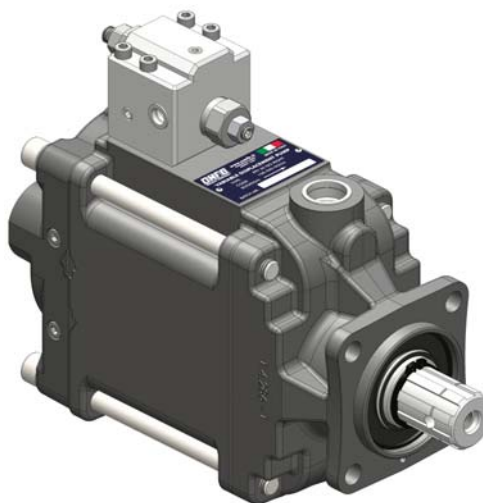


**POMPE A CILINDRATA  
VARIABILE  
VARIABLE DISPLACEMENT  
PUMPS**

**PPV**

**INDICE  
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**POMPE A  
CILINDRATA  
VARIABILE  
VARIABLE  
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PUMPS**

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Data: Mercoledì 15 aprile 2020

Codice foglio:997-650-11110 Rev: AL

# CODIFICA VERSIONI VERSIONS CODING

## COME COMPORRE L'ORDINE / HOW TO ORDER

|                                   |   |                                                 |   |                                                                                                                                               |
|-----------------------------------|---|-------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CODICE POMPA<br/>PUMP CODE</b> | + | <b>RACCORDO ASPIRAZIONE<br/>SUCTION FITTING</b> | + | <b>VERSIONE FLANGIA E ALBERO<br/>(solo versioni tandem cod. B=3 o 5)<br/>FLANGE AND SHAFT VERSION<br/>(only tandem versions code B=3 o 5)</b> |
| 650XXXXXXXXX                      |   | 15511200507 (pag. 39)                           |   | 11465000100 (pag. 29)                                                                                                                         |
| 651XXXXXXXXX                      |   |                                                 |   |                                                                                                                                               |

**FFFSTBDDRRX**

### Famiglia / Family

|            |                                               |            |
|------------|-----------------------------------------------|------------|
| <b>FFF</b> | ISO 7653 4 fori/holes ø 80                    | <b>650</b> |
|            | SAE C 4 fori/holes - ISO 3019-1 127-4 I=114.5 | <b>651</b> |

### Albero / Shaft

|          |                           |          |
|----------|---------------------------|----------|
| <b>S</b> | DIN 5462 8x32x36 (ISO 14) | <b>1</b> |
|          | SAE C - 14T 12/24 32-4    | <b>2</b> |

### Porte / Ports

|          |            |          |
|----------|------------|----------|
| <b>T</b> | BSPP (GAS) | <b>1</b> |
|          | UNF        | <b>5</b> |

### Fondello posteriore / Rear cover

|          |                                                                       |          |          |
|----------|-----------------------------------------------------------------------|----------|----------|
| <b>B</b> | Assiale / Axial - <b>(STANDARD)</b>                                   | <b>1</b> |          |
|          | Radiale verticale non passante - Radial/vertical standard             | <b>2</b> |          |
|          | Radiale verticale passante - Radial/vertical thru shaft               | <b>3</b> | (Tandem) |
|          | Radiale orizzontale SAE non passante - SAE Radial/horizontal standard | <b>4</b> |          |
|          | Radiale orizzontale SAE passante - SAE Radial/horizontal thru shaft   | <b>5</b> | (Tandem) |

### Cilindrata / Displacement

|           |        |           |
|-----------|--------|-----------|
| <b>DD</b> | 60 cc  | <b>06</b> |
|           | 90 cc  | <b>09</b> |
|           | 110 cc | <b>11</b> |
|           | 130 cc | <b>13</b> |

### Regolatore / Control

|           |                                               |           |
|-----------|-----------------------------------------------|-----------|
| <b>RR</b> | LS Load sensing                               | <b>LS</b> |
|           | Pressione idraulica / Hydraulic pressure      | <b>PI</b> |
|           | Pressione elettrica / Electric pressure       | <b>PE</b> |
|           | Regolatore a potenza costante / Power control | <b>PW</b> |

### Rotazione - Limitazione cilindrata Rotation - Displacement adjustment

|          |                                                   |          |              |
|----------|---------------------------------------------------|----------|--------------|
| <b>X</b> | DESTRA nessuna limitazione / RIGHT no adjustment  | <b>1</b> |              |
|          | DESTRA con limitazione / RIGHT with adjustment    | <b>2</b> | (Adjustable) |
|          | SINISTRA nessuna limitazione / LEFT no adjustment | <b>6</b> |              |
|          | SINISTRA con limitazione / LEFT with adjustment   | <b>7</b> | (Adjustable) |

pag.2

# VERSIONI DISPONIBILI AVAILABLE VERSIONS

| CODICI DISPONIBILI / AVAILABLE CODES |               |                                     |                                          |
|--------------------------------------|---------------|-------------------------------------|------------------------------------------|
|                                      | CODICE / CODE | DESCRIZIONE / DESCRIPTION           |                                          |
| PPV 60                               | 65011106LS6   | PPV ISO 7653 32X36 BSP AX LS 060L   | ASSIALE / AXIAL<br>(STANDARD)            |
|                                      | 65011106LS1   | PPV ISO 7653 32x36 BSP AX LS 060R   |                                          |
|                                      | 65011106LS7   | PPV ISO 7653 32x36 BSP AX LS 060L L | Adjustable                               |
|                                      | 65011106LS2   | PPV ISO 7653 32x36 BSP AX LS 060R L |                                          |
|                                      | 65011206LS1   | PPV ISO 7653 32X36 BSP RV LS 060R   | Radiale/verticale<br>Radial/vertical     |
|                                      | 65011206LS6   | PPV ISO 7653 32X36 BSP RV LS 060L   |                                          |
|                                      | 65011306LS1   | PPV ISO 7653 32X36 BSP PV LS 060R   | Tandem                                   |
|                                      | 65011306LS6   | PPV ISO 7653 32X36 BSP PV LS 060L   |                                          |
|                                      | 65011406LS1   | PPV ISO 7653 32X36 BSP RO LS 060R   | Radiale/orizzontale<br>Radial/horizontal |
|                                      | 65011406LS6   | PPV ISO 7653 32X36 BSP RO LS 060L   |                                          |
|                                      | 65011506LS1   | PPV ISO 7653 32X36 BSP PO LS 060R   | Tandem                                   |
|                                      | 65011506LS6   | PPV ISO 7653 32X36 BSP PO LS 060L   |                                          |
|                                      | 65125106LS1   | PPV SAE C4 C-14T UNF AX LS 060R     | ASSIALE / AXIAL<br>(STANDARD)            |
|                                      | 65125106LS2   | PPV SAE C4 C-14T UNF AX LS 060R L   | Adjustable                               |
|                                      | 65125106LS6   | PPV SAE C4 C-14T UNF AX LS 060L     | ASSIALE / AXIAL<br>(STANDARD)            |
|                                      | 65125106LS7   | PPV SAE C4 C-14T UNF AX LS 060L L   | Adjustable                               |
| PPV 90                               | 65011109LS6   | PPV ISO 7653 32x36 BSP AX LS 090L   | ASSIALE / AXIAL<br>(STANDARD)            |
|                                      | 65011109LS1   | PPV ISO 7653 32x36 BSP AX LS 090R   |                                          |
|                                      | 65011109LS7   | PPV ISO 7653 32x36 BSP AX LS 090L L | Adjustable                               |
|                                      | 65011109LS2   | PPV ISO 7653 32x36 BSP AX LS 090R L |                                          |
|                                      | 65011209LS1   | PPV ISO 7653 32X36 BSP RV LS 090R   | Radiale/verticale<br>Radial/vertical     |
|                                      | 65011209LS6   | PPV ISO 7653 32X36 BSP RV LS 090L   |                                          |
|                                      | 65011309LS1   | PPV ISO 7653 32X36 BSP PV LS 090R   | Tandem                                   |
|                                      | 65011309LS6   | PPV ISO 7653 32X36 BSP PV LS 090L   |                                          |
|                                      | 65011409LS1   | PPV ISO 7653 32X36 BSP RO LS 090R   | Radiale/orizzontale<br>Radial/horizontal |
|                                      | 65011409LS6   | PPV ISO 7653 32X36 BSP RO LS 090L   |                                          |
|                                      | 65011509LS1   | PPV ISO 7653 32X36 BSP PO LS 090R   | Tandem                                   |
|                                      | 65011509LS6   | PPV ISO 7653 32X36 BSP PO LS 090L   |                                          |
| PPV 110                              | 65011111LS6   | PPV ISO 7653 32x36 BSP AX LS 110L   | ASSIALE / AXIAL<br>(STANDARD)            |
|                                      | 65011111LS1   | PPV ISO 7653 32x36 BSP AX LS 110R   |                                          |
|                                      | 65011111LS7   | PPV ISO 7653 32x36 BSP AX LS 110L L | Adjustable                               |
|                                      | 65011111LS2   | PPV ISO 7653 32x36 BSP AX LS 110R L |                                          |
|                                      | 65011211LS1   | PPV ISO 7653 32X36 BSP RV LS 110R   | Radiale/verticale<br>Radial/vertical     |
|                                      | 65011211LS6   | PPV ISO 7653 32X36 BSP RV LS 110L   |                                          |
|                                      | 65011311LS1   | PPV ISO 7653 32X36 BSP PV LS 110R   | Tandem                                   |
|                                      | 65011311LS6   | PPV ISO 7653 32X36 BSP PV LS 110L   |                                          |
|                                      | 65011411LS1   | PPV ISO 7653 32X36 BSP RO LS 110R   | Radiale/orizzontale<br>Radial/horizontal |
|                                      | 65011411LS6   | PPV ISO 7653 32X36 BSP RO LS 110L   |                                          |
|                                      | 65011511LS1   | PPV ISO 7653 32X36 BSP PO LS 110R   | Tandem                                   |
|                                      | 65011511LS6   | PPV ISO 7653 32X36 BSP PO LS 110L   |                                          |
|                                      | 65121111LS1   | PPV SAE C4 C-14T BSP AX LS 110R     | ASSIALE / AXIAL<br>(STANDARD)            |
|                                      | 65121111LS6   | PPV SAE C4 C-14T BSP AX LS 110L     |                                          |
| PPV 130<br>Adjustable                | 65011113LS2   | PPV ISO 7653 32X36 BSP AX LS 130R   | ASSIALE / AXIAL                          |
|                                      | 65011113LS7   | PPV ISO 7653 32X36 BSP AX LS 130L   |                                          |
|                                      | 65011113PW2   | PPV ISO 7653 32X36 BSP AX PW 130R   | ASSIALE / AXIAL                          |
|                                      | 65011113PW7   | PPV ISO 7653 32X36 BSP AX PW 130L   |                                          |

Data: Mercoledì 15 aprile 2020

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

pag.3



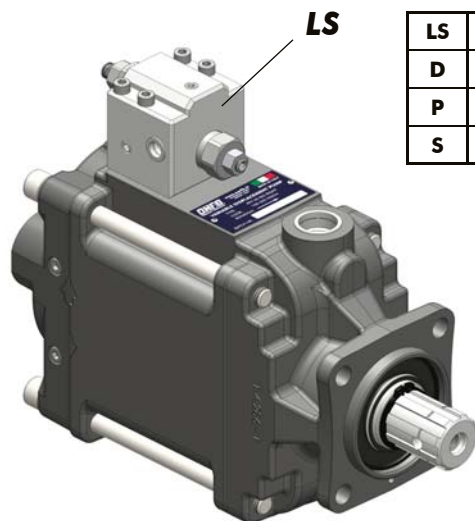
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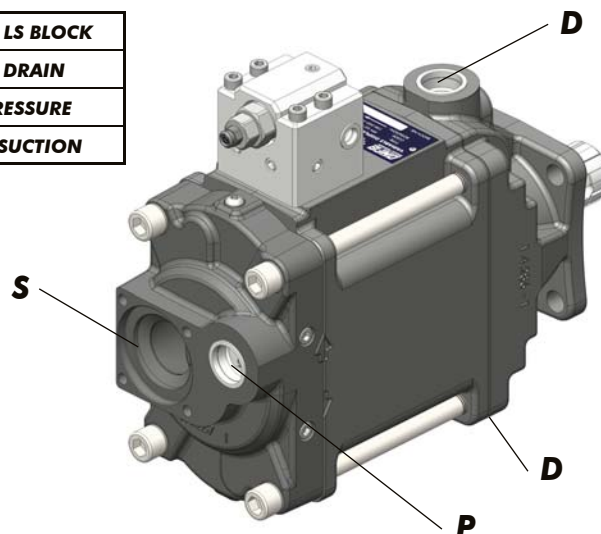
# POMPE A CILINDRATA VARIABILE VARIABLE DISPLACEMENT PUMPS

FAMIGLIA  
FAMILY

PPV 60  
PPV 90  
PPV 110  
PPV 130

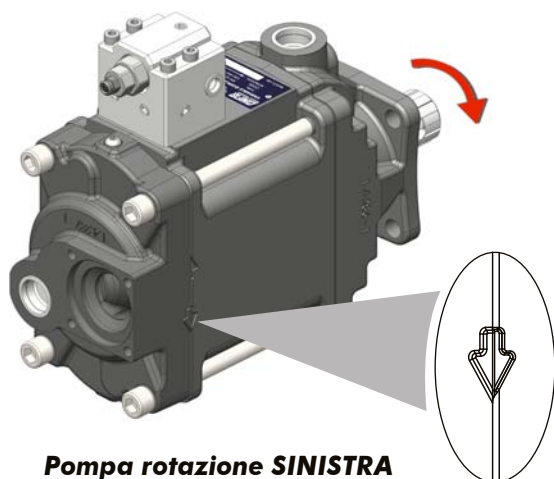


|    |                         |
|----|-------------------------|
| LS | BLOCCHETTO LS/ LS BLOCK |
| D  | DRENAGGIO / DRAIN       |
| P  | PRESSIONE / PRESSURE    |
| S  | ASPIRAZIONE / SUCTION   |

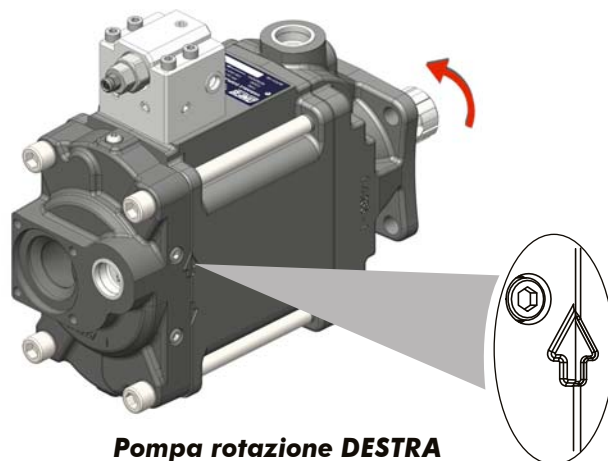


La pompa a pistoni assiali a cilindrata variabile OMFB è di tipo a piatto oscillante. La cilindrata della pompa dipende dalla corsa dei pistoni pompanti, che a sua volta dipende dall'inclinazione del piatto oscillante. La pompa all'avviamento si trova in cilindrata massima per effetto di due molle che spingono il piatto oscillante. La cilindrata della pompa viene ridotta agendo su due pistoni comandati idraulicamente in grado di vincere la forza delle molle. Un corpo cilindri ruota solidale con l'albero e costringe i pistoni 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.



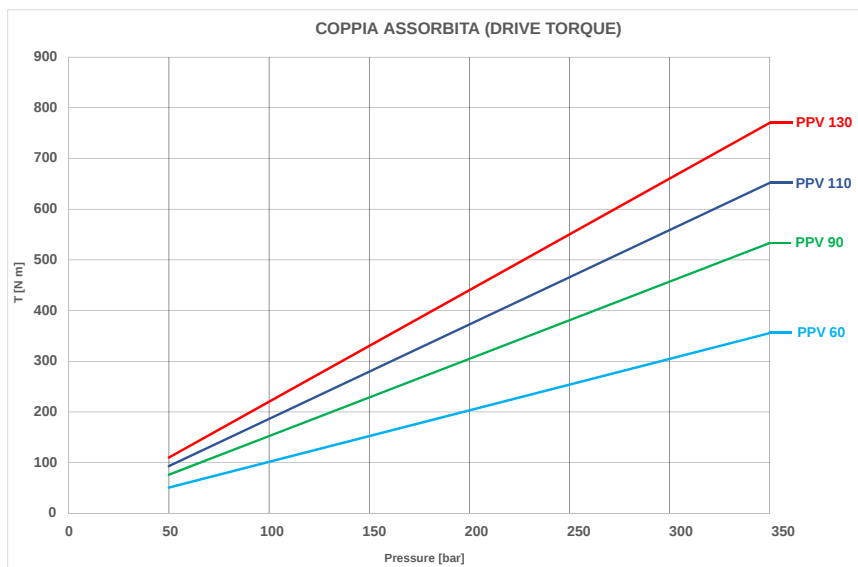
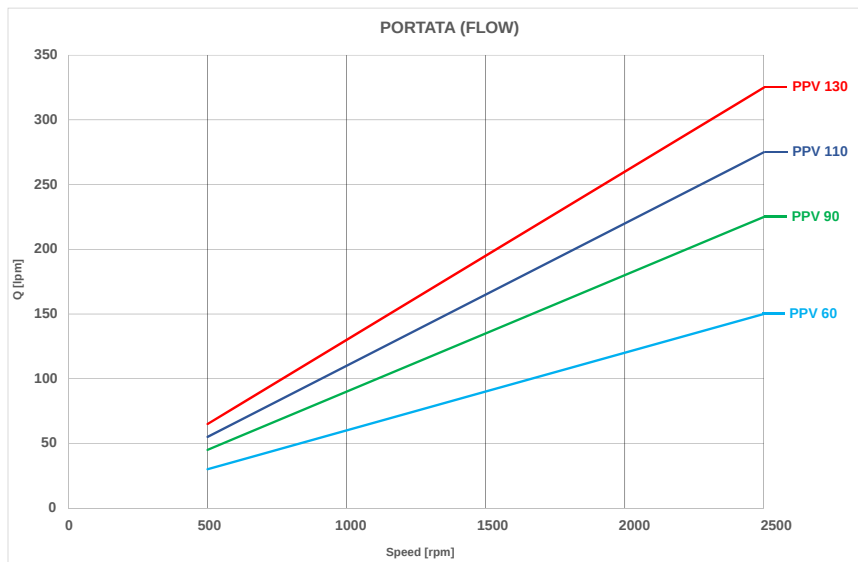
**Pompa rotazione SINISTRA**  
**LEFT Hand rotating pump**



**Pompa rotazione DESTRA**  
**RIGHT Hand rotating pump**

# POMPE A CILINDRATA VARIABILE / VARIABLE DISPLACEMENT PUMPS

| DATI TECNICI / <i>TECHNICAL FEATURES</i>                                                                                                                                                             | PPV60                  |                               | PPV90                  |                               | PPV110                 |                               | PPV130                 |                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|
| Portata / <i>Flow</i>                                                                                                                                                                                | 60 l/min.              |                               | 90 l/min.              |                               | 110 l/min.             |                               | 130 l/min.             |                               |
| Angolo di regolazione massima / <i>Max. swash plate angle</i>                                                                                                                                        | 21,5°                  |                               |                        |                               |                        |                               |                        |                               |
| Pressione di lavoro / <i>Working pressure</i>                                                                                                                                                        | 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                       |
| Pressione d'ingresso assoluta necessaria nel circuito aperto<br><i>Absolute inlet pressure required in open circuit</i>                                                                              | 0,85 bar               |                               |                        |                               |                        |                               |                        |                               |
| Pressione massima ammissibile sul corpo (statica/dinamica)<br><i>Max. permissible housing pressure (static/dynamic)</i>                                                                              | 3 bar                  |                               |                        |                               |                        |                               |                        |                               |
| Pressione d'ingresso massima ammissibile<br><i>Max. permissible inlet pressure (static/dynamic)</i>                                                                                                  | 2 bar                  |                               |                        |                               |                        |                               |                        |                               |
| Numero di giri max. con angolo di regolazione max.a una pressione d'ingresso assoluta di 1 bar. / <i>Max. speed during suction operation and max. swash plate angle at 1 bar abs. Inlet pressure</i> | 2500 rpm               |                               | 2300 rpm               |                               | 2200 rpm               |                               | 2100 rpm               |                               |
| Numero giri max. in annullamento e pressione d'ingresso assoluta 1bar. / <i>Max. speed with zero stroke and 1 bar abs. Inlet pressure</i>                                                            | 3000 rpm               |                               |                        |                               |                        |                               |                        |                               |
| Numero di giri minimo in funzionamento continuo<br><i>Min. speed in continuous operation</i>                                                                                                         | 500 rpm                |                               |                        |                               |                        |                               |                        |                               |
| Coppia motrice necessaria a 100 bar<br><i>Required drive torque at 100 bar</i>                                                                                                                       | 100 Nm                 |                               | 150 Nm                 |                               | 185 Nm                 |                               | 220 Nm                 |                               |
| Potenza motrice a 250 bar e 2.000 rpm<br><i>Drive power at 250 bar and 2000 rpm</i>                                                                                                                  | 53 kW                  |                               | 80 kW                  |                               | 100 kW                 |                               | 145 kW                 |                               |
| Peso / <i>Weight</i>                                                                                                                                                                                 | 24 Kg                  |                               | 29 Kg                  |                               | 30 Kg                  |                               | 27 Kg                  |                               |



