HANSA · TMP srl

HYDRAULIC COMPONENTS
HYDROSTATIC TRANSMISSIONS
GEARBOXES - ACCESSORIES

Certified Company ISO 9001 - 14001

TÜV InterCert SAAR ISO 9001 Certificate N° 12-Q-0200545-TIC
TÜV InterCert SAAR ISO 14001 Certificate N° 12-E-0200545-TIC

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POMPE E MOTORI AD INGRANAGGI

GEAR PUMPS AND MOTORS

INDIGE GENERALE
GENERAL INDEX

INTRODUZIONE • *INTRODUCTION*

La pompa ad ingranaggi esterni è una componente ampiamente utilizzata per applicazioni oleodinamiche: la sua semplicità nella costruzione (rispetto ad altre tipologie di pompe più complesse come ad esempio pompe orbitali o a pistoni) unita alla grande versatilità, resistenza e lunga durata consentono una manutenzione ridotta e costi d'acquisto più contenuti.

Tali pompe possono sia lavorare in condizioni gravose con l'erogazione di elevate potenze idrauliche, sia in condizioni standard con una bassa emissione acustica ed elevati rendimenti idromeccanici e volumetrici grazie all'ottima bilanciatura.

La gamma, grazie ad un costante lavoro di ricerca unito all'esperienza pluriennale, alla meticolosa scelta dei materiali e alla costante cura nel processo non solo di produzione, ma anche nei test di validazione si è ampliata mantenendo elevati standard qualitativi.

Le pompe ad ingranaggi esterni sono costituite da 3 gruppi: 1SP, 2SP (a 12 denti) e 3GP (a 10 denti) con ben 32 cilindrate da 0.89 a 77 cc/giro adatte alle più variate applicazioni sia industriali che nel campo del mobile con elevati rapporti potenza/peso e potenza/dimensioni.

Si possono raggiungere pressioni elevate fino a 300 bar e velocità massime di rotazione di 4000 giri/min.

Le pompe possono essere assemblate con totale intercambiabilità sia con flange standard (europea, tedesca, SAE) sia con tipologie speciali ed utilizzate con una vasta gamma di alberi come quelli conici, cilindrici scanalati e fresati con dente frontale.

Sono disponibili vari coperchi e flange in ghisa per ridurre la rumorosità e aumentare i limiti operativi. Inoltre è possibile montare coperchi con valvola limitatrice di pressione e valvole regolatrici di flusso.

Tutte le pompe sono predisposte per il montaggio in una o più ulteriori unità per la realizzaione di pompe multiple: diverse soluzioni di accoppiamento sono disponibili per privilegiare la compattezza costruttiva o una intercambiabilità più flessibile.

External gear pump is widely used for oleodynamic applications: its simplicity in construction (compared to other types of more complex pumps such as orbital or axial piston pumps) coupled with great versatility, strenght and durability allow for reduced maintenance and lower purchasing costs.

These pupmps can both work under harsh conditions with high hydraulic power supply, both in standard conditions with a low noise level and high hydromechanical efficiency and excellent volumetric balancing.

The range thanks a constant research combined with years of exprerience, meticulous choise of materials and the constant care of the process non only of production, but also in the validation tests, has expanded while maintaining high quality standards.

The external gera pumps consist of 3 groups: 1SP, 2SP (12 teeth) and 3GP (10 teeth) with 32 displacements from 0.89 to 77 cc/rev suited to various applications in the field of mobile and industrial power-to-weight and power/size ratios.

You can reach high pressure up to 300 bar and maximum speeds of rotation of 4000 rpm.

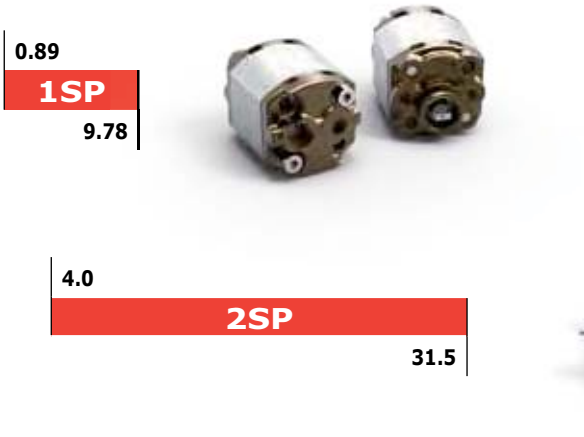
Our pumps can be assembled with complete interchangeability with standard flanges (European, German, SAE) or with special flanges used with a variety of shafts as those cylindrical, conical grooved and milled with front tooth.

Are avilable several covers and flanges in cast iron to reduce noise and increase the operating limits. It is also possible to assemble covers with pressure relief valve and flow control valves.

All pumps are disegned for mounting into one oe more additional units to complete multiple pumps: different coupling solutions are available to privilige the compactness of construction or the flexibility of interchangeability.

POMPE AD INGRANAGGI GAMMA PRODOTTO
GEAR PUMPS PRODUCT RANGE

Le cilindrate disponibili sono evidenziate nel seguente diagramma (cm³/giro):
Available displacements are indicated below (cm³/rev):

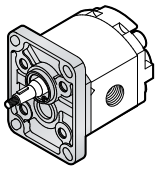
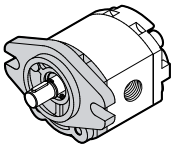
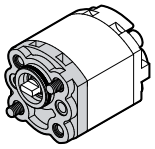
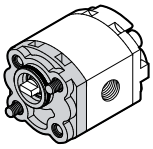
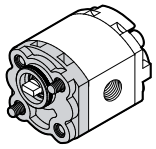


POMPE AD INGRANAGGI GAMMA PRODOTTO
GEAR PUMPS PRODUCT RANGE

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	*in^3/rev*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
1SP 009	0.89	*0.05*	6000	5.3	*1.40*	600	0.49	0.13	92*
1SP 012	1.18	*0.07*	6000	7.1	*1.88*	600	0.65	0.17	92*
1SP 016	1.6	*0.10*	6000	9.6	*2.54*	400	0.61	0.16	95*
1SP 020	2.0	*0.12*	5500	11	*2.91*	400	0.76	0.20	95*
1SP 025	2.5	*0.15*	5000	12.5	*3.30*	400	0.95	0.25	95*
1SP 032	3.2	*0.20*	4500	14.4	*3.80*	400	1.21	0.32	95*
1SP 037	3.7	*0.23*	4000	14.8	*3.91*	400	1.40	0.37	95*
1SP 042	4.2	*0.26*	3500	14.7	*3.88*	400	1.60	0.42	95*
1SP 050	5.0	*0.31*	3000	15	*3.96*	400	1.90	0.50	95*
1SP 063	6.3	*0.38*	2700	17	*4.49*	400	2.39	0.63	95*
1SP 078	7.76	*0.47*	2500	19.4	*5.13*	400	2.95	0.78	95*
1SP 098	9.78	*0.60*	2000	19.6	*5.18*	400	3.71	0.98	95*

* = Valori medi rilevati in fase di collaudo a 1500 giri/min. *Average values collected during the testing at 1500 rpm.*

FLANGE - *FLANGES*

EUR	SAEAA	MC32	E32BX - E32BC	E32CX - E32CC
				
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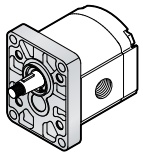
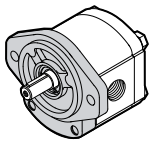
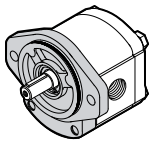
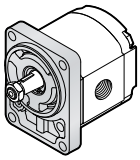
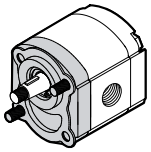
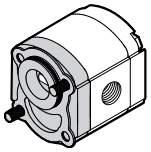
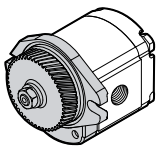
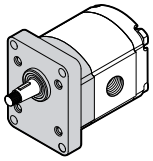
POMPE AD INGRANAGGI GAMMA PRODOTTO
GEAR PUMPS PRODUCT RANGE

GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	*in^3/rev*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
2SP 040	4	*0.24*	4000	16	*4.23*	500	*1.9*	0.50	95*
2SP 060	6	*0.37*	4000	24	*6.34*	500	*2.85*	0.75	95*
2SP 080	8.5	*0.52*	3500	29.7	*7.85*	500	*4.03*	1.06	95*
2SP 110	11	*0.67*	3500	38.5	*10.17*	500	*5.22*	1.38	95*
2SP 140	14	*0.85*	3500	49	*12.95*	500	*6.65*	1.76	95*
2SP 160	16.5	*1.01*	3500	57.7	*15.24*	500	*7.83*	2.07	95*
2SP 190	19.5	*1.19*	3300	64.3	*16.99*	500	*9.26*	2.45	95*
2SP 220	22.5	*1.37*	2800	63	*16.64*	500	*10.68*	2.82	95*
2SP 260	26	*1.59*	2500	65	*17.17*	500	*12.35*	3.26	95*
2SP 310	31.5	*1.92*	2200	69	*18.22*	500	*15.75*	4.16	95*

* = Valori medi rilevati in fase di collaudo a 1500 giri/min. *Average values collected during the testing at 1500 rpm.*

FLANGE - *FLANGES*

EUR	SAEA	SAEAOR	B80C	B50C	E52C	P400D	SUPEUR
							
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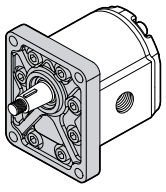
POMPE AD INGRANAGGI GAMMA PRODOTTO
GEAR PUMPS PRODUCT RANGE

GRUPPO GROUP 3GP	CILINDRATA DISPLACEMENT		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	*in^3/rev*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
3GP 190	19.3	*1.2*	3500	67.6	*17.84*	700	12.8	*3.39*	95*
3GP 230	23.0	*1.4*	3500	80.3	*21.22*	700	15.5	*4.03*	95*
3GP 300	30.2	*1.8*	3300	99.7	*26.33*	700	20.1	*5.31*	95*
3GP 340	33.8	*2.1*	3300	111.6	*29.49*	700	22.5	*5.94*	95*
3GP 370	37.5	*2.3*	3300	123.6	*32.66*	700	24.9	*6.58*	95*
3GP 440	44.6	*2.7*	3000	133.8	*35.35*	700	29.7	*7.84*	95*
3GP 530	53.0	*3.2*	3000	159.1	*42.04*	700	35.3	*9.32*	95*
3GP 620	62.7	*3.8*	2500	156.8	*41.41*	700	41.7	*11.01*	95*
3GP 700	70.5	*4.3*	25 00	176.3	*46.58*	700	46.9	*12.39*	95*
3GP 770	77.2	*4.7*	2200	169.8	*44.84*	700	51.3	*13.56*	95*

* = Valori medi rilevati in fase di collaudo a 1500 giri/min. *Average values collected during the testing at 1500 rpm.*

FLANGE - *FLANGES*

EUR



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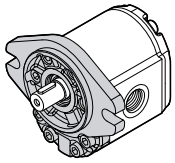

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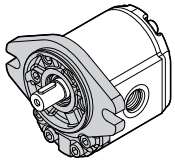

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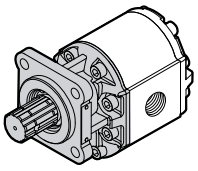
ZFC



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POMPE AD INGRANAGGI INFORMAZIONI TECNICHE
GEAR PUMPS TECHNICAL INFORMATIONS

FLUIDI IDRAULICI • *HYDRAULIC FLUIDS*

È consigliabile utilizzare oli idraulici di origine minerale con buone caratteristiche antischiuma, antiusura, antiossidanti, anticorrosione e con proprietà di rapida disareazione ed elevato indice di viscosità;

- viscosità raccomandata 15÷92 mm^2/s
- viscosità limite d'avviamento 2000 mm^2/s

Durante il normale funzionamento la temperatura dell'olio dovrà essere compresa tra 20° C e 65° C con valori limite compresi tra -20° C e 80° C con le guarnizioni in NBR e -15 °C e 100 °C con le stesse in Viton.

It is advisable to use hydraulic oils of mineral origin with anti-foaming, antiwear, anti-oxidant and anti-corrosion characteristics and rapid air removal properties and a high viscosity index;

- *Recommended viscosity 15÷92 mm^2/s (cSt)*
- *Start-up viscosity limit 2000 mm^2/s (cSt)*

During normal operation, the temperature of the oil must be between 20°C and 65°C and limit values between -20°C and 80°C with NBR gasket and limit values between -15°C and 100°C with Viton gasket.

