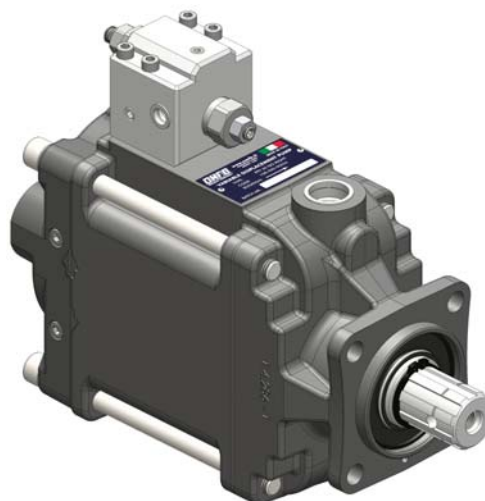


**POMPE A CILINDRATA
VARIABILE
VARIABLE DISPLACEMENT
PUMPS**

PPV

**INDICE
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**POMPE A
CILINDRATA
VARIABILE
VARIABLE
DISPLACEMENT
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

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

FFFSTBDDRRX

Famiglia / Family

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

Albero / Shaft

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

Porte / Ports

T	BSPP (GAS)	1
	UNF	5

Fondello posteriore / Rear cover

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

(Tandem)

(Tandem)

Cilindrata / Displacement

DD	60 cc	06
	90 cc	09
	110 cc	11
	130 cc	13

Regolatore / Control

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

Rotazione - Limitazione cilindrata Rotation - Displacement adjustment

X	DESTRA nessuna limitazione / RIGHT no adjustment	1
	DESTRA con limitazione / RIGHT with adjustment	2
	SINISTRA nessuna limitazione / LEFT no adjustment	6
	SINISTRA con limitazione / LEFT with adjustment	7

(Adjustable)

(Adjustable)

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 (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 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 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 (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 (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 (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 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 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 (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 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 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 (STANDARD)
	65121111LS6	PPV SAE C4 C-14T BSP AX LS 110L	
PPV 130 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

Codice foglio: 997-650-11110 Rev: AL

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



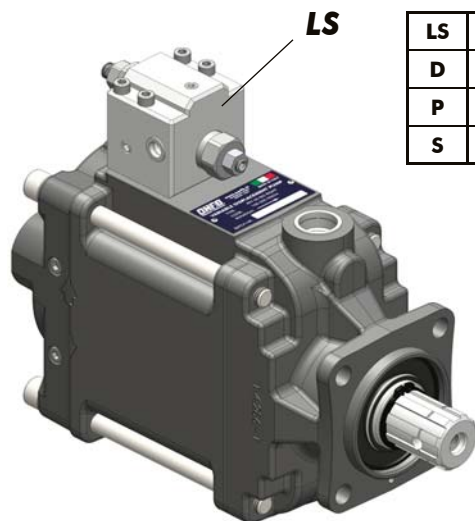
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COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001:2015 =

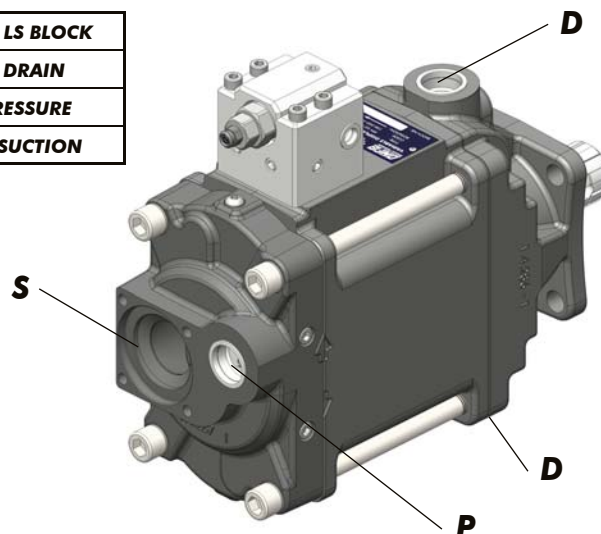
POMPE A CILINDRATA VARIABILE VARIABLE DISPLACEMENT PUMPS

FAMIGLIA
FAMILY

PPV 60
PPV 90
PPV 110
PPV 130

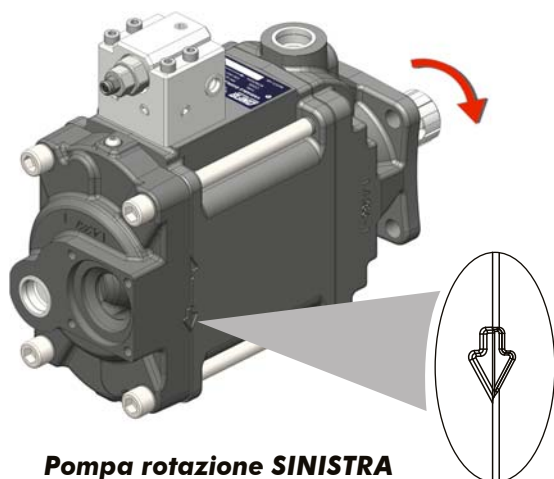


LS	BLOCCHETTO LS/ LS BLOCK
D	DRENAGGIO / DRAIN
P	PRESSIONE / PRESSURE
S	ASPIRAZIONE / SUCTION

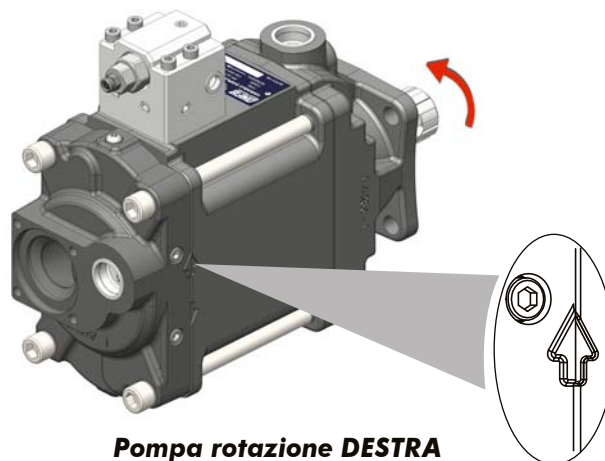


La pompa a pistoni assiali a cilindrata variabile OMFB è di tipo a piatto oscillante. La cilindrata della pompa dipende dalla corsa dei pistoni pompanti, che a sua volta dipende dall'inclinazione del piatto oscillante. La pompa all'avviamento si trova in cilindrata massima per effetto di due molle che 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.



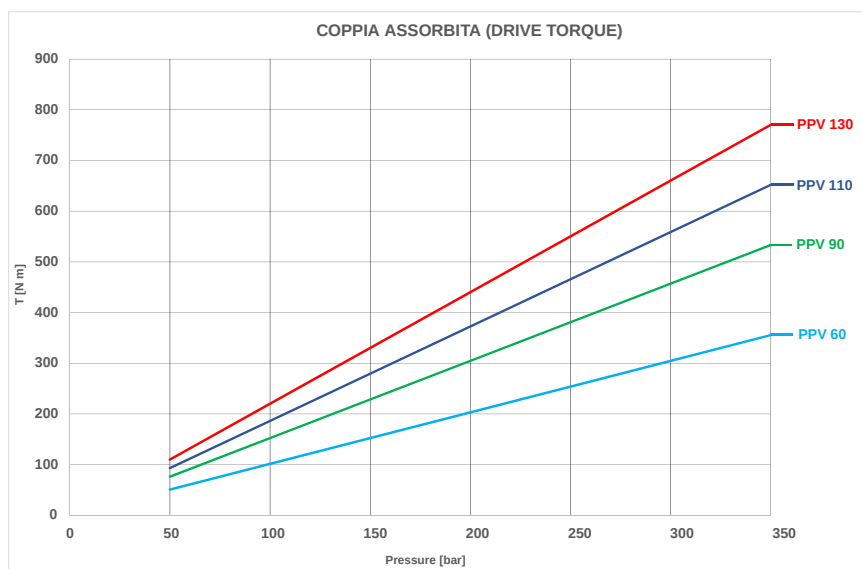
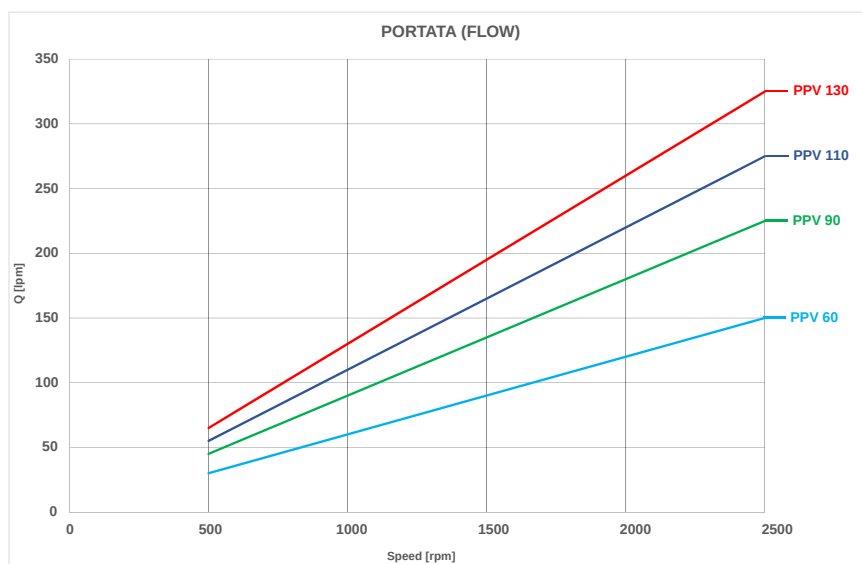
Pompa rotazione SINISTRA
LEFT Hand rotating pump



Pompa rotazione DESTRA
RIGHT Hand rotating pump

POMPE A CILINDRATA VARIABILE / VARIABLE DISPLACEMENT PUMPS

DATI TECNICI / TECHNICAL FEATURES	PPV60		PPV90		PPV110		PPV130	
Portata / Flow	60 l/min.		90 l/min.		110 l/min.		130 l/min.	
Angolo di regolazione massima / Max. swash plate angle	21,5°							
Pressione di lavoro / Working pressure	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent	Continua Continuous	Intermittente Intermittent
	375 bar	400 bar	375 bar	400 bar	375 bar	400 bar	375 bar	400 bar
Pressione d'ingresso assoluta necessaria nel circuito aperto Absolute inlet pressure required in open circuit	0,85 bar							
Pressione massima ammissibile sul corpo (statica/dinamica) Max. permissible housing pressure (static/dynamic)	3 bar							
Pressione d'ingresso massima ammissibile Max. permissible inlet pressure (static/dynamic)	2 bar							
Numero di giri max. con angolo di regolazione max.a una pressione d'ingresso assoluta di 1 bar. / Max. speed during suction operation and max. swash plate angle at 1 bar abs. Inlet pressure	2500 rpm		2300 rpm		2200 rpm		2100 rpm	
Numero giri max. in annullamento e pressione d'ingresso assoluta 1 bar. / Max. speed with zero stroke and 1 bar abs. Inlet pressure	3000 rpm							
Numero di giri minimo in funzionamento continuo Min. speed in continuous operation	500 rpm							
Coppia motrice necessaria a 100 bar Required drive torque at 100 bar	100 Nm		150 Nm		185 Nm		220 Nm	
Potenza motrice a 250 bar e 2.000 rpm Drive power at 250 bar and 2000 rpm	53 kW		80 kW		100 kW		145 kW	
Peso / Weight	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.

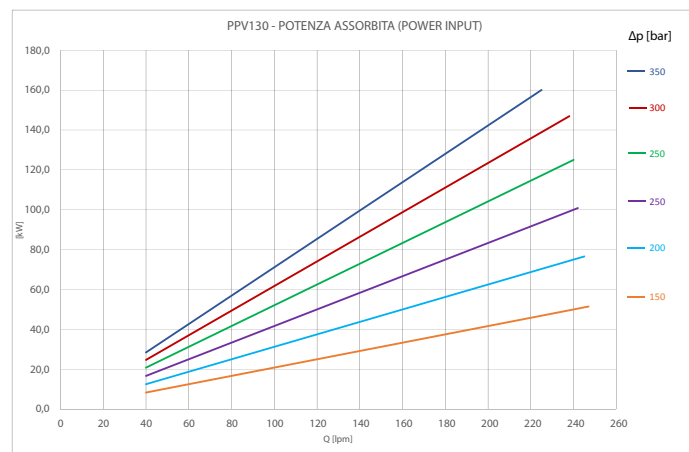
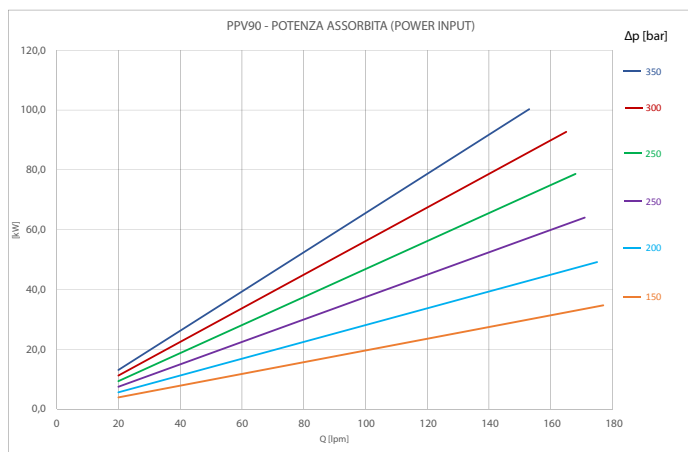
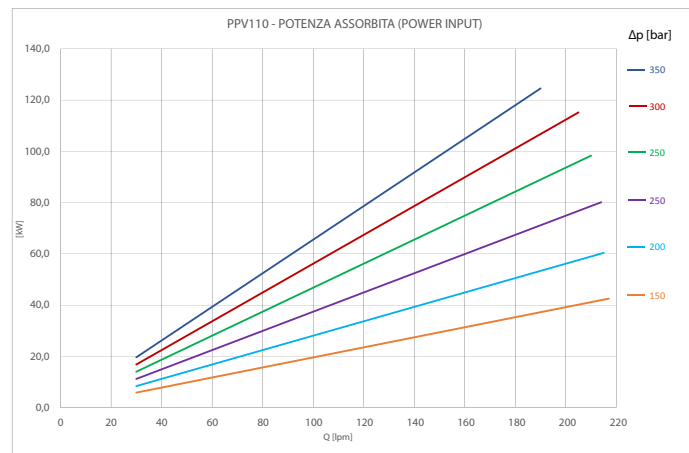
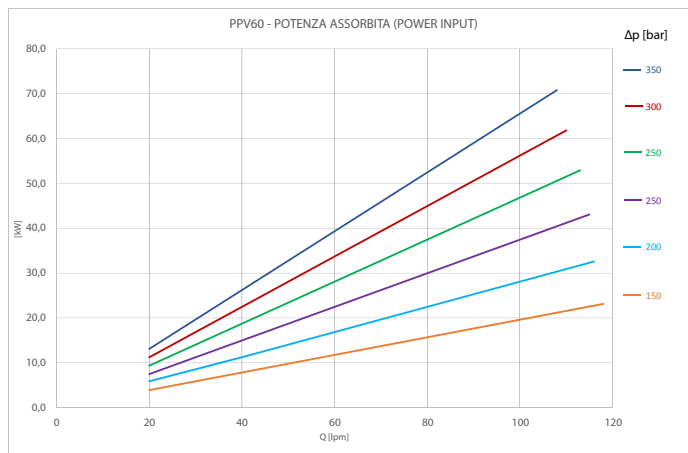
The **ADJUSTABLE** version consists of a rear setting screw that limits the displacement of the pumps to lower values than the nominal one.

