

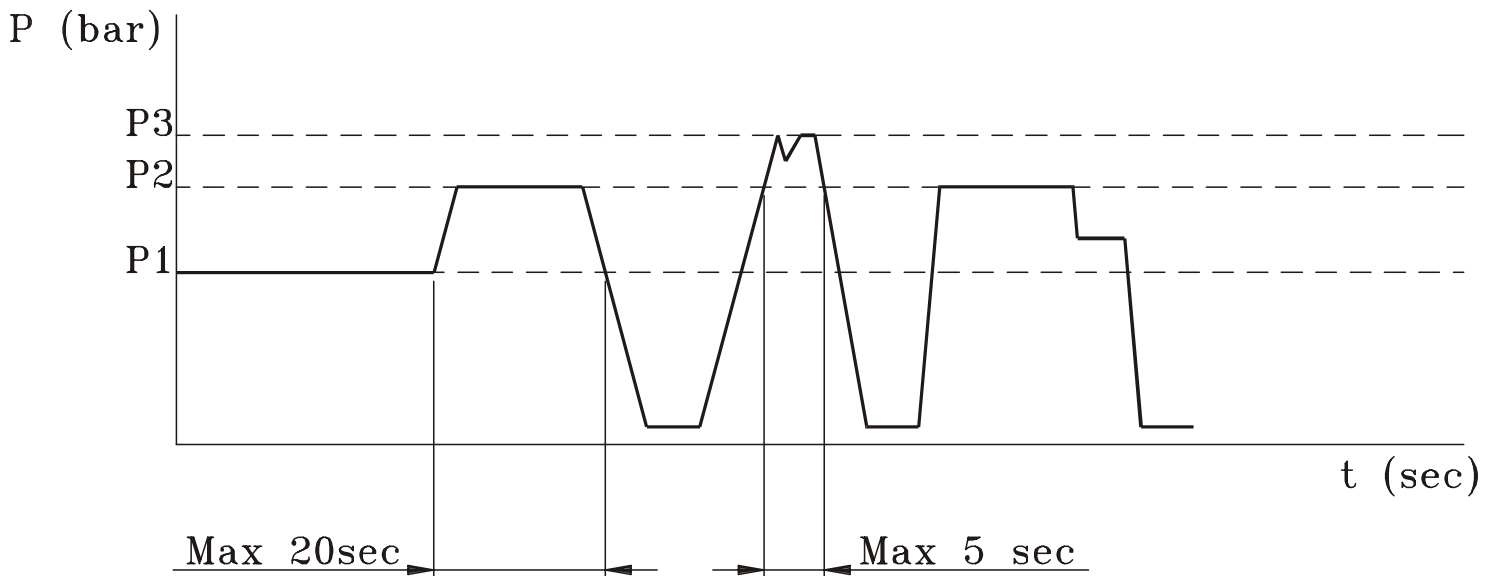
# POMPE AD INGRANAGGI

## *GEAR PUMPS*

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## LEGENDA

- **VLP**      **Valvola limitatrice di pressione**  
*Pressure relief valve*
- **VR**        **Valvola di ritegno**  
*Check valve*
- **A; B**      **Effetti**  
*Ports*
- **P**         **Linea in pressione**  
*Pressure line*
- **LC**        **Libera circolazione**  
*Through passage*
- **T**         **Scarico**  
*Tank return line*



- **P1**      **Pressione massima di lavoro (continua)**  
*Max. continuous pressure*
- **P2**      **Pressione massima di esercizio (intermittente)**  
*Max. intermittent pressure*
- **P3**      **Pressione massima di punta (picco)**  
*Max. peak pressure*

**I grafici del seguente catalogo si riferiscono a prove effettuate con olio minerale di viscosità 35 mm<sup>2</sup>/s alla temperatura di 60 °C.**

*The diagrams of the following catalogue refer to test made with mineral oil viscosity 35 mm<sup>2</sup>/s at the temperature of 60 °C.*

## CARATTERISTICHE POMPE AD INGRANAGGI

**34** cilindrate suddivise in 4 gruppi compongono la gamma delle nostre pompe ad ingranaggi esterni.

Il bilanciamento idrostatico è a ripresa del gioco assiale mediante pressione inviata ad un'area definita della boccola. La lubrificazione dei supporti è automatica e proporzionale alla pressione di impiego della pompa.

Tutte le nostre pompe possono essere accoppiate tra loro.

È consigliabile utilizzare oli idraulici di origine minerale con caratteristiche antischiuma, antiossidante, anticorrosione e con elevato indice di viscosità.

Il montaggio ed il trascinarsi delle pompe deve essere tale da evitare carichi assiali e radiali sull'albero.

Il giunto utilizzato per il trascinarsi delle pompe deve essere in grado di compensare eventuali errori di dissassamento nel montaggio.

## CONDIZIONI D'IMPIEGO

- Temperatura d'impiego	20°C ÷ 65°C
- Temperatura limite	-15 °C ÷ 80°C
- Pressione ammessa in aspirazione	min. 0.7 max. 3 bar (assoluti)
- Viscosità raccomandata	15 ÷ 92 mm <sup>2</sup> /s
- Viscosità limite d'avviamento	3000 mm <sup>2</sup> /s
- Filtraggio	26/23 ISO DIS 4406 fino a 150 bar 23/20 ISO DIS 4406 per pressioni superiori

## FEATURES ON GEAR PUMPS

*Our gear pumps are available in 34 displacements which are divided into 4 groups. Hydrostatic balance takes up axial slack through the pressure supplied to a fixed point of the bushing. Bearings lubrication is automatic and proportional to pump operating pressure.*

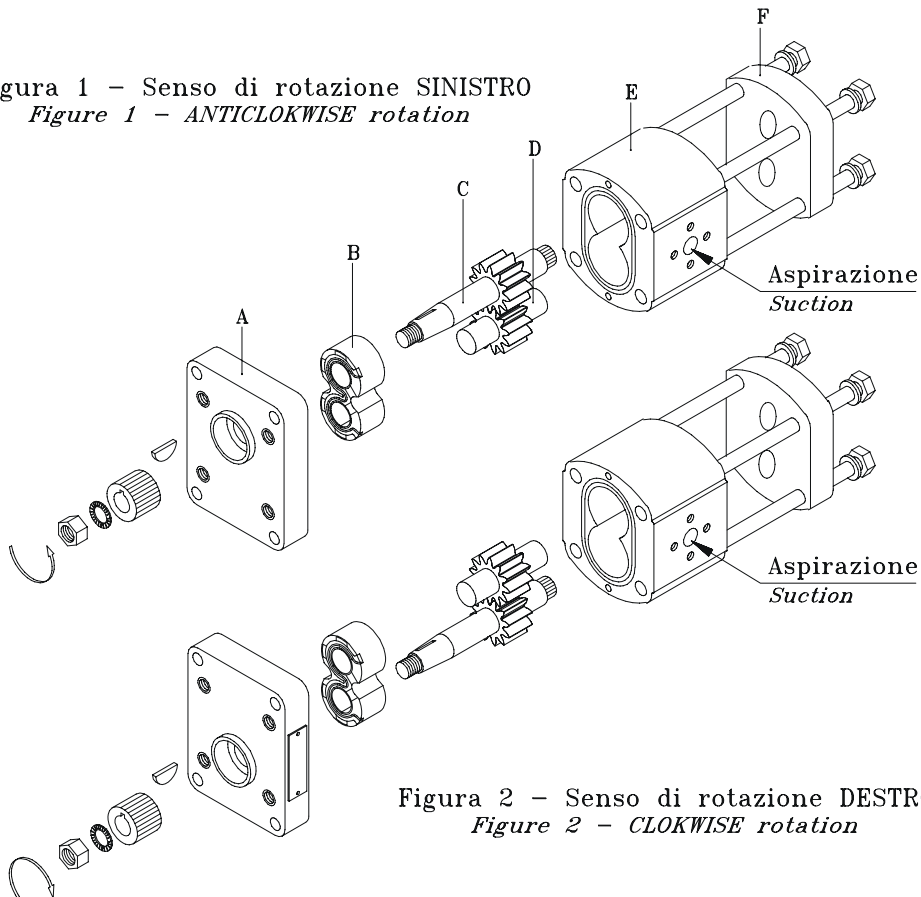
*All our pumps are suitable to obtain multiple pumps.*

*We advise our customers to use mineral hydraulic oils with the following features: antifoaming, antioxidant, corrosion-proof and with high viscosity rate. Pump assembling and engagement must avoid axial and radial loads on the shaft. The coupling used for engagement has to compensate assembling misalignment mistakes.*

## USE CONDITIONS

- Temperature	20°C ÷ 65°C
- Max. temperature	- 15 °C ÷ 80°C
- Suction allowed pressure	min. 0.7 max. 3 bar (absolute)
- Recommended viscosity	15 ÷ 92 mm <sup>2</sup> /s
- Start max. viscosity	3000 mm <sup>2</sup> /s
- Filtering	26/23 150 ISO DIS 4406 until 150 bar 23/20 ISO DIS 4406 for higher pressure

**INVERSIONE DEL SENSO DI ROTAZIONE / WISE ROTATION INVERT**

 Figura 1 - Senso di rotazione SINISTRO  
 Figure 1 - ANTICLOCKWISE rotation

 Figura 2 - Senso di rotazione DESTRO  
 Figure 2 - CLOKWISE rotation

Il senso di rotazione delle pompe è evidenziato da una freccia sulla targhetta.  
 L'inversione del senso di rotazione di una pompa si esegue nel seguente modo:

- Smontare la pompa come da figura 1.
- Capovolgere il coperchio F.
- Sfilare gli ingranaggi C e D e rimontarli secondo la figura 2.
- Rimontare la boccola B nella stessa posizione della figura 1.
- Capovolgere la flangia A e rimontare la pompa serrando le viti con una chiave dinamometrica.
- Per le pompe GR3 - GR4, smontare solo la flangia anteriore.

*Pumps wise rotation is indicated by an arrow on the label.*

*How to invert the pump wise rotation:*

- Disassemble pump as shown in figure 1.
- Reverse the cover F.
- Pull off gears C - D and reassemble according to figure 2.
- Reassemble bushing B as before.
- Reverse the flange A and reassemble the pump tightening the screws by dynamometric wrench.
- For the pumps GR3 - GR4, disassemble only front flange.

TIPO DI POMPA TYPE OF PUMP	GR1	GR2	GR3	GR4
NUMERO DI VITI TYPE OF SCREWS	4	4	16	16
TIPO DI FILETTO TYPE OF THREADS	M8	M10	M10	M14
COPPIA DI SERRAGGIO VITI TIGHTENING TORQUE OF SCREWS	30 Nm	50 Nm	60 Nm	140 Nm
TIPO DI GIUNTO TYPE OF COUPLING	1IS 12M	2IS 14M 2IS 15 M	3IS 18M	4IS 23M
COPPIA DI SERRAGGIO DADO GIUNTO TIGHTENING TORQUE AT NUT COUPLING	9 ÷ 10 Nm	22 ÷ 25 Nm 32 ÷ 35 Nm	50 ÷ 55 Nm	100 ÷ 120 Nm

TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	VELOCITÀ MAX. giri/min MAX. SPEED rpm	PORTATA MAX. lt/min MAX. FLOW lt/min.	VELOCITÀ MIN. giri/min. MIN. SPEED rpm	PORTATA MIN. lt/min MIN. FLOW lt/min	RENDIMENTO VOLUMETRICO VOLUMETRIC OUTPUT
1SP 0.9	0.89	6000	5.3	600	0.49	92% *
1SP 1.2	1.18	6000	7.1		0.65	
1SP 1.6	1.6	6000	9.6		400	
1SP 2.0	2.0	5500	11	0.76		
1SP 2.5	2.5	5000	12.5	0.95		
1SP 3.2	3.2	4500	14.4	1.21		
1SP 3.7	3.7	4000	14.8	1.40		
1SP 4.2	4.2	3500	14.7	1.60		
1SP 5.0	5.0	3000	15	1.90		
1SP 6.3	6.3	2700	17	2.39		
1SP 7.8	7.76	2500	19.4	2.95		
1SP 9.8	9.78	2000	19.6	3.71		

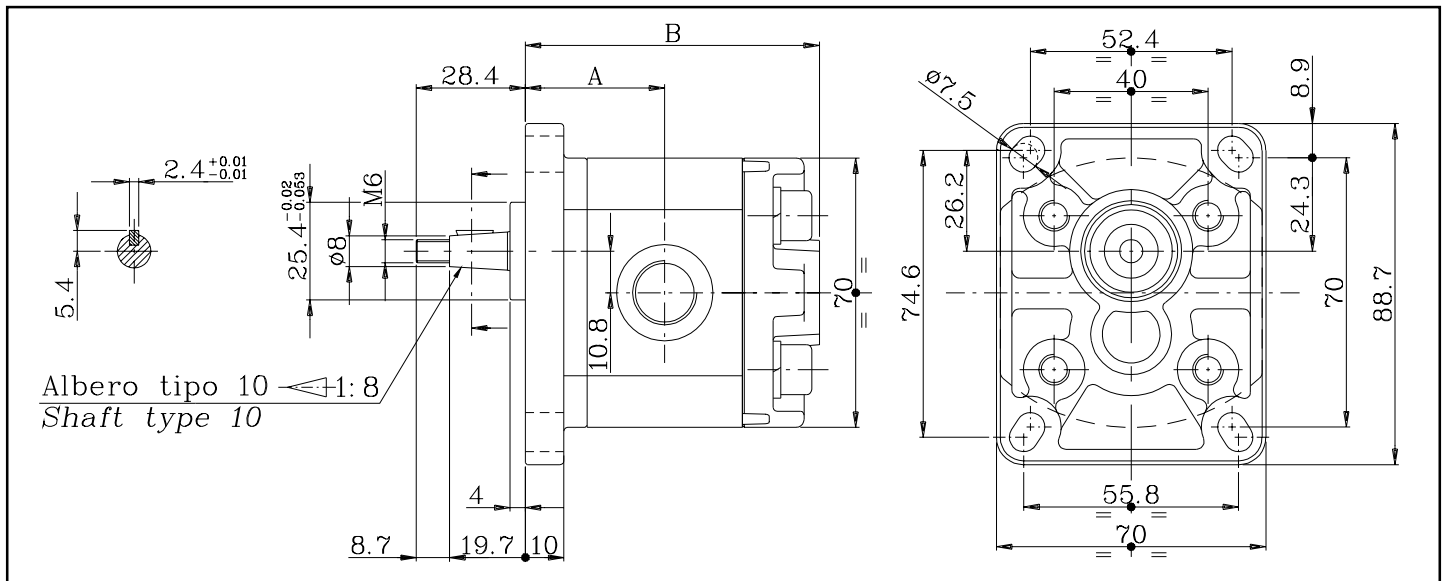
TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	VELOCITÀ MAX. giri/min MAX. SPEED rpm	PORTATA MAX. lt/min MAX. FLOW lt/min.	VELOCITÀ MIN. giri/min. MIN. SPEED rpm	PORTATA MIN. lt/min MIN. FLOW lt/min	RENDIMENTO VOLUMETRICO VOLUMETRIC OUTPUT
2SP 4	4	4000	16	500	1.9	95% *
2SP 6	6	4000	24		2.85	
2SP 8	8.5	3500	29.7		4.03	
2SP 11	11	3500	38.5		5.22	
2SP 14	14	3500	49		6.65	
2SP 16	16.5	3500	57.7		7.83	
2SP 19	19.5	3300	64.3		9.26	
2SP 22	22.5	2800	63		10.68	
2SP 26	26	2500	65		12.35	

TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	VELOCITÀ MAX. giri/min MAX. SPEED rpm	PORTATA MAX. lt/min MAX. FLOW lt/min.	VELOCITÀ MIN. giri/min. MIN. SPEED rpm	PORTATA MIN. lt/min MIN. FLOW lt/min	RENDIMENTO VOLUMETRICO VOLUMETRIC OUTPUT
3SP 19	19	3500	66.5	700	12.64	95% *
3SP 22	22.3	3500	78		14.83	
3SP 29	29.3	3300	96.7		19.48	
3SP 33	32.9	3300	108.6		21.88	
3SP 36	36.4	3300	120.1		24.21	
3SP 44	43.5	3000	130.5		28.93	
3SP 52	51.7	3000	155.1		34.38	
3SP 62	61.1	2500	152.7		40.63	

TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	VELOCITÀ MAX. giri/min MAX. SPEED rpm	PORTATA MAX. lt/min MAX. FLOW lt/min.	VELOCITÀ MIN. giri/min. MIN. SPEED rpm	PORTATA MIN. lt/min MIN. FLOW lt/min	RENDIMENTO VOLUMETRICO VOLUMETRIC OUTPUT
4 ISP 60	60.3	2300	138.7	800	45.82	92% *
4 ISP 70	69	2200	151.8		52.44	
4 ISP 86	86	2200	189.2		65.36	
4 ISP 103	103	2000	206		78.28	
4 ISP 120	120	2000	240		91.2	

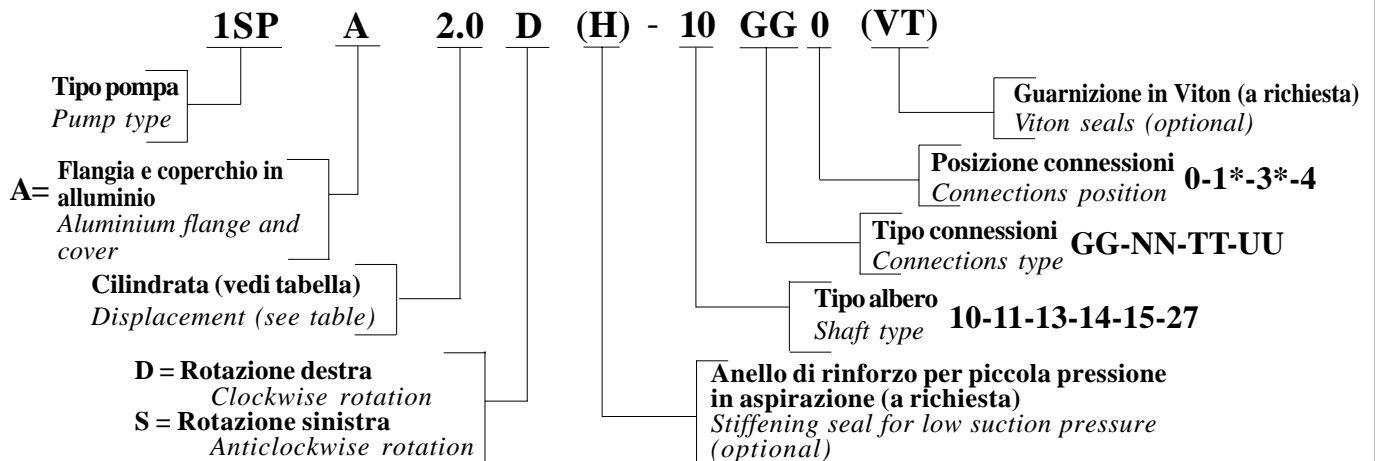
\*(valori rilevati in fase di collaudo a 1500 giri/min) - (value taked during the testing at 1500 rpm)

# POMPE GRUPPO PUMPS GROUP 1 START



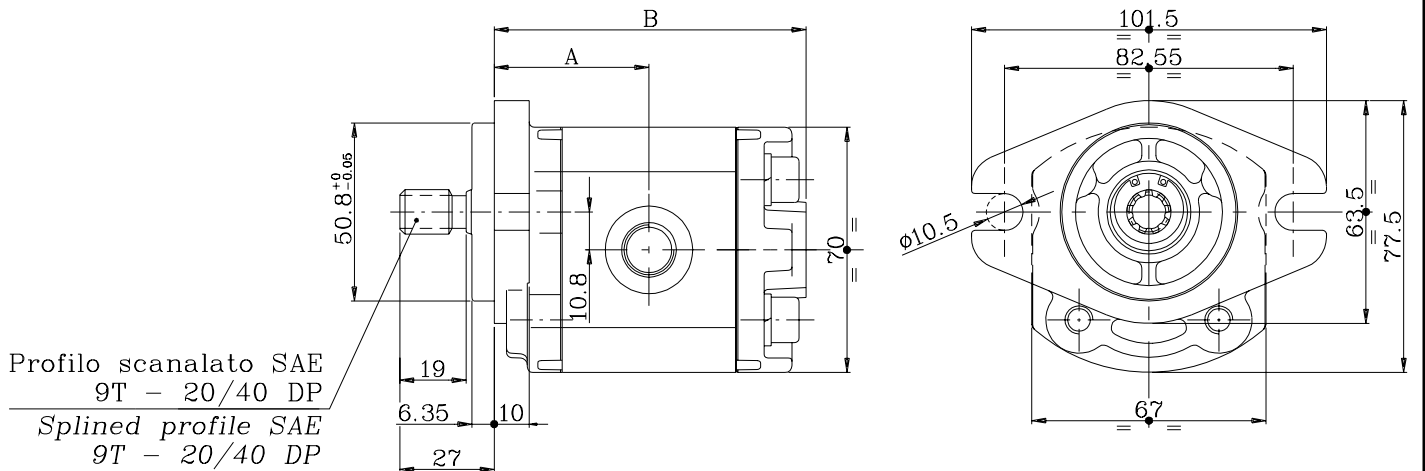
TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA Kg MASS Kg
		P1	P2	P3		A	B	
1SP A0.9	0.89	240	260	290	6000	34.8	73.6	0.91
1SP A1.2	1.18	240	260	290	6000	35.35	74.7	0.93
1SP A1.6	1.6	240	260	290	6000	36.2	76.4	0.95
1SP A2.0	2.0	220	250	270	5500	36.95	77.9	0.97
1SP A2.5	2.5	220	250	270	5000	37.95	79.9	1.00
1SP A3.2	3.2	210	240	260	4500	39.3	82.6	1.04
1SP A3.7	3.7	210	240	260	4000	40.3	84.6	1.07
1SP A4.2	4.2	190	210	230	3500	41.25	86.5	1.10
1SP A5.0	5.0	180	210	230	3000	42.8	89.6	1.14
1SP A6.3	6.3	170	190	210	2700	45.35	94.7	1.22
1SP A7.8	7.76	170	190	210	2500	48.2	100.4	1.30
1SP A9.8	9.78	150	170	190	2000	52.15	108.3	1.41

## ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE



Non è necessario indicare la flangia STANDARD  
It is not necessary indicate STANDARD flange