PRESSIONE DI ASPIRAZIONE • *SUCTION PRESSURE*

La pressione di esercizio in aspirazione deve essere compresa nell'intervallo 0.7 - 3 bar (assoluti).
Per valori superiori (fino a 30 bar) è necessario ricorrere ad anelli di tenuta per alte pressioni.

The allowed working pressure supplied must be in the range 0.7 - 3 bar (absolute).
For higher values (up to 30 bar), must be used sealing ring for high pressure.

CONDOTTI DI ASPIRAZIONE • *SUCTION PIPES*

Particolare attenzione dovrà essere posta nel dimensionamento delle tubazioni (rigide o flessibili) evitando lunghezze sproporzionate, improvvise variazioni di sezione, piccoli raggi di curvatura scegliendo comunque sezioni dei condotti di aspirazione che garantiscano una velocità dell'olio compresa fra 0.6 e 2 m/s.

Particular attention must be given to the sizing of pipes (rigid or flexible), avoiding disproportionate lengths, sudden variations in cross section or small curvature radius, in any case selecting pipe cross-sections that guarantee an oil speed between 0.6 and 2 m/s.

FILTRAZIONE • *FILTRATION*

Per eliminare eventuali impurità presenti nell'olio e garantire una durata superiore alla pompa, è necessario introdurre nell'impianto un'efficace filtrazione verificandone periodicamente la funzionalità.

I livelli di filtrazione raccomandati sono i seguenti:

Utilizzo fino a 150 bar:
21/19/16 (ISO 4406) classe 10 (NAS 1638)

Utilizzo oltre 150 bar:
20/18/15 (ISO 4406) classe 9 (NAS 1638)

In order to eliminate any impurities present in the oil and to guarantee a longer duration of the pump, the system must be equipped with effective filtration which must be periodically checked to ensure that it is operating correctly.

The following are the recommended filtration levels:

Up to 150 bar:
21/19/16 (ISO 4406) classe 10 (NAS 1638)

Over to 150 bar:
20/18/15 (ISO 4406) classe 9 (NAS 1638)

NOTE INSTALLAZIONE • *INSTALLATION NOTES*

Prima di avviare l'impianto a regime, sono consigliati alcuni accorgimenti:

• Verificare che il senso di rotazione sia coerente con quello dell'albero da cui proviene il moto.

• Verificare che nelle flange di connessione alle porte di aspirazione e mandata non siano presenti trucioli, sporco o altro.

• Se la pompa è sottoposta a verniciatura, proteggere l'anello di tenuta verificando che la zona di contatto fra anello di tenuta e albero sia priva di polvere o di sedimenti abrasivi che possono accelerare le usure e causare delle perdite.

• Assicurarsi che il giunto utilizzato per la trasmissione compensi disallineamenti assiali che potrebbero pregiudicare l'integrità del motore.

Before you start setting system, some precautions are recommended:

• Check that the direction of rotation is consistent with the drive shaft one.

• Remove all dirt, chips and all foreign bodies from flanges connecting inlet and delivery ports.

• Protect the drive shaft sealing ring during pump painting; check that the contact area between ring and shaft is clean: dust or abrasive sediments could accelerate the wear and cause leakage.

• Make sure that the transmission joint balances any axial misalignment that might compromise the engine working.

• In caso di carichi radiali e/o assiali sull'albero della pompa (come ad esempio quando il trascinamento viene effettuato tramite pulegge e cinghie) è necessario optare per le versioni disponibili con supporto rinforzato.

• Il giunto di collegamento fra alberi scanalati dovrà essere opportunamente lubrificato, libero di muoversi assialmente e di lunghezza adatta a coprire tutta l'estensione dei due alberi (motore e pompa).

Durante il primo avviamento:

• scollegare lo scarico della pompa per permettere di spurgare l'aria nel circuito e, in caso di valvole di massima, tarare le valvole limitatrici di pressione al minimo valore.

• Evitare partenze sotto carico in condizioni di bassa temperatura o di lunghi periodi di inattività.

• Per verificare l'effettivo riempimento sfiatare il circuito dopo un primo avviamento di qualche istante dove è stata attivata tutta la componentistica.

• Tenendo controllata la temperatura del fluido e delle parti in movimento e la velocità di rotazione è infine possibile aumentare la pressione fino al raggiungimento delle condizioni di esercizio previste che devono mantenersi entro i limiti indicati del presente catalogo.

• Evitare, in presenza di livelli di pressione di alimentazione superiori alla pressione massima continuativa, di sottoporre il motore ad un regime di rotazione inferiore a quello minimo consentito.

• With radial and/or axial loads on the pump shaft (such as when driving is carried out through pulleys or chains) use the available versions with strengthen shaft.

• The coupling joint between the spline shafts has to be properly lubricated, free to move axially and of a suitable length to cover both motor and pump shafts.

Installation notes:

• disconnect the drain pump to bleed off the air in the circuit and set the pressure relief valve at the minimum value (if it's installed).

• Do not start the system under load at low temperatures or after long stops.

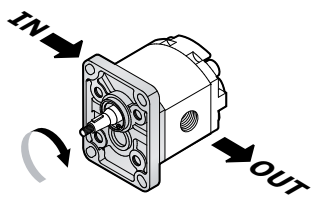
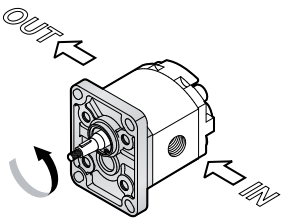
• Check the whole system filling by bleeding off the whole air amount after few minutes of system working.

• Increase the pressure until you reach the operating values by keeping checked the fluid and the moving parts temperature and the rotation speed. Maintain the set values within the limits depicted in this catalogue.

• Avoid lower rotation speed than min. allowed with a pressure higher than the continuous max pressure.

DEFINIZIONE DEL VERSO DI ROTAZIONE GUARDANDO L'ALBERO DI TRASCINAMENTO
DEFINITION OF ROTATION LOOKING AT THE DRIVE SHAFT

USCITA FLUIDO AD ALTA PRESSIONE
HIGH PRESSURE FLUID EXIT

D	ROTAZIONE DESTRA *CLOCKWISE ROTATION*	S	ROTAZIONE SINISTRA *COUNTER CLOCKWISE ROTATION*
Aspirazione - bassa pressione ***Suction*** *- low pressure*		**Mandata** - alta pressione ***Delivery*** *- high pressure*	
			
Mandata - alta pressione ***Delivery*** *- high pressure*		**Aspirazione** - bassa pressione ***Suction*** *- low pressure*	

SENSO DI ROTAZIONE • *WISE ROTATION*

Il senso di rotazione viene definito S (sinistro) e D (destro) osservando l'albero frontalmente. In caso di rotazione sinistra "S" l'aspirazione sarà a destra dell'albero di trascinamento mentre la mandata sarà alla sua sinistra; il contrario sarà per pompa monodirezionale destra "D". In fase di ordine è necessario precisare il senso di rotazione desiderato, oppure intervenire modificando l'assetto interno come illustrato di seguito (inversione).

The rotation direction is defined as S (left/anticlockwise) or D (right/clockwise) by observing the shaft from the front. In cases of anticlockwise rotation "S" the suction will be to the right of the drive shaft while the deliery will be to your left; otherwise it will be for monodirectional pump right "D". When ordering, it is necessary to specify the required direction of rotation; alternatively ir is possible to modify the internal structure as illustrated below (inversal).

POMPE AD INGRANAGGI INFORMAZIONI TECNICHE
GEAR PUMPS TECHNICAL INFORMATIONS

INVERSIONE • *REVERSAL*

Il senso di rotazione delle pompe è evidenziato da una freccia sulla targhetta.
La targhetta è posizionata sul corpo. (vedi pag.10)

L'inversione del senso di rotazione di una pompa si esegue nel seguente modo:

- Smontare la pompa come da fig. 1.
- Sfilare gli ingranaggi C e D e rimontarli secondo la fig. 2
- Rimontare la boccola B nella stessa posizione della fig. 1
- Capovolgere la flangia A e rimontare la pompa serrando le viti con una chiave dinamometrica.
- Per le pompe 3PG, smontare solo la flangia anteriore.

Pumps wise rotation is indicated by an arrow on the label.
The plate is placed on the body (see page 10).

How to invert the pump wise rotation:

- *Disassemble pump as shown in fig. 1.*
- *Pull off gears C - D and reassemble according to fig. 2.*
- *Reassemble bushing B as before.*
- *Reverse the flange A and reassemble the pump tightening the screws by dynamometric wrench.*
- *For the pumps 3GP, disassemble only front flange.*

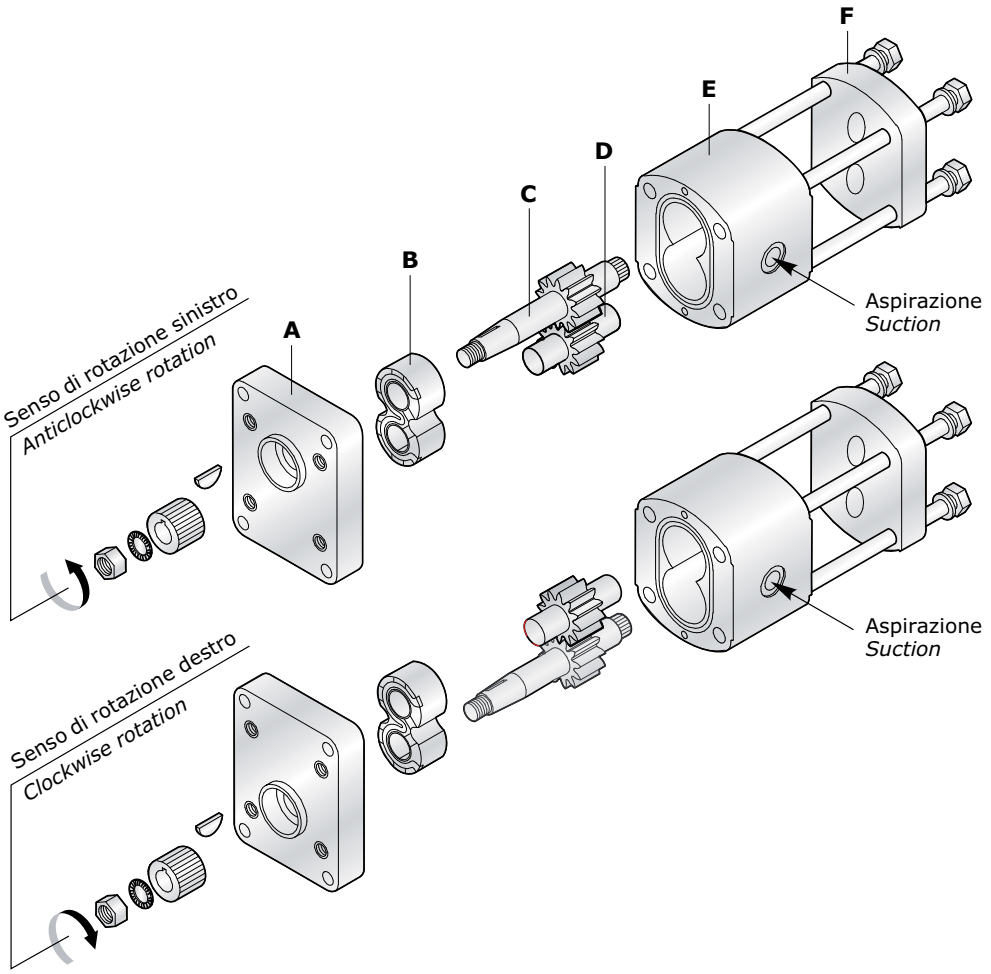
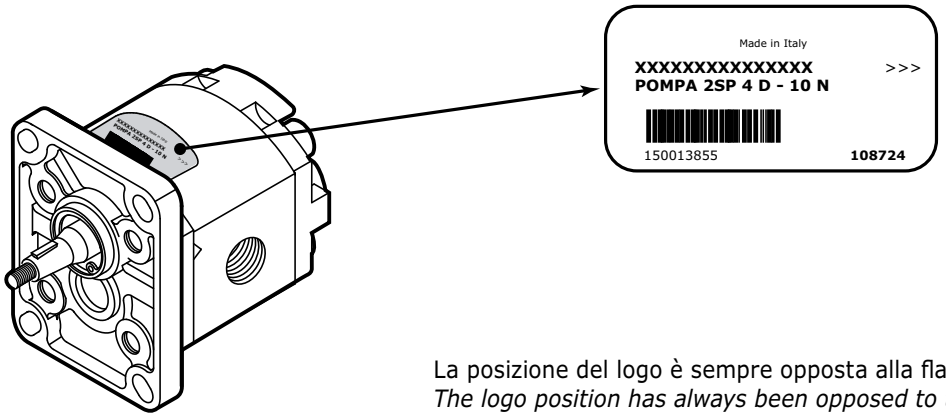


Fig. 1

Fig. 2

TARGHETTA • *PLATE*



La posizione del logo è sempre opposta alla flangia.
The logo position has always been opposed to the flange.