CILINDRATA / DISPLACEMENT 60cc	
Campo regolazione cilindrata Displacement limitation range	40 - 60 cm ³
Limitazione della cilindrata Displacement limitation range	4,3 cm ³ /rev
CILINDRATA / DISPLACEMENT 90cc	
Campo regolazione cilindrata Displacement limitation range	55 - 90 cm ³
Limitazione della cilindrata Displacement limitation range	5,7 cm ³ /rev
CILINDRATA / DISPLACEMENT 110cc	
Campo regolazione cilindrata Displacement limitation range	85 - 110 cm ³
Limitazione della cilindrata Displacement limitation range	6,6 cm ³ /rev
CILINDRATA / DISPLACEMENT 130cc	
Campo regolazione cilindrata Displacement limitation range	90 - 130 cm ³
Limitazione della cilindrata Displacement limitation range	12 cm ³ /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: Mineral or synthetic compatible with the following seals: HNBR				
Temp. consentita / Allowed temperature	-25 +80 °C				
Viscosità cinematica consigliata Kinematic viscosity suggested	T media ambiente (°C) Average ambient temp. (°C)	< -40	-40 ÷ 10	10 ÷ 35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Viscosità cinematica ottimale di esercizio / 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_v = rendimento volumetrico / volumetric efficiency

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

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

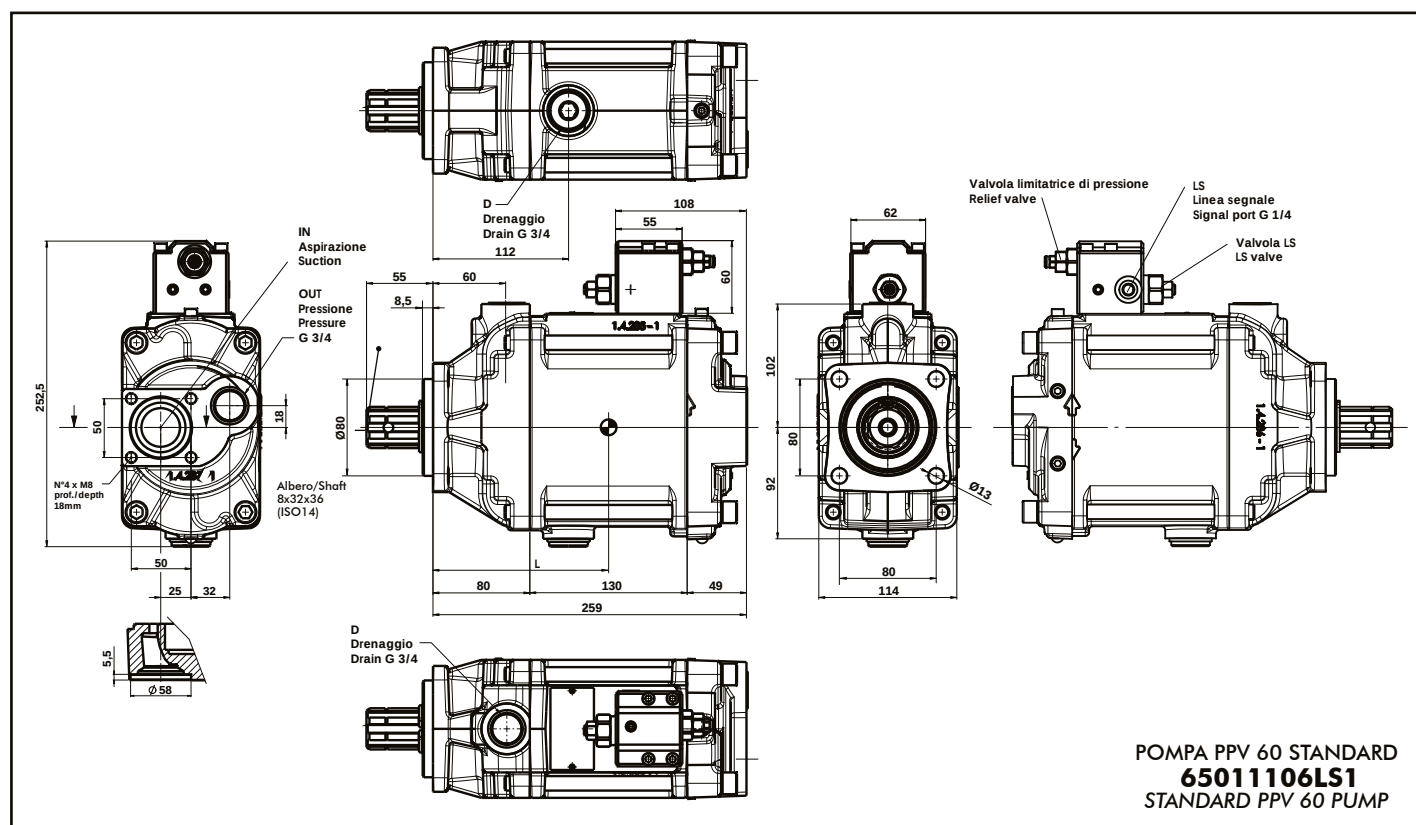
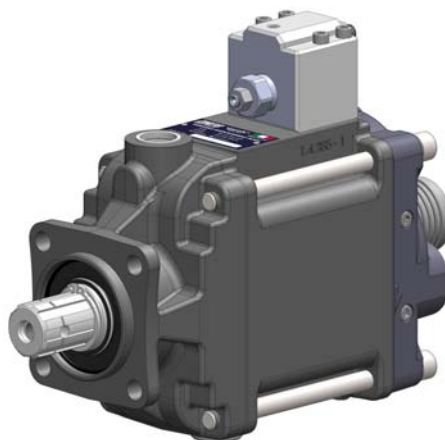
pag. 7



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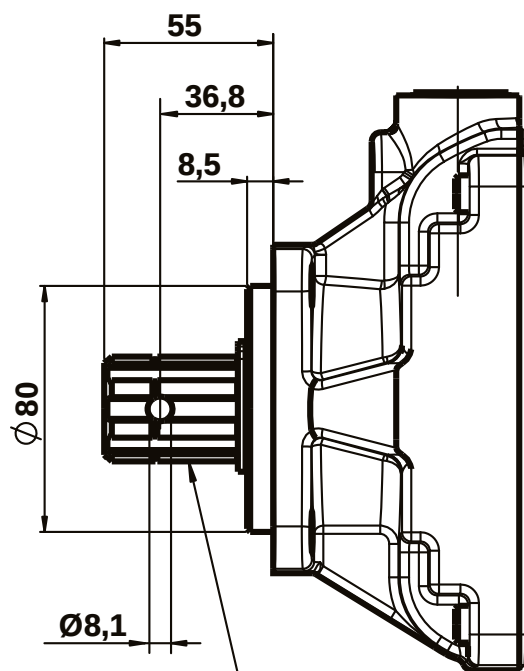
COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001:2015 =

PPV 60



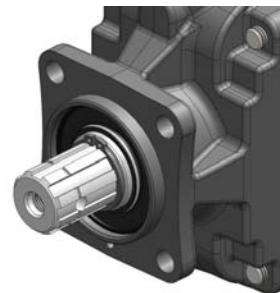
		FFFS1BDDRRX	FFFS5BDDRRX
LS	BLOCCHETTO LS/ LS BLOCK	G 1/4	
D	DRENAGGIO / DRAIN	G 3/4	1 1/16-12 UN-2B
OUT	PRESSIONE / PRESSURE	G 3/4	1 5/16-12 UN-2B
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente <i>Suction fitting to be ordered separately</i>	Ø50 mm	
L	BARICENTRO / CENTER OF MASS	145 mm circa/approx	

6501TBDDRRX

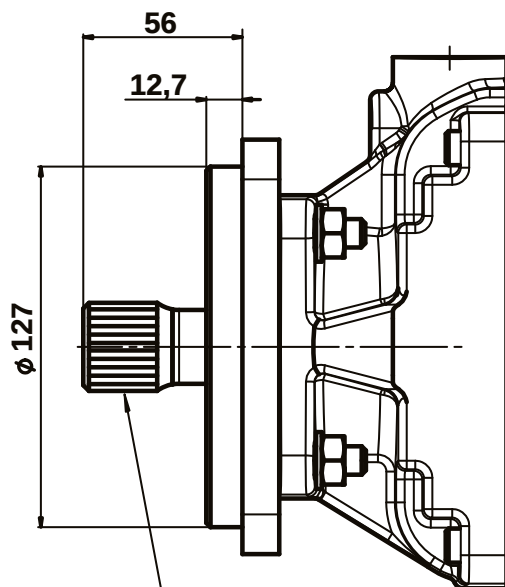


Albero/Shaft
8x32x36
(ISO 14)

COPPIA TRASMISSIBILE
MASSIMA 900Nm
MAX. TORQUE 900Nm

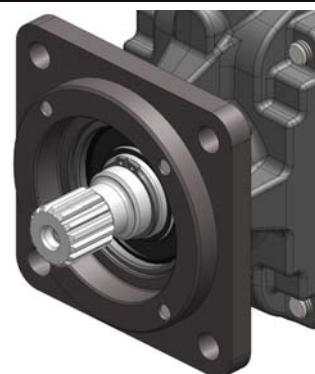


6512TBDDRRX



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

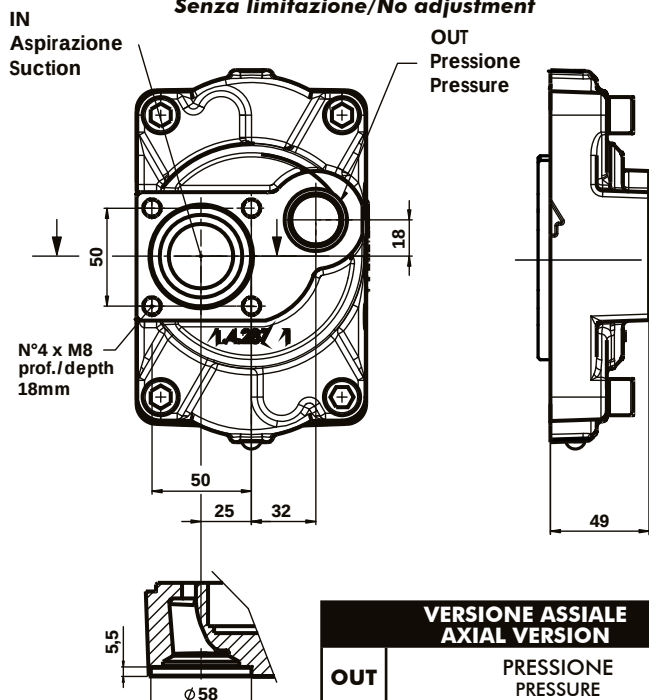
COPPIA TRASMISSIBILE
MASSIMA 640Nm
MAX. TORQUE 640Nm

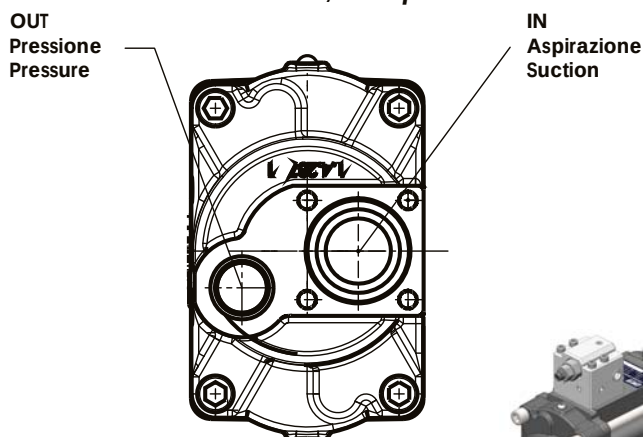


Data: Mercoledì 15 aprile 2020

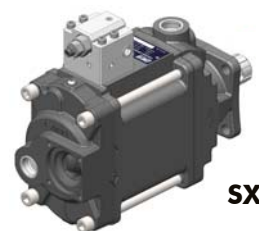
Codice foglio: 997-650-11110 Rev: AL

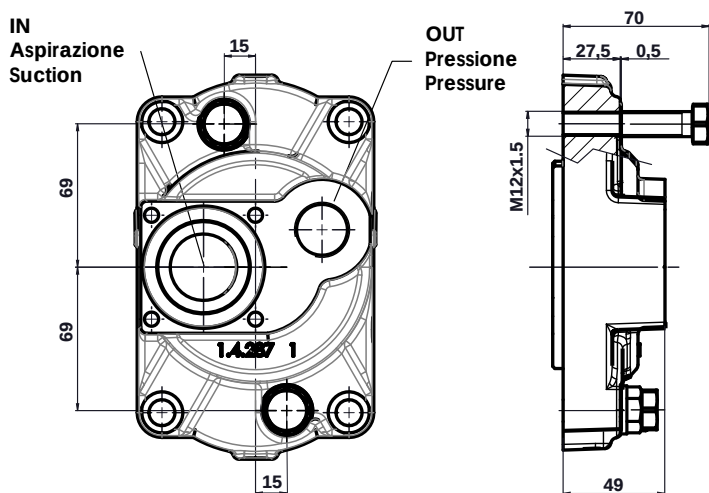
**FFFST B
1 DDDR1**

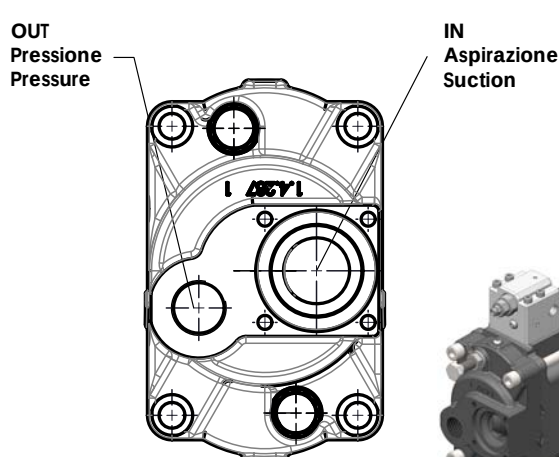
 Rotazione destra/Right rotation
 Senza limitazione/No adjustment

**FFFST B
1 DDDR6**

 Rotazione sinistra/Left rotation
 Senza limitazione/No adjustment


VERSIONE ASSIALE AXIAL VERSION		FFFS1 BDDRRX	FFFS5 BDDRRX
OUT	PRESSIONE PRESSURE	G 3/4	1 5/16-12 UN-2B
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	