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

The **ADJUSTABLE** version consists of a rear setting screw that limits the 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 |

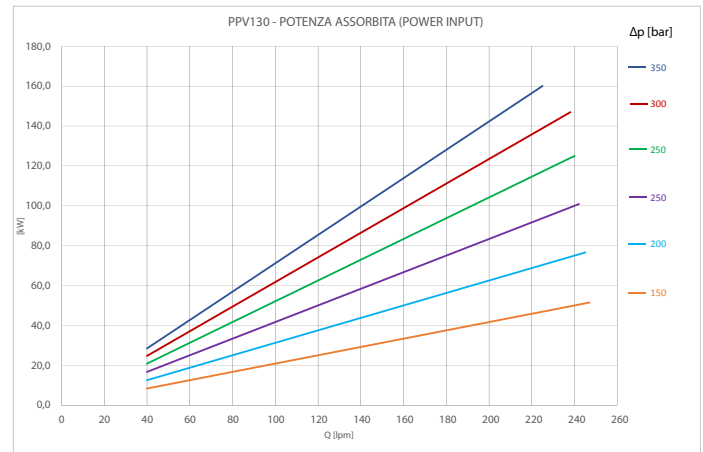
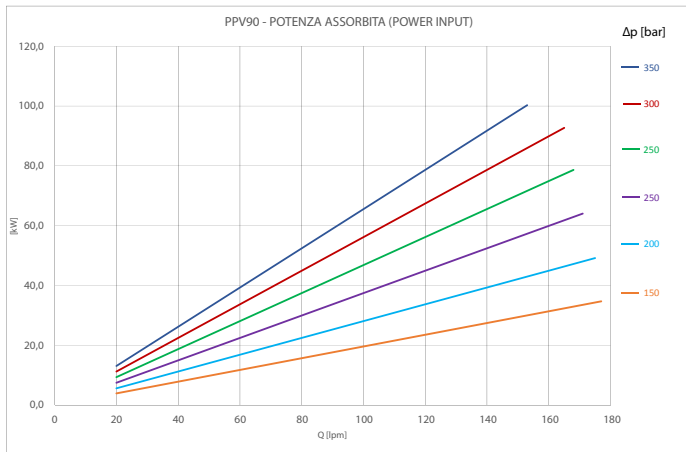
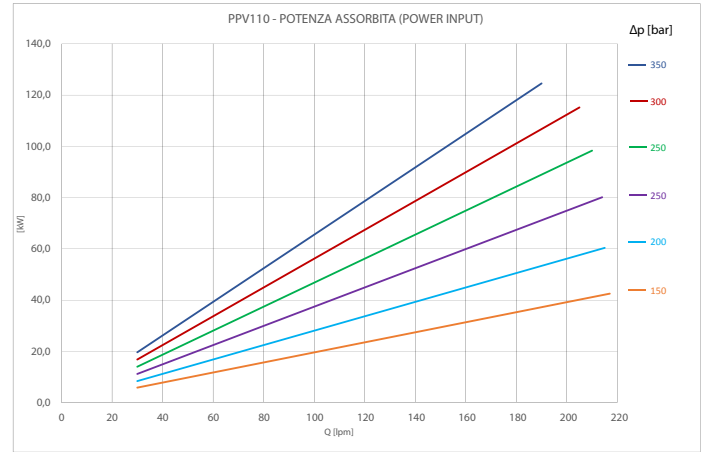
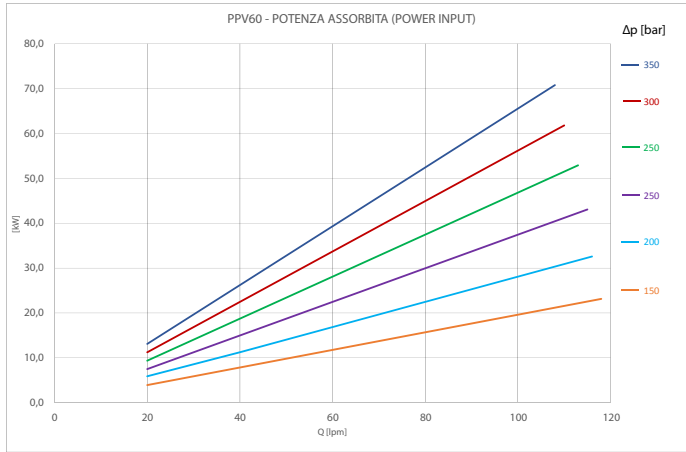
| CILINDRATA / DISPLACEMENT 110cc                               |                          |
|---------------------------------------------------------------|--------------------------|
| Campo regolazione cilindrata<br>Displacement limitation range | 85 - 110 cm <sup>3</sup> |
| Limitazione della cilindrata<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 | 12 cm <sup>3</sup> /rev  |

Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL

# POMPE A CILINDRATA VARIABILE / VARIABLE DISPLACEMENT PUMPS



|                                                                                                        |                                                                                                                     |       |                      |         |      |
|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------|----------------------|---------|------|
| Fluido idraulico / Fluid                                                                               | Minerale o sintetico compatibile con guarnizioni:<br>Mineral or synthetic compatible with the following seals: HNBR |       |                      |         |      |
| Temp. consentita / Allowed temperature                                                                 | -25 +80 °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 / Optimal kinematic viscosity                               |                                                                                                                     |       | VG= 10 cSt ÷ 100 cSt |         |      |
| Viscosità cinematica max consentita all'avviamento / Max kinematic viscosity suggested at the start-up |                                                                                                                     |       | VG= 750 cSt          |         |      |
| Indice di viscosità consigliato / Viscosity index suggested                                            |                                                                                                                     |       | VI > 100             |         |      |

## FORMULE / FORMULAS

Grandezze nominali / Nominal values

Portata  
Flow

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

Coppia motrice  
Torque

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

Potenza motrice  
Power

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

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-mechanic efficiency

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

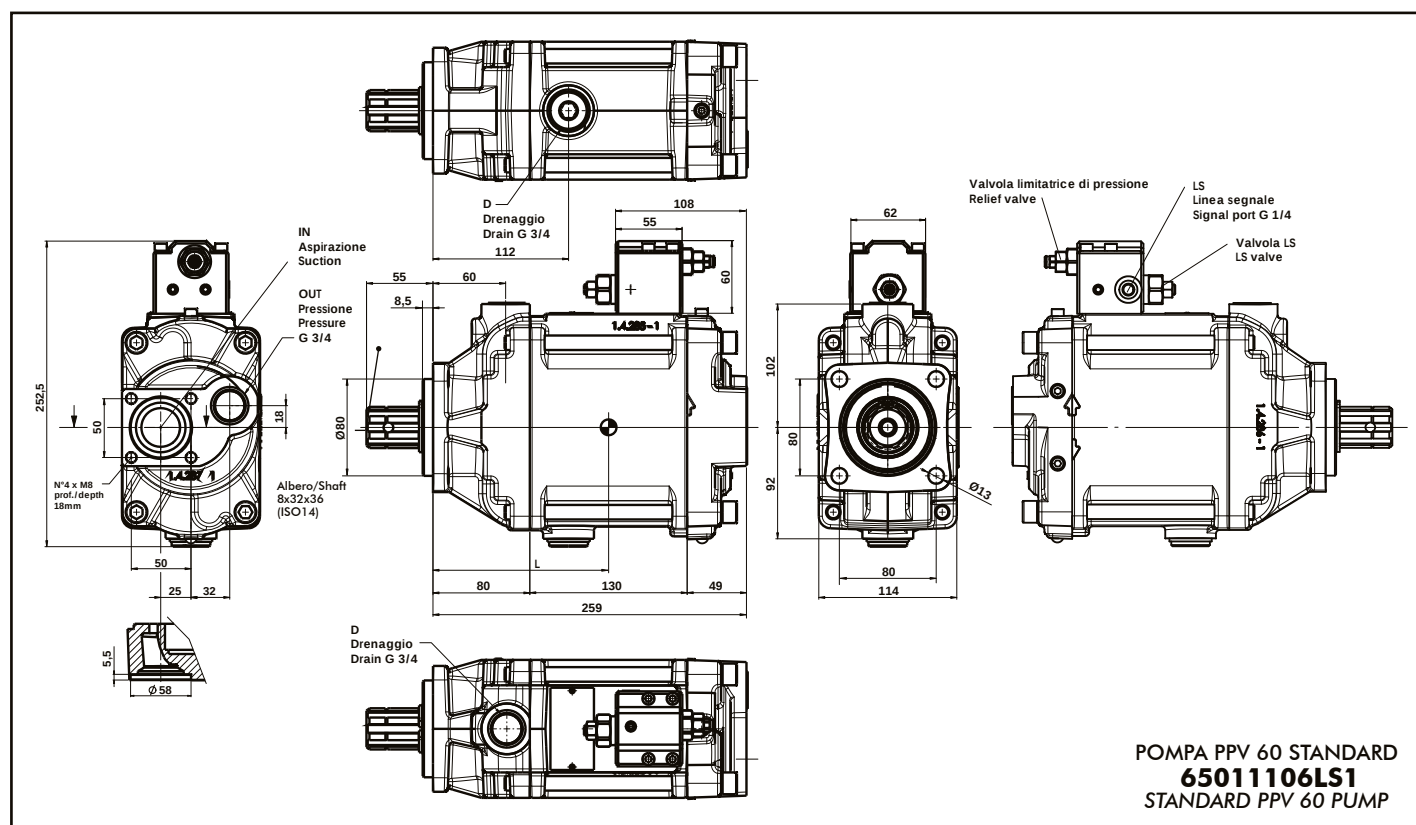
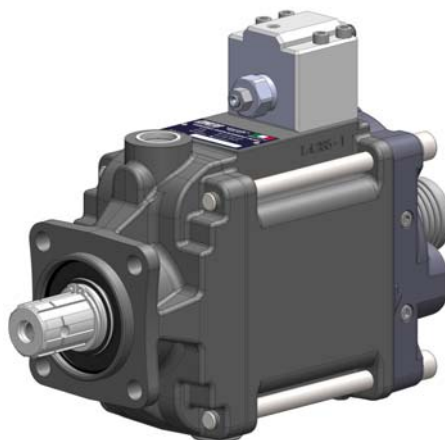
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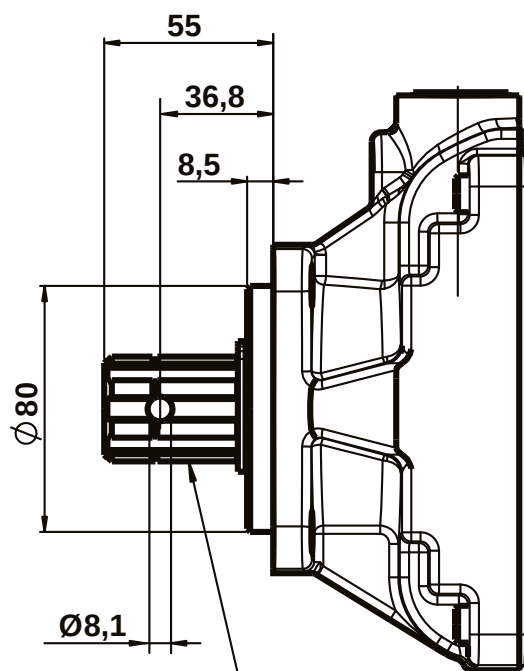
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## PPV 60



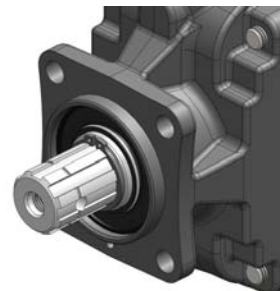
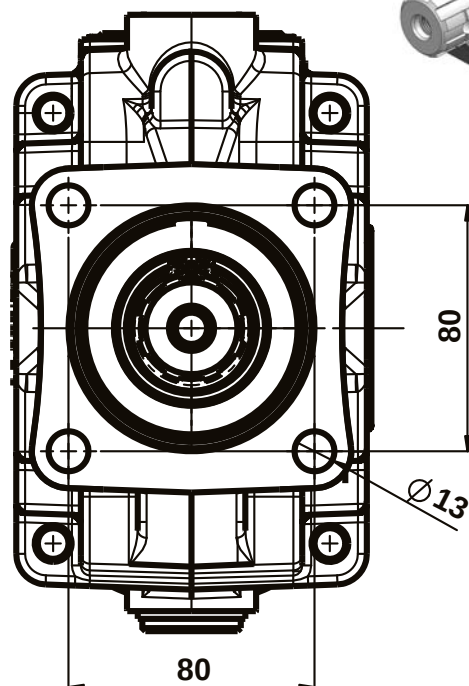
|     |                                                                                                                | FFFS1BDDRRX         | FFFS5BDDRRX     |
|-----|----------------------------------------------------------------------------------------------------------------|---------------------|-----------------|
| LS  | BLOCCHETTO LS/ LS BLOCK                                                                                        | G 1/4               |                 |
| D   | DRENAGGIO / DRAIN                                                                                              | G 3/4               | 1 1/16-12 UN-2B |
| OUT | PRESSIONE / PRESSURE                                                                                           | G 3/4               | 1 5/16-12 UN-2B |
| IN  | ASPIRAZIONE / SUCTION<br>Raccordo da ordinare separatamente<br><i>Suction fitting to be ordered separately</i> | Ø50 mm              |                 |
| L   | BARICENTRO / CENTER OF MASS                                                                                    | 145 mm circa/approx |                 |

**6501TBDDRRX**

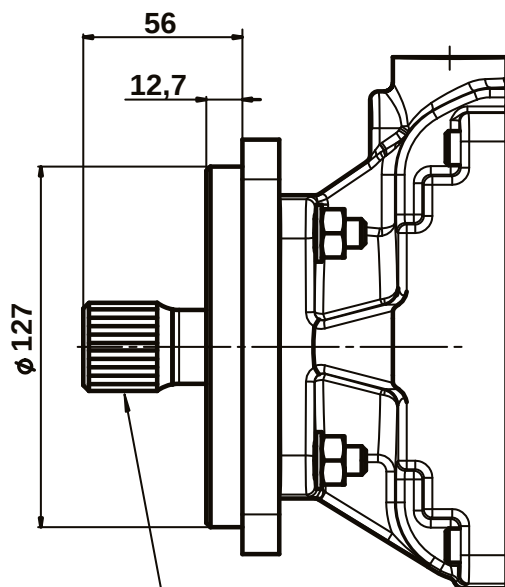


Albero/Shaft  
8x32x36  
(ISO 14)

COPPIA TRASMISSIBILE  
MASSIMA 900Nm  
MAX. TORQUE 900Nm

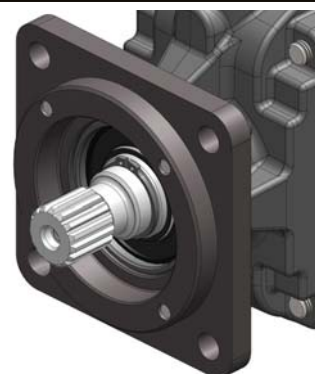
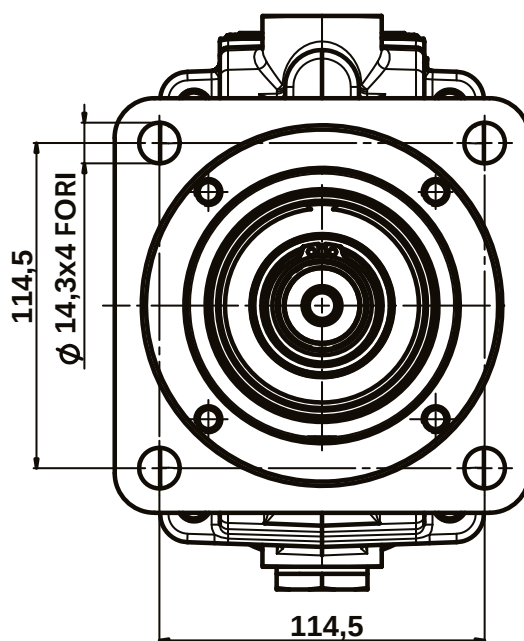


**6512TBDDRRX**



Albero/Shaft  
SAE C-14T 12/24DP  
(ISO 3019-1 32-4)

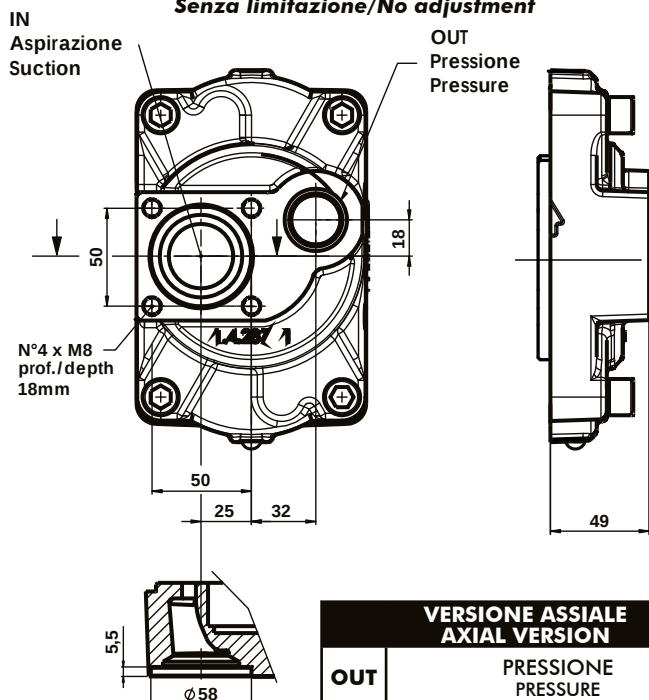
COPPIA TRASMISSIBILE  
MASSIMA 640Nm  
MAX. TORQUE 640Nm

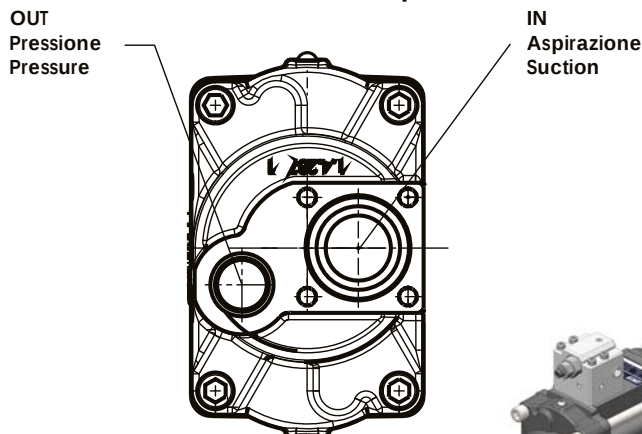


Data: Mercoledì 15 aprile 2020

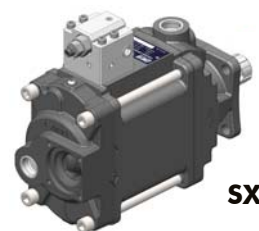
Codice foglio: 997-650-11110 Rev: AL

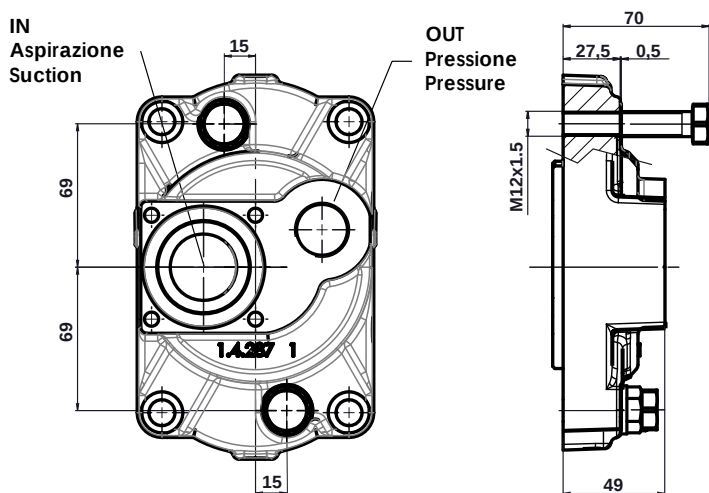
**FFFST B  
1 DDDR1**

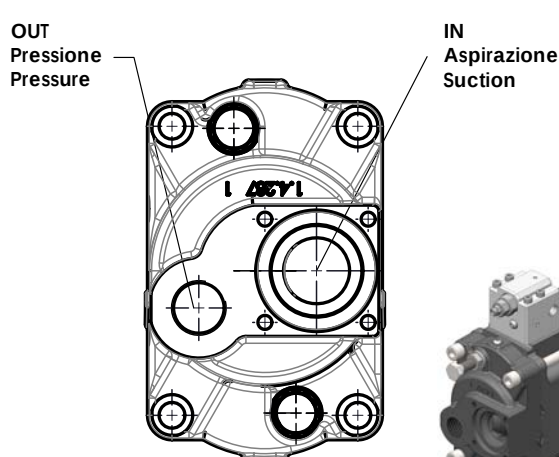
 Rotazione destra/Right rotation  
 Senza limitazione/No adjustment