TIPO DI POMPA - *TYPE OF PUMP*	GRUPPO - *GROUP* **1SP**	GRUPPO - *GROUP* **2SP**	GRUPPO - *GROUP* **3GP**
Numero di viti ***numbers of screws***	4	4	16
Tipo di filetto ***Type of thread***	M8	M10	M10
Coppia di serraggio viti ***Tightening torque of screws***	30 Nm / *266 in-lbs*	50 Nm / *443 in-lbs*	60 Nm / *531 in-lbs*
Tipo di giunto ***Type of coupling***	1IS 12M	2IS 14M / 2IS 15M	3IS 18M
Coppia di serraggio dado giunto ***Tightening torque at nut coupling***	9 ÷ 10 Nm / *80 ÷ 90 in-lbs*	22 ÷ 25 Nm / *195 ÷ 221 in-lbs* 32 ÷ 35 Nm / *283 ÷ 310 in-lbs*	50 ÷ 55 Nm / *443 ÷ 487 in-lbs*

POMPE AD INGRANAGGI INFORMAZIONI TECNICHE
GEAR PUMPS TECHNICAL INFORMATIONS

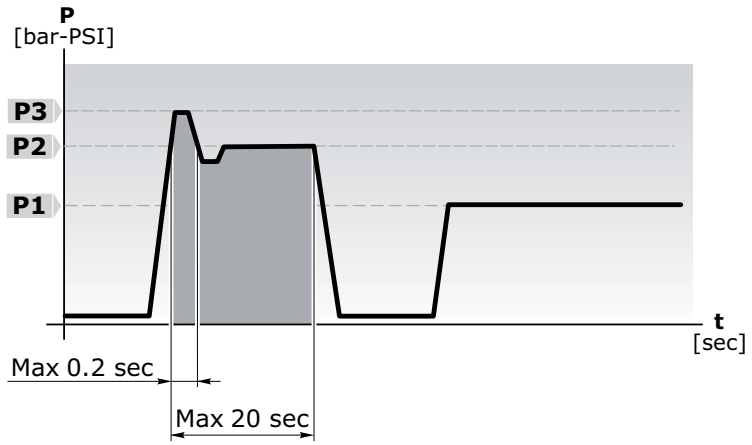
DEFINIZIONE DELLE PRESSIONI • *DEFINITION OF PRESSURES*

Le pompe possono essere sottoposte alle pressioni P1, P2, P3 indicate nelle tabelle delle prestazioni.

Il grafico seguente ne illustra le definizioni e l'applicabilità rispettando i limiti delle velocità di rotazione riportati.

The pumps can be subjected to the pressures P1, P2 or P3 indicated in the performance tables.

The following diagram illustrates the definitions and applicability of these, compared to the rotation speed limits included.



P3 Pressione massima di picco
Max peak pressure

P2 Pressione massima intermittente
Max intermittent pressure

P1 Pressione massima continua
Continuos max pressure

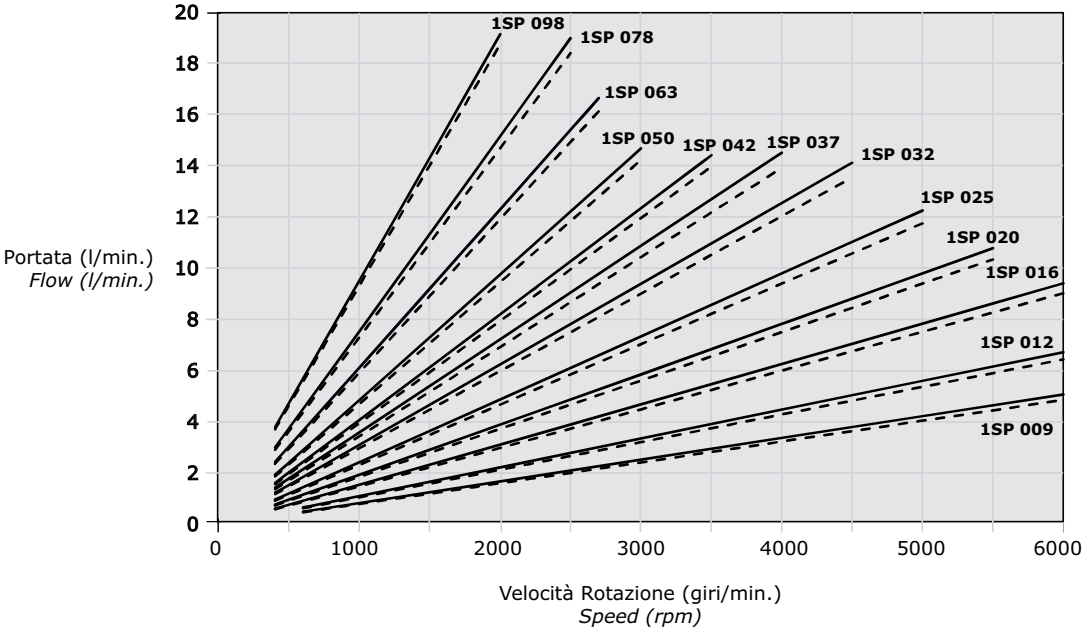
MISURE IDRAULICHE - *HYDRAULIC MEASURES*		
Q	Portata *Flow*	[l/min] [Gal/min]
M	Coppia *Torque*	[Nm] [lfb.in]
P	Potenza *Power*	[kW] [HP]
V	Cilindrata *Displacement*	[cm³/giro] [in³/rev]
n	Velocità *Speed*	[min⁻¹]
Δp	Pressione *Pressure*	[bar] [PSI]
η_v	Rendimento volumetrico *Volumetric efficiency*	
η_m	Rendimento meccanico *Mechanical efficiency*	
η_t	Rendimento totale *Overal efficiency*	

FORMULE UTILI - *USEFUL FORMULAS*		
Q =	$V \cdot \eta_v \cdot n / 1000$	[l/min]
	$V \cdot \eta_v \cdot n / 231$	[Gal/min]
M =	$\frac{\Delta p \cdot V}{63.83 \cdot \eta_m}$	[Nm]
	$\frac{\Delta p \cdot V}{2 \cdot 3.14 \cdot \eta_m}$	[lfb.in]
P =	$\frac{\Delta p \cdot V \cdot n}{600 \cdot 1000 \cdot \eta_t}$	[kW]
	$\frac{\Delta p \cdot V \cdot n}{395934 \cdot \eta_t}$	[HP]

FATTORE CONVERSIONE - *CONVERSION FACTOR*	
1 l/min	0.2641 US Gal/min
1 Nm	8.851 in-lbs
1 Nm	0.7375 ft-lbs
1 N	0.2248 lbs
1 kW	1.34 HP
1 cm³/giro	0.061 in³/rev
1 bar	14.5 PSI
1 mm	0.0394 in
1 kg	2.205 lbs

GRUPPO *GROUP* 1SP

DIAGRAMMA PORTATA - VELOCITÀ DI ROTAZIONE
FLOW - SPEED CHART

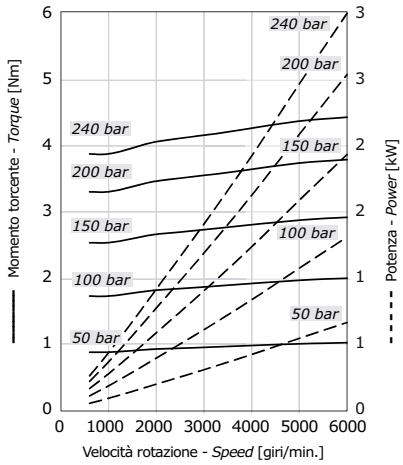


GRUPPO *GROUP* 1SP

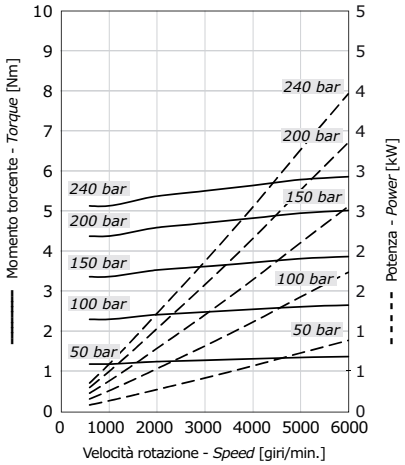
DIAGRAMMI POTENZE
POWER DIAGRAM

Grafici rilevati a banco di collaudo a 40°C con olio VG46
Diagrams collected on test bench at 40°C with VG46 mineral oil