**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 Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	

FFFST

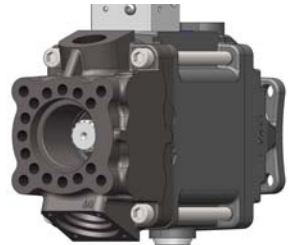
B
3

DDRR1

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

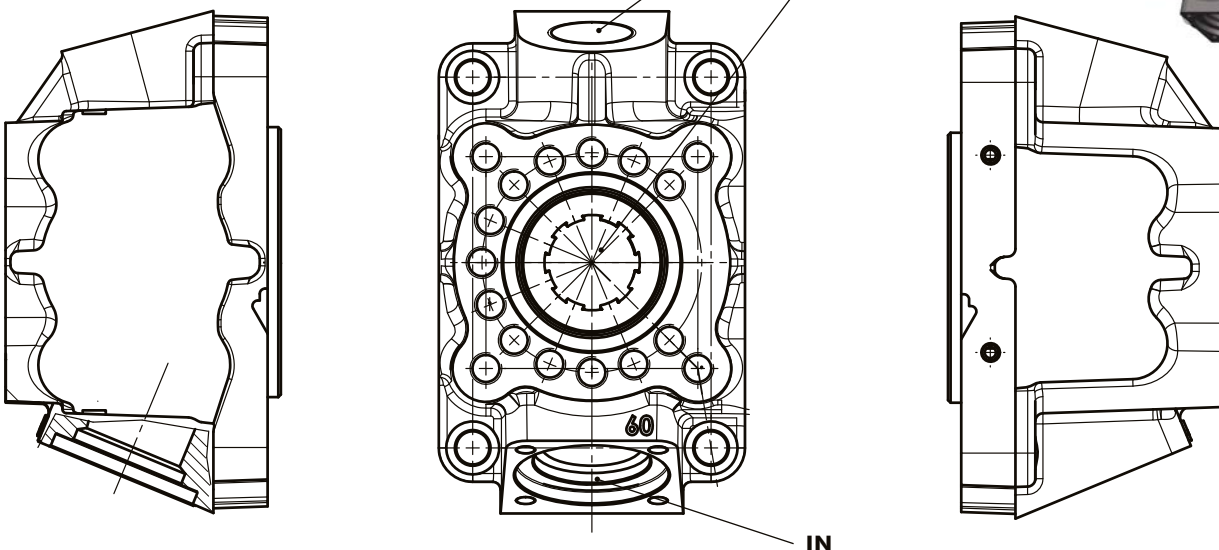


TANDEM SX

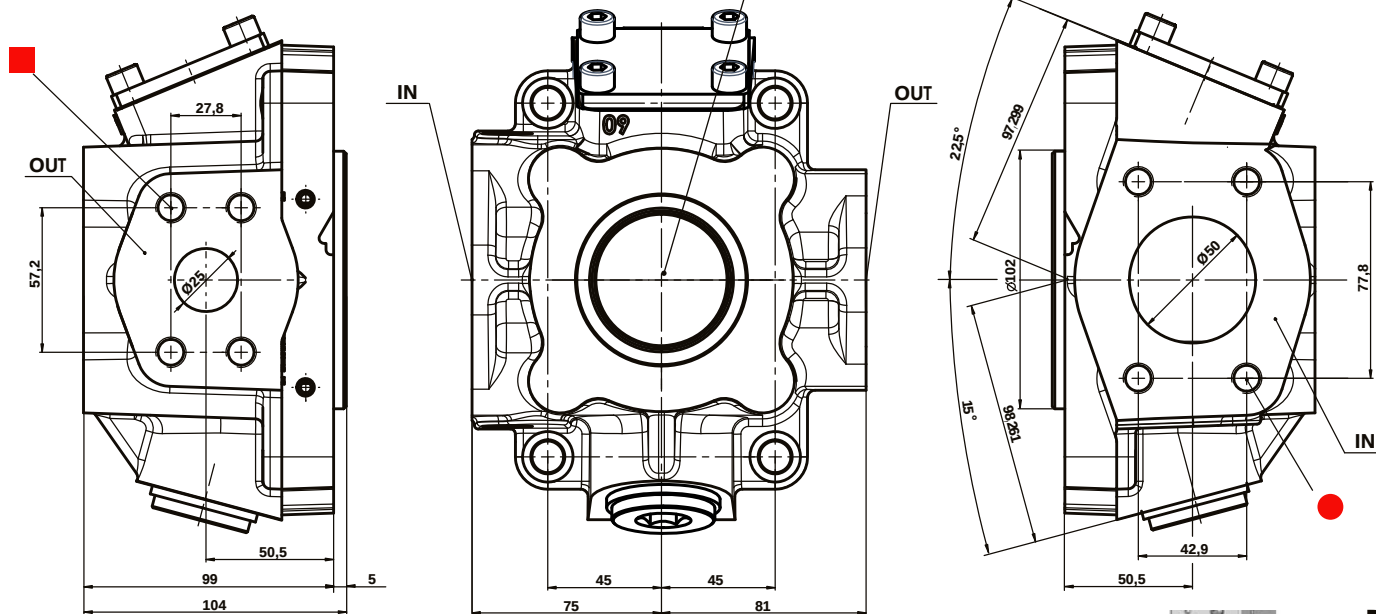


FFST | | |---| | B | | 3 | DDRR6

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

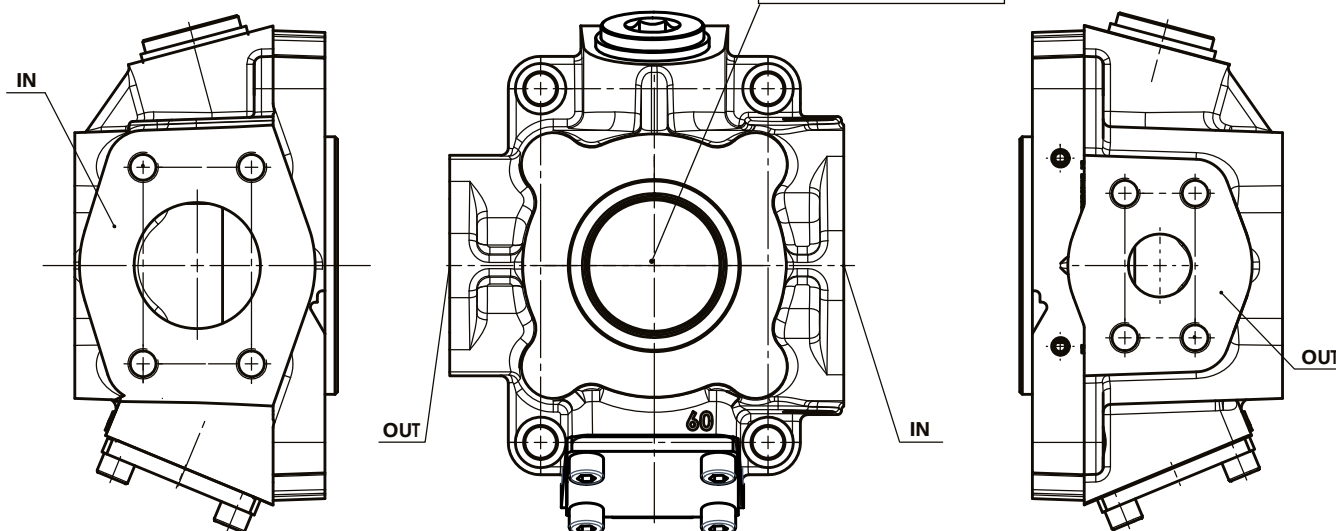


FFST **B** **4** **DDRR1**
ROTAZIONE DESTRA
RIGHT ROTATION

 Senza albero passante.
 Without thru-shaft.


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


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

 Senza albero passante.
 Without thru-shaft.


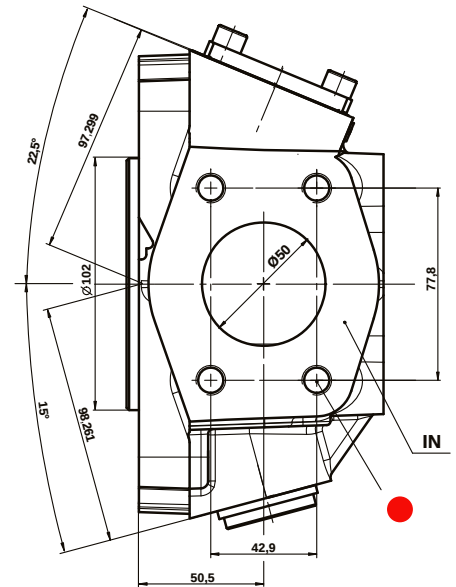
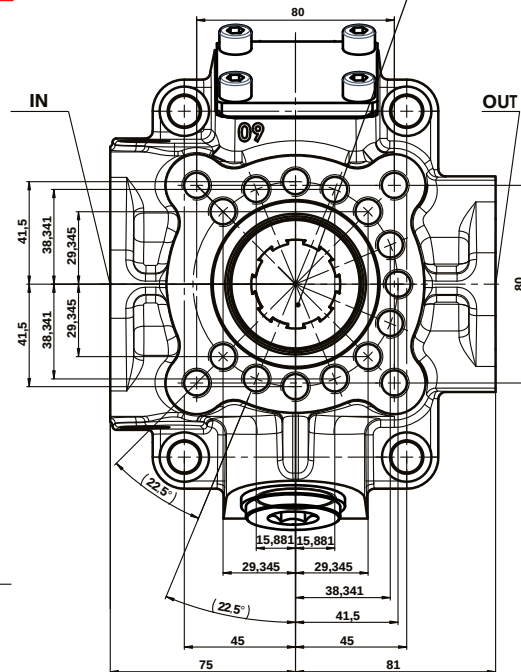
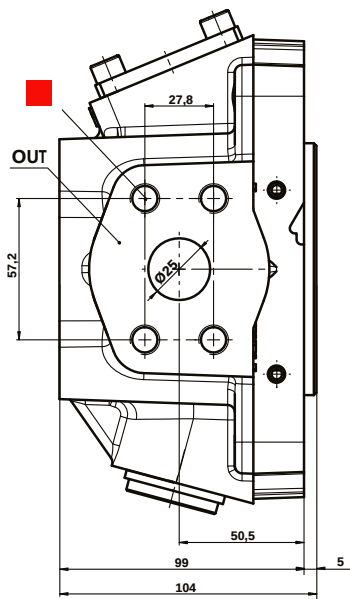
FFFST

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 SAE CON ALBERO PASSANTE HORIZONTAL RADIAL SAE VERSION WITH THRU-SHAFT			FFFS1BDDRRX	FFFS5BDDRRX	Lunghezza vite Screw length
OUT 	PRESSIONE PRESSURE	1" SAE 6000	M12	1/2"UN	19mm
IN 	ASPIRAZIONE SUCTION	2 1/2" SAE 3000	M12	1/2"UN	18mm

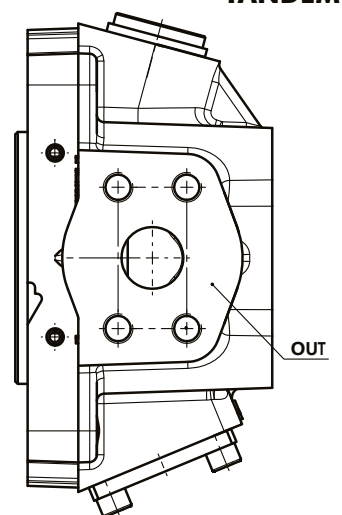
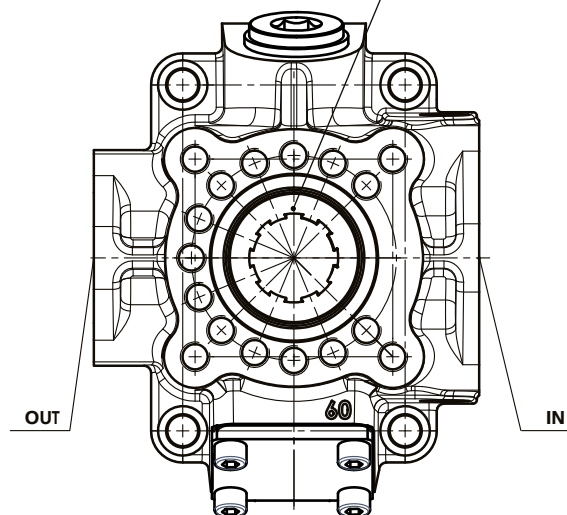
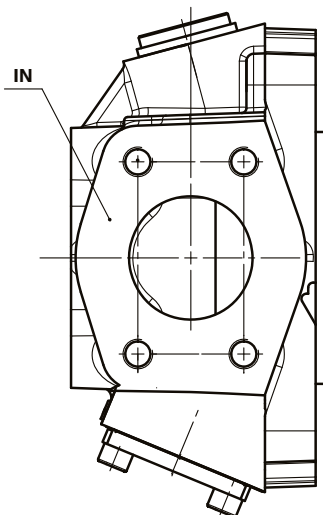
FFST

B
5

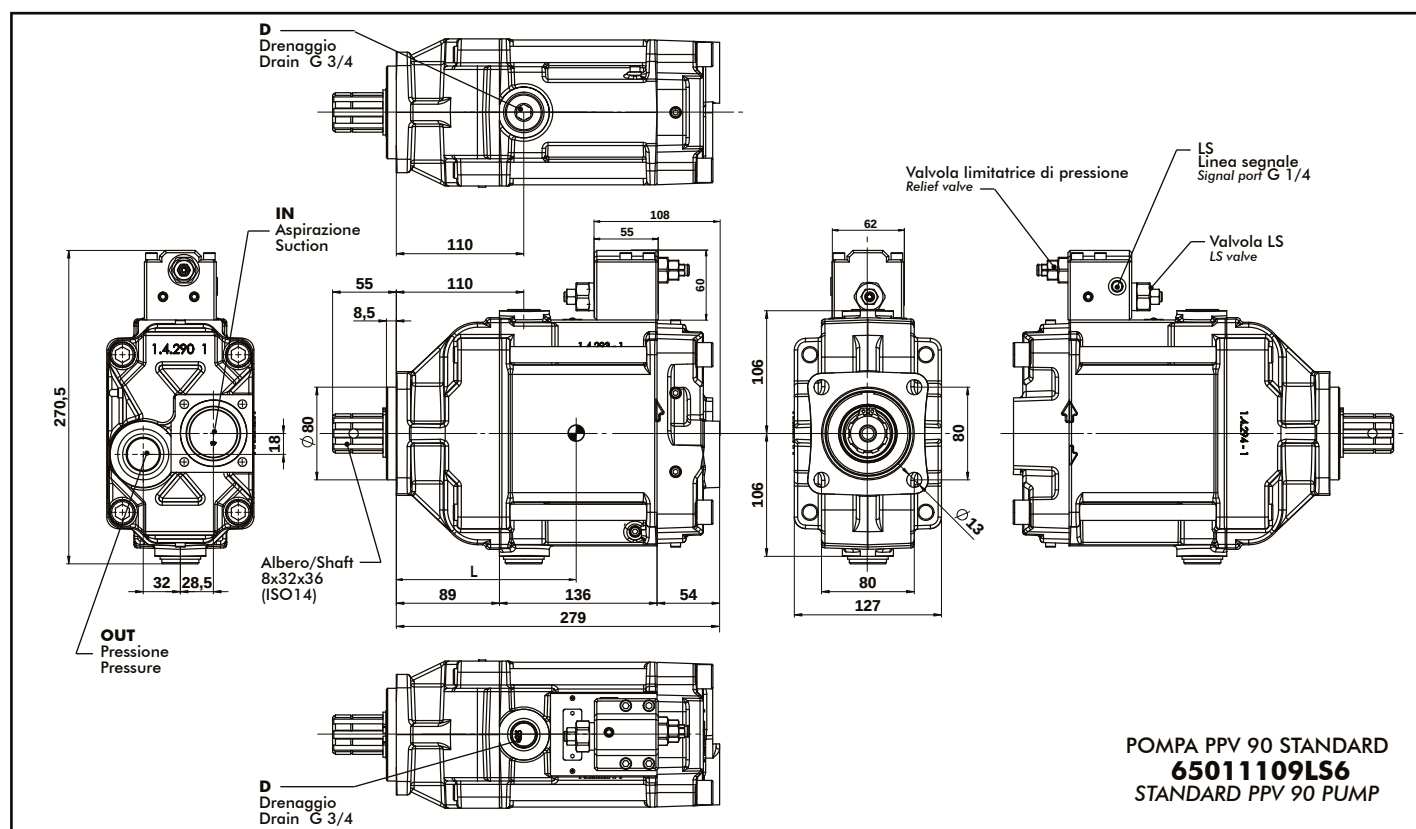
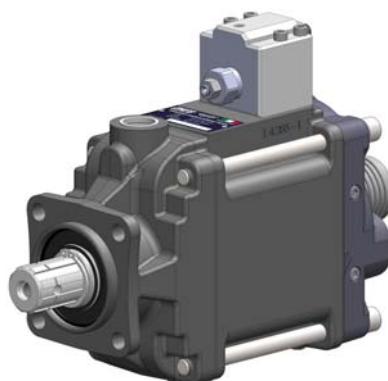
DDRR6