## SAE AA

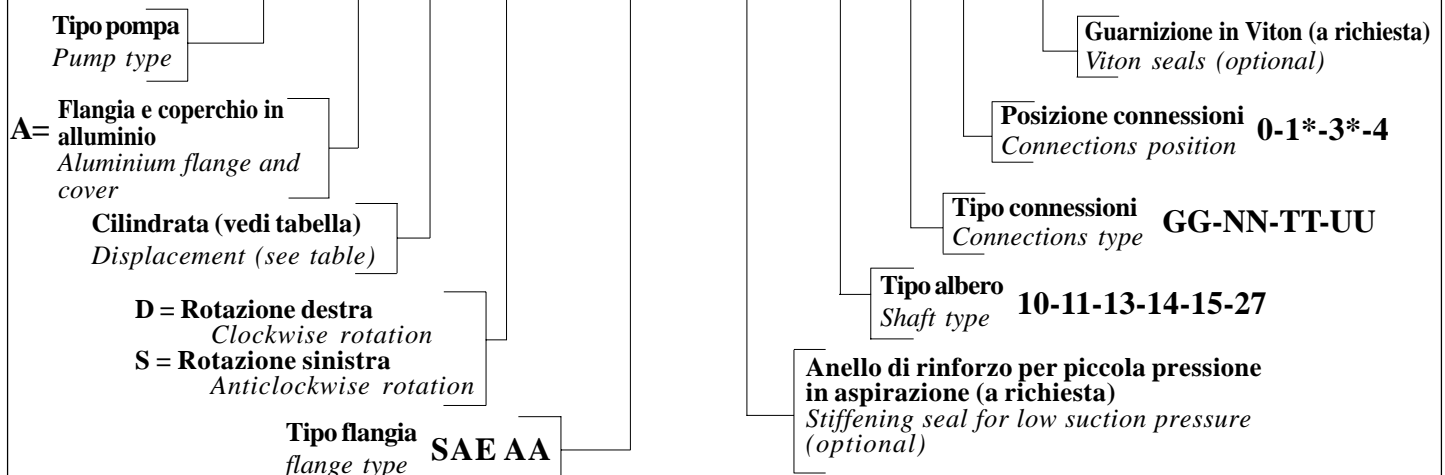


Profilo scanalato SAE  
9T - 20/40 DP  
Splined profile SAE  
9T - 20/40 DP

TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA Kg MASS Kg
		P1	P2	P3		A	B	
1SP A0.9	0.89	240	260	290	6000	38.3	77.1	0.91
1SP A1.1	1.18	240	240	290	6000	38.85	78.2	0.93
1SP A1.6	1.6	240	240	290	6000	39.7	79.9	0.95
1SP A2.0	2.0	220	250	270	5500	40.45	81.4	0.97
1SP A2.5	2.5	220	240	270	5000	41.45	83.4	1.00
1SP A3.2	3.2	210	240	260	4500	42.8	86.1	1.04
1SP A3.7	3.7	210	240	250	4000	43.8	88.1	1.07
1SP A4.2	4.2	190	210	230	3500	44.75	90	1.10
1SP A5.0	5.0	180	210	230	3000	46.3	93.1	1.14
1SP A6.3	6.3	170	190	210	2700	48.85	98.2	1.22
1SP A7.8	7.76	170	190	210	2500	51.7	103.9	1.30
1SP A9.8	9.78	150	170	190	2000	55.65	111.8	1.41

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

**1SP A 2.0 D SAE AA (H) - 10 GG 0 (VT)**

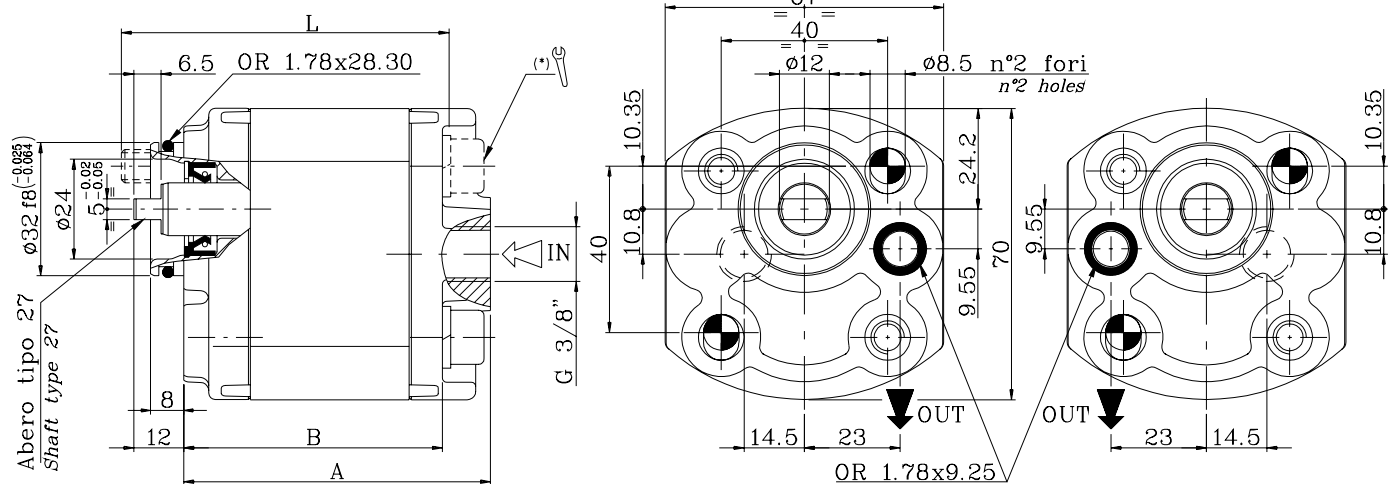




## MC 32 (minicentralina) (power-pack)

Rotazione oraria  
Clockwise Rotation

Rotazione antioraria  
Anticlockwise Rotation



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm			MASSA Kg MASS Kg
		P1	P2	P3		A	B	L(*)	
1SP A0.9	0.89	210	240	260	6000	73.1	61.6	80	0.91
1SP A1.2	1.18	210	240	260	6000	74.2	62.7	80	0.93
1SP A1.6	1.6	210	240	260	6000	75.9	64.4	80	0.95
1SP A2.0	2.0	210	240	260	5500	77.4	65.9	80	0.97
1SP A2.5	2.5	210	240	260	5000	79.4	67.9	85	1.00
1SP A3.2	3.2	200	230	250	4500	82.1	70.6	85	1.04
1SP A3.7	3.7	200	230	250	4000	84.1	72.6	90	1.07
1SP A4.2	4.2	180	210	230	3500	86.0	74.5	90	1.10
1SP A5.0	5.0	180	210	230	3000	89.1	77.6	95	1.14
1SP A6.3	6.3	170	190	210	2700	94.2	82.7	100	1.22
1SP A7.8	7.76	170	190	210	2500	99.9	88.4	105	1.30
1SP A9.8	9.78	150	170	190	2000	107.8	96.3	115	1.41

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

1 SP A 3.7 D MC 32 - 27 G05 (VT)

Tipo pompa  
Pump type

Cilindrata (vedi tabella)  
Displacement (see table)

D = Rotazione destra  
Clockwise rotation

S = Rotazione sinistra  
Anticlockwise rotation

Guarnizioni in Viton (a richiesta)  
Viton seals (optional)

Tipo e posizione connessioni  
Connections type and position G05

Tipo albero  
Shaft type 27-10-11-15

Tipo flangia  
Flange type MC 32

(\*) Coppia di serraggio viti:  $32 \pm 2$ Nm. Utilizzare viti classe 10.9 - 12.9 UNI EN 20898/1

Il Kit di viti per il fissaggio della pompa è da ordinare separatamente

Tightening torque of screws:  $32 \pm 2$ Nm. Use screws type 10.9 - 12.9 UNI EN 20898/1

The screws kit for the fixing of the pump should be ordered separately

Codice di ordinazione del Kit di fissaggio: 0019W

Ordering code of fixing Kit

Lunghezza L (vedi tabella)  
Length L (see table)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere in materiale classe 10.9 - 12.9 preserrate a  $25 \pm 2$ Nm

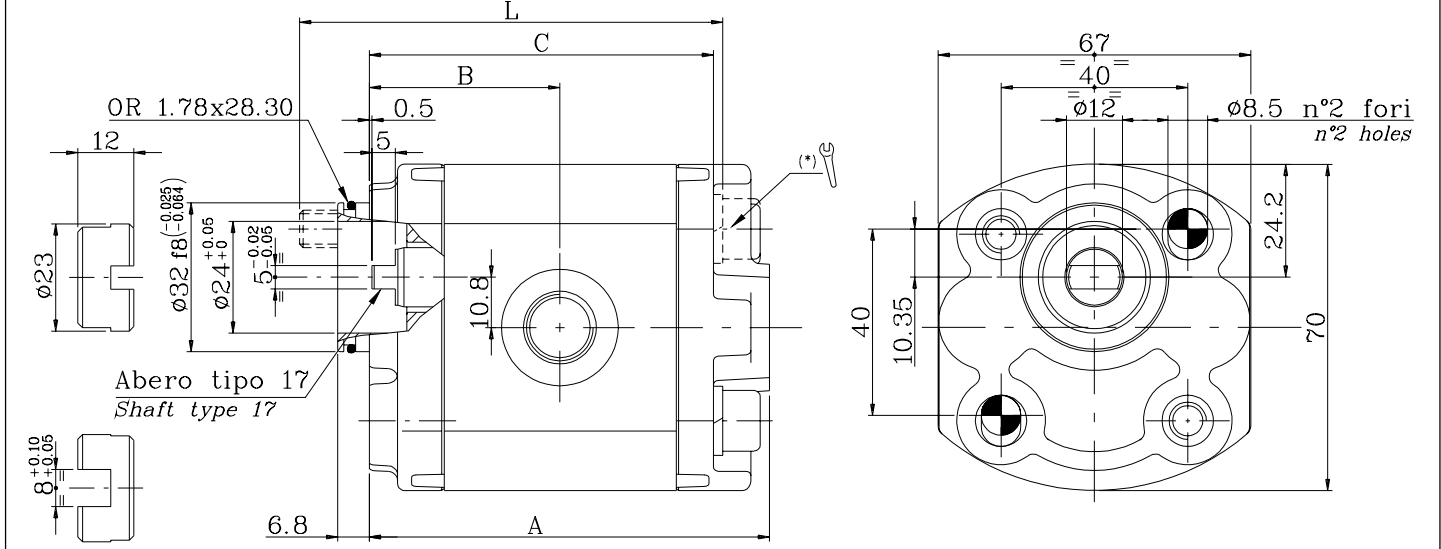
Fissare la pompa mediante dadi autobloccanti con coppia di serraggio  $32 \pm 2$ Nm

The fixing of the pump should be effected with 2 screw studs type 10.9 - 12.9 pre-tighten at  $25 \pm 2$ Nm

Fix the pump by self-locking nuts with tightening torque  $32 \pm 2$ Nm



**E 32 BX** ( fissaggio da minicentralina )  
( power-pack fixing )



TIPO TYPE	CILINDRATA cm³/giro DISPLACEMENT cm³/rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm				MASSA Kg MASS Kg
		P1	P2	P3		A	B	C	L(*)	
1SP A0.9	0.89	210	240	260	6000	73.6	34.8	61.6	80	0.91
1SP A1.2	1.18	210	240	260	6000	74.7	35.35	62.7	80	0.93
1SP A1.6	1.6	210	240	260	6000	76.4	36.2	64.4	80	0.95
1SP A2.0	2.0	210	240	260	5500	77.9	36.95	65.9	80	0.97
1SP A2.5	2.5	210	240	260	5000	79.9	37.95	67.9	85	1.00
1SP A3.2	3.2	200	230	250	4500	82.6	39.3	70.6	85	1.04
1SP A3.7	3.7	200	230	250	4000	84.6	40.3	72.6	90	1.07
1SP A4.2	4.2	180	210	230	3500	86.5	41.25	74.5	90	1.10
1SP A5.0	5.0	180	210	230	3000	89.6	42.8	77.6	95	1.14
1SP A6.3	6.3	170	190	210	2700	94.7	45.35	82.7	100	1.22
1SP A7.8	7.76	170	190	210	2500	100.4	48.2	88.4	105	1.30
1SP A9.8	9.78	150	170	190	2000	108.3	52.15	96.3	115	1.41

**ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE**

**1 SP A 3.7 D E 32 BX - 17 GG0 (VT)**

Tipo pompa  
Pump type

Cilindrata (vedi tabella)  
Displacement (see table)

**D = Rotazione destra**  
Clockwise rotation

**S = Rotazione sinistra**  
Anticlockwise rotation

Tipo flangia  
Flange type

Tipo albero  
Shaft type **17**

Guarnizioni in Viton (a richiesta)  
Viton seals (optional)

Tipo e posizione connessioni  
Connections type and position **GG0-GG4**

**E 32 BX**

(\*) Coppia di serraggio viti: 32 ± 2Nm. Utilizzare viti classe 10.9 - 12.9 UNI EN 20898/1

Il Kit di viti per il fissaggio della pompa è da ordinare separatamente

Tightening torque of screws: 32 ± 2Nm. Use screws type 10.9 - 12.9 UNI EN 20898/1

The screws kit for the fixing of the pump should be ordered separately

Codice di ordinazione del Kit di fissaggio: **0019W**

Ordering code of fixing Kit

Lunghezza L (vedi tabella)  
Length L (see table)

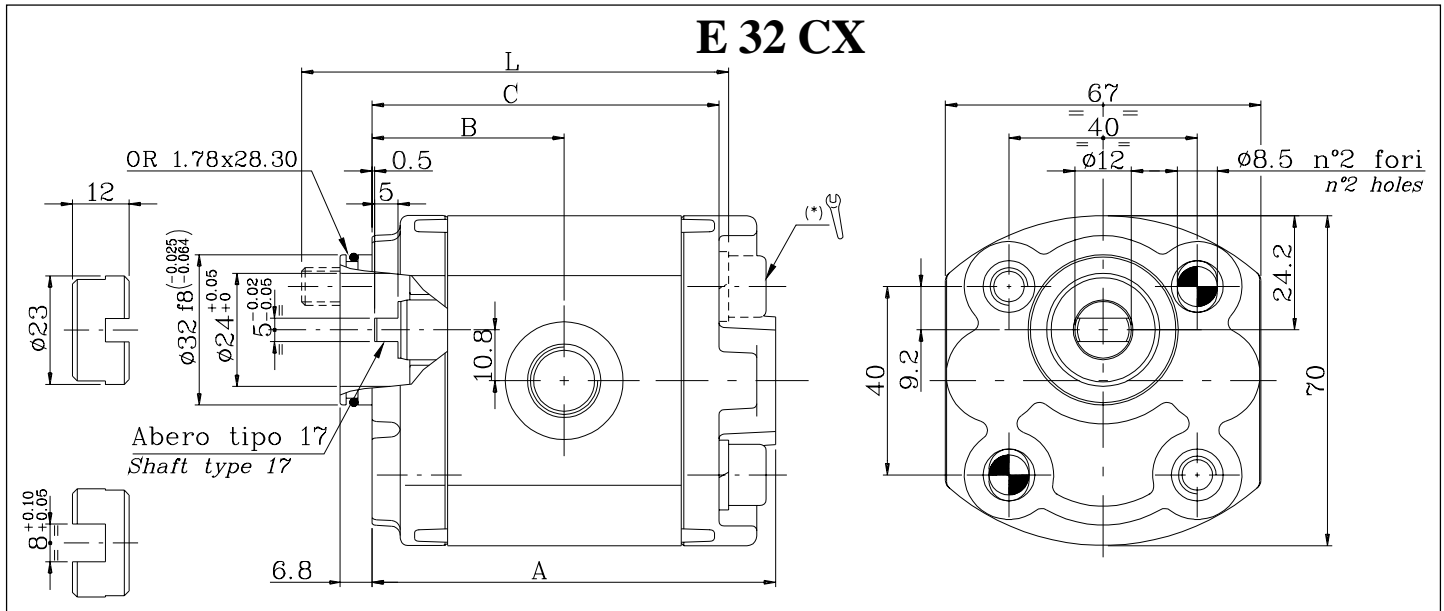
Il fissaggio della pompa può essere effettuato con 2 viti prigioniere in materiale classe 10.9 - 12.9 preserrate a 25 ± 2Nm

Fissare la pompa mediante dadi autobloccanti con coppia di serraggio 32 ± 2Nm

The fixing of the pump should be effected with 2 screw studs type 10.9 - 12.9 pre-tighten at 25 ± 2Nm

Fix the pump by self-locking nuts with tightening torque 32 ± 2Nm

## E 32 CX



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm				MASSA Kg MASS Kg
		P1	P2	P3		A	B	C	L(*)	
1SP A0.9	0.89	210	240	260	6000	73.6	34.8	61.6	80	0.91
1SP A1.2	1.18	210	240	260	6000	74.7	35.35	62.7	80	0.93
1SP A1.6	1.60	210	240	260	6000	76.4	36.2	64.4	80	0.95
1SP A2.0	2.0	210	240	260	5500	77.9	36.95	65.9	80	0.97
1SP A2.5	2.5	210	240	260	5000	79.9	37.95	67.9	85	1.00
1SP A3.2	3.2	200	230	250	4500	82.6	39.3	70.6	85	1.04
1SP A3.7	3.7	200	230	250	4000	84.6	40.3	72.6	90	1.07
1SP A4.2	4.2	180	210	230	3500	86.5	41.25	74.5	90	1.10
1SP A5.0	5.0	180	210	230	3000	89.6	42.8	77.6	95	1.14
1SP A6.3	6.3	170	190	210	2700	94.7	45.35	82.7	100	1.22
1SP A7.8	7.76	170	190	210	2500	100.4	48.2	88.4	105	1.30
1SP A9.8	9.78	150	170	190	2000	108.3	52.15	96.3	115	1.41

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

1 SP A 3.7 D E 32 CX - 17 GG 0 (VT)

Tipo pompa  
Pump type

Cilindrata (vedi tabella)  
Displacement (see table)

D = Rotazione destra  
Clockwise rotation

S = Rotazione sinistra  
Anticlockwise rotation

Guarnizioni in Viton (a richiesta)  
Viton seals (optional)

Tipo connessioni  
Connections type 0-1\*-3\*-4

Tipo connessioni  
Connections type GG-NN-TT-UU

Tipo albero  
Shaft type 17

Tipo flangia  
Flange type E 32 CX

(\*) Coppia di serraggio viti:  $32 \pm 2$ Nm. Utilizzare viti classe 10.9 - 12.9 UNI EN 20898/1

Il Kit di viti per il fissaggio della pompa è da ordinare separatamente

Tightening torque of screws:  $32 \pm 2$ Nm. Use screws type 10.9 - 12.9 UNI EN 20898/1

The screw kit for the fixing of the pump should be ordered separately

Codice di ordinazione del Kit di

: 0019W

fissaggio

Ordering code of fixing Kit

Lunghezza L (vedi tabella)

Length L (see table)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere in materiale classe 10.9 - 12.9 preserrate a  $25 \pm 2$ Nm

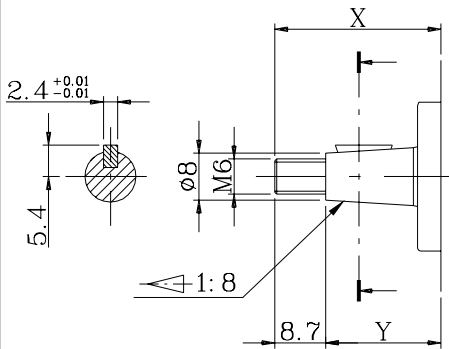
Fissare la pompa mediante dadi autobloccanti con coppia di serraggio  $32 \pm 2$ Nm

The fixing of the pump should be effected with 2 screw studs type 10.9 - 12.9 pre-tighten at  $25 \pm 2$ Nm

Fix the pump by self-locking nuts with tightening torque  $32 \pm 2$ Nm

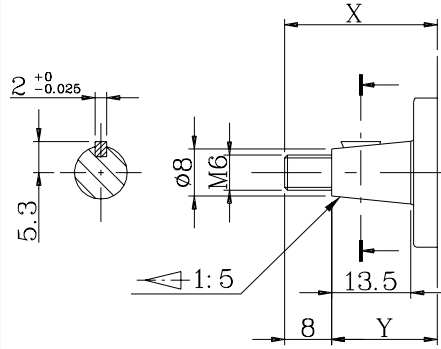
# ALBERI / SHAFT

**TIPO  
TYPE 10**



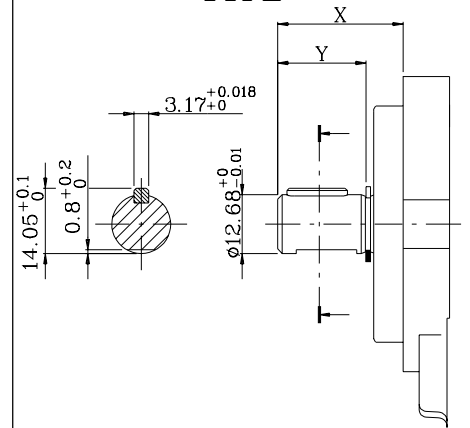
TIPO FLANGIA FLANGE TYPE	X	Y
STANDARD	28.4	19.7

**TIPO  
TYPE 11**



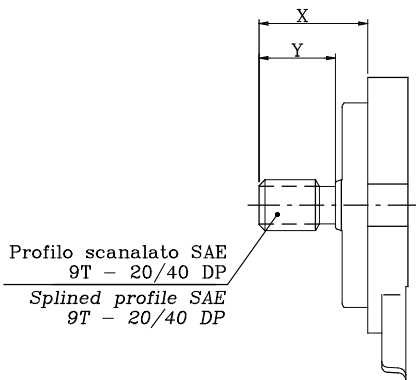
TIPO FLANGIA FLANGE TYPE	X	Y
STANDARD	26	18
MC 32	26	18

**TIPO  
TYPE 13**



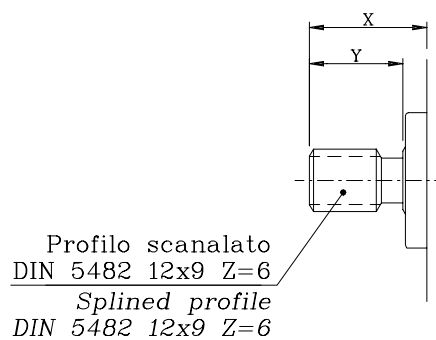
TIPO FLANGIA FLANGE TYPE	X	Y
SAE A-A	27	19

**TIPO  
TYPE 14**



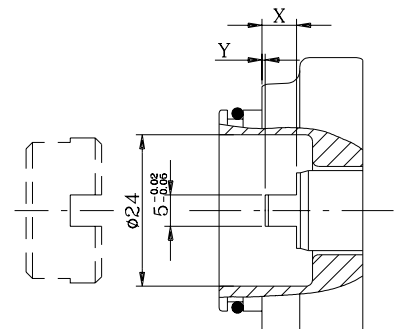
TIPO FLANGIA FLANGE TYPE	X	Y
SAE A-A	27	19

**TIPO  
TYPE 15**



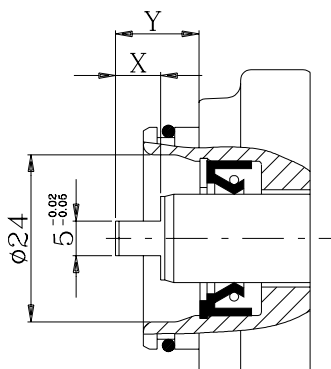
TIPO FLANGIA FLANGE TYPE	X	Y
STANDARD	22	17.5
MC 32	22	17.5