**FFFST B  
1 DDDR6**

 Rotazione sinistra/Left rotation  
 Senza limitazione/No adjustment


| VERSIONE ASSIALE<br>AXIAL VERSION |                                                                                                         | FFFS1 BDDRRX | FFFS5 BDDRRX    |
|-----------------------------------|---------------------------------------------------------------------------------------------------------|--------------|-----------------|
| OUT                               | PRESSIONE<br>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        |                 |

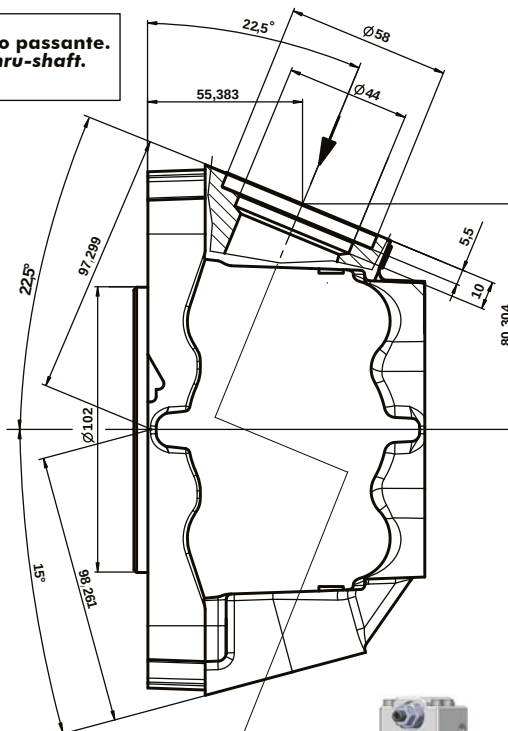
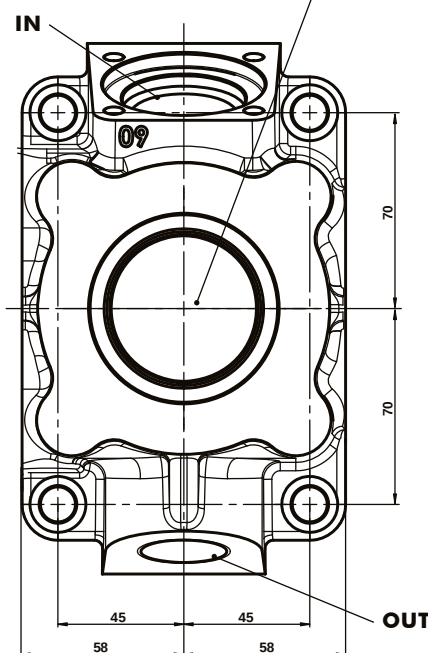
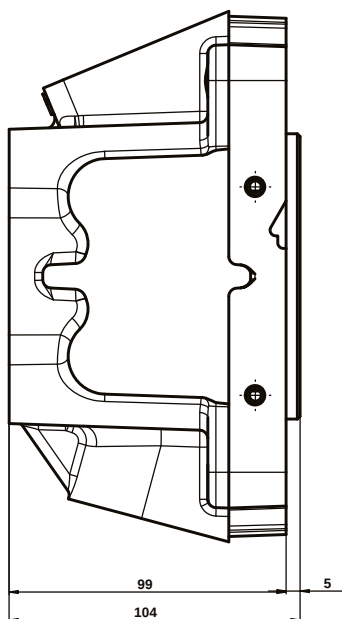

**FFFST B  
1 DDDR2**

 Rotazione destra/Right rotation  
 Con limitazione/With adjustment

**FFFST B  
1 DDDR7**

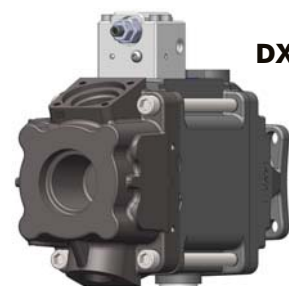
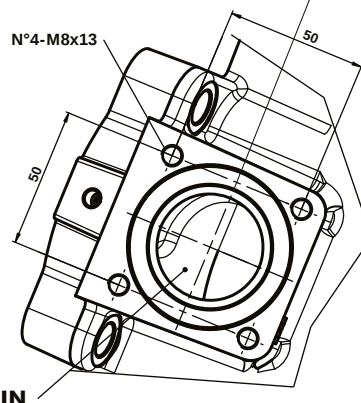
 Rotazione sinistra/Left rotation  
 Con limitazione/With adjustment


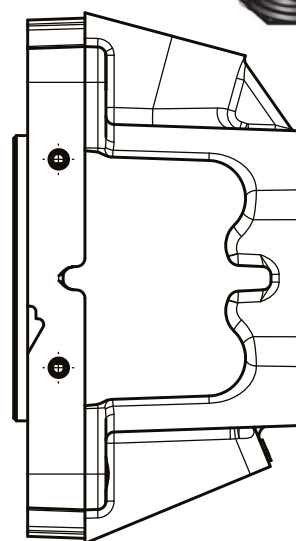
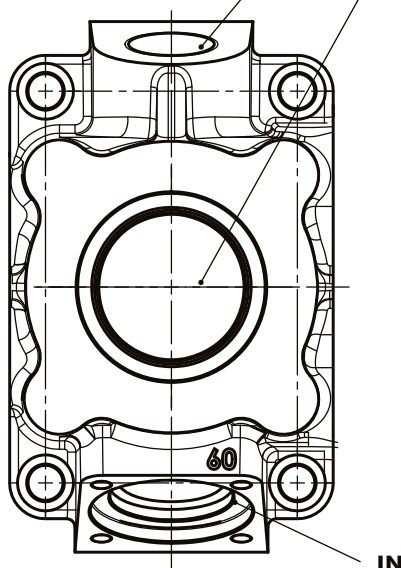
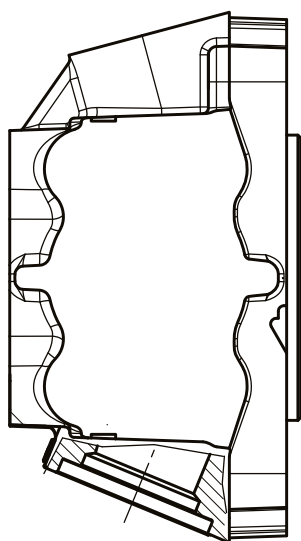
| VERSIONE ASSIALE / AXIAL VERSION |                                                                                                         | FFFS1 BDDRRX | FFFS5 BDDRRX    |
|----------------------------------|---------------------------------------------------------------------------------------------------------|--------------|-----------------|
| 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        |                 |

**FFFST** **B** **2** **DDRR1**
**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

 Senza albero passante.  
 Without thru-shaft.


| VERSIONE RADIALE VERTICALE<br>SENZA ALBERO PASSANTE<br>VERTICAL RADIAL VERSION<br>WITHOUT THRU-SHAFT |                                                                                                         | FFFS1 BDDRRX | FFFS5 BDDRRX    |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------|-----------------|
| 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        |                 |


**FFFST** **B** **2** **DDRR6**
**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

 Senza albero passante.  
 Without thru-shaft.


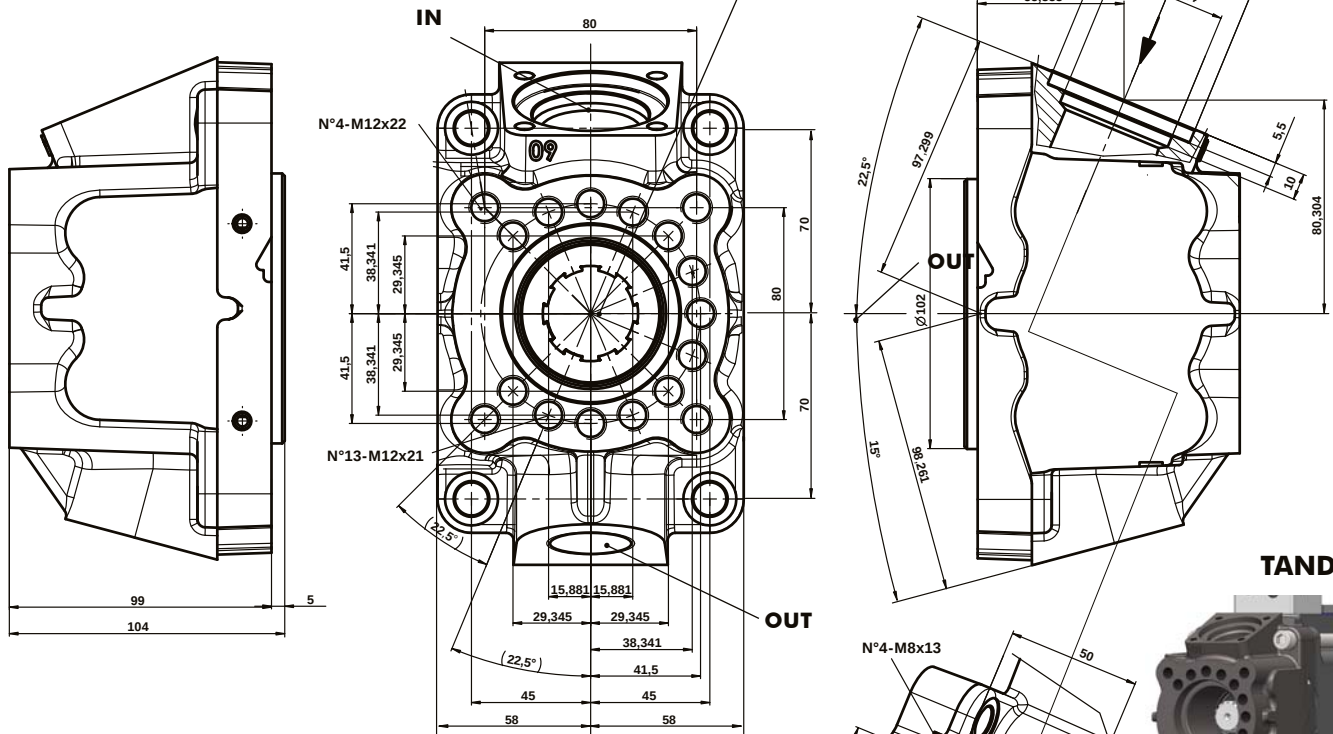
**FFFST**

|          |
|----------|
| <b>B</b> |
| <b>3</b> |

**DDRR1**

**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

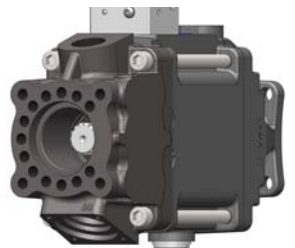
**Con albero passante.  
Senza coperchio.  
With thru-shaft.  
Cover not included.**



## TANDEM DX



**TANDEM SX**



| VERSIONE RADIALE VERTICALE<br>CON ALBERO PASSANTE<br>VERTICAL RADIAL VERSION<br>WITH THRU-SHAFT |                                                                                                               | FFFS1BDDRRX | FFFS5BDDRRX     |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------|-----------------|
| OUT                                                                                             | PRESSIONE / PRESSURE                                                                                          | G 1         | 1 5/16-12 UN-2B |
| IN                                                                                              | ASPIRAZIONE / SUCTION<br>Raccordo da ordinare<br>separatamente<br>Suction fitting to be<br>ordered separately | Ø50mm       |                 |

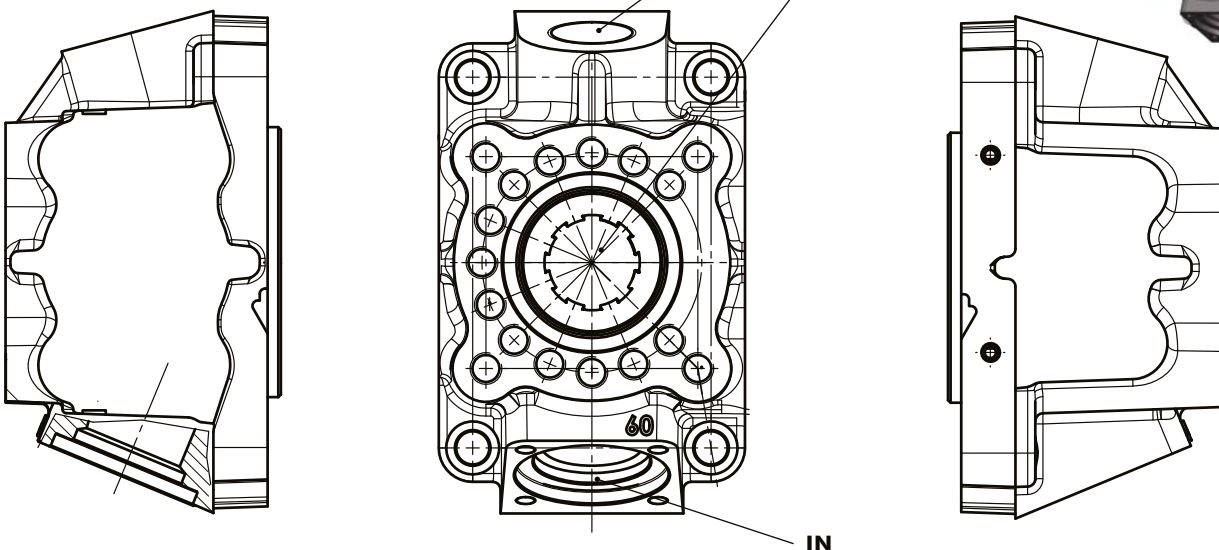
**FFFST**

|          |
|----------|
| <b>B</b> |
| <b>3</b> |

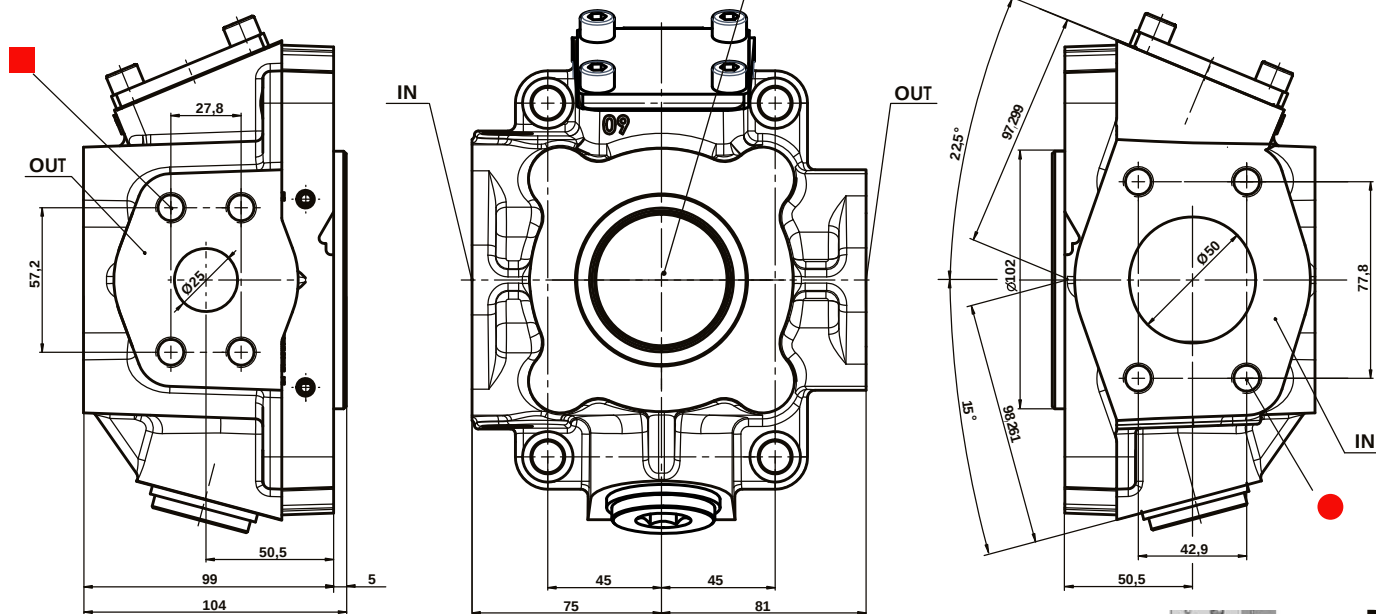
**DDRR6**

**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

**Con albero passante.  
Senza coperchio.  
With thru-shaft.  
Cover not included.**

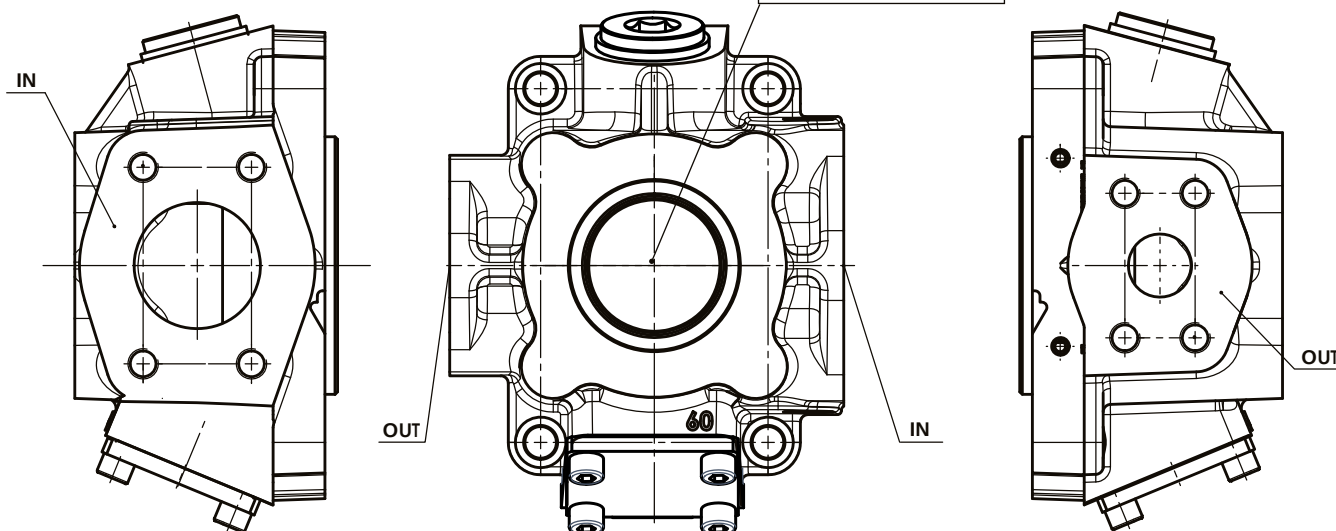


**FFFS1** **B**  
**4** **DDRR1**
**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

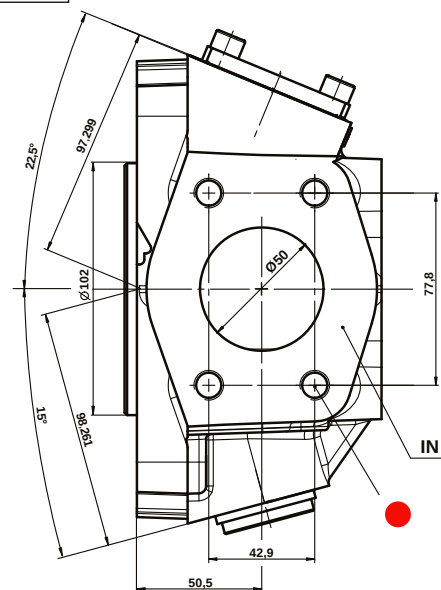
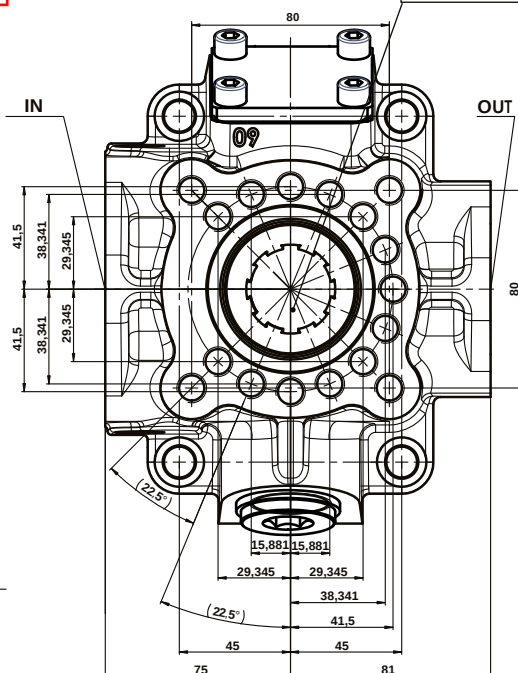
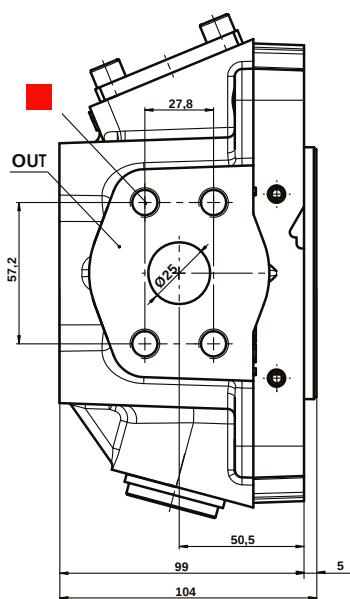
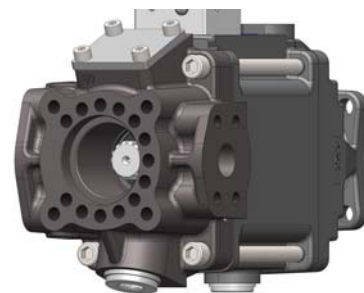
 Senza albero passante.  
 Without thru-shaft.