ROTAZIONE SINISTRA
LEFT ROTATION

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

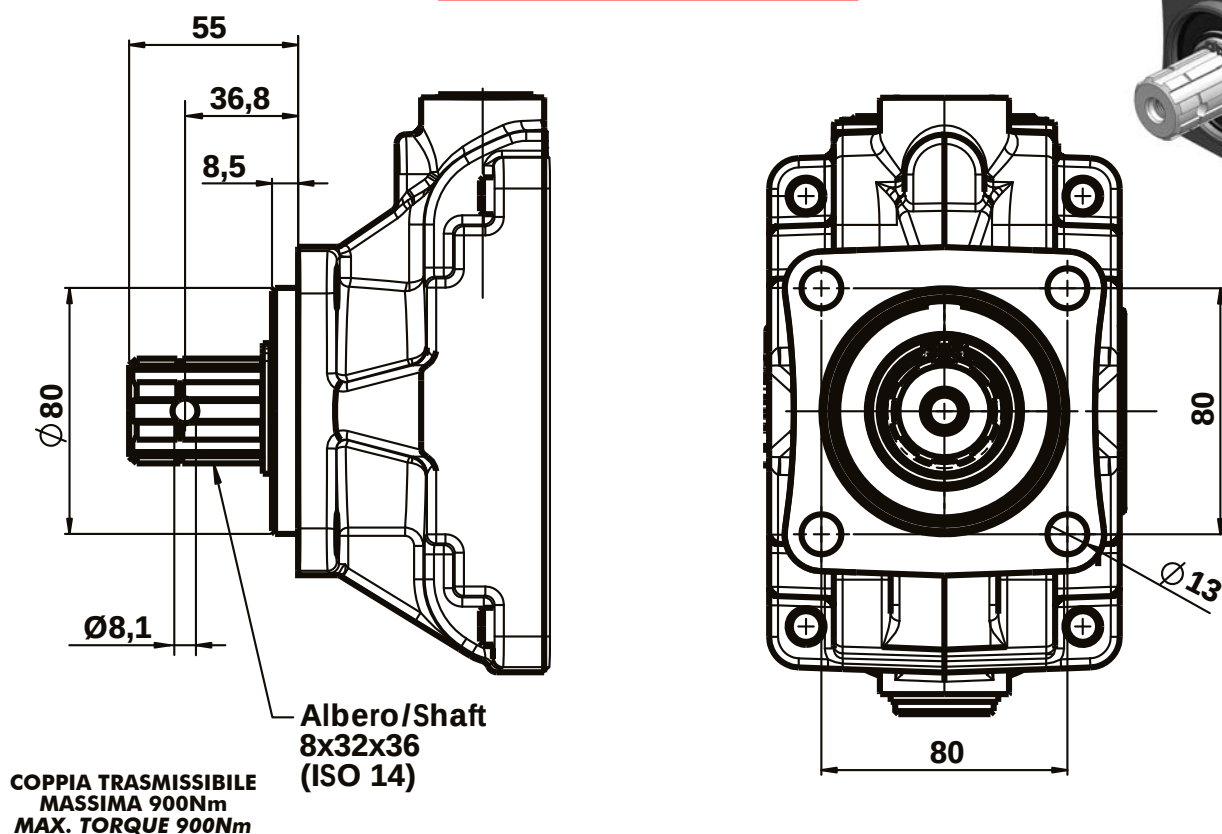


PPV 90-110

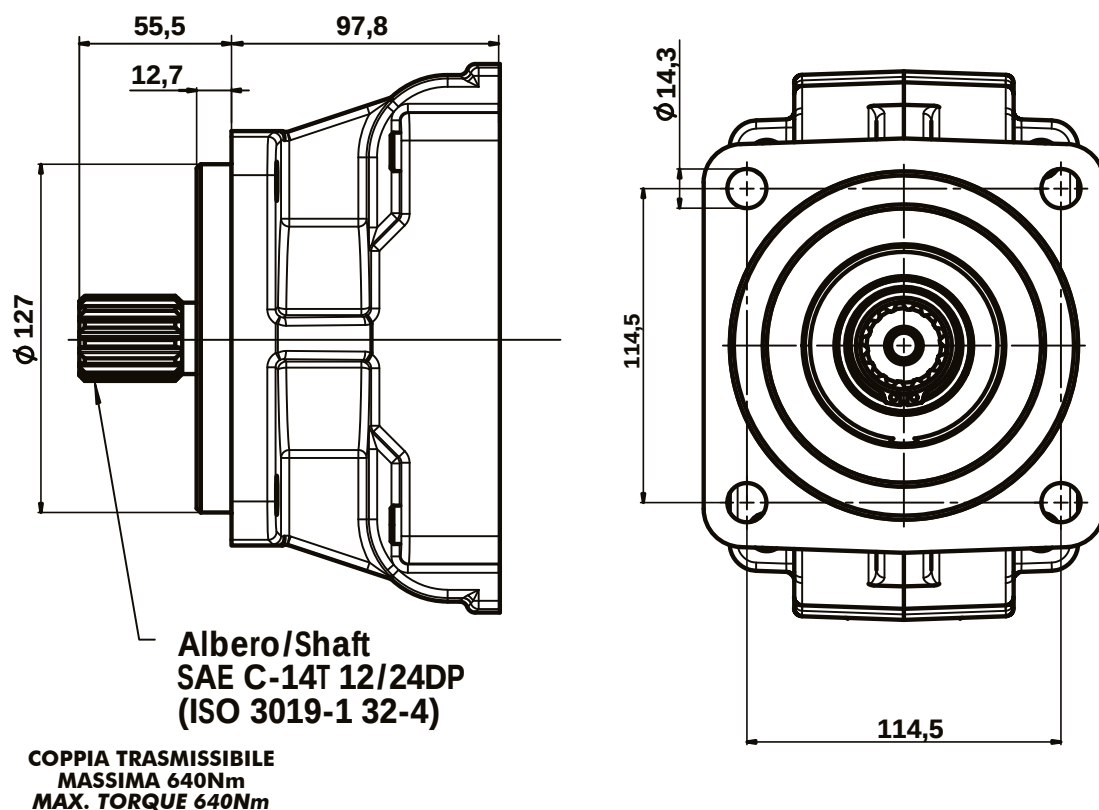


		FFFS1BDDRRX	FFFS5BDDRRX
LS	BLOCCHETTO LS/ LS BLOCK	G 1/4	
D	DRENAGGIO / DRAIN	G 3/4	1 1/16-12 UN-2B
OUT	PRESSIONE / PRESSURE	G 1	1 5/16-12 UN-2B
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente <i>Suction fitting to be ordered separately</i>	Ø50 mm	
L	BARICENTRO / CENTER OF MASS	148 mm circa/approx	

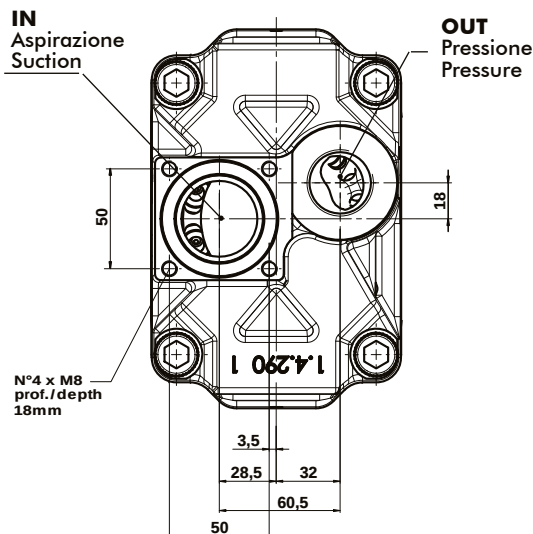
6501TBDDRRX

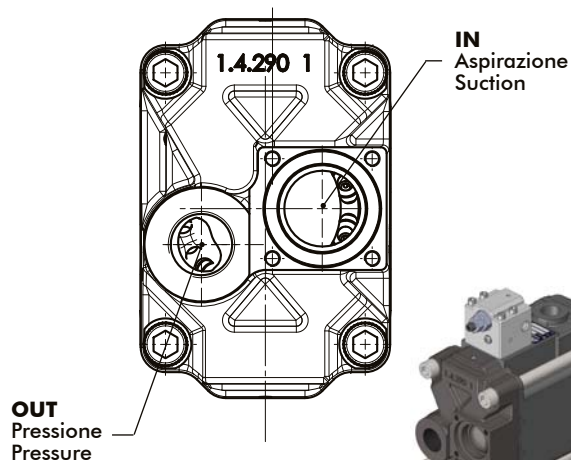


6512TBDDRRX



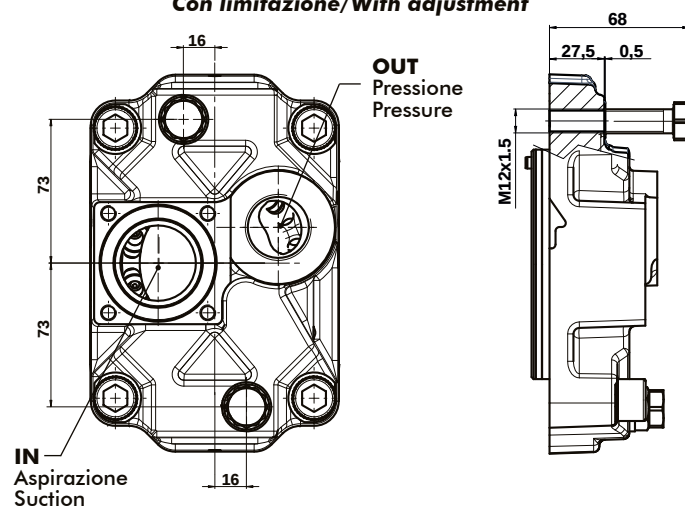
**FFFST B
1 DDDR1**

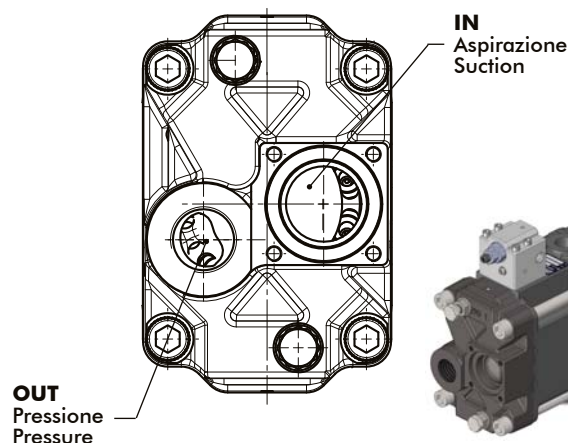
 Rotazione destra/Right rotation
 Senza limitazione/No adjustment

**FFFST B
1 DDDR6**

 Rotazione sinistra/Left rotation
 Senza limitazione/No adjustment


VERSIONE ASSIALE AXIAL VERSION		FFFS1 BDDRRX	FFFS5 BDDRRX
OUT	PRESSIONE PRESSURE	G 1	1 5/16-12 UN-2B
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	

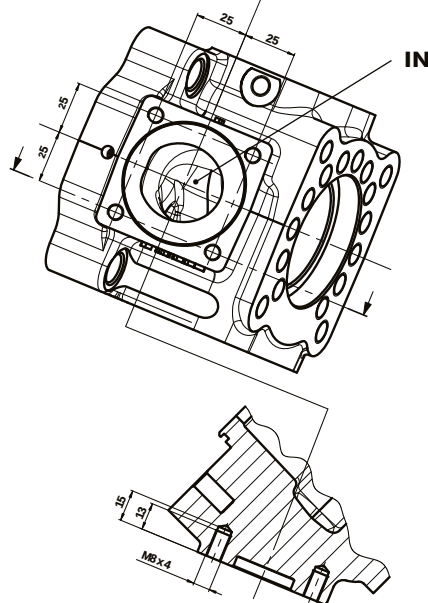
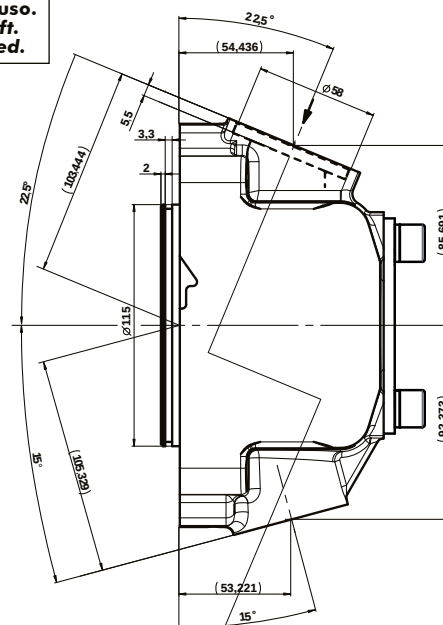
**FFFST B
1 DDDR2**

 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 1	1 5/16-12 UN-2B
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50mm	

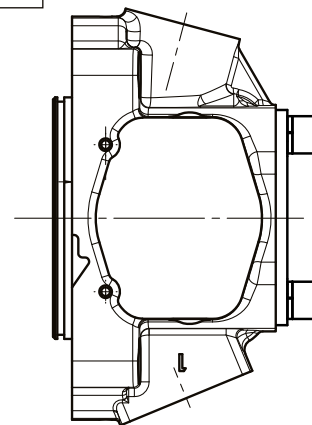
**Senza albero passante.
Con coperchio incluso.
Without thru-shaft.
With cover included.**



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

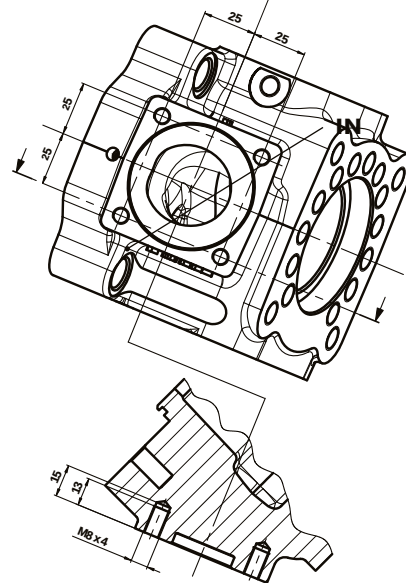
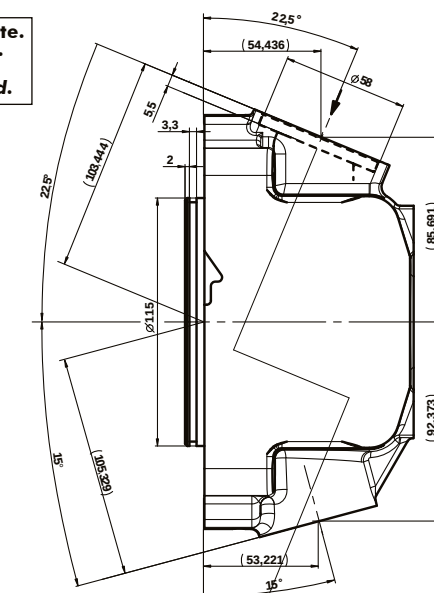
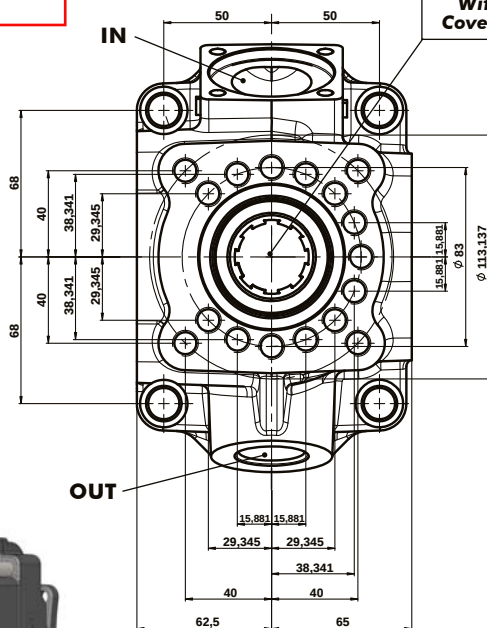


**Senza albero passante.
Con coperchio incluso.
Without thru-shaft.
With cover included.**



ROTAZIONE DESTRA
RIGHT ROTATION

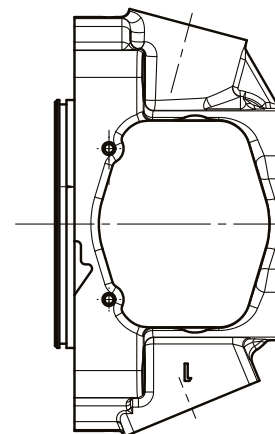
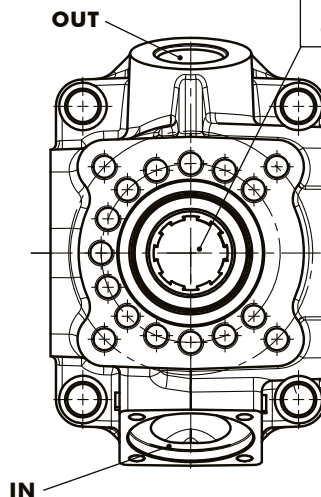
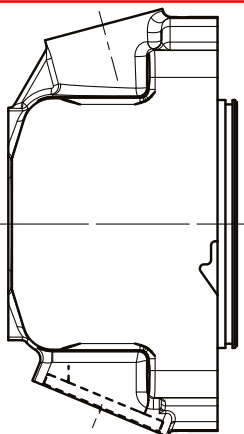
**Con albero passante.
Senza coperchio.
With thru-shaft.
Cover not included.**



