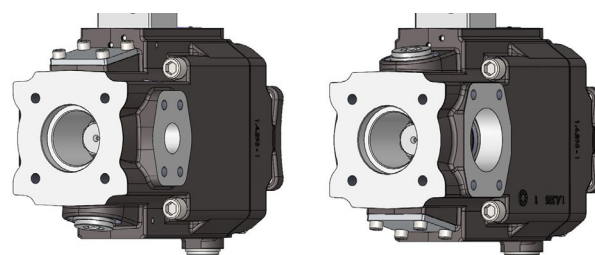


OUT	Pressione / Pressure	G 1
IN	Aspirazione / Suction Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm

Radiale orizzontale SAE con albero passante (TANDEM)
Horizontal SAE radial with thru-shaft

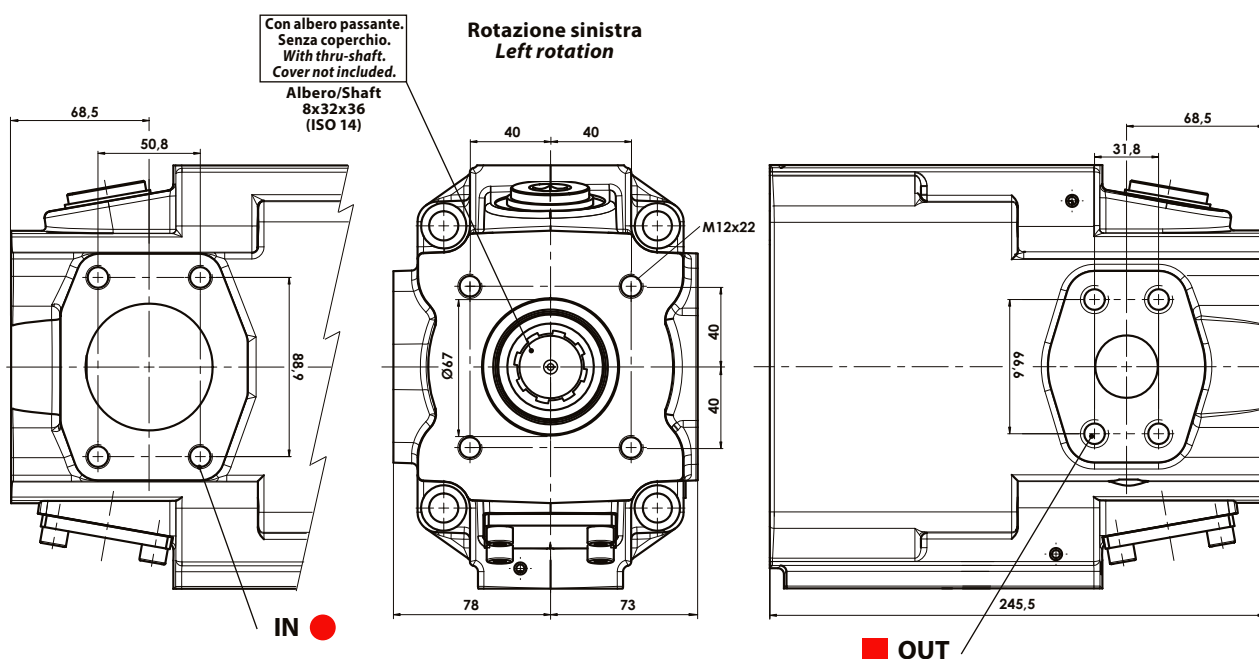


OUT	Pressione Pressure	1-1/4" SAE 6000	■ M14
IN	Aspirazione Suction	2 1/2" SAE 3000	● M12



TANDEM DX

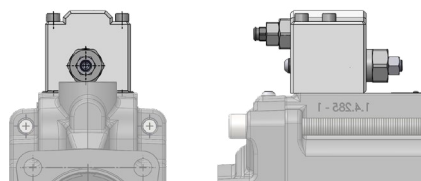
TANDEM SX



Regolatore Load Sensing (LS) - Load Sensing regulator (LS)

Regola la cilindrata della pompa per mantenere una differenza di pressione costante (indipendente dal carico) attraverso una strozzatura.

Adjust the pump displacement to maintain a constant pressure difference (independent of the load) through a constriction.

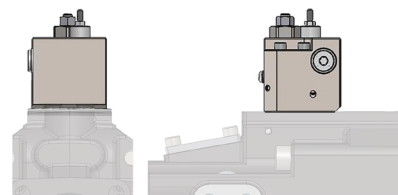


..... pag. 33

Compensatore di pressione (PI) - Pressure compensator (PI)

Compensatore di pressione con pressione impostabile direttamente sulla pompa. Il compensatore di pressione regola la cilindrata della pompa automaticamente per mantenere costante la pressione del sistema in presenza di diversi fabbisogni di portata.

Pressure compensator with adjustable pressure directly on the pump. The pressure compensator adjusts the pump's displacement automatically in order to keep the constant pressure within the system no matter the different flow requirements.

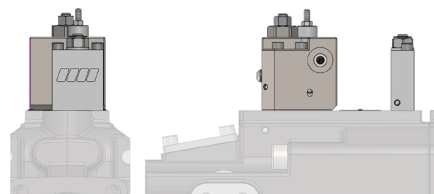


..... pag. 34

Potenza costante (PW) - Constant power (PW)

Il regolatore mantiene costante l'assorbimento di potenza/coppia al variare della pressione, controllando la cilindrata della pompa.

The regulator keeps the power/torque absorption constant as the pressure changes, controlling the displacement of the pump.



..... pag. 35

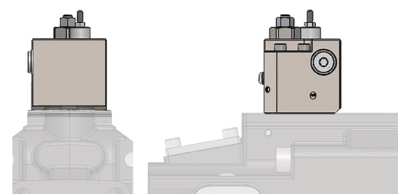
Regolatore (BE) - Regulator (BE)

Regola la cilindrata della pompa per mantenere una differenza di pressione costante (indipendente dal carico) attraverso una strozzatura. il regolatore viene utilizzato in tutti gli impianti senza depressurizzazione del segnale load sensing.

N.B.: il regolatore con bleed non può essere utilizzato con la versione PW.

Adjust the displacement of the pump to maintain a constant pressure difference (independent of the load) through a choke. the regulator is used in all systems without bleed in the load sensing signal.

N.B.: the regulator with bleed cannot be used with the PW version.



..... pag. 36

Kit conversione (bleed) - Conversion kit (bleed) pag. 37

REGOLATORE LOAD SENSING LS

Regolare la pressione differenziale Δp = pressione impianto meno pressione segnale.

L'intervallo di regolazione è 15-50 bar.

Settaggio preimpostato 25 bar $\pm 2\%$.

Regolazione 15 bar/rev.

Regolare la pressione max. dell'impianto fra 20 e 350 bar.

Il valore preimpostato della valvola limitatrice di pressione è di 330 bar.

Regolazione 80 bar/rev.

La capacità della linea di segnale LS deve adattarsi al relativo impianto idraulico. La linea di segnale deve essere preferibilmente costituita da un tubo flessibile di diametro idoneo a garantire lo smorzamento di eventuali fluttuazioni del segnale LS.

LS LOADING SENSING CONTROL

Regulate the differential pressure Δp = circuit pressure less signal pressure.

The adjustment range is 15-50 bar.

Default setting 25 bar $\pm 2\%$.

Setting 15 bar/rev.

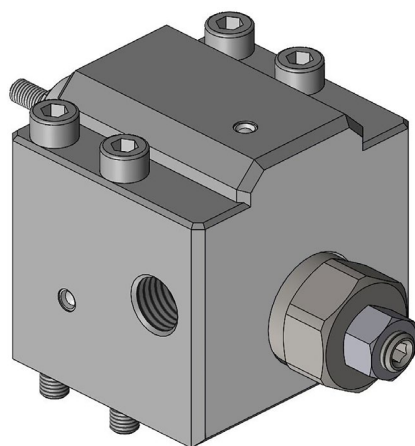
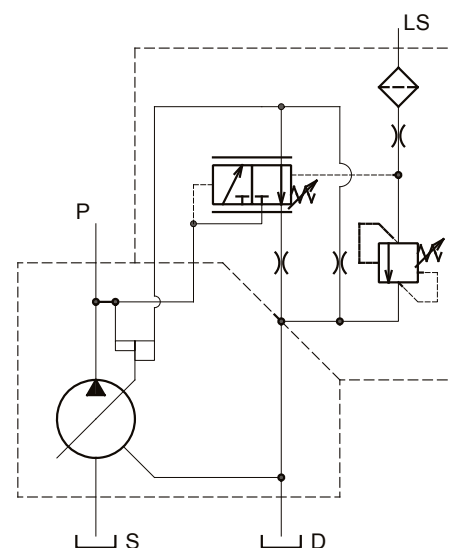
Adjust the maximum pressure of hydraulic circuit between 20 and 350 bar.

The default setting of the pressure relief valve is 330 bar.