**TIPO  
TYPE 17**



TIPO FLANGIA FLANGE TYPE	X	Y
E 32 BX	5.5	0.5
E 32 BX	5.5	0.5

**TIPO  
TYPE 27**

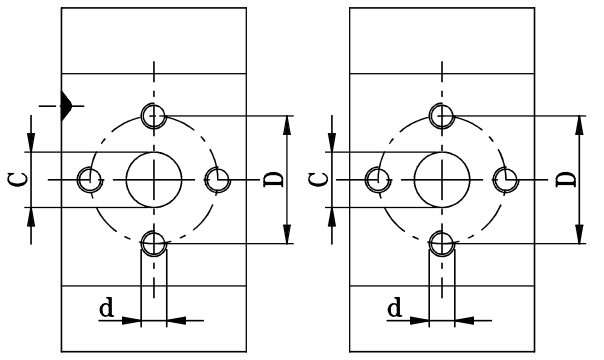


TIPO FLANGIA FLANGE TYPE	X	Y
MC 32	6.5	12

# CONNESSIONI / CONNECTIONS

**TIPO TYPE NN**

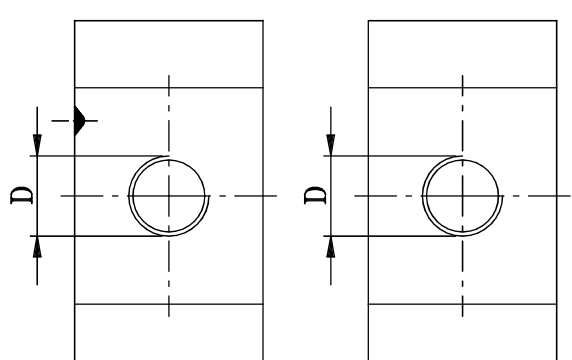
ASPIRAZIONE SUCTION      MANDATA DELIVERY



TIPO/TYPE	C	D	d
0.9 ÷ 2.0	10	26	M5
2.5 ÷ 9.8	13	30	M6

**TIPO TYPE GG**

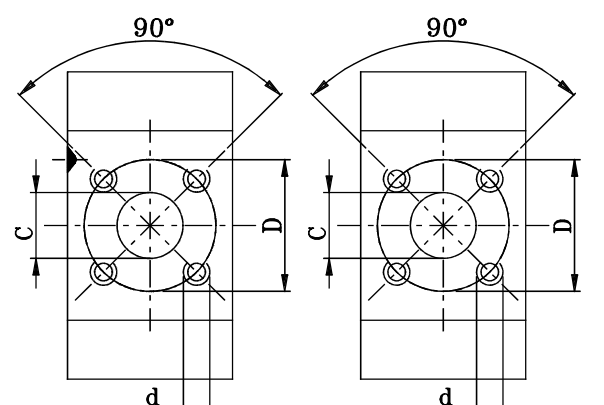
ASPIRAZIONE SUCTION      MANDATA DELIVERY



TIPO/TYPE	D
0.9 ÷ 9.8	G 3/8"

**TIPO TYPE TT**

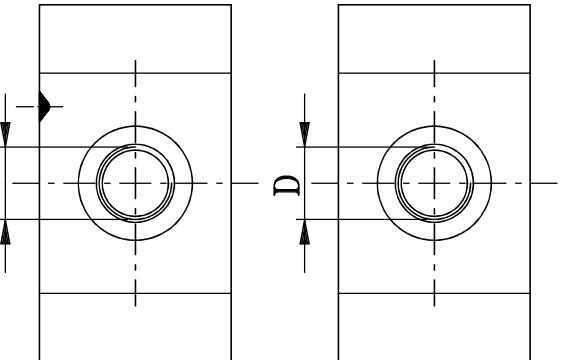
ASPIRAZIONE SUCTION      MANDATA DELIVERY



TIPO/TYPE	C	D	d
0.9 ÷ 9.8	12	30	M6

**TIPO TYPE UU**

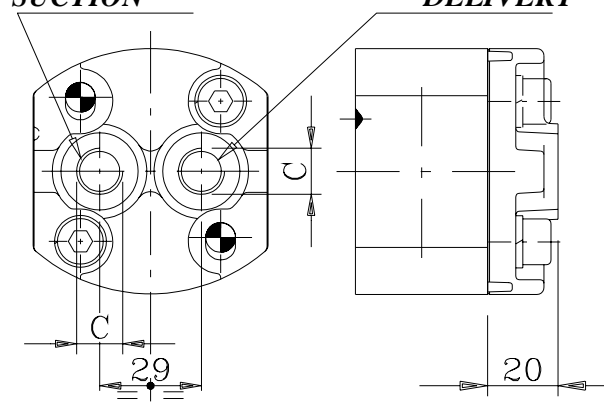
ASPIRAZIONE SUCTION      MANDATA DELIVERY




TIPO/TYPE	D
0.9 ÷ 2.0	9/16 - 18UNF
2.5 ÷ 9.8	3/4 - 16UNF

**TIPO TYPE GG4**

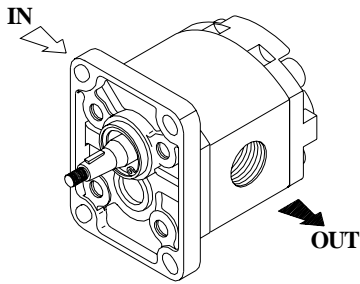
ASPIRAZIONE SUCTION      MANDATA DELIVERY



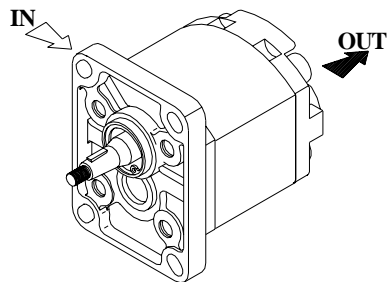
TIPO/TYPE	C
0.9 ÷ 9.8	G 3/8"

**N.B.**  Il segno sul corpo indica il lato aspirazione per le pompe ed il lato scarico per i motori unidirezionali  
*The point on the body indicates the suction side for the pumps and the outlet side for the unidirectional motors*

## POSIZIONE DELLE CONNESSIONI / CONNECTIONS POSITION

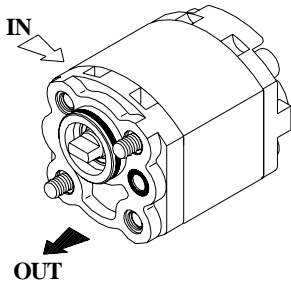


TIPO **NN0 - GG0 - TT0 - UU0**  
TYPE



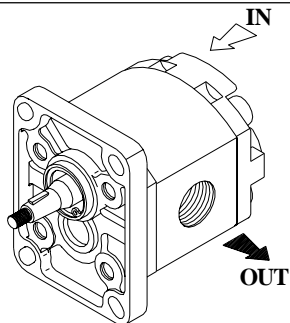
TIPO **NG1 - GG1 - TG1 - UG1**  
TYPE

Connessioni speciali a richiesta  
*Special connections, optional*



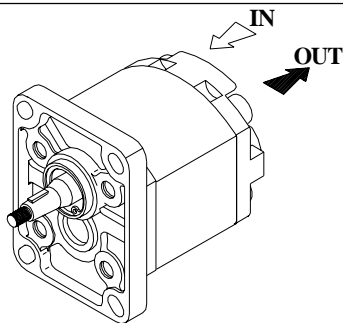
TIPO **N02 - G02 - T02 - U02**  
TYPE

Solo pompe con flangia MC32  
*Pumps with MC32 flange, only*

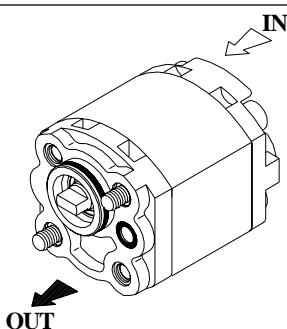


TIPO **GN3 - GG3 - GT3 - GU3**  
TYPE

Connessioni speciali a richiesta  
*Special connections, optional*



TIPO **GG4**  
TYPE



TIPO **G05**  
TYPE

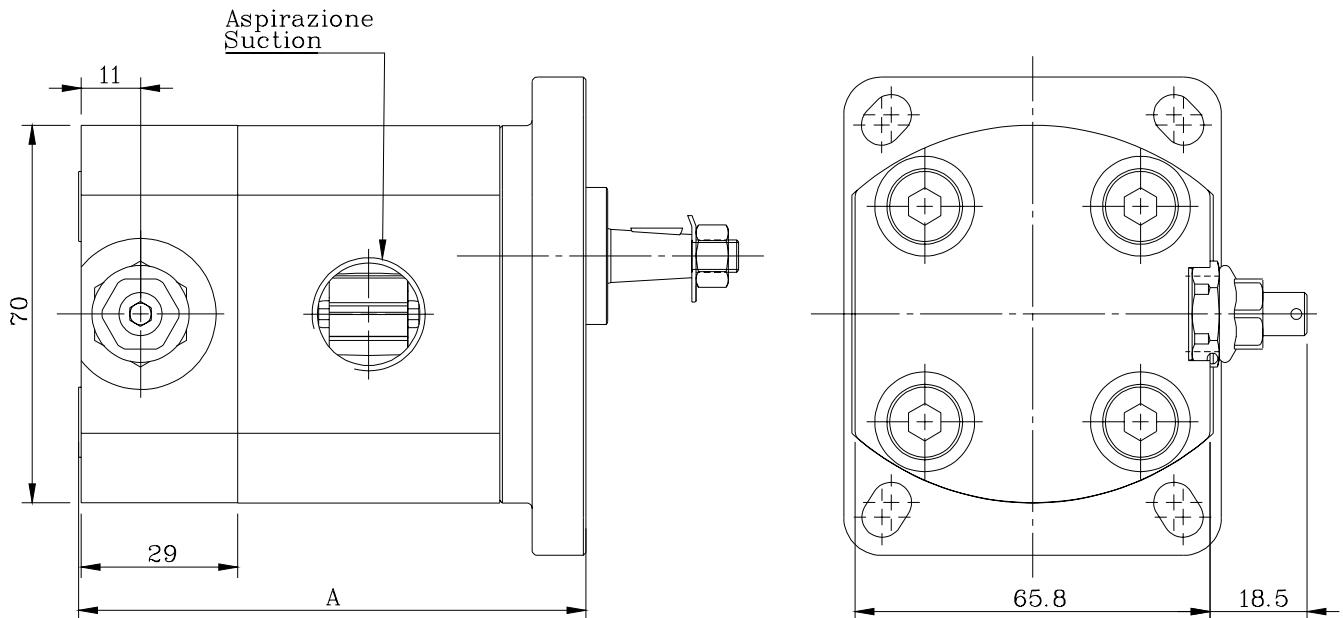
Solo pompe con flangia MC32  
*Pumps with MC32 flange, only*

# POMPE 1SPA CON VALVOLA LIMITATRICE DI PRESSIONE

## PUMPS 1SPA WITH PRESSURE RELIEF VALVE

L'apertura della valvola limitatrice di pressione (VLP) deve avvenire per tempi non superiori ai 10 secondi ogni minuto per evitare il surriscaldamento della pompa.

The opening of the pressure relief valve should be carry out for times not over 10" each minute to avoid the overheating of the pump.



Con flangia SAEAA incrementare la quota A di 3.5 mm

With SAEAA flange increase A dimension of 3.5 mm

	<b>1SP A9.8</b>	<b>1SP A7.8</b>	<b>1SP A6.3</b>	<b>1SP A5.0</b>	<b>1SP A4.2</b>	<b>1SP A3.7</b>
<b>A</b>	<b>117.3</b>	<b>109.9</b>	<b>104.2</b>	<b>99.1</b>	<b>95.5</b>	<b>94.1</b>
	<b>1SP A3.2</b>	<b>1SP A2.5</b>	<b>1SP A2.0</b>	<b>1SP A1.6</b>	<b>1SP A1.2</b>	<b>1SP A0.9</b>
<b>A</b>	<b>91.6</b>	<b>89.4</b>	<b>86.9</b>	<b>85.4</b>	<b>84.2</b>	<b>82.6</b>

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

1SP A 2.5 D - 10GG0 VLP-I (N)

**I** = Coperchio con VPL a scarico interno  
 Cover with VPL at internal exhaust

**Tipo di molla** B-N-G-R  
 Spring type

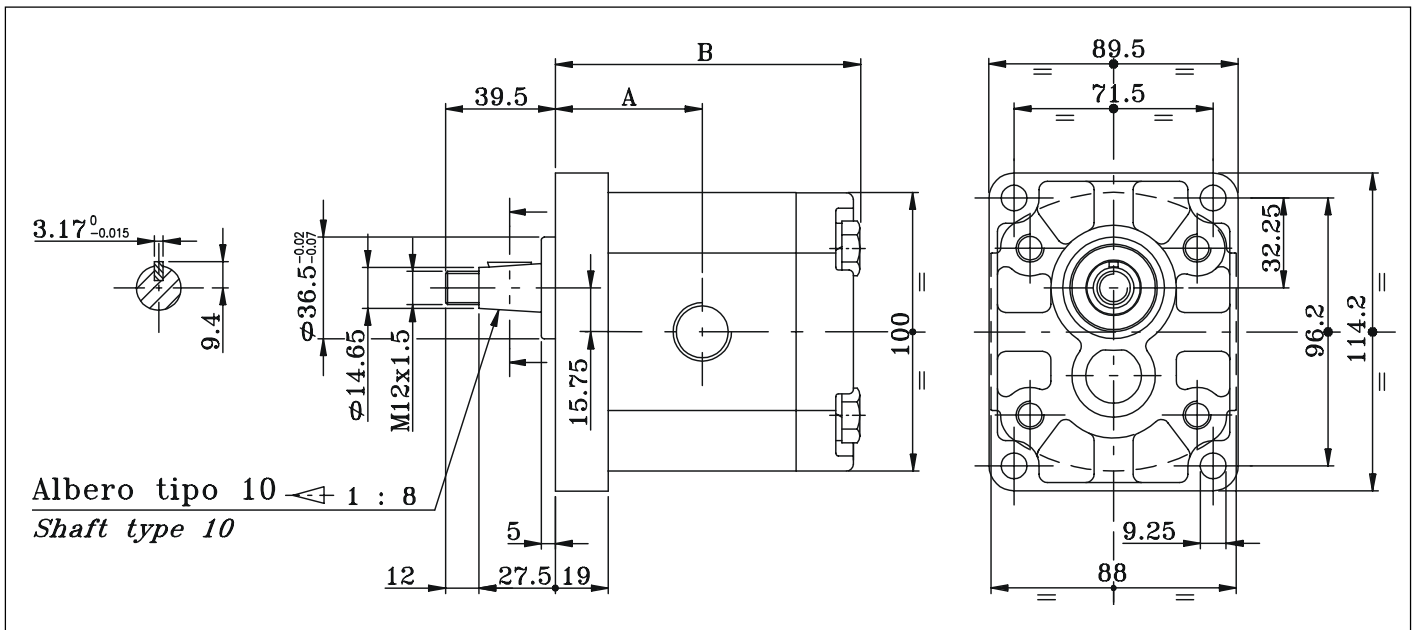
Tipo molla Spring type	Campi di taratura(**) Calibration fields
"B" = molla bianca white spring	30 ÷ 80 bar
"N" = molla nera black spring	81 ÷ 200 bar
"G" = molla gialla yellow spring	201 ÷ 300 bar
"R" = molla rossa red spring	301 ÷ 400 bar

In caso di omissione del valore di taratura esso sarà inteso standard  
 (molla nera taratura 120 bar)

Without setting request it will be considered standrad  
 (black spring 120 bar)

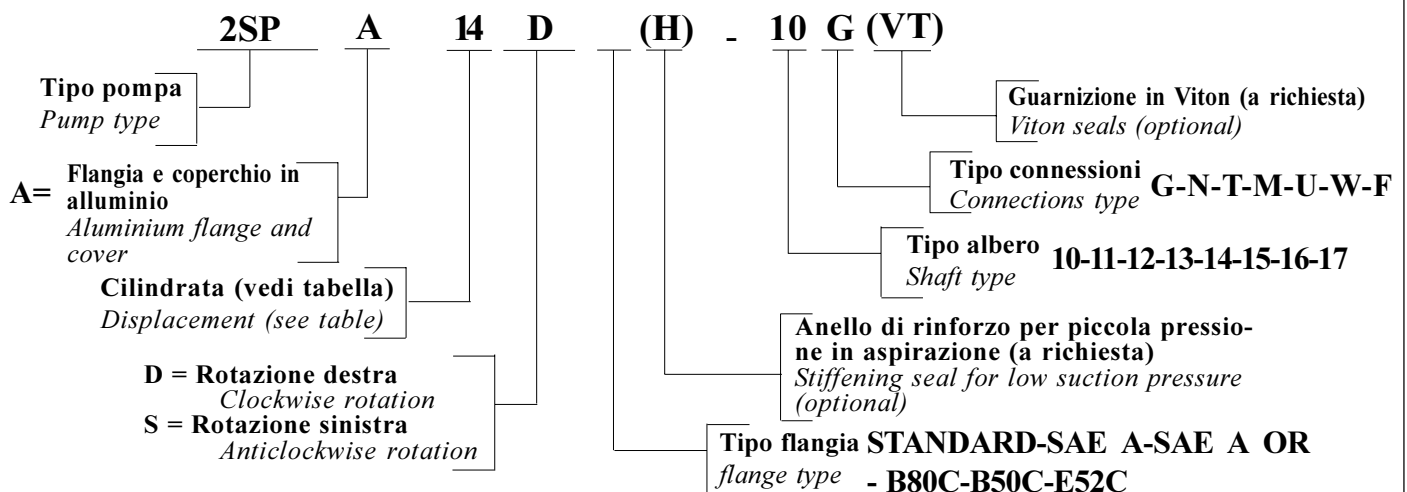
# POMPE GRUPPO 2 START

## PUMPS GROUP



TIPO TYPE	CILINDRATA DISPLACEMENT cm <sup>3</sup> /giro cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
2SP A4	4	250	270	290	4000	44.4	93	2.30
2SP A6	6	250	270	290	4000	46	96.3	2.45
2SP A8	8.5	250	270	290	3500	48.1	100.5	2.60
2SP A11	11	250	270	290	3500	50.2	104.6	2.70
2SP A14	14	250	270	290	3500	52.7	109.6	2.80
2SP A16	16.5	230	240	250	3500	54.8	113.8	2.95
2SP A19	19.5	210	220	230	3300	57.3	118.8	3.10
2SP A22	22.5	190	200	210	2800	59.8	123.8	3.25
2SP A26	26	170	180	190	2500	62.7	129.6	3.40

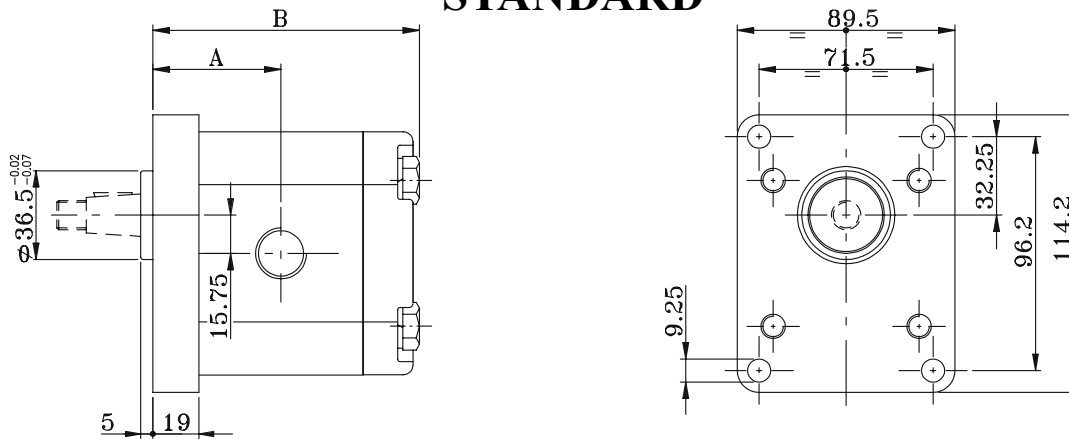
### ESEMPIO DI ORDINAZIONE IN CODICE /EXAMPLE OF ORDERING CODE



Non è necessario indicare la flangia STANDARD  
It is not necessary indicate STANDARD flange



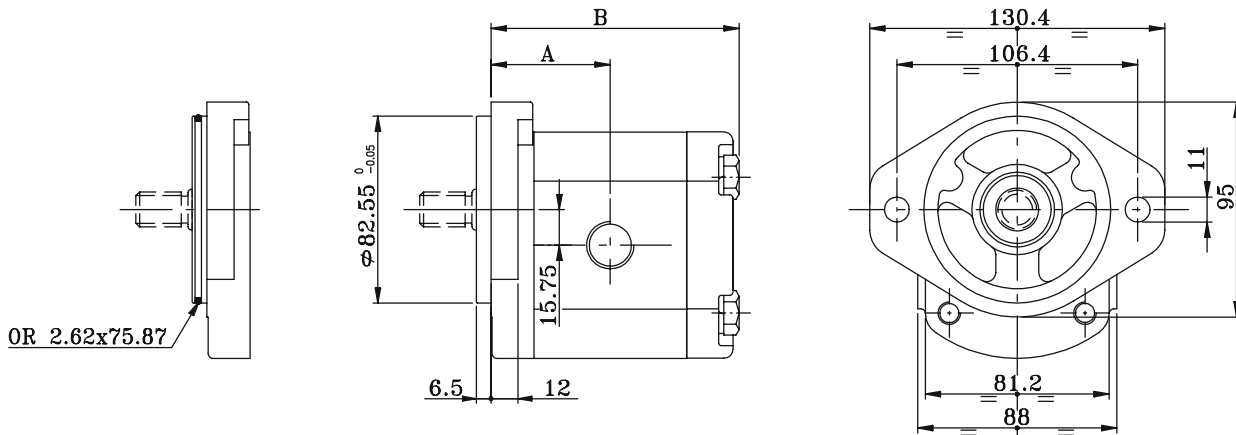
## STANDARD



	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	44.4	46	48.1	50.2	52.7	54.8	57.3	59.8	62.7
B	93	96.3	100.5	104.6	109.6	113.8	118.8	123.8	129.6