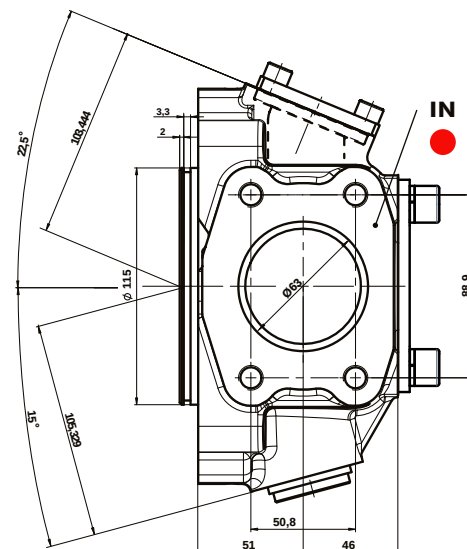
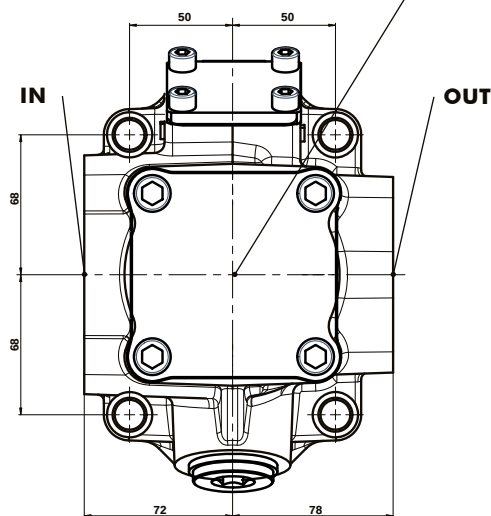
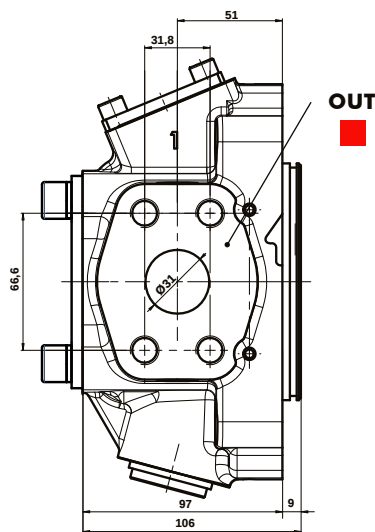
VERSIONE RADIALE VERTICALE CON ALBERO PASSANTE VERTICAL RADIAL VERSION WITH THRU-SHAFT		FFFS1BDDRRX	FFFS5BDDRRX
OUT	PRESSIONE / PRESSURE	G 1	1 5/16-12 UN-2B
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente <i>Suction fitting to be ordered separately</i>	Ø50mm	

ROTAZIONE SINISTRA
LEFT ROTATION

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

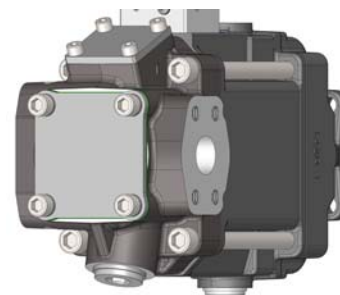


FFFST **B**
4 **DDRR1**
ROTAZIONE DESTRA
RIGHT ROTATION

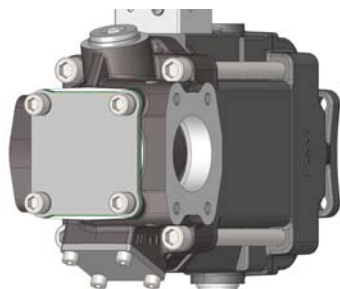
 Senza albero passante.
 Con coperchio incluso.
 Without thru-shaft.
 With cover included.


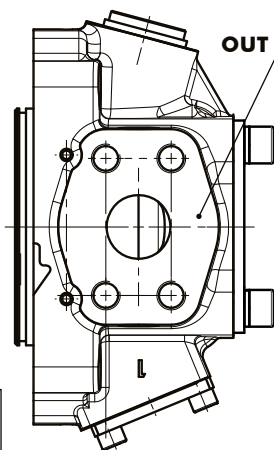
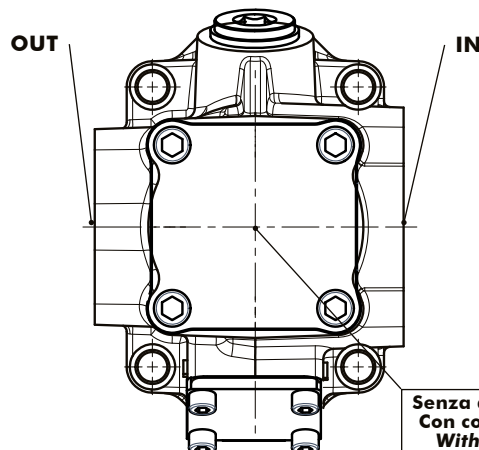
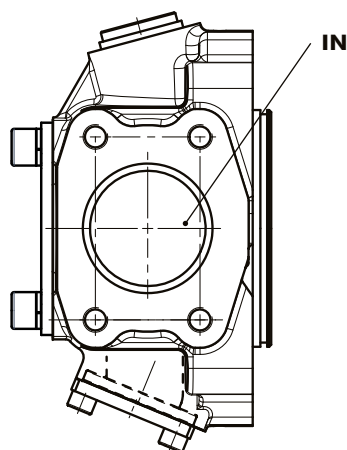
VERSIONE RADIALE ORIZZONTALE SAE SENZA ALBERO PASSANTE HORIZONTAL RADIAL SAE VERSION WITHOUT THRU-SHAFT			FFFS1BDDRRX	FFFS5BDDRRX	Lunghezza vite Screw lenght
OUT ■	PRESSIONE PRESSURE	1 1/4" SAE 6000	M14	1/2"UN	22mm
IN ●	ASPIRAZIONE SUCTION	2 1/2" SAE 3000	M12	1/2"UN	18mm

DX



SX


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

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


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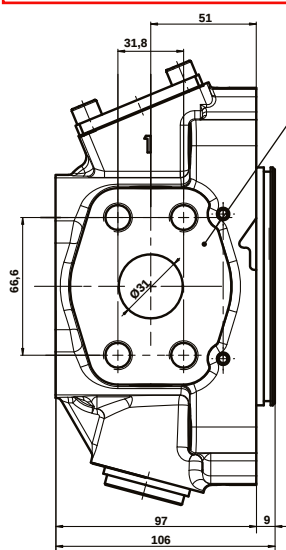
FFFST

B
5

DDRR1

ROTAZIONE DESTRA
RIGHT ROTATION

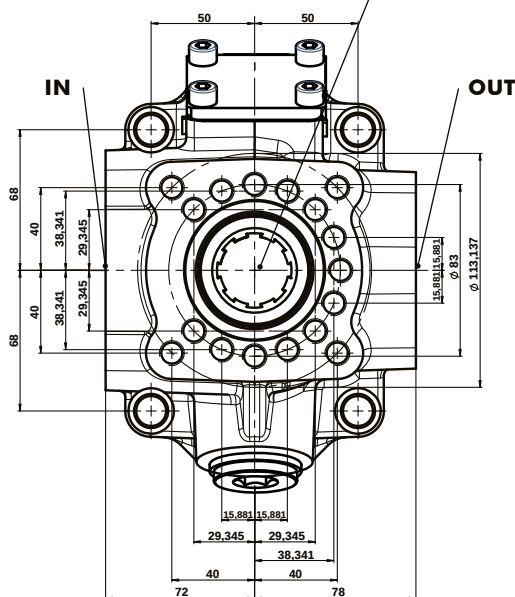
**Con albero passante.
Senza coperchio.
With thru-shaft.
Cover not included.**



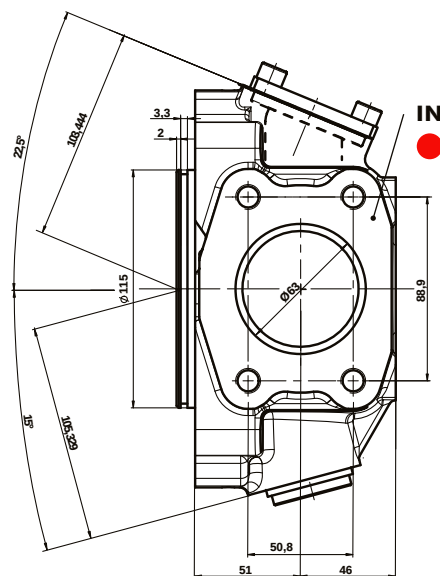
OUT



IN



OUT

IN 

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

**TANDEM
DX**



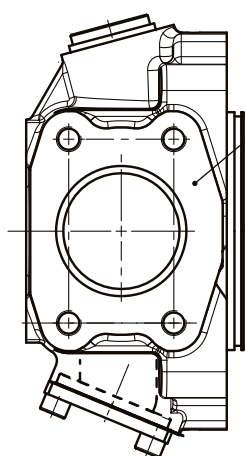
**TANDEM
SX**



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

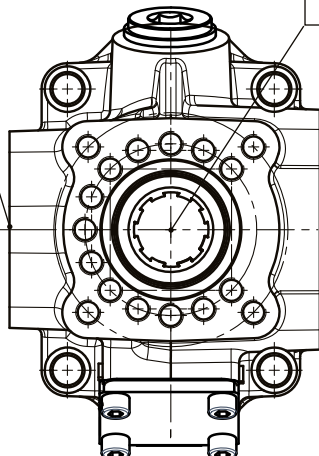
ROTAZIONE SINISTRA
LEFT ROTATION

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

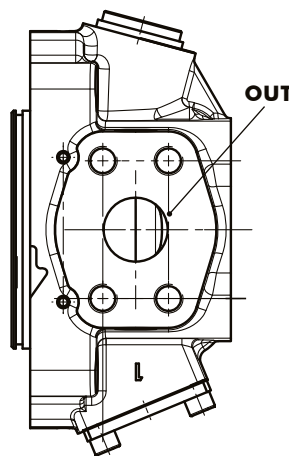


IN

OUT



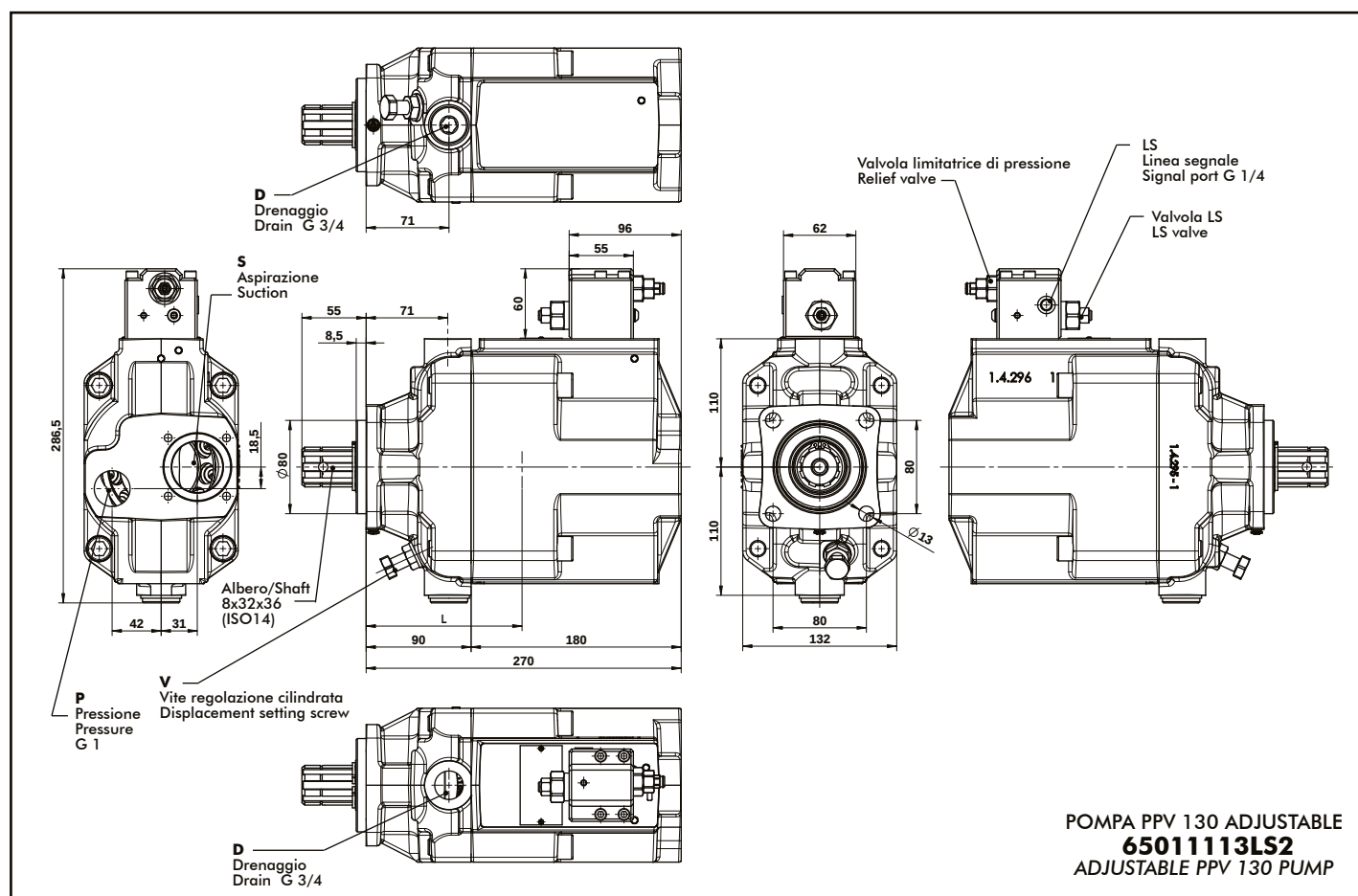
/ IN



OUT

POMPE A CILINDRATA VARIABILE VARIABLE DISPLACEMENT PUMPS

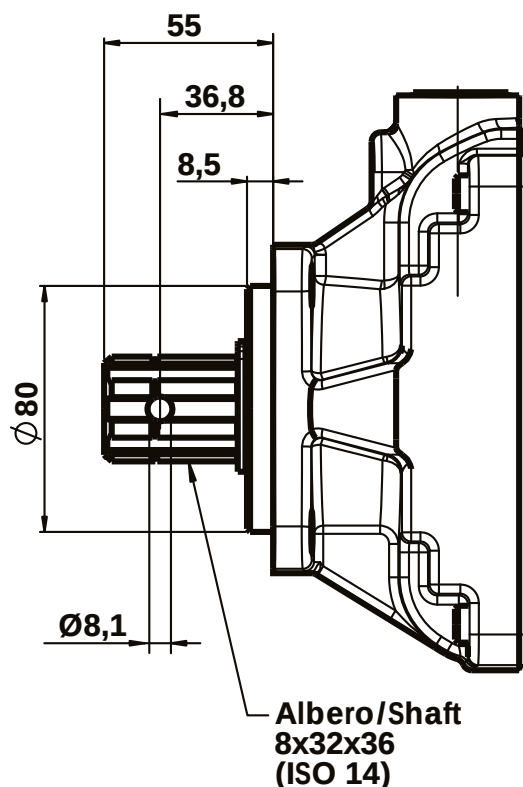
PPV 130
ADJUSTABLE



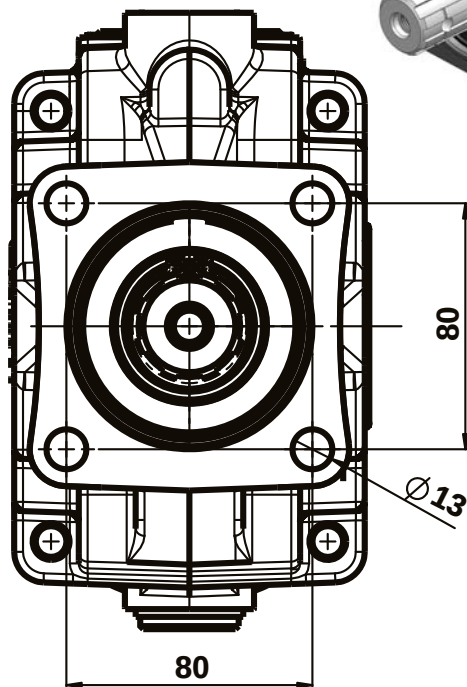
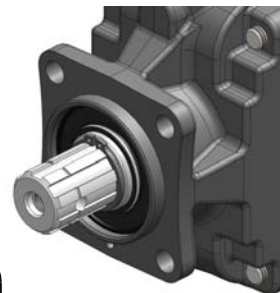
POMPA PPV 130 ADJUSTABLE
65011113LS2
ADJUSTABLE PPV 130 PUMP