| VERSIONE RADIALE ORIZZONTALE<br>SAE SENZA ALBERO PASSANTE<br>HORIZONTAL RADIAL SAE VERSION<br>WITHOUT THRU-SHAFT |                        |             | FFFS1BDDRRX | FFFS5BDDRRX | Lunghezza vite<br>Screw lenght |
|------------------------------------------------------------------------------------------------------------------|------------------------|-------------|-------------|-------------|--------------------------------|
| <b>OUT</b> ■                                                                                                     | PRESSIONE<br>PRESSURE  | 1" SAE 6000 | M12         | 7/16"UNC    | 19mm                           |
| <b>IN</b> ●                                                                                                      | ASPIRAZIONE<br>SUCTION | 2" SAE 3000 | M12         | 1/2"UNC     | 18mm                           |


**FFFS1** **B**  
**4** **DDRR6**
**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

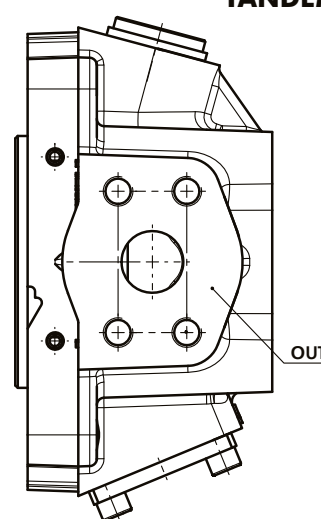
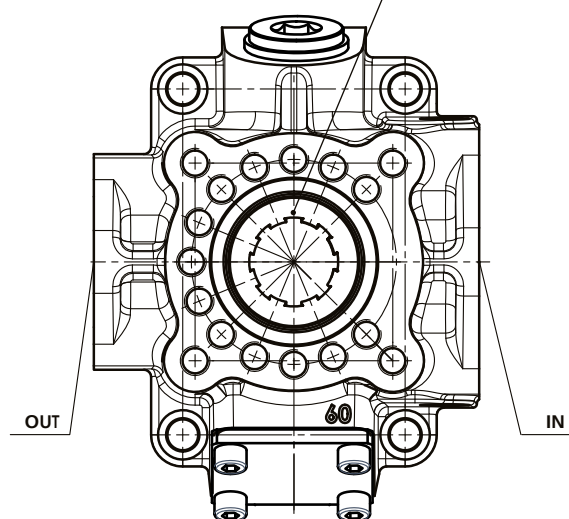
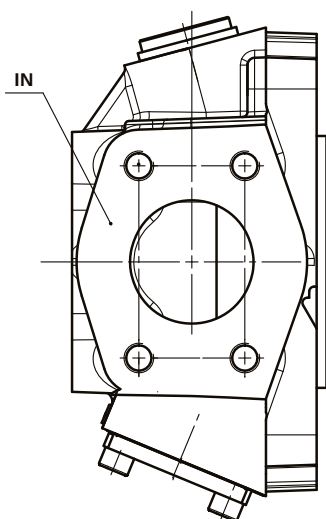
 Senza albero passante.  
 Without thru-shaft.


**FFFST** **B** **5** **DDRR1**
**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

 Con albero passante.  
 Senza coperchio.  
 With thru-shaft.  
 Cover not included.

**TANDEM DX**

**TANDEM SX**

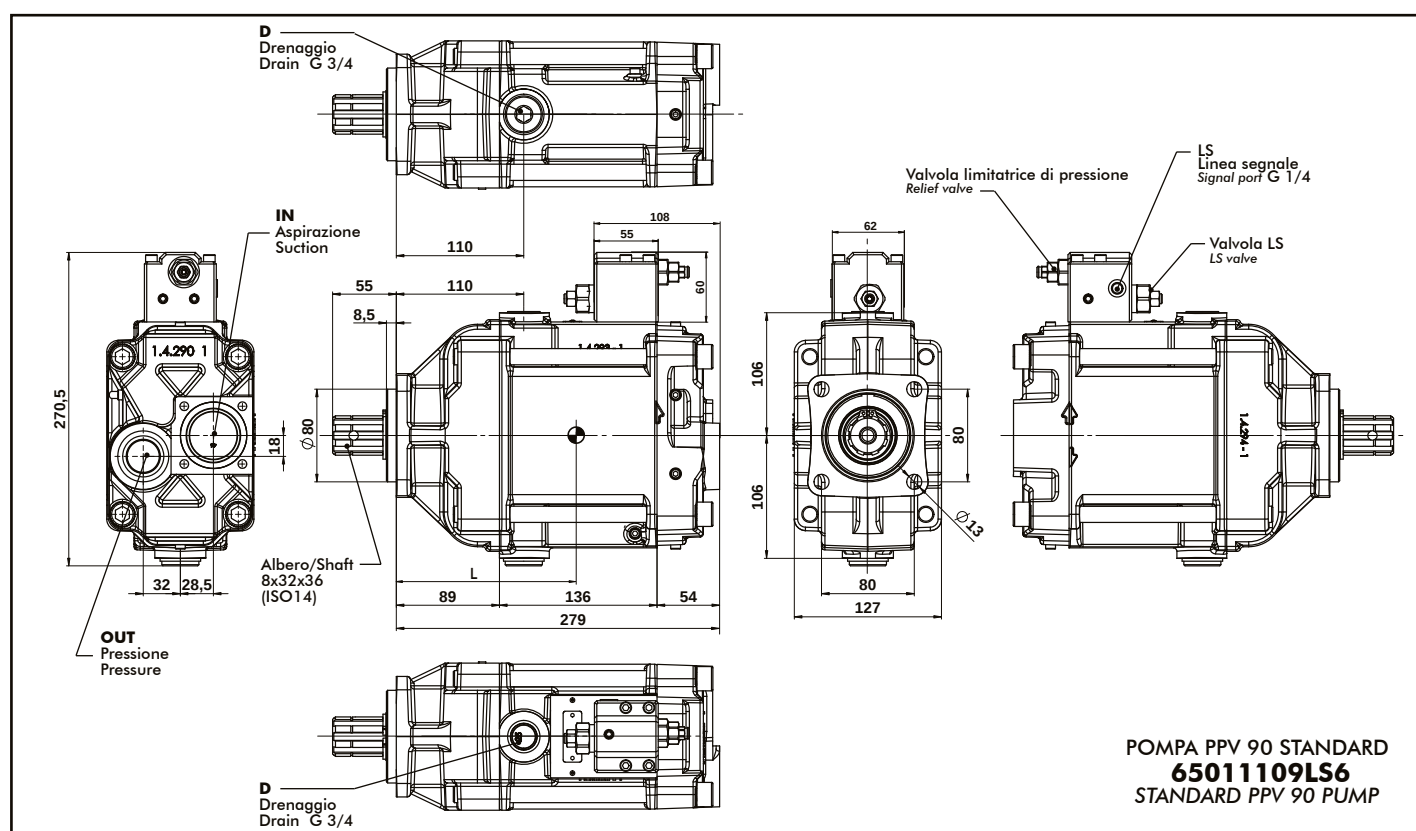
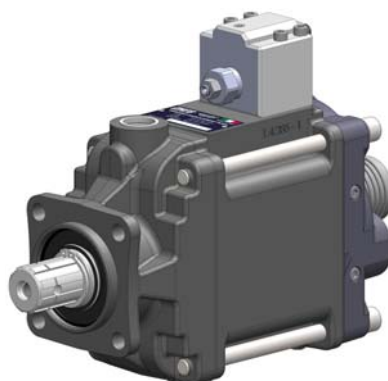
| VERSIONE RADIALE ORIZZONTALE<br>SAE CON ALBERO PASSANTE<br>HORIZONTAL RADIAL SAE VERSION<br>WITH THRU-SHAFT |                        |                 | FFFS1BDDRRX | FFFS5BDDRRX | Lunghezza vite<br>Screw lenght |
|-------------------------------------------------------------------------------------------------------------|------------------------|-----------------|-------------|-------------|--------------------------------|
| <b>OUT</b> ■                                                                                                | PRESSIONE<br>PRESSURE  | 1" SAE 6000     | M12         | 1/2"UN      | 19mm                           |
| <b>IN</b> ●                                                                                                 | ASPIRAZIONE<br>SUCTION | 2 1/2" SAE 3000 | M12         | 1/2"UN      | 18mm                           |

**FFFST** **B** **5** **DDRR6**
**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

 Con albero passante.  
 Senza coperchio.  
 With thru-shaft.  
 Cover not included.


# POMPE A CILINDRATA VARIABILE VARIABLE DISPLACEMENT PUMPS

## PPV 90-110



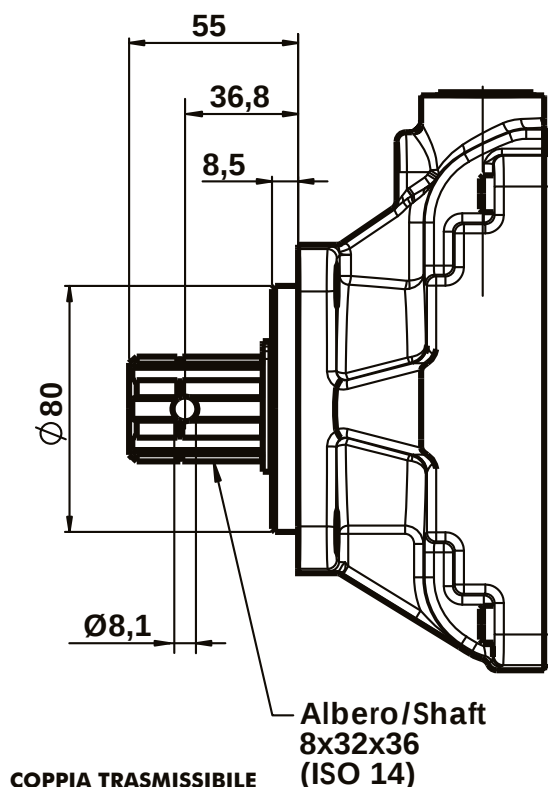
POMPA PPV 90 STANDARD  
**65011109LS6**  
STANDARD PPV 90 PUMP

|     |                                                                                                         | FFFS1BDDRRX         | FFFS5BDDRRX     |
|-----|---------------------------------------------------------------------------------------------------------|---------------------|-----------------|
| LS  | BLOCCHETTO 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 |                 |

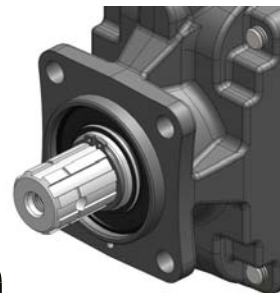
Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL

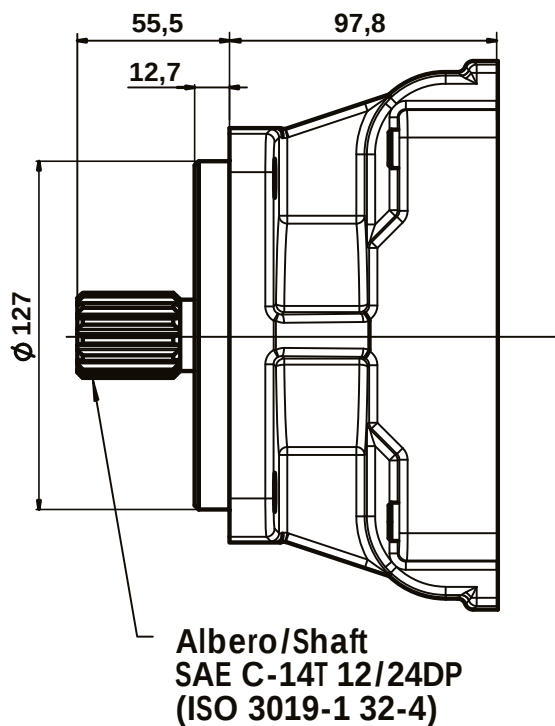
**6501TBDDRRX**



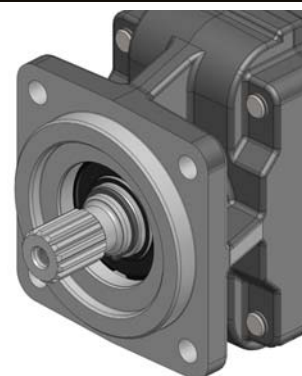
**COPPIA TRASMISSIBILE  
MASSIMA 900Nm  
MAX. TORQUE 900Nm**



**6512TBDDRRX**

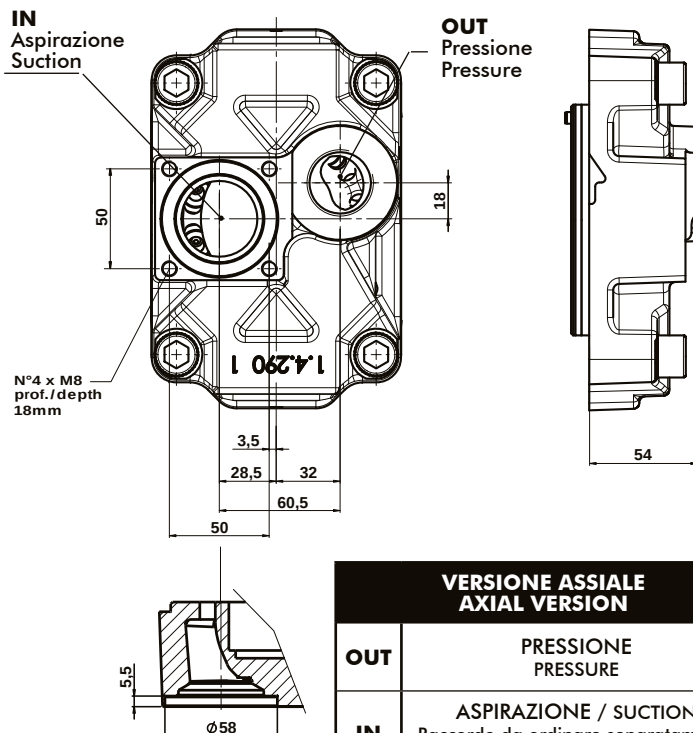
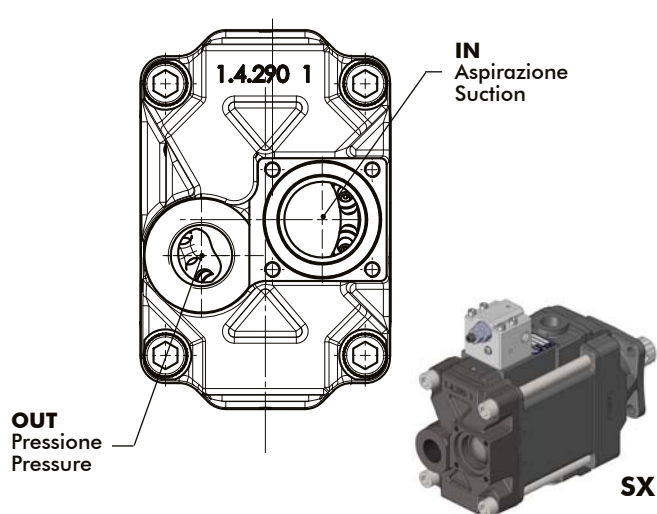


**COPPIA TRASMISSIBILE  
MASSIMA 640Nm  
MAX. TORQUE 640Nm**

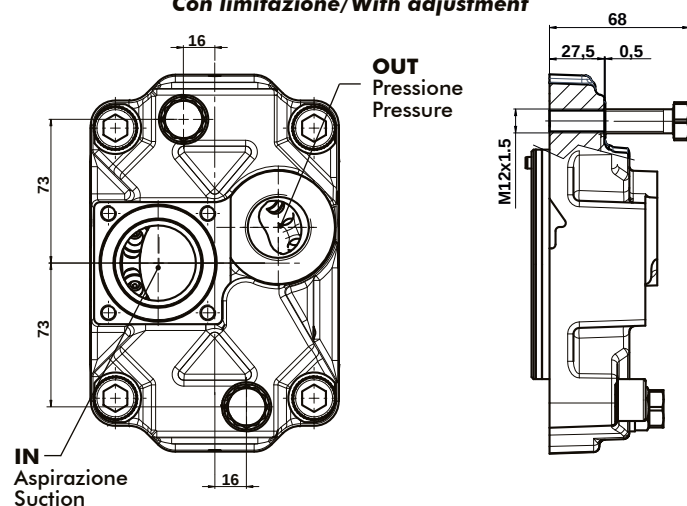
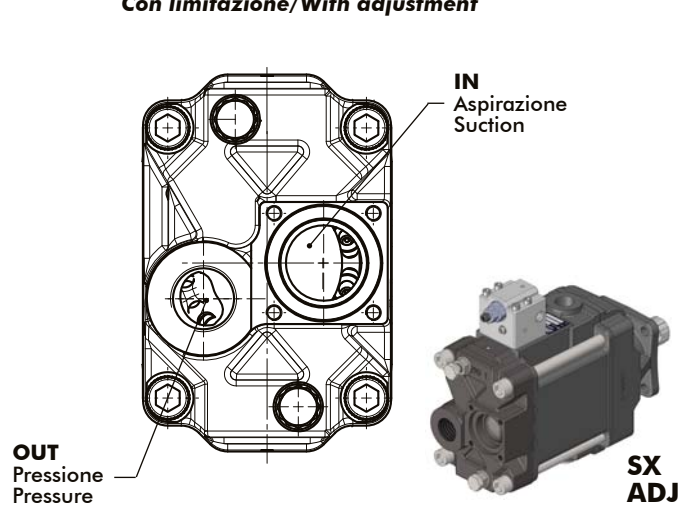


Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL

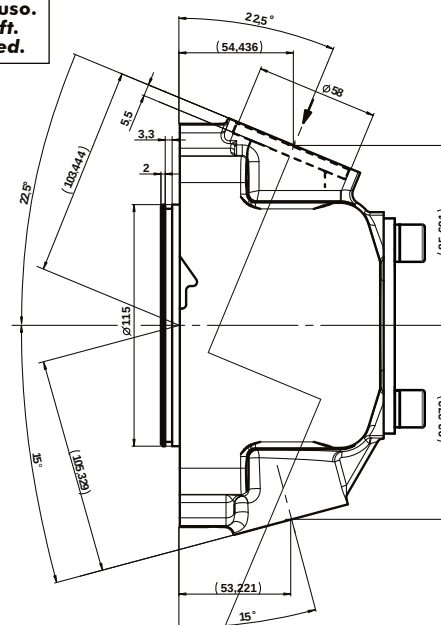
**FFFST B  
1 DDDR1**
**Rotazione destra/Right rotation  
Senza limitazione/No adjustment**

**FFFST B  
1 DDDR6**
**Rotazione sinistra/Left rotation  
Senza limitazione/No adjustment**


| VERSIONE ASSIALE<br>AXIAL VERSION |                                                                                                         | FFFS1 BDDRRX | FFFS5 BDDRRX    |
|-----------------------------------|---------------------------------------------------------------------------------------------------------|--------------|-----------------|
| OUT                               | PRESSIONE<br>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        |                 |

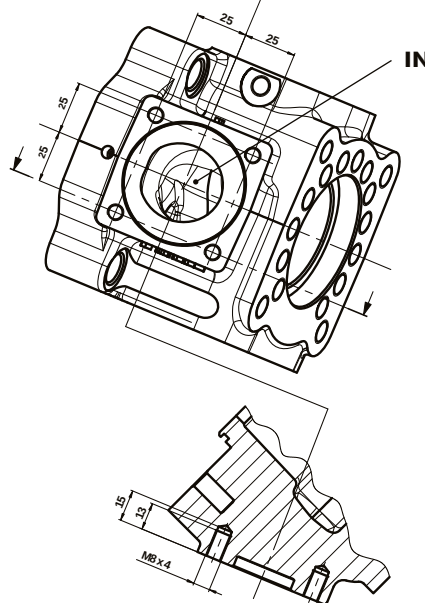
**FFFST B  
1 DDDR2**
**Rotazione destra/Right rotation  
Con limitazione/With adjustment**