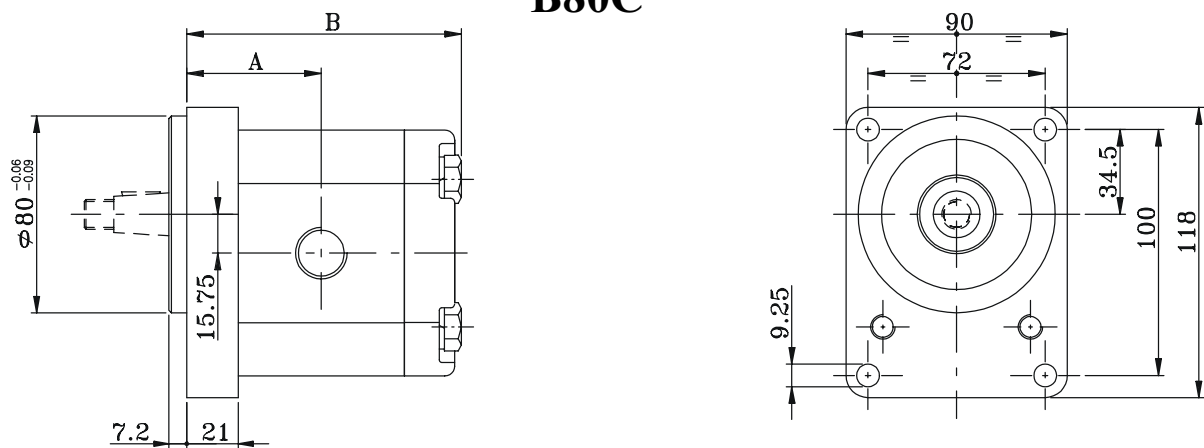
## SAE A - OR

## SAE A



	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	44.4	46	48.1	50.2	52.7	54.8	57.3	59.8	62.7
B	93	96.3	100.5	104.6	109.6	113.8	118.8	123.8	129.6

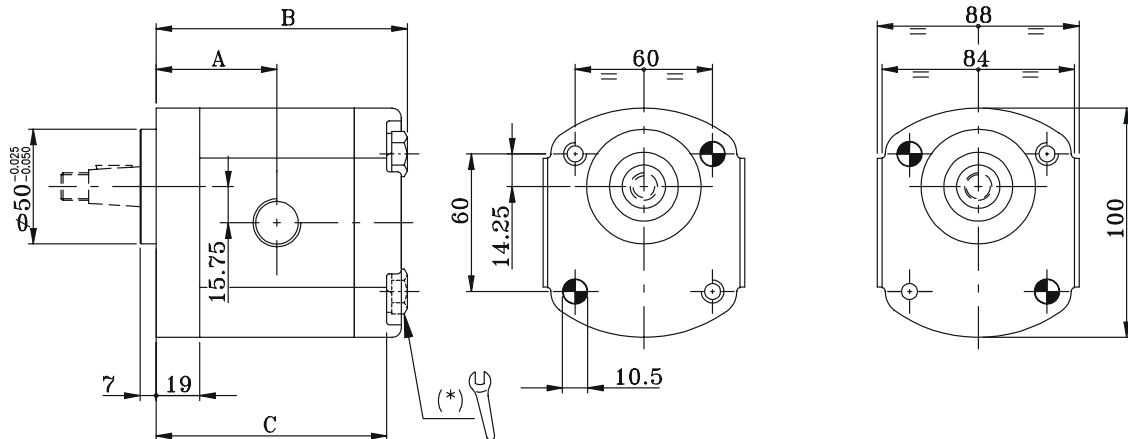
## B80C



	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	46.4	48	50.1	52.2	54.7	56.8	59.3	61.8	64.7
B	95	98.3	102.5	106.6	111.6	115.8	120.8	125.8	131.6

## B50C

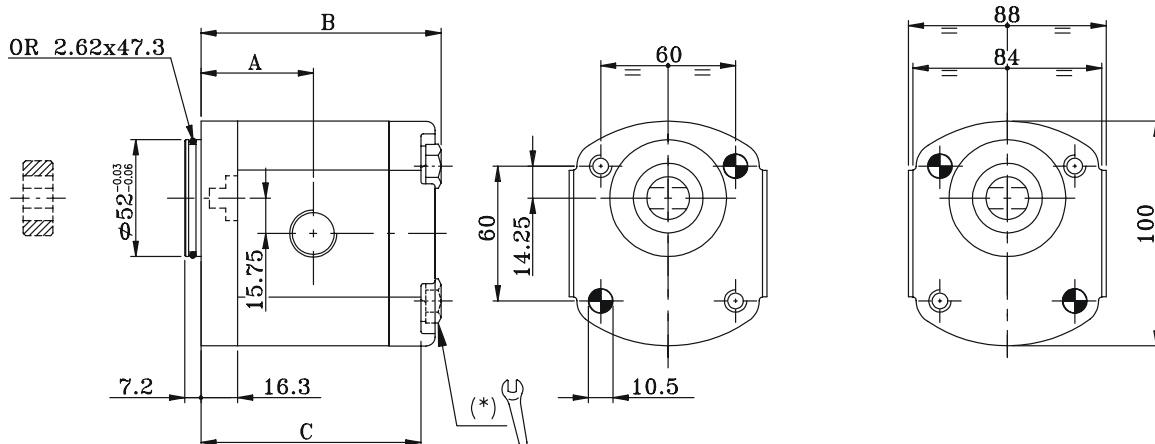
 B50C VERSIONE X  
*B50C VERSION* X

 B50C VERSIONE Y  
*B50C VERSION* Y


	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	44.4	46	48.1	50.2	52.7	54.8	57.3	59.8	62.7
B	93	96.3	100.5	104.6	109.6	113.8	118.8	123.8	129.6
C	84	87.3	91.5	95.6	100.6	104.8	109.8	114.8	120.6
L	105	105	110	115	120	125	130	135	140

## E52C

 E52C VERSIONE X  
*E52C VERSION* X

 E52C VERSIONE Y  
*E52C VERSION* Y


	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	41.7	43.3	45.4	47.5	50	52.1	54.6	57.1	60
B	90.3	93.6	97.8	101.9	106.9	111.1	116.1	121.1	126.9
C	81.3	84.6	88.8	92.9	97.9	102.1	107.1	112.1	117.9
L	100	105	110	115	120	120	125	130	140

(\*)  Coppia di serraggio viti:  $50 \pm 3\text{Nm}$ . Utilizzare viti classe 10.9 - 12.9 UNI EN 20898/1

Il Kit di viti per il fissaggio della pompa è da ordinare separatamente

*Tightening torque ok screw:  $50 \pm 3\text{Nm}$ . Use screw type 10.9 - 12.9 UNI EN 20898/1*

*The screw kit for the fixing of the pump should be ordered separately*

Codice di ordinazione del Kit di fissaggio :0029W  
 Ordering code of fixing Kit

Lunghezza L (vedi tabella)  
 Length L (see tab)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere in materiale classe 10.9 - 12.9 preserrate a  $40 \pm 3\text{Nm}$   
 Fissare la pompa mediante dadi autobloccanti con coppia di serraggio  $50 \pm 3\text{Nm}$

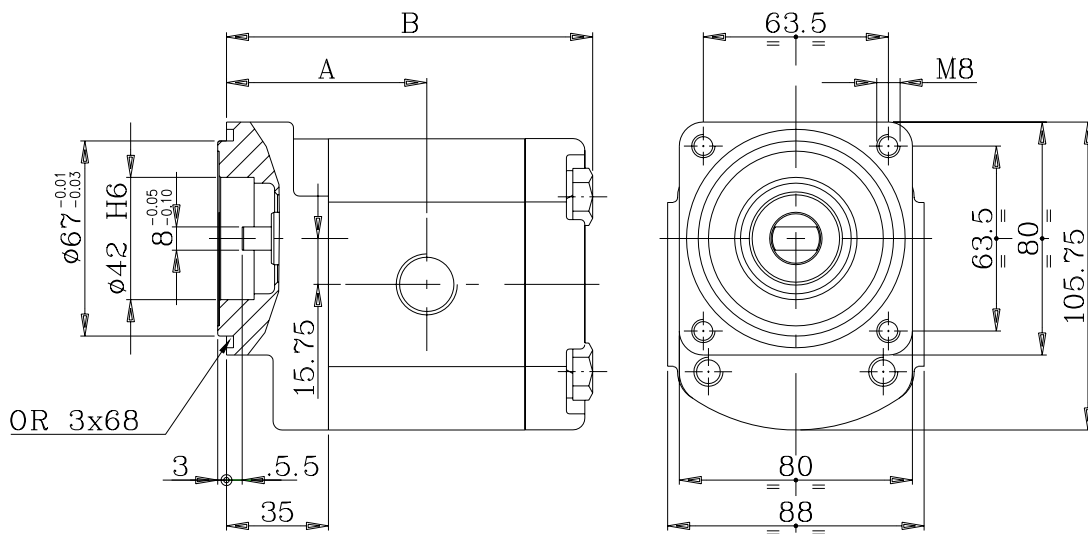
*The fixing of the pump should be effected with 2 screw studs type 10.9 - 12.9 pre-tighten at  $40 \pm 3\text{Nm}$*

*Tighten the pump by self-locking nuts with tightening torque  $50 \pm 3\text{Nm}$*

# POMPE GRUPPO 2 START

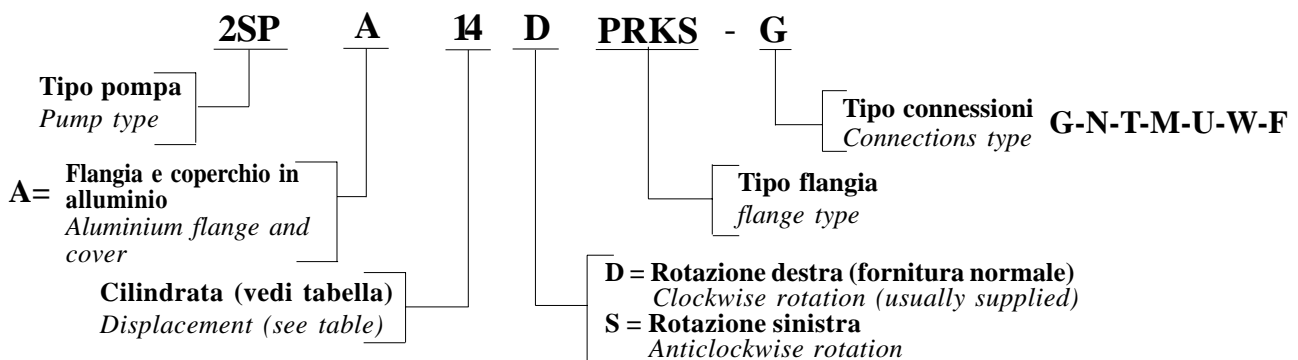
## PUMPS GROUP 2 START

### PERKINS



TIPO TYPE	CILINDRATA DISPLACEMENT cm <sup>3</sup> /giro cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
2SP A4	4	250	270	290	4000	60.4	109	2.35
2SP A6	6	250	270	290	4000	62	112.3	2.50
2SP A8	8.5	250	270	290	3500	64.1	116.5	2.65
2SP A11	11	250	270	290	3500	66.2	120.6	2.75
2SP A14	14	250	270	290	3500	68.7	125.6	2.85
2SP A16	16.5	230	240	250	3500	70.8	129.8	3.00
2SP A19	19.5	210	220	230	3300	73.3	134.8	3.15
2SP A22	22.5	190	200	210	2800	75.8	139.8	3.30
2SP A26	26	170	180	190	2500	78.7	145.6	3.45

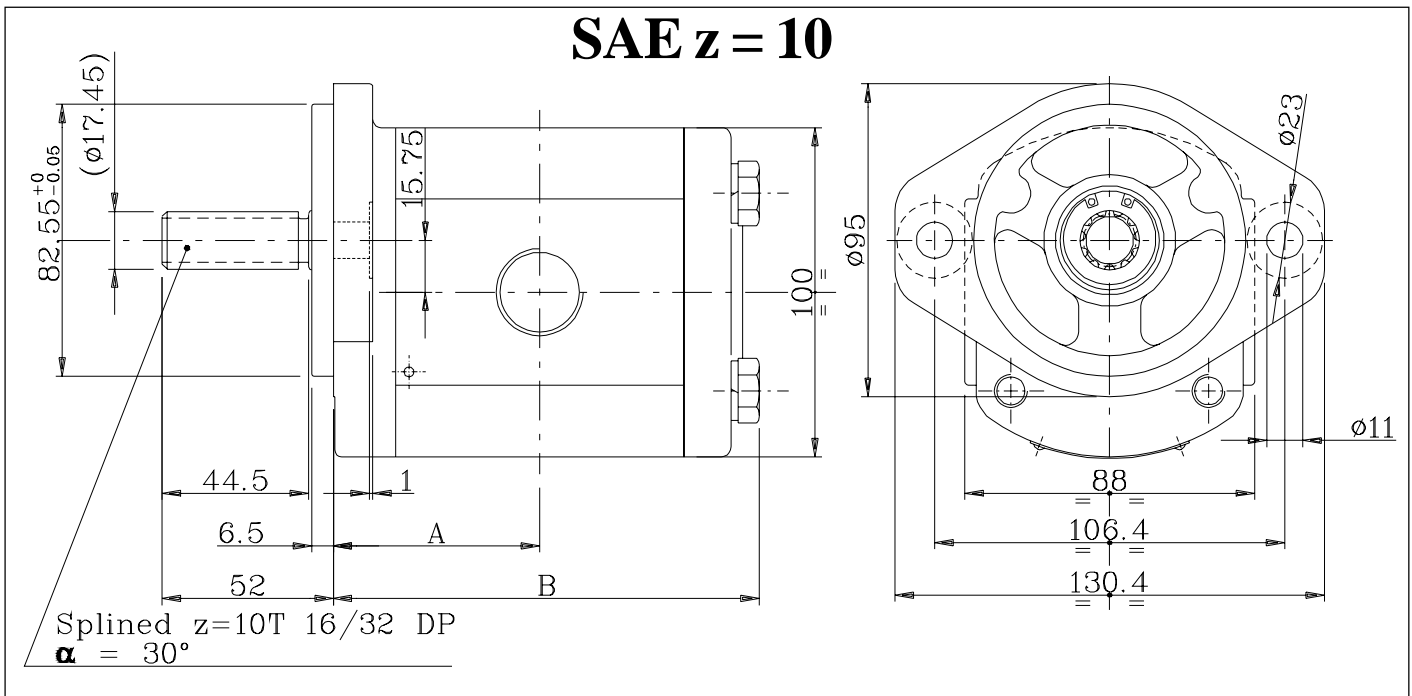
### ESEMPIO DI ORDINAZIONE IN CODICE /EXAMPLE OF ORDERING CODE



# POMPE GRUPPO 2 START

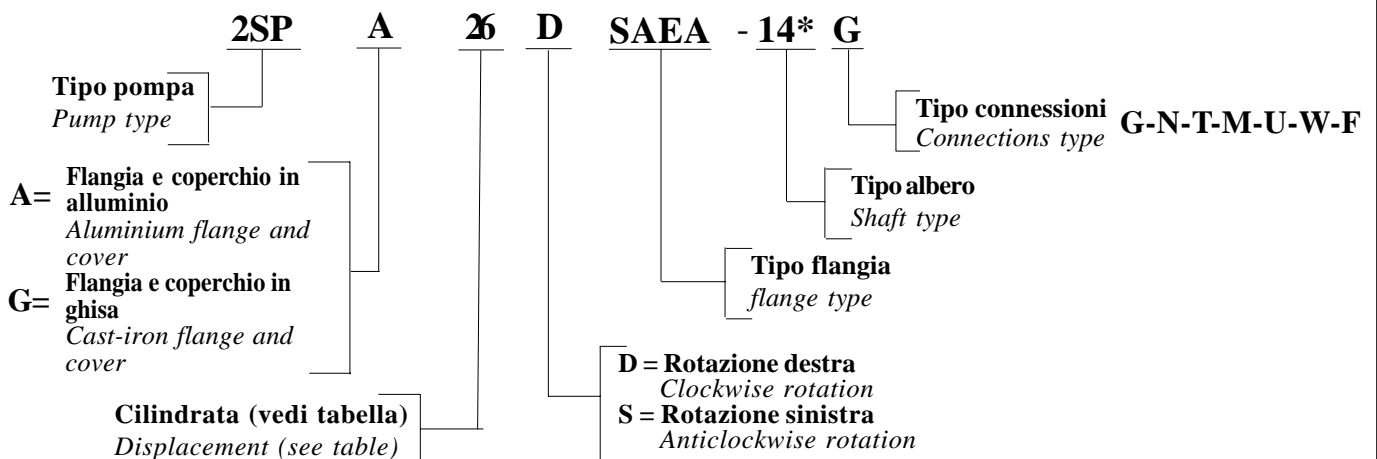
## PUMPS GROUP 2 START

SAE z = 10



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
2SP ...8	8.5	250	270	290	3500	48.1	100.5	2.65
2SP ...11	11	250	270	290	3500	50.2	104.6	2.75
2SP ...26	26	170	180	190	2500	62.7	129.6	3.45

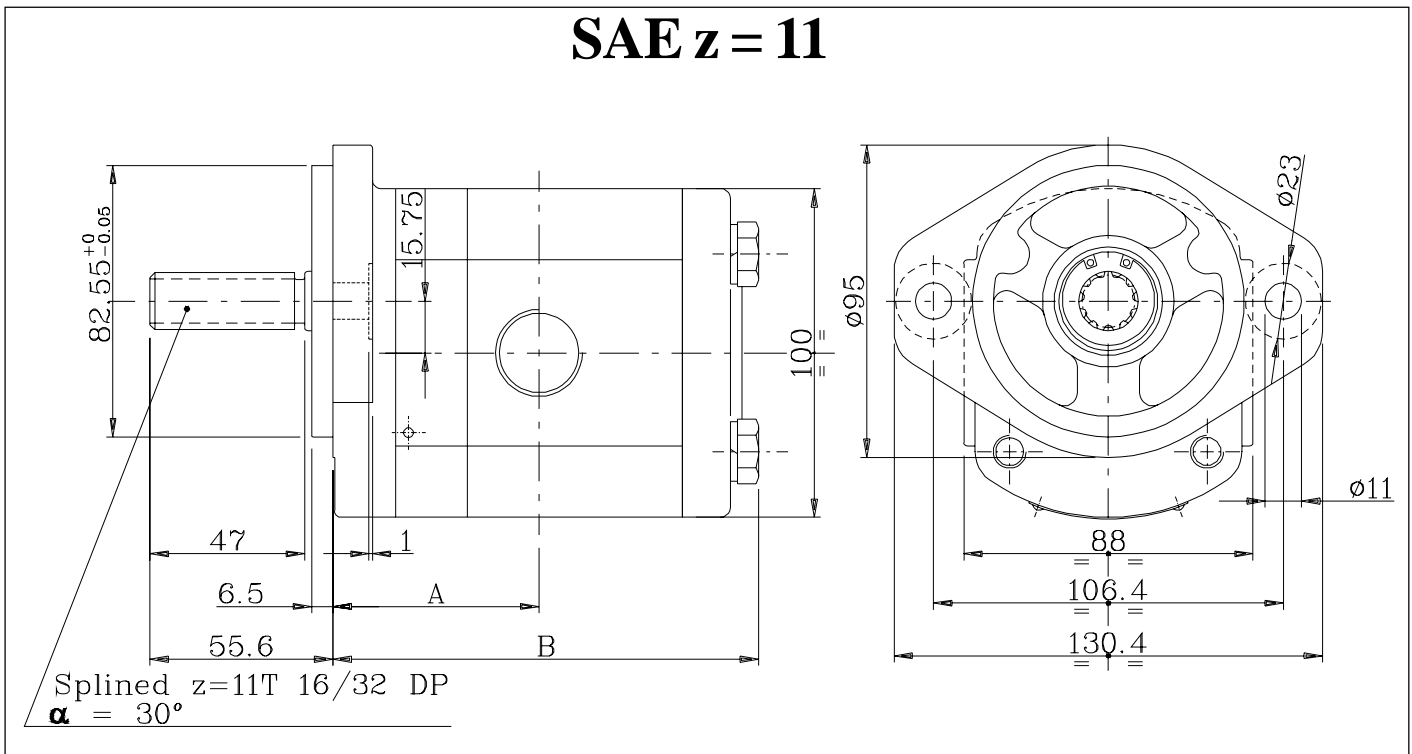
### ESEMPIO DI ORDINAZIONE IN CODICE /EXAMPLE OF ORDERING CODE



# POMPE GRUPPO 2 START

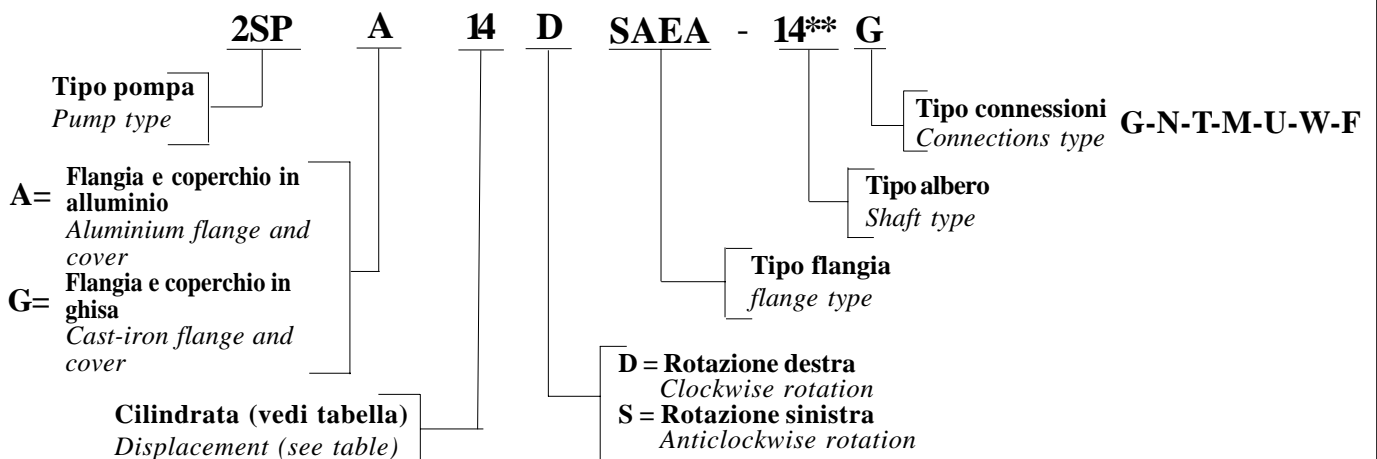
## PUMPS GROUP 2 START

### SAE z = 11



TIPO TYPE	CILINDRATA DISPLACEMENT cm <sup>3</sup> /giro cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
2SP ...6	6	250	270	290	4000	46	96.3	2.45
2SP ...11	11	250	270	290	3500	50.2	104.6	2.70
2SP ...14	14	250	270	290	3500	52.7	109.6	2.80