FFFS1BDDRRX		
LS	BLOCCHETTO LS/ LS BLOCK	G 1/4
D	DRENAGGIO / DRAIN	G 3/4
OUT	PRESSIONE / PRESSURE	G 1
IN	ASPIRAZIONE / SUCTION Raccordo da ordinare separatamente Suction fitting to be ordered separately	Ø50 mm
L	BARICENTRO / CENTER OF MASS	145 mm circa/approx

6501TBDDRRX



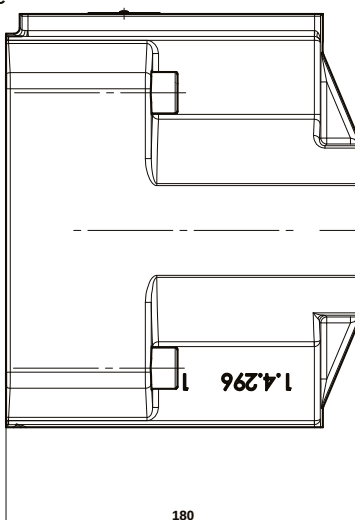
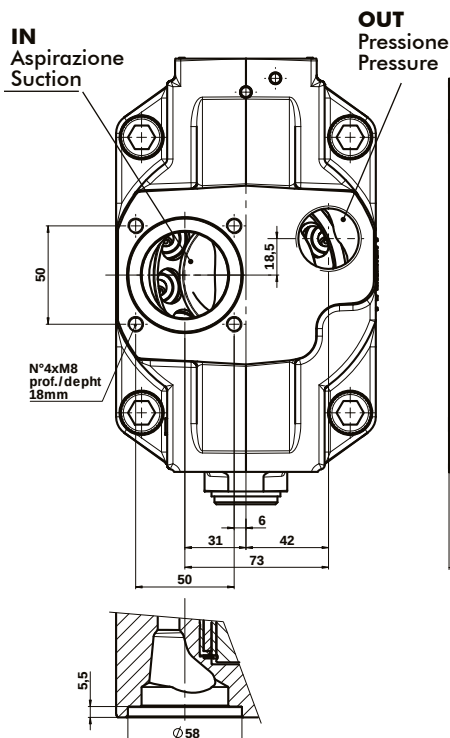
**COPPIA TRASMISSIBILE
MASSIMA 900Nm
MAX. TORQUE 900Nm**

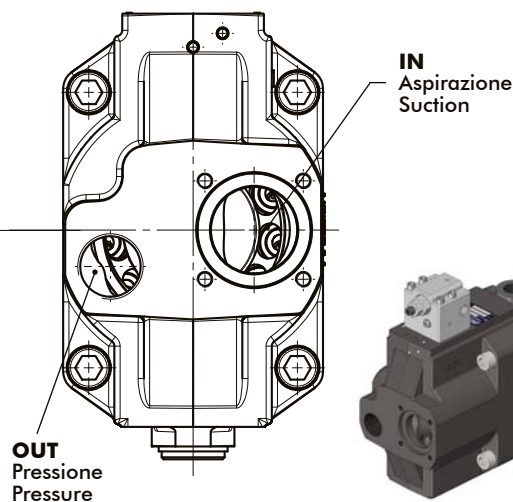


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FFFS1 B1 DDDR2

 Rotazione destra/Right rotation
 Senza limitazione/No adjustment

FFFS1 B1 DDDR7

 Rotazione sinistra/Left rotation
 Senza limitazione/No adjustment


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

REGOLATORI CONTROLS

FFFSTBDDL**LSX**

REGOLATORE LOAD SENSING LS

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

L'intervallo di regolazione è 15-50 bar.

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

Regolazione 15 bar/rev.

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

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

Regolazione 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 Δp = circuit pressure less signal pressure.

The adjustment range is 15-50 bar.

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

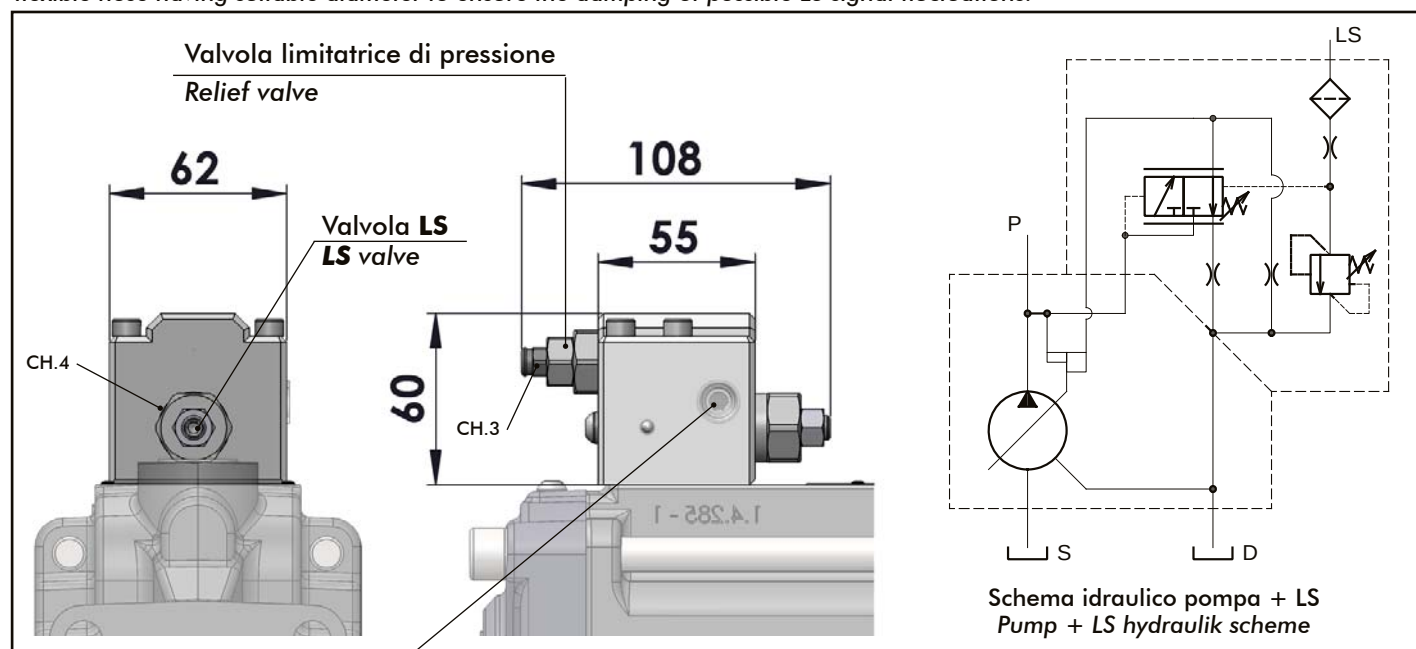
Setting 15 bar/rev.

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

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

Setting 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.

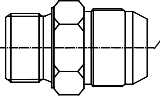


LS
Linea segnale
Signal port

FFFS1BDDLLSX****
Filettatura/Thread G1/4

FFFS5BDDLLSX****
Filettatura/Thread G1/4

7/16-20-04JIC

+  + 

codice/code 116-009-10049 codice/code 115-011-04045

pag.29

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.

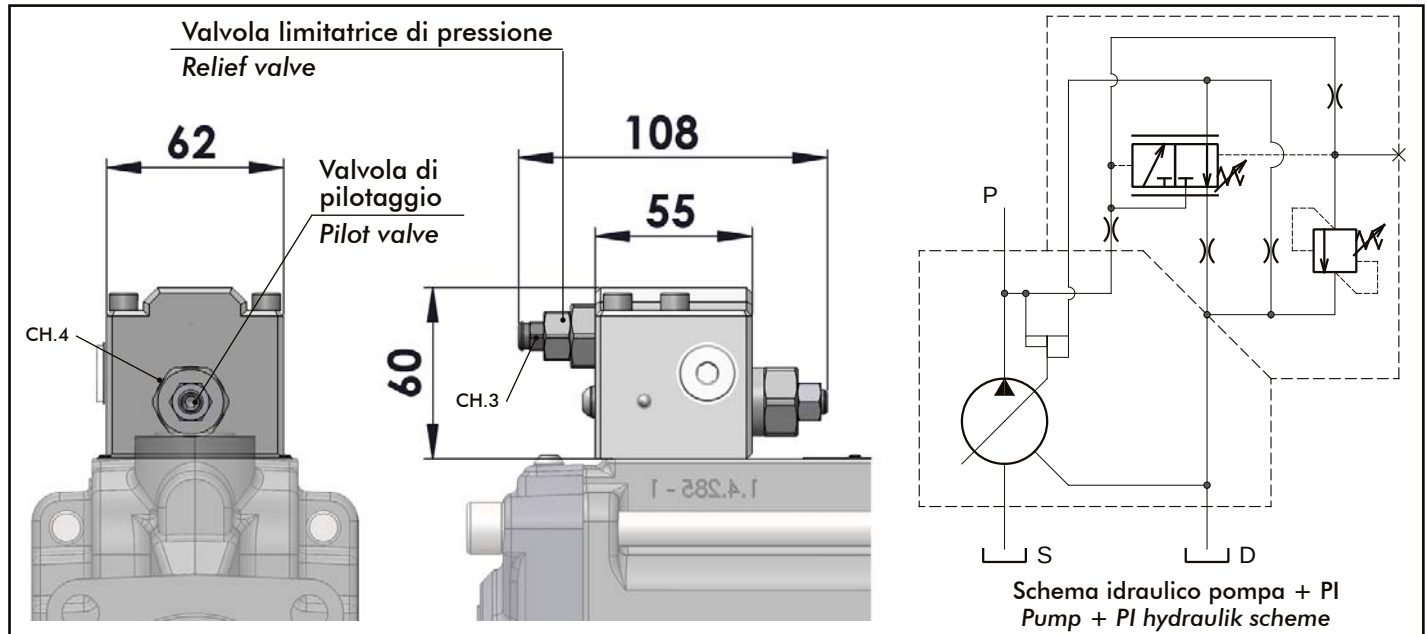
Setting 150 bar/rev.

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.



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FFSTBDDPEX

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 $\pm 2\%$.

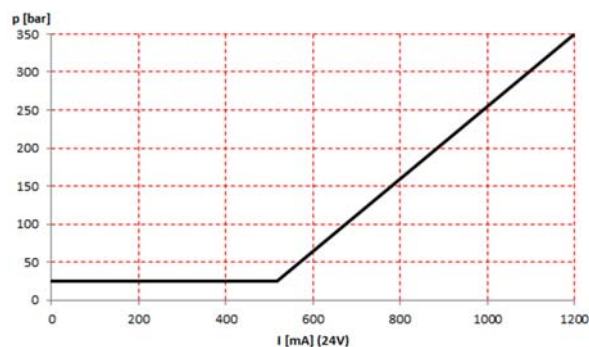
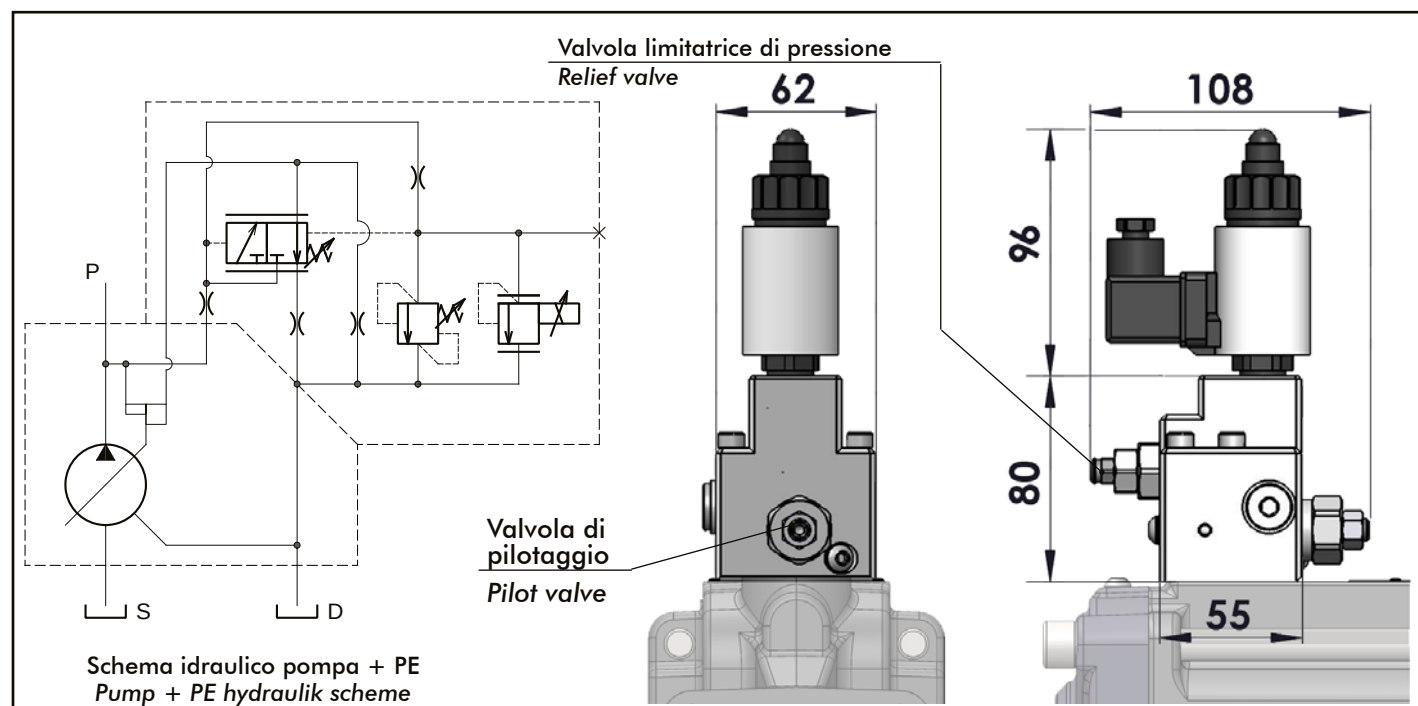
Setting 15 bar/rev.

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.

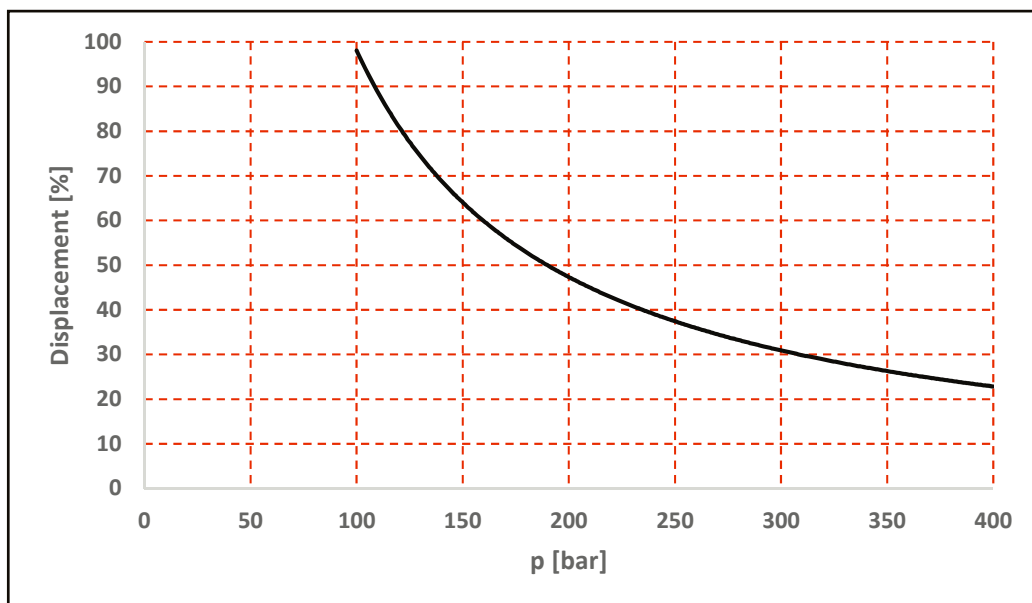
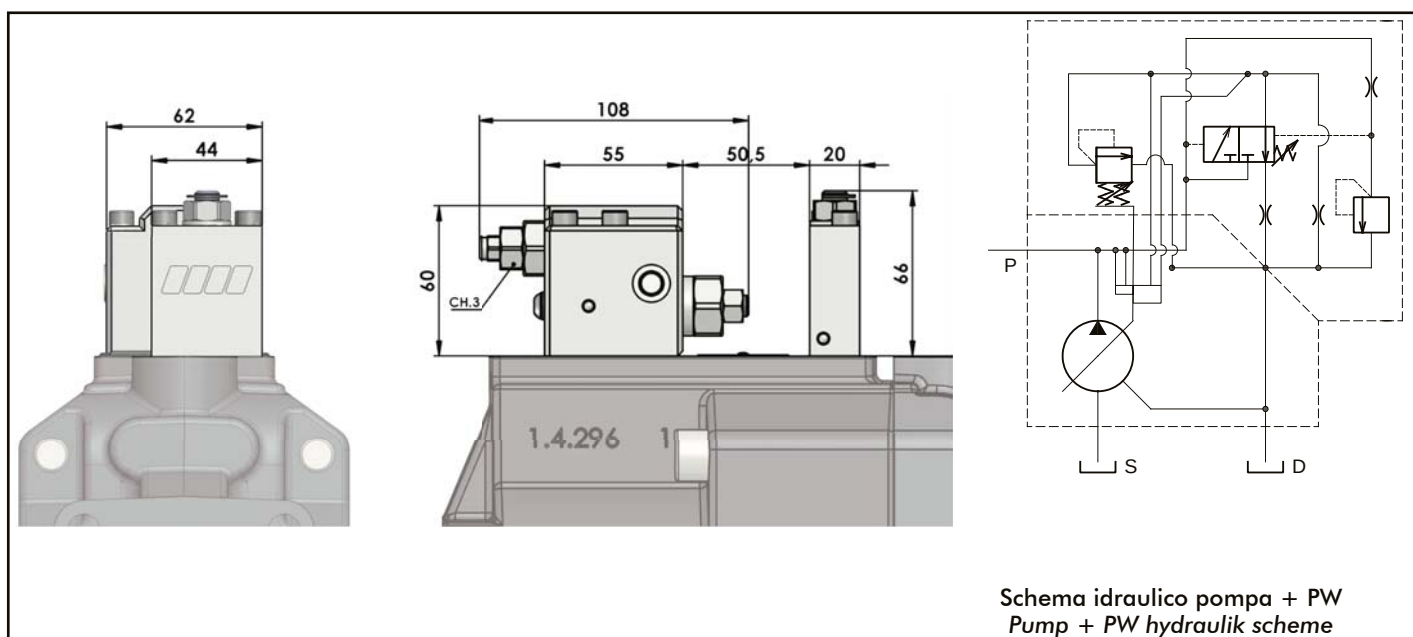


FFFSTBDDPWX**REGOLATORE PW (potenza costante)**

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.

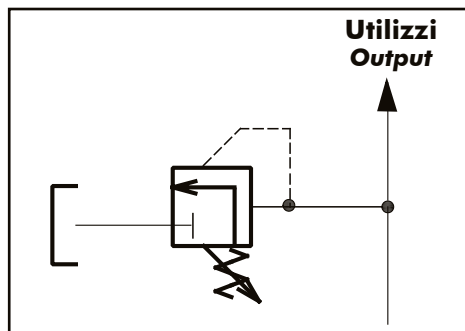
PW CONTROL

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.



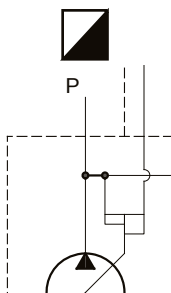
Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL



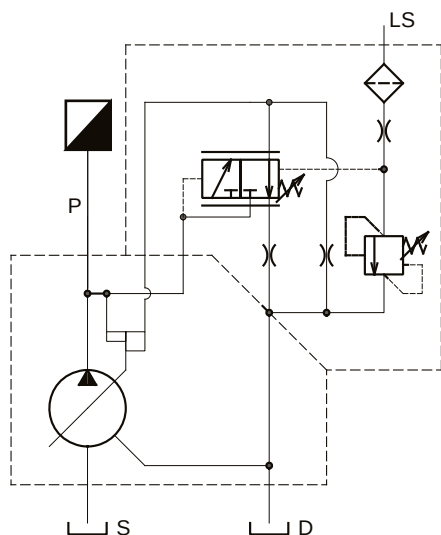
Valvola supplementare limitatrice di pressione (NON fornita). Si consiglia una taratura di +30bar rispetto al taglio pressione.

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

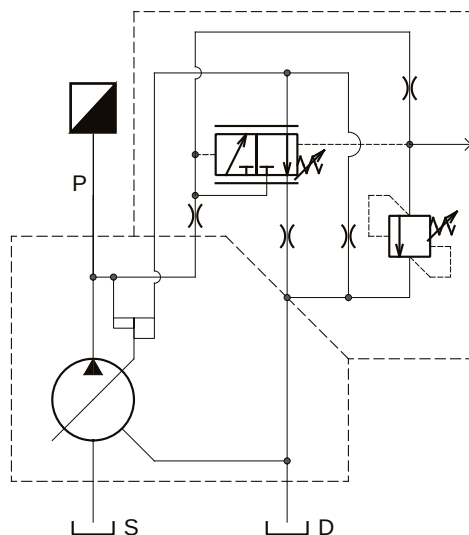


TIPI DI REGOLATORI CONTROLS TYPES

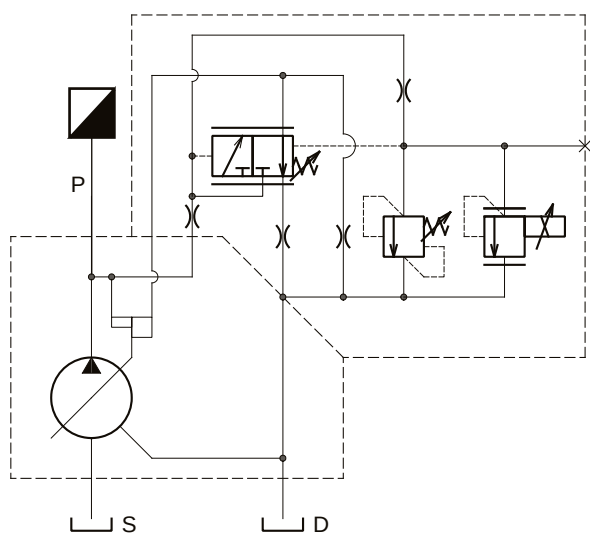
Schema idraulico pompa+regolatore LS
Pump+LS control hydraulik scheme



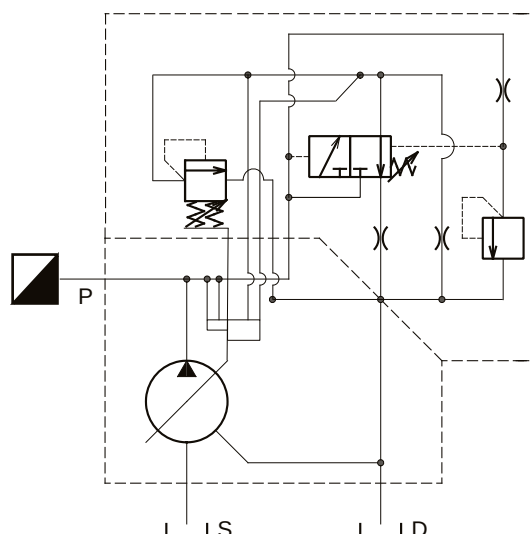
Schema idraulico pompa+regolatore PI
Pump+PI control hydraulik scheme



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



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



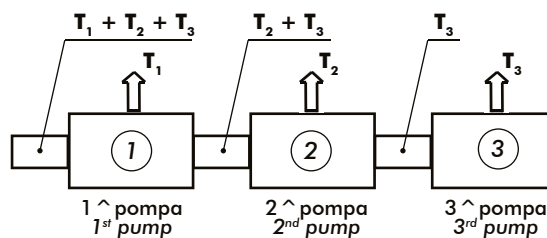
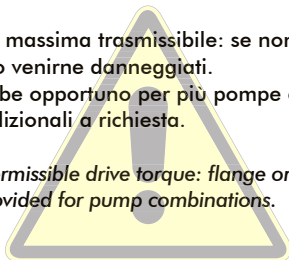
APPLICAZIONI PPV TANDEM TANDEM PPV APPLICATIONS

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

	Codice/Code	PPV60	PPV90 PPV110	Descrizione Description	Flangia/Flange	Albero/Shaft	Coppia max. trasmissibile Max. output torque
							T _{OUT} max.
1	114-000-00839			Solo coperchio 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 (16-4 DIN ISO 3019-1) 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 (16-4 DIN ISO 3019-1) 9T 16/32 DP	
6	114-650-10162			SAE B	SAE B 2-hole J744 101-2 DIN ISO 3019-1 SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>	SAE B J744 (22-4 DIN ISO 3019-1) 13T 16/32 DP	210 Nm
7	114-650-10206			SAE B	SAE B 2-hole J744 101-2 DIN ISO 3019-1 SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>	SAE B J744 (22-4 DIN ISO 3019-1) 13T 16/32 DP	
8	114-650-10304			SAE BB	SAE B 2-hole J744 101-2 DIN ISO 3019-1 SAE B 4-hole J744 101-4 DIN ISO 3019-1 <i>Ruotata di 20° / 20° rotation</i>	SAE BB J744 (25-4 DIN ISO 3019-1) 15T 16/32 DP	400 Nm
9	114-650-10402			SAE C	SAE C 2-hole J 744 127-2 DIN ISO 3019-1 SAE C 4-hole J 744 127-4 DIN ISO 3019-1	SAE C J744 (32-4 DIN ISO 3019-1) 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^a pump T1
Coppia 2^a pump T2
Coppia 3^a pump T3

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

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

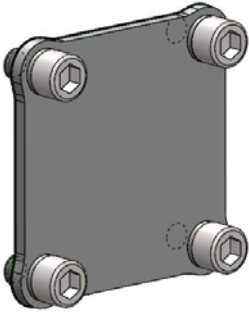
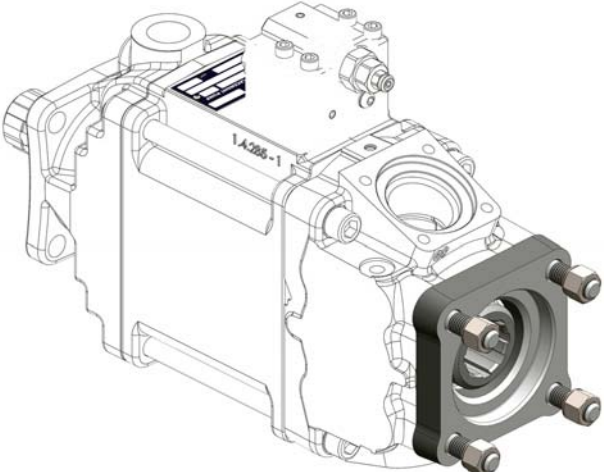
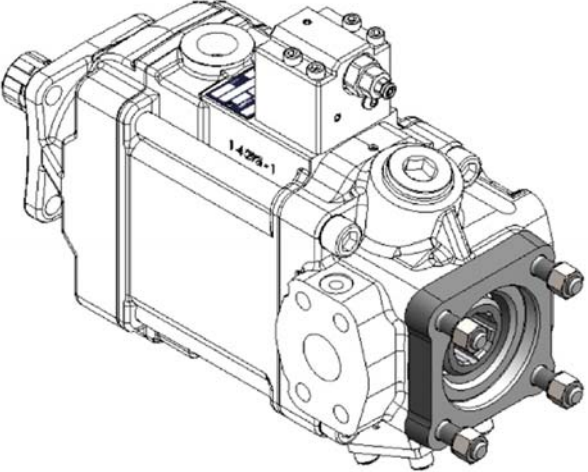
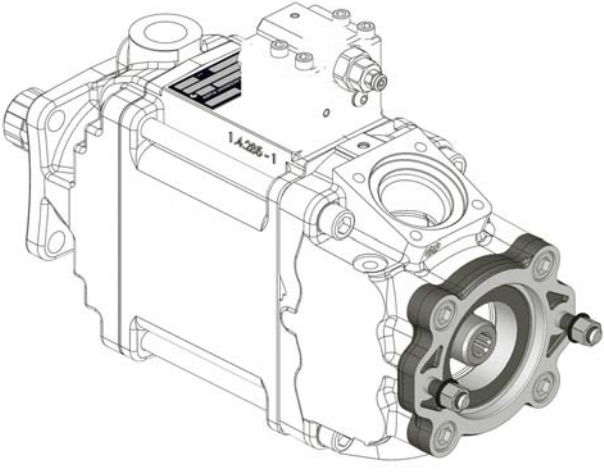
T_{OUT, 2} = T₃
T_{OUT, 2} < T_{OUT, MAX}..... vedere tabella

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

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

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

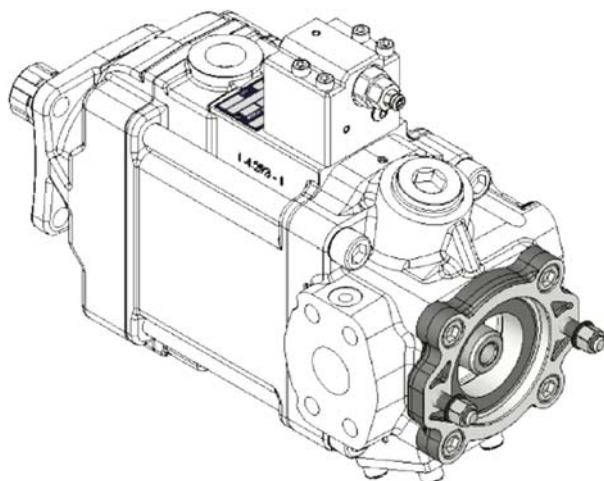
T_{OUT, 2} = T₃
T_{OUT, 2} < T_{OUT, MAX}..... see table

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

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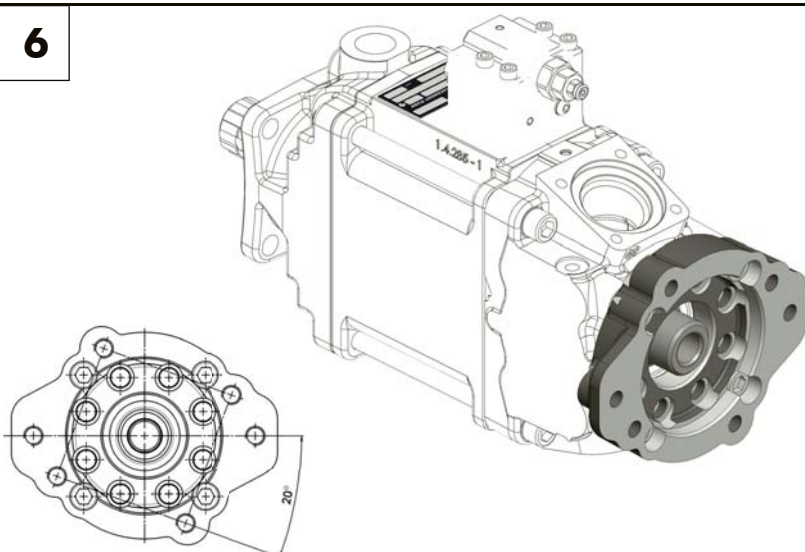