**FFFST B  
1 DDDR7**
**Rotazione sinistra/Left rotation  
Con limitazione/With adjustment**


| VERSIONE ASSIALE<br>AXIAL VERSION |                                                                                                         | FFFS1 BDDRRX | FFFS5 BDDRRX    |
|-----------------------------------|---------------------------------------------------------------------------------------------------------|--------------|-----------------|
| 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        |                 |

**Senza albero passante.  
Con coperchio incluso.  
Without thru-shaft.  
With cover included.**

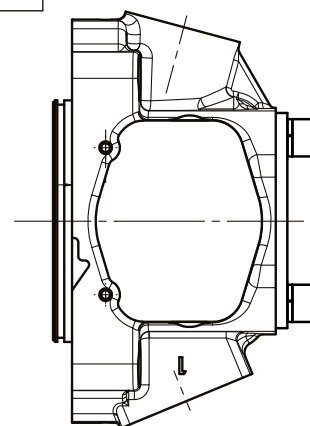
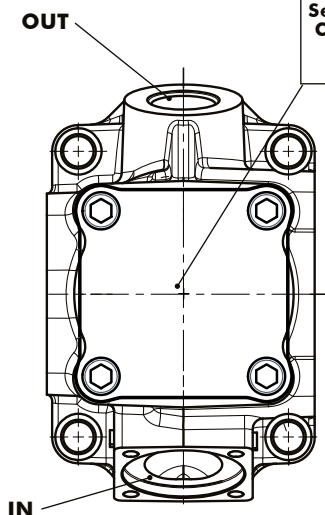
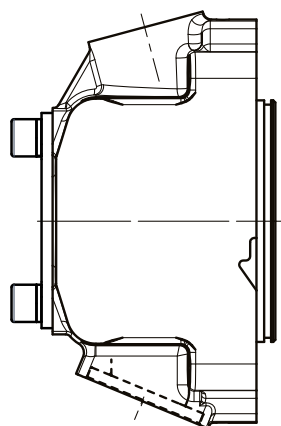


| VERSIONE RADIALE VERTICALE<br>SENZA ALBERO PASSANTE<br>VERTICAL RADIAL VERSION<br>WITHOUT THRU-SHAFT |                                                                                                                | FFFS1BDDRRX | FFFS5BDDRRX     |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------|-----------------|
| OUT                                                                                                  | PRESSIONE / PRESSURE                                                                                           | G 1         | 1 5/16-12 UN-2B |
| IN                                                                                                   | ASPIRAZIONE / SUCTION<br>Raccordo da ordinare separatamente<br><i>Section fitting to be ordered separately</i> | Ø50mm       |                 |

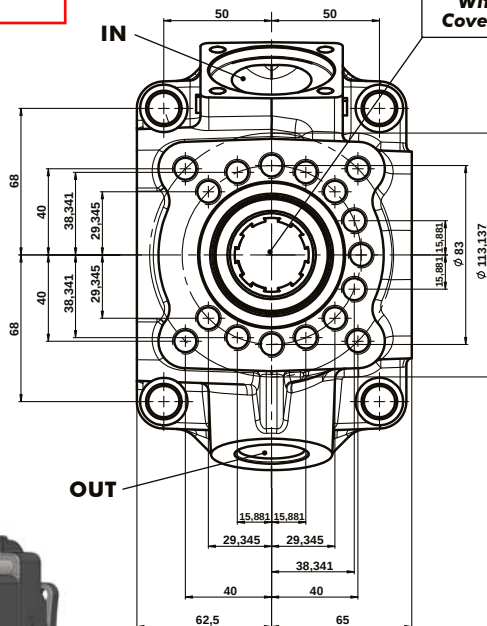
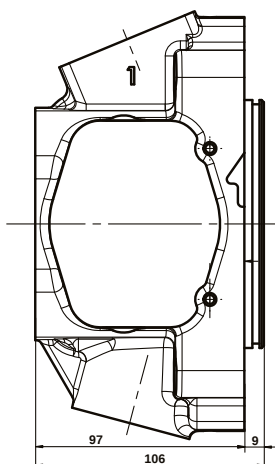
**SX**

**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

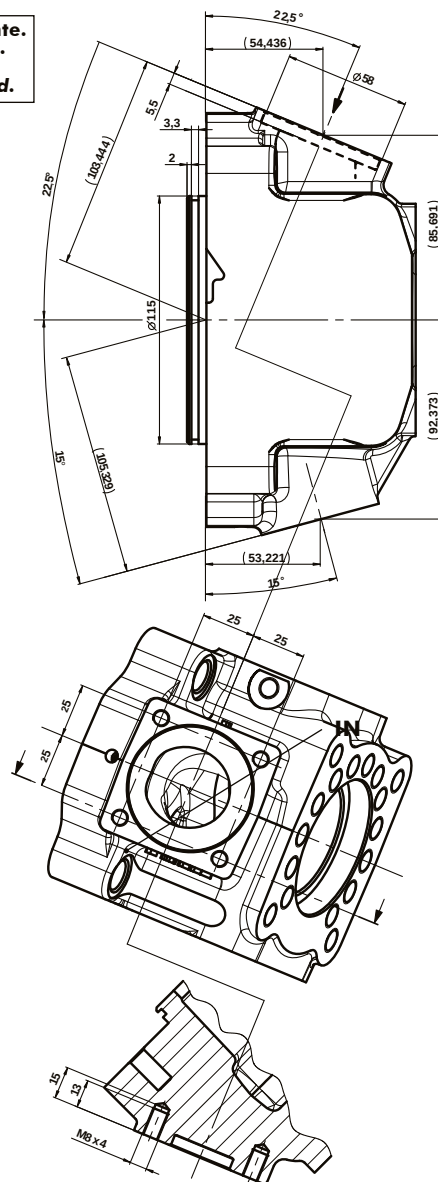
**Senza albero passante.  
Con coperchio incluso.  
Without thru-shaft.  
With cover included.**

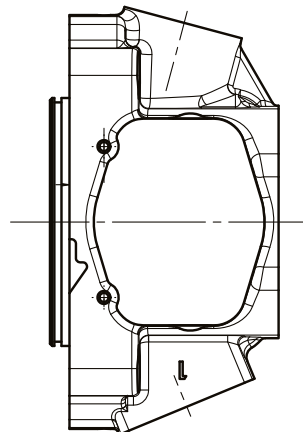
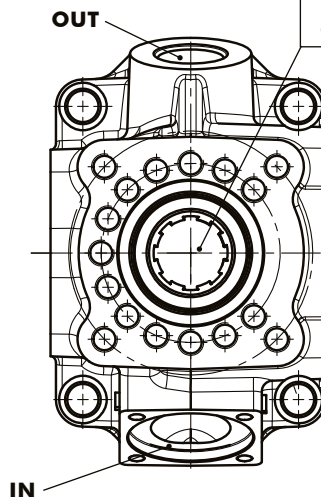
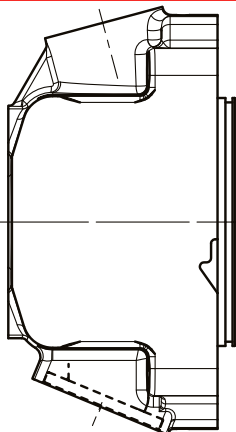


**FFST** **B** **3** **DDRR1**
**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

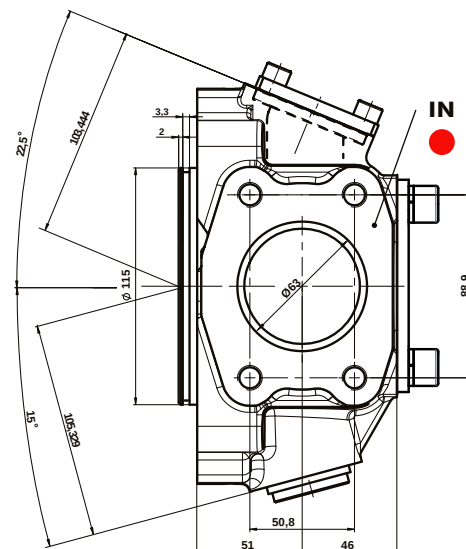
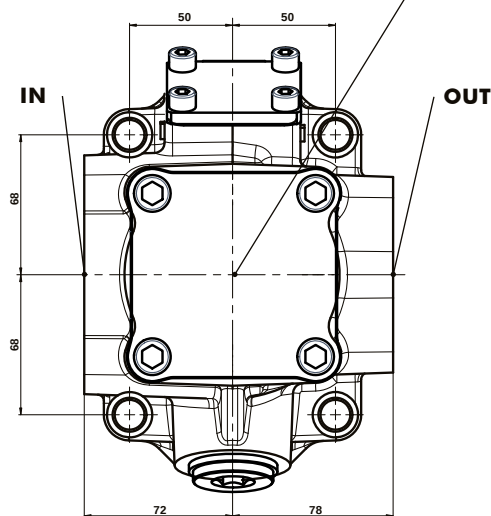
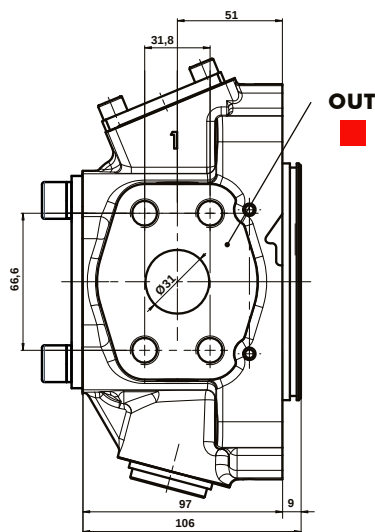
 Con albero passante.  
 Senza coperchio.  
 With thru-shaft.  
 Cover not included.

**TANDEM**  
**DX**


| VERSIONE RADIALE VERTICALE<br>CON ALBERO PASSANTE<br>VERTICAL RADIAL VERSION<br>WITH THRU-SHAFT |                                                                                                         | FFFS1 BDDRRX | FFFS5 BDDRRX    |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------|-----------------|
| 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        |                 |

**TANDEM**  
**SX**

**FFST** **B** **3** **DDRR6**
**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

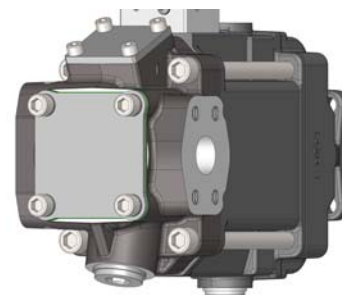
 Con albero passante.  
 Senza coperchio.  
 With thru-shaft.  
 Cover not included.


**FFFST** **B**  
**4** **DDRR1**
**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

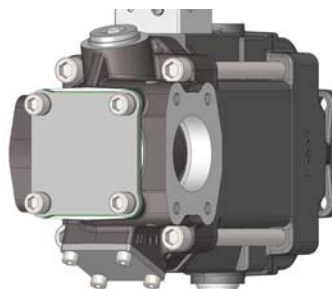
 Senza albero passante.  
 Con coperchio incluso.  
 Without thru-shaft.  
 With cover included.


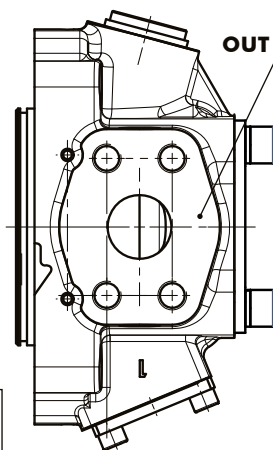
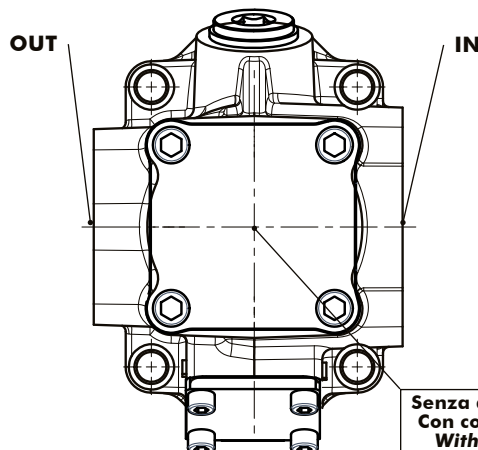
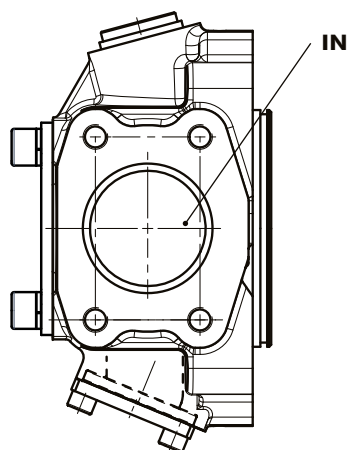
| VERSIONE RADIALE ORIZZONTALE<br>SAE SENZA ALBERO PASSANTE<br>HORIZONTAL RADIAL SAE VERSION<br>WITHOUT THRU-SHAFT |                        |                 | FFFS1BDDRRX | FFFS5BDDRRX | Lunghezza vite<br>Screw lenght |
|------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|-------------|-------------|--------------------------------|
| <b>OUT</b> ■                                                                                                     | PRESSIONE<br>PRESSURE  | 1 1/4" SAE 6000 | M14         | 1/2"UN      | 22mm                           |
| <b>IN</b> ●                                                                                                      | ASPIRAZIONE<br>SUCTION | 2 1/2" SAE 3000 | M12         | 1/2"UN      | 18mm                           |

DX



SX


**FFFST** **B**  
**4** **DDRR6**
**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

 Senza albero passante.  
 Con coperchio incluso.  
 Without thru-shaft.  
 With cover included.


Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL

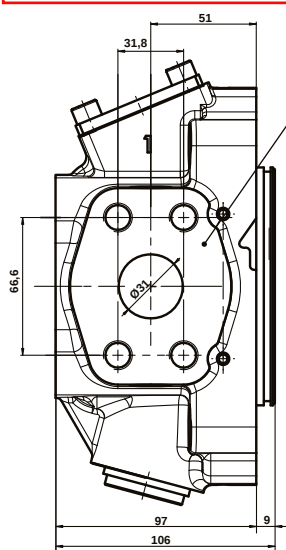
**FFFST**

|          |
|----------|
| <b>B</b> |
| <b>5</b> |

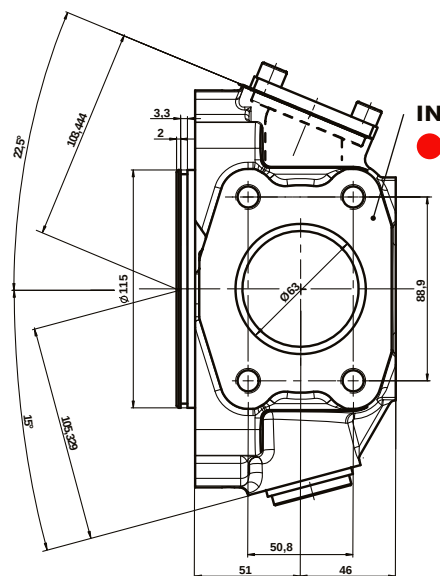
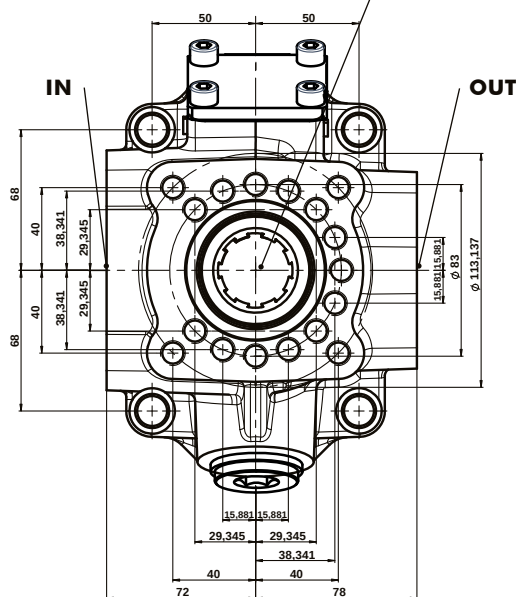
**DDRR1**

**ROTAZIONE DESTRA**  
**RIGHT ROTATION**

**Con albero passante.  
Senza coperchio.  
With thru-shaft.  
Cover not included.**



**OUT**

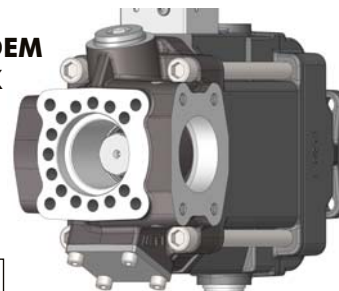
IN 

| VERSIONE RADIALE ORIZZONTALE<br>SAE CON ALBERO PASSANTE<br>HORIZONTAL RADIAL SAE VERSION<br>WITH THRU-SHAFT |                        |                 | FFFS1BDDRRX | FFFS5BDDRRX | Lunghezza vite<br>Screw lenght |
|-------------------------------------------------------------------------------------------------------------|------------------------|-----------------|-------------|-------------|--------------------------------|
| <b>OUT</b>               | PRESSIONE<br>PRESSURE  | 1 1/4" SAE 6000 | M14         | 1/2"UNC     | 22mm                           |
| <b>IN</b>                | ASPIRAZIONE<br>SUCTION | 2 1/2" SAE 3000 | M12         | 1/2"UNC     | 18mm                           |

**TANDEM  
DX**



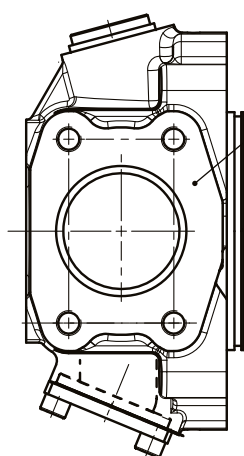
**TANDEM  
SX**



**FFFST** **B** **DDRR6**  
**5**

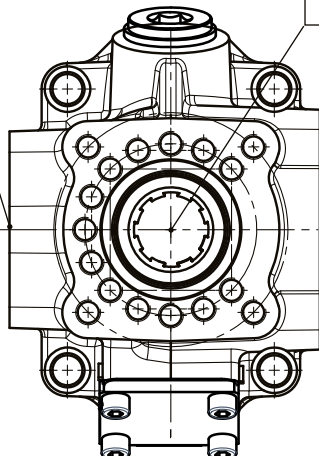
**ROTAZIONE SINISTRA**  
**LEFT ROTATION**