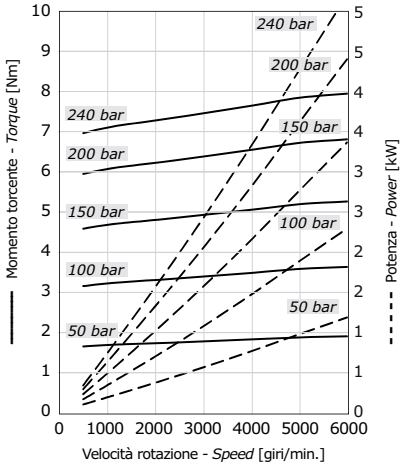
1SP 009



1SP 012

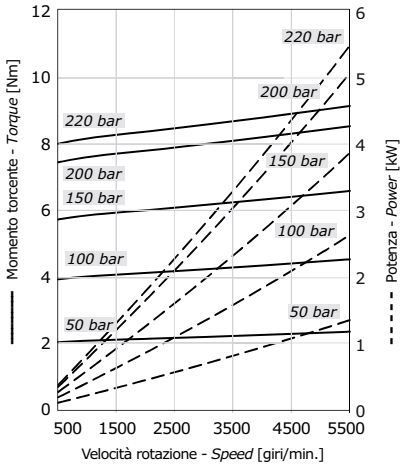


1SP 016

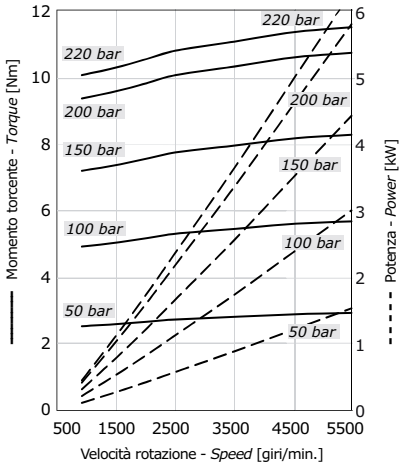


POMPE AD INGRANAGGI PRESTAZIONI
GEAR PUMPS PERFORMANCES

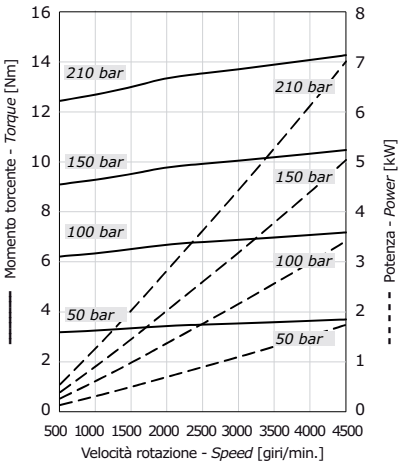
1SP 020



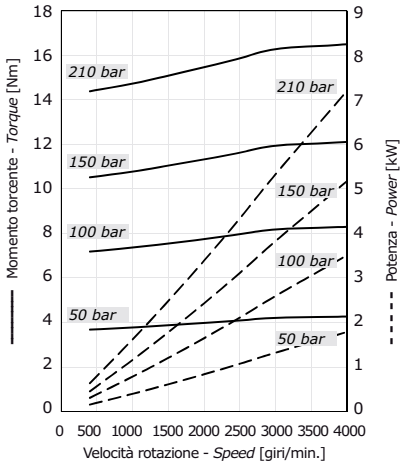
1SP 025



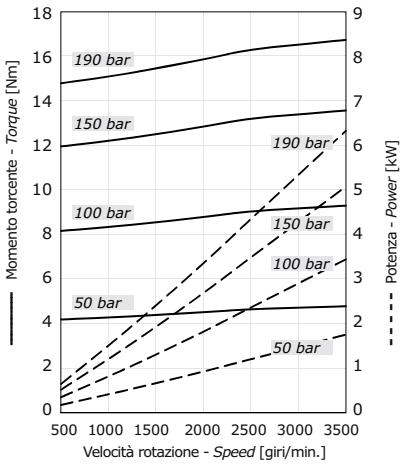
1SP 032



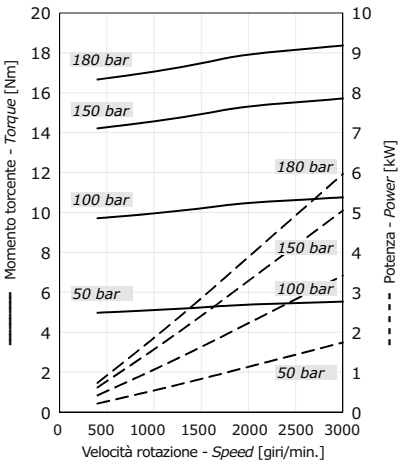
1SP 037



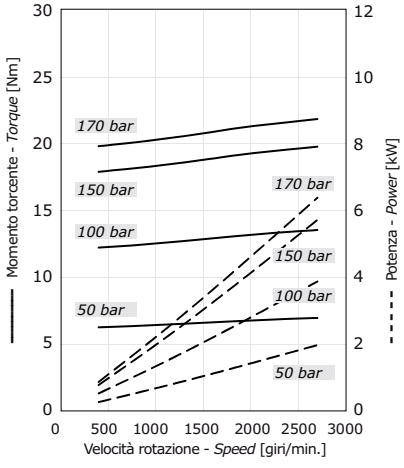
1SP 042



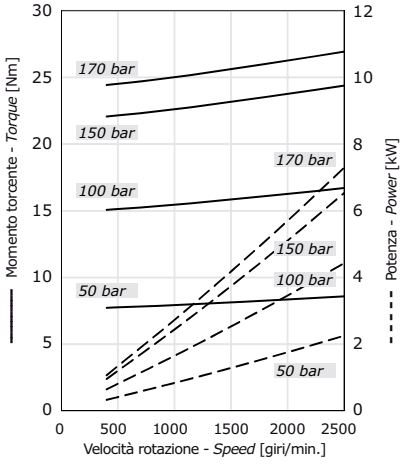
1SP 050



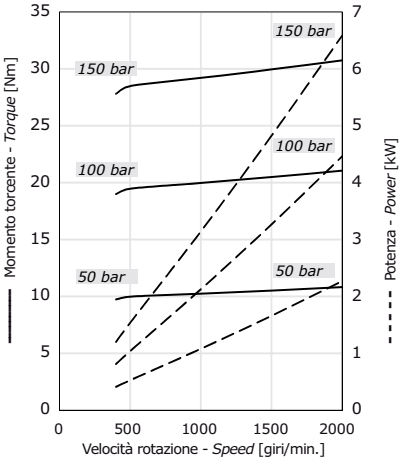
1SP 063



1SP 078

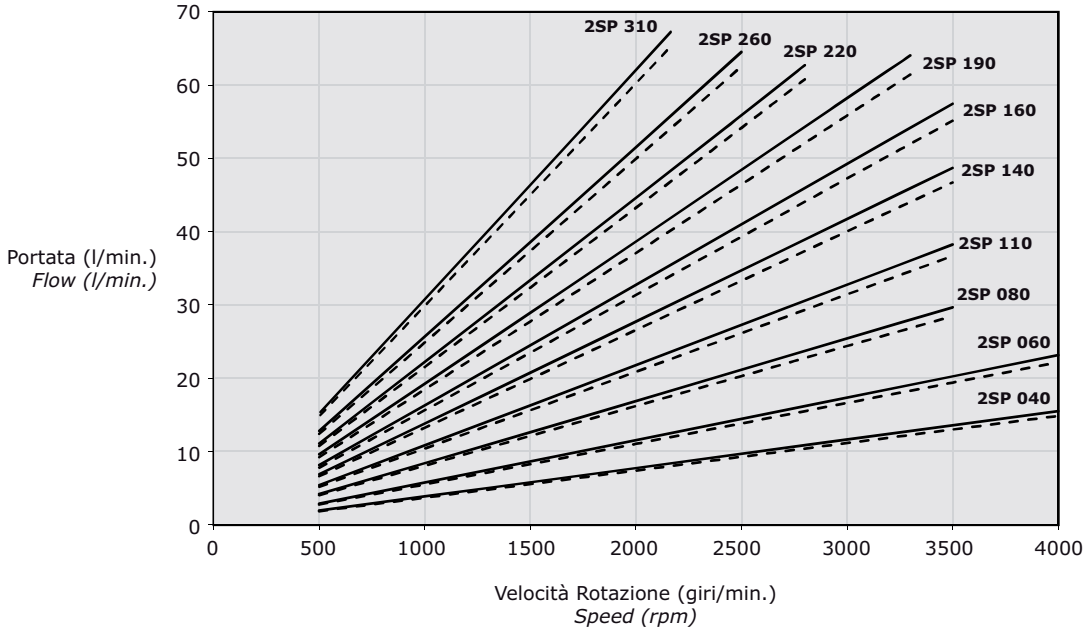


1SP 098



GRUPPO *GROUP* 2SP

DIAGRAMMA PORTATA - VELOCITÀ DI ROTAZIONE
FLOW - SPEED CHART

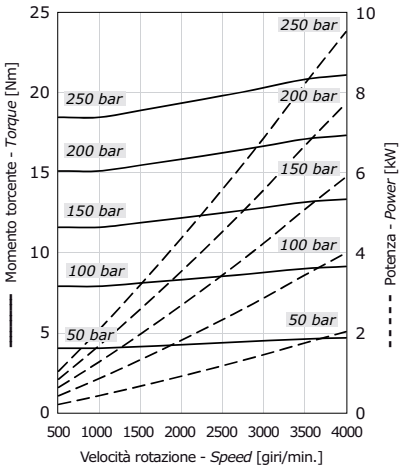


GRUPPO *GROUP* 2SP

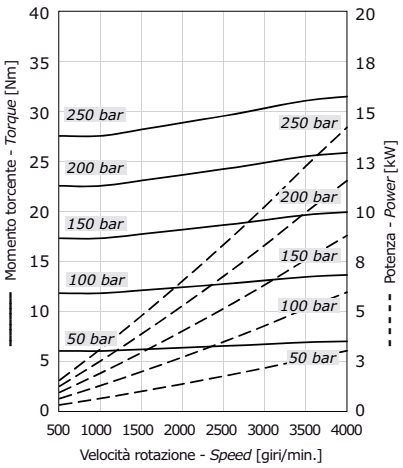
DIAGRAMMI POTENZE
POWER DIAGRAM

Grafici rilevati a banco di collaudo a 40°C con olio VG46
Diagrams collected on test bench at 40°C with VG46 mineral oil

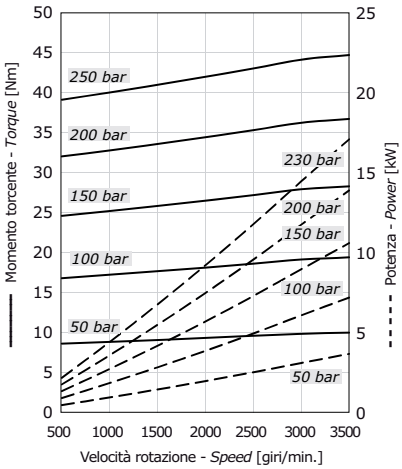
2SP 040



2SP 060

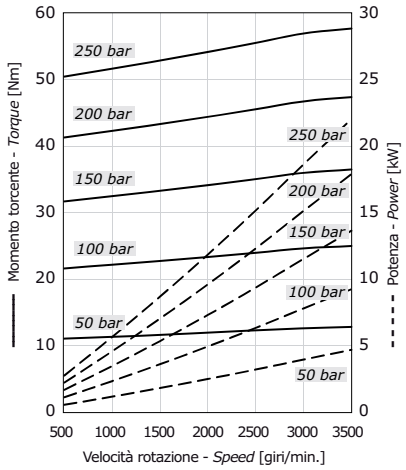


2SP 080

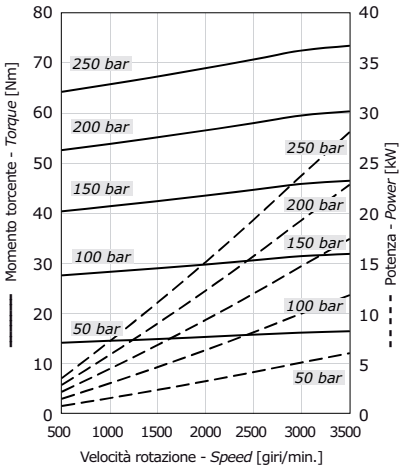


POMPE AD INGRANAGGI PRESTAZIONI
GEAR PUMPS PERFORMANCES

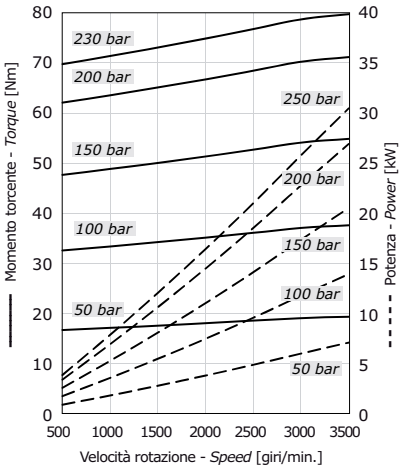
2SP 110



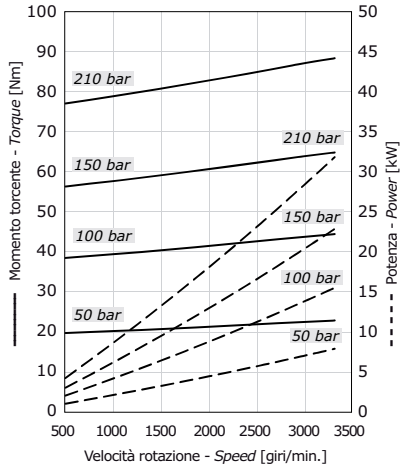
2SP 140



2SP 160



2SP 190



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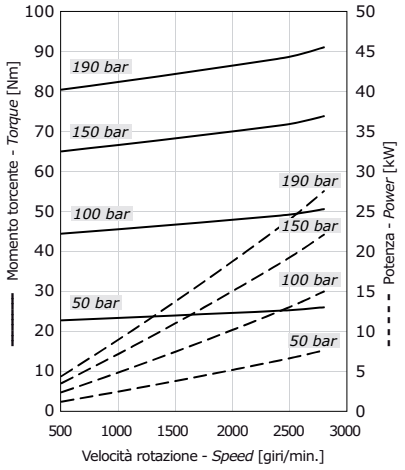
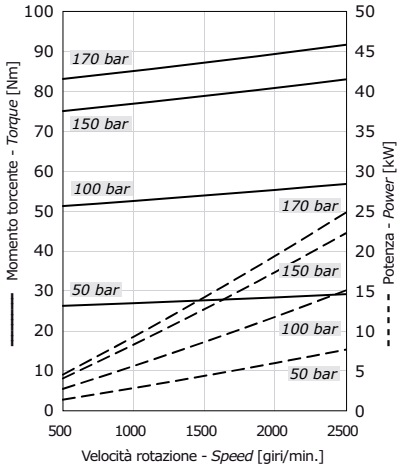
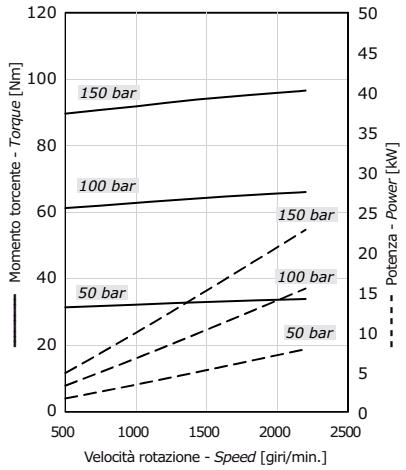