114-650-10108

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

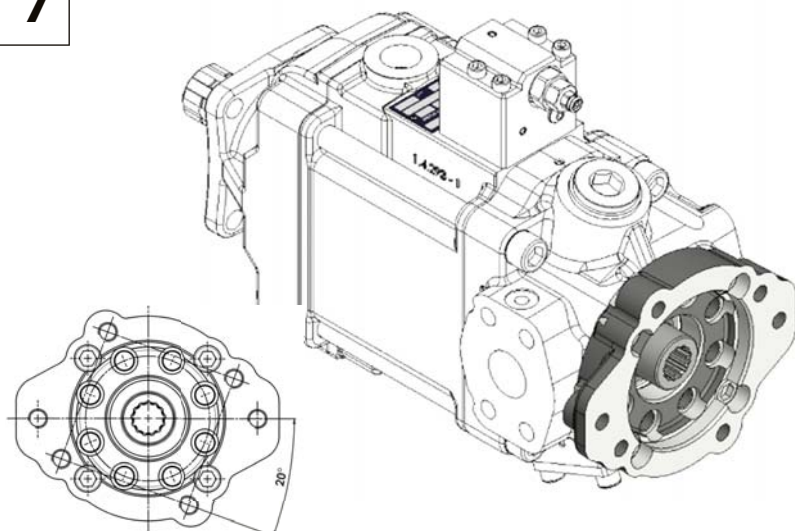


114-650-10162

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

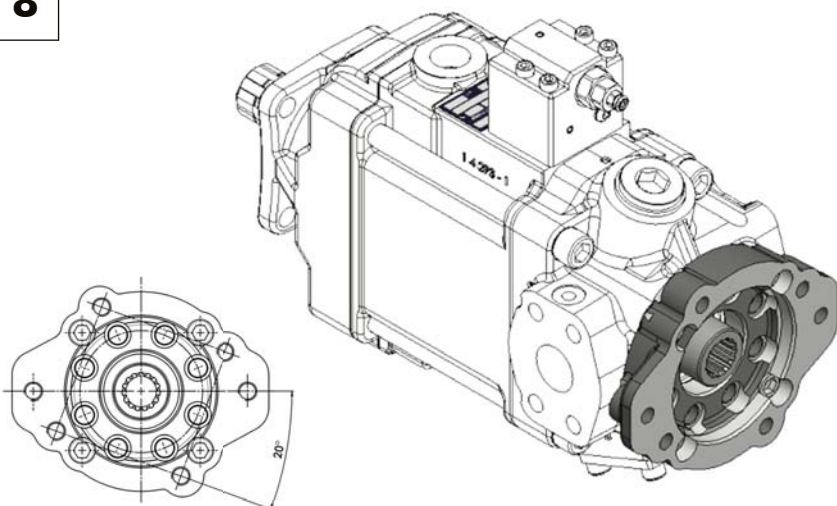
APPLICAZIONE PPV TANDEM MEDIE
/
POMPA SAE B Z13
(coppia trasmissibile 210Nm)

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

Data: Mercoledì 15 aprile 2020

Codice foglio: 997-650-11110 Rev: AL

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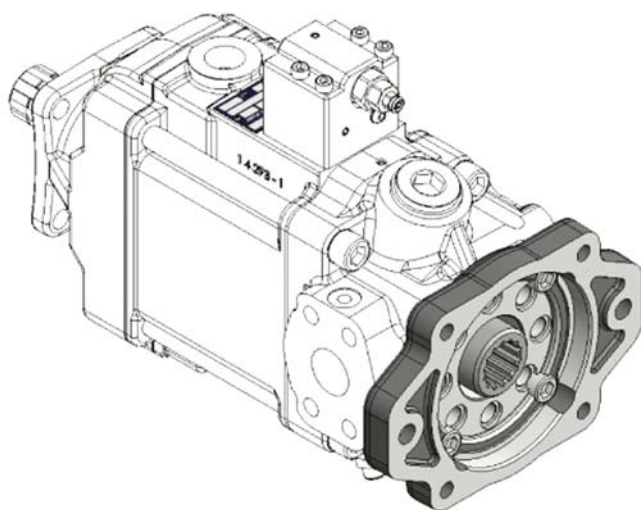


114-650-10304

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

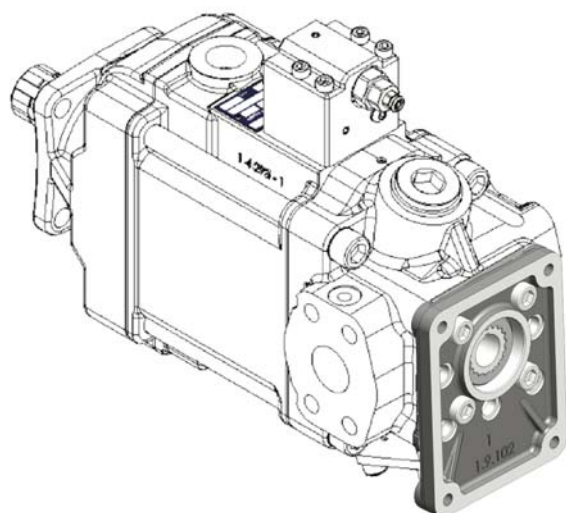


114-650-10402

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

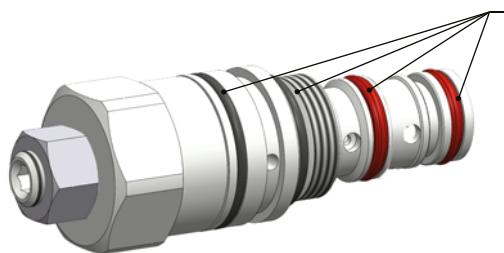
- Le pompe PPV sono idonee al montaggio diretto su PTO con flangiatura ISO 7653.
 - Prima dell'installazione della pompa verificare che il senso di rotazione sia corretto.
 - La pompa può essere montata in orizzontale od in verticale (con l'albero rivolto verso l'alto).
 - In caso di montaggio della 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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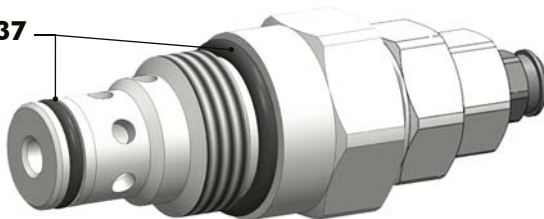
RICAMBI GUARNIZIONI GASKETS SPARE PARTS

**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)

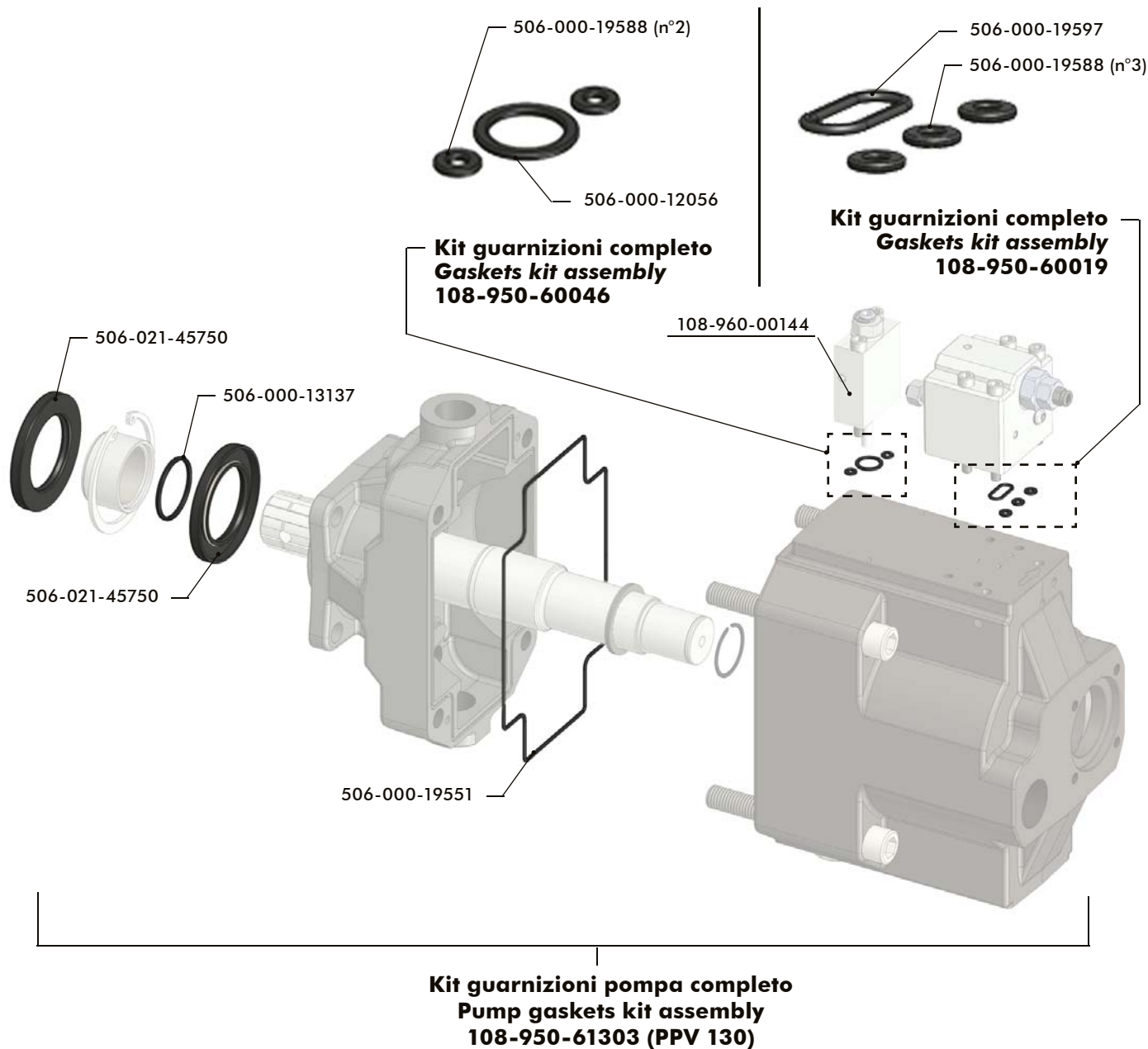
506-000-11220 (PPV 60)

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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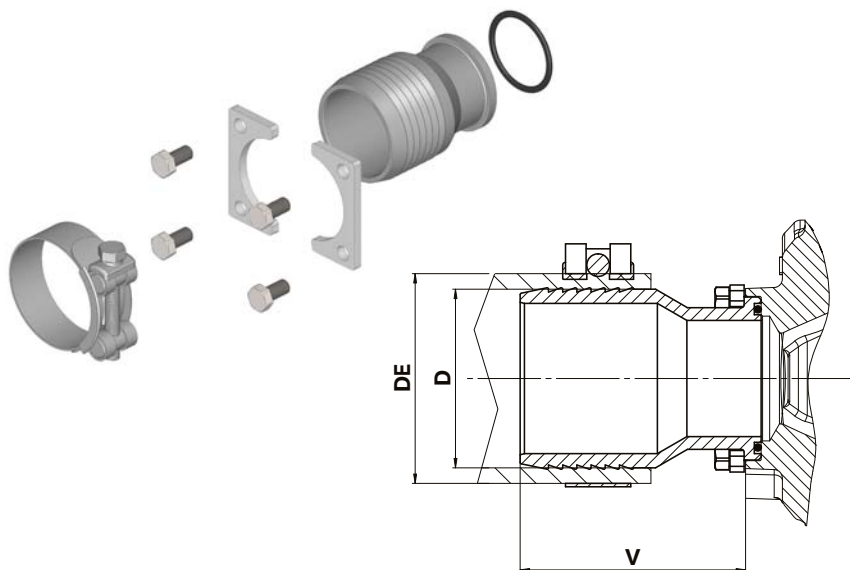


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ACCESSORI ACCESSORIES

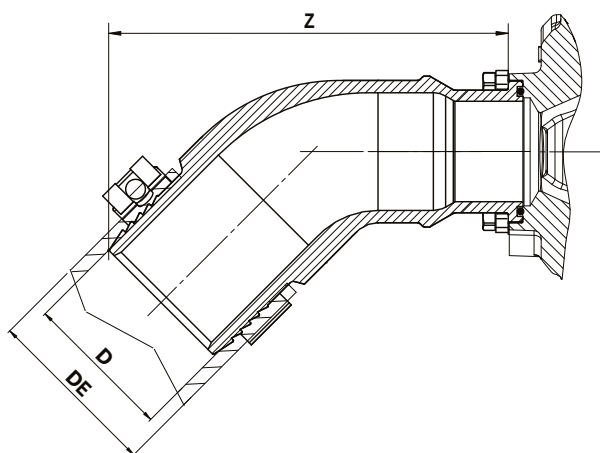
RACCORDI ASPIRAZIONE SUCTION FITTINGS



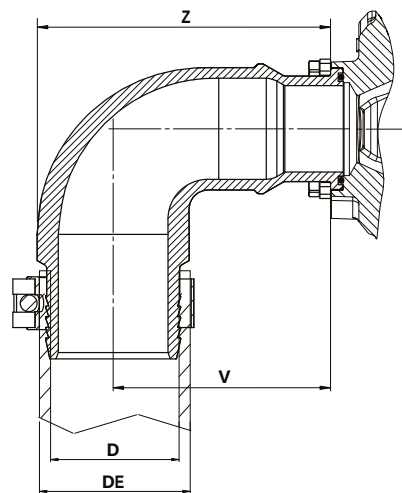
Codice Code	D	DE	V	Peso Weight
	mm	mm	mm	Kg
155-112-00507	50	60-63	59	0,59
155-112-00516	50	64-67	59	0,6
155-112-00605	60	68-73	79	0,77
155-112-00632	63	74-79	79	0,8
155-112-00767	76	86-91	94	1



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



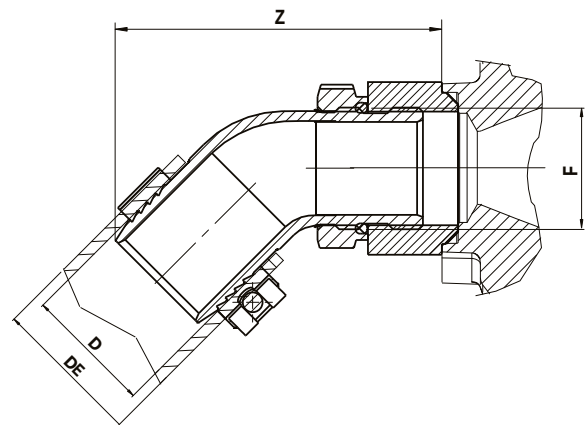
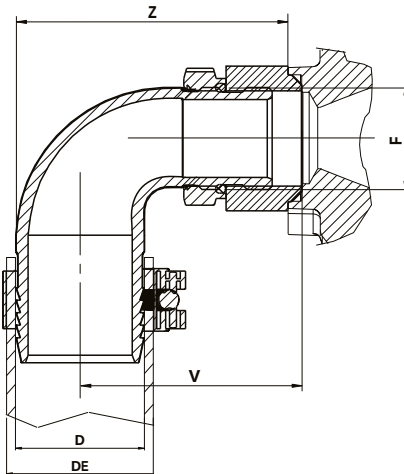
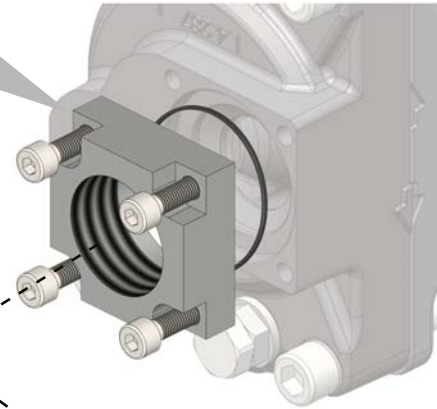
Codice Code	D	DE	V	Z	Peso Weight
	mm	mm	mm	mm	Kg
155-112-90634	63	74-79	103	139	1,9
155-112-90769	76	86-91	103	140	2,3



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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 Code	F	D	DE	V	Z	Peso 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 Code	F	D	DE	Z	Peso 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