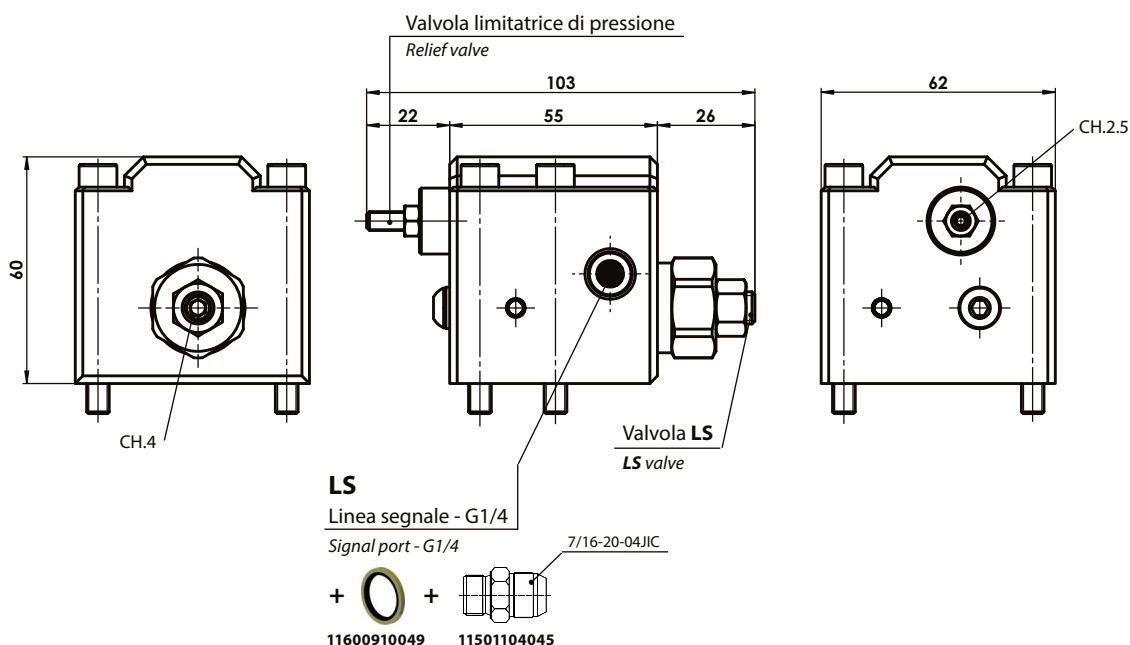
Setting 80 bar/rev.

The capacity of the LS line has to be adapted to the related hydraulic circuit. The signal line should preferably consist of a flexible hose having suitable diameter to ensure the damping of possible LS signal fluctuations.

**Schema idraulico pompa
con regolatore LS**
Pump with LS control hydraulic scheme



Ingombro / Dimensions



N.B. disponibile anche versione con funzione "bleed" per sistemi senza la depressurizzazione del segnale LS.
also available version with "bleed" function for systems without LS signal depressurization.

REGOLATORE PI

Regolare la pressione max. dell'impianto fra 80 e 350 bar.

Il valore preimpostato della valvola limitatrice di pressione è di 330 bar.

Regolazione 80 bar/rev.

Regolatore di pressione con pressione impostabile sulla valvola.

Questo regolatore mantiene una pressione costante nel circuito idraulico al variare della portata.

Il controllo modula la portata della pompa in modo idoneo a mantenere la pressione del sistema al valore impostato sulla valvola di massima. È quindi concepito per sistemi a pressione costante nei quali occorrono diverse portate o come limitazione della pressione a bassa perdita di un sistema idraulico.

PI CONTROL

Adjust the maximum pressure of hydraulic circuit between 80 and 350 bar.

The default setting of the pressure relief valve is 330 bar.

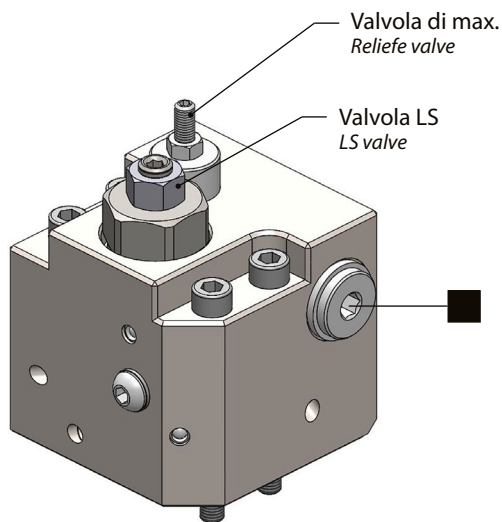
Setting 80 bar/rev.

Adjustable Pressure control.

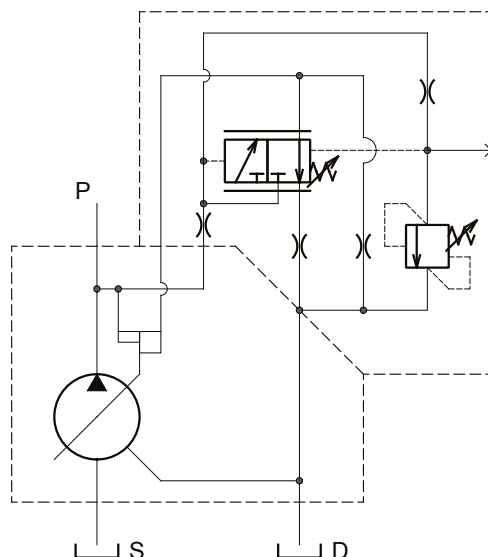
This control ensures a constant pressure in the hydraulic circuit by changing the flow.

The control adjusts the flow in such a way to keep constantly the pressure value set at the relief valve.

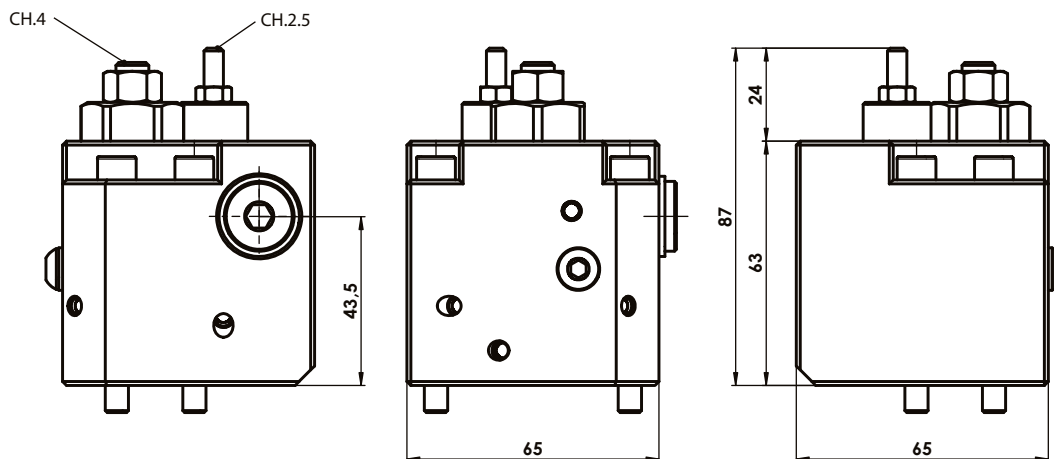
It is therefore designed for applications with constant pressure where different flow rates are required or as a limitation of low pressure drop within a hydraulic system.



Schema idraulico pompa con regolatore PI
Pump with PI control hydraulic scheme



Ingombro / Dimensions



 Togliendo il tappo indicato, il regolatore si trasforma in Regolatore di pressione con Controllo Remotato.
By removing the indicated cap, the regulator turns into pressure regulator with Remote Control.

REGOLATORE PW (potenza costante)

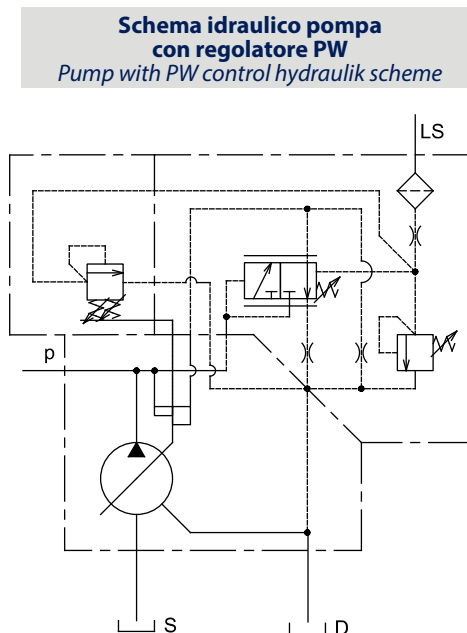
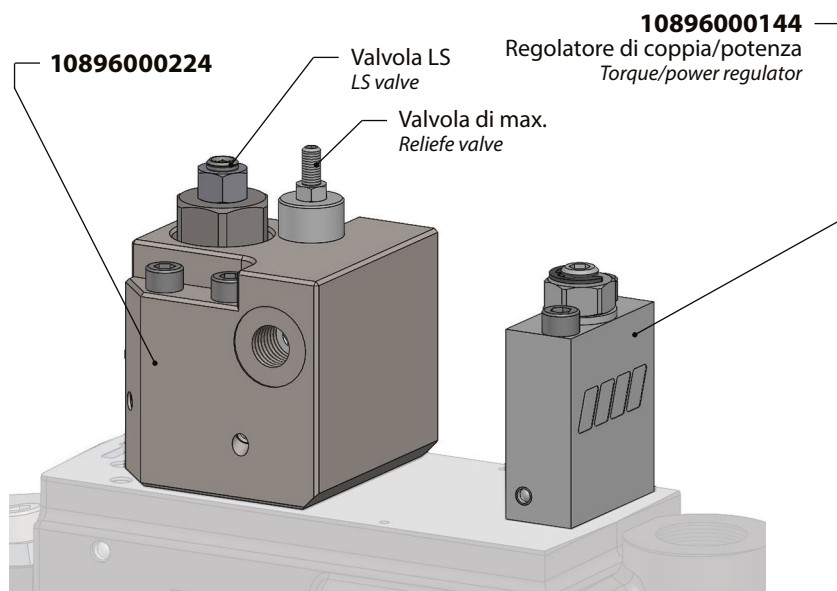
Regola la coppia massima assorbita con un campo di regolazione tra i 200 e i 700 Nm.