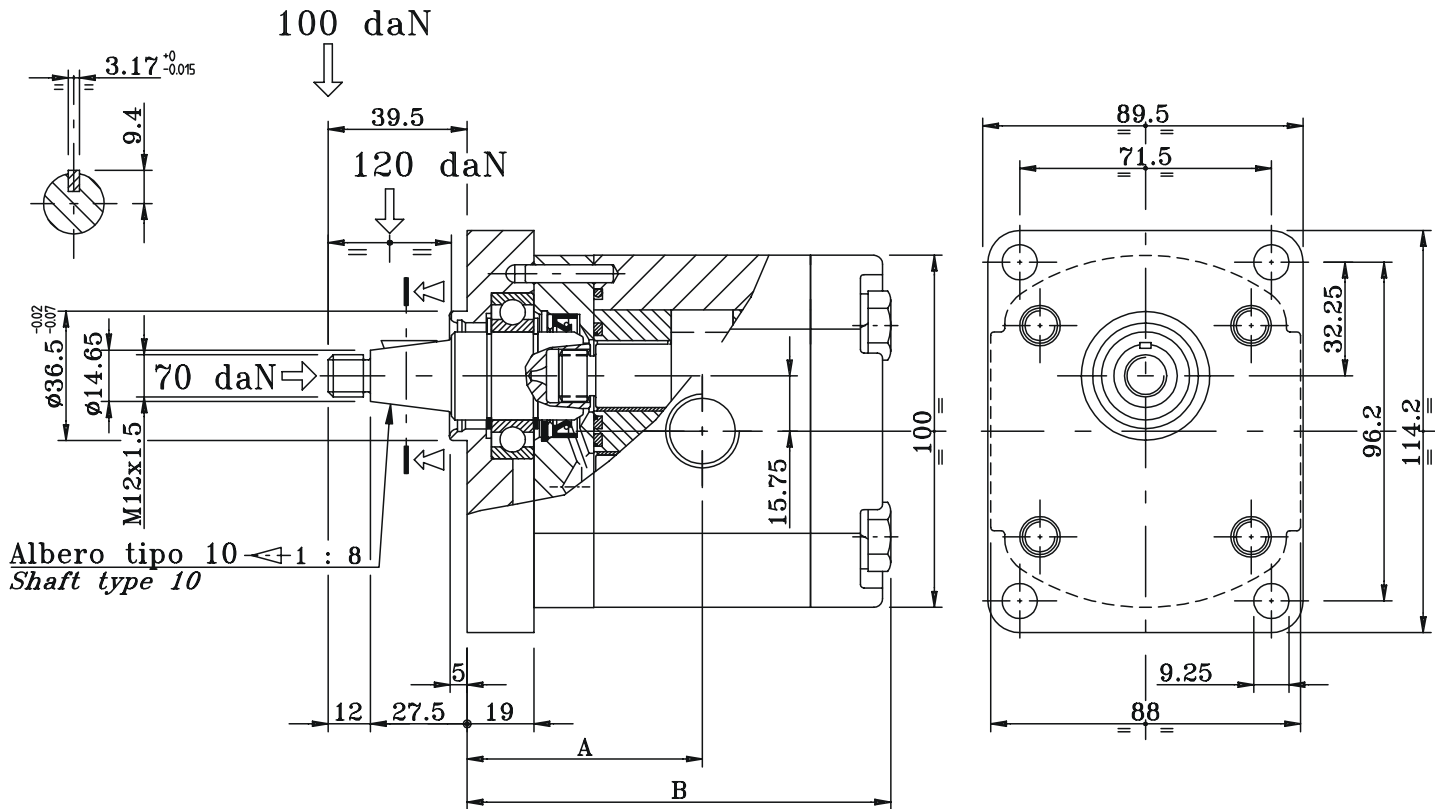
### ESEMPIO DI ORDINAZIONE IN CODICE /EXAMPLE OF ORDERING CODE



# POMPE CON SUPPORTO INCORPORATO NELLA FLANGIA

## PUMPS WITH SUPPORT INCORPORATED ON THE FLANGE

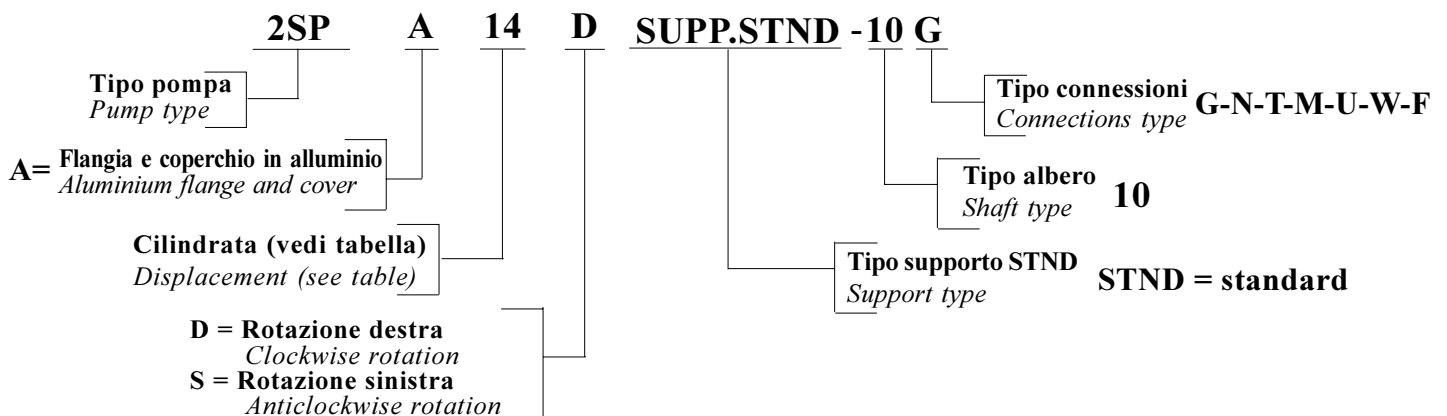
Versione da utilizzare in presenza di carichi assiali e/o radiali.  
Version to use with axial and / or radial loads



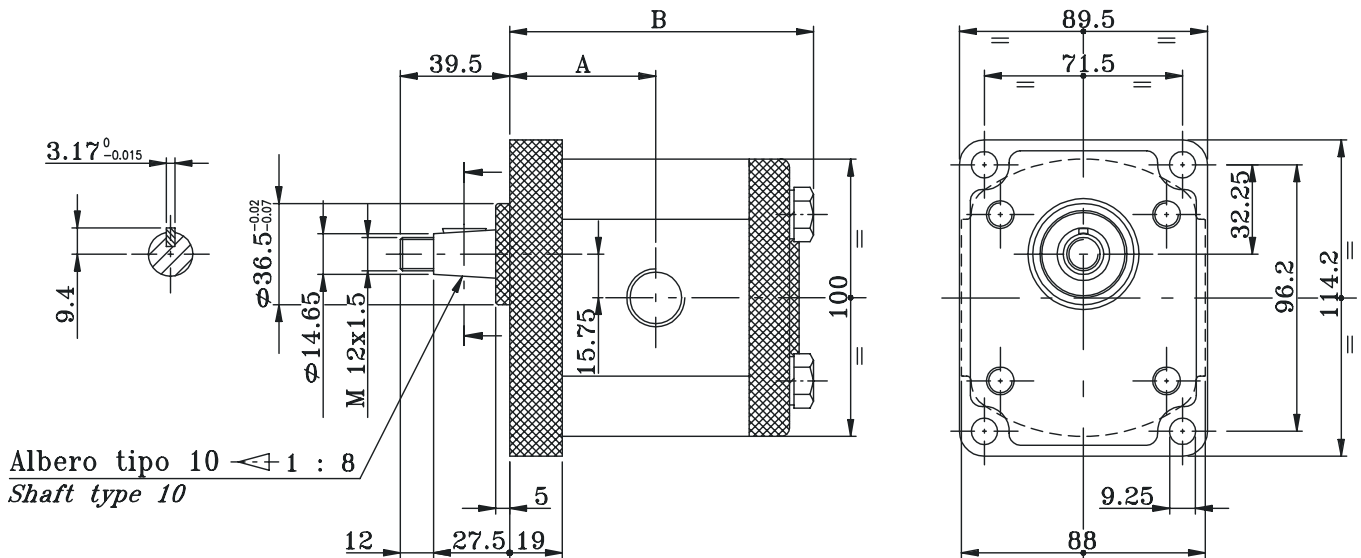
	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	61.4	63	65.1	67.2	69.7	71.8	74.3	76.8	79.7
B	110	113.3	117.5	121.6	126.6	130.8	135.8	140.8	148.8

### ESEMPIO DI ORDINAZIONE IN CODICE

#### EXAMPLE OF ORDERING CODE

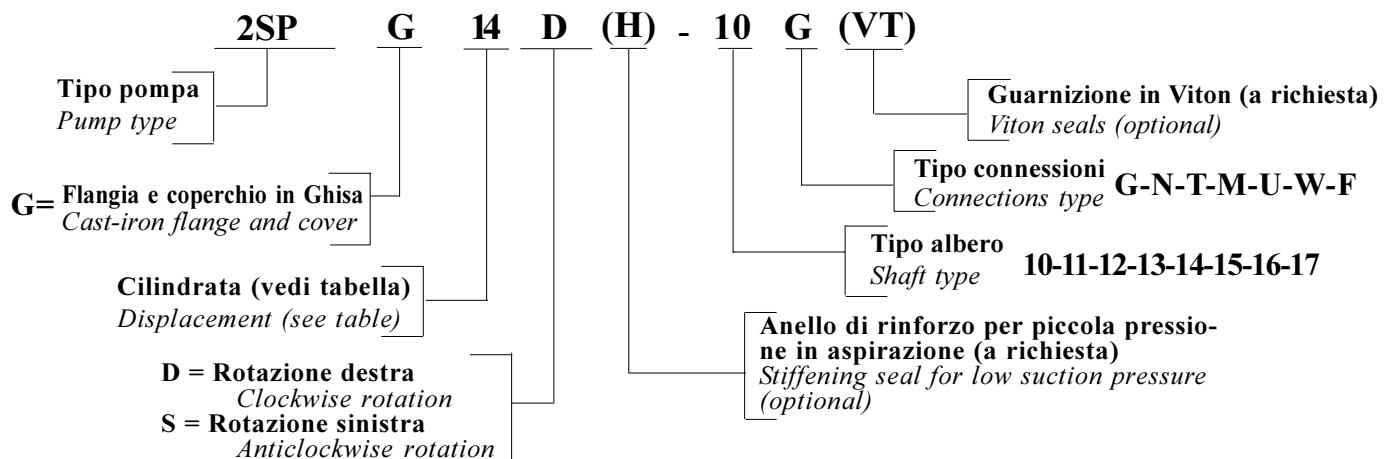


## POMPE CON FLANGIA E COPERCHIO IN GHISA PUMPS WITH CAST-IRON FLANGE AND COVER



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
2SP G4	4	280	300	320	4000	44.4	93	3.40
2SP G6	6	280	300	320	4000	46	96.3	3.55
2SP G8	8.5	280	300	320	3500	48.1	100.5	3.70
2SP G11	11	280	300	320	3500	50.2	104.6	3.80
2SP G14	14	270	280	290	3500	52.7	109.6	3.90
2SP G16	16.5	230	240	250	3500	54.8	113.8	4.05
2SP G19	19.5	210	220	230	3300	57.3	118.8	4.20
2SP G22	22.5	190	200	210	2800	59.8	123.8	4.35
2SP G26	26	170	180	190	2500	62.7	129.6	4.50

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

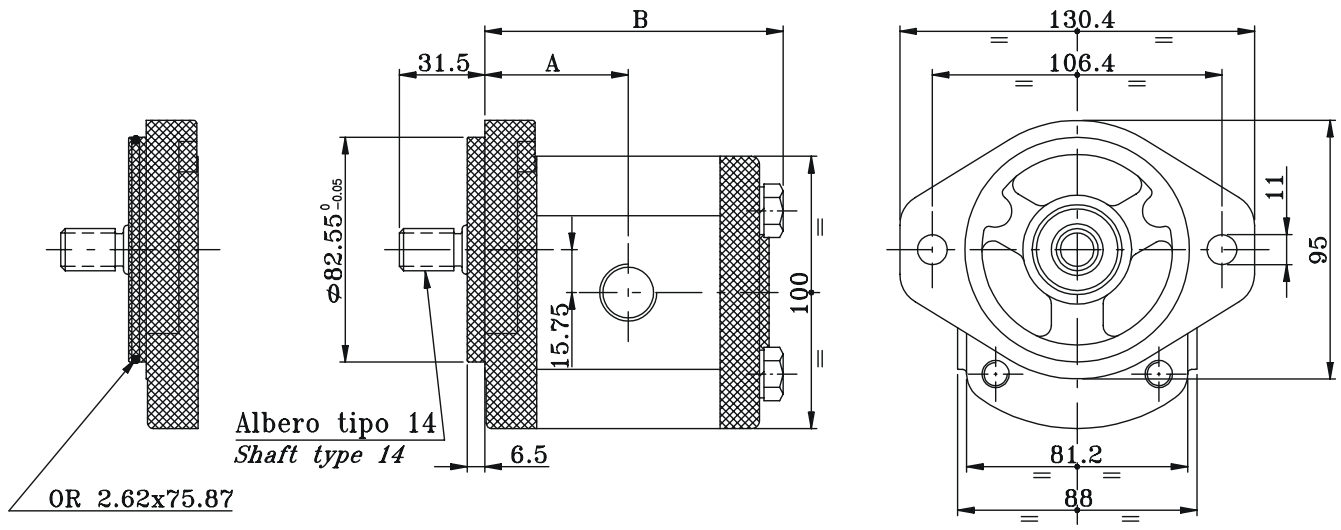


Non è necessario indicare la flangia STANDARD  
It is not necessary indicate STANDARD flange



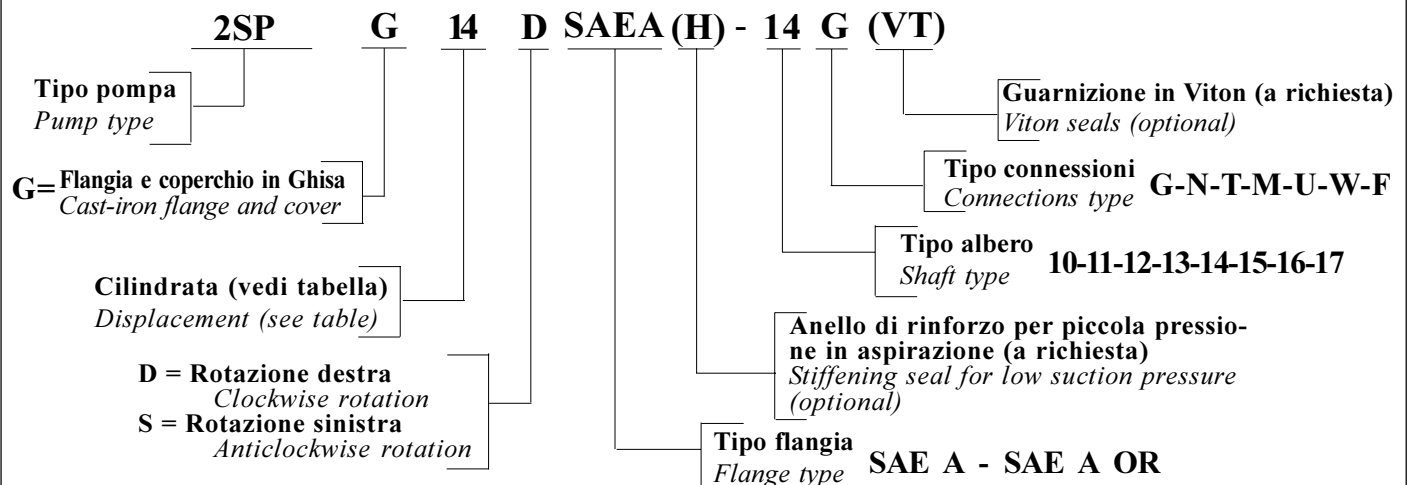
## POMPE CON FLANGIA E COPERCHIO IN GHISA PUMPS WITH CAST-IRON FLANGE AND COVER

SAE A - OR      SAE A



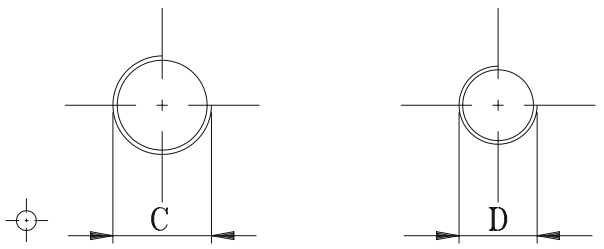
TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
2SP G4	4	280	300	320	4000	44.4	93	3.40
2SP G6	6	280	300	320	4000	46	96.3	3.55
2SP G8	8.5	280	300	320	3500	48.1	100.5	3.70
2SP G11	11	280	300	320	3500	50.2	104.6	3.80
2SP G14	14	270	280	290	3500	52.7	109.6	3.90
2SP G16	16.5	230	240	250	3500	54.8	113.8	4.05
2SP G19	19.5	210	220	230	3300	57.3	118.8	4.20
2SP G22	22.5	190	200	210	2800	59.8	123.8	4.35
2SP G26	26	170	180	190	2500	62.7	129.6	4.50

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE



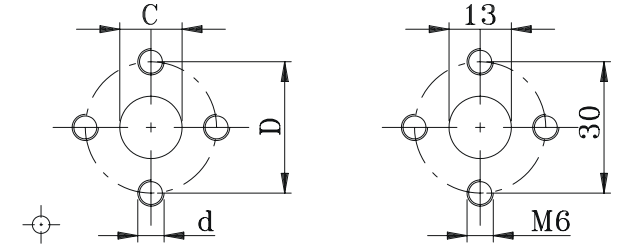
## CONNESSIONI / CONNECTIONS

**ASPIRAZIONE SUCTION**      **TIPO TYPE G**      **MANDATA DELIVERY**



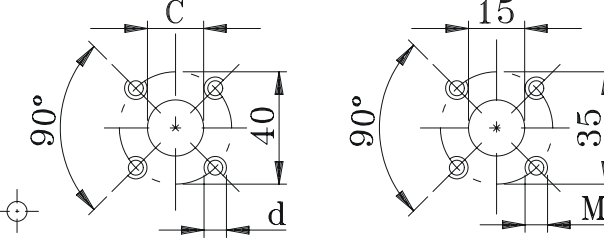
TIPO/TYPE	C	D
4 ÷ 8	G 1/2"	G 1/2"
11 ÷ 26	G 3/4"	G 1/2"

**ASPIRAZIONE SUCTION**      **TIPO TYPE N**      **MANDATA DELIVERY**



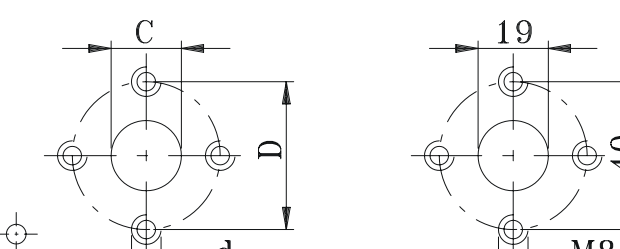
TIPO/TYPE	C	D	d
4 ÷ 8	13	30	M6
11 ÷ 26	19	40	M8

**ASPIRAZIONE SUCTION**      **TIPO TYPE T**      **MANDATA DELIVERY**



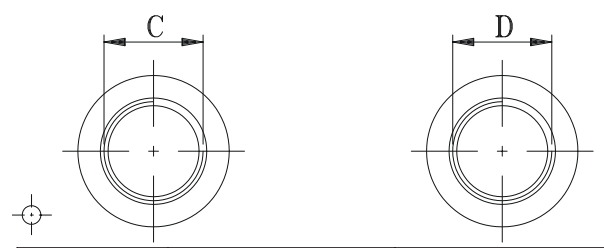
TIPO/TYPE	C	d
4 ÷ 8	20	M6
11 ÷ 26	20	M6

**ASPIRAZIONE SUCTION**      **TIPO TYPE M**      **MANDATA DELIVERY**



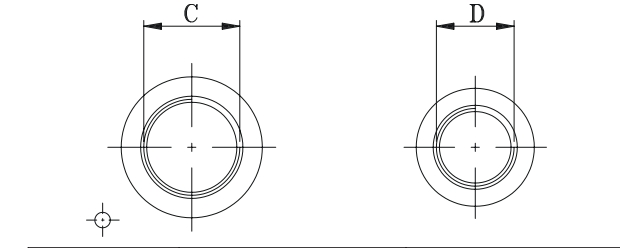
TIPO/TYPE	C	D	d
11 ÷ 26	19	40	M8

**ASPIRAZIONE SUCTION**      **TIPO TYPE U**      **MANDATA DELIVERY**



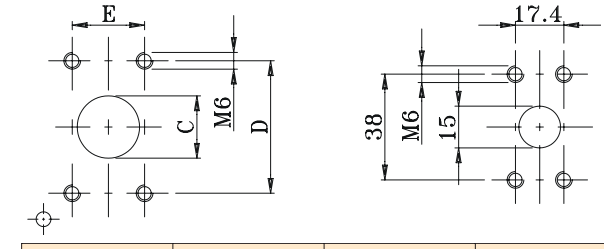
TIPO/TYPE	C	D
4 ÷ 8	7/8 - 14UNF	7/8 - 14UNF
11 ÷ 26	1" 1/16 - 12UN	7/8 - 14UNF

**ASPIRAZIONE SUCTION**      **TIPO TYPE W**      **MANDATA DELIVERY**



TIPO/TYPE	C	D
4 ÷ 8	1" 5/16 - 12UN	1" 1/16 12UN
11 ÷ 26	1" 5/16 - 12UN	1" 1/16 12UN

**ASPIRAZIONE SUCTION**      **TIPO TYPE F**      **MANDATA DELIVERY**



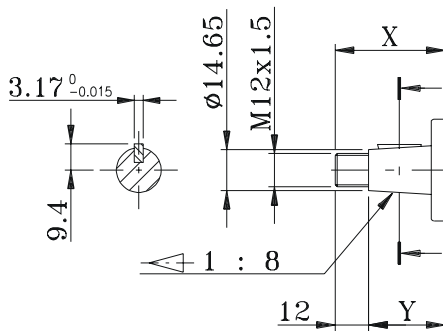
TIPO/TYPE	C	D	E
4 ÷ 11	20	38	17.4
14 ÷ 26	26	22.4	47.6

**N.B.**

Il punto sul corpo indica il lato aspirazione per le pompe e il lato scarico per i motori unidirezionali.  
The point on the body indicates the suction side for the pumps and the outlet side for the unidirectional motors.