**Con albero passante.  
Senza coperchio.  
With thru-shaft.  
Cover not included.**

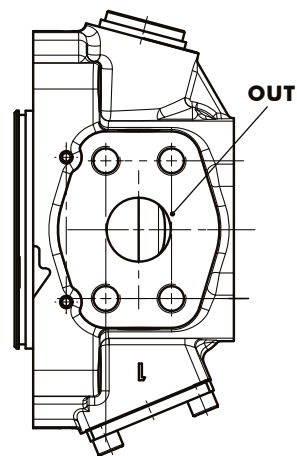


**IN**

**OUT**



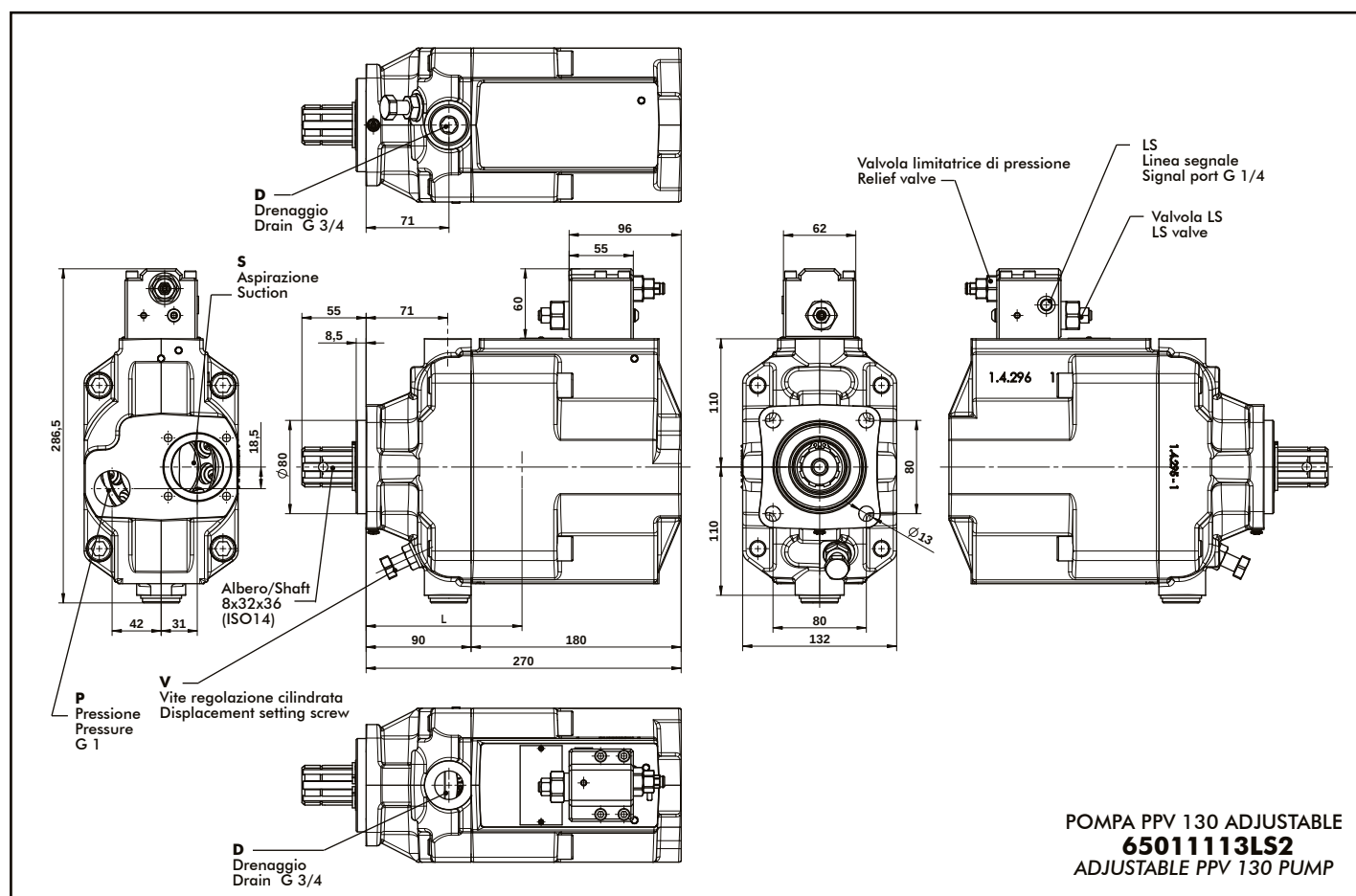
/ IN



**OUT**

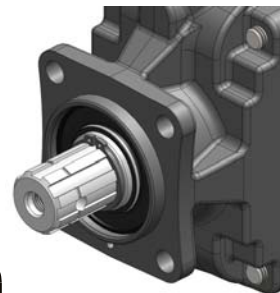
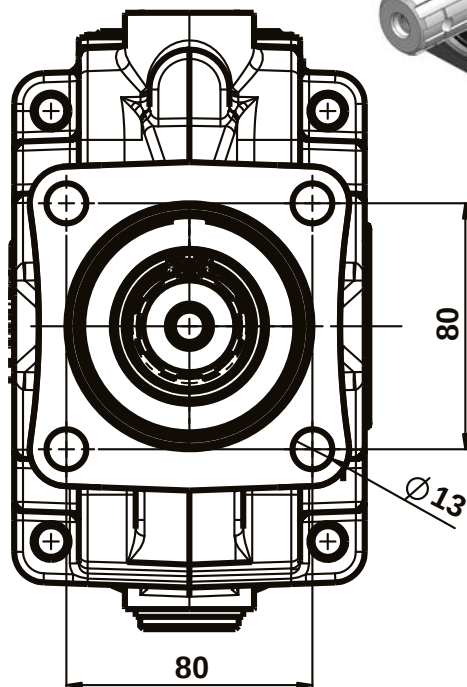
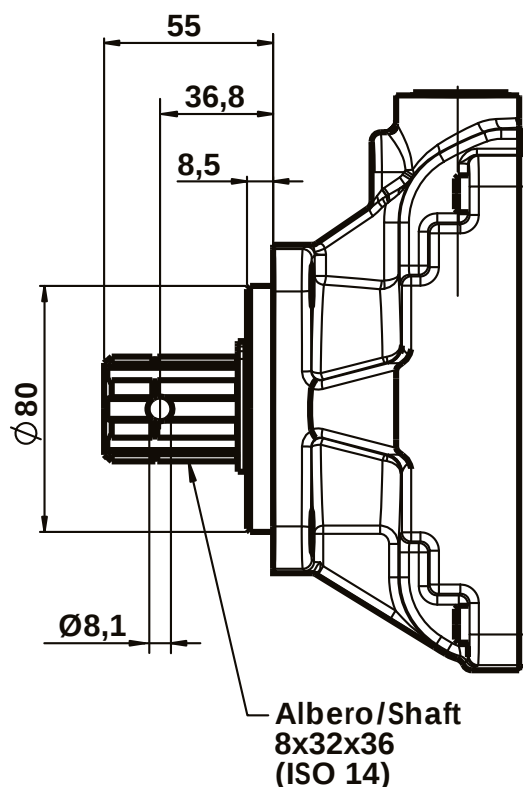
# PPV 130

## ADJUSTABLE



|            |                                                                                                                | <b>FFFS1BDDRRX</b>  |
|------------|----------------------------------------------------------------------------------------------------------------|---------------------|
| <b>LS</b>  | BLOCCETTO 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><i>Suction fitting to be ordered separately</i> | Ø50 mm              |
| <b>L</b>   | BARICENTRO / CENTER OF MASS                                                                                    | 145 mm circa/approx |

**6501TBDDRRX**



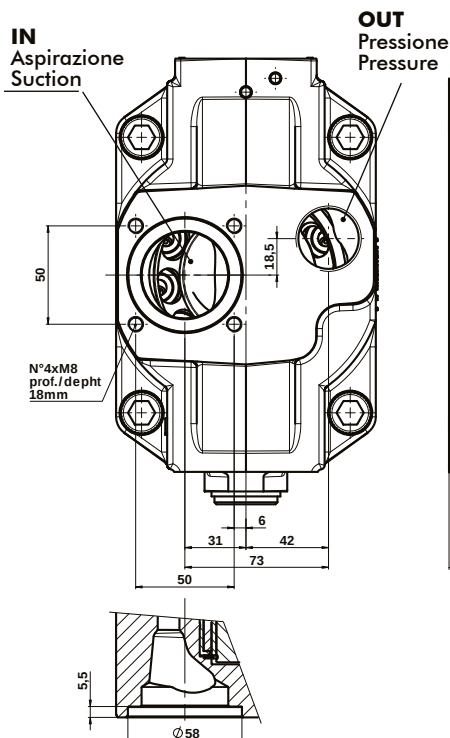
**COPPIA TRASMISSIBILE  
MASSIMA 900Nm  
MAX. TORQUE 900Nm**

Data: Mercoledì 15 aprile 2020

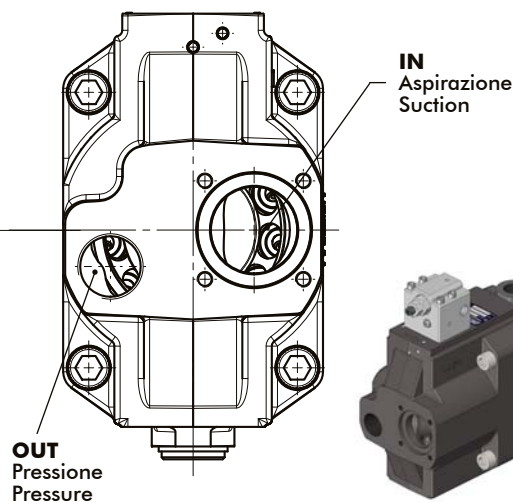
Codice foglio: 997-650-11110 Rev: AL

**FFFS1 B1 DDDR2**

Rotazione destra/Right rotation  
Senza limitazione/No adjustment


**FFFS1 B1 DDDR7**

Rotazione sinistra/Left rotation  
Senza limitazione/No adjustment



| VERSIONE ASSIALE<br>AXIAL VERSION |                                                                                                         | FFFS1 BDDR7 |
|-----------------------------------|---------------------------------------------------------------------------------------------------------|-------------|
| OUT                               | PRESSIONE<br>PRESSURE                                                                                   | G 1         |
| IN                                | ASPIRAZIONE / SUCTION<br>Raccordo da ordinare separatamente<br>Suction fitting to be ordered separately | Ø50mm       |

# REGOLATORI CONTROLS

## FFFSTBDDL**LSX**

### 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 150 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.

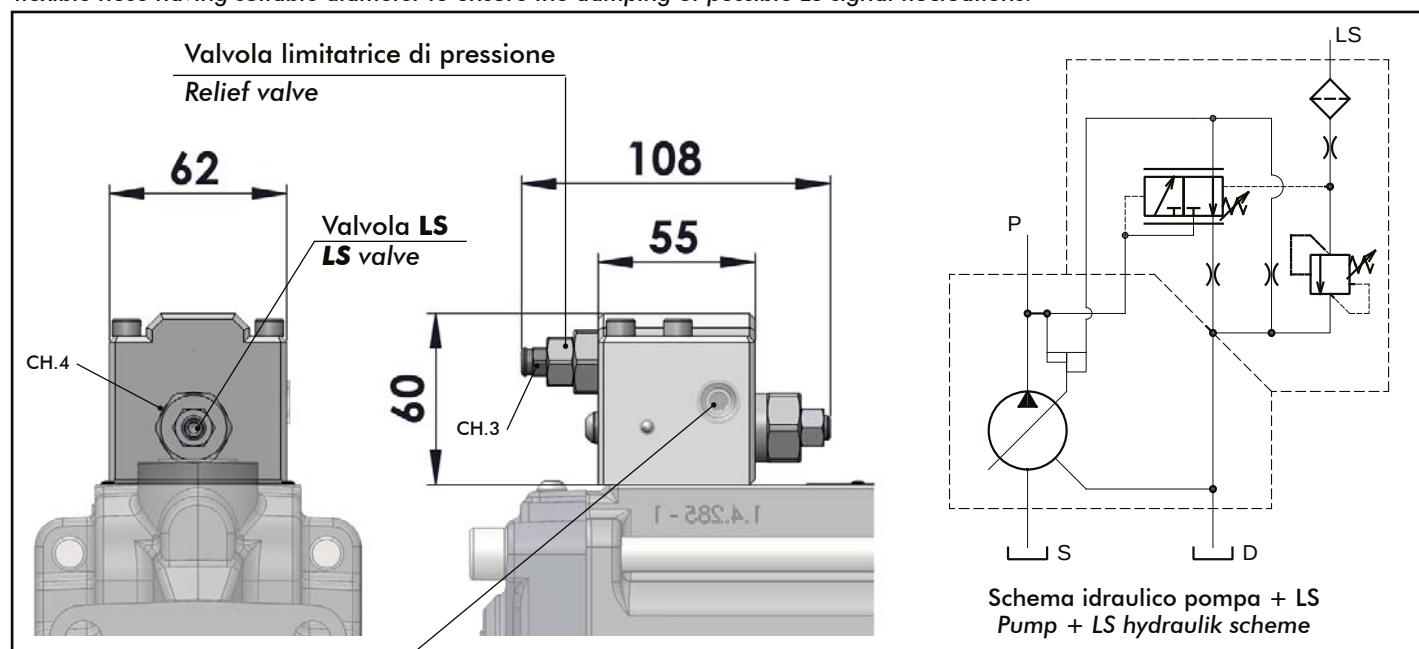
---

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

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

Setting 150 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.

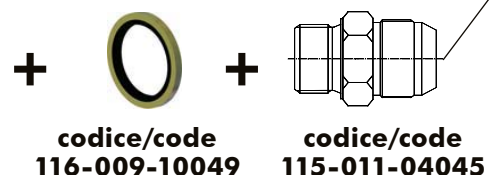


**LS**  
Linea segnale  
Signal port

**FFFS1BDDL**LSX****  
Filettatura/Thread G1/4

**FFFS5BDDL**LSX****  
Filettatura/Thread G1/4

7/16-20-04JIC



**FFFSTBDDPIX**

**REGOLATORE PI**

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 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**

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.

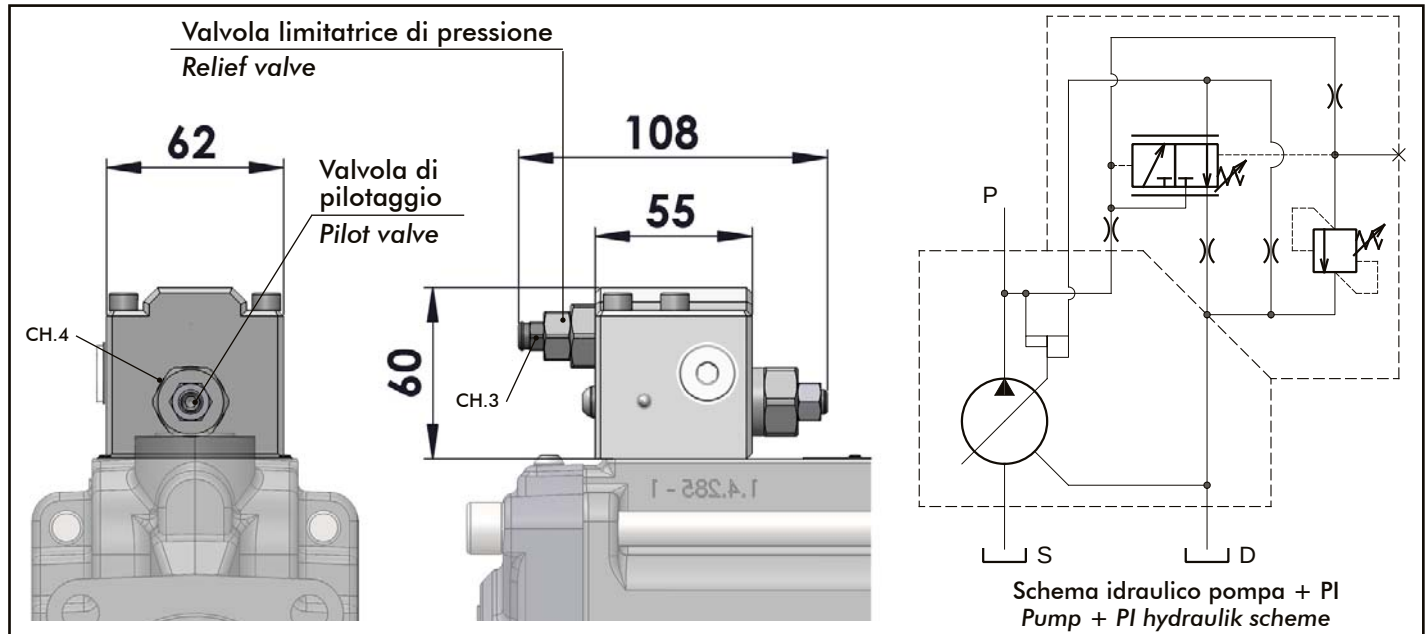
Setting 150 bar/rev.

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.



Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL

**FFFSTBDDPEX****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.

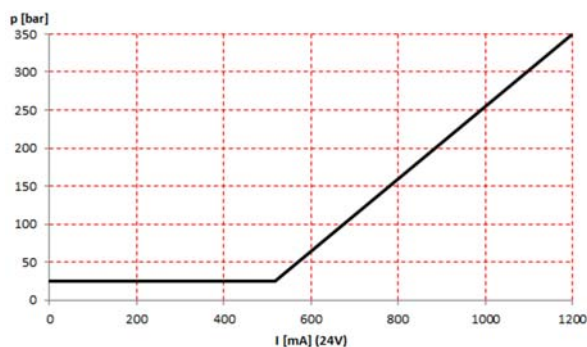
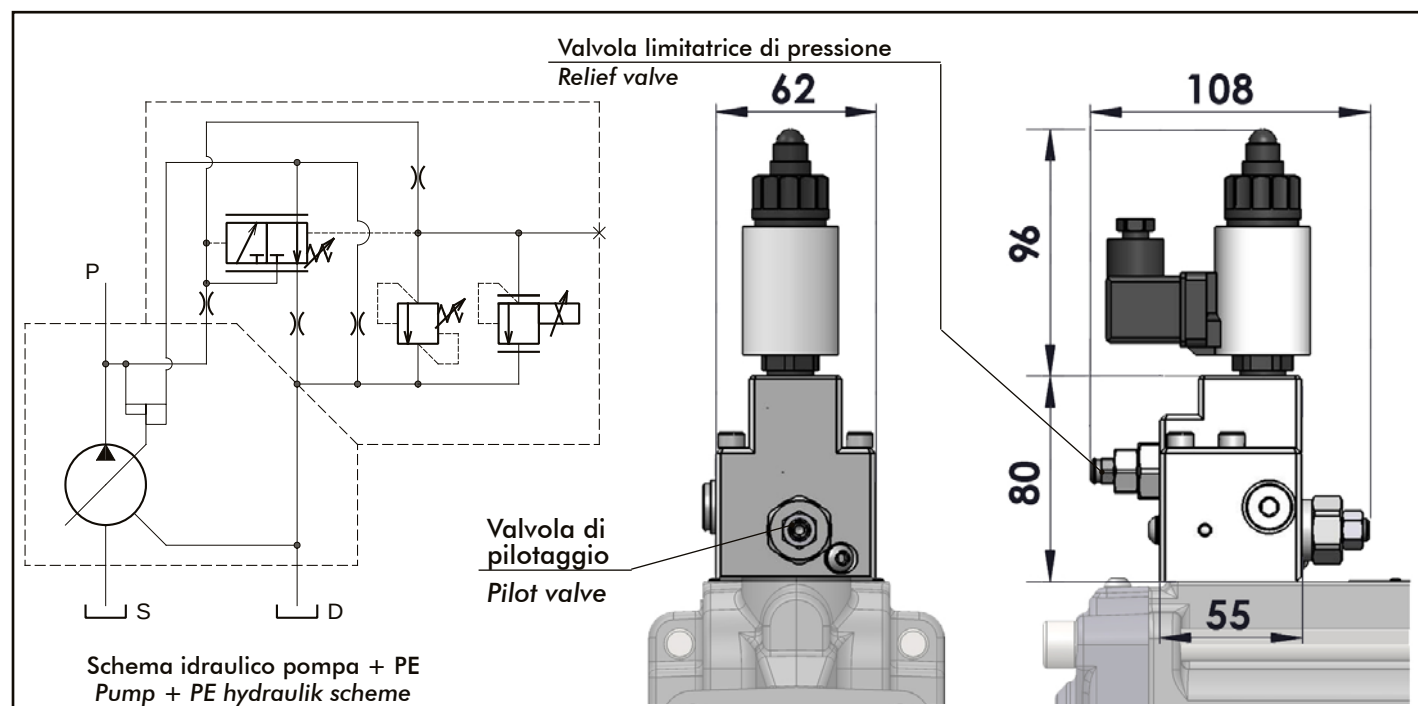
---

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.