Questo regolatore adatta la cilindrata della pompa in funzione della pressione nell'impianto, in modo che la coppia assorbita non superi il valore impostato in modo che l'albero motore, il motore o la trasmissione siano protetti da sovraccarichi.

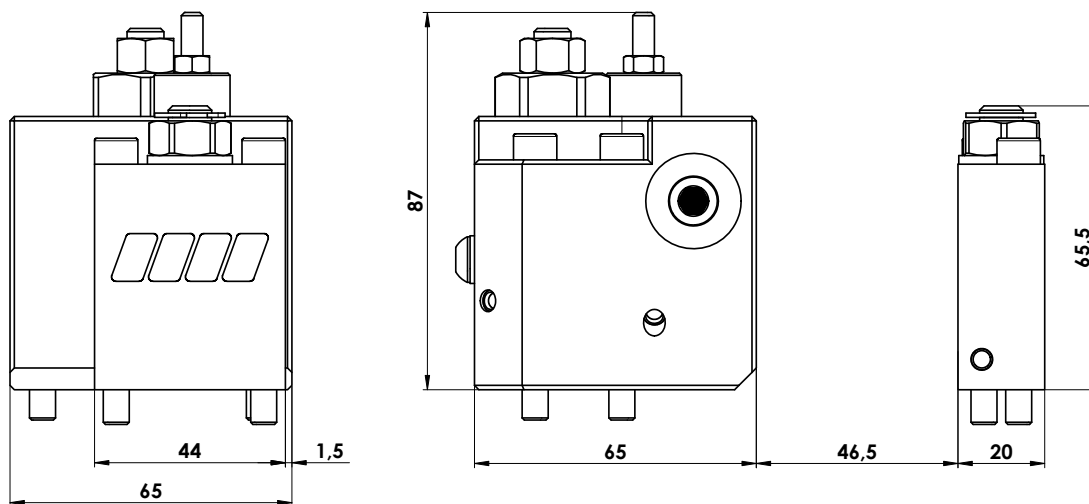
PW CONTROL

It adjusts the maximum absorbed torque with an adjustment range between 200 and 700 Nm.

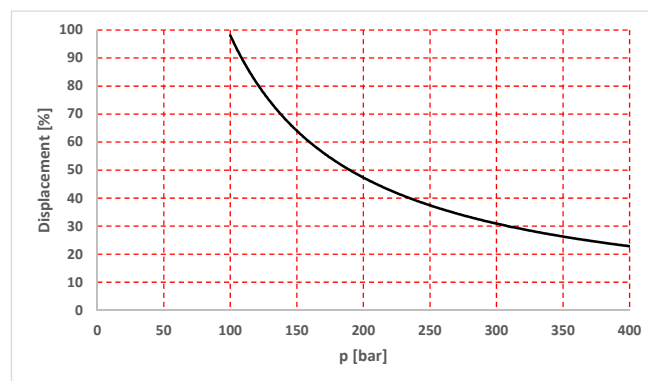
The regulator adapts the pump displacement according to the pressure in the system, to maintain the pre-adjusted torque value and protect motor shaft, motor or transmission from overloads.



Ingombro / Dimensions



N.B. disponibile anche in versione per sistemi senza segnale load sensing.
also available for systems without load sensing signal



REGOLATORE BE

Regolare la pressione differenziale Δp = pressione impianto meno pressione segnale.

L'intervallo di regolazione è 15-50 bar.

Settaggio preimpostato 25 bar $\pm 2\%$.

Regolazione 15 bar/rev.

Regolare la pressione max. dell'impianto fra 20 e 350 bar.

Il valore preimpostato della valvola limitatrice di pressione è di 330 bar.

Regolazione 80 bar/rev.

La capacità della linea di segnale LS deve adattarsi al relativo impianto idraulico. La linea di segnale deve essere preferibilmente costituita da un tubo flessibile di diametro idoneo a garantire lo smorzamento di eventuali fluttuazioni del segnale LS.

Regola la cilindrata della pompa per mantenere una differenza di pressione costante (indipendente dal carico) attraverso una strozzatura. il regolatore viene utilizzato in tutti gli impianti senza depressurizzazione del segnale load sensing.

N.B.: il regolatore con bleed non può essere utilizzato con la versione PW.

BE CONTROL

Regulate the differential pressure Δp = circuit pressure less signal pressure.

The adjustment range is 15-50 bar.

Default setting 25 bar $\pm 2\%$.

Setting 15 bar/rev.

Adjust the maximum pressure of hydraulic circuit between 20 and 350 bar.

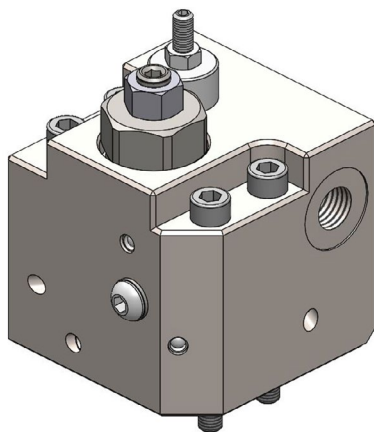
The default setting of the pressure relief valve is 330 bar.

Setting 80 bar/rev.

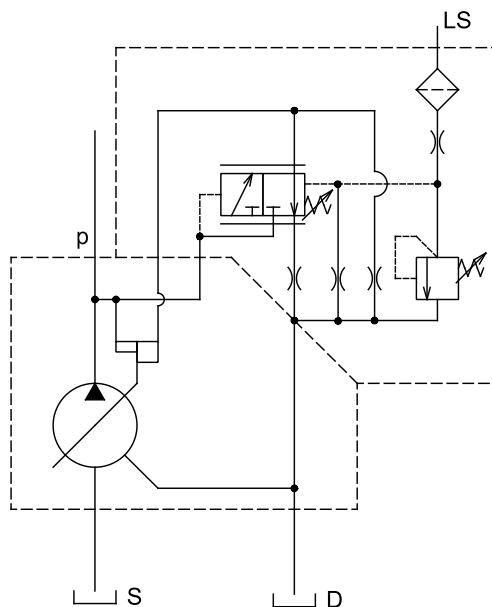
The capacity of the LS line has to be adapted to the related hydraulic circuit. The signal line should preferably consist of a flexible hose having suitable diameter to ensure the damping of possible LS signal fluctuations.

Adjust the displacement of the pump to maintain a constant pressure difference (independent of the load) through a choke. the regulator is used in all systems without depressurizing the load sensing signal.

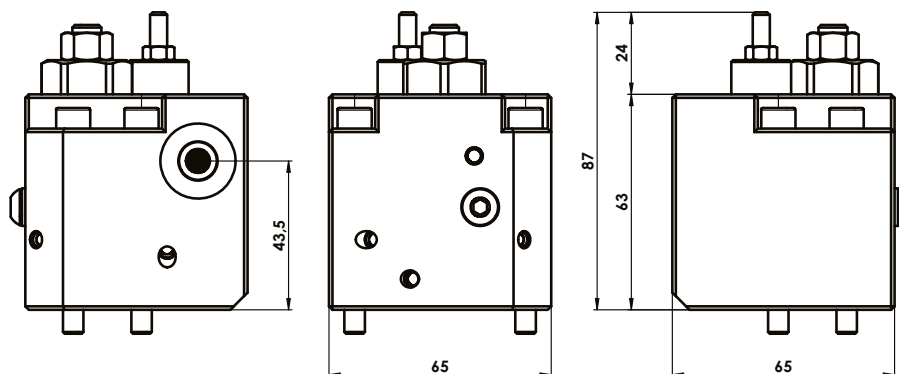
N.B.: the regulator with bleed cannot be used with the PW version.



Schema idraulico
Hydraulic scheme



Ingombro / Dimensions



Kit conversione (bleed)

Conversion kit (bleed)

Kit conversioni / Conversion kit

	10896030013	Trasforma i regolatori cod. 10896000224 e 10896000233 nella versione 10896000313 N.B.: il regolatore con bleed non può essere utilizzato con la versione PW <i>Transforms the controllers cod. 10896000224 and 10896000233 in the version 10896000313</i> N.B.: the regulator with bleed cannot be used with the PW version	
	10896030022	Trasforma il regolatore 10896000224 nella versione 10896000233 <i>Turns controller 10896000224 into version 10896000233</i>	Istruzioni Instructions

REGOLATORE PE

Regolare la pressione minima = pressione impianto meno pressione segnale.
L'intervallo di regolazione è 15-50 bar.
Settaggio preimpostato 25 bar $\pm$ 2%.
Regolazione 15 bar/rev.