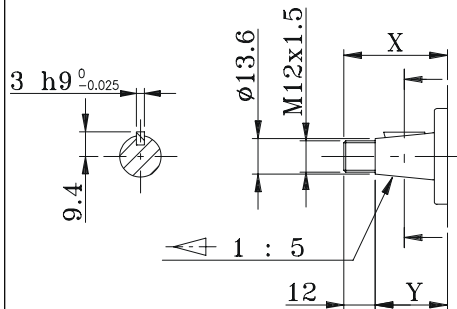
## ALBERI / SHAFTS

**TIPO  
TYPE 10**



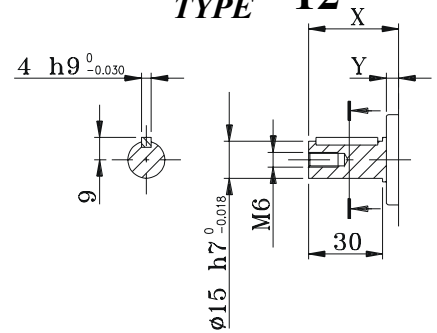
TIPO FLANGIA FLANGE TYPE	X	Y
<b>STANDARD</b>	39.5	27.5

**TIPO  
TYPE 11**



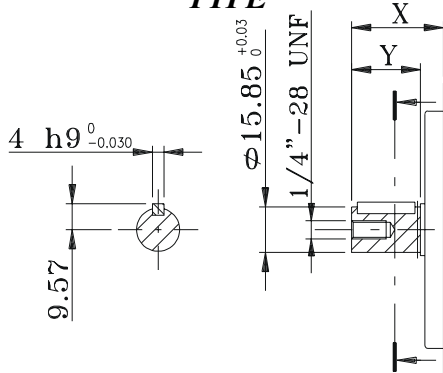
TIPO FLANGIA FLANGE TYPE	X	Y
<b>B50C</b>	39.5	27.5
<b>B80C</b>	37.5	25.5

**TIPO  
TYPE 12**



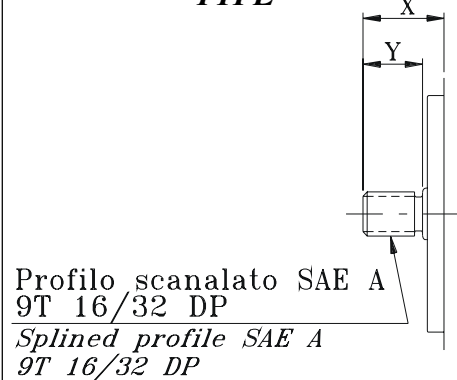
TIPO FLANGIA FLANGE TYPE	X	Y
<b>STANDARD</b>	36.5	7
<b>B50C</b>	36.5	7
<b>B80C</b>	34.5	7.2

**TIPO  
TYPE 13**



TIPO FLANGIA FLANGE TYPE	X	Y
<b>SAE A</b>	32	24

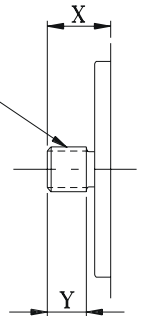
**TIPO  
TYPE 14**



TIPO FLANGIA FLANGE TYPE	X	Y
<b>SAE A</b>	31.5	23

**TIPO  
TYPE 15**

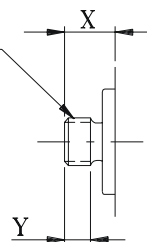
Profilo scanalato  
B 17x14 DIN 5482  
n° denti = 9  
Splined profile  
B 17x14 DIN 5482  
n° of teeth = 9



TIPO FLANGIA FLANGE TYPE	X	Y
<b>B50C</b>	25.5	16
<b>B80C</b>	23.5	16

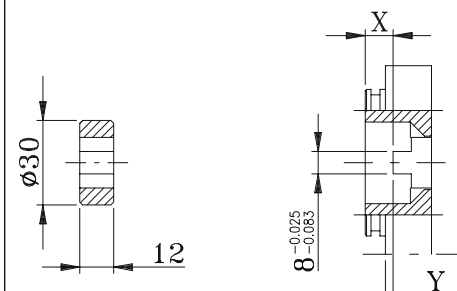
**TIPO  
TYPE 16**

Profilo scanalato  
B 17x14 DIN 5482  
n° denti = 9  
Splined profile  
B 17x14 DIN 5482  
n° of teeth = 9



TIPO FLANGIA FLANGE TYPE	X	Y
<b>STANDARD</b>	19.5	10

**TIPO  
TYPE 17**



TIPO FLANGIA FLANGE TYPE	X	Y
<b>E52C</b>	9.9	2.7

# POMPE 2SPA CON VALVOLA LIMITATRICE DI PRESSIONE

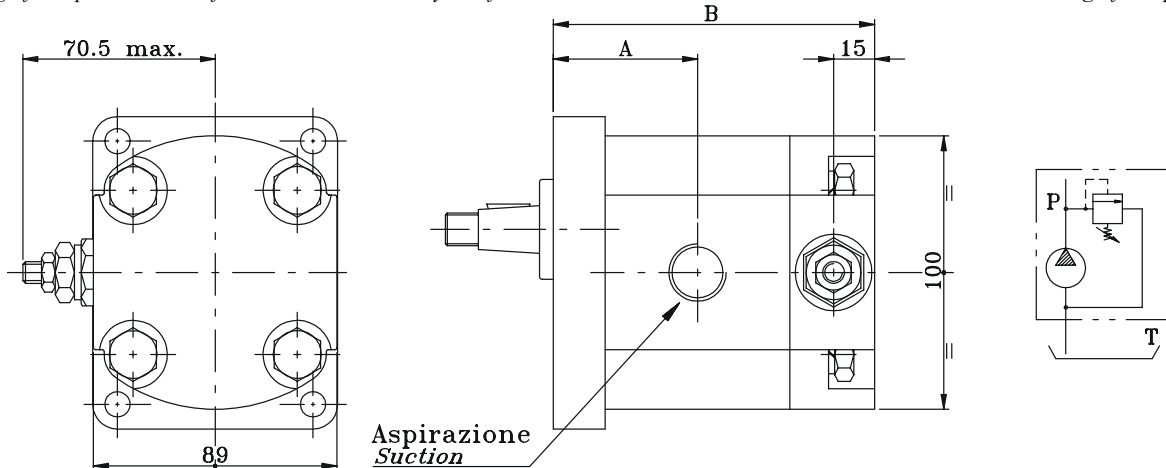
## PUMPS 2SPA WITH PRESSURE RELIEF VALVE

### VERSIONE A SCARICO INTERNO

INTERNAL EXHAUST

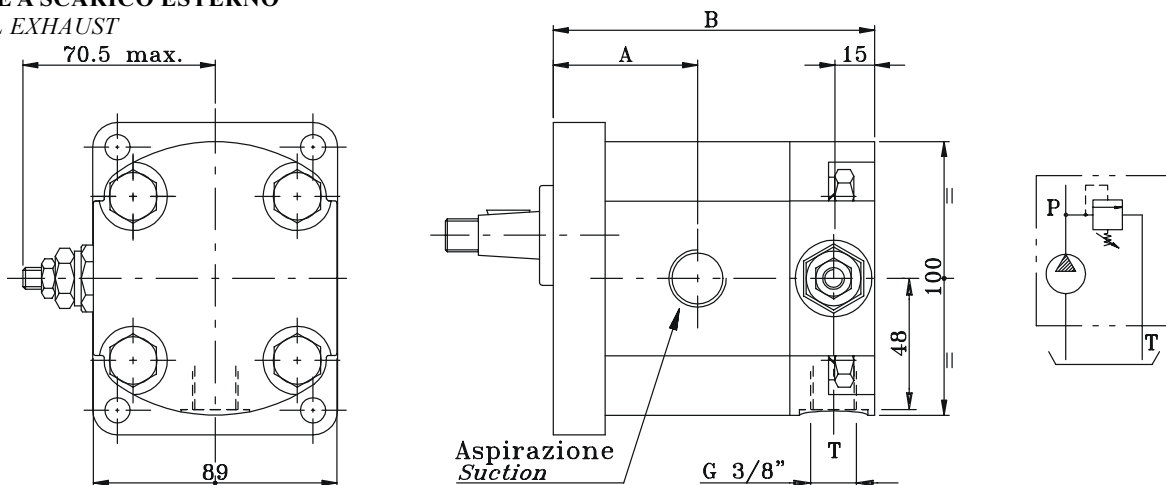
L'apertura della valvola limitatrice di pressione (VLP) deve avvenire per tempi non superiori ai 10 secondi ogni minuto per evitare il surriscaldamento della pompa.

The opening of the pressure relief valve should be carry out for times not over 10" each minute to avoid the overheating of the pump.



### VERSIONE A SCARICO ESTERNO

EXTERNAL EXHAUST



	2SP A4	2SP A6	2SP A8	2SP A11	2SP A14	2SP A16	2SP A19	2SP A22	2SP A26
A	44.4	46	48.1	50.2	52.7	54.8	57.3	59.8	62.7
B	100.8	104	108.2	112.4	117.4	121.6	126.6	131.6	137.4

Fornitura solo con flangia e coperchio in alluminio. Sono rappresentate pompe con rotazione sinistra.  
It is supplied only with aluminium flange and cover. The showing pumps are with anticlockwise rotation.

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

2SP A 14 D - 10G VLP-I (N)

**I** = Coperchio con VPL a scarico interno  
Cover with VPL at internal exhaust

**E** = Coperchio con VPL a scarico esterno  
Cover with VPL at external exhaust

Tipo di molla  
Spring type **B-N-R (\*)**

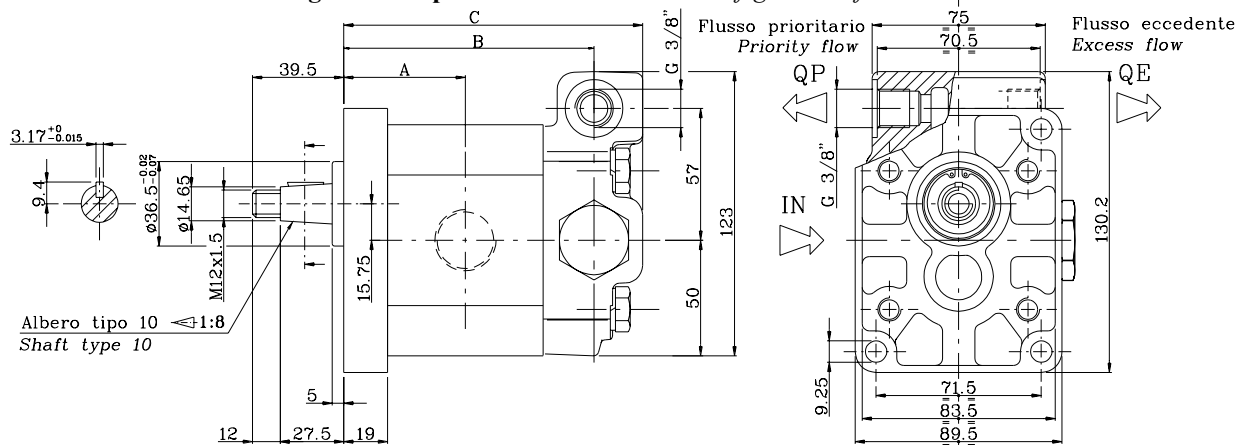
(\*) Taratura standard 30 ÷ 280 bar - molla nera (N)  
Standard setting 30 ÷ 280 bar black spring

Taratura disponibile a richiesta: 80 ÷ 380 bar - molla rossa (R)  
Setting range on demanded : 80 ÷ 380 bar - red spring (R)

10 ÷ 100 bar - molla bianca (B)  
10 ÷ 100 bar - white spring (B)

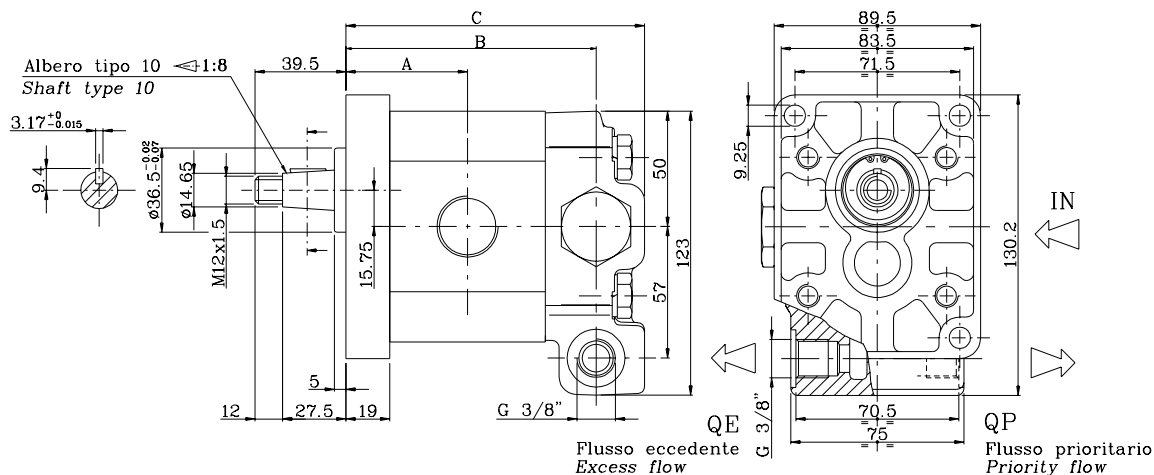
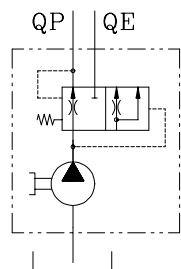
# POMPE 2SP CON COPERCHIO "VRF" (valvola regolatrice di flusso) PUMPS 2SP WITH COVER "VRF" (priority flow divider valve)

Configurazione per rotazione destra / Configuration for clockwise rotation



Configurazione per rotazione sinistra / Configuration for anticlockwise rotation

Flusso eccedente per  
utilizzi o serbatoio  
Exceeding flow to  
actuator or to tank



	2SP ...4	2SP ...6	2SP ...8	2SP ...11	2SP ...14	2SP ...16	2SP ...19	2SP ...22	2SP ...26
A	44.4	46	48.1	50.2	52.7	54.8	57.3	59.8	62.7
B	91.8	95.1	99.3	103.4	108.4	112.6	117.6	122.6	128.4
C	112.8	116.1	120.3	124.4	129.4	133.6	138.6	143.6	149.4

## ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

**2SP A 14 D (H) - 10 G (VT) VRF d**

- Tipo pompa** / Pump type: 2SP
- G = Flangia in Ghisa** / Cast-iron flange
- A = Flangia in Alluminio** / Aluminium flange
- Cilindrata (vedi tabella)** / Displacement (see table): 14
- D = Rotazione destra** / Clockwise rotation
- S = Rotazione sinistra** / Anticlockwise rotation
- Tipo flangia** / Flange type: A
- (H)**: Anello di rinforzo per piccola pressione in aspirazione (a richiesta) / Stiffening seal for low suction pressure (optional)
- 10**: Tipo albero / Shaft type: 10
- G**: Flangia in Ghisa / Cast-iron flange
- (VT)**: Guarnizione in Viton (a richiesta) / Viton seals (optional)
- VRF**: Coperchio con VRF / Cover with VRF
- d**: Diametro del foro calibrato / Diameter of the calibrated orifice

d [ mm ]	Q [ l/min ]
2.5	5
3	7
3.25	8
4	11
4.25	14
5.5	21

**G-N-T-M-U-W-F**: Tipo connessione in aspirazione / Suction connection type

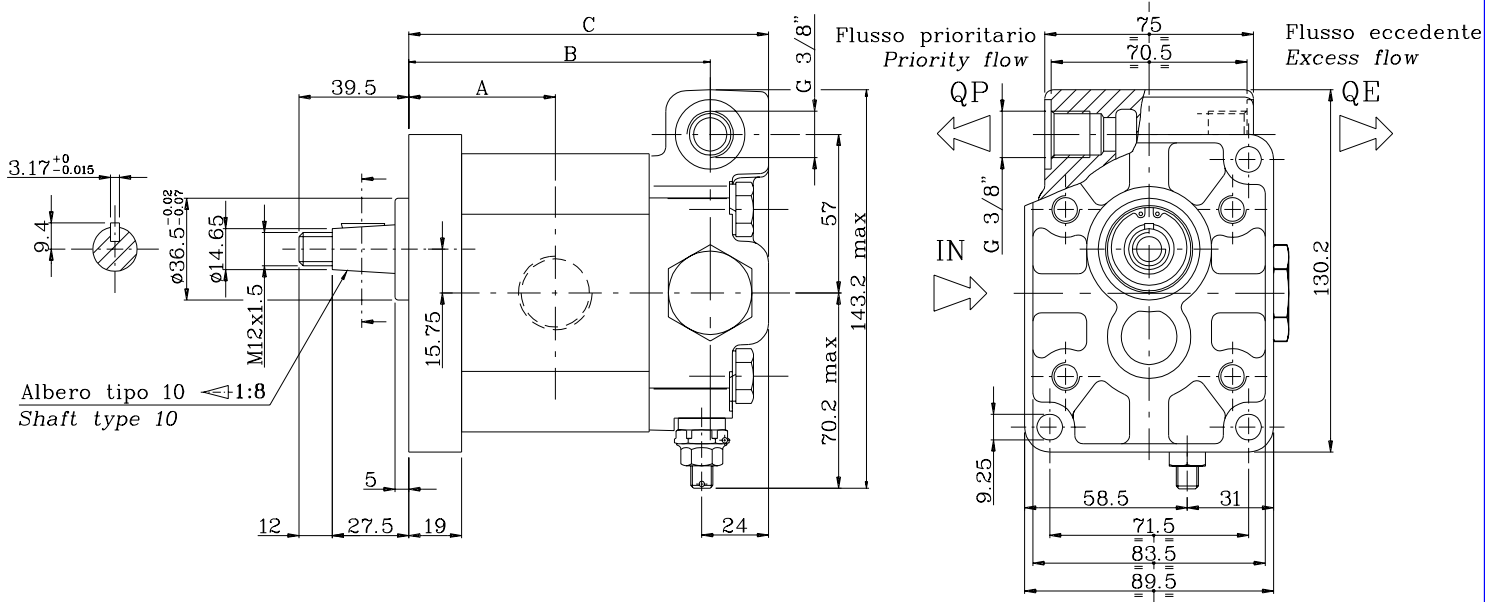
**STANDARD - SAEA - SAEA OR B50C - E52CX - B80C - PRKS**

Non è necessario indicare la flangia STANDARD  
It is not necessary indicate STANDARD flange

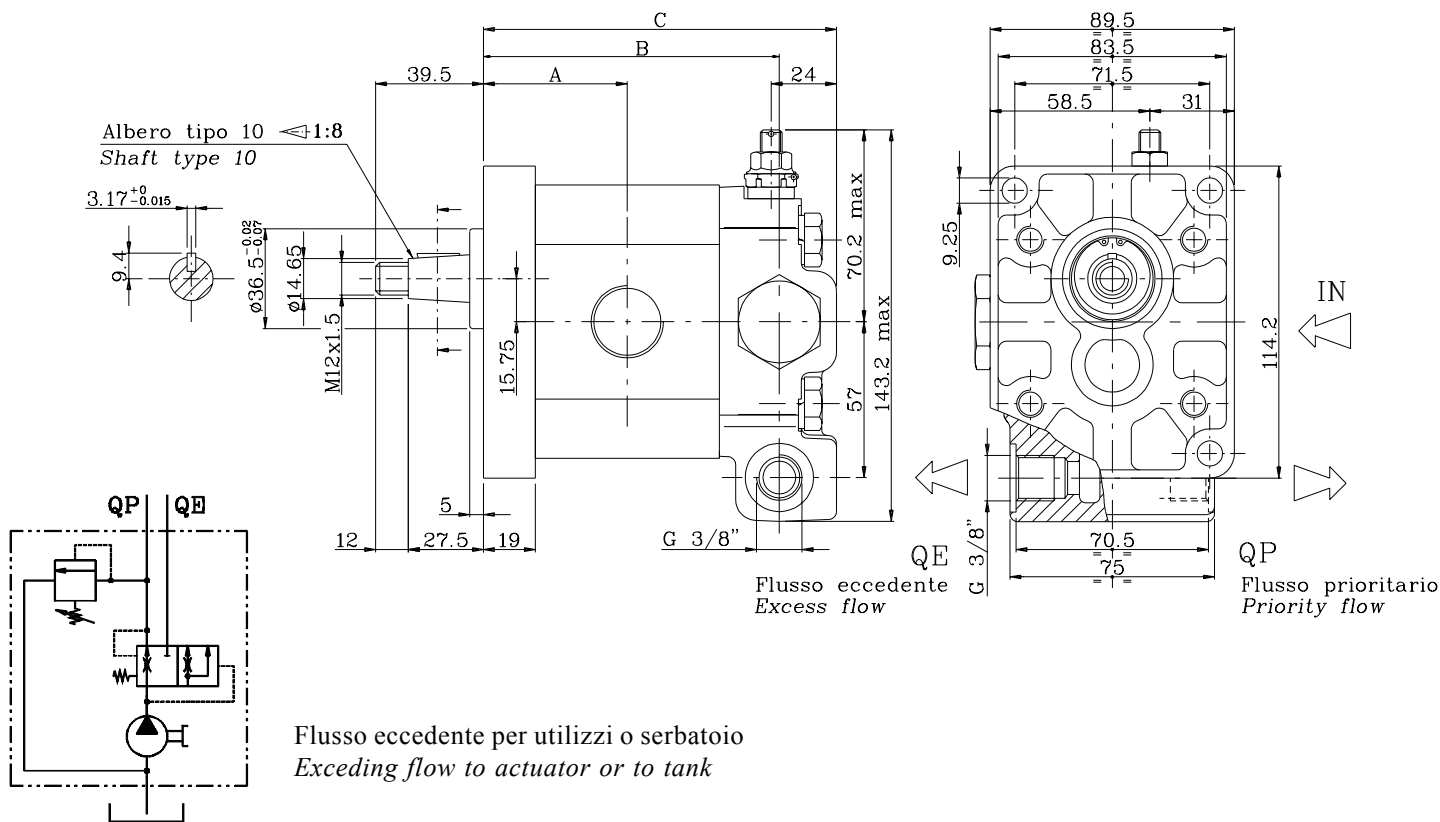
**POMPE 2SP CON COPERCHIO "VRF" E "VLP"**  
(valvola regolatrice di flusso e valvola limitatrice di pressione)