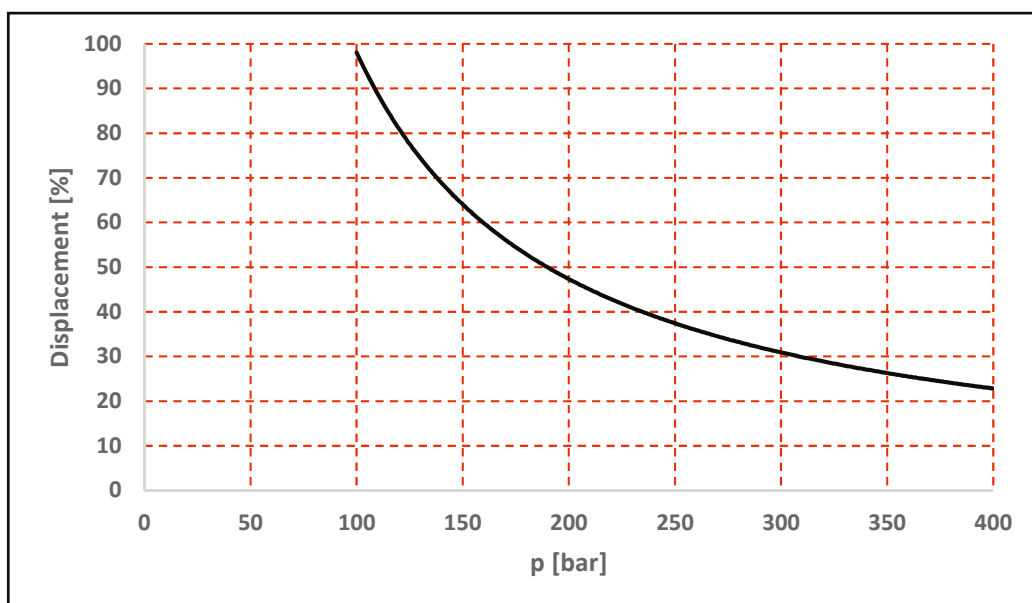
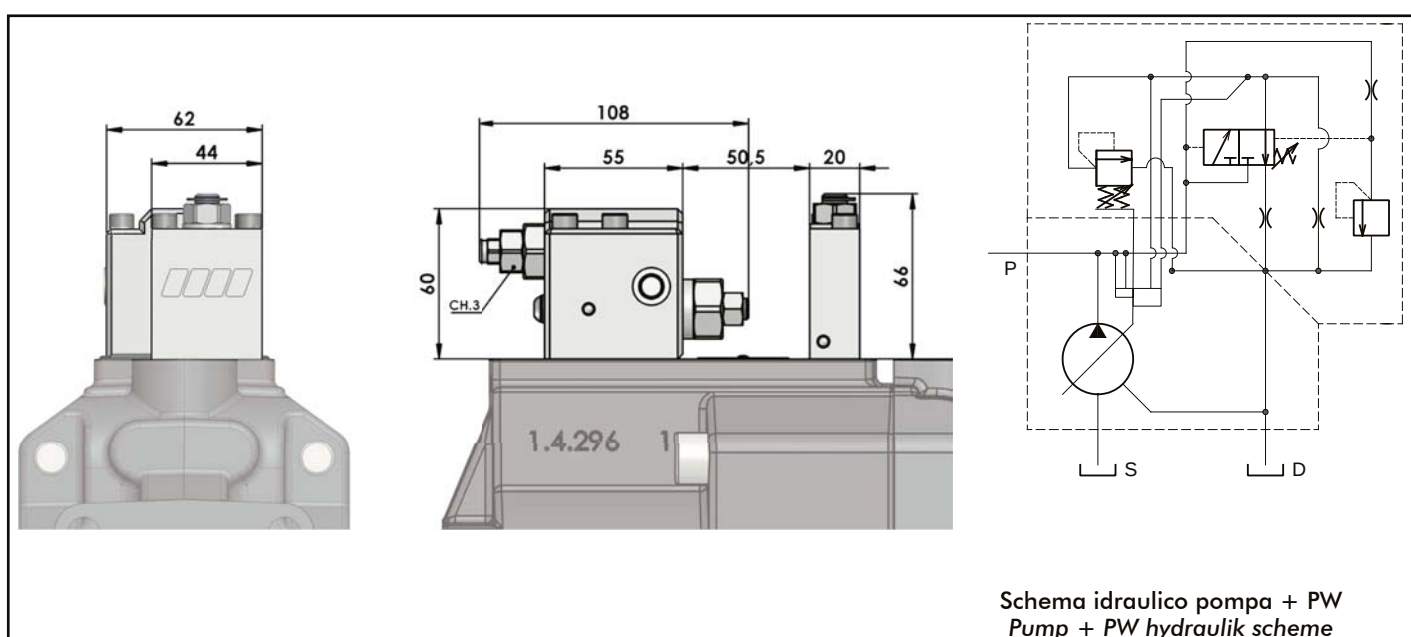


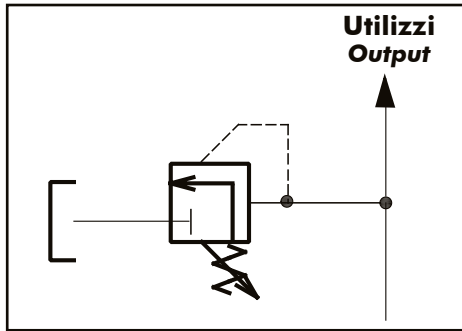
**FFFSTBDDPWX****REGOLATORE PW (potenza costante)**

Regolatore di potenza massima assorbita con un campo di regolazione di coppia 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**

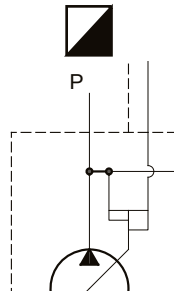
Maximum absorbed power regulator with a torque adjustment range between 200 and 700 Nm. The regulator adapts the pump displacement according to the pressure in the system, to maintain the pre-adjusted torque value and protect motor shaft, motor or transmission from overloads.





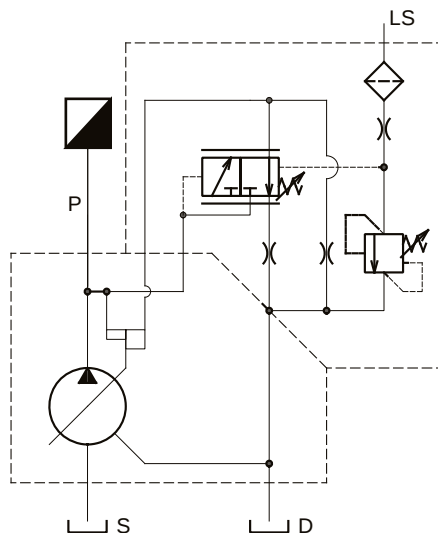
**Valvola supplementare limitatrice di pressione (NON fornita). Si consiglia una taratura di +30bar rispetto al taglio pressione.**

**Auxiliary pressure relief valve (NOT supplied). We suggest a pressure setting of +30bar than pressure cut-off value.**

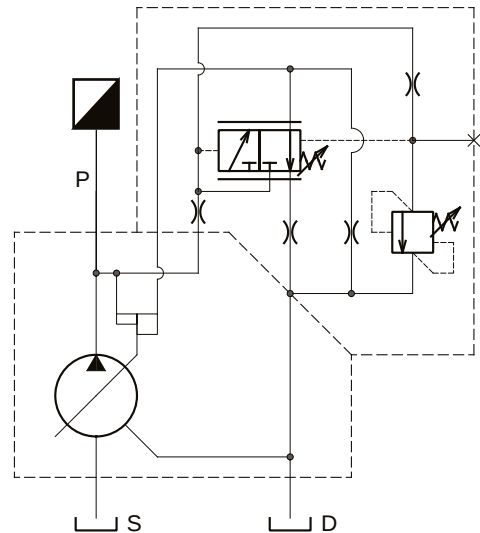


## TIPI DI REGOLATORI CONTROLS TYPES

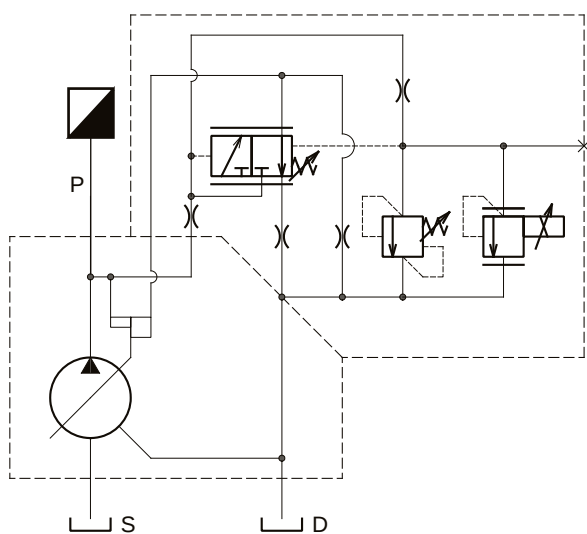
**Schema idraulico pompa+regolatore LS**  
*Pump+LS control hydraulik scheme*



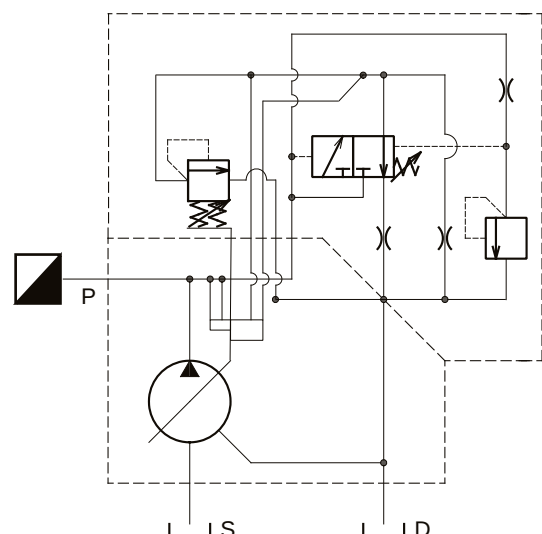
**Schema idraulico pompa+regolatore PI**  
*Pump+PI control hydraulik scheme*



**Schema idraulico pompa+regolatore PE**  
*Pump+PE control hydraulik scheme*



**Schema idraulico pompa+regolatore PW**  
*Pump+PW control hydraulik scheme*



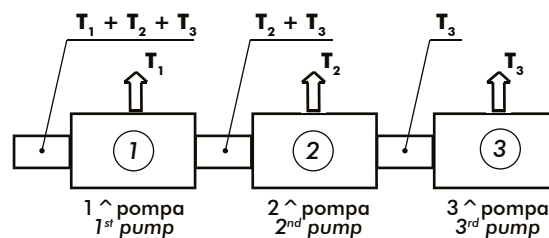
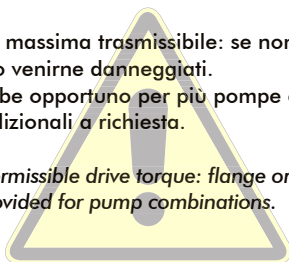
# APPLICAZIONI PPV TANDEM TANDEM PPV APPLICATIONS

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

|    | Codice/Code   | PPV60 | PPV90<br>PPV110 | Descrizione<br>Description   | Flangia/Flange                                                                                                           | Albero/Shaft                                         | Coppia max.<br>trasmissibile<br>Max.<br>output<br>torque |
|----|---------------|-------|-----------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------|
|    |               |       |                 |                              |                                                                                                                          |                                                      | T <sub>OUT</sub> max.                                    |
| 1  | 114-000-00839 |       |                 | Solo coperchio<br>Only cover | ---                                                                                                                      | ---                                                  | ---                                                      |
| 2  | 114-650-00066 |       |                 | ISO                          | DIN ISO 7653                                                                                                             | 8x32x36 DIN ISO 14                                   | 800 Nm                                                   |
| 3  | 114-650-00100 |       |                 | ISO                          | DIN ISO 7653                                                                                                             | 8x32x36 DIN ISO 14                                   |                                                          |
| 4  | 114-650-10064 |       |                 | 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                                                   |
| 5  | 114-650-10108 |       |                 | 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   |                                                          |
| 6  | 114-650-10162 |       |                 | SAE B                        | SAE B 2-hole J744 101-2 DIN ISO 3019-1<br>SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><i>Ruotata di 20° / 20° rotation</i> | SAE B J744<br>(22-4 DIN ISO 3019-1)<br>13T 16/32 DP  | 210 Nm                                                   |
| 7  | 114-650-10206 |       |                 | SAE B                        | SAE B 2-hole J744 101-2 DIN ISO 3019-1<br>SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><i>Ruotata di 20° / 20° rotation</i> | SAE B J744<br>(22-4 DIN ISO 3019-1)<br>13T 16/32 DP  |                                                          |
| 8  | 114-650-10304 |       |                 | SAE BB                       | SAE B 2-hole J744 101-2 DIN ISO 3019-1<br>SAE B 4-hole J744 101-4 DIN ISO 3019-1<br><i>Ruotata di 20° / 20° rotation</i> | SAE BB J744<br>(25-4 DIN ISO 3019-1)<br>15T 16/32 DP | 400 Nm                                                   |
| 9  | 114-650-10402 |       |                 | SAE C                        | SAE C 2-hole J 744 127-2 DIN ISO 3019-1<br>SAE C 4-hole J 744 127-4 DIN ISO 3019-1                                       | SAE C J744<br>(32-4 DIN ISO 3019-1)<br>14T 12/24 DP  | 640 Nm                                                   |
| 10 | 114-650-30104 |       |                 | European                     | GR.3 "EUROPEAN"                                                                                                          | 35x31 DIN 5482                                       | 240 Nm                                                   |

Prestare attenzione alla coppia massima trasmissibile: se non rispettata, la flangia o l'albero potrebbero venirne 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> pump T1  
Coppia 2<sup>a</sup> pump T2  
Coppia 3<sup>a</sup> pump T3

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 6501TBDDRRX  
T<sub>IN</sub> < 640Nm for 6512TBDDRRX

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

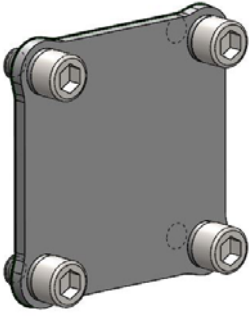
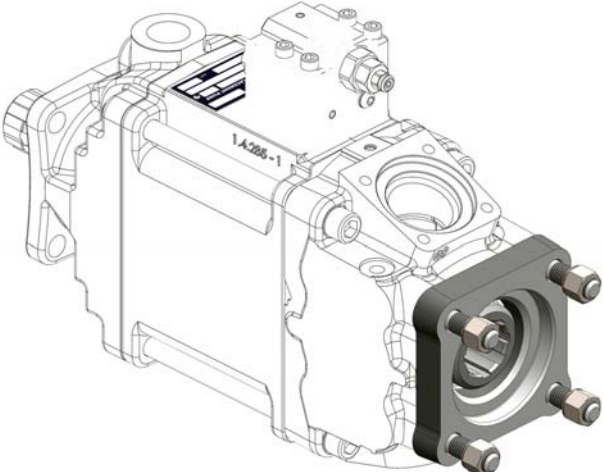
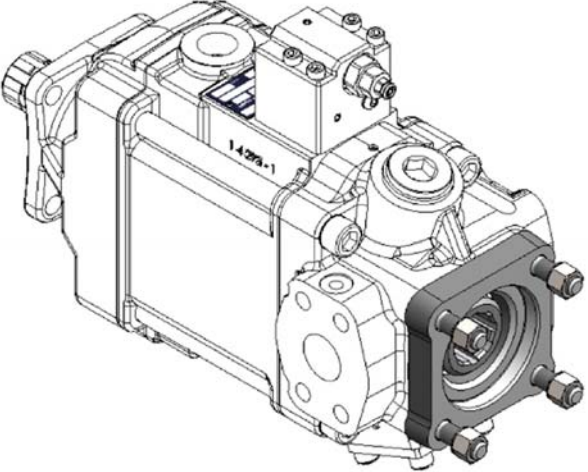
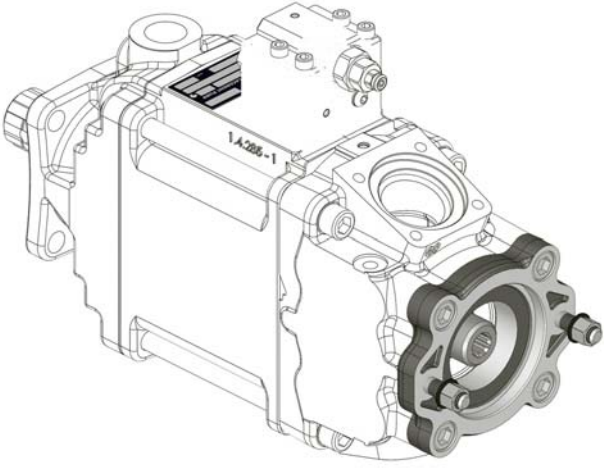
T<sub>OUT, 2</sub> = T<sub>3</sub>  
T<sub>OUT, 2</sub> < T<sub>OUT, MAX</sub>..... vedere tabella

Torque at 1<sup>st</sup> pump T1  
Torque at 2<sup>nd</sup> pump T2  
Torque at 3<sup>rd</sup> pump T3

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

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

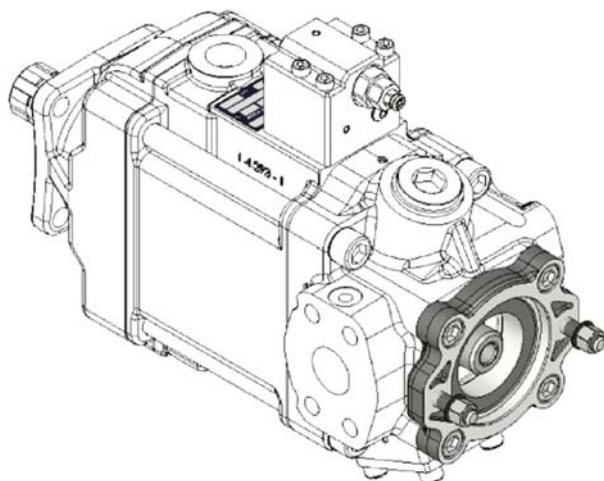
T<sub>OUT, 2</sub> = T<sub>3</sub>  
T<sub>OUT, 2</sub> < T<sub>OUT, MAX</sub>..... see table

|   |                                                                                     |                                                                                      |
|---|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1 |    | <b>114-000-00839</b>                                                                 |
|   |                                                                                     | COPERCHIO DI CHIUSURA                                                                |
|   |                                                                                     | COVER                                                                                |
| 2 |    | <b>114-650-00066</b>                                                                 |
|   |                                                                                     | APPLICAZIONE PPV60 TANDEM<br>/<br>POMPA ISO 7653<br>(coppia trasmissibile 800Nm)     |
|   |                                                                                     | PPV 60 TANDEM<br>/<br>ISO 7653 PUMP ADAPTOR<br>(Max. allowed torque 800Nm)           |
| 3 |   | <b>114-650-00100</b>                                                                 |
|   |                                                                                     | APPLICAZIONE PPV TANDEM MEDIE<br>/<br>POMPA ISO 7653<br>(coppia trasmissibile 800Nm) |
|   |                                                                                     | PPV TANDEM MEDIUM SIZE<br>/<br>ISO 7653 PUMP ADAPTOR<br>(Max. allowed torque 800Nm)  |
| 4 |  | <b>114-650-10064</b>                                                                 |
|   |                                                                                     | APPLICAZIONE PPV60 TANDEM<br>/<br>POMPA SAE A Z9<br>(coppia trasmissibile 100Nm)     |
|   |                                                                                     | PPV 60 TANDEM<br>/<br>SAE A Z9 PUMP ADAPTOR<br>(Max. allowed torque 100Nm)           |

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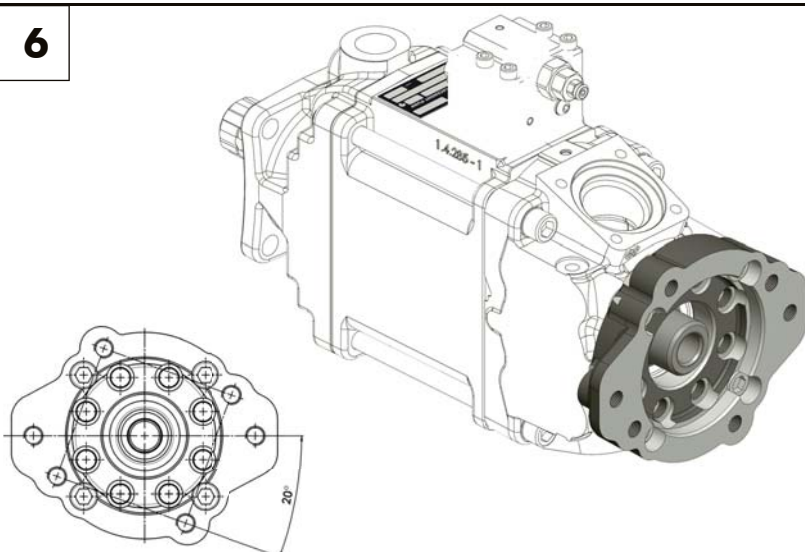


**114-650-10108**

APPLICAZIONE PPV TANDEM MEDIE  
/  
POMPA SAE A Z9  
(coppia trasmissibile 100Nm)

PPV TANDEM MEDIUM SIZE  
/  
SAE A Z9 PUMP ADAPTOR  
(Max. allowed torque 100Nm)

6

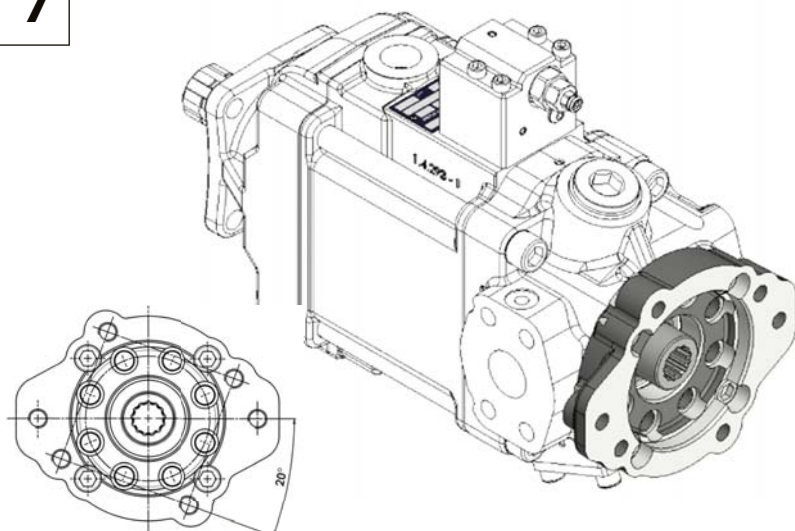


**114-650-10162**

APPLICAZIONE PPV60 TANDEM  
/  
POMPA SAE B Z13  
(coppia trasmissibile 210Nm)

PPV 60 TANDEM  
/  
SAE B Z13 PUMP ADAPTOR  
(Max. allowed torque 210Nm)