Regolare la pressione max. dell'impianto fra 20 e 350 bar.
Il valore preimpostato della valvola limitatrice di pressione è di 330 bar.
Regolazione 150 bar/rev.

Regolatore di pressione con pressione massima e minima impostabili sulle valvole ed intermedia impostabile elettricamente. Questo regolatore mantiene una pressione costante nel circuito idraulico al variare della portata. Il controllo modula la portata della pompa in modo idoneo a mantenere la pressione del sistema al valore impostato sulla valvola di massima. È quindi concepito per sistemi a pressione costante nei quali occorrono diverse portate: le pressioni massima e minima sono impostabili in modo meccanico, la pressione nel mezzo è regolabile elettricamente. La curva del regolatore ha caratteristica crescente.

PE CONTROL

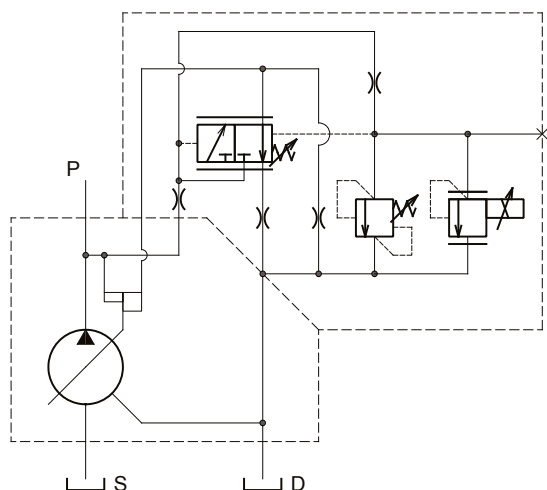
Regulate the minimum pressure = circuit pressure less signal pressure.
The adjustment range is 15-50 bar.
Default setting 25 bar $\pm$ 2%.
Setting 15 bar/rev.

Adjust the maximum pressure of hydraulic circuit between 20 and 350 bar.
The default setting of the pressure relief valve is 330 bar.
Setting 150 bar/rev.

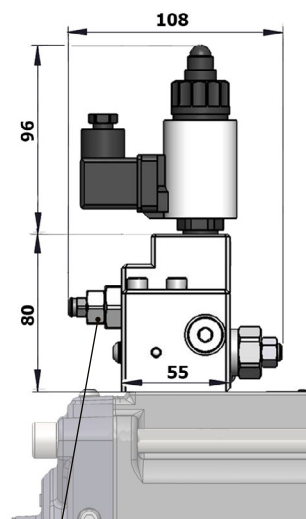
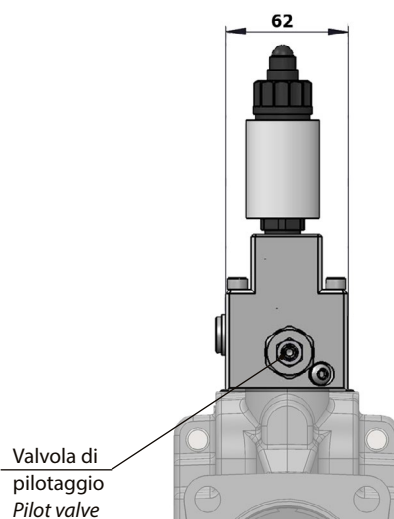
Pressure regulator with minimum and maximum pressure rates adjustable on the valves and with electrically adjustable intermittent pressure. This control ensures a constant pressure in the hydraulic circuit by changing the flow. It is therefore designed for applications with constant pressure where different flow rates are required: minimum and maximum pressure rates are set mechanically while intermediate pressure is electrically controlled.

**DISPONIBILE A BREVE
COMING SOON**

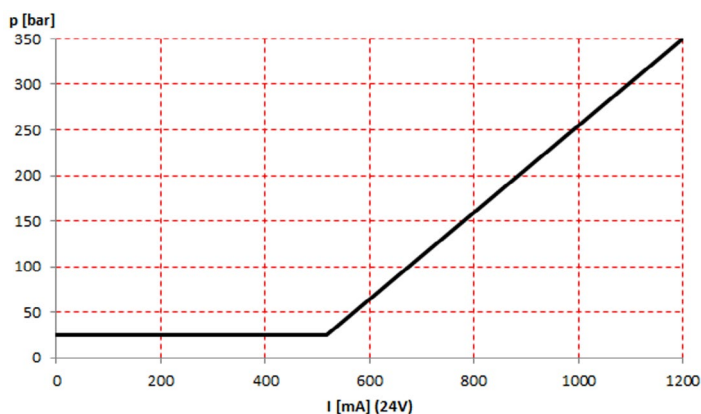
Ingombro / Dimensions



Schema idraulico pompa + PE
Pump + PE hydraulik scheme



Valvola limitatrice di pressione
Relief valve



Valvola di flussaggio per circuiti load sensing

Flushing valve for load sensing circuit

La valvola garantisce una minima circolazione di olio verso scambiatore di calore o serbatoio per proteggere la pompa da surriscaldamento negli impianti in cui la pompa lavora molto tempo in azzerramento di cilindrata (condizione di stand-by). Durante il funzionamento con distributore o blocchi, la valvola viene esclusa automaticamente con comando idraulico o attraverso un comando elettrico la cui logica di controllo è a carico del cliente.

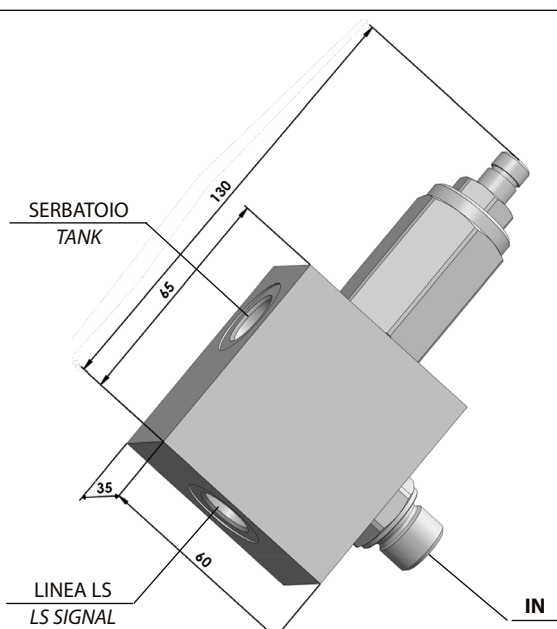
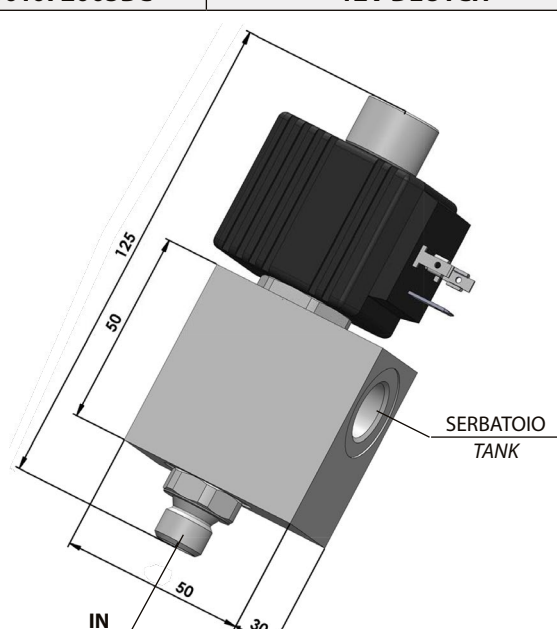
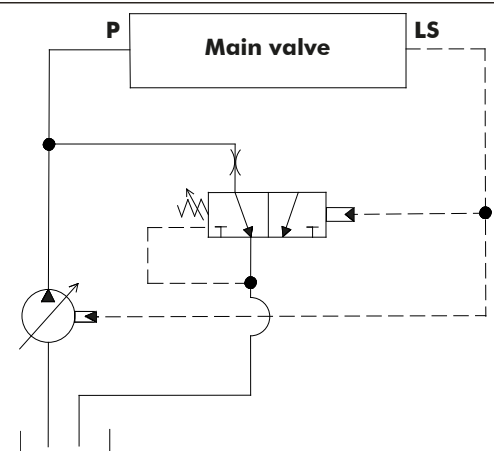
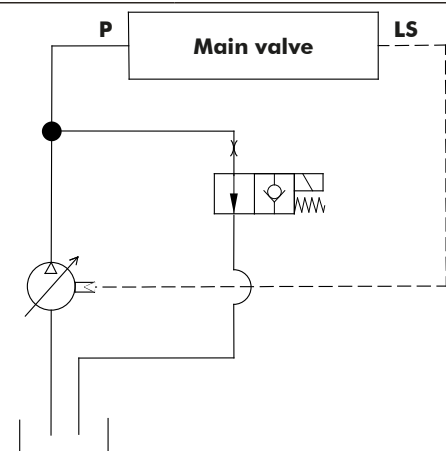
The valve guarantees small flow through the pump to cooling or tank, in order to protect the pump from overheated on the application with long time in stand-by condition. When a load sensing valve function is engaged the flushing valve is disengaged automatically with hydraulic pilot or with electrical pilot by the logic control of customer.

Caratteristiche tecniche:

Portata libera circolazione: 30 l/min
Pressione di regolazione: da 2 a 25 bar
Pressione massima: 420 bar
Porte: G1/4

Technical characteristics:

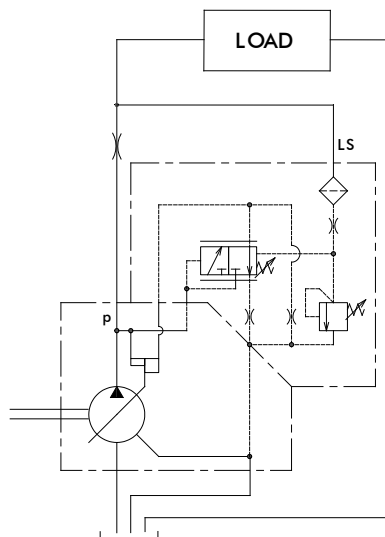
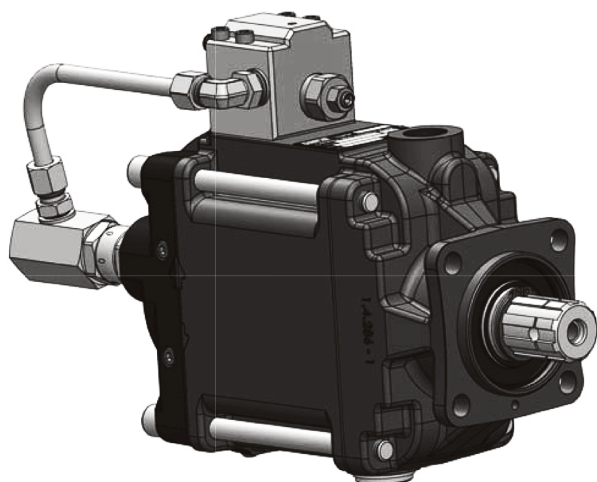
Flow control: 30 l/min
Pilot pressure settings: da 2 a 25 bar
Maximum pressure: 420 bar
Ports: G1/4

Comando idraulico / Hydraulic pilot	Comando elettrico / Electrical pilot	
Codice / Code	Codice / Code	
B5001072001BC	B5001072002BC	24V DIN
	B5001072003BC	12V DIN
	B5001072004BC	24V DEUTCH
	B5001072005BC	12V DEUTCH
		
		

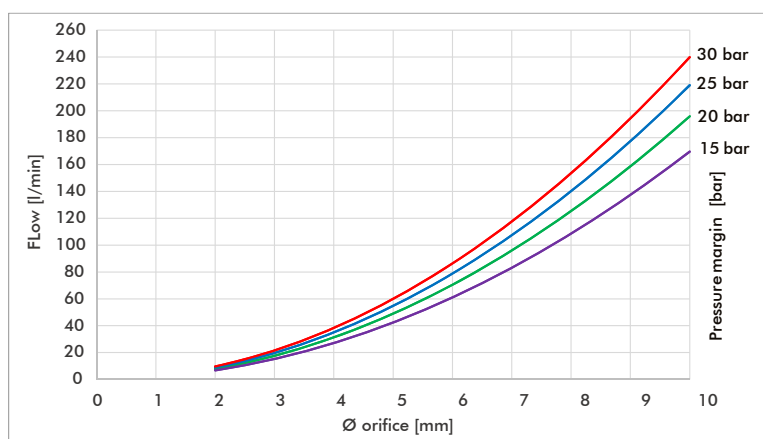
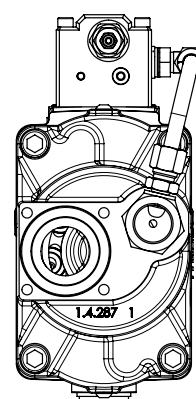
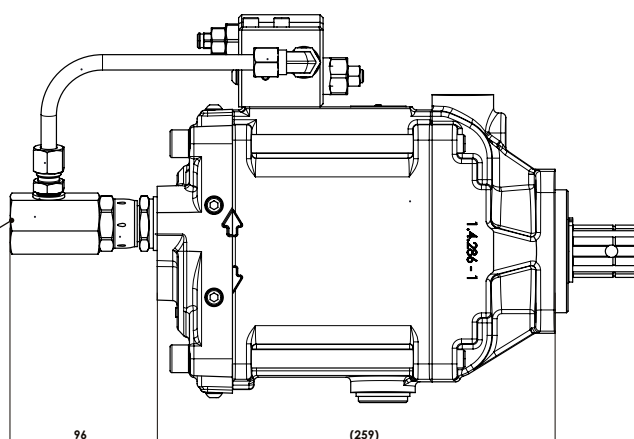
Regolatore a portata costante (CF) Constant flow control (CF)

Il regolatore a portata costante garantisce una portata fissa al variare della velocità e del carico sulla pompa, grazie al compensatore load sensing. Il regolatore mantiene costante la differenza di pressione tra monte e valle dello strozzatore sulla linea P. La taratura del regolatore è variabile tra i 15 e 40 bar.

The constant flow control guarantee a fixed flow rate at different pump speed and load. The regulator keeps the pressure margin across the orifice into P line. Setting of pressure margin: 15 to 40 bar.



PPV 60	G 3/4
PPV 90-110-130-150	G 1



Il regolatore a portata costante è disponibile con con diverse taratura di portata, per ogni ulteriore informazioni si prega di contattare il servizio tecnico.
The constant flow regulator is available with different flow settings, for any further information please contact the technical service.

Applicazioni PPV Tandem

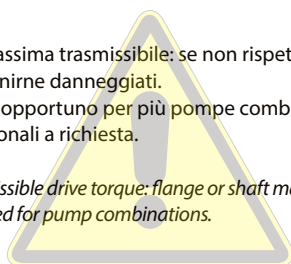
Tandem PPV applications

Versione flange ed alberi (lato uscita) - Flange and shaft version (output side)

Codice Code	PPV 60	PPV 90 PPV 110	PPV 130 PPV 150	Descrizione Description	Flangia Flange	Albero Shaft	Coppia max. trasmissibile Max. output torque
							T _{OUT} max.
11400000839				Solo coperchio Only cover	---	---	---
11465000066				ISO	DIN ISO 7653	8x32x36 DIN ISO 14	800 Nm
11465010064				SAE A	SAE A 2-hole J744 82-2 DIN ISO 3019-1	SAE A J744 (16-4 DIN ISO 3019-1) 9T 16/32 DP	100 Nm
11465010162				SAE B	SAE B 2-hole J744 101-2 DIN ISO 3019-1	SAE B J744 (22-4 DIN ISO 3019-1) 13T 16/32 DP	210 Nm
					SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>		
11465000100				ISO	DIN ISO 7653	8x32x36 DIN ISO 14	800 Nm
11465010108				SAE A	SAE A 2-hole J744 82-2 DIN ISO 3019-1	SAE A J744 (16-4 DIN ISO 3019-1) 9T 16/32 DP	100 Nm
11465010206				SAE B	SAE B 2-hole J744 101-2 DIN ISO 3019-1	SAE B J744 (22-4 DIN ISO 3019-1) 13T 16/32 DP	210 Nm
					SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>		
11465010304				SAE BB	SAE B 2-hole J744 101-2 DIN ISO 3019-1	SAE BB J744 (25-4 DIN ISO 3019-1) 15T 16/32 DP	400 Nm
					SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>		
11465010402				SAE C	SAE C 2-hole J 744 127-2 DIN ISO 3019-1	SAE C J744 (32-4 DIN ISO 3019-1) 14T 12/24 DP	640 Nm
					SAE C 4-hole J 744 127-4 DIN ISO 3019-1		
11465000137				ISO	DIN ISO 7653	8x32x36 DIN ISO 14	800 Nm
11465010224				SAE B	SAE B 2-hole J744 101-2 DIN ISO 3019-1	SAE B J744 (22-4 DIN ISO 3019-1) 13T 16/32 DP	210 Nm
					SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>		
11465010322				SAE BB	SAE B 2-hole J744 101-2 DIN ISO 3019-1	SAE BB J744 (25-4 DIN ISO 3019-1) 15T 16/32 DP	400 Nm
					SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>		
11465010420				SAE C	SAE C 2-hole J 744 127-2 DIN ISO 3019-1	SAE C J744 (32-4 DIN ISO 3019-1) 14T 12/24 DP	640 Nm
					SAE C 4-hole J 744 127-4 DIN ISO 3019-1		

Prestare attenzione alla coppia massima trasmissibile: se non rispettata, la flangia o l'albero potrebbero venire danneggiati.
Un supporto addizionale sarebbe opportuno per più pompe combinate.
Possibilità di avere versioni addizionali a richiesta.

Pay attention to the maximum permissible drive torque: flange or shaft may be damage.
An additional support is to be provided for pump combinations.
Additional version on request.

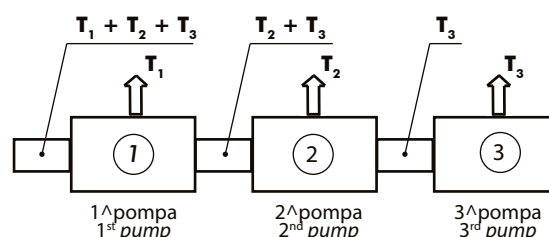


Coppia 1^a pompa T₁
Coppia 2^a pompa T₂
Coppia 3^a pompa T₃

Coppia in ingresso T_{IN} = T₁ + T₂ + T₃
T_{IN} < 900Nm for 6501 -----
T_{IN} < 640Nm for 6512 -----

Coppia in uscita T_{OUT} = T₂ + T₃
T_{OUT, 1} = T₂ + T₃
T_{OUT, 1} < T_{OUT, MAX.} vedere tabella

T_{OUT, 2} = T₃
T_{OUT, 2} < T_{OUT, MAX.} vedere tabella

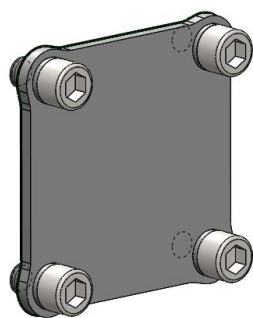


Torque at 1st pump T₁
Torque at 2nd pump T₂
Torque at 3rd pump T₃

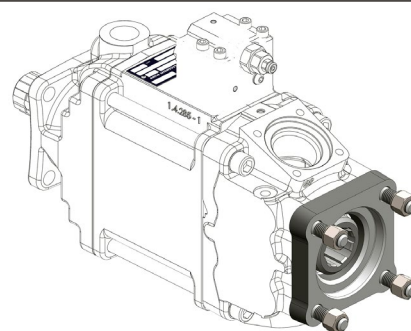
Input torque T_{IN} = T₁ + T₂ + T₃
T_{IN} < 900Nm for 6501 -----
T_{IN} < 640Nm for 6512 -----

Output torque T_{OUT} = T₂ + T₃
T_{OUT, 1} = T₂ + T₃
T_{OUT, 1} < T_{OUT, MAX.} see table

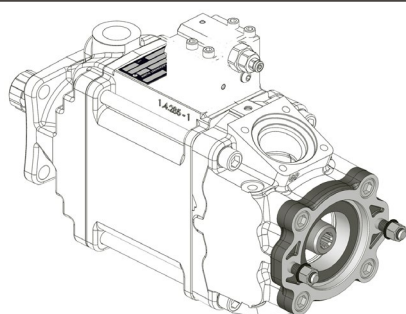
T_{OUT, 2} = T₃
T_{OUT, 2} < T_{OUT, MAX.} see table



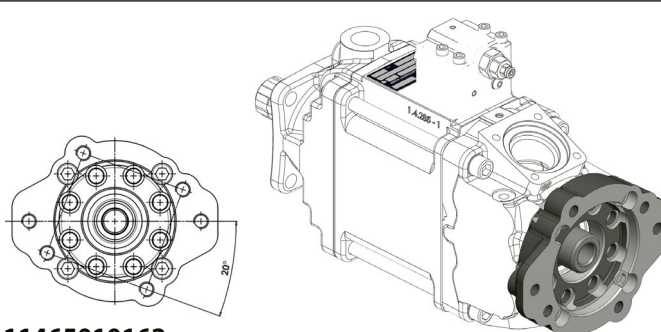
11400000839
Coperchio di chiusura
Cover



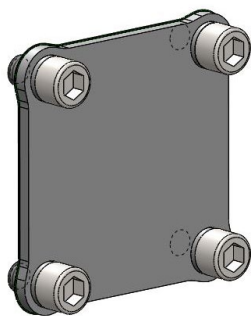
11465000066
Applicazione PPV60 tandem / Pompa ISO 7653
(coppia trasmissibile 800Nm)
PPV tandem 60 size / ISO 7653 pump adaptor
(max. allowed torque 800Nm)



11465010064
Applicazione PPV60 tandem / Pompa SAE A Z9
(coppia trasmissibile 100Nm)
PPV tandem 60 size / SAE A Z9 pump adaptor
(max. allowed torque 100Nm)

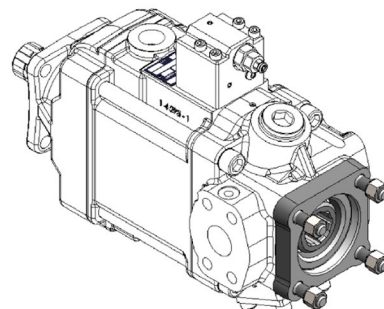


11465010162
Applicazione PPV60 tandem / Pompa SAE B Z13
(coppia trasmissibile 210Nm)
PPV tandem 60 size / SAE B Z13 pump adaptor
(max. allowed torque 210Nm)



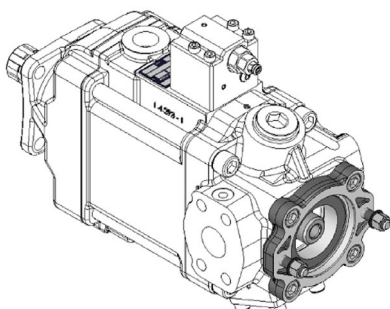
11400000839

Coperchio di chiusura
Cover



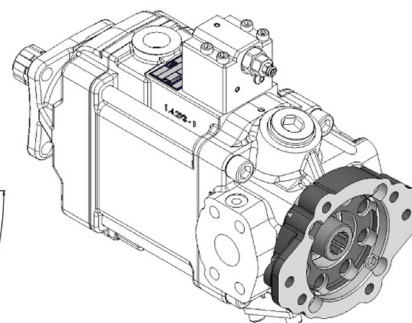
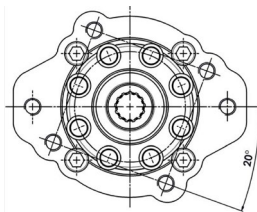
11465000100

Applicazione PPV tandem 90-110 / Pompa ISO 7653
(coppia trasmissibile 800Nm)
PPV tandem 90-110 size / ISO 7653 pump adaptor
(max. allowed torque 800Nm)



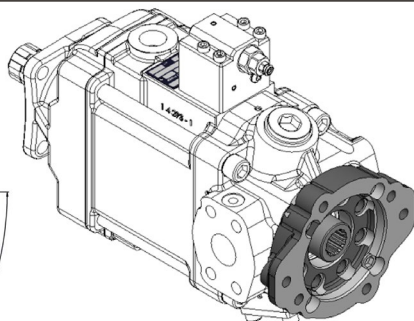
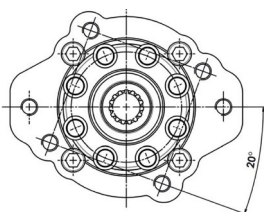
11465010108

Applicazione PPV tandem 90-110 / Pompa SAE A Z9
(coppia trasmissibile 100Nm)
PPV tandem 90-110 size / SAE A Z9 pump adaptor
(max. allowed torque 100Nm)



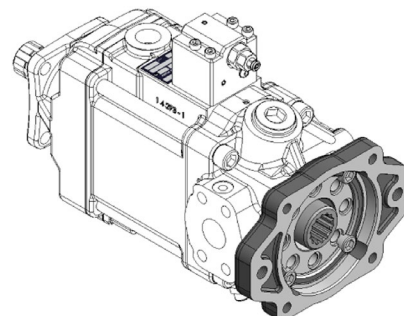
11465010206

Applicazione PPV tandem 90-110 / Pompa SAE B Z13
(coppia trasmissibile 210Nm)
PPV tandem 90-110 size / SAE B Z13 pump adaptor
(max. allowed torque 210Nm)



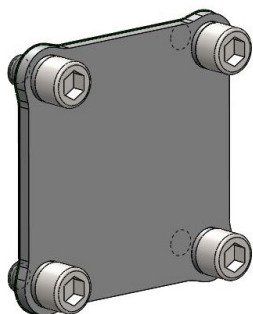
11465010304

Applicazione PPV tandem 90-110 / Pompa SAE BB Z15
(coppia trasmissibile 400Nm)
PPV tandem 90-110 size / SAE BB Z15 pump adaptor
(Max. allowed torque 400Nm)

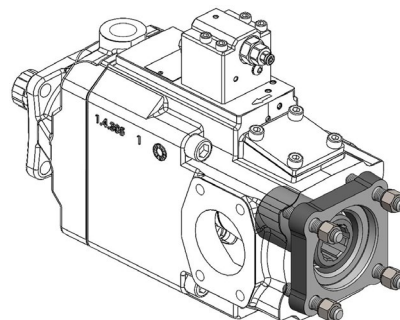


11465010402

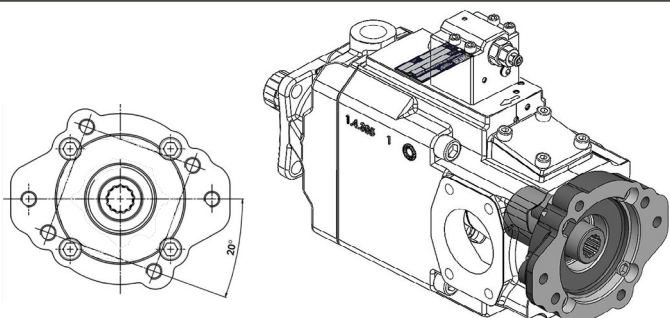
Applicazione PPV tandem 90-110 / Pompa SAE C Z14
(coppia trasmissibile 640Nm)
PPV tandem 90-110 size / SAE C Z14 pump adaptor (Max. allowed torque 640Nm)

**11400000839**

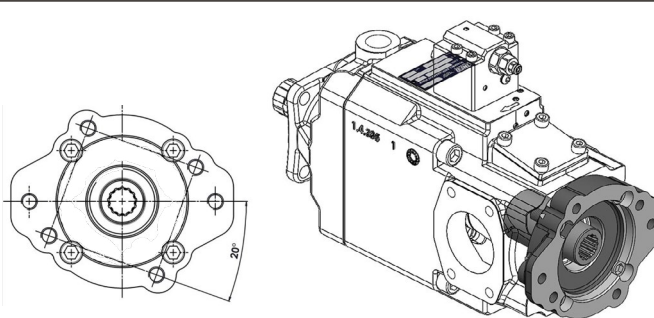
Coperchio di chiusura
Cover

**11465000137**

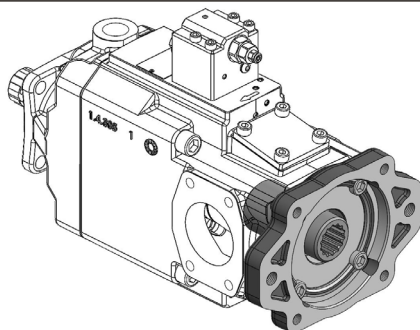
Applicazione PPV tandem 130-150 / Pompa ISO 7653
(coppia trasmissibile 800 Nm)
PPV tandem 130-150 size / ISO 7653 pump adaptor
(Max. allowed torque 800 Nm)

**11465010224**

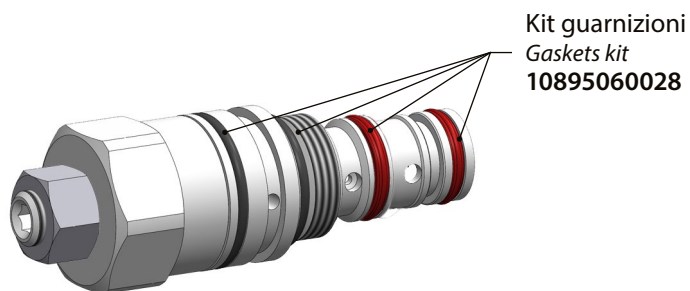
Applicazione PPV tandem 130-150 / Pompa SAE B Z13
(coppia trasmissibile 210 Nm)
PPV tandem 130-150 size / SAE B Z13 pump adaptor
(max. allowed torque 210 Nm)

**11465010322**

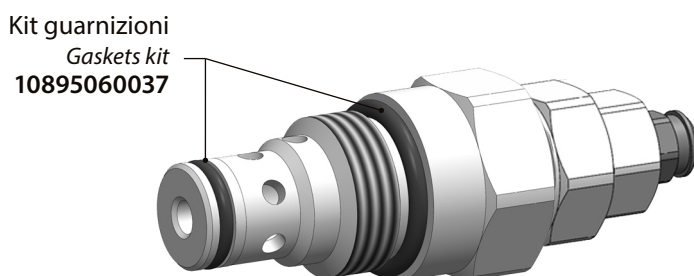
Applicazione PPV tandem 130-150 / Pompa SAE BB Z15
(coppia trasmissibile 400 Nm)
PPV tandem 130-150 size / SAE BB Z15 pump adaptor
(Max. allowed torque 400 Nm)

**11465010420**

Applicazione PPV tandem 130-150 / Pompa SAE C Z14
(coppia trasmissibile 640 Nm)
PPV tandem 130-150 size / SAE C Z14 pump adaptor
(Max. allowed torque 640 Nm)

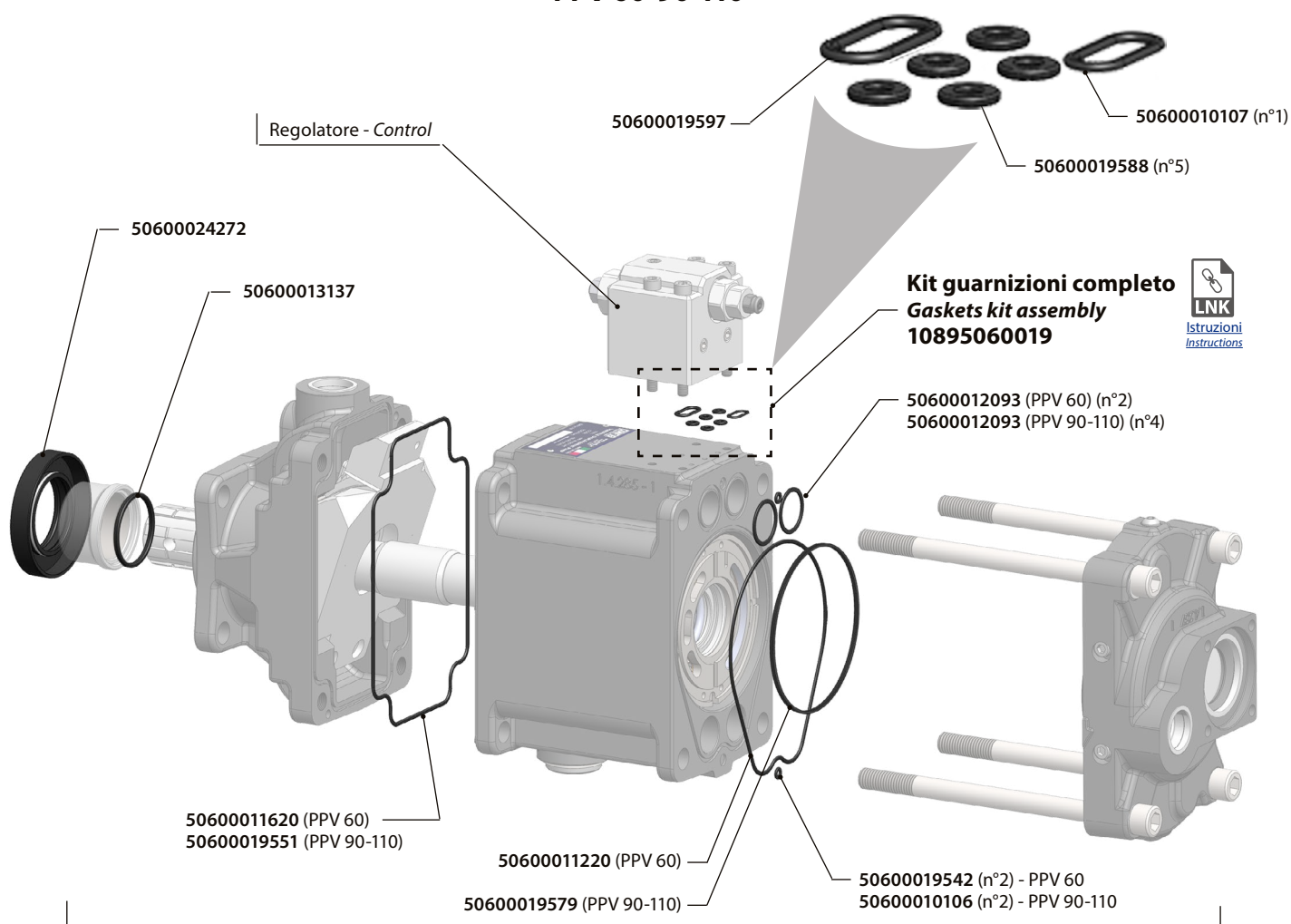


Valvola LS
LS valve
10896090100



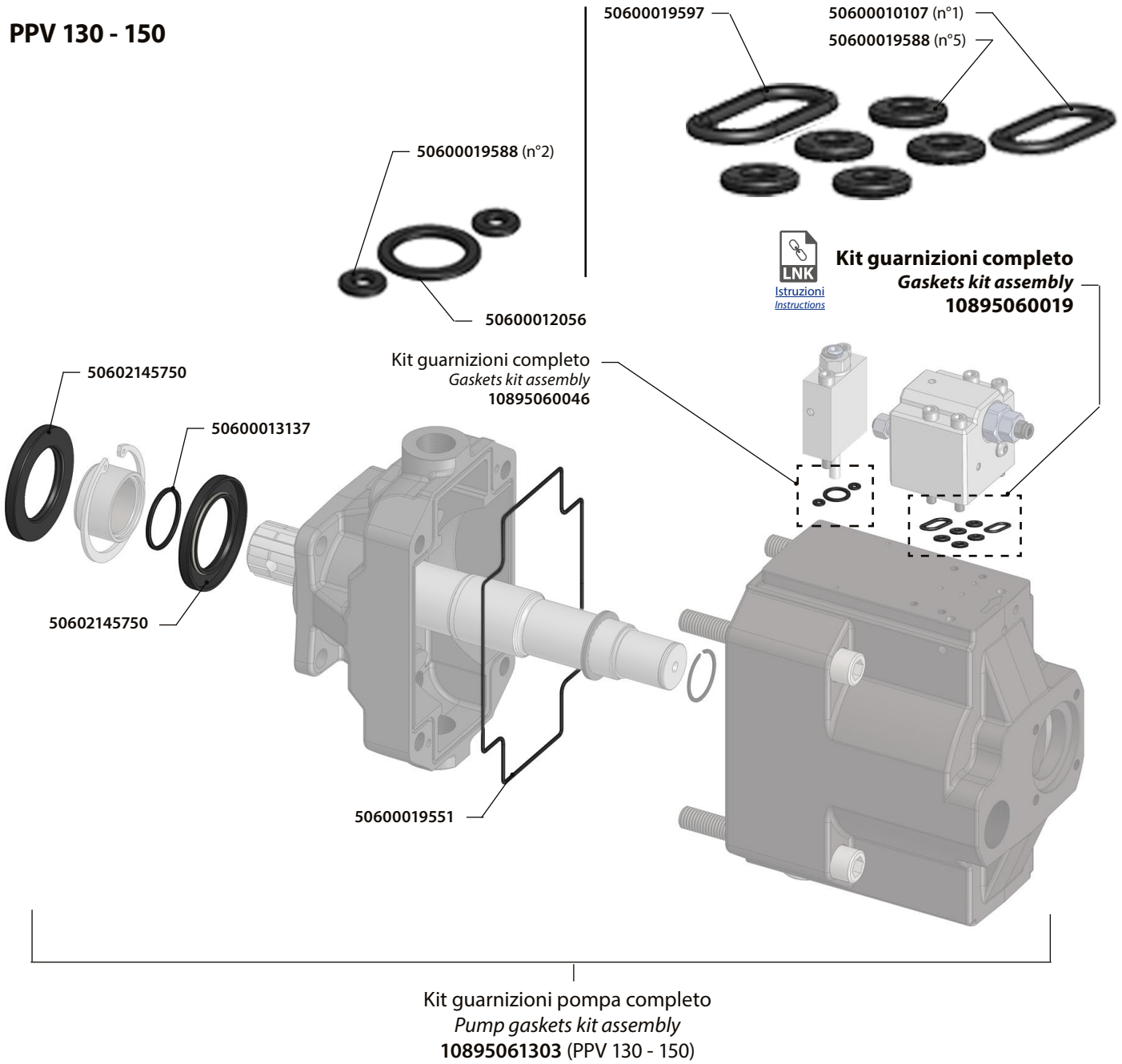
Valvola limitatrice
di pressione
Relief valve
10896090208

PPV 60-90-110



Kit guarnizioni POMPA completo - PUMP gaskets kit assembly
10895060608 (PPV 60) / 10895060751 (PPV 90-110)

PPV 130 - 150



Ricambi piatto distributore
Port plate spare parts

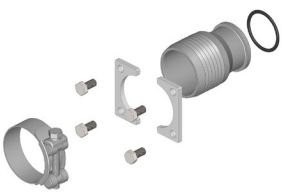
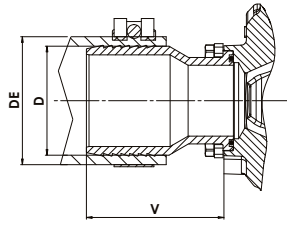
Tipo pompa <i>Pump type</i>		Kit ricambio piatto distributore <i>Port plate spare part kit</i>
PPV 60	DX	10896020604
	SX	10896010606
PPV 90	DX	10896020908
	SX	10896010900
PPV 110	DX	10896021103
	SX	10896011105



L'inversione della rotazione delle pompe PPV130-PPV150, può essere effettuata solo presso il produttore o distributore autorizzato.
The change of pump rotation for PPV130-PPV150, can only be carried out at the authorized producer's or distributor's.

DX = Piastra di distribuzione rotazione destrorsa / Port plate for clockwise rotation
SX = Piastra di distribuzione rotazione sinistrorsa / Port plate for counter rotation

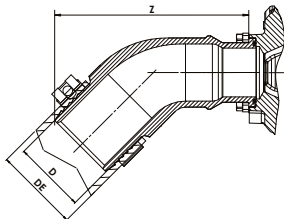
Raccordi aspirazione / Suction fittings

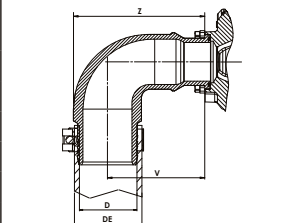
Codice Code	D	DE	V	Peso Weight		
	mm	mm	mm	Kg		
15511200507	50	60-63	59	0,59		
15511200516	50	64-67	59	0,6		
15511200605	60	68-73	79	0,77		
15511200632	63	74-79	79	0,8		
15511200767	76	86-91	94	1		

Codice Code	D	DE	V	Peso Weigth
	mm	mm	mm	Kg
15511245504	50	60-63	141	1
15511245513		64-67		
15511245602	60	68-73	161	1,4
15511245639	63	74-79	163	1,7
15511245764	76	86-91	167	2,1



45°

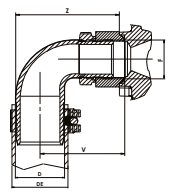


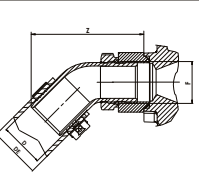
Codice Code	D	DE	V	Z	Peso Weigth				
	mm	mm	mm	mm	Kg				
15511290509	50	60-63	94	120	1,1				
15511290518		64-67							
15511290607	60	68-73	103	139	1,5				
15511290634	63	74-79	103	139	1,9				
15511290769	76	86-91	103	140	2.3				

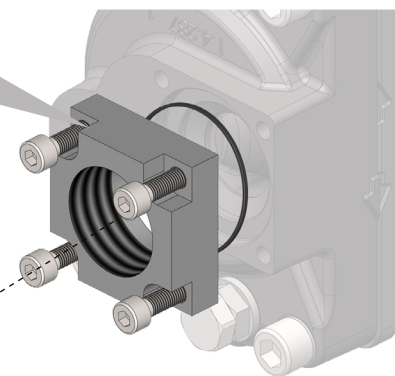
90°

15511300408

Kit flangia foro filettato G1-1/2, per montaggio raccordi GOLD.
Flange kit G1-1/2 threaded hole, for mounting GOLD fittings.

Codice Code	F	D	DE	V	Z	Peso Weight		
	ISO 228	mm	mm	mm	mm	Kg		
15510000592	G1-1/2	50	60-63	85	114	0,99		
15510000609			64-67			1		
15510000654		60	68-73	88	123	1,06		

Codice Code	F	D	DE	Z	Peso Weight		
	ISO 228	mm	mm	mm	Kg		
15509000540	G1-1/2	50	60-63	133	0,79		
15509000559			64-67		0,82		
15509000611		60	68-73	153	1		



650				1	1	1	06	LS	1
Famiglia / Family				Albero / Shaft			Rotazione Limitazione cilindrata Rotation Displacement adjustment		
650 : ISO 7653 - Ø 80 - 4fori / holes 651 : ISO 3019-1 SAE C - 4fori / holes - i=114,5				1 : DIN 5462 8x32x36 (ISO14) 2 : SAE C - 14T 12/24 32-4			1 : DESTRA nessuna limitazione RIGHT no adjustment 2 : DESTRA con limitazione (ADJUSTABLE) RIGHT with adjustment 6 : SINISTRA nessuna limitazione LEFT no adjustment 7 : SINISTRA con limitazione (ADJUSTABLE) LEFT with adjustment		
Porte / Ports				Fondello posteriore / Rear cover			Regolatore / Control		
1 : BSPP (GAS) 5 : UNF				1 AX : Assiale / Axial (STANDARD) 2 RV : Radiale verticale SENZA albero passante / Radial vertical WITHOUT thru-shaft 3 PV : Radiale verticale CON albero passante / Radial vertical WITH thru-shaft (TANDEM) 4 RO : Radiale orizzontale SAE SENZA albero passante / SAE radial horizontal WITHOUT thru-shaft 5 PO : Radiale orizzontale SAE CON albero passante / SAE radial horizontal WITH thru-shaft (TANDEM)			LS : LS Load sensing PI : Pressione idraulica / Hydraulic pressure PE : Pressione elettrica / Electric pressure PW : Regolatore a potenza costante / Power control BE : Regolatore differenza pressione costante Constant pressure difference		
							Cilindrata / Displacement		
							06 60 cc 09 90 cc 11 110 cc 13 130 cc 15 150 cc		

Le versioni **ADJUSTABLE**, prevedono una vite di regolazione posteriore che limita la cilindrata della pompa a valori inferiori a quella nominale.
The **ADJUSTABLE** versions consists of a rear setting screw that limits the displacement of the pumps to lower values than the nominal one.



Le pompe con il **FONDELLO POSTERIORE** serie **AX - RV - PV** possono montare i raccordi di aspirazione codice 155xxxxxxx elencati a pagina 47. I raccordi sono da ordinare separatamente alla pompa.
Pumps with the **AX - RV - PV REAR COVER** can be fitted with the suction fittings code 155xxxxxxx listed on page 47. Fittings are to be ordered separately at the pump.



Le pompe con il **FONDELLO POSTERIORE** serie **PO - PV (TANDEM)** possono montare le applicazioni codice 114650xxxxx elencate da pagina 41. Le applicazioni sono da ordinare separatamente alla pompa.
Pumps with the **PO - PV (TANDEM) series REAR COVER** can mount the applications code 114650xxxxx listed from page 41. Applications are to be ordered separately at the pump.