**PUMPS 2SP WITH COVER "VRF" AND "VLP"**  
(priority flow divider valve and pressure relief valve)

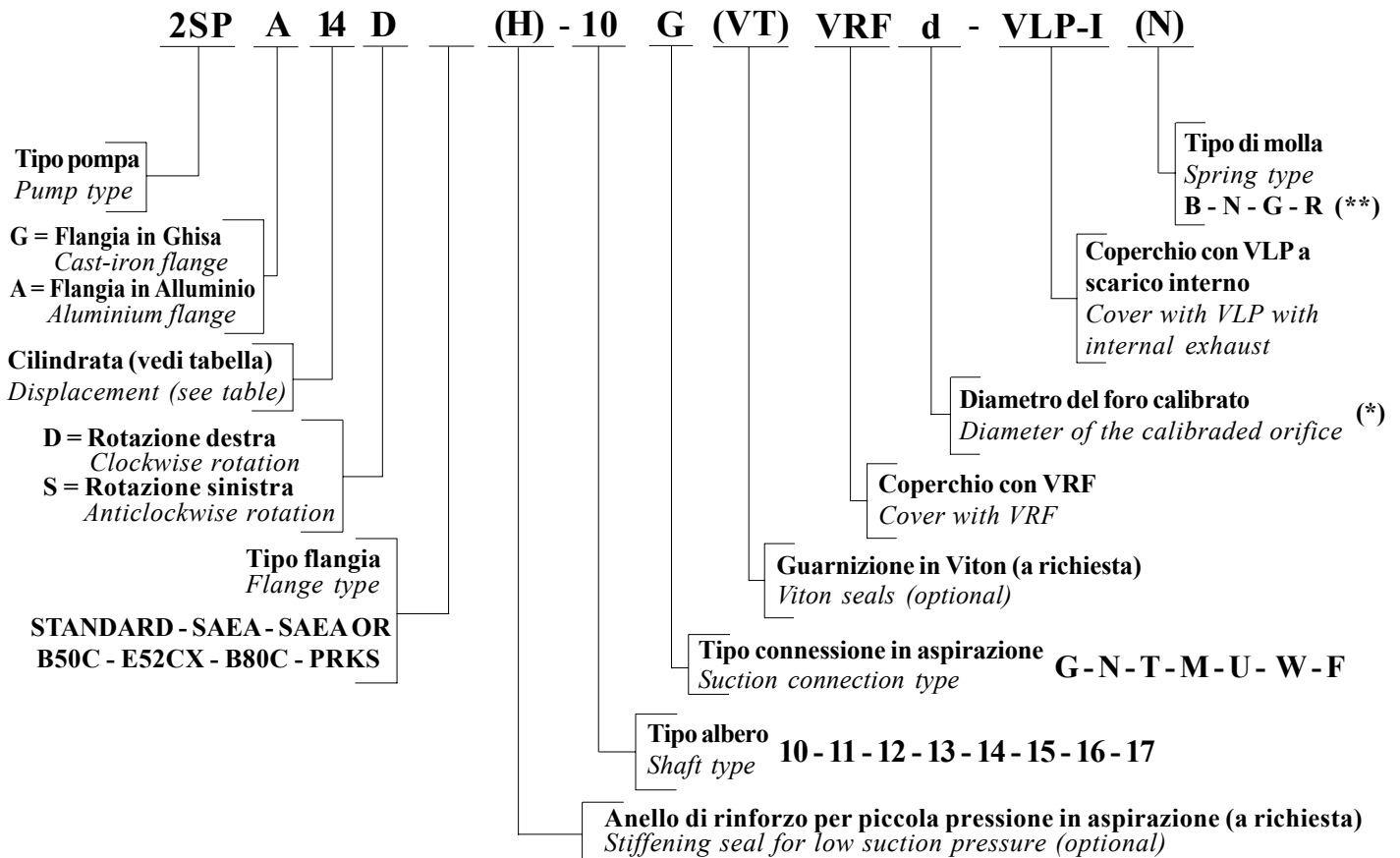
Configurazione per rotazione destra / Configuration for clockwise rotation



Configurazione per rotazione sinistra / Configuration for anticlockwise rotation



	2SP ...4	2SP ...6	2SP ...8	2SP ...11	2SP ...14	2SP ...16	2SP ...19	2SP ...22	2SP ...26
A	44.4	46	48.1	50.2	52.7	54.8	57.3	59.8	62.7
B	91.8	95.1	99.3	103.4	108.4	112.6	117.6	122.6	128.4
C	112.8	116.1	120.3	124.4	129.4	133.6	138.6	143.6	149.4

**ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE**


**Non è necessario indicare la flangia STANDARD**  
*It is not necessary indicate STANDARD flange*

(\*) **Diametro del foro calibrato**  
*Diameter of the calibrated orifice*

<b>d</b> [ mm ]	<b>Q</b> [ lt/min ]
2.5	5
3	7
3.25	8
4	11
4.25	14
5.5	21

(\*\*) **Taratura standard 120 bar - molla nera**  
*Standard setting 120 bar - black spring*

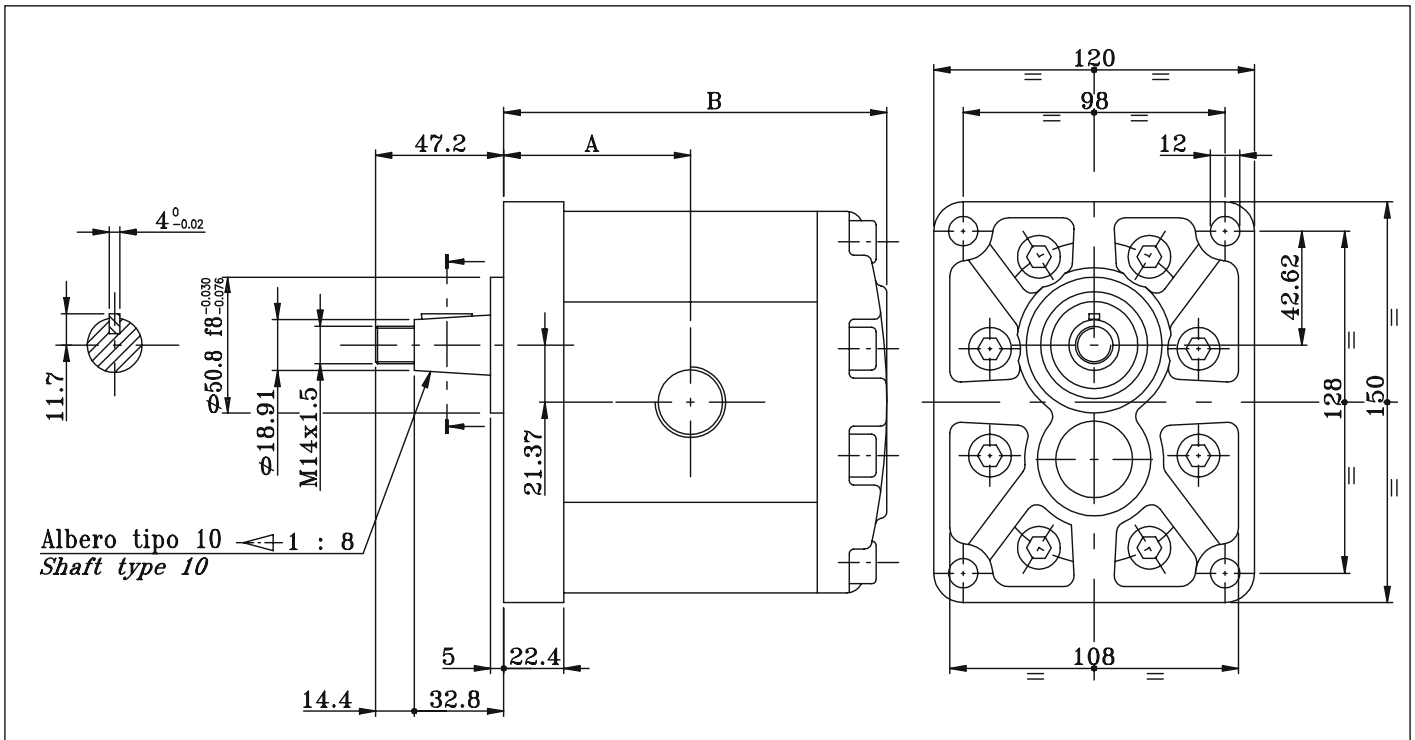
<b>Tipo molla</b> <i>Spring type</i>	<b>Campi di taratura(***)</b> <i>Calibration fields</i>
"B" = <b>molla bianca</b> <i>white spring</i>	30 ÷ 80 bar
"N" = <b>molla nera</b> <i>black spring</i>	81 ÷ 200 bar
"G" = <b>molla gialla</b> <i>yellow spring</i>	201 ÷ 300 bar
"R" = <b>molla rossa</b> <i>red spring</i>	301 ÷ 400 bar

**Il range completo si ottiene mediante l'aggiunta di spessori**  
*The complete range can be obtained with additional thickness*



# POMPE GRUPPO 3 START

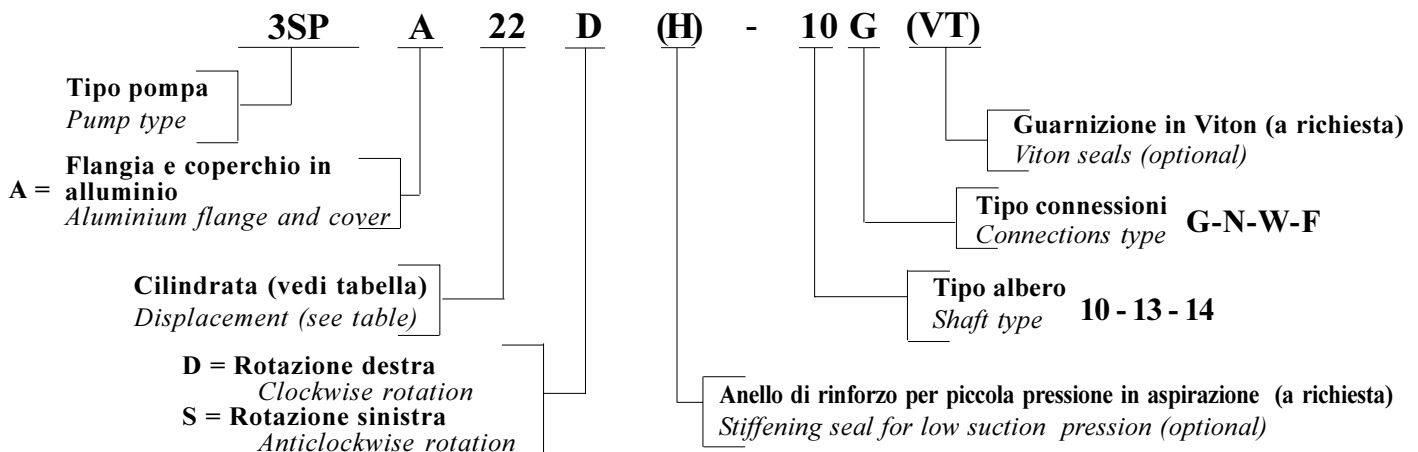
## PUMPS GROUP



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA Kg
		P1	P2	P3		A	B	
3SP A19	19	250	270	300	3500	62.4	128.3	5.23
3SP A22	22.3	240	260	290	3500	63.9	131.3	5.36
3SP A29	29.3	220	240	260	3300	66.9	137.3	5.64
3SP A33	32.9	220	230	260	3300	68.4	140.3	5.78
3SP A36	36.4	210	230	250	3300	69.9	143.3	5.91
3SP A44	43.5	200	220	240	3000	72.9	149.3	6.19
3SP A52	51.7	200	210	240	3000	76.4	156.3	6.50
3SP A62	61.1	180	190	200	2500	80.4	164.3	6.87

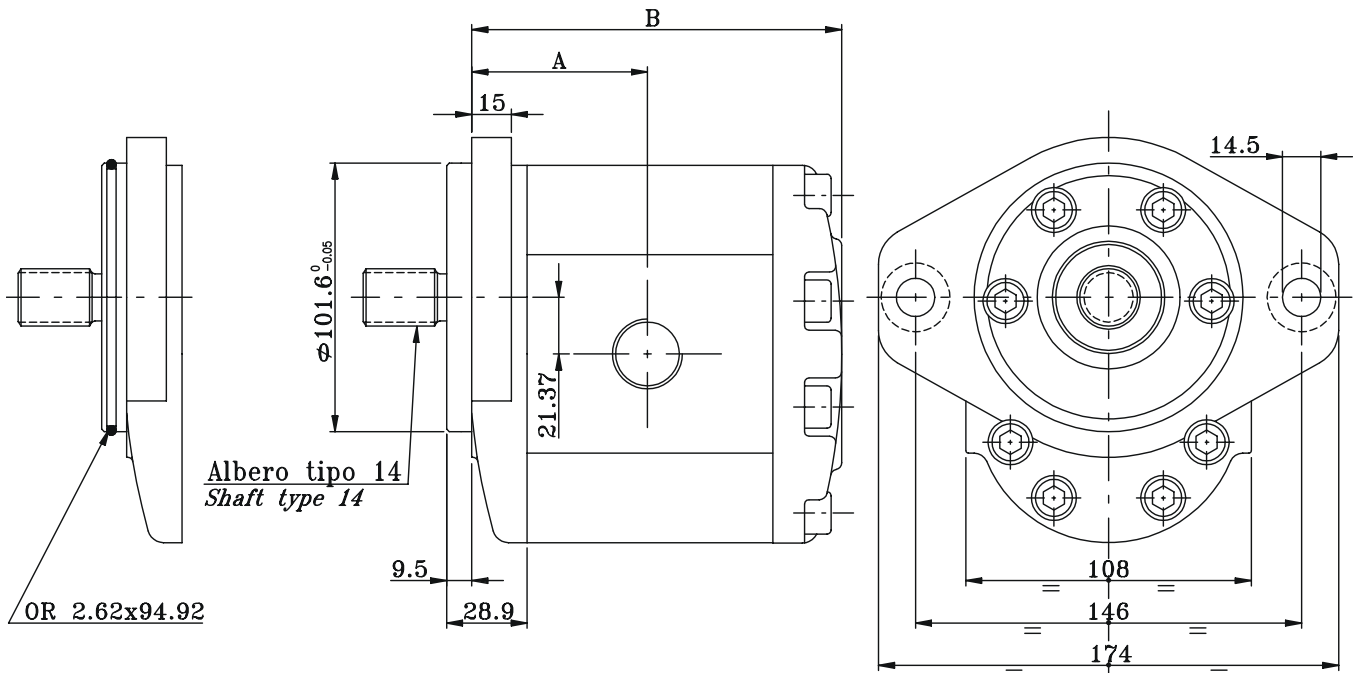
### ESEMPIO DI ORDINAZIONE IN CODICE

### EXAMPLE OF ORDERING CODE



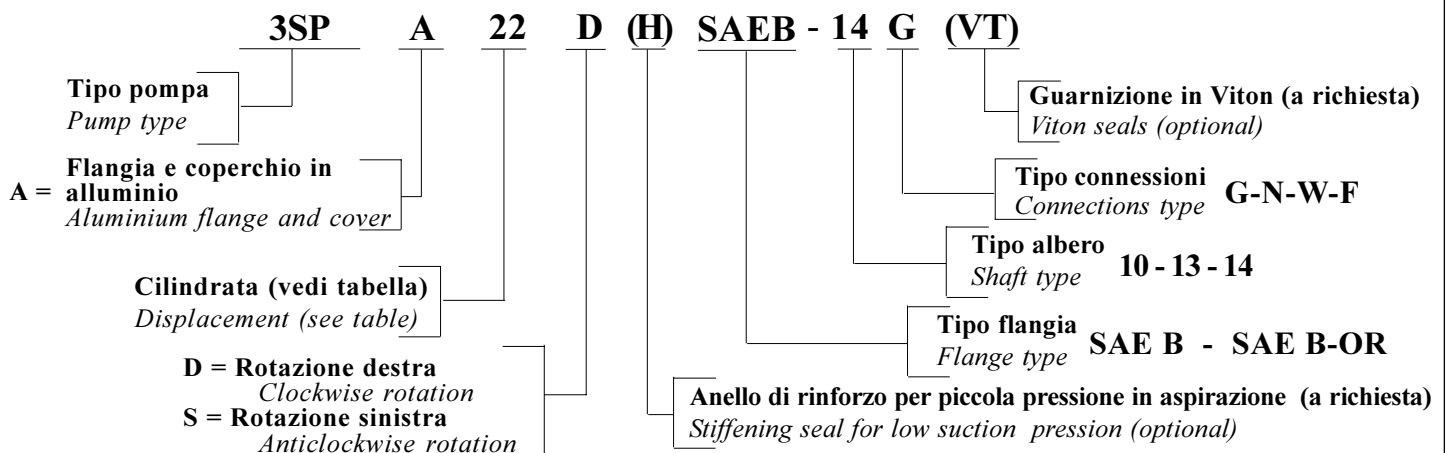
SAE B - OR

SAE B



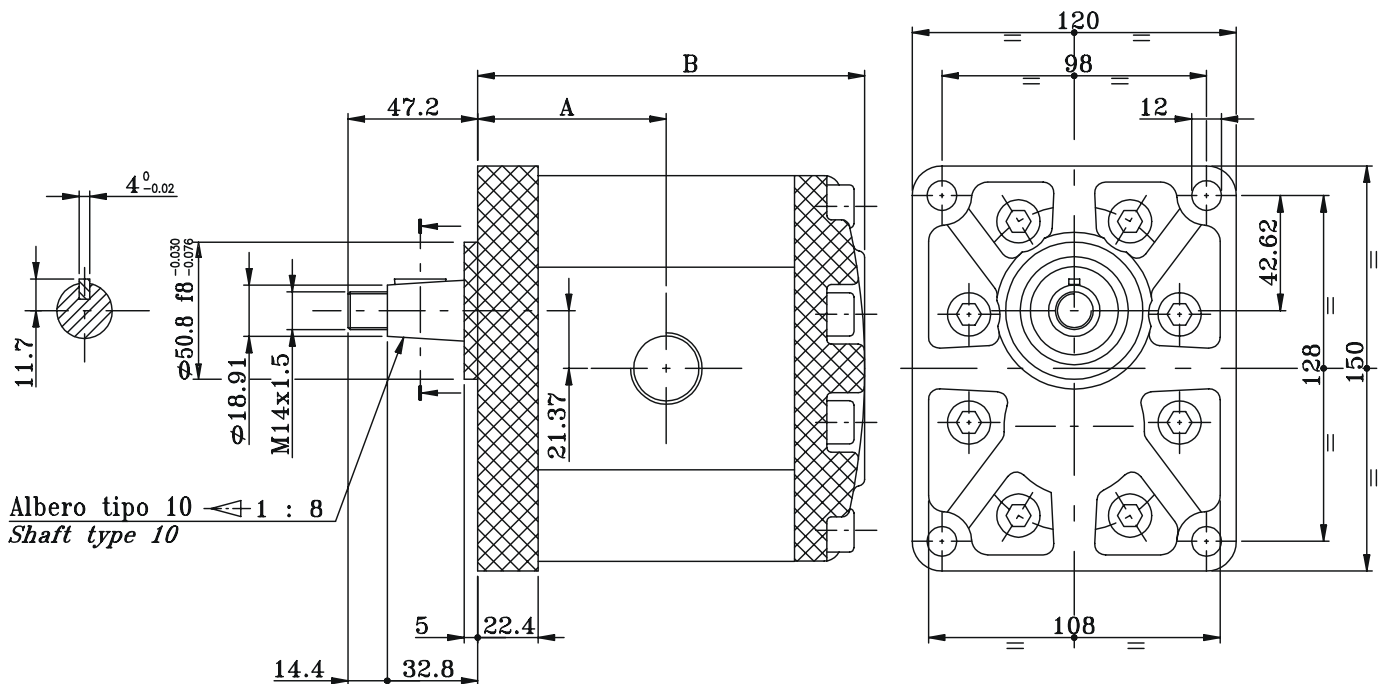
TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
3SP A19	19	250	270	300	3500	59.4	125.3	5.23
3SP A22	22.3	240	260	290	3500	60.9	128.3	5.36
3SP A29	29.3	220	240	260	3300	63.9	134.3	5.64
3SP A33	32.9	220	230	260	3300	65.4	137.3	5.78
3SP A36	36.4	210	230	250	3300	66.9	140.3	5.91
3SP A44	43.5	200	220	240	3000	69.9	146.3	6.19
3SP A52	51.7	200	210	240	3000	73.4	153.3	6.50
3SP A62	61.1	180	190	200	2500	77.4	161.3	6.87

ESEMPIO DI ORDINAZIONE IN CODICE  
EXAMPLE OF ORDERING CODE



## POMPE CON FLANGIA E COPERCHIO IN GHISA

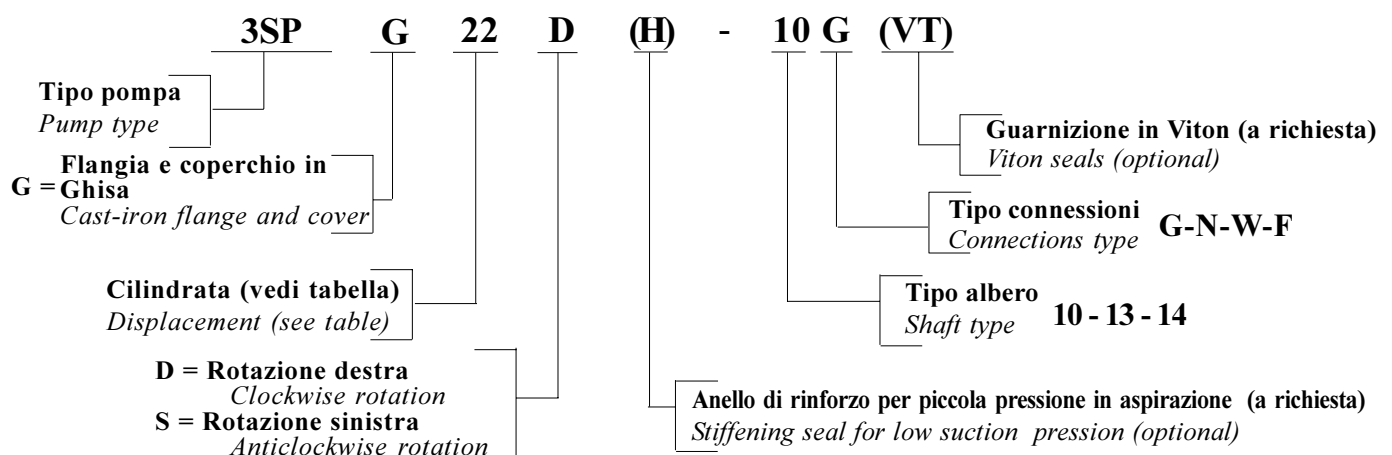
### PUMPS WITH CAST-IRON FLANGE AND COVER



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
3SP G19	19	270	290	320	3500	62.4	128.3	7.53
3SP G22	22.3	260	280	300	3500	63.9	131.3	7.66
3SP G29	29.3	240	260	280	3300	66.9	137.3	7.94
3SP G33	32.9	240	260	280	3300	68.4	140.3	8.08
3SP G36	36.4	230	250	270	3300	69.9	143.3	8.21
3SP G44	43.5	200	220	240	3000	72.9	149.3	8.49
3SP G52	51.7	200	220	240	3000	76.4	156.3	8.80
3SP G62	61.1	180	190	200	2500	80.4	164.3	9.17

### ESEMPIO DI ORDINAZIONE IN CODICE

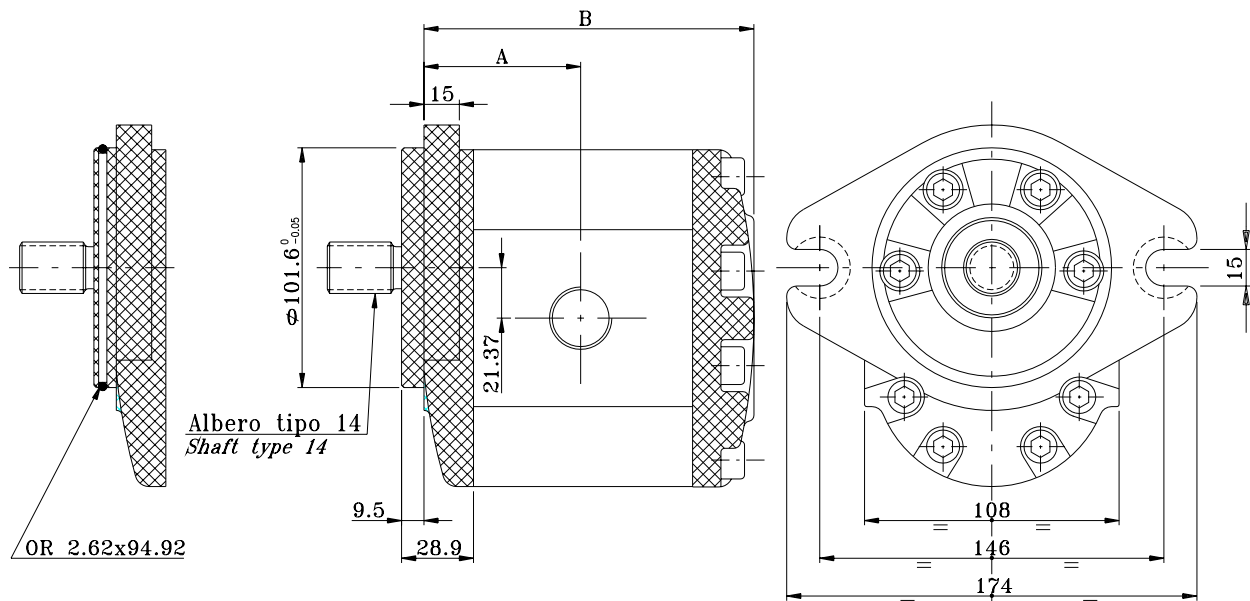
#### EXAMPLE OF ORDERING CODE



## POMPE CON FLANGIA E COPERCHIO IN GHISA PUMPS WITH CAST-IRON FLANGE AND COVER

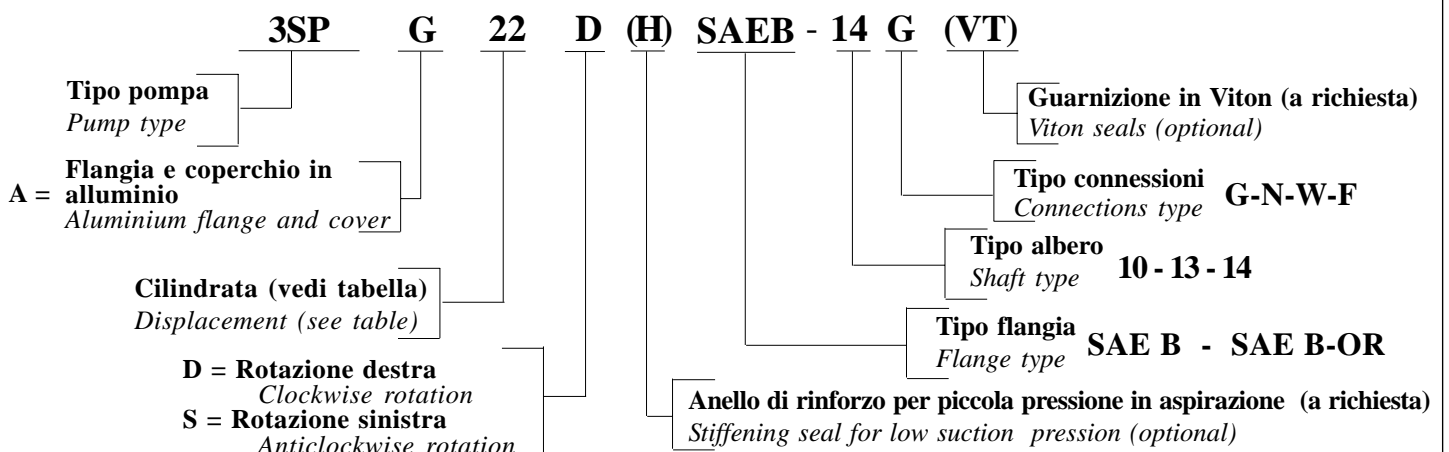
SAE B - OR

SAE B

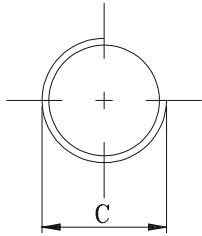
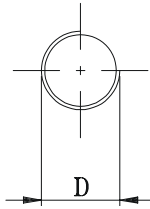


TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
3SP G19	19	270	290	320	3500	59.4	125.3	7.59
3SP G22	22.3	260	280	300	3500	60.9	128.3	7.72
3SP G29	29.3	240	260	280	3300	63.9	134.3	8.00
3SP G33	32.9	240	260	280	3300	65.4	137.3	8.14
3SP G36	36.4	230	250	270	3300	66.9	140.3	8.27
3SP G44	43.5	200	220	240	3000	69.9	146.3	8.55
3SP G52	51.7	200	220	240	3000	73.4	153.3	8.86
3SP G62	61.1	180	190	200	2500	77.4	161.3	9.23

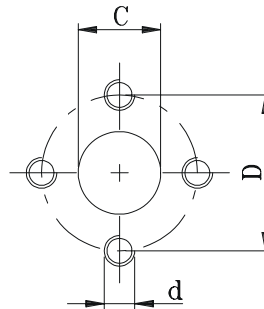
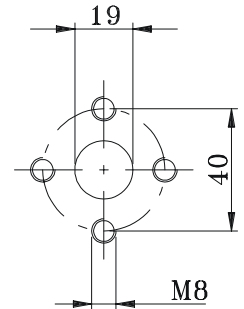
### ESEMPIO DI ORDINAZIONE IN CODICE EXAMPLE OF ORDERING CODE



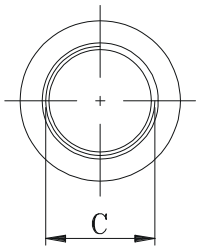
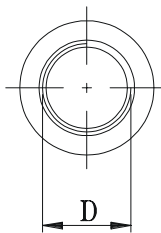
## CONNESSIONI / CONNECTIONS

**TIPO G**  
**TYPE**
**ASPIRAZIONE**  
**SUCTION**

**MANDATA**  
**DELIVERY**


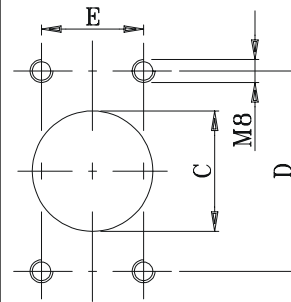
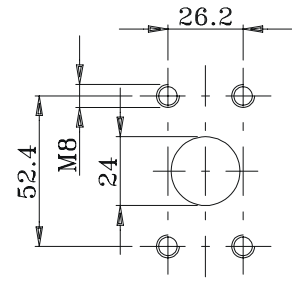
TIPO/TYPE	C	D
19 ÷ 62	G 1"	G 3/4"

**TIPO N**  
**TYPE**
**ASPIRAZIONE**  
**SUCTION**

**MANDATA**  
**DELIVERY**


TIPO/TYPE	C	D	d
19 ÷ 62	27	51	M10

**TIPO W**  
**TYPE**
**ASPIRAZIONE**  
**SUCTION**

**MANDATA**  
**DELIVERY**


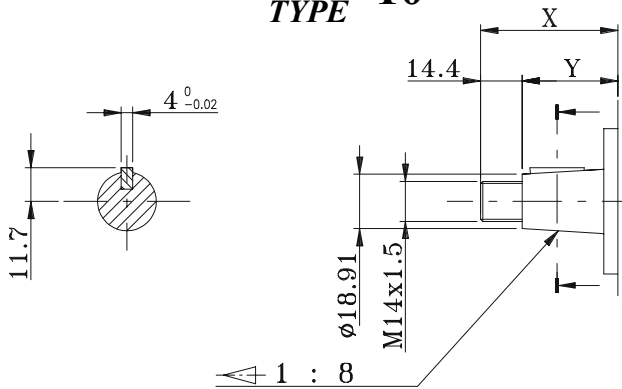
TIPO/TYPE	C	D
19 ÷ 62	1" 5/16 -12UN	1" 1/16 - 12UN

**TIPO F**  
**TYPE**
**ASPIRAZIONE**  
**SUCTION**

**MANDATA**  
**DELIVERY**


TIPO/TYPE	C	D	E
19 ÷ 36	27	52.4	26.2
44 ÷ 62	42	69.8	35.6

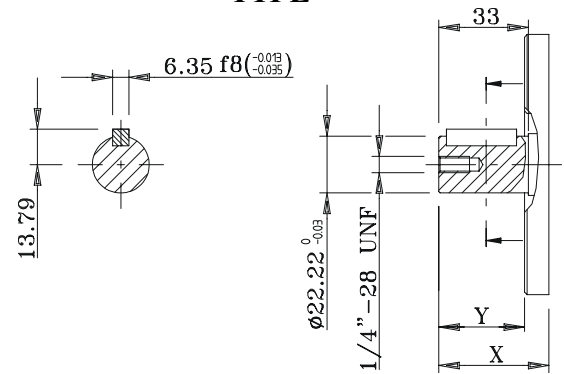
## ALBERI / SHAFTS

**TIPO 10**  
**TYPE**



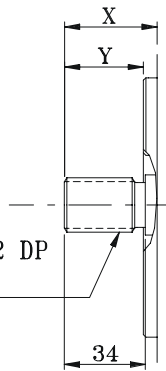
TIPO FLANGIA FLANGE TYPE	X	Y
<b>STANDARD</b>	47.2	32.8
<b>SEA B</b>	50.2	35.8

**TIPO 13**  
**TYPE**



TIPO FLANGIA FLANGE TYPE	X	Y
<b>SAE B</b>	41	31.5
<b>STANDARD</b>	38	33

**TIPO 14**  
**TYPE**



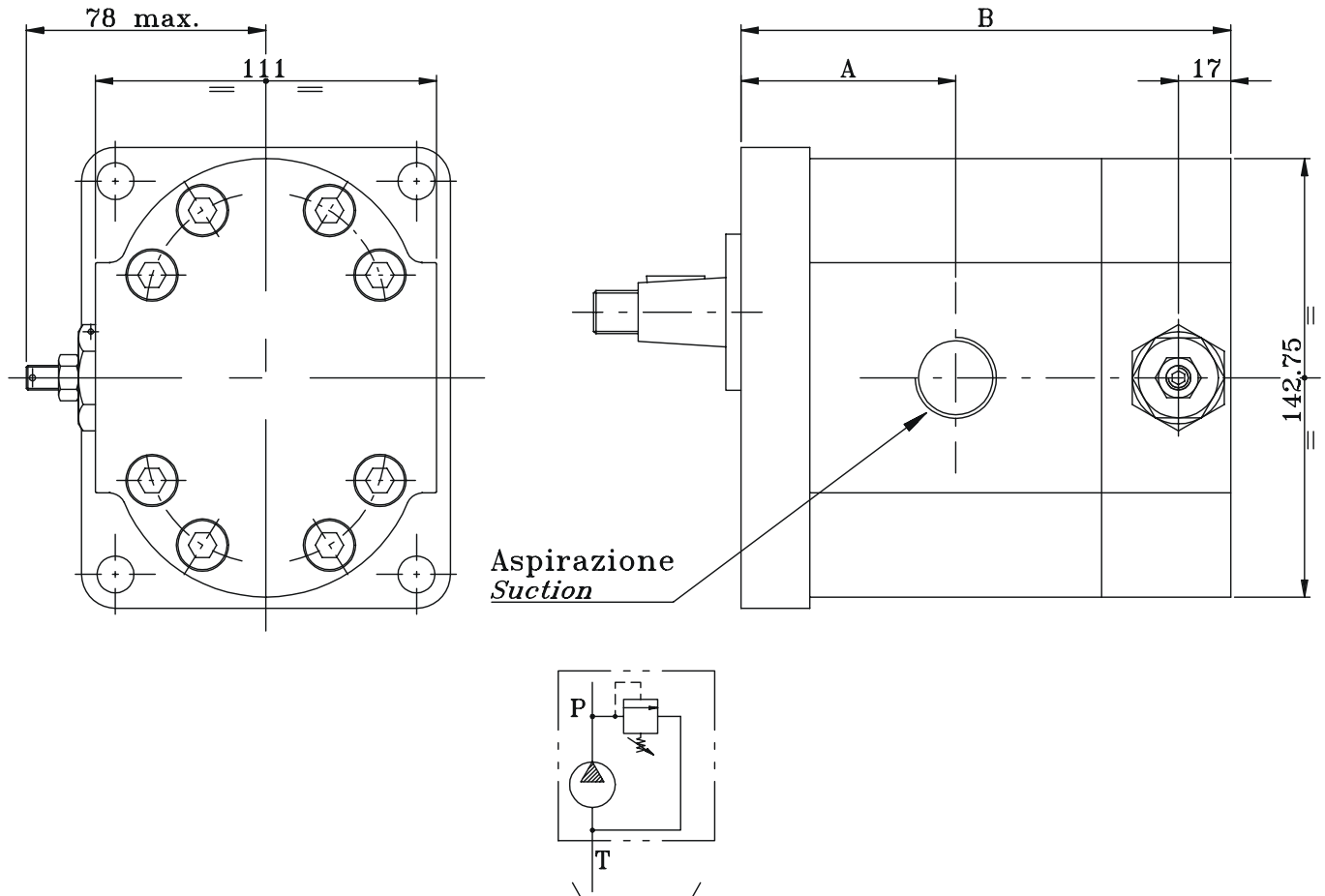
Profilo scanalato 7/8" SAE 16/32 DP  
N° Denti = 13  
Splined profile 7/8" SAE 16/32 DP  
N° of teeth = 13

TIPO FLANGIA FLANGE TYPE	X	Y
<b>SAE B</b>	41.2	31.7
<b>STANDARD</b>	38.2	33.2

## POMPE 3SPA CON VALVOLA LIMITATRICE DI PRESSIONE PUMPS 3SPA WITH PRESSURE RELIEF VALVE

L'apertura della valvola limitatrice di pressione (VLP) deve avvenire per tempi non superiori ai 7 secondi ogni minuto per evitare il surriscaldamento della pompa.

The opening of the pressure relief valve should be carry out with times not over 7" each minute to avoid the overheating of the pump.



	3SP A19	3SP A22	3SP A29	3SP A33	3SP A36	3SP A44	3SP A52	3SP A62
A	62.4	63.9	66.9	68.4	69.9	72.9	76.4	80.4
B	127.3	130.3	136.3	139.3	142.3	148.3	155.3	163.3

Fornitura solo con flangia e coperchio in alluminio. E' rappresentata una pompa con rotazione sinistra.  
It is supplied only with aluminium flange and cover. The showing pump is with anticlockwise rotation.

### ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE

3SP A 22 D - 10G VLP-I (N)

Coperchio con VPL a scarico interno  
Cover with VPL at internal exhaust

Tipo di molla  
Spring type B-N-R (\*)

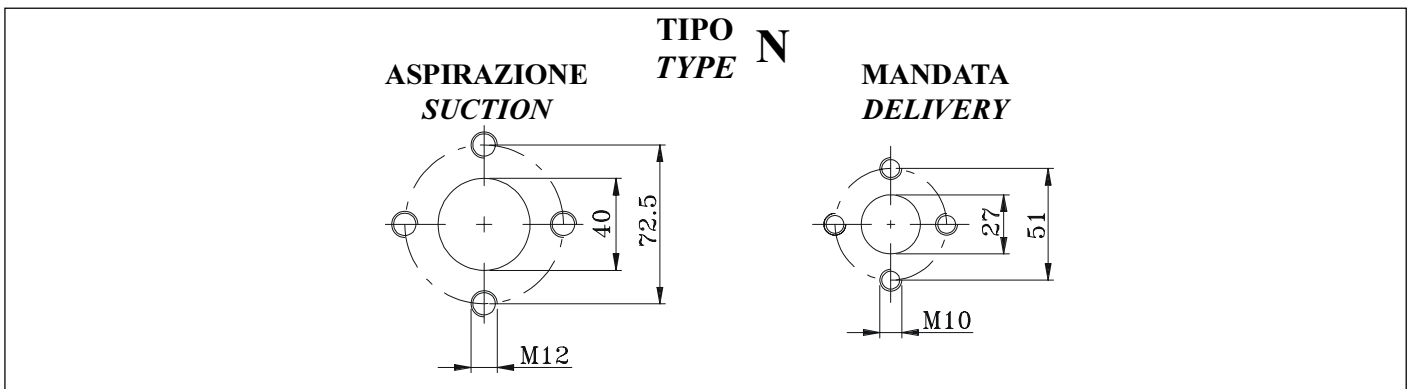
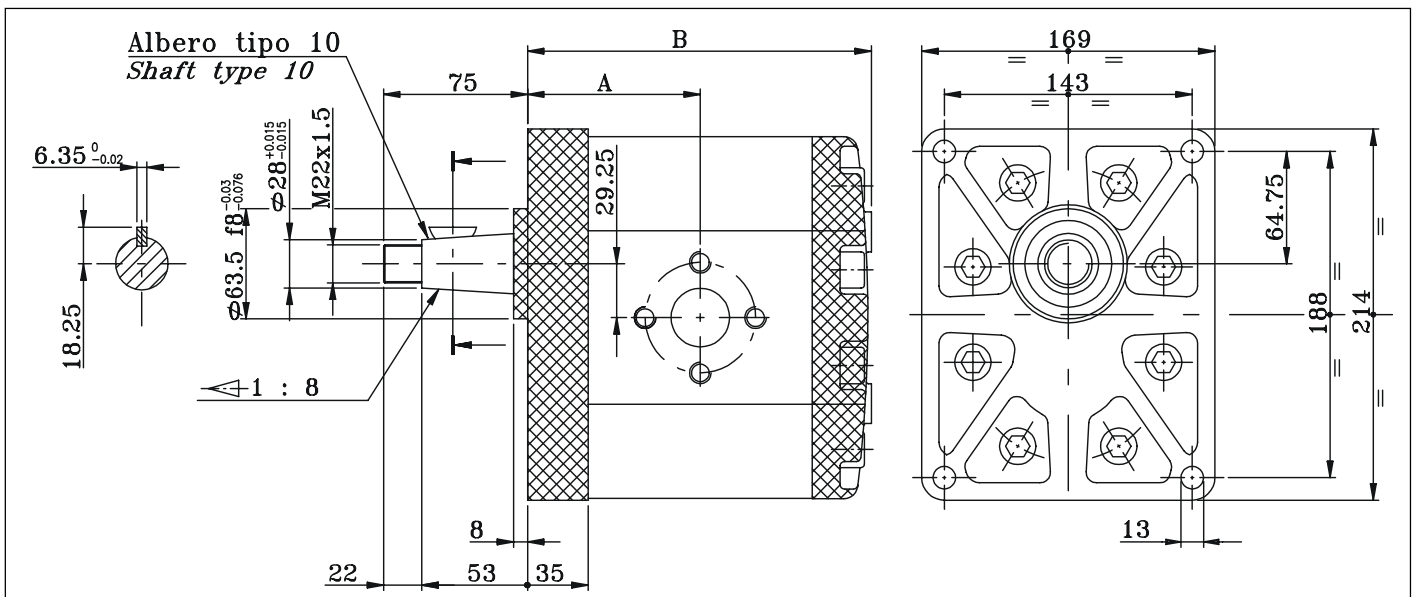
(\*) Taratura standard 30 ÷ 280 bar - molla nera (N)  
Standard setting 30 ÷ 280 bar black spring

Taratura disponibile a richiesta:  
Setting range on demanded:

- 80 ÷ 380 bar - molla rossa (R)
- 80 ÷ 380 bar - red spring
- 10 ÷ 100 bar - molla bianca (B)
- 10 ÷ 100 bar - white spring

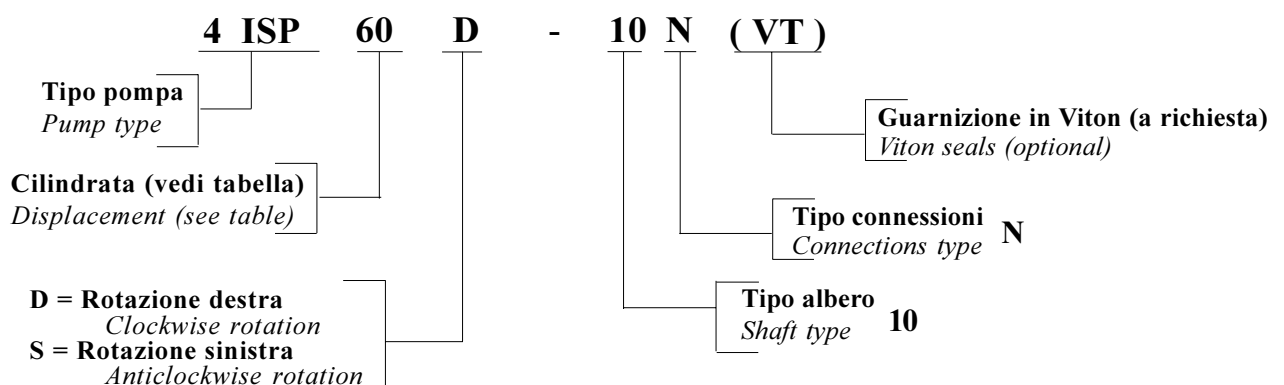


# POMPE GRUPPO 4 PUMPS GROUP 4



TIPO TYPE	CILINDRATA cm <sup>3</sup> /giro DISPLACEMENT cm <sup>3</sup> /rev.	PRESSIONE MAX. DI ESERCIZIO bar MAX. WORKING PRESSURE bar			VELOCITÀ MAX. giri/min MAX. SPEED rpm	DIMENSIONI DIMENSIONS mm		MASSA MASS Kg
		P1	P2	P3		A	B	
4 ISP 60	60.3	190	210	220	2300	88.6	176.2	22.2
4 ISP 70	69	180	200	210	2200	90.6	180.2	22.65
4 ISP 86	86	180	200	210	2200	94.6	188.2	23.5
4 ISP 103	103	170	190	200	2000	98.6	196.2	24.3
4 ISP 120	120	150	160	180	2000	102.6	204.2	25

## ESEMPIO DI ORDINAZIONE IN CODICE / EXAMPLE OF ORDERING CODE



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