7



**114-650-10206**

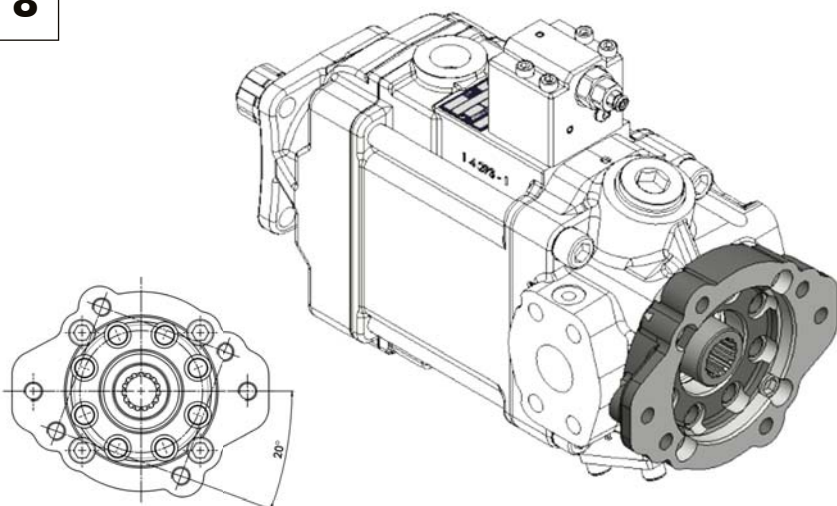
APPLICAZIONE PPV TANDEM MEDIE  
/  
POMPA SAE B Z13  
(coppia trasmissibile 210Nm)

PPV TANDEM MEDIUM SIZE  
/  
SAE B Z13 PUMP ADAPTOR  
(Max. allowed torque 210Nm)

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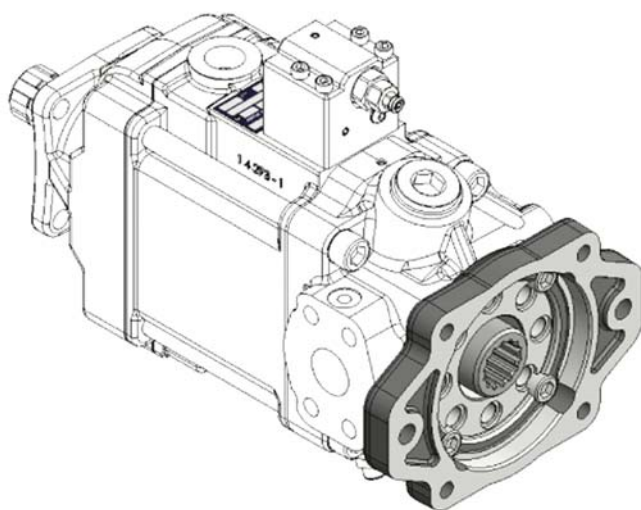


**114-650-10304**

APPLICAZIONE PPV TANDEM MEDIE  
/  
POMPA SAE BB Z15  
(coppia trasmissibile 400Nm)

PPV TANDEM MEDIUM SIZE  
/  
SAE BB Z15 PUMP ADAPTOR  
(Max. allowed torque 400Nm)

9

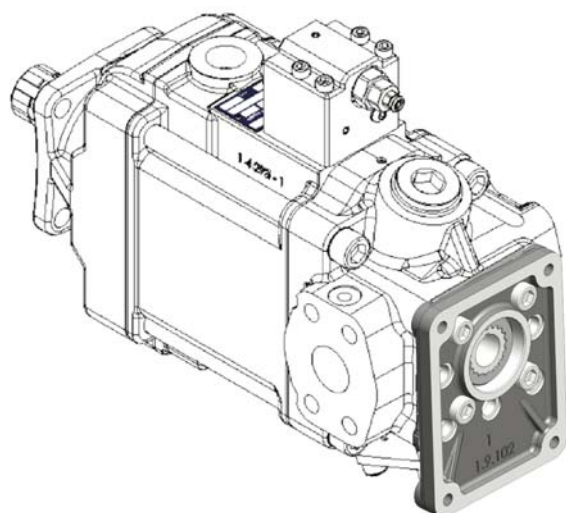


**114-650-10402**

APPLICAZIONE PPV TANDEM MEDIE  
/  
POMPA SAE C Z14  
(coppia trasmissibile 640Nm)

PPV TANDEM MEDIUM SIZE  
/  
SAE C Z14 PUMP ADAPTOR  
(Max. allowed torque 640Nm)

10



**114-650-30104**

APPLICAZIONE PPV TANDEM MEDIE  
/  
GR.3 "EUROPEAN"  
(coppia trasmissibile XXXNm)

PPV TANDEM MEDIUM SIZE  
/  
GR.3 "EUROPEAN"  
(Max. allowed torque XXXNm)

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# ISTRUZIONI PER L'AVVIAMENTO DELLE POMPE A CILINDRATA VARIABILE START-UP GUIDE FOR VARIABLE DISPLACEMENT PUMPS

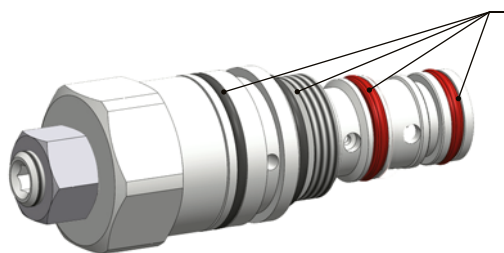
- Le pompe PPV sono idonee al montaggio diretto su PTO con flangiatura ISO 7653.
  - Prima dell'installazione della pompa verificare che il senso di rotazione sia corretto.
  - La pompa può essere montata in orizzontale od in verticale (con l'albero rivolto verso l'alto).
  - In caso di montaggio della pompa in orizzontale utilizzare sempre il drenaggio superiore e far sì che il tubo che arriva nel serbatoio sia sempre immerso in olio.
  - In caso di montaggio della pompa in verticale utilizzare sempre il drenaggio superiore. In questo caso collegare inoltre al drenaggio anche lo sfiato (viene realizzato solo per le pompe con montaggio verticale).
  - Specificare in fase d'ordine se la pompa deve essere montata in verticale.
  - Disporre i tubi in modo da evitare la formazione di vuoti d'aria e per consentire una corretta disareazione dell'olio.
  - Il tubo di drenaggio deve avere diametro minimo di G 3/4 e collegare direttamente la pompa al serbatoio.
  - La pompa può essere montata direttamente dentro al serbatoio.
  - Provvedere all'installazione di un filtro idoneo a garantire che la pompa lavori con un fluido con classe di purezza 19/17/14 secondo ISO4406.
  - La pompa non può essere installata al di sopra del livello dell'olio.  
Assicurarsi che sia posizionata almeno 200 mm al di sotto del livello minimo dell'olio del serbatoio dell'olio.
  - L'olio che giunge alla pompa deve essere sufficientemente disareato in modo da non far insorgere problemi sull'aspirazione della pompa stessa.
  - L'impianto deve essere dotato di una valvola limitatrice di pressione installata in prossimità della pompa stessa in modo da garantire un rapido intervento.
  - L'impianto deve essere dotato di un opportuno sistema di raffreddamento su un circuito separato.
  - Prima della messa in funzione della pompa procedere al riempimento della stessa con olio idraulico ed al successivo spurgo dell'aria.
  - In presenza di bassa temperatura la pompa deve essere azionata senza carico finché l'olio non raggiunge una viscosità accettabile.
  - Al primo avviamento far funzionare la pompa per almeno 10 minuti ad una pressione compresa tra 50 e 100 bar.
  - Non smontare la pompa senza prima aver contattato il servizio tecnico-commerciale di OMFB.
- 
- The PPV pumps allow a direct coupling onto PTO's having ISO 7653 standard flange.
  - Before installation of the pump, make sure the direction of rotation is the correct one.
  - The pump can be fitted either horizontally or vertically (with shaft pointing upward).
  - In case of horizontal mounting always use the upper drain port and make sure the oil hose going to tank is discharging under the oil level.
  - In case of vertical mounting always use the upper drain port. In this case, connect also the breather (used only for vertically mounted pumps). When ordering please specify if the pumps is vertically mounted.
  - Arrange the hoses in such a way to avoid air gaps and to allow proper oil deaeration.
  - The drain line has to have a minimum diameter of G3/4 and connect directly the pump to tank.
  - Provide the installation of suitable filter to guarantee the pump to work with fluid having a purity class 19/17/14 according to ISO4406.
  - The pump cannot be installed above the oil level. Make sure it is fitted at least 200mm lower the oil level of the hydraulic tank.
  - The oil entering into the pump has to have sufficient deaeration in order to avoid problems with suction of the pump itself.
  - The hydraulic circuit has to be equipped with a pressure relief valve fitted near the pump so as to ensure a quick intervention.
  - The hydraulic circuit has to be equipped with a proper cooling unit on a separate system.
  - Before starting up the pump, fill it up with hydraulic oil and bleed the air.
  - In case of low temperature the pump has to run without load until the oil reaches a proper viscosity.
  - During its first start up, let the pump run for at least 10 minutes at pressure range between 50 and 100 bar.
  - Do not disassemble the pump without contacting the OMFB sales/technical support.

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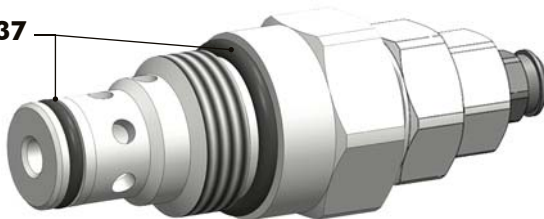
# RICAMBI GUARNIZIONI GASKETS SPARE PARTS

**Kit guarnizioni  
Gaskets kit 108-950-60028**



**Valvola LS  
LS valve**

**Kit guarnizioni  
Gaskets kit 108-950-60037**



**Valvola limitatrice  
di pressione  
Relief valve**

## PPV 60-90-110

**Blocchetto LS - LS block**  
108-960-00108 - PPV 60  
108-960-00117 - PPV 90-110

506-000-19597

506-000-19588 (n°3)

506-000-24272

506-000-13137

**Kit guarnizioni completo  
Gaskets kit assembly  
108-950-60019**

506-000-12093 (PPV 60) (n°2)  
506-000-12093 (PPV 90-110) (n°4)

506-000-11620 (PPV 60)  
506-000-19551 (PPV 90-110)

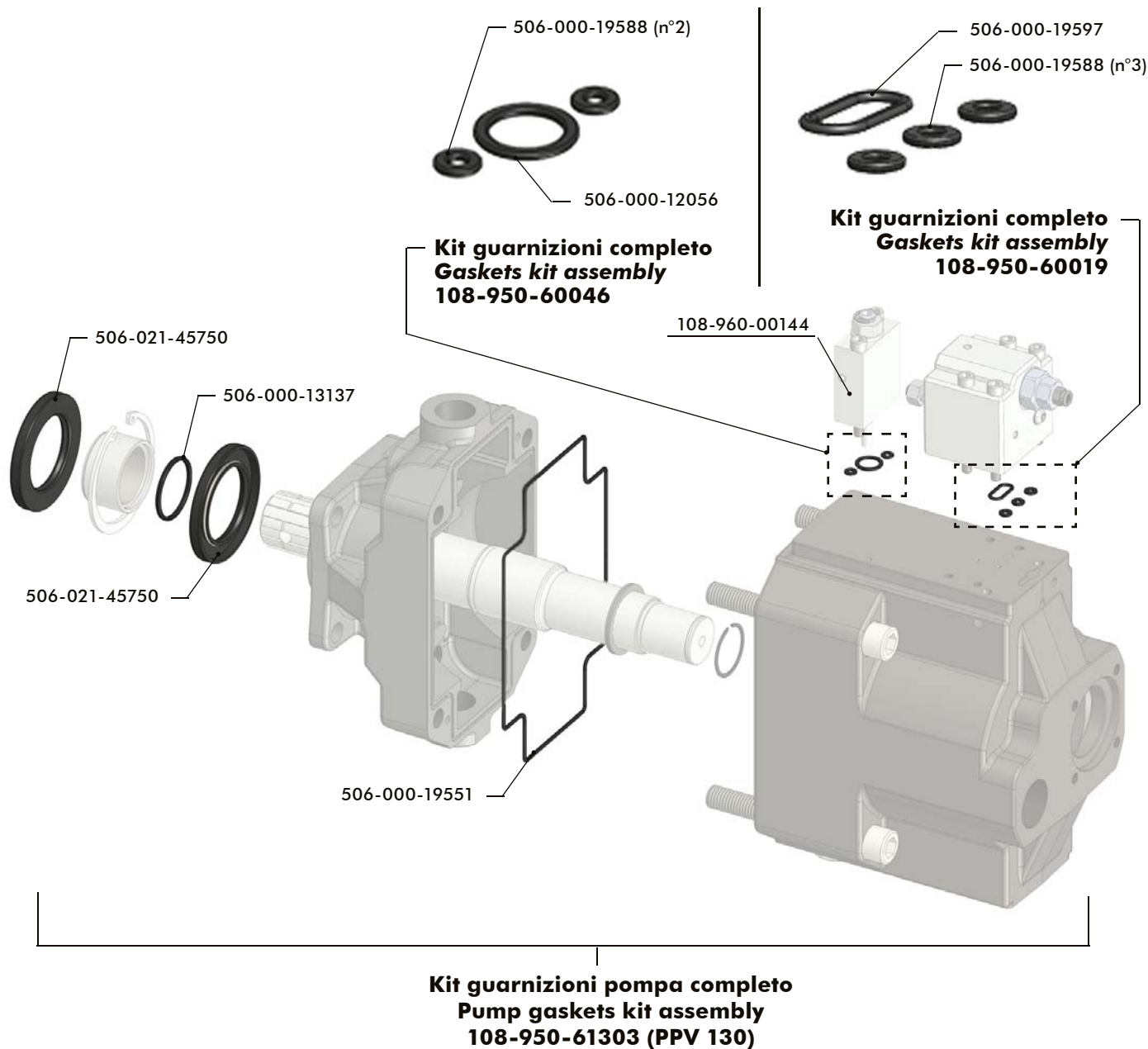
506-000-11220 (PPV 60)

506-000-19579 (PPV 90-110)

506-000-19542 (n°2) - PPV 60  
506-000-10106 (n°2) - PPV 90-110

**Kit guarnizioni pompa completo - Pump gaskets kit assembly  
108-950-60608 (PPV 60) / 108-950-60751 (PPV 90-110)**

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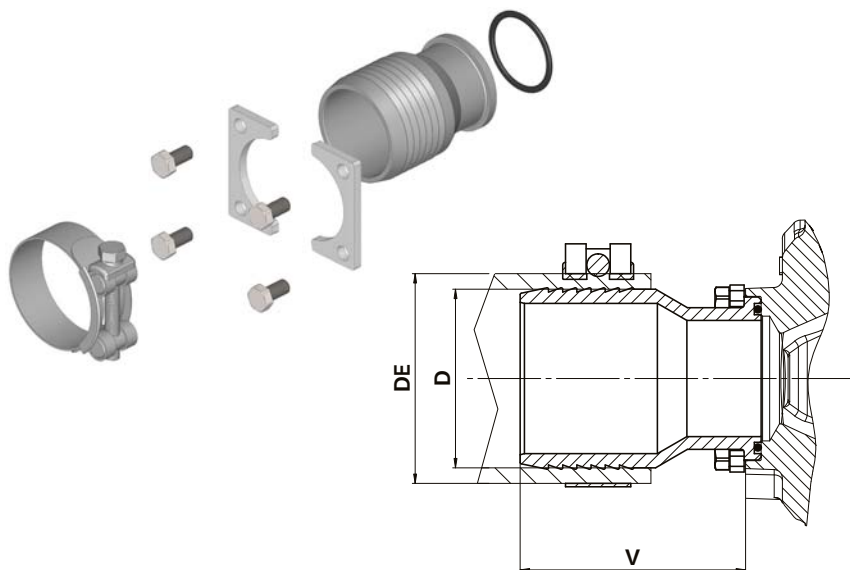


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# ACCESSORI ACCESSORIES

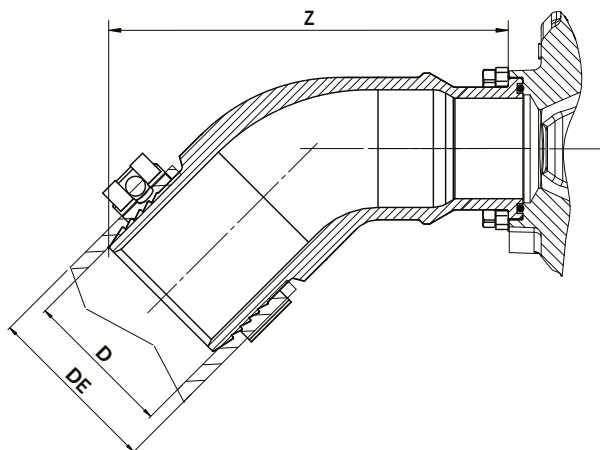
## RACCORDI ASPIRAZIONE SUCTION FITTINGS



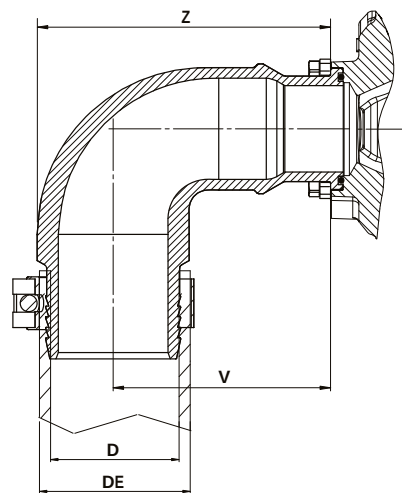
| Codice Code   | D  | DE    | V  | Peso Weight |
|---------------|----|-------|----|-------------|
|               | mm | mm    | mm | Kg          |
| 155-112-00507 | 50 | 60-63 | 59 | 0,59        |
| 155-112-00516 | 50 | 64-67 | 59 | 0,6         |
| 155-112-00605 | 60 | 68-73 | 79 | 0,77        |
| 155-112-00632 | 63 | 74-79 | 79 | 0,8         |
| 155-112-00767 | 76 | 86-91 | 94 | 1           |



| Codice Code   | D  | DE    | Z   | Peso Weight |
|---------------|----|-------|-----|-------------|
|               | mm | mm    | mm  | Kg          |
| 155-112-45639 | 63 | 74-79 | 163 | 1,75        |
| 155-112-45764 | 76 | 86-91 | 167 | 2,1         |



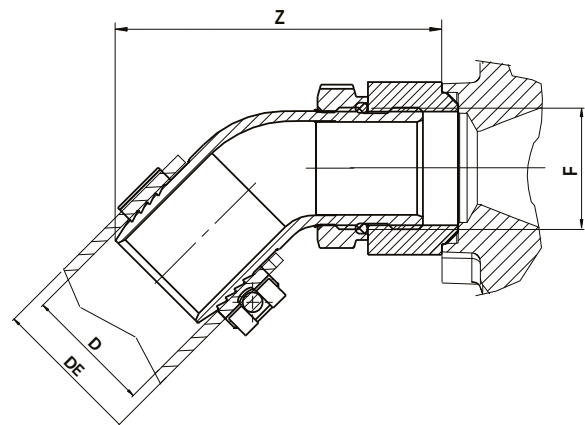
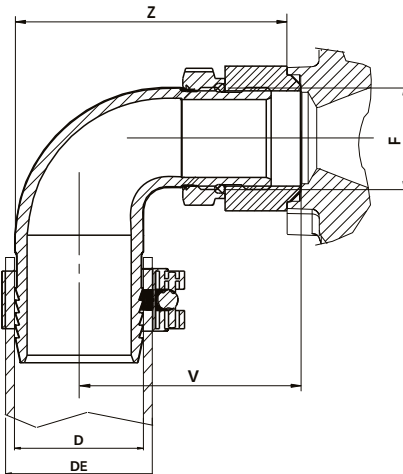
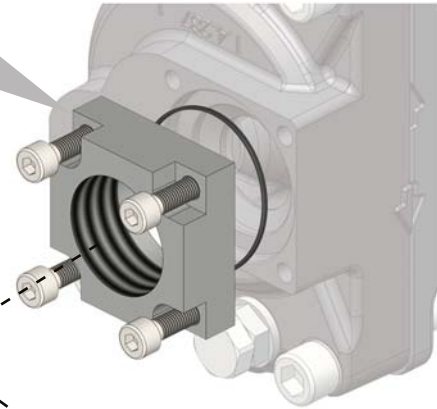
| Codice Code   | D  | DE    | V   | Z   | Peso Weight |
|---------------|----|-------|-----|-----|-------------|
|               | mm | mm    | mm  | mm  | Kg          |
| 155-112-90634 | 63 | 74-79 | 103 | 139 | 1,9         |
| 155-112-90769 | 76 | 86-91 | 103 | 140 | 2,3         |



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## 155-113-00408

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>Weight |
|----------------|---------|----|-------|----|-----|----------------|
|                | ISO 228 | mm | mm    | mm | mm  | Kg             |
| 155-100-00592  | G1-1/2  | 50 | 60-63 | 85 | 114 | 0,99           |
| 155-100-00609  |         |    | 64-67 |    |     | 1              |
| 155-100-00654  |         | 60 | 68-73 | 88 | 123 | 1,06           |

| Codice<br>Code | F       | D  | DE    | Z   | Peso<br>Weight |
|----------------|---------|----|-------|-----|----------------|
|                | ISO 228 | mm | mm    | mm  | Kg             |
| 155.090.00540  | G1-1/2  | 50 | 60-63 | 133 | 0,79           |
| 155-090-00559  |         |    | 64-67 |     | 0,82           |
| 155-090-00611  |         | 60 | 68-73 | 153 | 1              |

Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL