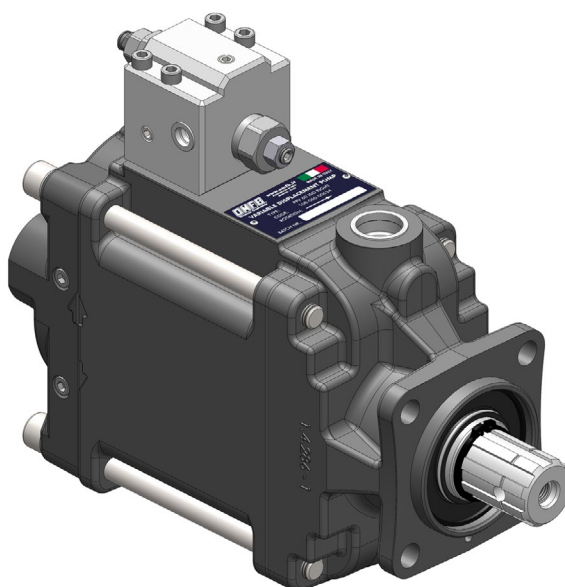
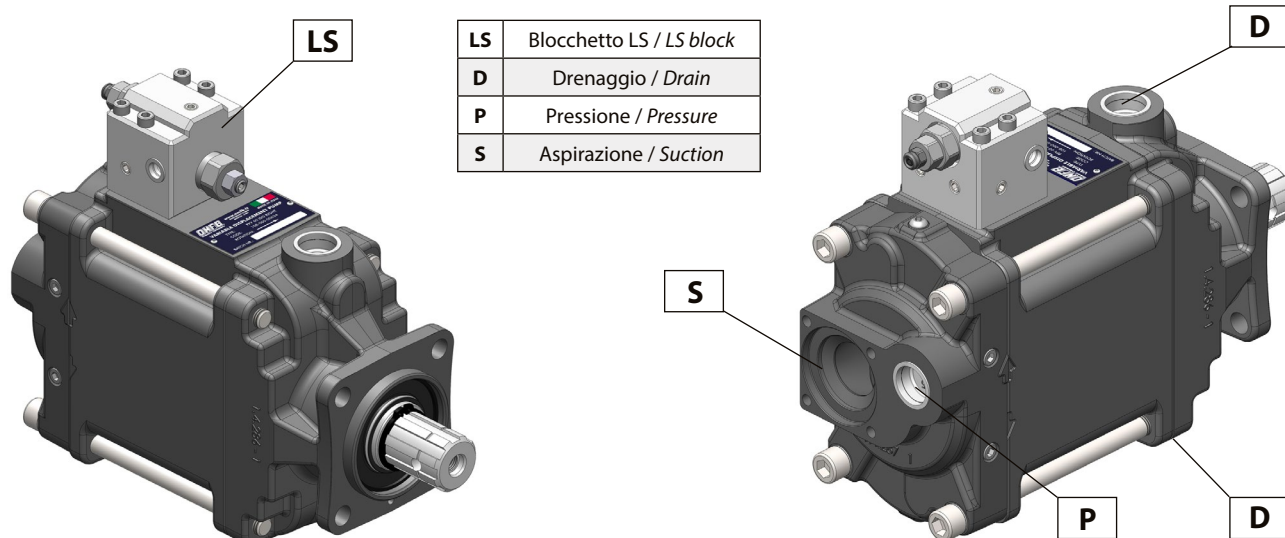




**Pompe a cilindrata variabile**  
**Variable displacement pumps**

|                                            |         |
|--------------------------------------------|---------|
| • Introduzione e dati tecnici              |         |
| <i>Introduction and technical features</i> | pag. 03 |
| • <b>GAMMA PPV</b>                         |         |
| <b>PPV RANGE</b>                           |         |
| 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 / <i>Spare parts</i>             | pag. 45 |
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| <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.

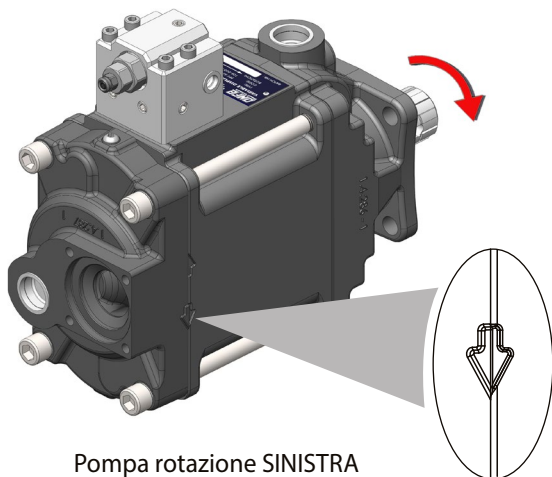
*The OMFB variable displacement axial piston pump has got a swash plate.*

*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.*

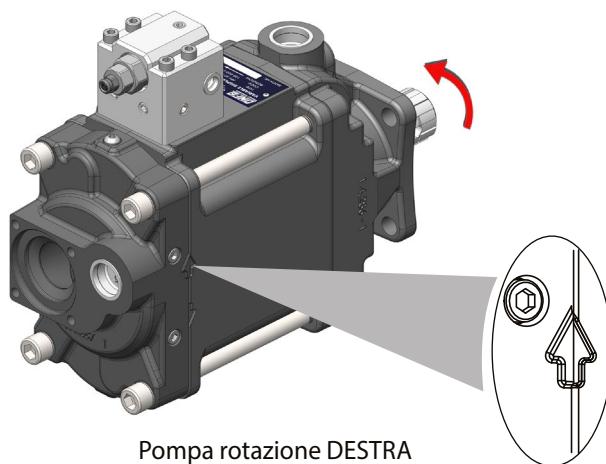
*The variation of the displacement is controlled by a regulator, which is fitted on the pump itself.*

*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



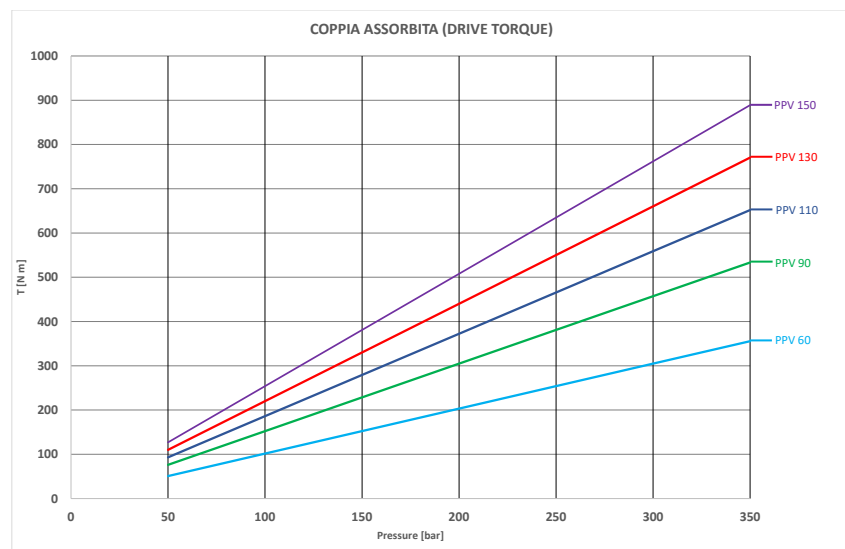
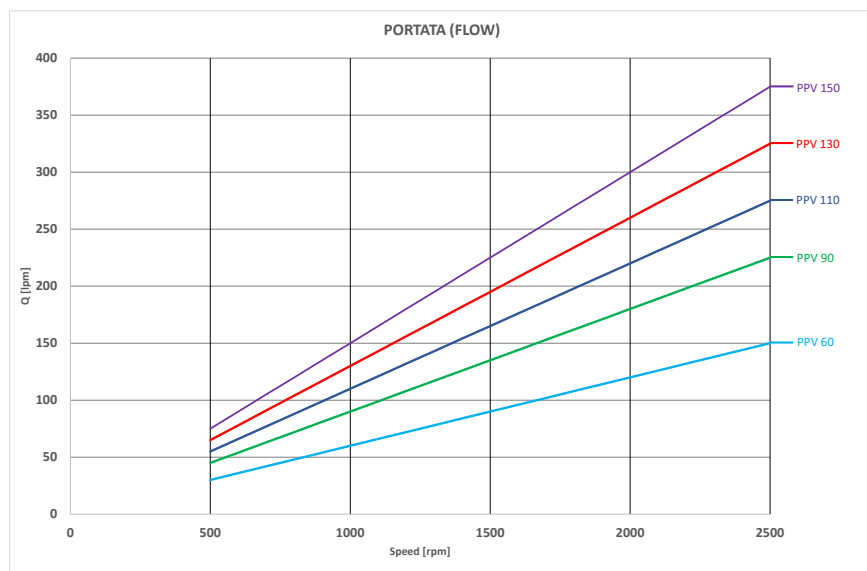
Pompa rotazione DESTRA  
RIGHT Hand rotating pump

# 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<br>Continuous | Intermittente<br>Intermittent | Continua<br>Continuous | Intermittente<br>Intermittent | Continua<br>Continuous | Intermittente<br>Intermittent | Continua<br>Continuous | Intermittente<br>Intermittent | Continua<br>Continuous | Intermittente<br>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<br>Absolute inlet pressure required in open circuit                                                                               | 0,85 bar               |                               |                        |                               |                        |                               |                        |                               |                        |                               |
| Pressione massima ammissibile sul corpo (statica/dinamica)<br>Max. permissible housing pressure (static/dynamic)                                                                               | 1 bar                  |                               | 3 bar                  |                               |                        |                               |                        |                               |                        |                               |
| Pressione d'ingresso massima ammissibile<br>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.<br>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.<br>Max. speed with zero stroke and 1 bar abs. Inlet pressure                                                            | 3000 rpm               |                               |                        |                               |                        |                               |                        |                               |                        |                               |
| Numero di giri minimo in funzionamento continuo<br>Min. speed in continuous operation                                                                                                          | 500 rpm                |                               |                        |                               |                        |                               |                        |                               |                        |                               |
| Coppia motrice necessaria a 100 bar<br>Required drive torque at 100 bar                                                                                                                        | 100 Nm                 |                               | 150 Nm                 |                               | 185 Nm                 |                               | 220 Nm                 |                               | 250 Nm                 |                               |
| Potenza motrice a 250 bar e 2000 rpm<br>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<br>Displacement limitation range | 40 - 60 cm <sup>3</sup>  |
| Limitazione della cilindrata<br>Displacement limitation range | 4,3 cm <sup>3</sup> /rev |

#### Cilindrata / Displacement 90cc

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Campo regolazione cilindrata<br>Displacement limitation range | 55 - 90 cm <sup>3</sup>  |
| Limitazione della cilindrata<br>Displacement limitation range | 5,7 cm <sup>3</sup> /rev |

#### Cilindrata / Displacement 110cc

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Campo regolazione cilindrata<br>Displacement limitation range | 85 - 110 cm <sup>3</sup> |
| Limitazione della cilindrata<br>Displacement limitation range | 6,6 cm <sup>3</sup> /rev |

#### Cilindrata / Displacement 130cc

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Campo regolazione cilindrata<br>Displacement limitation range | 90 - 130 cm <sup>3</sup> |
| Limitazione della cilindrata<br>Displacement limitation range | 7,1 cm <sup>3</sup> /rev |

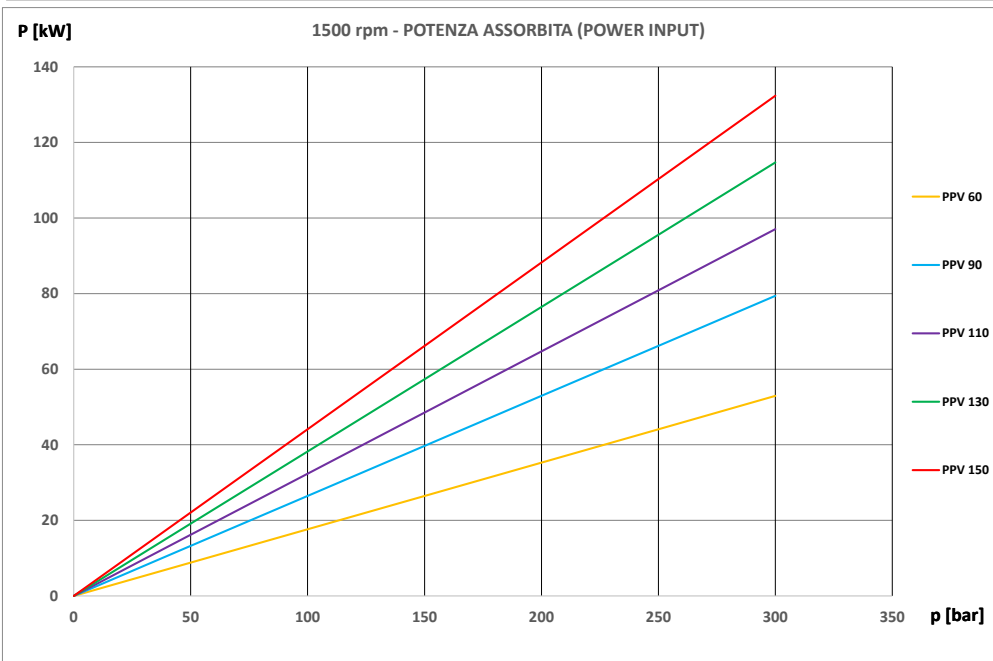
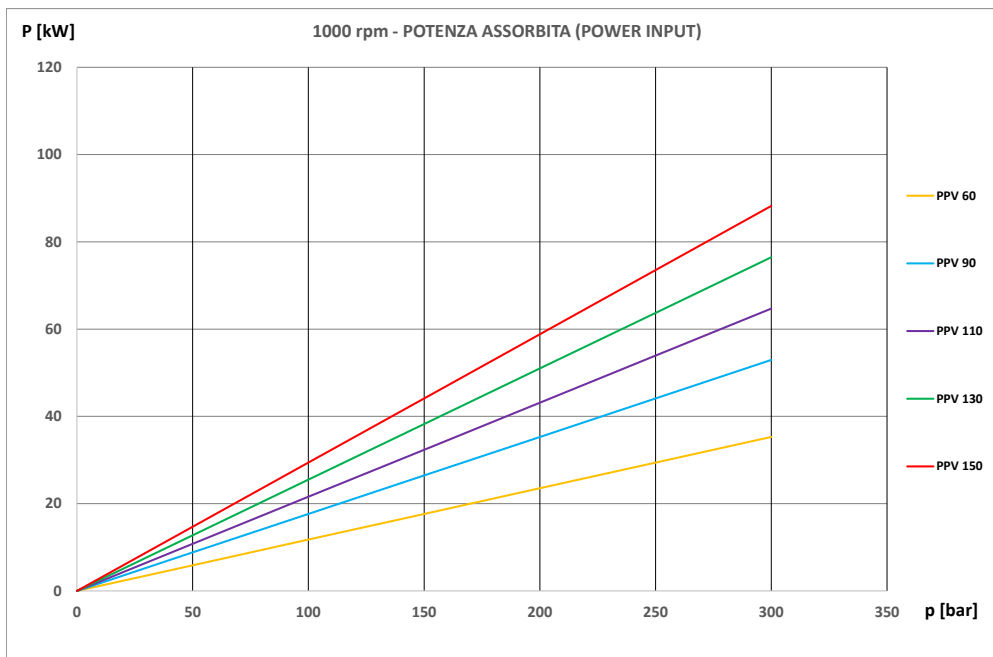
#### Cilindrata / Displacement 150cc

|                                                               |                           |
|---------------------------------------------------------------|---------------------------|
| Campo regolazione cilindrata<br>Displacement limitation range | 100 - 150 cm <sup>3</sup> |
| Limitazione della cilindrata<br>Displacement limitation range | 7,9 cm <sup>3</sup> /rev  |

# Pompe a cilindrata variabile

Variable displacement pumps

**PPV 60-90-110-130-150**



|                                                                                                         |                                                                                                                     |                      |        |       |      |
|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------|------|
| Fluido idraulico / Fluid                                                                                | Minerale o sintetico compatibile con guarnizioni:<br>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<br>Kinematic viscosity suggested                                       | T media ambiente (°C)<br>Average ambient temp. (°C)                                                                 | < -40                | -40÷10 | 10÷35 | > 35 |
|                                                                                                         | VG (cSt = mm²/s)                                                                                                    | 16                   | 22     | 32    | 46   |
| Viscosità cinematica ottimale di esercizio<br>Optimale kinematic viscosity                              |                                                                                                                     | VG= 10 cSt ÷ 100 cSt |        |       |      |
| Viscosità cinematica max consentita all'avviamento<br>Max kinematic viscosity suggested at the start-up |                                                                                                                     | VG= 750 cSt          |        |       |      |
| Indice di viscosità consigliato<br>Viscosity index suggested                                            |                                                                                                                     | VI > 100             |        |       |      |

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

η<sub>hm</sub> = rendimento idro-meccanico / hydro-mechanical efficiency

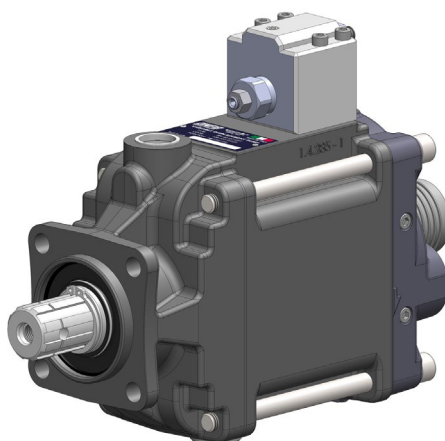
η<sub>tot</sub> = η<sub>v</sub> × η<sub>hm</sub> = rendimento totale / overall efficiency

## FORMULE / FORMULAS

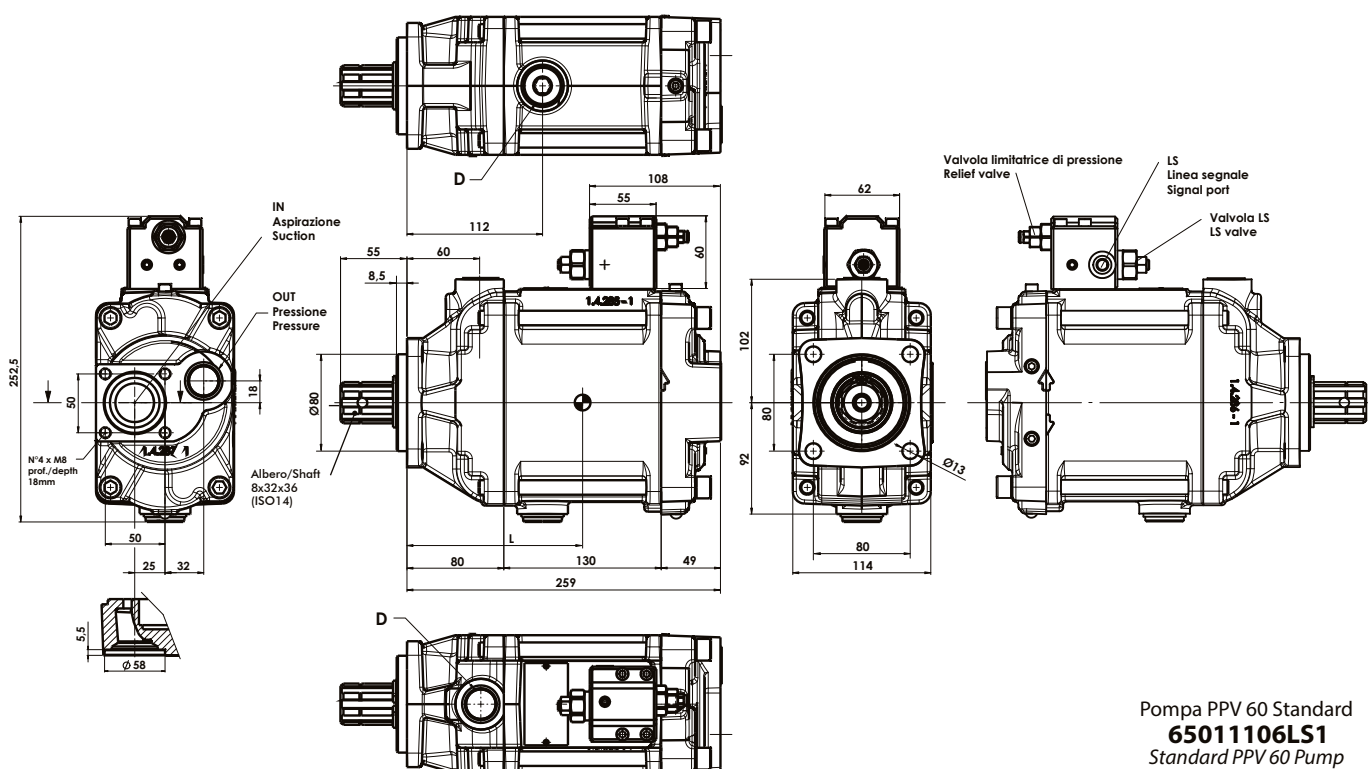
# Pompe a cilindrata variabile

## Variable displacement pumps

### PPV 60



### Ingombro / Dimensions

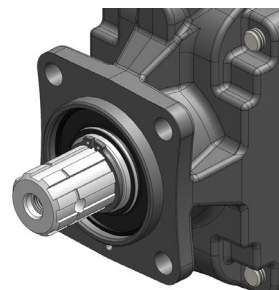
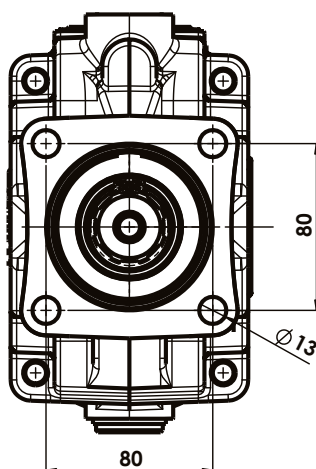
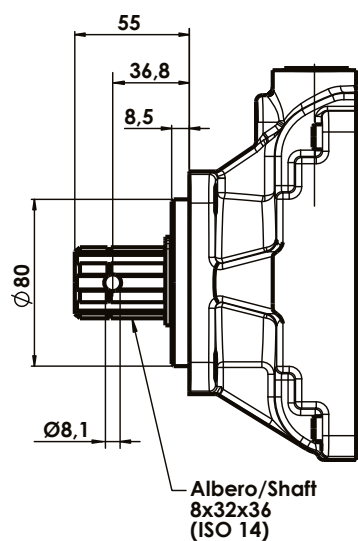


Pompa PPV 60 Standard  
**65011106LS1**  
Standard PPV 60 Pump

### Dati tecnici / Technical data

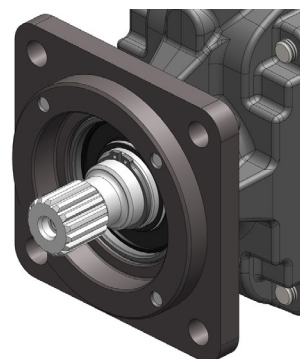
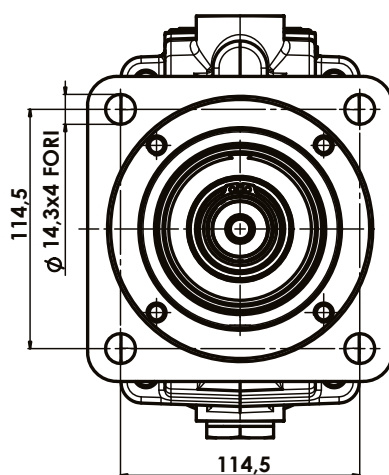
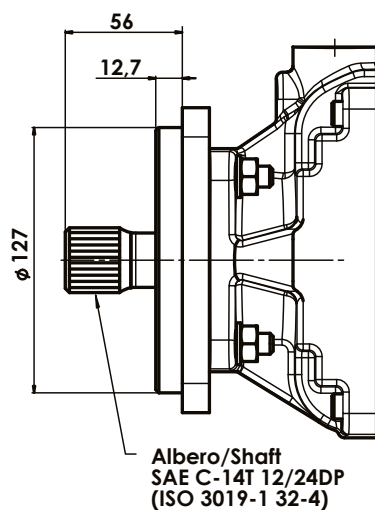
|            |                                                                                                         | BSPP (GAS)          | UNF             |
|------------|---------------------------------------------------------------------------------------------------------|---------------------|-----------------|
| <b>LS</b>  | Blocchetto LS/ LS block                                                                                 | G 1/4               |                 |
| <b>D</b>   | Drenaggio / Drain                                                                                       | G 3/4               | 1 1/16-12 UN-2B |
| <b>OUT</b> | Pressione / Pressure                                                                                    | G 3/4               | 1 5/16-12 UN-2B |
| <b>IN</b>  | Aspirazione / Suction<br>Raccordo da ordinare separatamente<br>Suction fitting to be ordered separately | Ø50 mm              |                 |
| <b>L</b>   | 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*

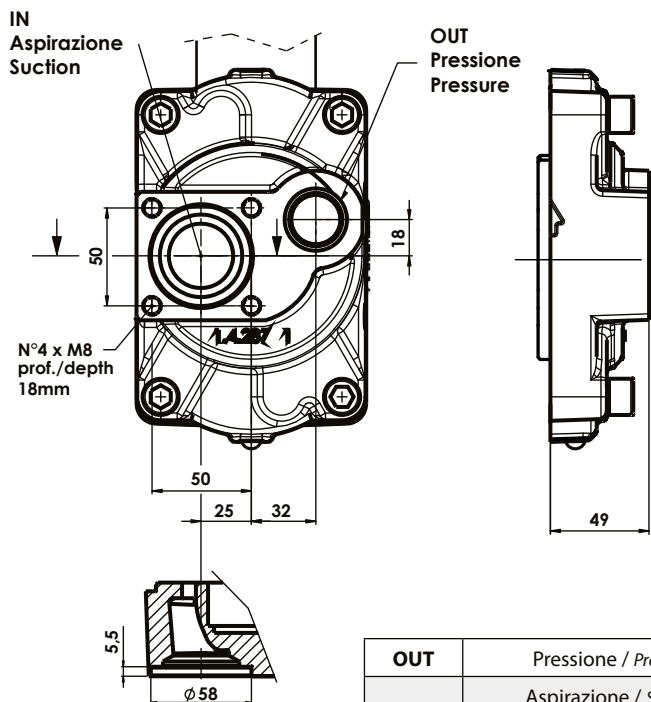
# Fondello posteriore

Rear cover

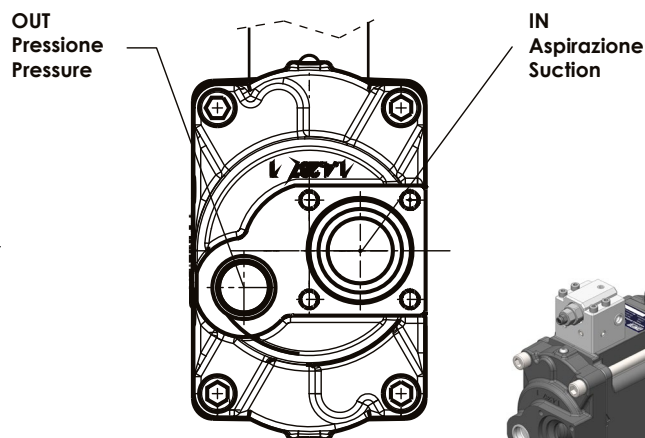
**PPV 60 - AX**

## Assiale / Axial (STANDARD)

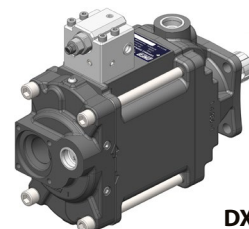
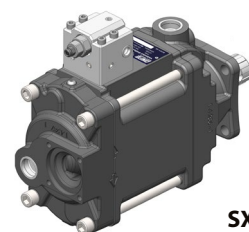
Rotazione destra / Right rotation  
Senza limitazione / No adjustment



Rotazione sinistra / Left rotation  
Senza limitazione / No adjustment

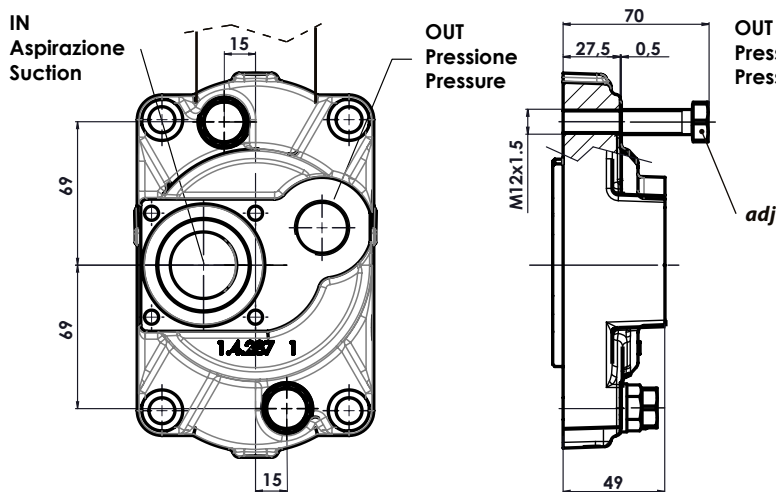


|     |                                                                                                         |       |                 |
|-----|---------------------------------------------------------------------------------------------------------|-------|-----------------|
| OUT | Pressione / Pressure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

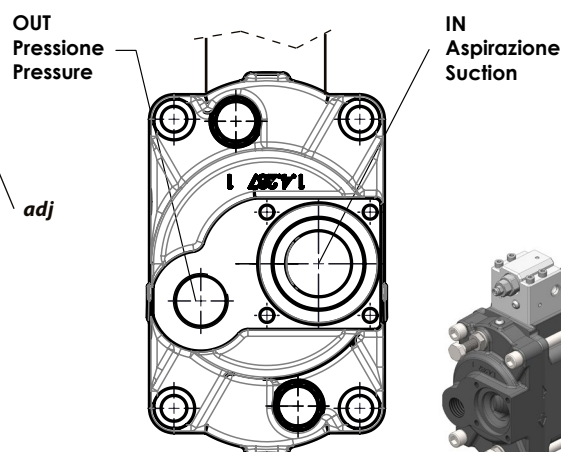


## Assiale / Axial (ADJUSTABLE)

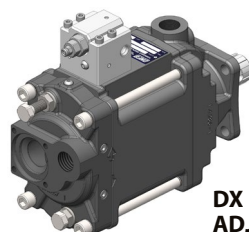
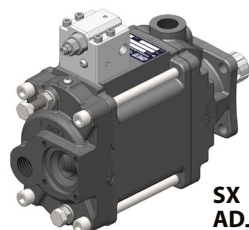
Rotazione destra / Right rotation  
Con limitazione / With adjustment



Rotazione sinistra / Left rotation  
Con limitazione / With adjustment



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

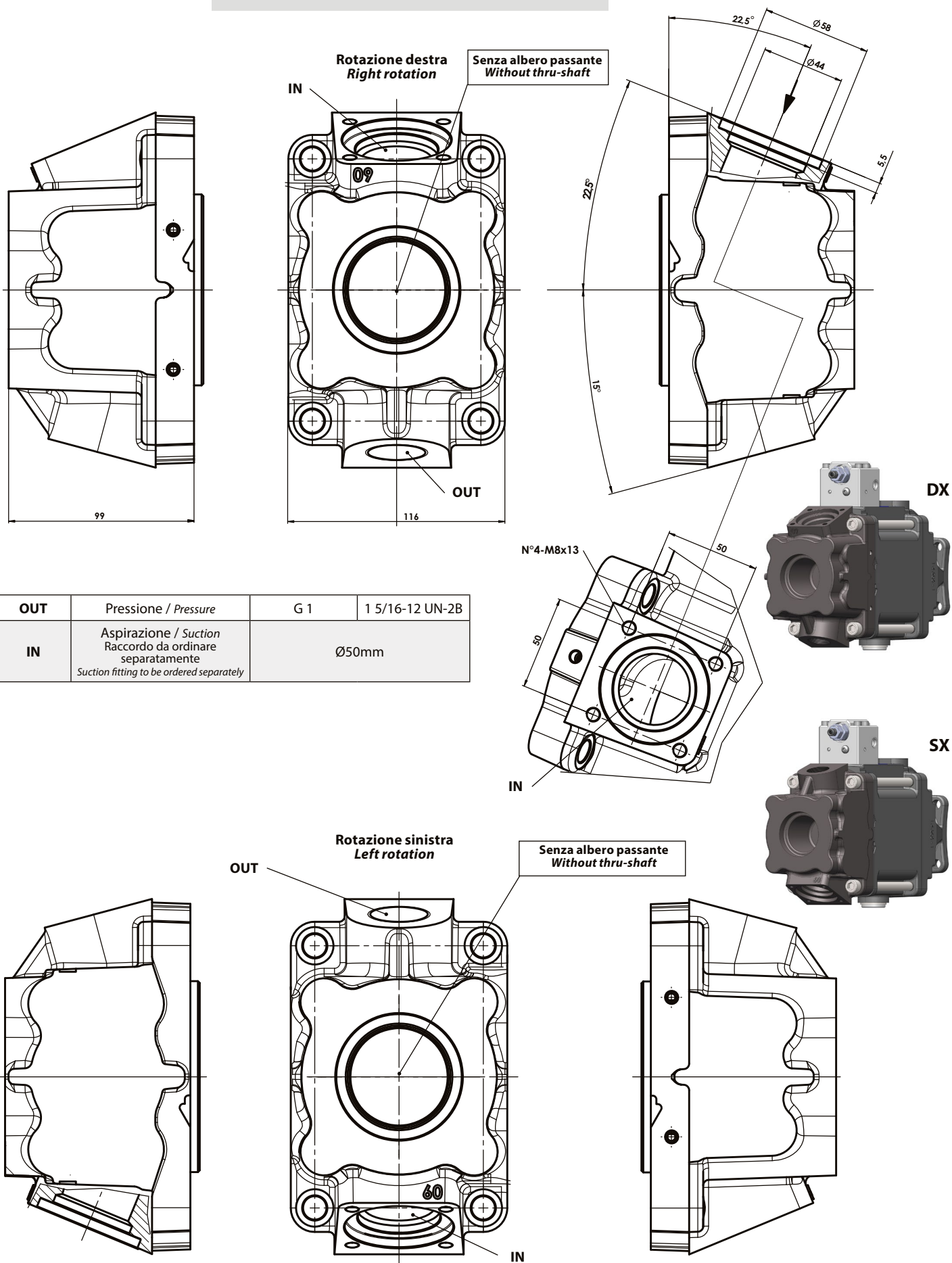


## Fondello posteriore

*Rear cover*

## PPV 60 - RV

**Radiale verticale senza albero passante**  
*Vertical radial without thru-shaft*

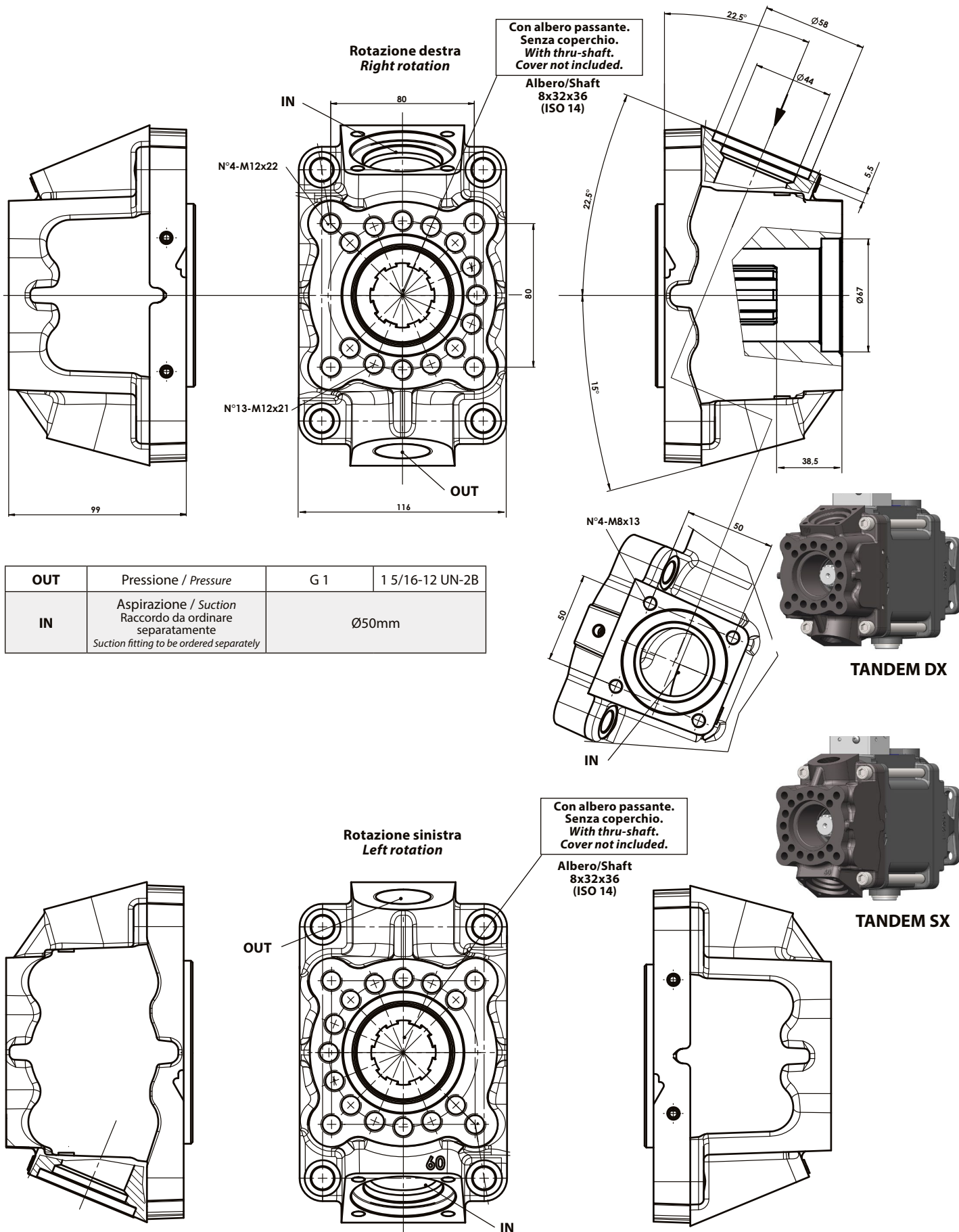


# Fondello posteriore

Rear cover

**PPV 60 - PV**

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



# Fondello posteriore

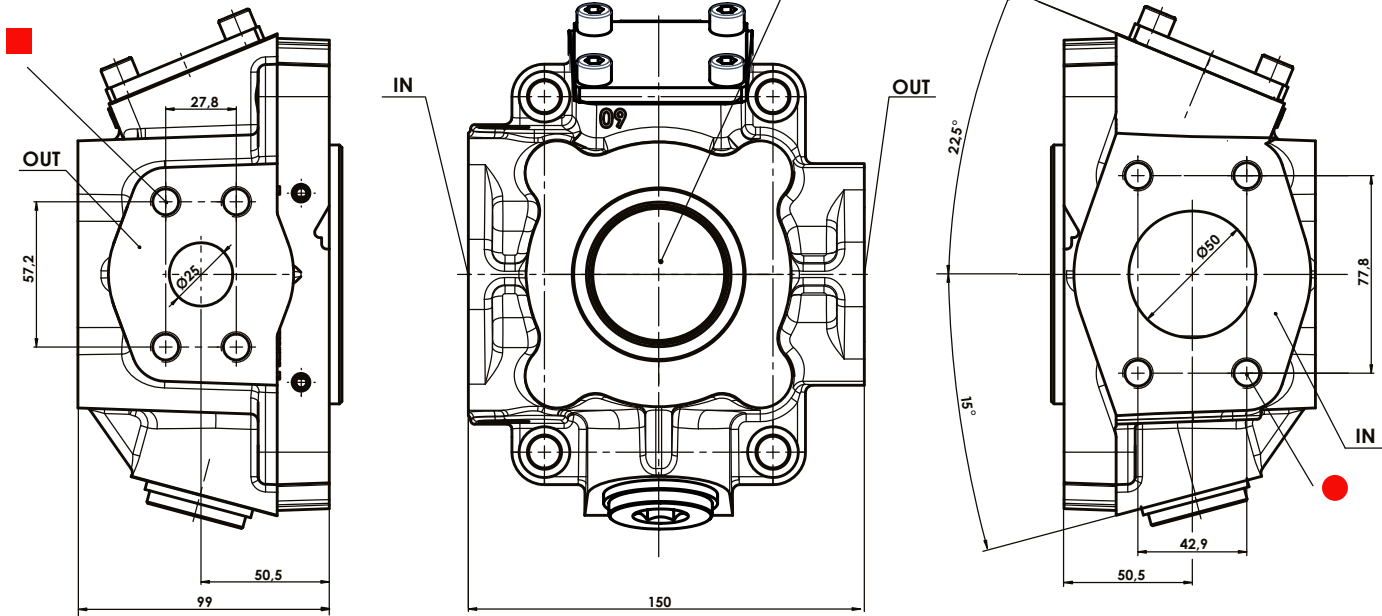
Rear cover

PPV 60 - RO

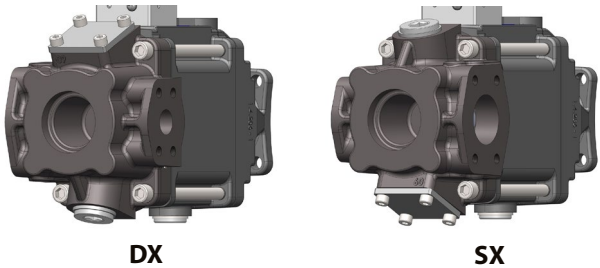
Radiale orizzontale SAE senza albero passante  
Horizontal SAE radial without thru-shaft

Rotazione destra  
Right rotation

Senza albero passante.  
Without thru-shaft.

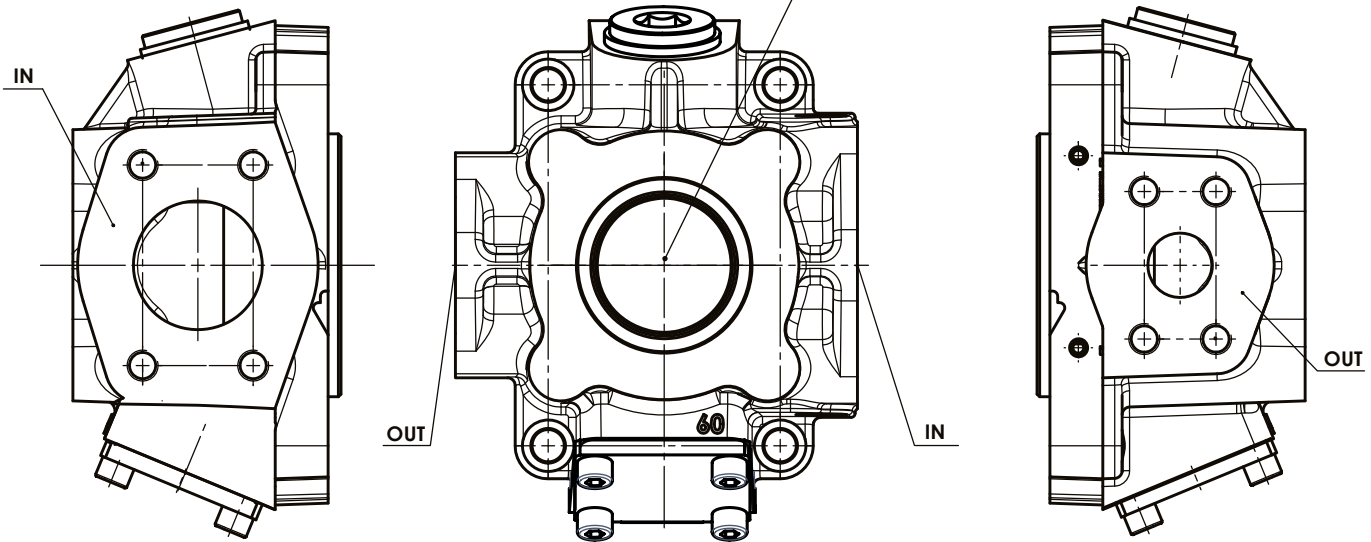


|     |                        |             |       |            |
|-----|------------------------|-------------|-------|------------|
| OUT | Pressione<br>Pressure  | 1" SAE 6000 | ■ M12 | ■ 7/16"UNC |
| IN  | Aspirazione<br>Suction | 2" SAE 3000 | ● M12 | ● 1/2"UNC  |



Rotazione sinistra  
Left rotation

Senza albero passante.  
Without thru-shaft.

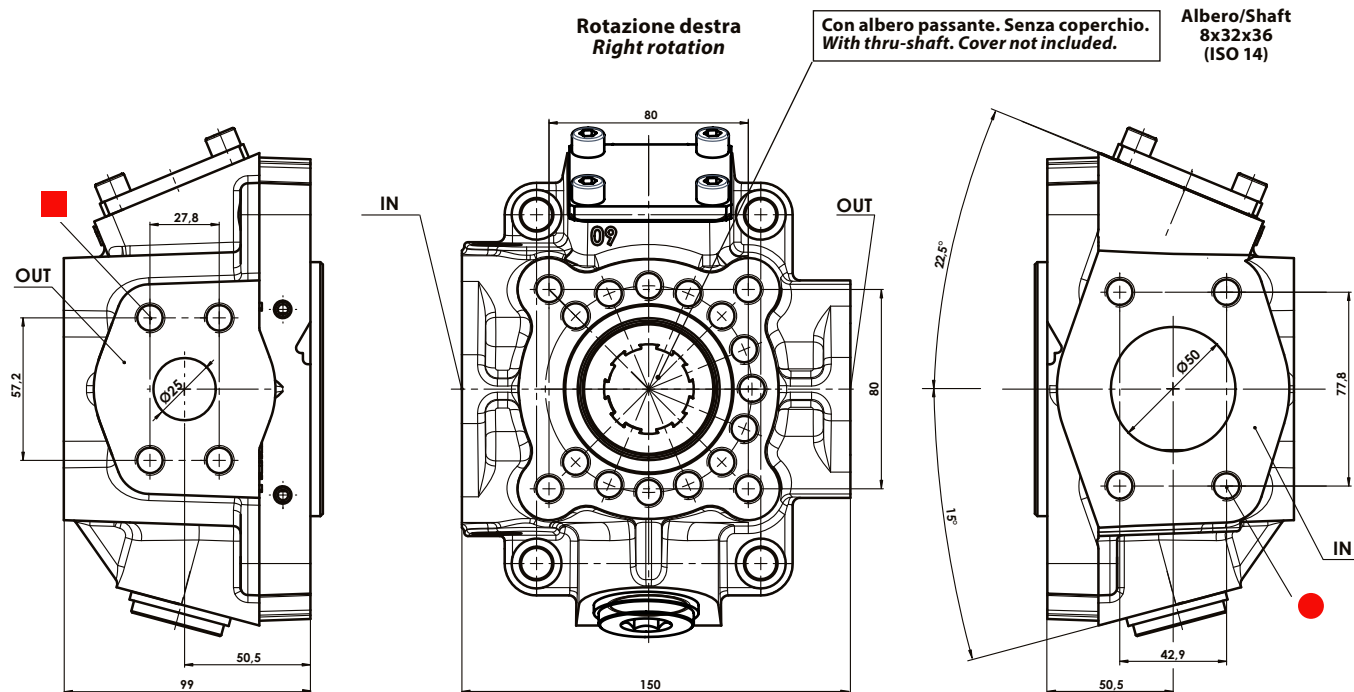


## Fondello posteriore

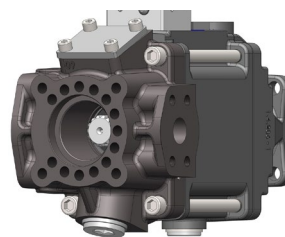
Rear cover

**PPV 60 - PO**

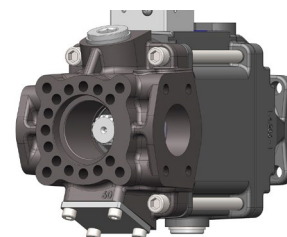
### Radiale orizzontale SAE con albero passante (TANDEM) Horizontal SAE radial with thru-shaft



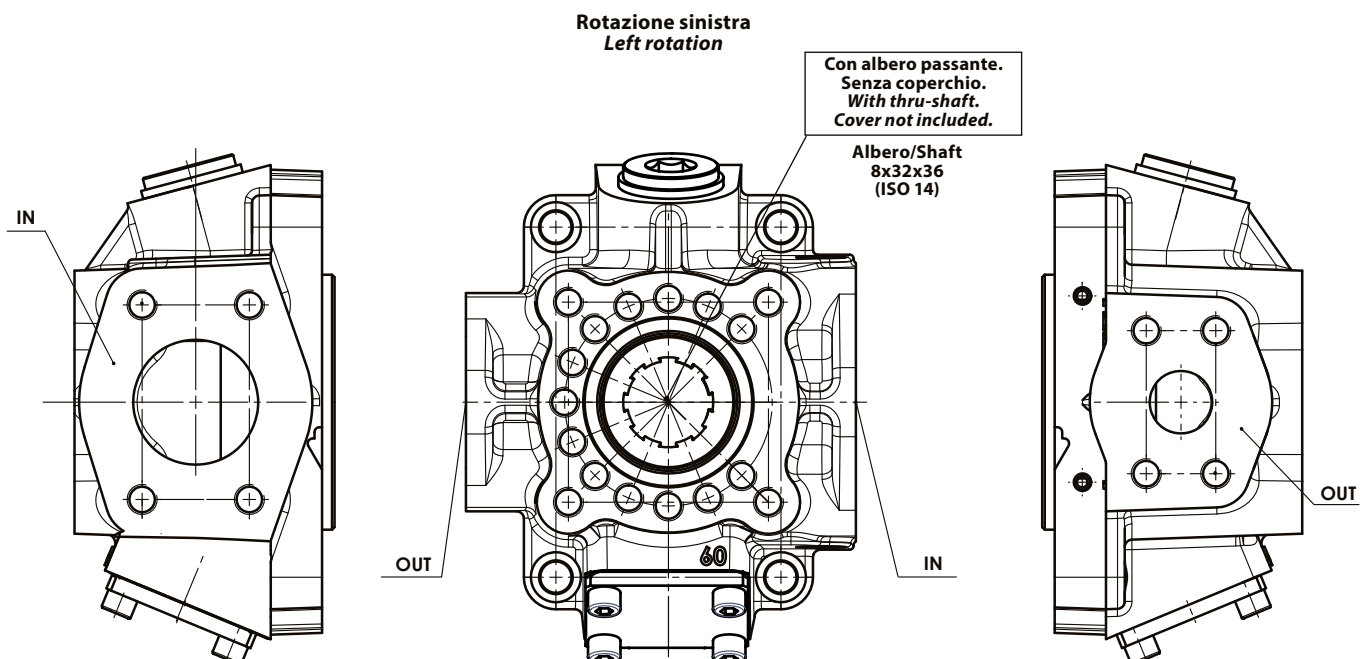
|            |                        |                 |                                        |                                           |
|------------|------------------------|-----------------|----------------------------------------|-------------------------------------------|
| <b>OUT</b> | Pressione<br>Pressure  | 1" SAE 6000     | <span style="color: red;">■</span> M12 | <span style="color: red;">■</span> 1/2"UN |
| <b>IN</b>  | Aspirazione<br>Suction | 2 1/2" SAE 3000 | <span style="color: red;">●</span> M12 | <span style="color: red;">●</span> 1/2"UN |

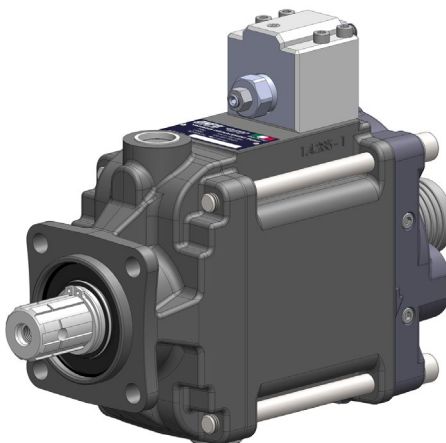


**TANDEM DX**

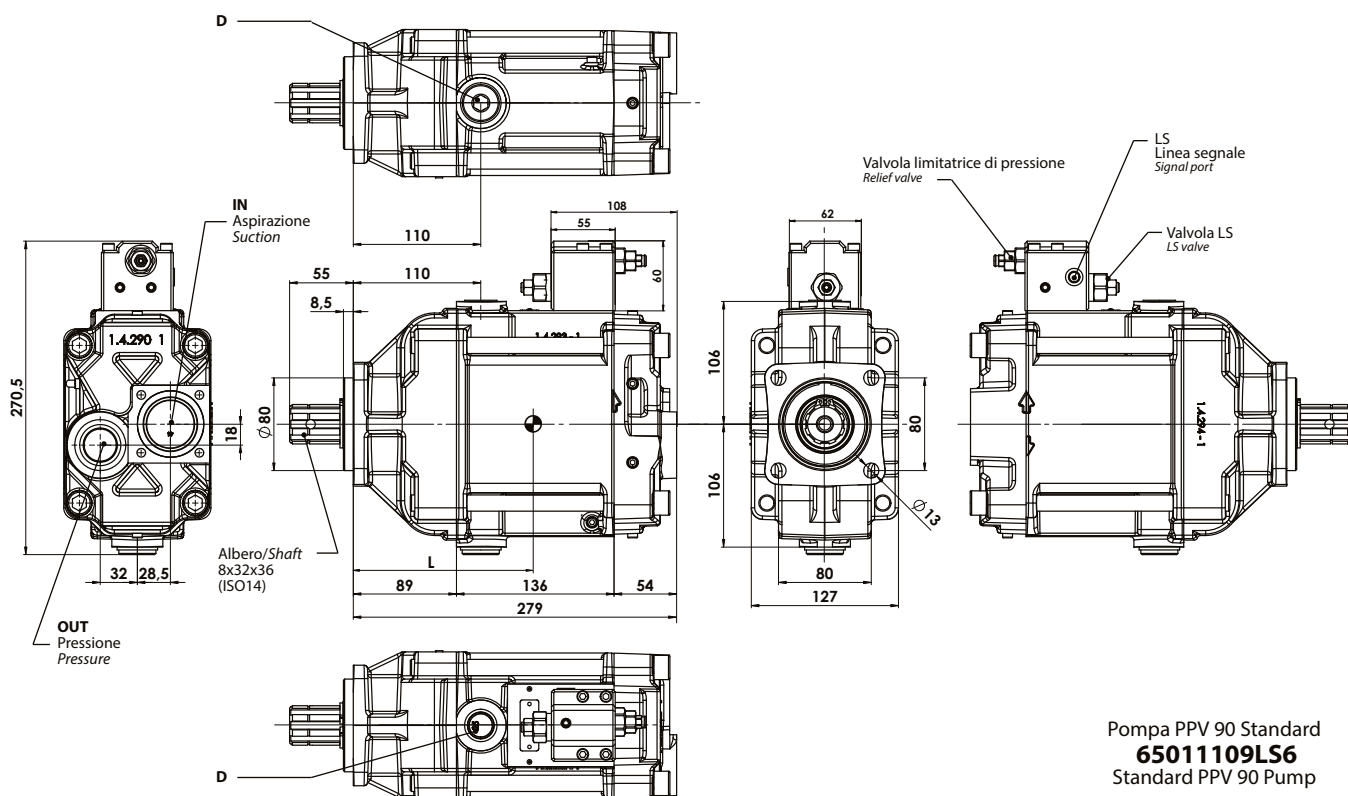


**TANDEM SX**





## Ingombro / Dimensions



Pompa PPV 90 Standard  
**65011109LS6**  
 Standard PPV 90 Pump

## Dati tecnici / Technical data

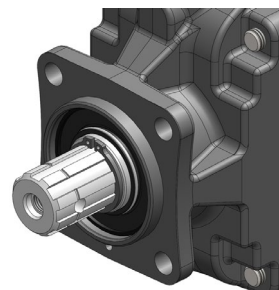
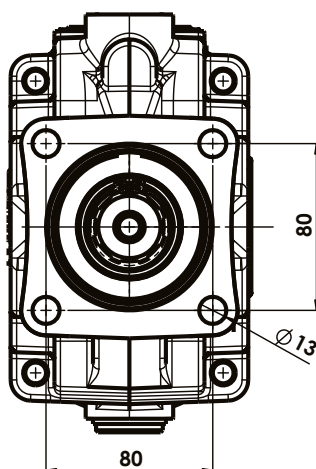
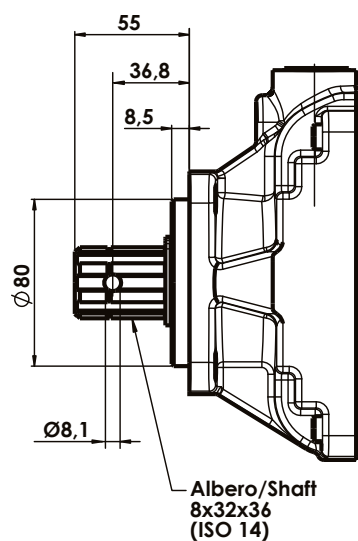
|     |                                                                                                         | BSPG (GAS)          | UNF             |
|-----|---------------------------------------------------------------------------------------------------------|---------------------|-----------------|
| 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<br>Raccordo da ordinare separatamente<br>Suction fitting to be ordered separately | Ø50 mm              |                 |
| L   | Baricentro / Center of mass                                                                             | 148 mm circa/approx |                 |

# Flangiatura anteriore

## Front flange

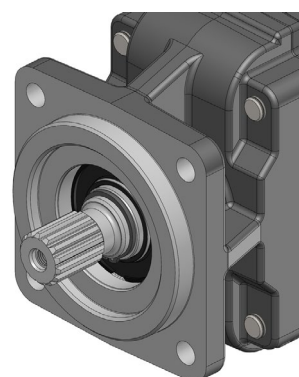
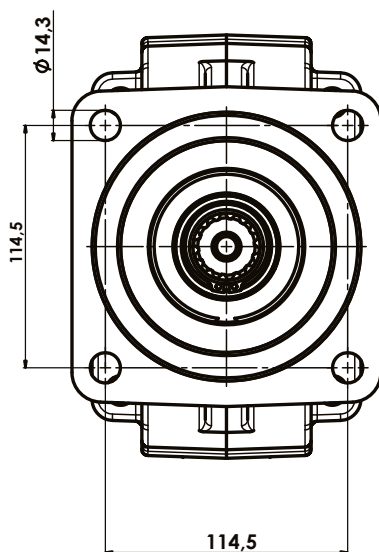
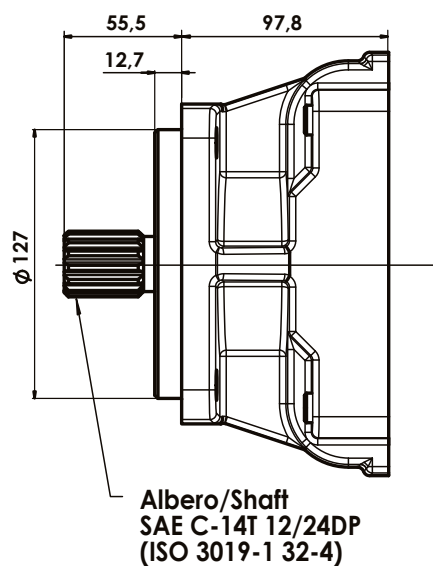
### PPV 90 - 110

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**

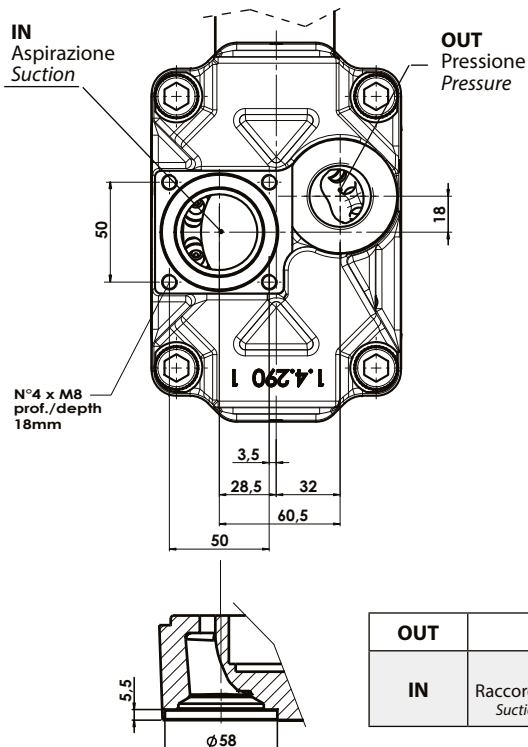
# Fondello posteriore

Rear cover

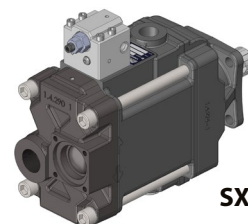
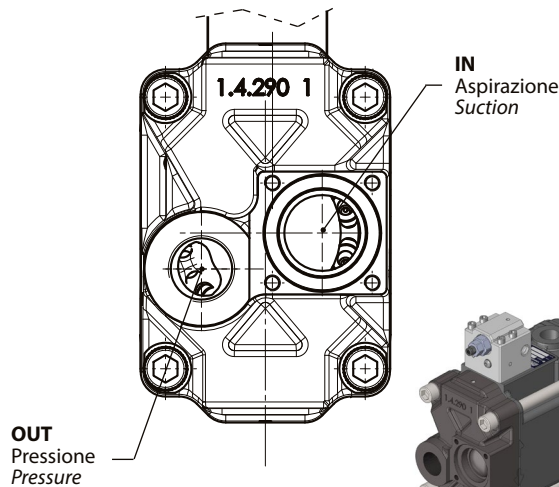
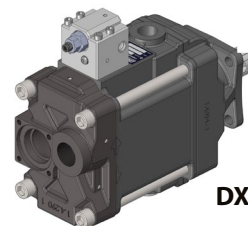
**PPV 90 - 110 - AX**

## Assiale / Axial (STANDARD)

**Rotazione destra / Right rotation**  
**Senza limitazione / No adjustment**



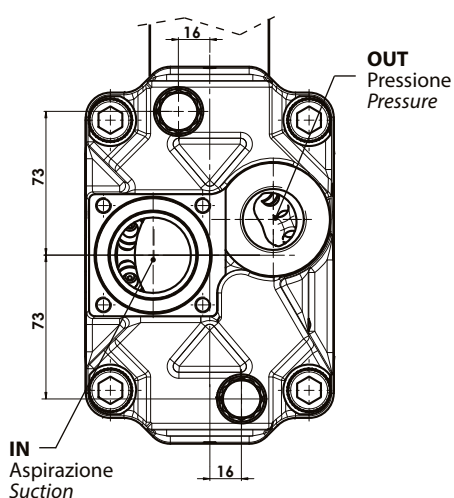
**Rotazione sinistra / Left rotation**  
**Senza limitazione / No adjustment**


**SX**

**DX**

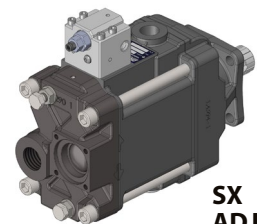
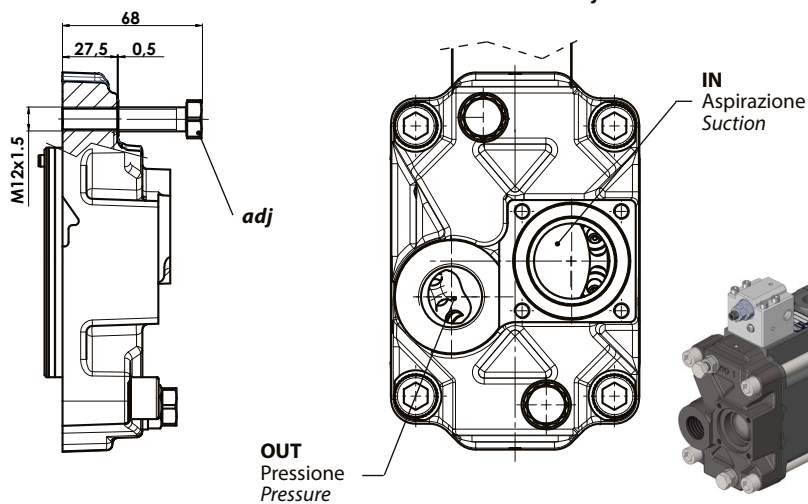
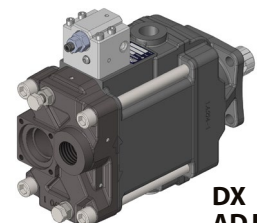
|     |                                                                                                         |       |                 |
|-----|---------------------------------------------------------------------------------------------------------|-------|-----------------|
| OUT | Pressione / Pressure                                                                                    | G 1   | 1 5/16-12 UN-2B |
| IN  | Aspirazione / Suction<br>Raccordo da ordinare separatamente<br>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**

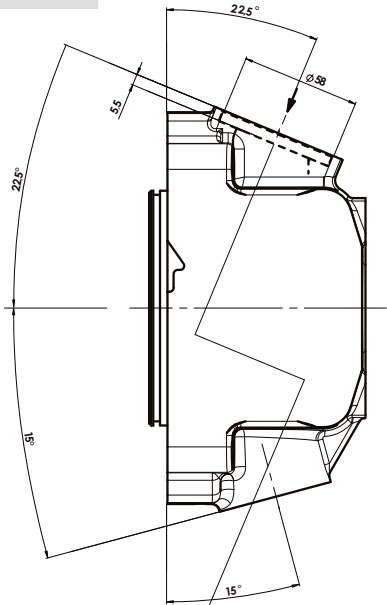
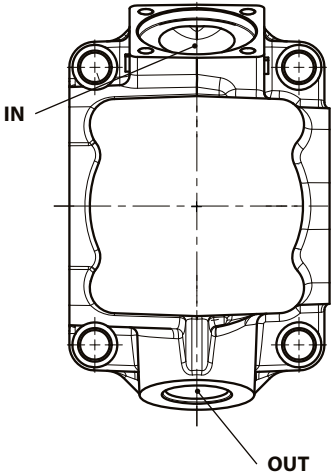
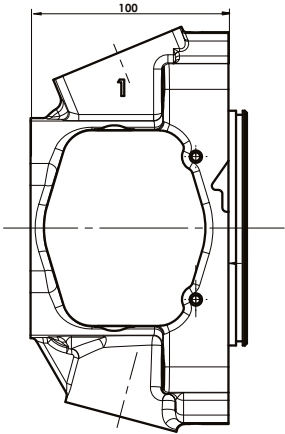
|     |                                                                                                         |       |                 |
|-----|---------------------------------------------------------------------------------------------------------|-------|-----------------|
| OUT | Pressione / Pressure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

Radiale verticale senza albero passante

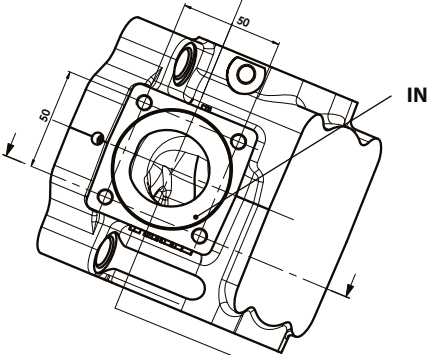
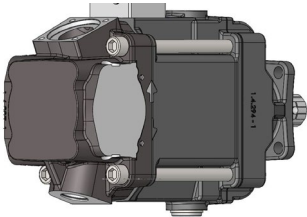
Vertical radial without thru-shaft

Rotazione destra

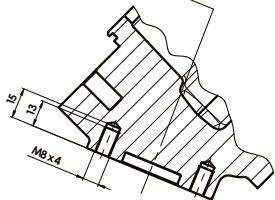
Right rotation



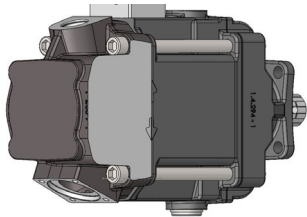
DX



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

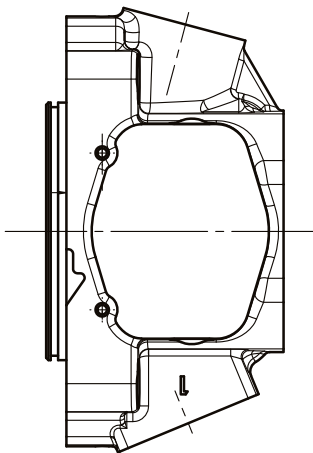
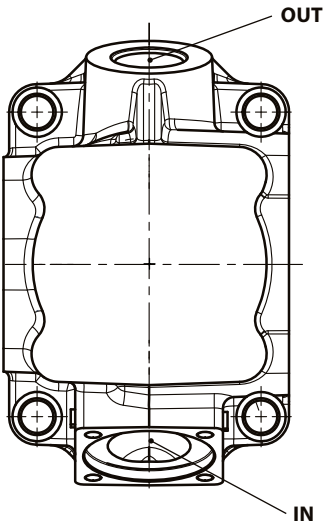
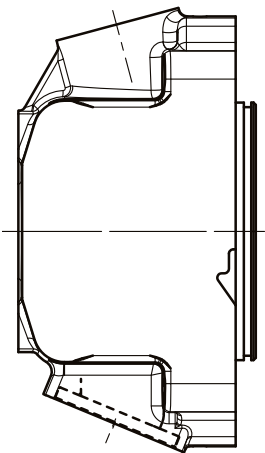


SX



Rotazione sinistra

Left rotation

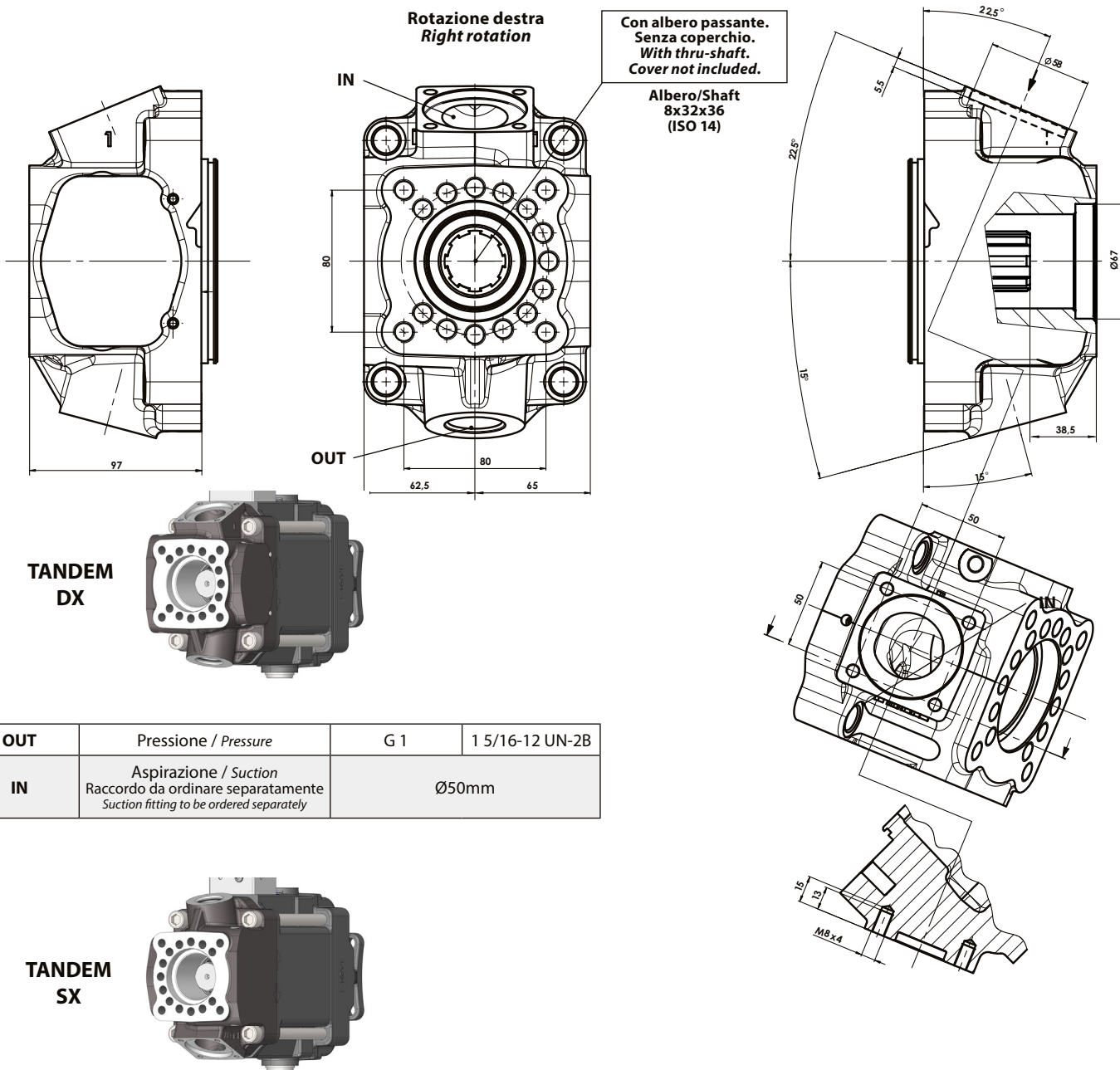


# Fondello posteriore

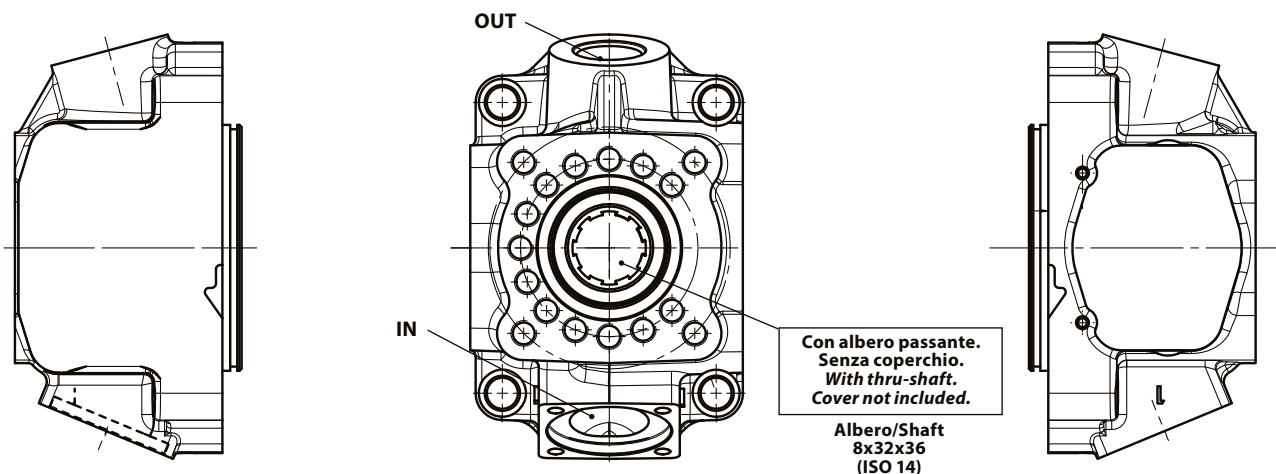
Rear cover

**PPV 90 - 110 - PV**

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

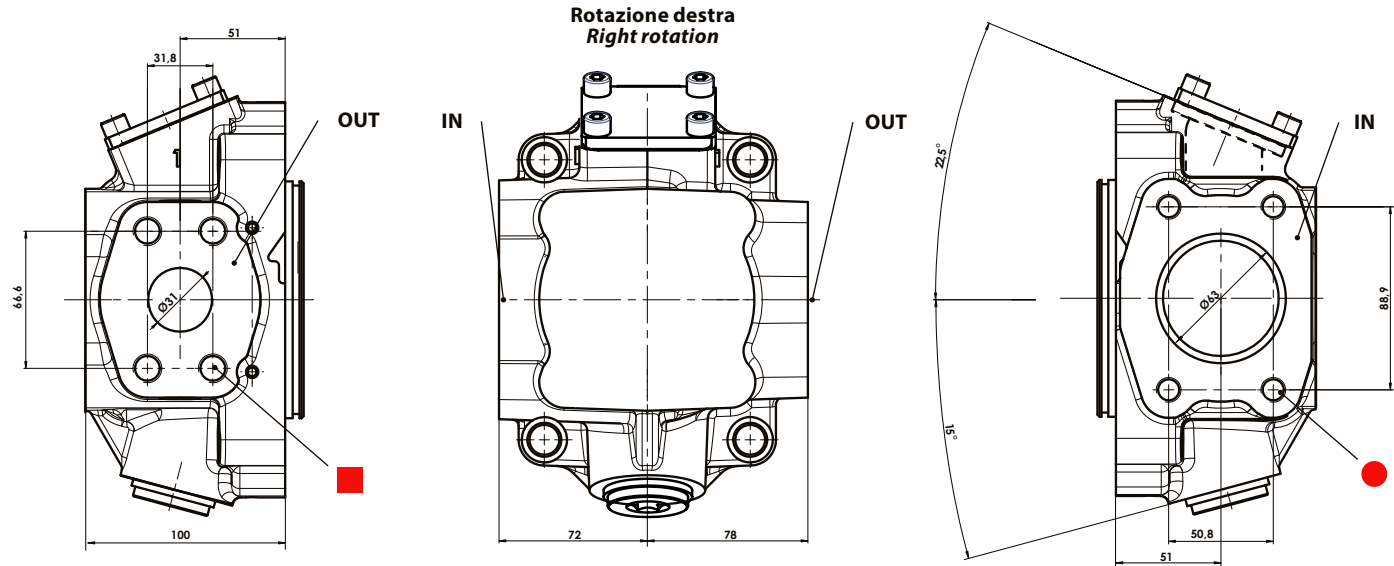


Rotazione sinistra  
Left rotation

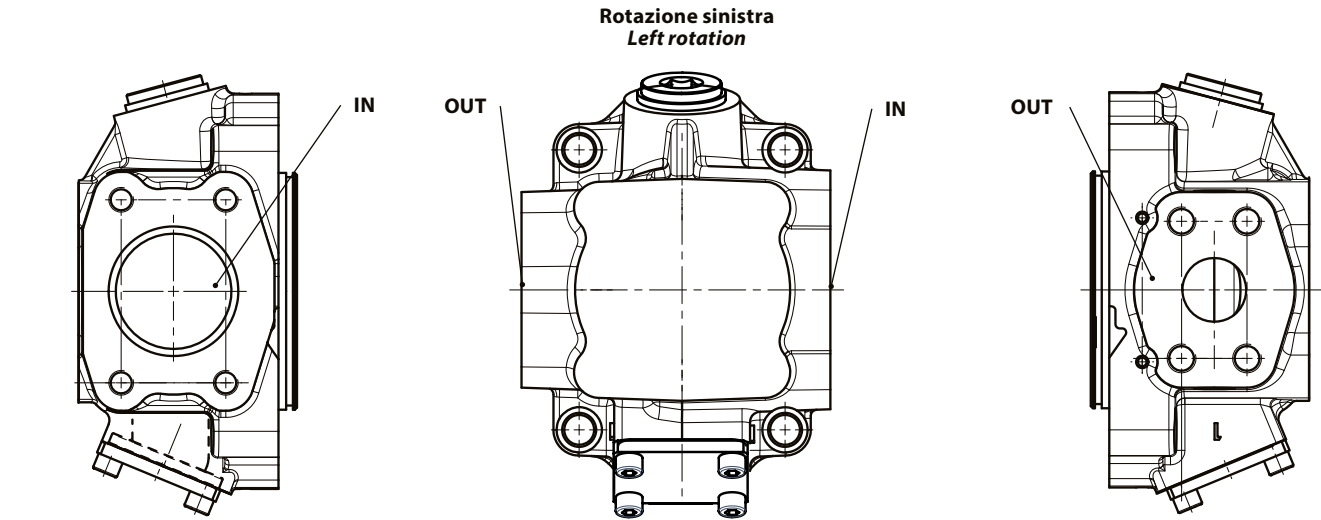
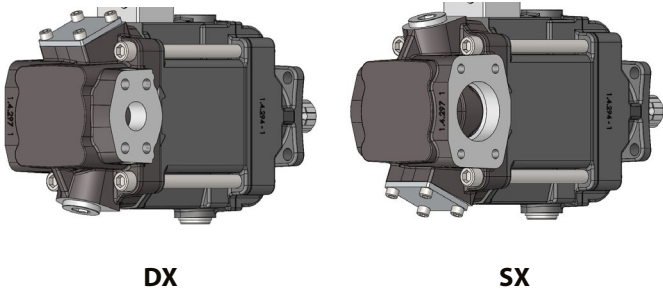


Radiale orizzontale SAE senza albero passante

Horizontal SAE radial without thru-shaft



|     |                        |                 |                                                                                         |                                                                                            |
|-----|------------------------|-----------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| OUT | Pressione<br>Pressure  | 1 1/4" SAE 6000 |  M14 |  1/2"UN |
| IN  | Aspirazione<br>Suction | 2 1/2" SAE 3000 |  M12 |  1/2"UN |



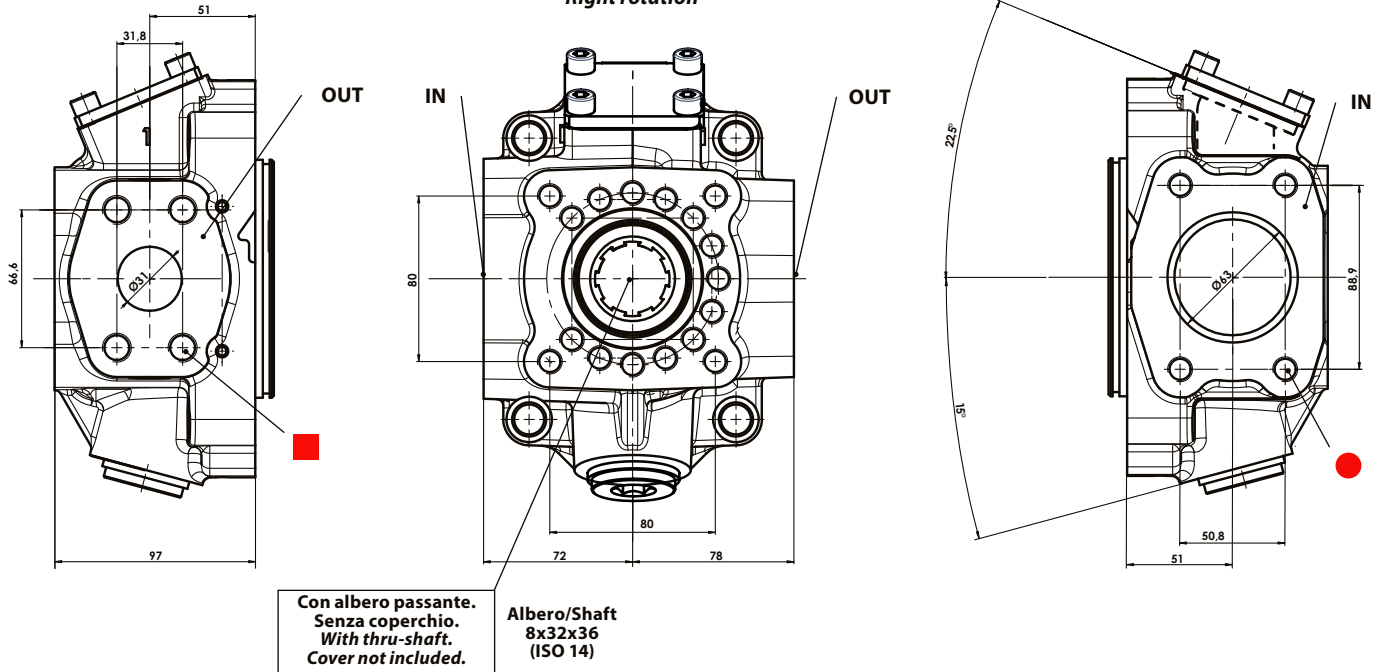
# Fondello posteriore

Rear cover

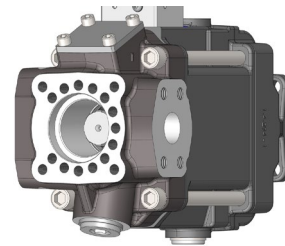
**PPV 90 - 110 - PO**

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

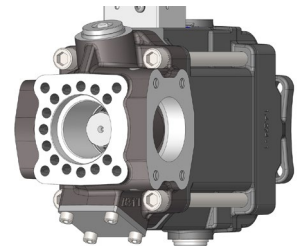
Rotazione destra  
Right rotation



|            |                        |                 |                                        |                                            |
|------------|------------------------|-----------------|----------------------------------------|--------------------------------------------|
| <b>OUT</b> | Pressione<br>Pressure  | 1 1/4" SAE 6000 | <span style="color: red;">■</span> M14 | <span style="color: red;">■</span> 1/2"UNC |
| <b>IN</b>  | Aspirazione<br>Suction | 2 1/2" SAE 3000 | <span style="color: red;">●</span> M12 | <span style="color: red;">●</span> 1/2"UNC |

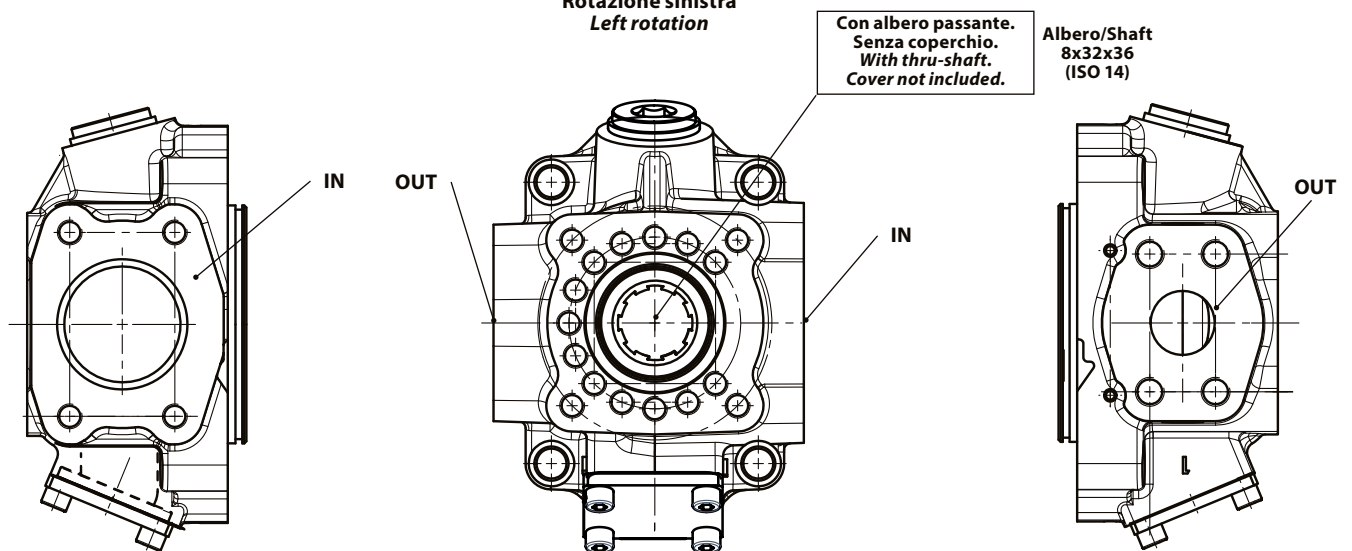


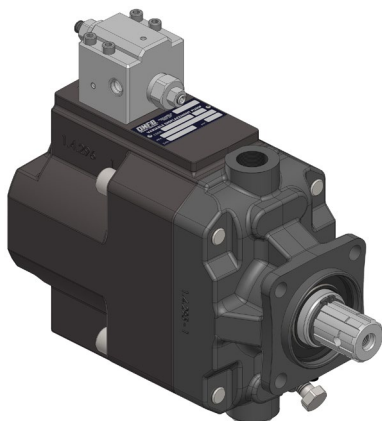
TANDEM DX



TANDEM SX

Rotazione sinistra  
Left rotation

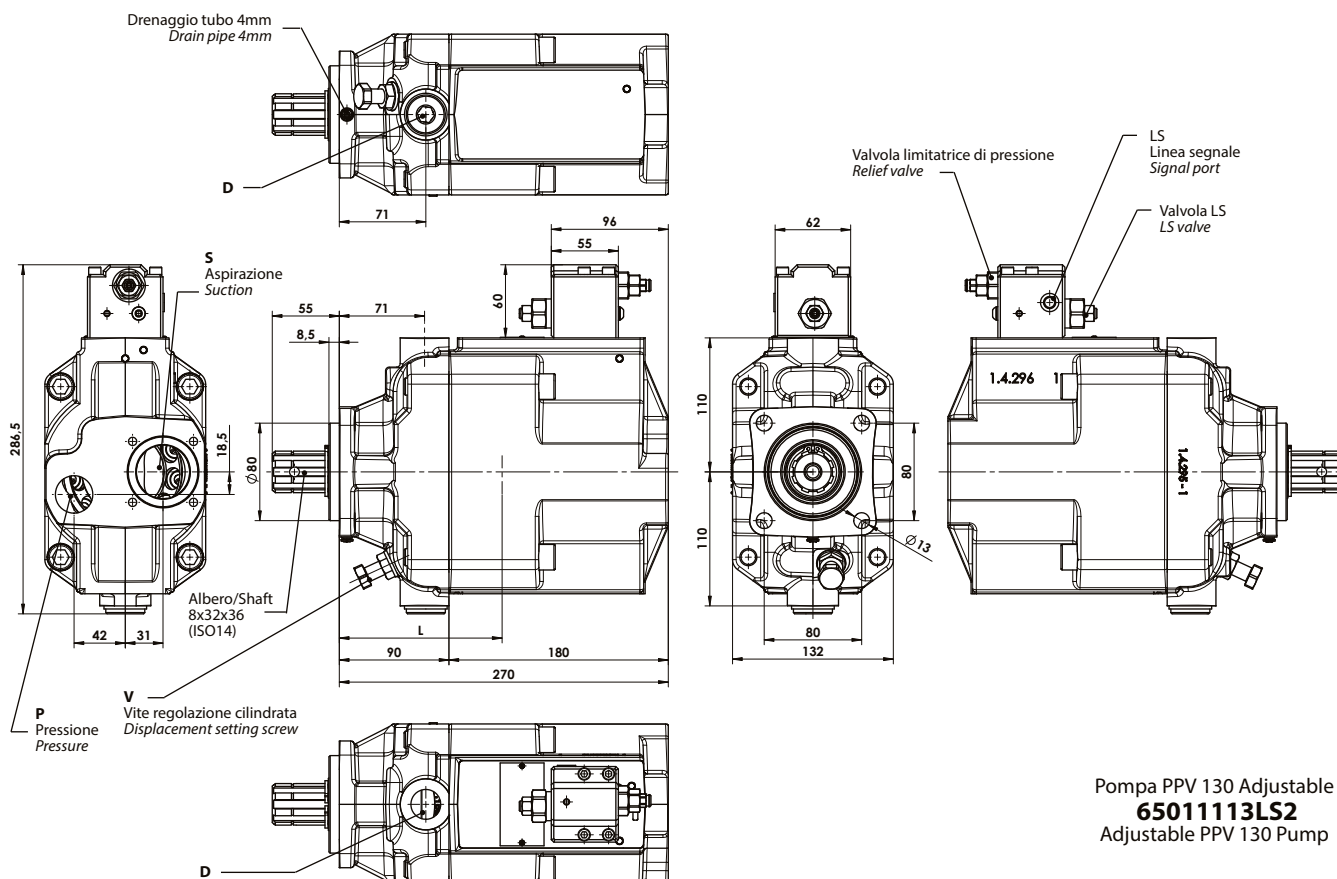




**Dati tecnici / Technical data**

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

**Ingombro / Dimensions**



Pompa PPV 130 Adjustable  
**65011113LS2**  
Adjustable PPV 130 Pump



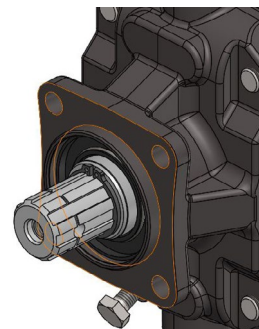
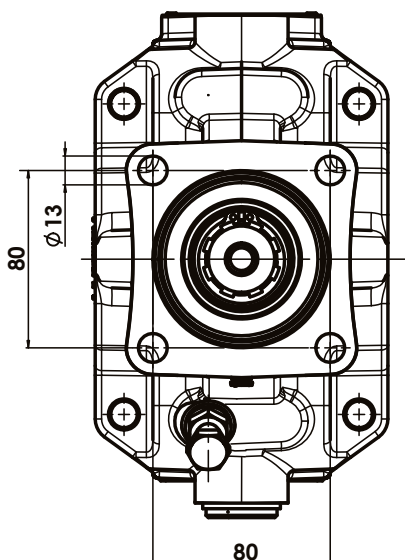
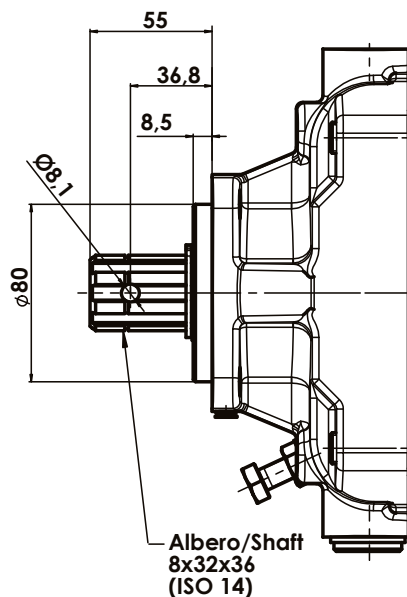
**L'inversione della rotazione della pompa può essere effettuata solo presso il produttore o distributore autorizzato.**  
*The change of pump rotation can only be carried out at the authorized producer's or distributor's.*

# Flangiatura anteriore

## Front flange

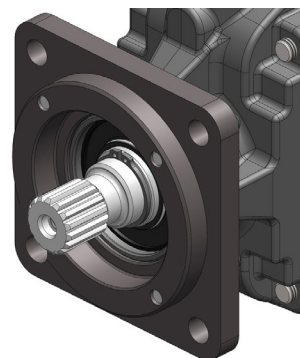
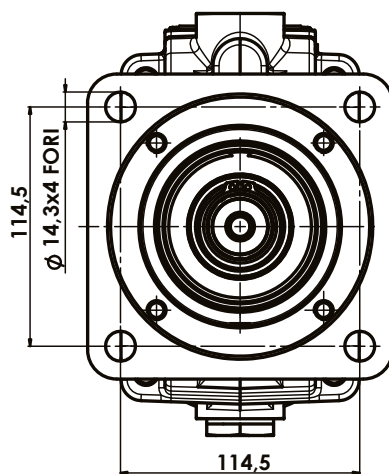
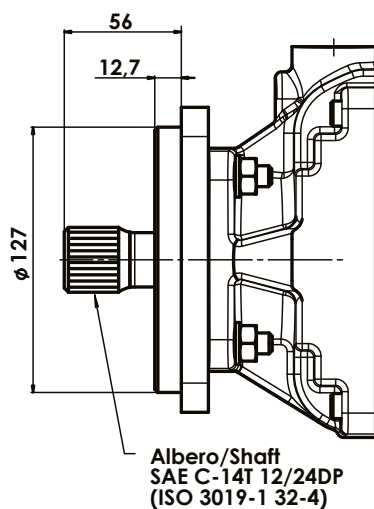
### PPV 130 adjustable

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

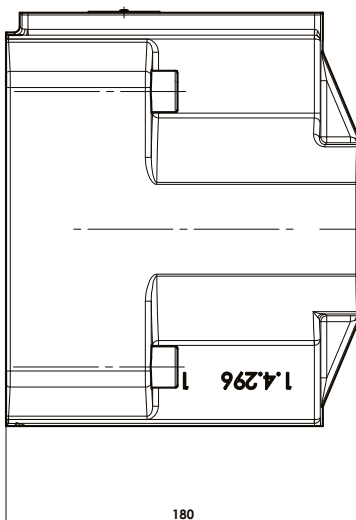
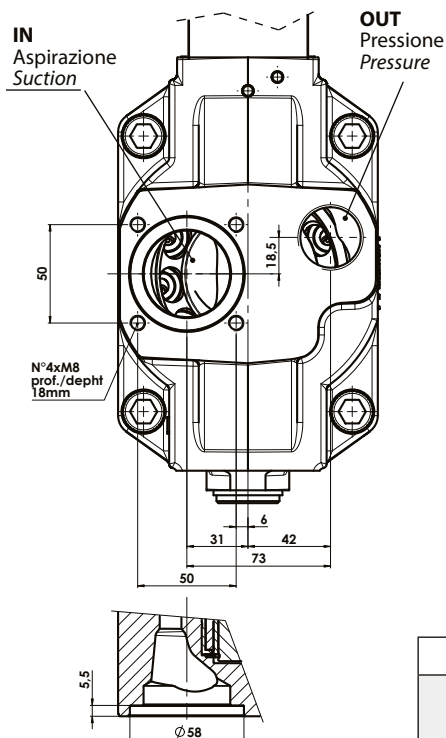
## Fondello posteriore

Rear cover

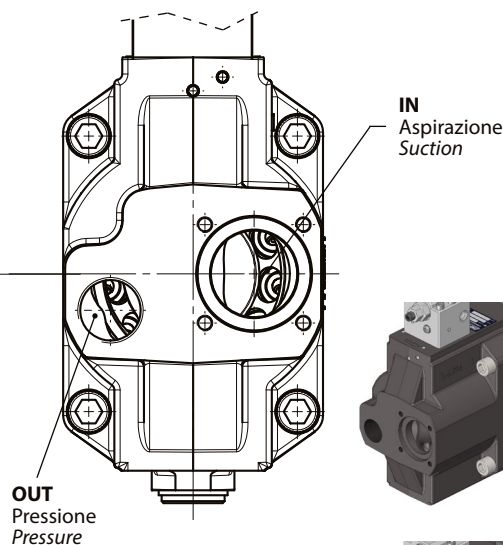
## PPV 130 adjustable - AX - PV

### Assiale / Axial (STANDARD)

Rotazione destra / Right rotation  
Con limitazione / With adjustment



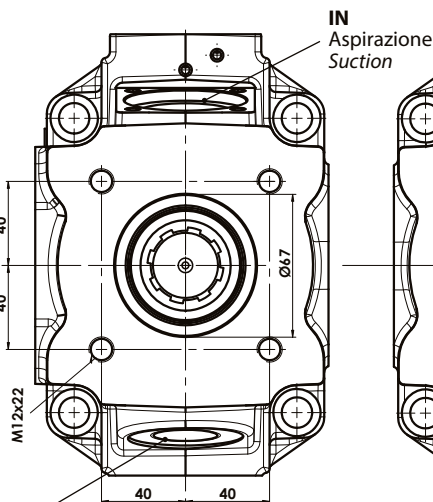
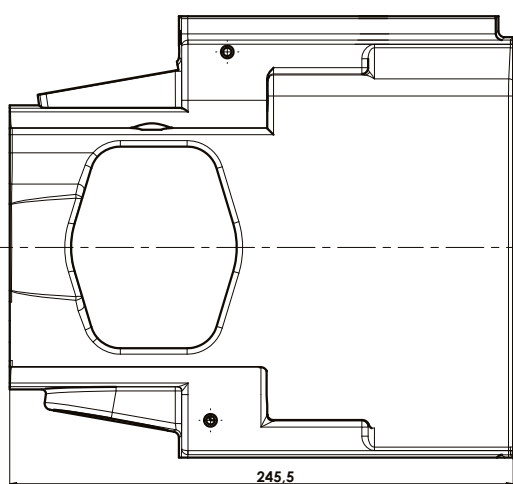
Rotazione sinistra / Left rotation  
Con limitazione / With adjustment



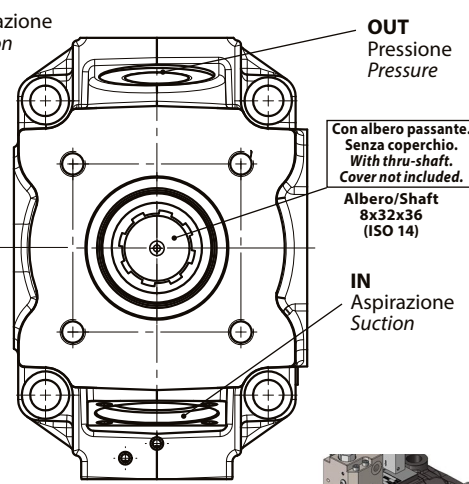
|     |                                                                                                         |       |
|-----|---------------------------------------------------------------------------------------------------------|-------|
| OUT | Pressione / Pressure                                                                                    | G 1   |
| IN  | Aspirazione / Suction<br>Raccordo da ordinare separatamente<br>Suction fitting to be ordered separately | Ø50mm |

### Radiale verticale con albero passante (TANDEM)

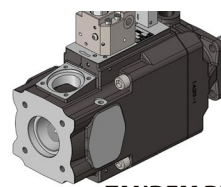
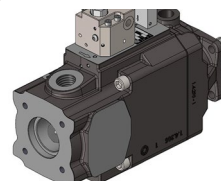
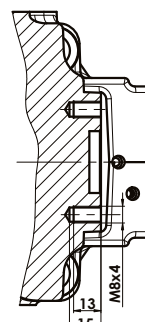
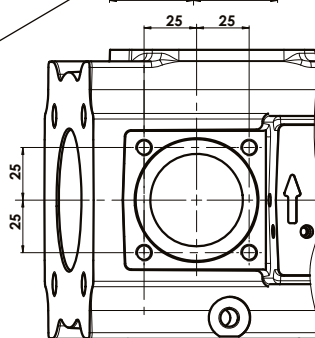
Rotazione destra / Right rotation  
Con limitazione / With adjustment



Rotazione sinistra / Left rotation  
Con limitazione / With adjustment



OUT  
Pressione  
Pressure



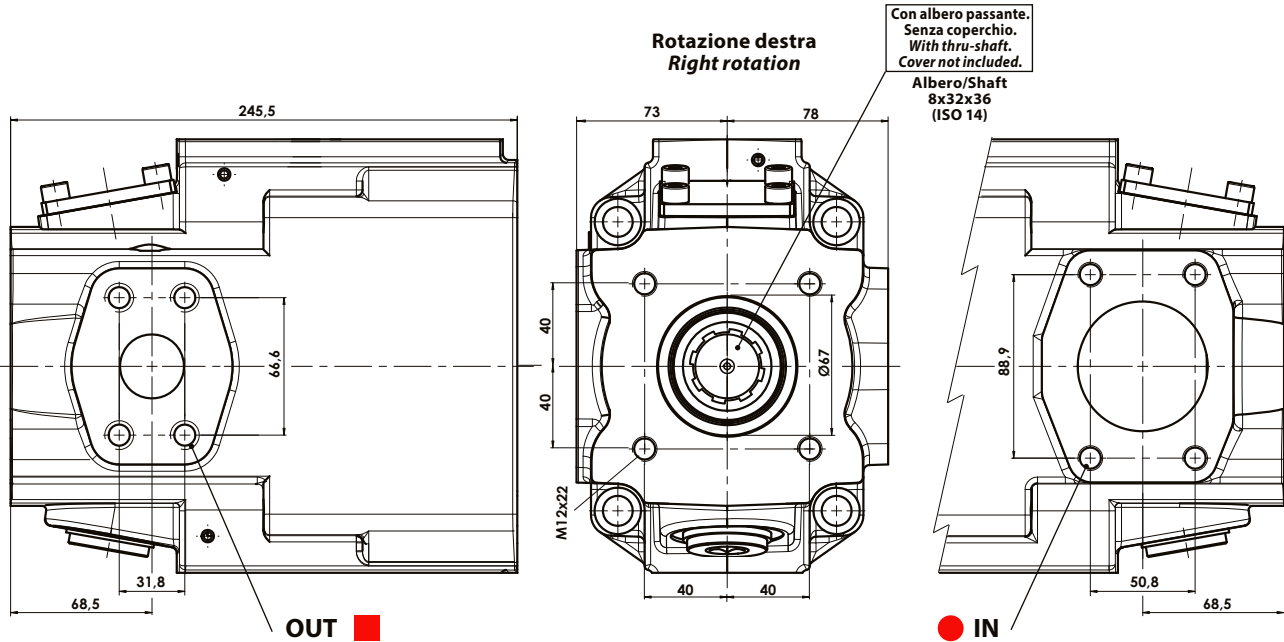
|     |                                                                                                         |       |
|-----|---------------------------------------------------------------------------------------------------------|-------|
| OUT | Pressione / Pressure                                                                                    | G 1   |
| IN  | Aspirazione / Suction<br>Raccordo da ordinare separatamente<br>Suction fitting to be ordered separately | Ø50mm |

# Fondello posteriore

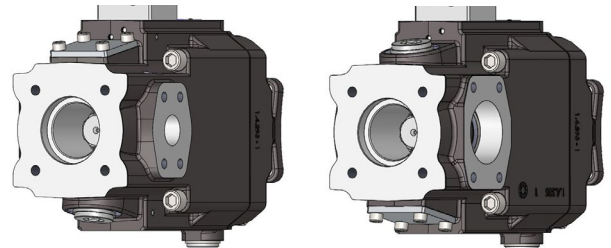
## Rear cover

### PPV 130 adjustable - PO

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

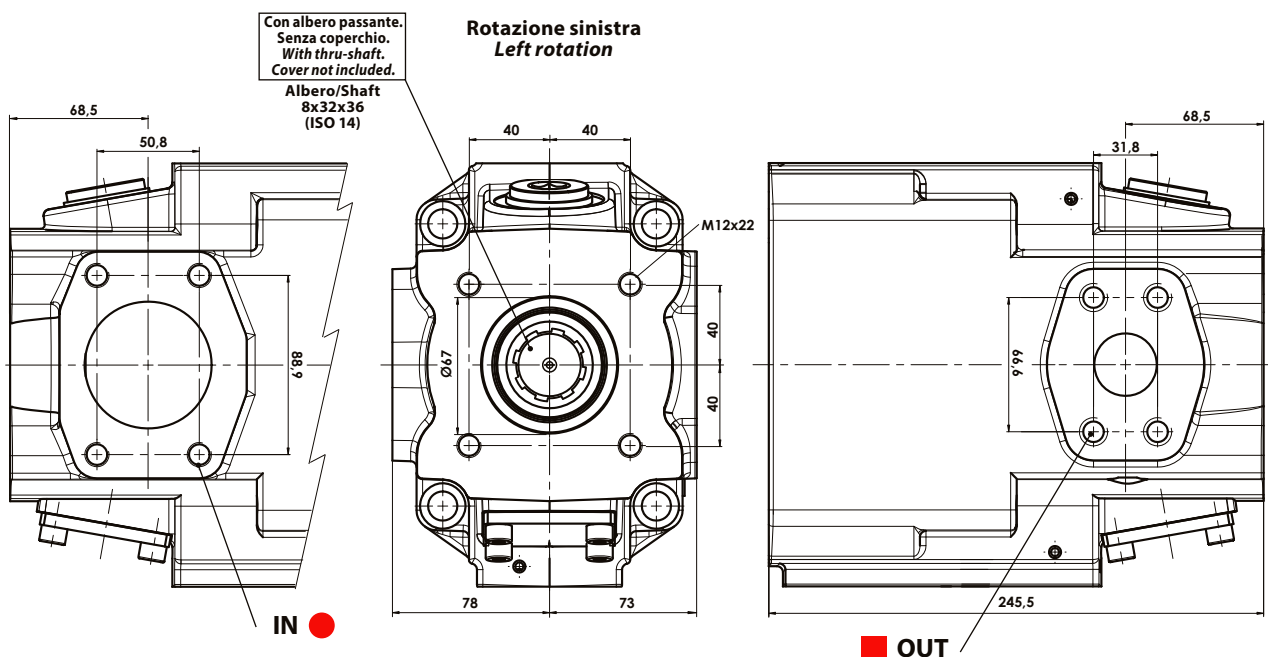


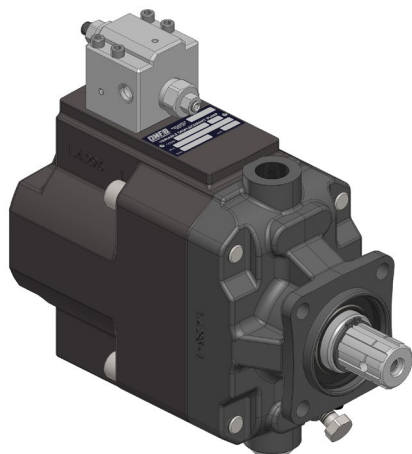
|            |                               |                 |       |
|------------|-------------------------------|-----------------|-------|
| <b>OUT</b> | Pressione<br><i>Pressure</i>  | 1-1/4" SAE 6000 | ■ M14 |
| <b>IN</b>  | Aspirazione<br><i>Suction</i> | 2 1/2" SAE 3000 | ● M12 |



**TANDEM DX**

**TANDEM SX**

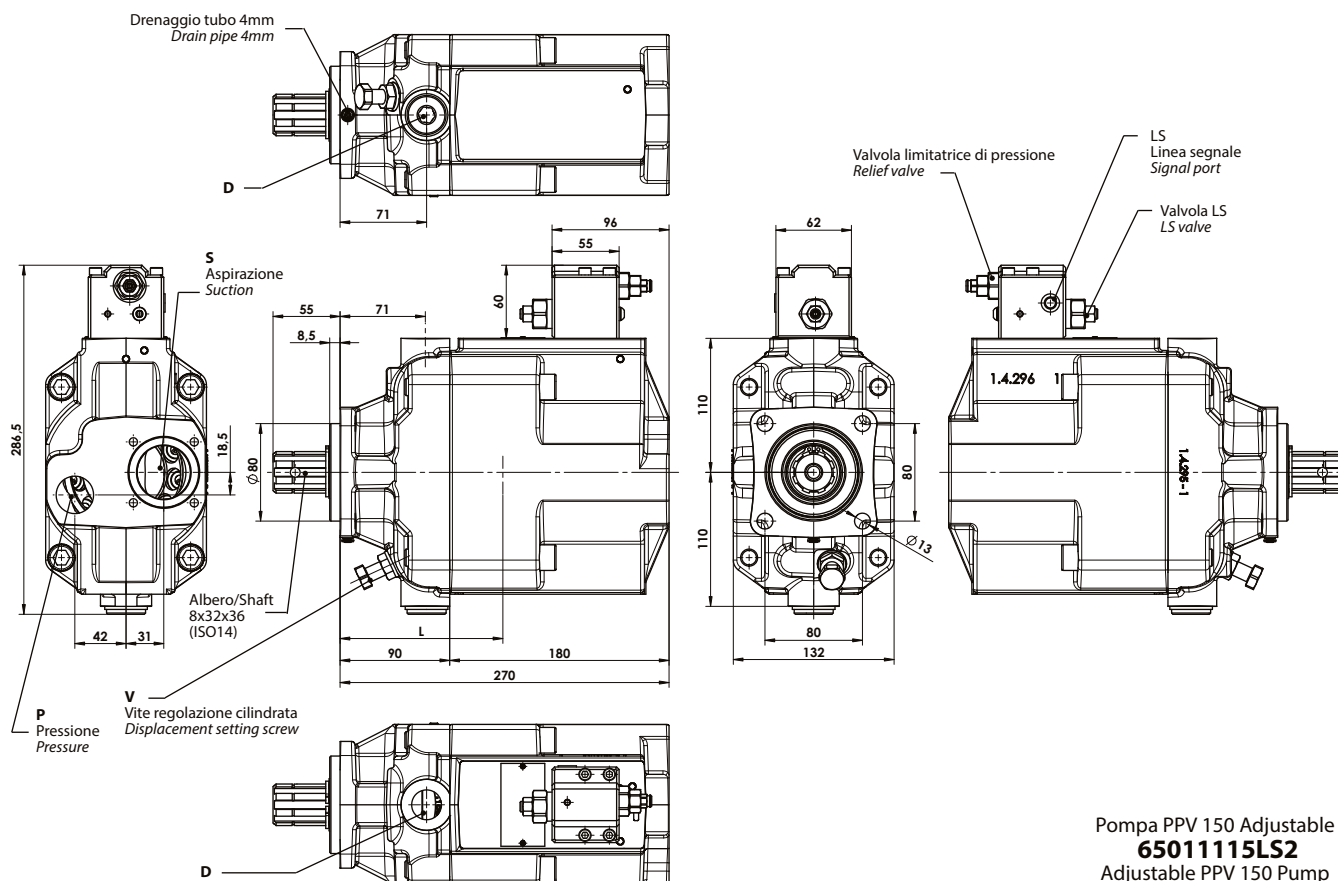




#### Dati tecnici / Technical data

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

#### Ingombro / Dimensions



Pompa PPV 150 Adjustable  
**65011115LS2**  
Adjustable PPV 150 Pump



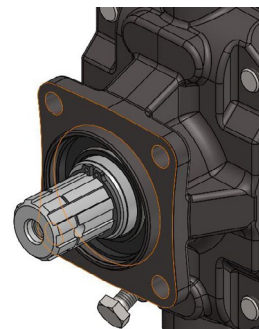
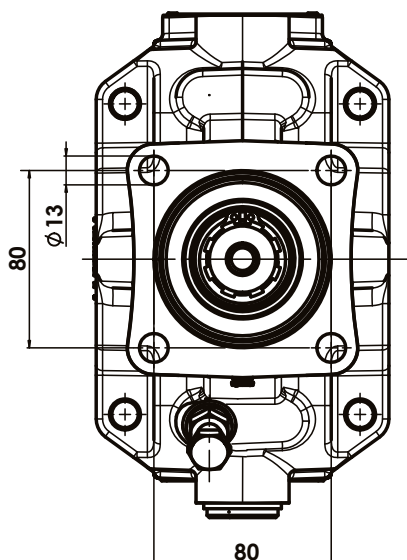
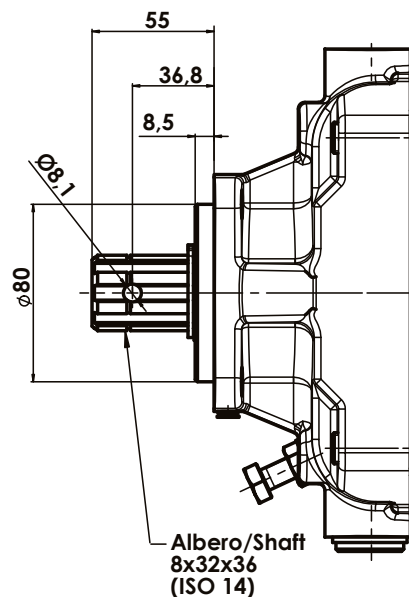
L'inversione della rotazione della pompa può essere effettuata solo presso il produttore o distributore autorizzato.  
*The change of pump rotation can only be carried out at the authorized producer's or distributor's.*

# Flangiatura anteriore

## Front flange

### PPV 150 adjustable

ISO 7653 - Ø 80 - 4fori / holes



Coppia trasmissibile  
massima 900Nm  
Max. torque 900Nm

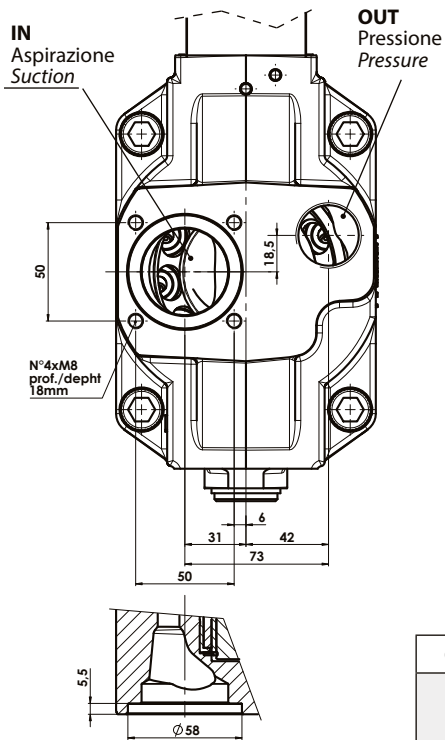
# Fondello posteriore

Rear cover

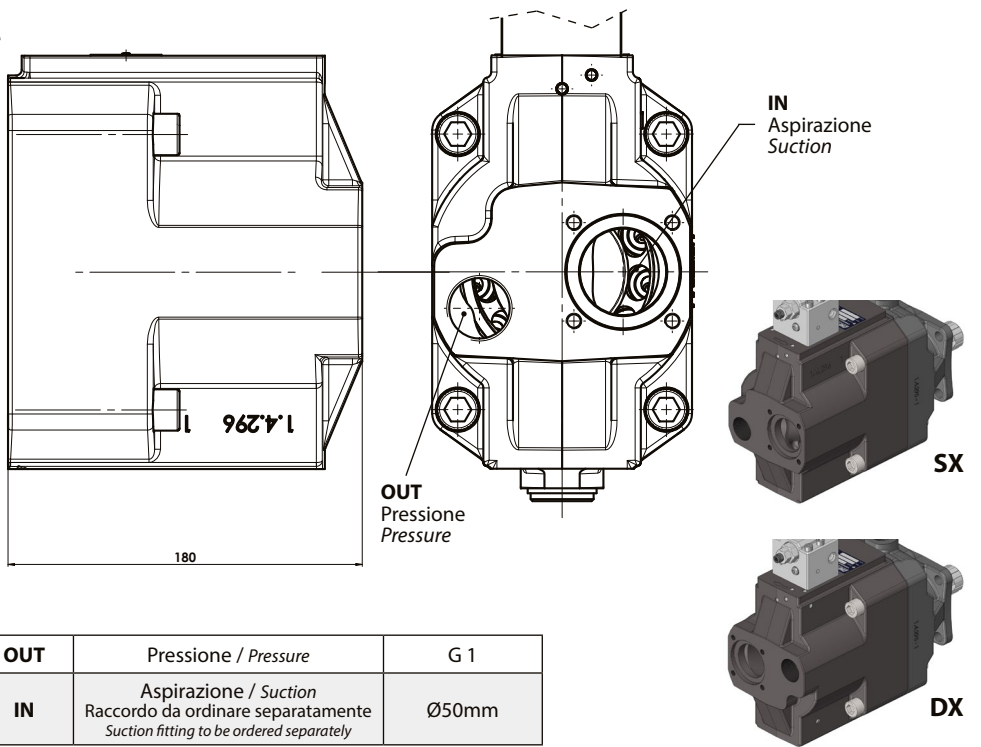
## PPV 150 adjustable

Assiale / Axial (STANDARD)

Rotazione destra / Right rotation  
Con limitazione / With adjustment

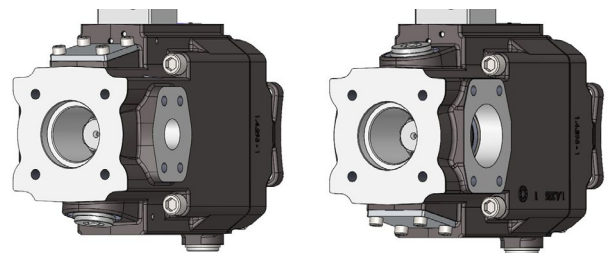
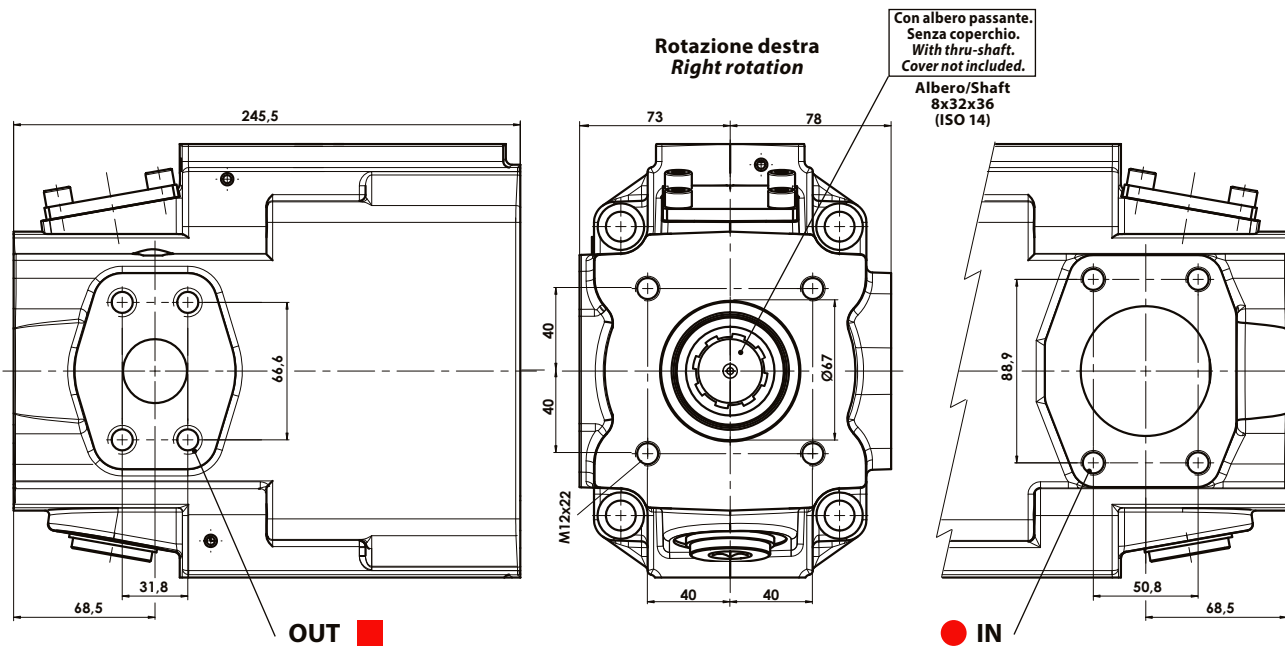


Rotazione sinistra / Left rotation  
Con limitazione / With adjustment



|     |                                                                                                         |       |
|-----|---------------------------------------------------------------------------------------------------------|-------|
| OUT | Pressione / Pressure                                                                                    | G 1   |
| IN  | Aspirazione / Suction<br>Raccordo da ordinare separatamente<br>Suction fitting to be ordered separately | Ø50mm |

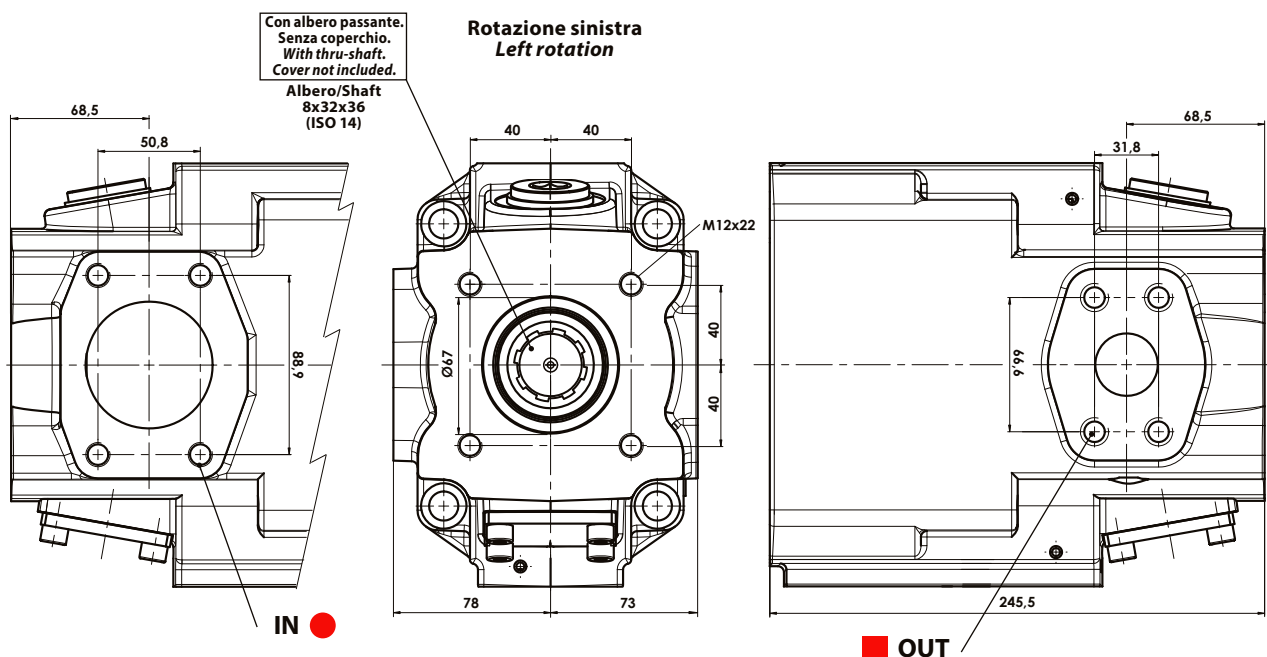
**Radiale orizzontale SAE con albero passante (TANDEM)**  
*Horizontal SAE radial with thru-shaft*



## TANDEM DX

**TANDEM SX**

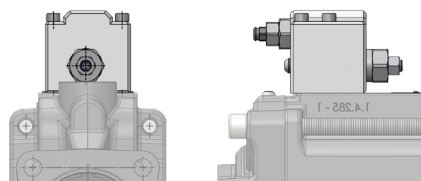
|            |                               |                 |                                                                                         |
|------------|-------------------------------|-----------------|-----------------------------------------------------------------------------------------|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



### 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.*

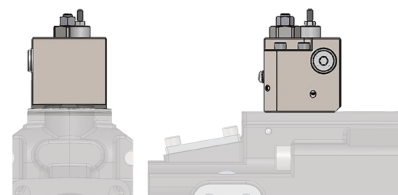


..... pag. 33

### 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.*

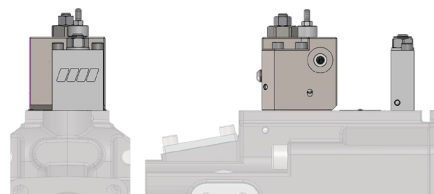


..... pag. 34

### 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

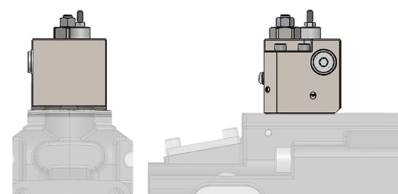
### Regolatore (BE) - Regulator (BE)

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  $\Delta p$  = 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  $\Delta p$  = circuit pressure less signal pressure.

The adjustment range is 15-50 bar.

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

Setting 15 bar/rev.

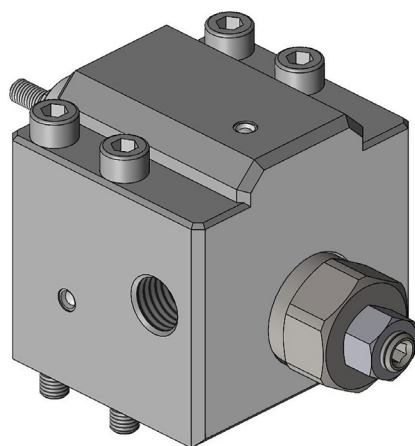
---

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

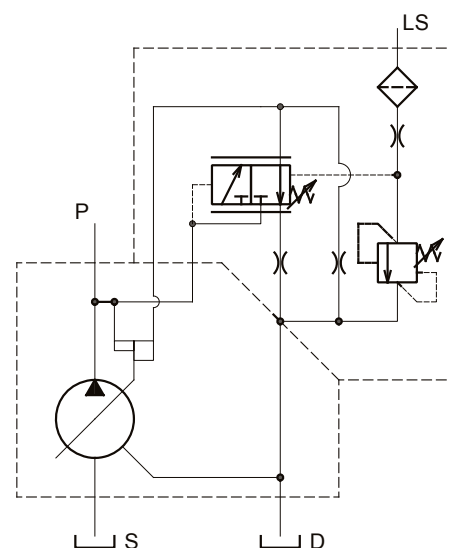
The default setting of the pressure relief valve is 330 bar.

Setting 80 bar/rev.

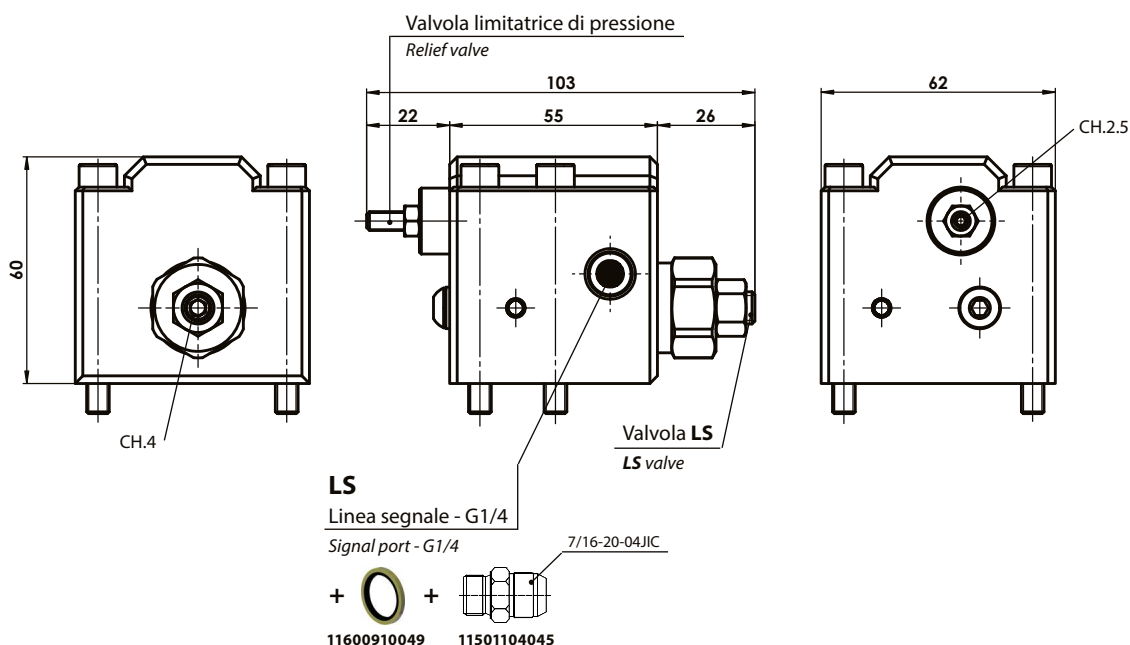
The capacity of the LS line has to be adapted to the related hydraulic circuit. The signal line should preferably consist of a flexible hose having suitable diameter to ensure the damping of possible LS signal fluctuations.



**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.*

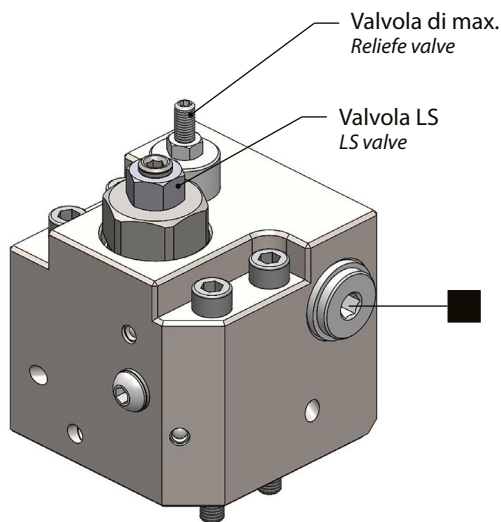
*Setting 80 bar/rev.*

*Adjustable Pressure control.*

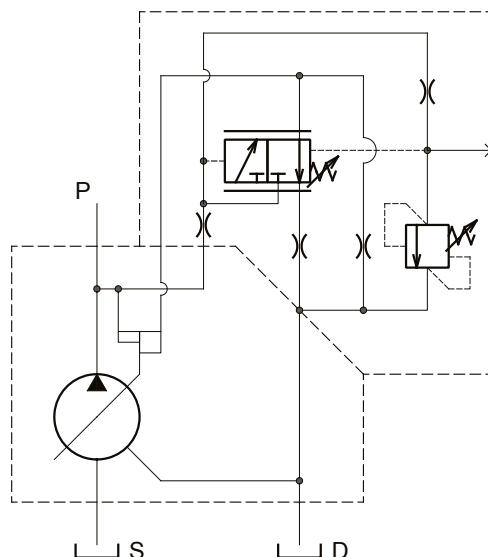
*This control ensures a constant pressure in the hydraulic circuit by changing the flow.*

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

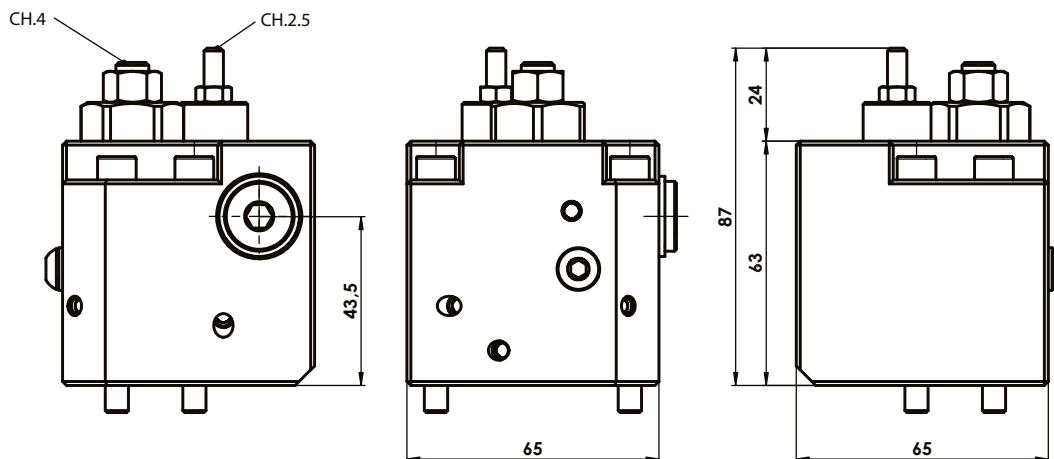
*It is therefore designed for applications with constant pressure where different flow rates are required or as a limitation of low pressure drop within a hydraulic system.*



**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)

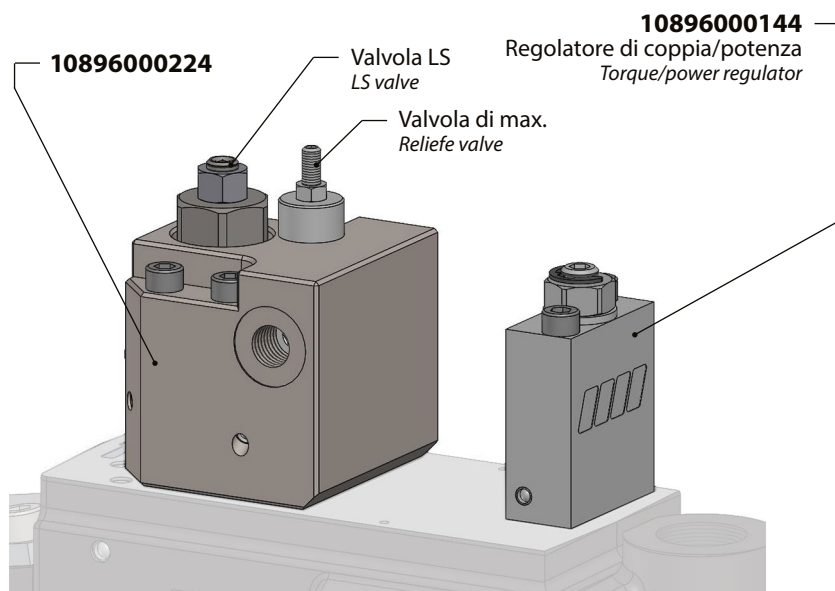
Regola la coppia massima assorbita con un campo di regolazione tra i 200 e i 700 Nm.

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.

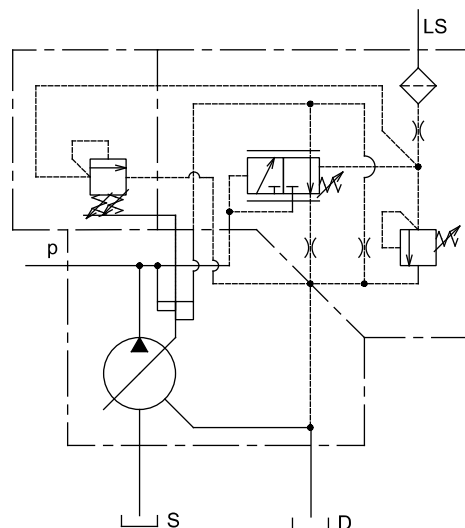
#### PW CONTROL

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

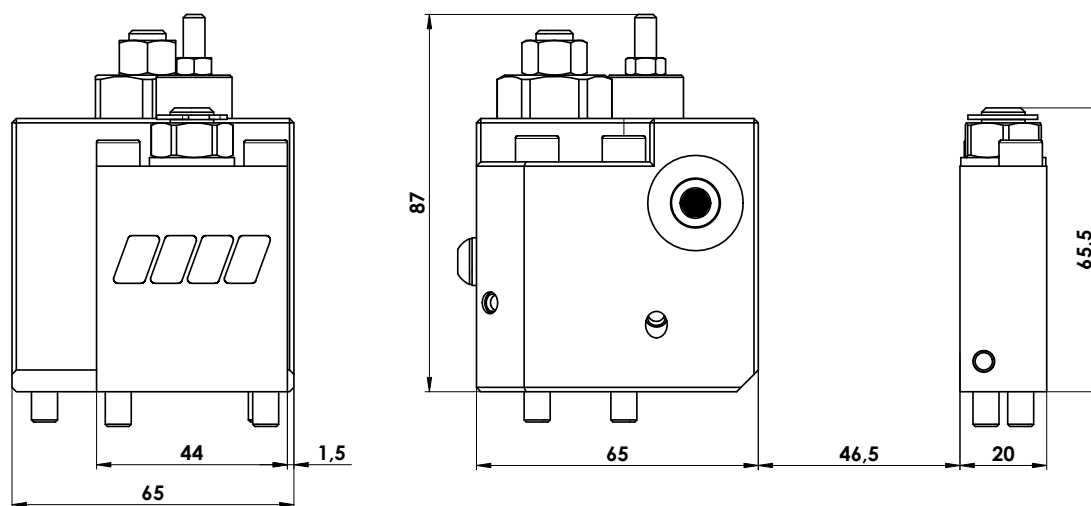
*The regulator adapts the pump displacement according to the pressure in the system, to maintain the pre-adjusted torque value and protect motor shaft, motor or transmission from overloads.*



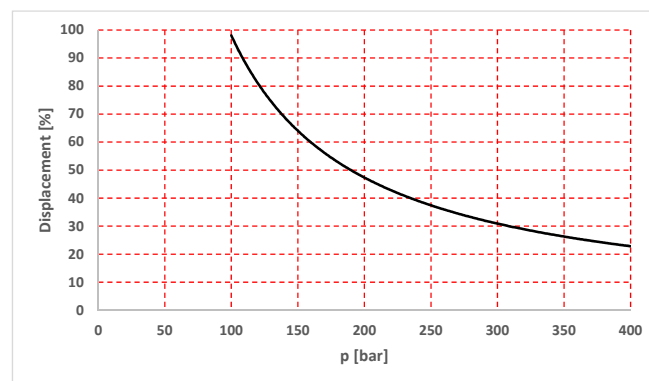
**Schema idraulico pompa con regolatore PW**  
*Pump with PW control hydraulik scheme*



### 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  $\Delta p$  = 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 depresurizzazione del segnale load sensing.

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

## BE CONTROL

Regulate the differential pressure  $\Delta p$  = 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.

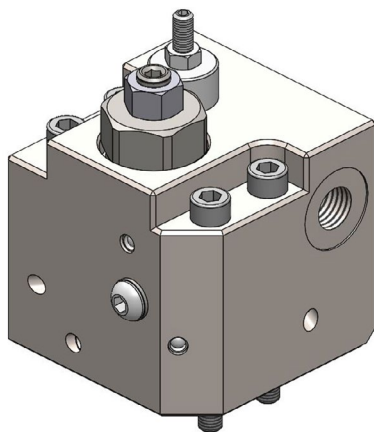
The default setting of the pressure relief valve is 330 bar.

Setting 80 bar/rev.

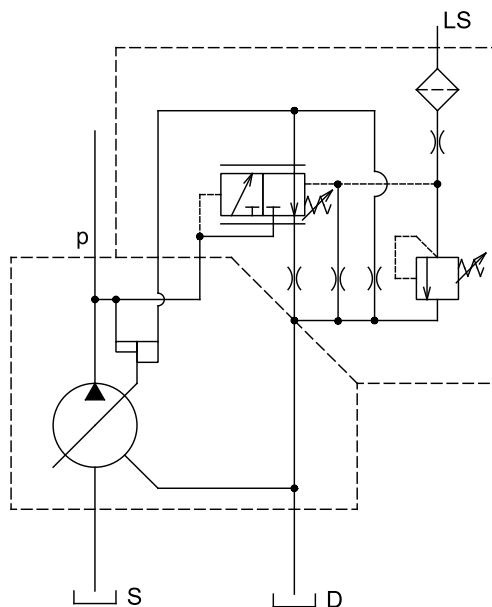
The capacity of the LS line has to be adapted to the related hydraulic circuit. The signal line should preferably consist of a flexible hose having suitable diameter to ensure the damping of possible LS signal fluctuations.

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 depresurizing the load sensing signal.

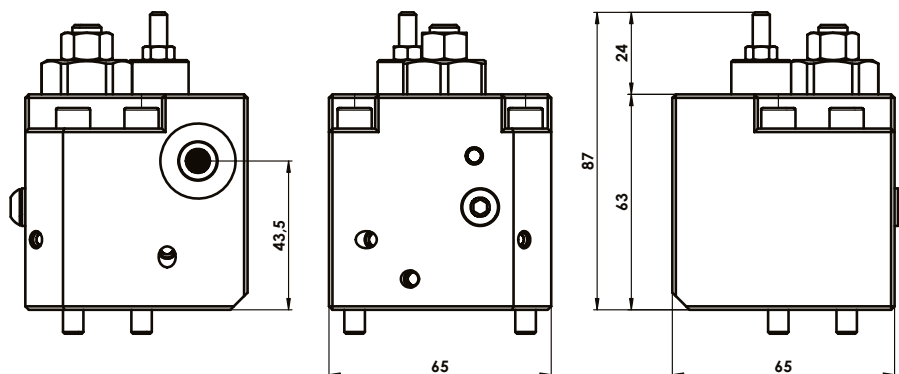
N.B.: the regulator with bleed cannot be used with the PW version.



**Schema idraulico**  
Hydraulic scheme



**Ingombro / Dimensions**



## Kit conversione (bleed)

### Conversion kit (bleed)

#### Kit conversioni / Conversion kit

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

## 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

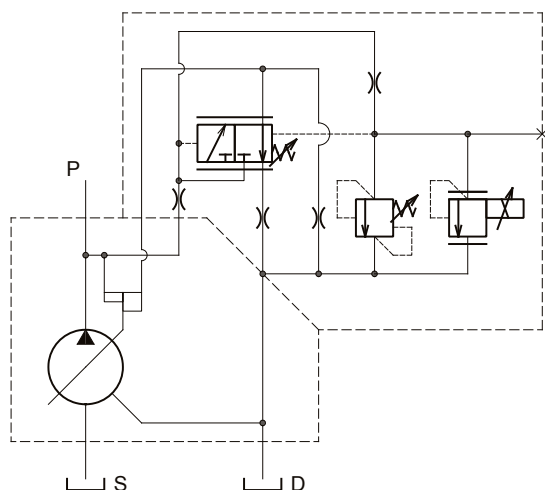
Regulate the minimum pressure = circuit pressure less signal pressure.  
The adjustment range is 15-50 bar.  
Default setting 25 bar  $\pm$ 2%.  
Setting 15 bar/rev.

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.

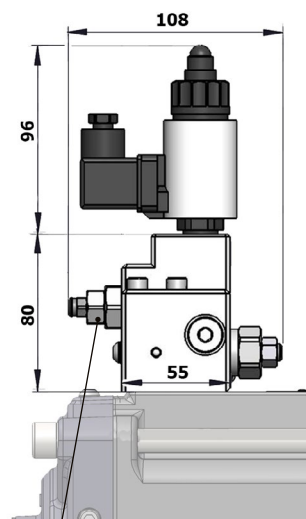
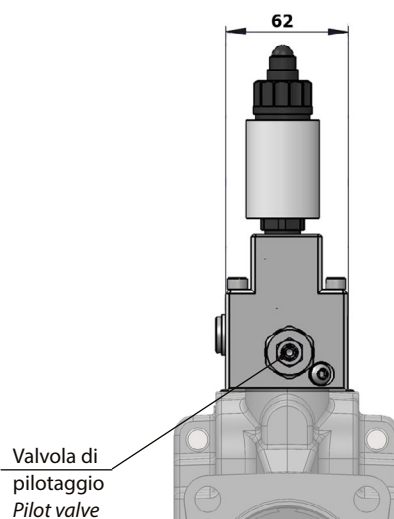
Pressure regulator with minimum and maximum pressure rates adjustable on the valves and with electrically adjustable intermittent pressure. This control ensures a constant pressure in the hydraulic circuit by changing the flow. It is therefore designed for applications with constant pressure where different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

**DISPONIBILE A BREVE  
COMING SOON**

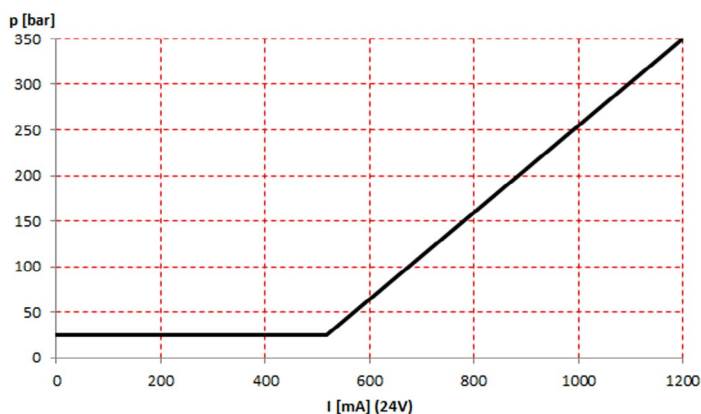
## Ingombro / Dimensions



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.

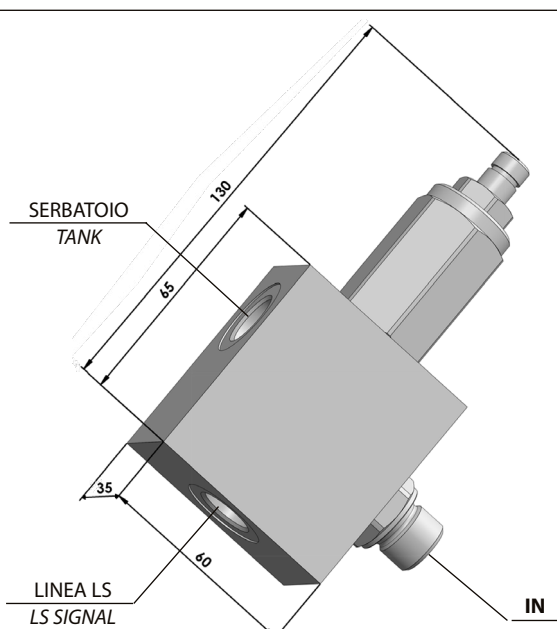
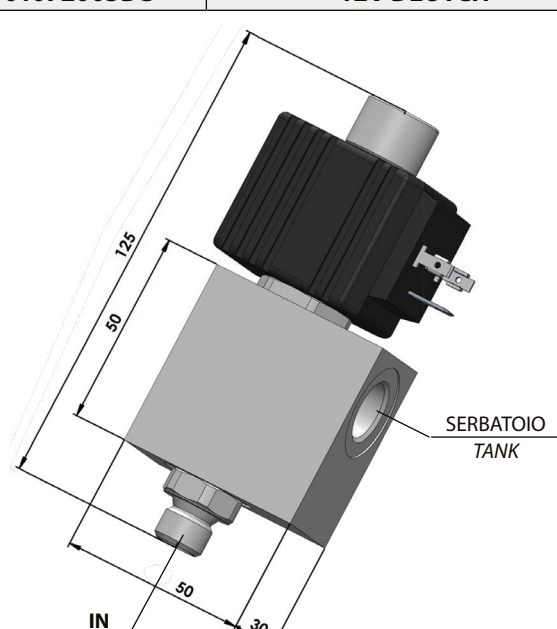
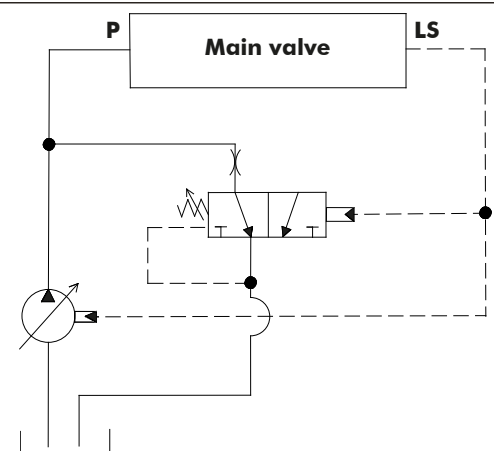
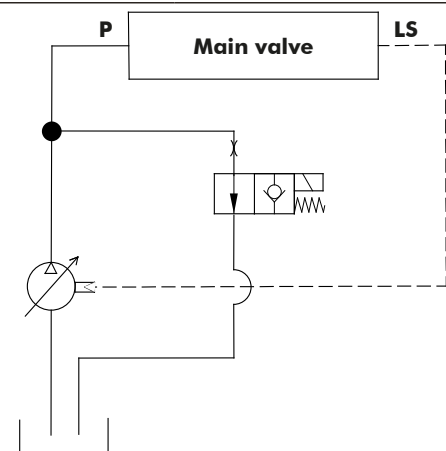
*The valve guarantees small flow through the pump to cooling or tank, in order to protect the pump from overheated on the application with long time in stand-by condition. When a load sensing valve function is engaged the flushing valve is disengaged automatically with hydraulic pilot or with electrical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

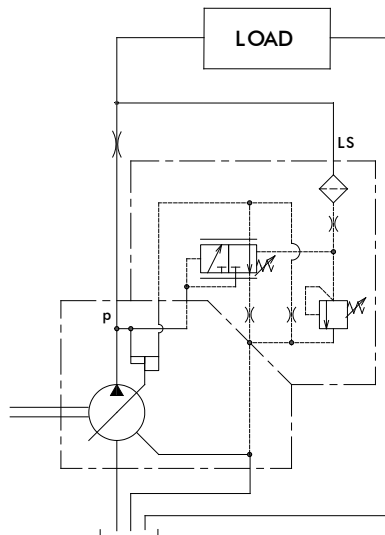
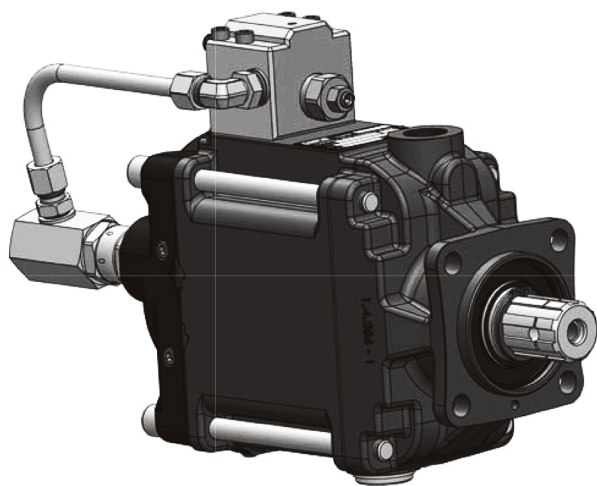
Flow control: 30 l/min  
Pilot pressure settings: da 2 a 25 bar  
Maximum pressure: 420 bar  
Ports: G1/4

| Comando idraulico / Hydraulic pilot                                                 | Comando elettrico / Electrical pilot                                                 |                   |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------|
| Codice / Code                                                                       | Codice / Code                                                                        |                   |
| <b>B5001072001BC</b>                                                                | <b>B5001072002BC</b>                                                                 | <b>24V DIN</b>    |
|                                                                                     | <b>B5001072003BC</b>                                                                 | <b>12V DIN</b>    |
|                                                                                     | <b>B5001072004BC</b>                                                                 | <b>24V DEUTCH</b> |
|                                                                                     | <b>B5001072005BC</b>                                                                 | <b>12V DEUTCH</b> |
|   |   |                   |
|  |  |                   |

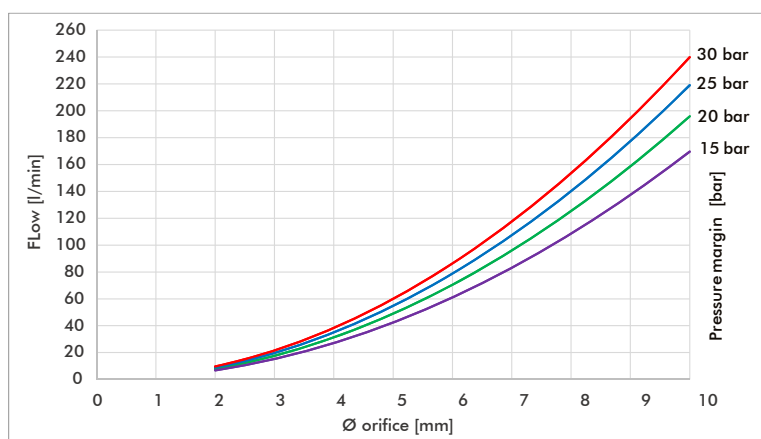
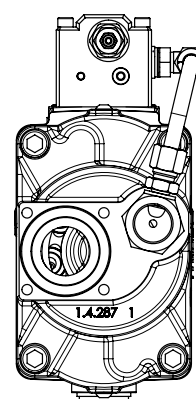
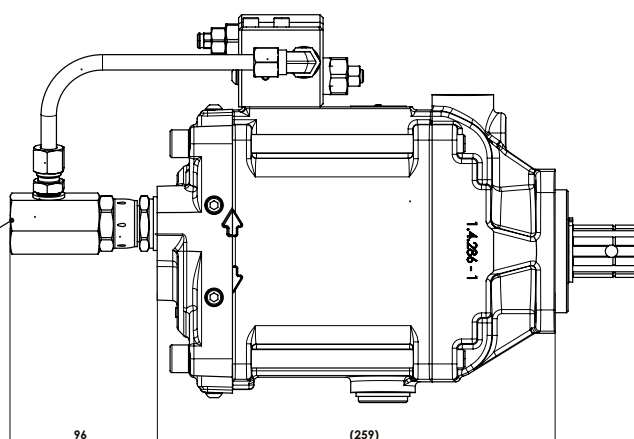
## Regolatore a portata costante (CF) Constant flow control (CF)

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

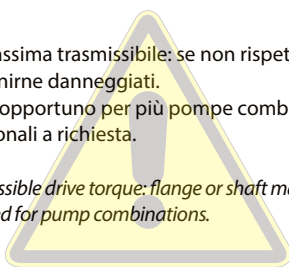
## Tandem PPV applications

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

| Codice<br>Code | PPV 60 | PPV 90<br>PPV 110 | PPV 130<br>PPV 150 | Descrizione<br>Description   | Flangia<br>Flange                                                              | Albero<br>Shaft                                      | Coppia max.<br>trasmissibile<br>Max. output<br>torque |
|----------------|--------|-------------------|--------------------|------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|
|                |        |                   |                    |                              |                                                                                |                                                      | T <sub>OUT</sub> max.                                 |
| 11400000839    |        |                   |                    | Solo coperchio<br>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<br>(16-4 DIN ISO 3019-1)<br>9T 16/32 DP   | 100 Nm                                                |
| 11465010162    |        |                   |                    | SAE B                        | SAE B 2-hole J744 101-2 DIN ISO 3019-1                                         | SAE B J744<br>(22-4 DIN ISO 3019-1)<br>13T 16/32 DP  | 210 Nm                                                |
|                |        |                   |                    |                              | SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><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<br>(16-4 DIN ISO 3019-1)<br>9T 16/32 DP   | 100 Nm                                                |
| 11465010206    |        |                   |                    | SAE B                        | SAE B 2-hole J744 101-2 DIN ISO 3019-1                                         | SAE B J744<br>(22-4 DIN ISO 3019-1)<br>13T 16/32 DP  | 210 Nm                                                |
|                |        |                   |                    |                              | SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><i>Ruotata di 20° / 20° rotation</i> |                                                      |                                                       |
| 11465010304    |        |                   |                    | SAE BB                       | SAE B 2-hole J744 101-2 DIN ISO 3019-1                                         | SAE BB J744<br>(25-4 DIN ISO 3019-1)<br>15T 16/32 DP | 400 Nm                                                |
|                |        |                   |                    |                              | SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><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<br>(32-4 DIN ISO 3019-1)<br>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<br>(22-4 DIN ISO 3019-1)<br>13T 16/32 DP  | 210 Nm                                                |
|                |        |                   |                    |                              | SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><i>Ruotata di 20° / 20° rotation</i> |                                                      |                                                       |
| 11465010322    |        |                   |                    | SAE BB                       | SAE B 2-hole J744 101-2 DIN ISO 3019-1                                         | SAE BB J744<br>(25-4 DIN ISO 3019-1)<br>15T 16/32 DP | 400 Nm                                                |
|                |        |                   |                    |                              | SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><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<br>(32-4 DIN ISO 3019-1)<br>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 aggiuntive 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.

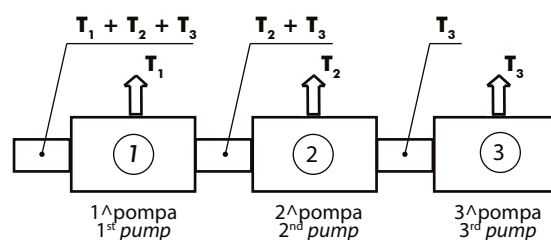


Coppia 1<sup>a</sup> pompa T<sub>1</sub>  
Coppia 2<sup>a</sup> pompa T<sub>2</sub>  
Coppia 3<sup>a</sup> pompa T<sub>3</sub>

Coppia in ingresso T<sub>IN</sub> = T<sub>1</sub> + T<sub>2</sub> + T<sub>3</sub>  
T<sub>IN</sub> < 900Nm for 6501 -----  
T<sub>IN</sub> < 640Nm for 6512 -----

Coppia in uscita T<sub>OUT</sub> = T<sub>2</sub> + T<sub>3</sub>  
T<sub>OUT, 1</sub> = T<sub>2</sub> + T<sub>3</sub>  
T<sub>OUT, 1</sub> < T<sub>OUT, MAX</sub> ..... vedere tabella

T<sub>OUT, 2</sub> = T<sub>3</sub>  
T<sub>OUT, 2</sub> < T<sub>OUT, MAX</sub> ..... vedere tabella

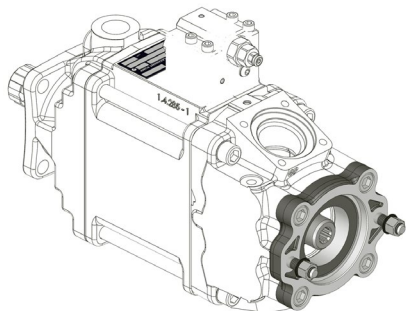


Torque at 1<sup>st</sup> pump T<sub>1</sub>  
Torque at 2<sup>nd</sup> pump T<sub>2</sub>  
Torque at 3<sup>rd</sup> pump T<sub>3</sub>

Input torque T<sub>IN</sub> = T<sub>1</sub> + T<sub>2</sub> + T<sub>3</sub>  
T<sub>IN</sub> < 900Nm for 6501 -----  
T<sub>IN</sub> < 640Nm for 6512 -----

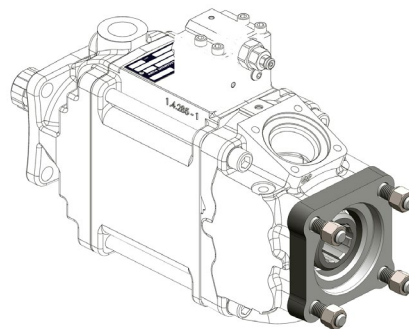
Output torque T<sub>OUT</sub> = T<sub>2</sub> + T<sub>3</sub>  
T<sub>OUT, 1</sub> = T<sub>2</sub> + T<sub>3</sub>  
T<sub>OUT, 1</sub> < T<sub>OUT, MAX</sub> ..... see table

T<sub>OUT, 2</sub> = T<sub>3</sub>  
T<sub>OUT, 2</sub> < T<sub>OUT, MAX</sub> ..... see table



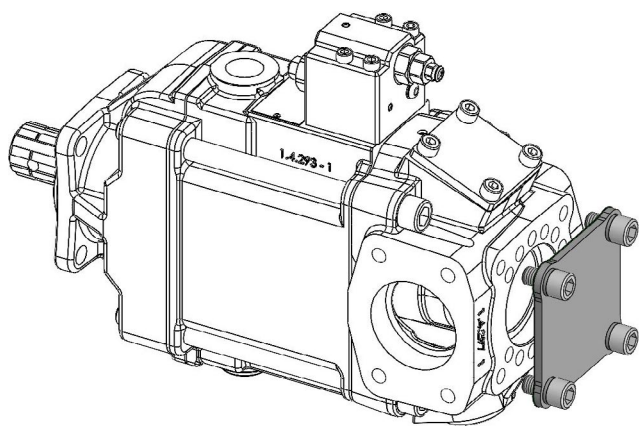
### 11465010064

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



### 11465000066

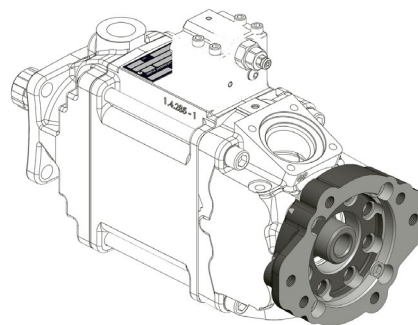
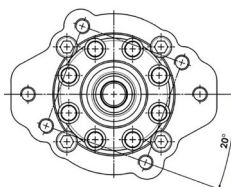
Applicazione PPV60 tandem / Pompa ISO 7653  
(coppia trasmissibile 800Nm)  
PPV tandem 60 size / ISO 7653 pump adaptor  
(max. allowed torque 800Nm)



### 11400000839

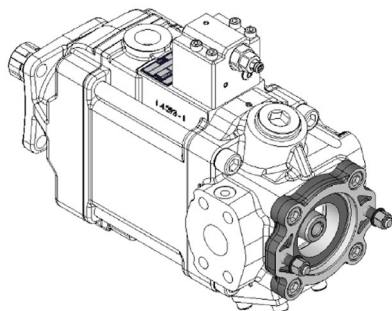
Coperchio di chiusura  
Cover

N.B. Con l'applicazione di questo coperchio, è possibile trasformare una pompa **TANDEM con albero passante**, in una pompa **SINGOLA**.  
N.B. With the application of this cover, it is possible to transform a **TANDEM pump** with a through shaft, into a **SINGLE pump**.



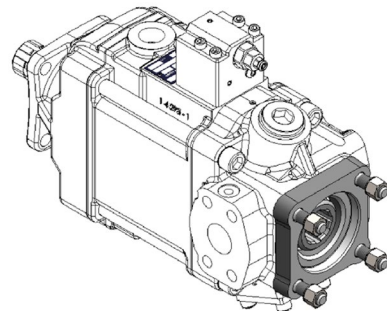
### 11465010162

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



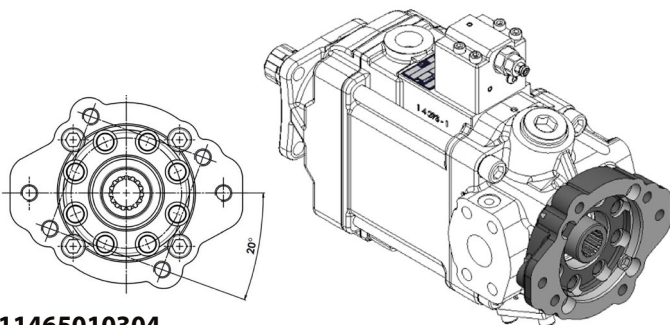
### 11465010108

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)



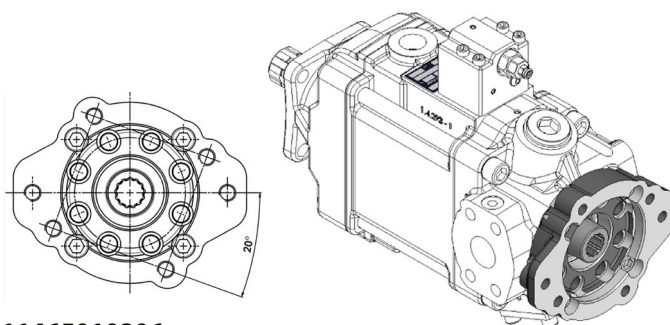
### 11465000100

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



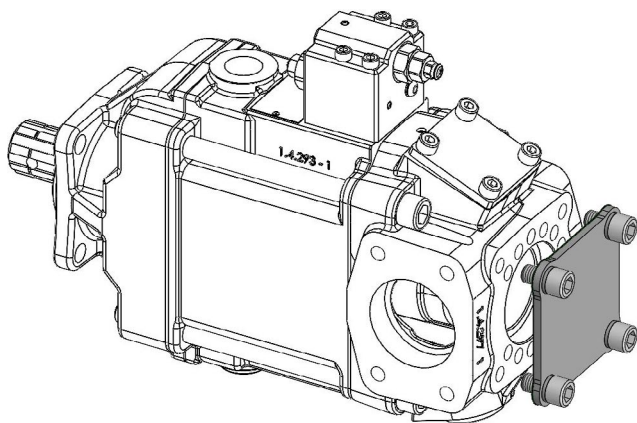
### 11465010304

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)



### 11465010206

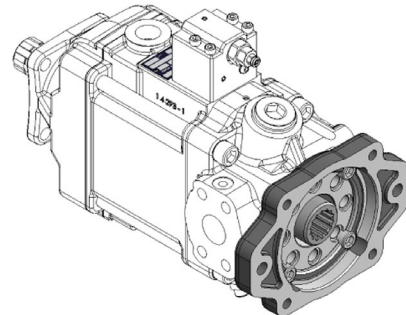
Applicazione PPV tandem 90-110 / Pompa SAE B Z13  
(coppia trasmissibile 210Nm)  
PPV tandem 90-110 size / SAE B Z13 pump adaptor  
(max. allowed torque 210Nm)



### 11400000839

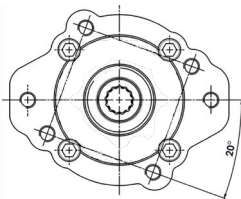
Coperchio di chiusura  
Cover

N.B. Con l'applicazione di questo coperchio, è possibile trasformare una pompa **TANDEM con albero passante**, in una pompa **SINGOLA**.  
N.B. With the application of this cover, it is possible to transform a **TANDEM pump** with a through shaft, into a **SINGLE pump**.



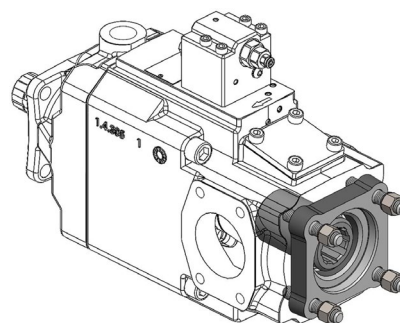
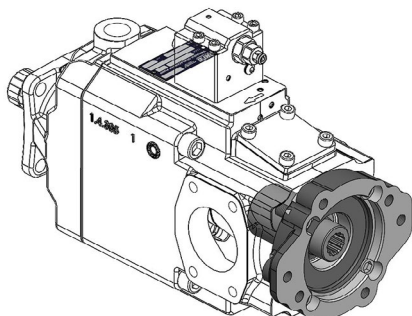
### 11465010402

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)



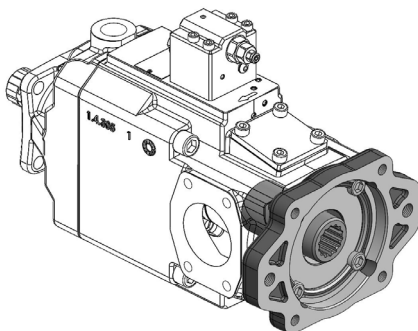
### 11465010224

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)



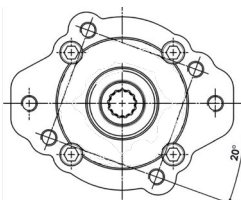
### 11465000137

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)



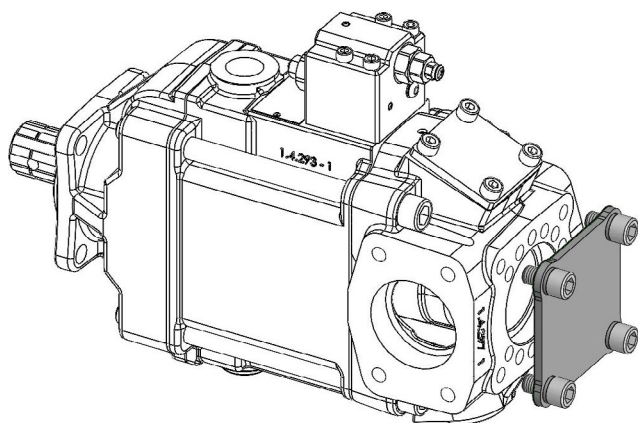
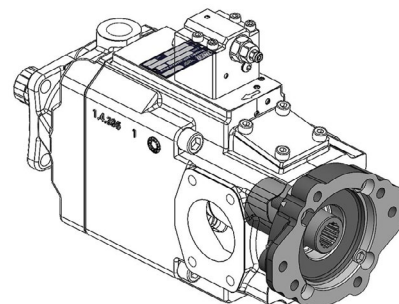
### 11465010420

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)



### 11465010322

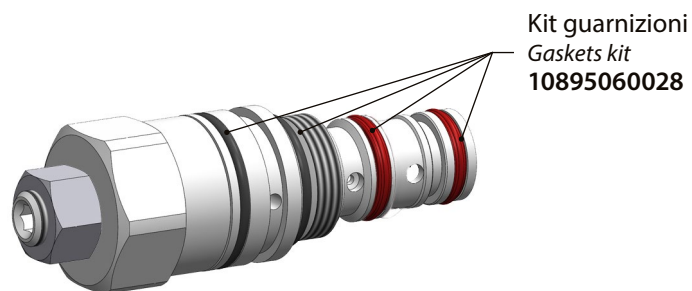
Applicazione PPV tandem 130-150 / Pompa SAE BB Z15  
(coppia trasmissibile 400 Nm)  
PPV tandem 130-150 size / SAE BB Z15 pump adaptor  
(Max. allowed torque 400 Nm)



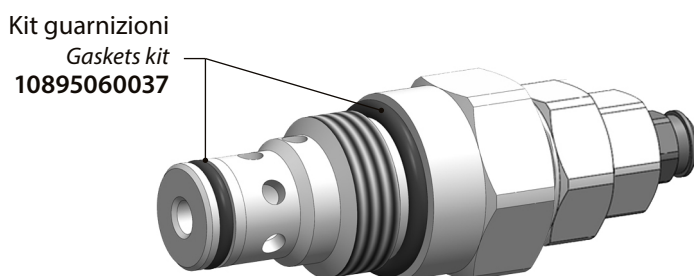
### 11400000839

Coperchio di chiusura  
Cover

N.B. Con l'applicazione di questo coperchio, è possibile trasformare una pompa **TANDEM con albero passante**, in una pompa **SINGOLA**.  
N.B. With the application of this cover, it is possible to transform a **TANDEM pump** with a through shaft, into a **SINGLE pump**.

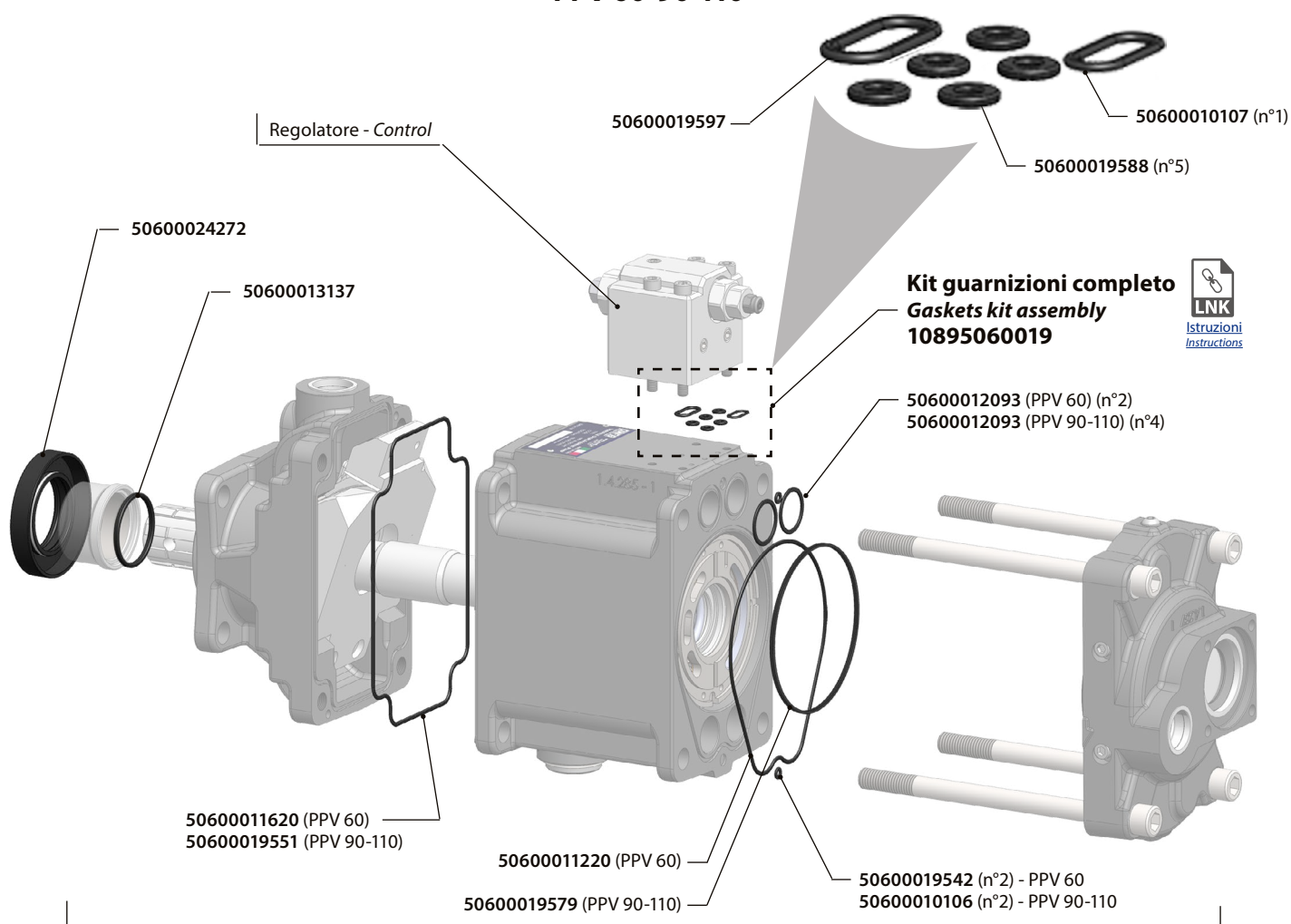


Valvola LS  
LS valve  
10896090100



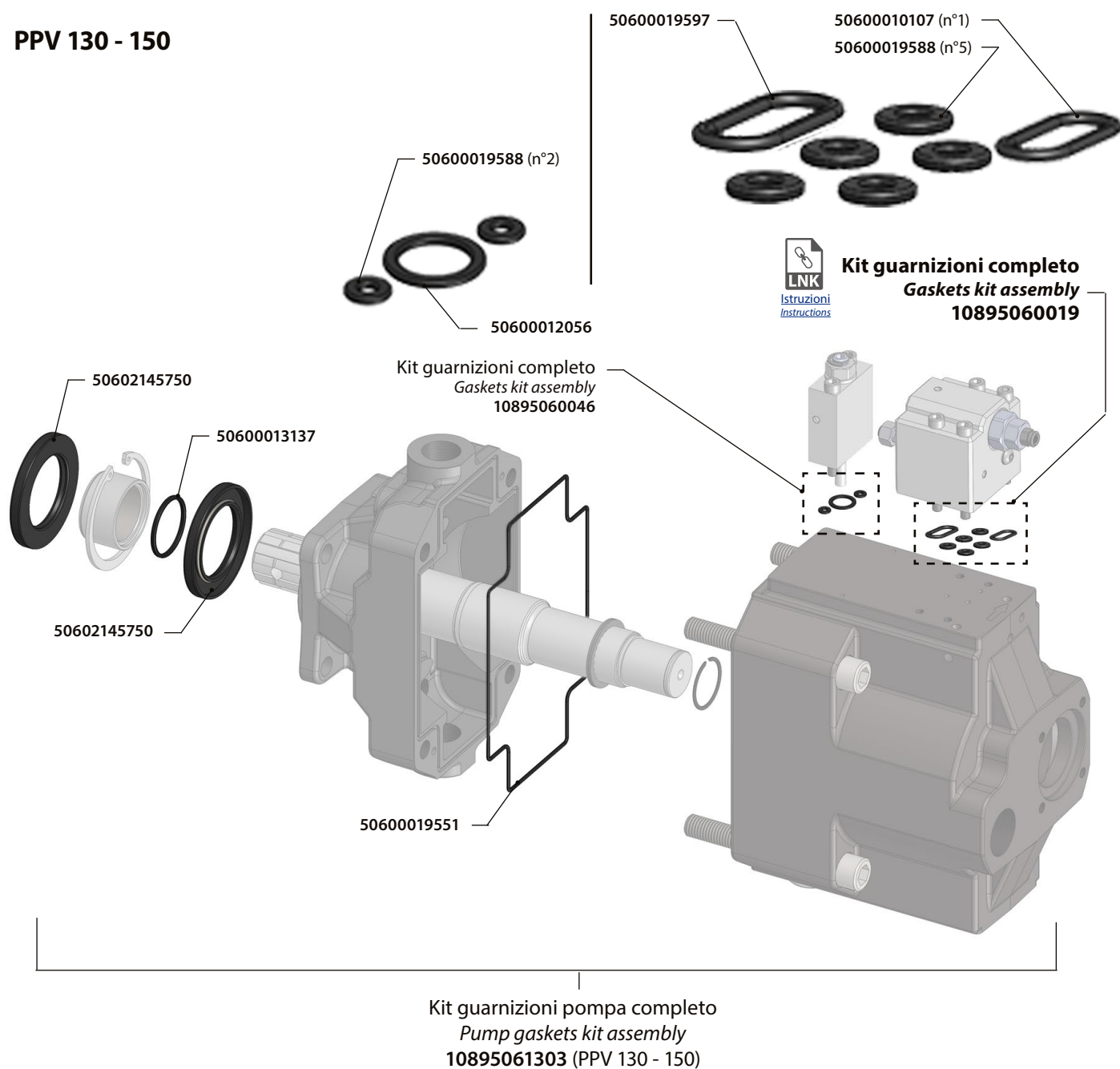
Valvola limitatrice  
di pressione  
Relief valve  
10896090208

**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<br><i>Pump type</i> |    | Kit ricambio piatto distributore<br><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<br>Code | D  | DE    | V  | Peso<br>Weigth |  |  |
|----------------|----|-------|----|----------------|--|--|
|                | 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<br>Code | D  | DE    | V   | Peso<br>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            |  |  |

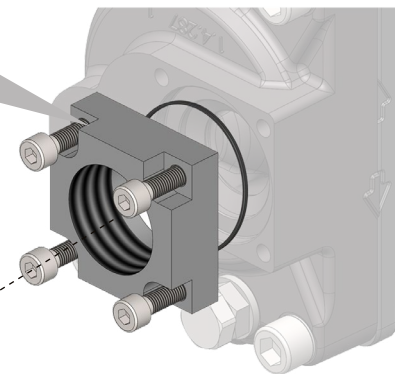
| Codice<br>Code | D  | DE    | V   | Z   | Peso<br>Weigth |  |  |
|----------------|----|-------|-----|-----|----------------|--|--|
|                | mm | mm    | mm  | mm  | Kg             |  |  |
| 15511290509    | 50 | 60-63 | 94  | 120 | 1,1            |  |  |
| 15511290518    |    | 64-67 |     |     |                |  |  |
| 15511290607    | 60 | 68-73 | 103 | 139 | 1,5            |  |  |
| 15511290634    | 63 | 74-79 | 103 | 139 | 1,9            |  |  |
| 15511290769    | 76 | 86-91 | 103 | 140 | 2,3            |  |  |

**15511300408**

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

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