2SP 260

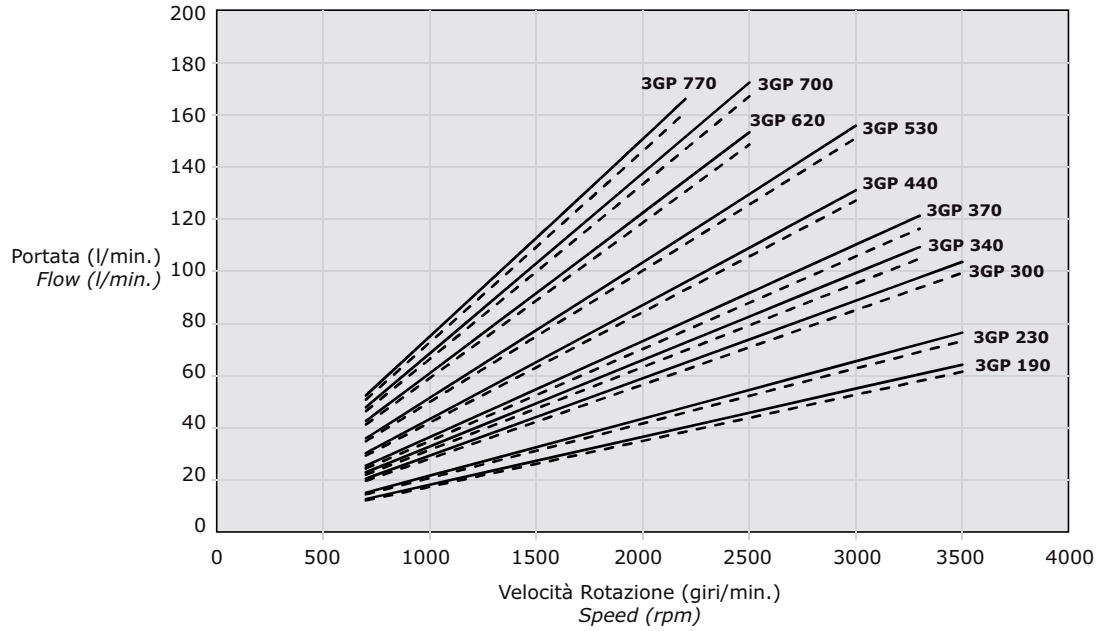


2SP 310



GRUPPO *GROUP* 3GP

DIAGRAMMA PORTATA - VELOCITÀ DI ROTAZIONE
FLOW - SPEED CHART

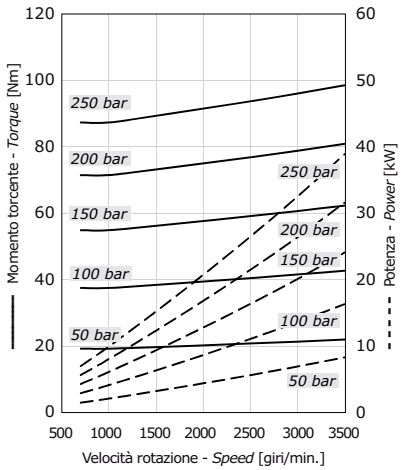


GRUPPO *GROUP* 3GP

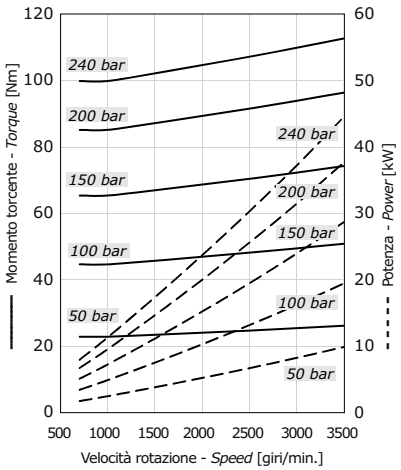
DIAGRAMMI POTENZE
POWER DIAGRAM

Grafici rilevati a banco di collaudo a 40°C con olio VG46
Diagrams collected on test bench at 40°C with VG46 mineral oil

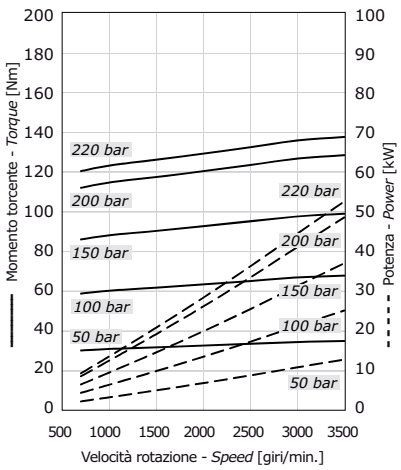
3GP 190



3GP 230

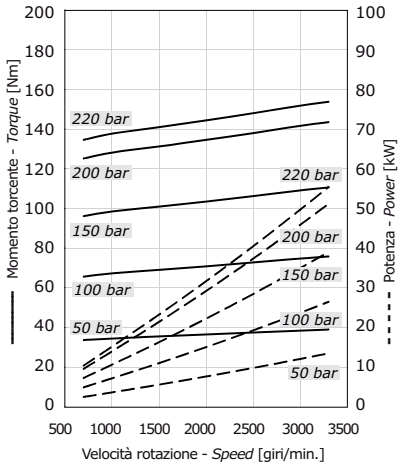


3GP 300

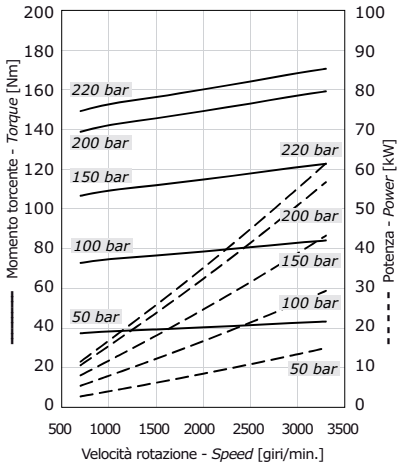


POMPE AD INGRANAGGI PRESTAZIONI
GEAR PUMPS PERFORMANCES

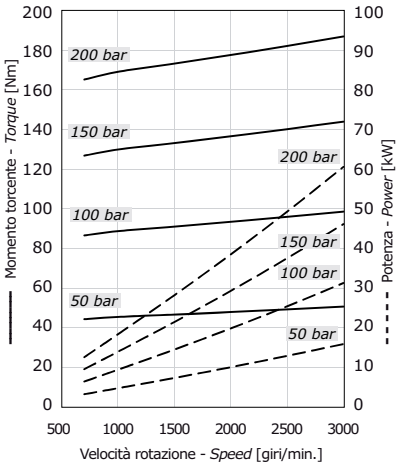
3GP 340



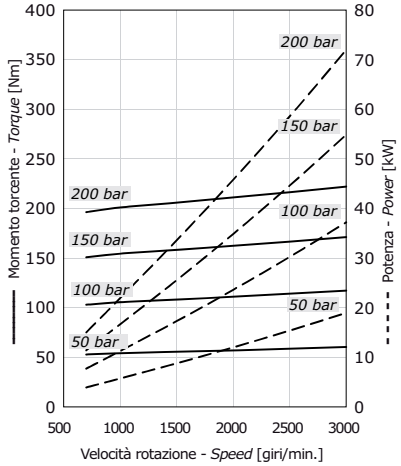
3GP 370



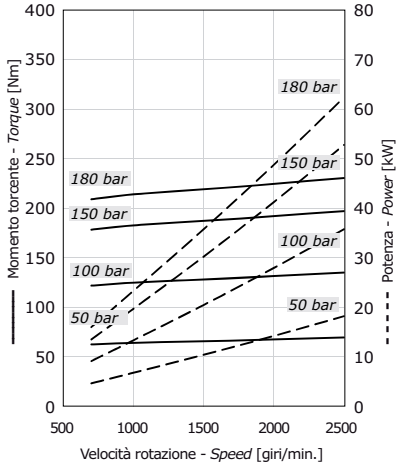
3GP 440



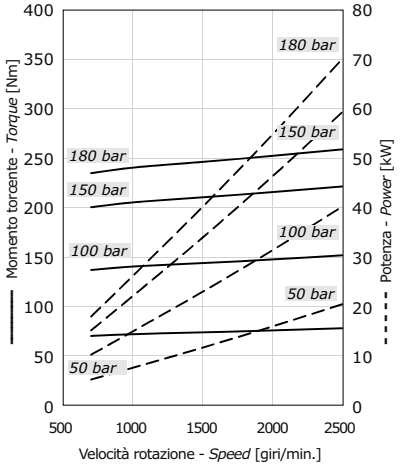
3GP 530



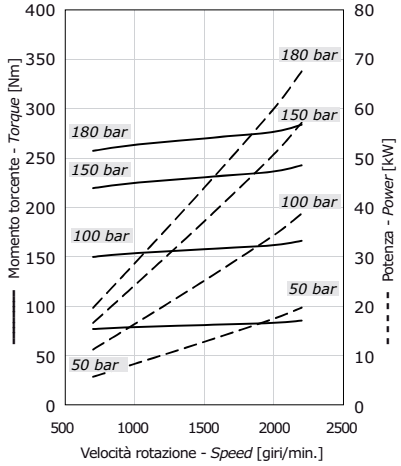
3GP 620



3GP 700



3GP 770

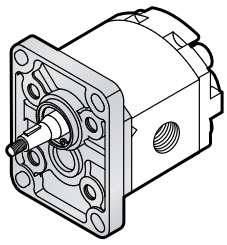


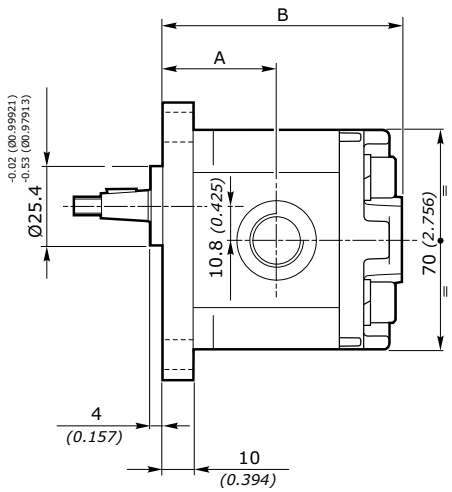
POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

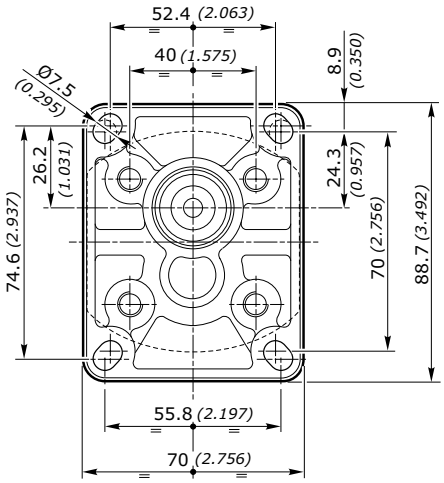
FLANGIA EUROPEA EUR *STANDARD FLANGE*

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*bar*	*psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
1SP 009	0.89	*0.05*	240	*3480*	260	*3770*	290	*4205*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SP 012	1.18	*0.07*	240	*3480*	260	*3770*	290	*4205*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SP 016	1.6	*0.10*	240	*3480*	260	*3770*	290	*4205*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SP 020	2.0	*0.12*	220	*3190*	250	*3625*	270	*3915*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SP 025	2.5	*0.15*	220	*3190*	250	*3625*	270	*3915*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SP 032	3.2	*0.20*	210	*3045*	240	*3480*	260	*3770*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SP 037	3.7	*0.23*	210	*3045*	240	*3480*	260	*3770*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SP 042	4.2	*0.26*	190	*2755*	210	*3045*	230	*3335*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SP 050	5.0	*0.31*	180	*2610*	210	*3045*	230	*3335*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SP 063	6.3	*0.38*	170	*2465*	190	*2755*	210	*3045*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SP 078	7.76	*0.47*	170	*2465*	190	*2755*	210	*3045*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SP 098	9.78	*0.60*	150	*2175*	170	*2465*	190	*2755*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*







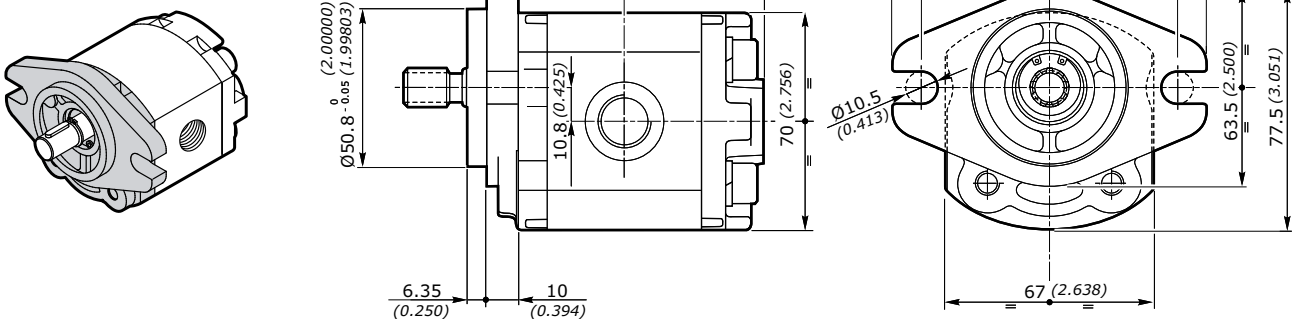
GRUPPO - GROUP 1	A		B		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*kg*	*lbs*
1SP 009	34.80	*1.370*	73.6	*2.898*	0.91	*2.01*
1SP 012	35.35	*1.392*	74.7	*2.941*	0.93	*2.05*
1SP 016	36.20	*1.425*	76.4	*3.008*	0.95	*2.09*
1SP 020	36.95	*1.455*	77.9	*3.067*	0.97	*2.14*
1SP 025	37.95	*1.494*	79.9	*3.146*	1.00	*2.21*
1SP 032	39.30	*1.547*	82.6	*3.252*	1.04	*2.29*
1SP 037	40.30	*1.587*	84.6	*3.331*	1.07	*2.36*
1SP 042	41.25	*1.624*	86.5	*3.406*	1.10	*2.43*
1SP 050	42.80	*1.685*	89.6	*3.528*	1.14	*2.51*
1SP 063	45.35	*1.785*	94.7	*3.728*	1.22	*2.69*
1SP 078	48.20	*1.898*	100.4	*3.953*	1.30	*2.87*
1SP 098	52.15	*2.053*	108.3	*4.264*	1.41	*3.11*

POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

FLANGIA SAE SAEAA *SAE FLANGE*

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SP 009	0.89	*0.05*	240	*3480*	260	*3770*	290	*4205*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SP 012	1.18	*0.07*	240	*3480*	260	*3770*	290	*4205*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SP 016	1.6	*0.10*	240	*3480*	260	*3770*	290	*4205*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SP 020	2.0	*0.12*	220	*3190*	250	*3625*	270	*3915*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SP 025	2.5	*0.15*	220	*3190*	250	*3625*	270	*3915*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SP 032	3.2	*0.20*	210	*3045*	240	*3480*	260	*3770*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SP 037	3.7	*0.23*	210	*3045*	240	*3480*	260	*3770*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SP 042	4.2	*0.26*	190	*2755*	210	*3045*	230	*3335*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SP 050	5.0	*0.31*	180	*2610*	210	*3045*	230	*3335*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SP 063	6.3	*0.38*	170	*2465*	190	*2755*	210	*3045*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SP 078	7.76	*0.47*	170	*2465*	190	*2755*	210	*3045*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SP 098	9.78	*0.60*	150	*2175*	170	*2465*	190	*2755*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*

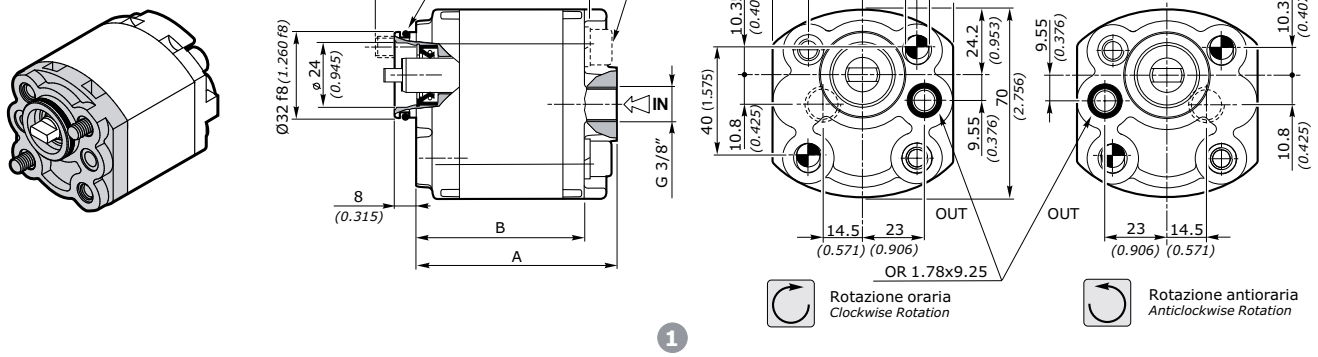


GRUPPO - GROUP 1	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
1SP 009	38.30	*1.508*	77.10	*3.035*	0.91	*2.01*
1SP 012	38.85	*1.530*	78.20	*3.079*	0.93	*2.05*
1SP 016	39.70	*1.563*	79.90	*3.146*	0.95	*2.09*
1SP 020	40.45	*1.593*	81.40	*3.205*	0.97	*2.14*
1SP 025	41.45	*1.632*	83.40	*3.283*	1.00	*2.21*
1SP 032	42.80	*1.685*	86.10	*3.390*	1.04	*2.29*
1SP 037	43.80	*1.724*	88.10	*3.469*	1.07	*2.36*
1SP 042	44.75	*1.762*	90.00	*3.543*	1.10	*2.43*
1SP 050	46.30	*1.823*	93.10	*3.665*	1.14	*2.51*
1SP 063	48.85	*1.923*	98.20	*3.866*	1.22	*2.69*
1SP 078	51.70	*2.035*	103.90	*4.091*	1.30	*2.87*
1SP 098	55.65	*2.191*	111.80	*4.402*	1.41	*3.11*

FLANGIA PER MINICENTRALINA MC32 *POWER-PACK FLANGE*

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*bar*	*psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
1SP 009	0.89	*0.05*	210	*3045*	240	*3480*	260	*3770*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SP 012	1.18	*0.07*	210	*3045*	240	*3480*	260	*3770*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SP 016	1.6	*0.10*	210	*3045*	240	*3480*	260	*3770*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SP 020	2.0	*0.12*	210	*3045*	240	*3480*	260	*3770*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SP 025	2.5	*0.15*	210	*3045*	240	*3480*	260	*3770*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SP 032	3.2	*0.20*	200	*2900*	230	*3335*	250	*3625*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SP 037	3.7	*0.23*	200	*2900*	230	*3335*	250	*3625*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SP 042	4.2	*0.26*	180	*2610*	210	*3045*	230	*3335*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SP 050	5.0	*0.31*	180	*2610*	210	*3045*	230	*3335*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SP 063	6.3	*0.38*	170	*2465*	190	*2755*	210	*3045*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SP 078	7.76	*0.47*	170	*2465*	190	*2755*	210	*3045*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SP 098	9.78	*0.60*	150	*2175*	170	*2465*	190	*2755*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*



1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare la pompa mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
Ordering code: ***0019W*** *(+ lenght* ***L*** *- see table)*

The assembling of the pump should be effected by 2 screw (221 ± 18 lb-in).
Fix the pump by self-locking nuts (283 ± 18 lb-in).

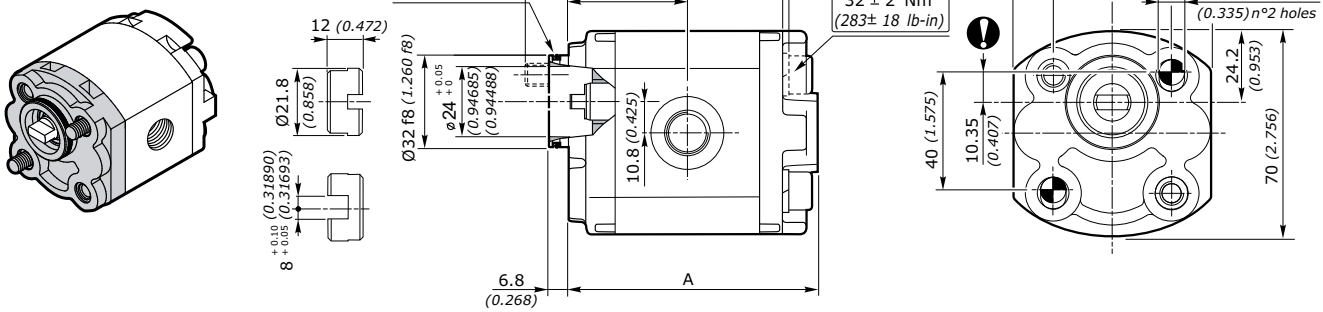
GRUPPO - GROUP 1	A		B		L 1		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*mm*	*inch*	*kg*	*lbs*
1SP 009	73.1	*2.878*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SP 012	74.2	*2.921*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SP 016	75.9	*2.988*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SP 020	77.4	*3.047*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SP 025	79.4	*3.126*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SP 032	82.1	*3.232*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SP 037	84.1	*3.311*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SP 042	86.0	*3.386*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SP 050	89.1	*3.508*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SP 063	94.2	*3.709*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SP 078	99.9	*3.933*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SP 098	107.8	*4.244*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

FLANGIA TEDESCA FISSAGGIO MINICENTRALINA **E32BX** *POWER-PACK FIXING GERMAN FLANGE*

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SP 009	0.89	0.05	210	3045	240	3480	260	3770	6000	5.3	1.40	600	0.49	0.13	92*
1SP 012	1.18	0.07	210	3045	240	3480	260	3770	6000	7.1	1.88	600	0.65	0.17	92*
1SP 016	1.6	0.10	210	3045	240	3480	260	3770	6000	9.6	2.54	400	0.61	0.16	95*
1SP 020	2.0	0.12	210	3045	240	3480	260	3770	5500	11	2.91	400	0.76	0.20	95*
1SP 025	2.5	0.15	210	3045	240	3480	260	3770	5000	12.5	3.30	400	0.95	0.25	95*
1SP 032	3.2	0.20	200	2900	230	3335	250	3625	4500	14.4	3.80	400	1.21	0.32	95*
1SP 037	3.7	0.23	200	2900	230	3335	250	3625	4000	14.8	3.91	400	1.40	0.37	95*
1SP 042	4.2	0.26	180	2610	210	3045	230	3335	3500	14.7	3.88	400	1.60	0.42	95*
1SP 050	5.0	0.31	180	2610	210	3045	230	3335	3000	15	3.96	400	1.90	0.50	95*
1SP 063	6.3	0.38	170	2465	190	2755	210	3045	2700	17	4.49	400	2.39	0.63	95*
1SP 078	7.76	0.47	170	2465	190	2755	210	3045	2500	19.4	5.13	400	2.95	0.78	95*
1SP 098	9.78	0.60	150	2175	170	2465	190	2755	2000	19.6	5.18	400	3.71	0.98	95*

DIMENSIONI • *DIMENSIONS*



1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare la pompa mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

The assembling of the pump should be effected by 2 screw (221 ± 18 lb-in).
Fix the pump by self-locking nuts (283 ± 18 lb-in).

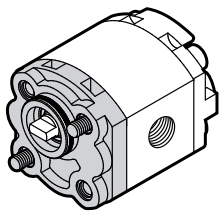
GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
1SP 009	73.6	2.898	34.80	1.370	61.6	2.425	80	3.150	0.91	2.01
1SP 012	74.7	2.941	35.35	1.392	62.7	2.469	80	3.150	0.93	2.05
1SP 016	76.4	3.008	36.20	1.425	64.4	2.535	80	3.150	0.95	2.09
1SP 020	77.9	3.067	36.95	1.455	65.9	2.594	80	3.150	0.97	2.14
1SP 025	79.9	3.146	37.95	1.494	67.9	2.673	85	3.346	1.00	2.21
1SP 032	82.6	3.252	39.30	1.547	70.6	2.780	85	3.346	1.04	2.29
1SP 037	84.6	3.331	40.30	1.587	72.6	2.858	90	3.543	1.07	2.36
1SP 042	86.5	3.406	41.25	1.624	74.5	2.933	90	3.543	1.10	2.43
1SP 050	89.6	3.528	42.80	1.685	77.6	3.055	95	3.740	1.14	2.51
1SP 063	94.7	3.728	45.35	1.785	82.7	3.256	100	3.937	1.22	2.69
1SP 078	100.4	3.953	48.20	1.898	88.4	3.480	105	4.134	1.30	2.87
1SP 098	108.3	4.264	52.15	2.053	96.3	3.791	115	4.528	1.41	3.11

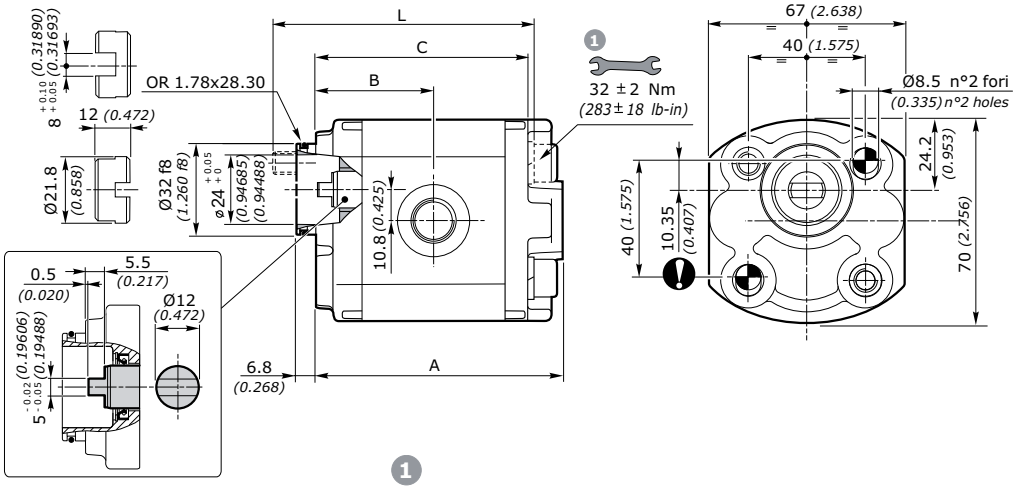
POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

FLANGIA TEDESCA FISSAGGIO MINICENTRALINA CON ANELLO DI TENUTA **E32BC** ***POWER-PACK FIXING GERMAN FLANGE WITH SEAL SHAFT***

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SP 009	0.89	0.05	210	3045	240	3480	260	3770	6000	5.3	1.40	600	0.49	0.13	92*
1SP 012	1.18	0.07	210	3045	240	3480	260	3770	6000	7.1	1.88	600	0.65	0.17	92*
1SP 016	1.6	0.10	210	3045	240	3480	260	3770	6000	9.6	2.54	400	0.61	0.16	95*
1SP 020	2.0	0.12	210	3045	240	3480	260	3770	5500	11	2.91	400	0.76	0.20	95*
1SP 025	2.5	0.15	210	3045	240	3480	260	3770	5000	12.5	3.30	400	0.95	0.25	95*
1SP 032	3.2	0.20	200	2900	230	3335	250	3625	4500	14.4	3.80	400	1.21	0.32	95*
1SP 037	3.7	0.23	200	2900	230	3335	250	3625	4000	14.8	3.91	400	1.40	0.37	95*
1SP 042	4.2	0.26	180	2610	210	3045	230	3335	3500	14.7	3.88	400	1.60	0.42	95*
1SP 050	5.0	0.31	180	2610	210	3045	230	3335	3000	15	3.96	400	1.90	0.50	95*
1SP 063	6.3	0.38	170	2465	190	2755	210	3045	2700	17	4.49	400	2.39	0.63	95*
1SP 078	7.76	0.47	170	2465	190	2755	210	3045	2500	19.4	5.13	400	2.95	0.78	95*
1SP 098	9.78	0.60	150	2175	170	2465	190	2755	2000	19.6	5.18	400	3.71	0.98	95*

DIMENSIONI • *DIMENSIONS*





1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare la pompa mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

The assembling of the pump should be effected by 2 screw (221 ± 18 lb-in).
Fix the pump by self-locking nuts (283 ± 18 lb-in).

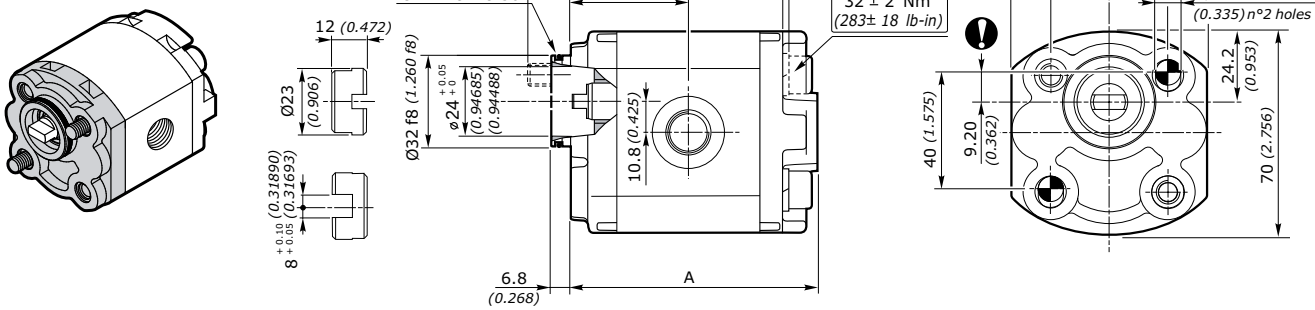
GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
1SP 009	73.6	2.898	34.80	1.370	61.6	2.425	80	3.150	0.91	2.01
1SP 012	74.7	2.941	35.35	1.392	62.7	2.469	80	3.150	0.93	2.05
1SP 016	76.4	3.008	36.20	1.425	64.4	2.535	80	3.150	0.95	2.09
1SP 020	77.9	3.067	36.95	1.455	65.9	2.594	80	3.150	0.97	2.14
1SP 025	79.9	3.146	37.95	1.494	67.9	2.673	85	3.346	1.00	2.21
1SP 032	82.6	3.252	39.30	1.547	70.6	2.780	85	3.346	1.04	2.29
1SP 037	84.6	3.331	40.30	1.587	72.6	2.858	90	3.543	1.07	2.36
1SP 042	86.5	3.406	41.25	1.624	74.5	2.933	90	3.543	1.10	2.43
1SP 050	89.6	3.528	42.80	1.685	77.6	3.055	95	3.740	1.14	2.51
1SP 063	94.7	3.728	45.35	1.785	82.7	3.256	100	3.937	1.22	2.69
1SP 078	100.4	3.953	48.20	1.898	88.4	3.480	105	4.134	1.30	2.87
1SP 098	108.3	4.264	52.15	2.053	96.3	3.791	115	4.528	1.41	3.11

POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

FLANGIA PER ELETTROPOMPA E32CX *ELECTRO-PUMP FLANGE*

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SP 009	0.89	*0.05*	210	*3045*	240	*3480*	260	*3770*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SP 012	1.18	*0.07*	210	*3045*	240	*3480*	260	*3770*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SP 016	1.6	*0.10*	210	*3045*	240	*3480*	260	*3770*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SP 020	2.0	*0.12*	210	*3045*	240	*3480*	260	*3770*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SP 025	2.5	*0.15*	210	*3045*	240	*3480*	260	*3770*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SP 032	3.2	*0.20*	200	*2900*	230	*3335*	250	*3625*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SP 037	3.7	*0.23*	200	*2900*	230	*3335*	250	*3625*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SP 042	4.2	*0.26*	180	*2610*	210	*3045*	230	*3335*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SP 050	5.0	*0.31*	180	*2610*	210	*3045*	230	*3335*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SP 063	6.3	*0.38*	170	*2465*	190	*2755*	210	*3045*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SP 078	7.76	*0.47*	170	*2465*	190	*2755*	210	*3045*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SP 098	9.78	*0.60*	150	*2175*	170	*2465*	190	*2755*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*



1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare la pompa mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

The assembling of the pump should be effected by 2 screw (221 ± 18 lb-in).
Fix the pump by self-locking nuts (283 ± 18 lb-in).

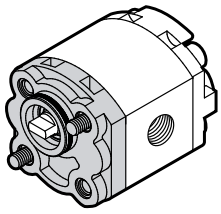
GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
1SP 009	73.6	*2.898*	34.80	*1.370*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SP 012	74.7	*2.941*	35.35	*1.392*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SP 016	76.4	*3.008*	36.20	*1.425*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SP 020	77.9	*3.067*	36.95	*1.455*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SP 025	79.9	*3.146*	37.95	*1.494*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SP 032	82.6	*3.252*	39.30	*1.547*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SP 037	84.6	*3.331*	40.30	*1.587*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SP 042	86.5	*3.406*	41.25	*1.624*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SP 050	89.6	*3.528*	42.80	*1.685*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SP 063	94.7	*3.728*	45.35	*1.785*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SP 078	100.4	*3.953*	48.20	*1.898*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SP 098	108.3	*4.264*	52.15	*2.053*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

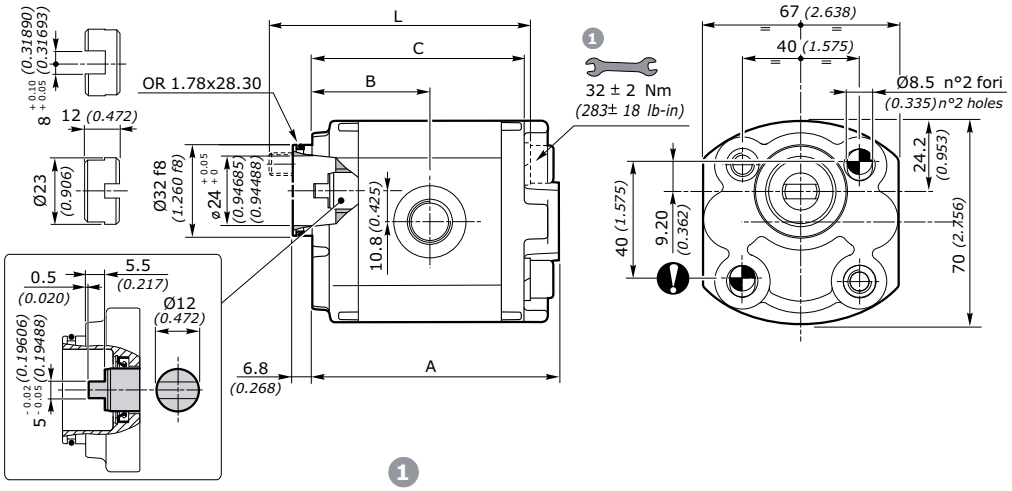
POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

FLANGIA PER ELETTROPOMPA CON ANELLO DI TENUTA **E32CC** ***ELECTRO-PUMP FLANGE WITH SEAL SHAFT***

GRUPPO GROUP 1SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*bar*	*psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
1SP 009	0.89	*0.05*	210	*3045*	240	*3480*	260	*3770*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SP 012	1.18	*0.07*	210	*3045*	240	*3480*	260	*3770*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SP 016	1.6	*0.10*	210	*3045*	240	*3480*	260	*3770*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SP 020	2.0	*0.12*	210	*3045*	240	*3480*	260	*3770*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SP 025	2.5	*0.15*	210	*3045*	240	*3480*	260	*3770*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SP 032	3.2	*0.20*	200	*2900*	230	*3335*	250	*3625*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SP 037	3.7	*0.23*	200	*2900*	230	*3335*	250	*3625*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SP 042	4.2	*0.26*	180	*2610*	210	*3045*	230	*3335*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SP 050	5.0	*0.31*	180	*2610*	210	*3045*	230	*3335*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SP 063	6.3	*0.38*	170	*2465*	190	*2755*	210	*3045*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SP 078	7.76	*0.47*	170	*2465*	190	*2755*	210	*3045*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SP 098	9.78	*0.60*	150	*2175*	170	*2465*	190	*2755*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*





1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio della pompa può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare la pompa mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
Ordering code: ***0019W*** *(+ lenght* ***L*** *- see table)*

The assembling of the pump should be effected by 2 screw (221 ± 18 lb-in).
Fix the pump by self-locking nuts (283 ± 18 lb-in).

GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*kg*	*lbs*
1SP 009	73.6	*2.898*	34.80	*1.370*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SP 012	74.7	*2.941*	35.35	*1.392*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SP 016	76.4	*3.008*	36.20	*1.425*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SP 020	77.9	*3.067*	36.95	*1.455*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SP 025	79.9	*3.146*	37.95	*1.494*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SP 032	82.6	*3.252*	39.30	*1.547*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SP 037	84.6	*3.331*	40.30	*1.587*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SP 042	86.5	*3.406*	41.25	*1.624*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SP 050	89.6	*3.528*	42.80	*1.685*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SP 063	94.7	*3.728*	45.35	*1.785*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SP 078	100.4	*3.953*	48.20	*1.898*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SP 098	108.3	*4.264*	52.15	*2.053*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

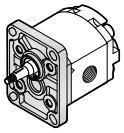
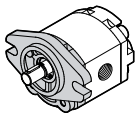
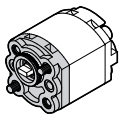
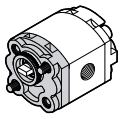
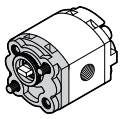
POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

CODICE ORDINAZIONE • *ORDER CODE*

1SP - A - 020 - D - EUR - B - N - 10 - 0 - G

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
1SP	Tipo pompa *Pump type*	Pompa singola - gruppo 1 *Single pump - group 1*	6
A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
020	Cilindrata *Displacement*	Cilindrata = 2 cm^3/giro *Displacement = 0.12 in^3/rev*	6
D	Senso di rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	28
B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	29
0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	32
G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

TIPOLOGIA FLANGIA • *FLANGE TYPE*

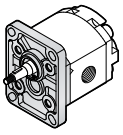
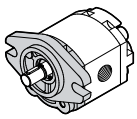
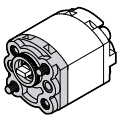
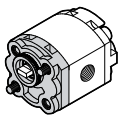
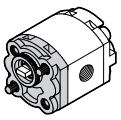
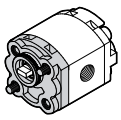
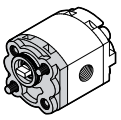
1SP	EUR	SAEAA	MC32	E32BX - E32BC	E32CX - E32CC
					
A alluminio *aluminium*	◇	◇	◇	◇	◇
G ghisa *cast iron*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*

◇ = Combinazione standard - *Standard combination*

ANELLO DI TENUTA • *SEAL RING*

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*
A	Flangia senza anello di tenuta *Flange without seal ring*	
B	Anello di tenuta fino a **3** bar *Sealing ring up to **3** bar*	Per bassissime pressioni *For very low pressure*
H	Anello di tenuta fino a **8** bar *Sealing ring up to **8** bar*	Per basse pressioni (con distanziale di rinforzo) *For low pressure (with stiffering seal)*
K	Anello di tenuta fino a **30** bar *Sealing ring up to **30** bar*	Per alte pressioni *For high pressure*

COMBINAZIONE FLANGIA - ANELLO DI TENUTA - GUARNIZIONE • *FLANGE - SEAL RING - GASKET COMBINATION*

1SP	EUR			SAEAA			MC32			E32BX	E32BC		E32CX	E32CC	
															
	Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*	Anello - *seal ring*		Anello - *seal ring*	Anello - *seal ring*	
	B	**H**	**K**	**B**	**H**	**K**	**B**	**H**	**K**	**A**	**B**	**K**	**A**	**B**	**K**
NBR **N**	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	●	◇	◇	●
Viton **V**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

◇ = Combinazione standard - *Standard combination*

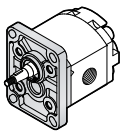
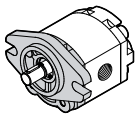
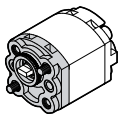
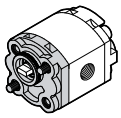
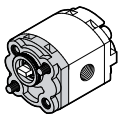
● = Combinazione disponibile - *Available combination*

esempio • *example:* **1SP - A - 020 - D - EUR - B - N - 10 - 0 - G**

EUR = Flangia europea / *European flange*
B = Anello tenuta fino a 3 bar / Seal ring up to 3 *bar*
N = *Guarnizione in NBR / NBR o-ring*

POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

COMBINAZIONE ALBERO - FLANGIA ● *SHAFT - FLANGE COMBINATION*

1SP	EUR	SAEAA	MC32	E32BX-E32BC	E32CX-E32CC
					
10 Conico 1:8 *Tapered 1:8*	◇	●	●		
11 Conico 1:5 *Tapered 1:5*	●	●	●		
13 Cilindrico SAEAA *Parallel shaft SAEAA*	●	◇			
14 Scanalato SAEAA 9 denti *SAEAA 9T splined*	●	◇			
15 Scanalato DIN 5480 6 denti 12x9 *DIN 5480 Splined*	●	●	●		
17 Fresato a dente frontale *Dihedral claw*				◇	◇
27 Fresato a dente frontale (con anello) *Dihedral claw (with sealing ring)*	●	●	◇		

◇ = Combinazione standard - *Standard combination*

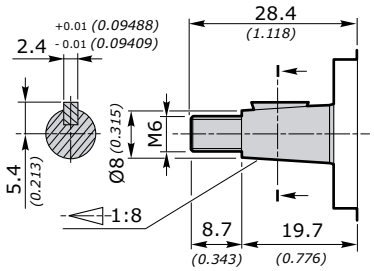
● = Combinazione disponibile - *Available combination*

1SP

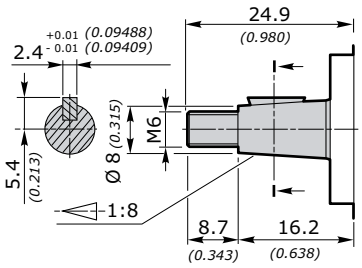
DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

10
Conico 1:8
Tapered 1:8

Coppia 30 Nm
Torque 22 ft-lbs



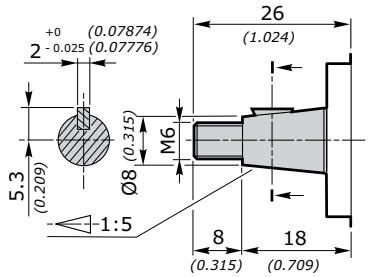
Disponibile per - *available for:* **EUR - MC32**



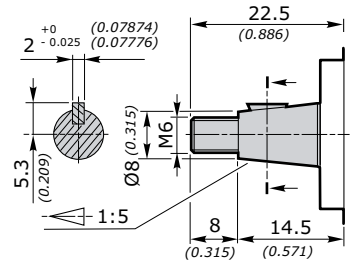
Disponibile per - *available for:* **SAEAA**

11
Conico 1:5
Tapered 1:5

Coppia 30 Nm
Torque 22 ft-lbs



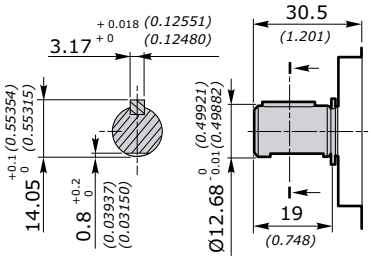
Disponibile per - *available for:* **EUR - MC32**



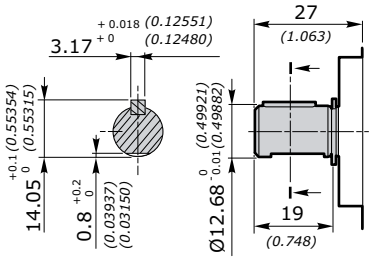
Disponibile per - *available for:* **SAEAA**

13
Cilindrico
SAEAA
Parallel shaft
SAEAA

Coppia 35 Nm
Torque 26 ft-lbs



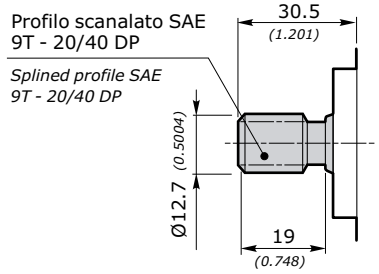
Disponibile per - *available for:* **EUR**



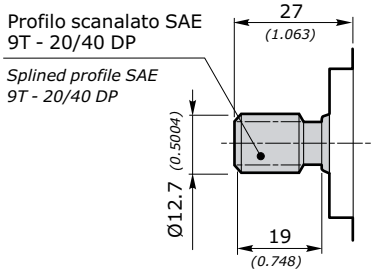
Disponibile per - *available for:* **SAEAA**

14
Scanalato
SAEAA 9 denti
SAEAA
9T splined

Coppia 40 Nm
Torque 30 ft-lbs



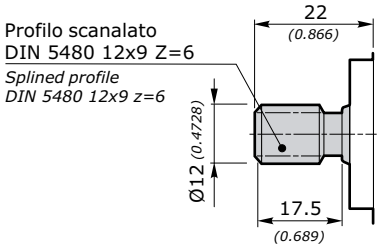
Disponibile per - *available for:* **EUR**



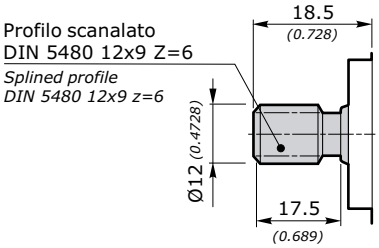
Disponibile per - *available for:* **SAEAA**

15
Scanalato
DIN 5480
6 denti 12x9
DIN 5480
splined

Coppia 30 Nm
Torque 22 ft-lbs



Disponibile per - *available for:* **EUR - MC32**



Disponibile per - *available for:* **SAEAA**

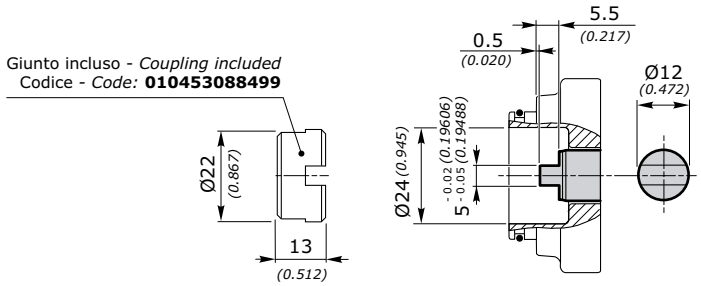
POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

1SP

DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

17
Fresato
a dente frontale
Dihedral craw

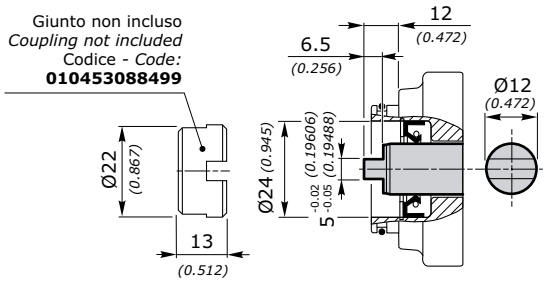
Coppia 25 Nm
Torque 19 ft-lbs



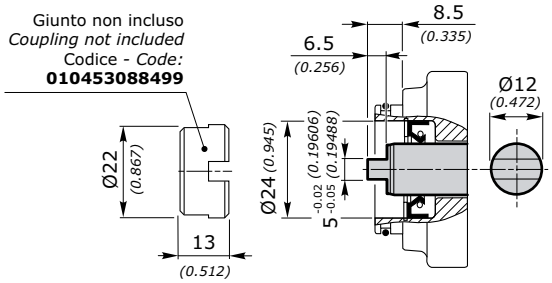
Disponibile per - *available for:* **E32BX - E32BC - E32CX - E32CC**

27
Fresato
a dente frontale
(con anello)
Dihedral claw
(with sealing ring)

Coppia 25 Nm
Torque 19 ft-lbs



Disponibile per - *available for:* **EUR - MC32**



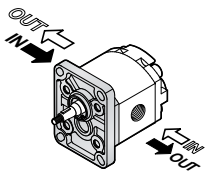
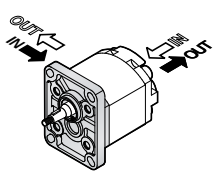
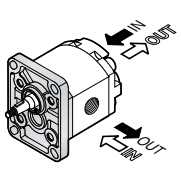
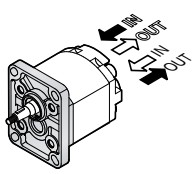
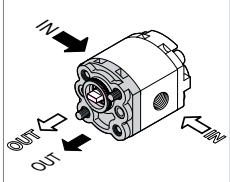
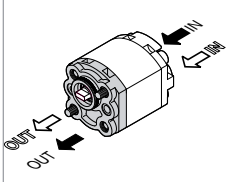
Disponibile per - *available for:* **SAEAA**

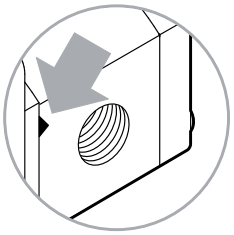
POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

POSIZIONE CONNESSIONE • *CONNECTION POSITION*

Rotazione destra - **D**
*Right rotation - **D***

Rotazione sinistra - **S**
*Left rotation - **S***

0	**1**	**3**	**4**	**2** (per - *for* MC32)	**5** (per - *for* MC32)
					



Il segno del corpo indica il lato aspirazione per le pompe
The sign on the body identify the suction side for the pumps

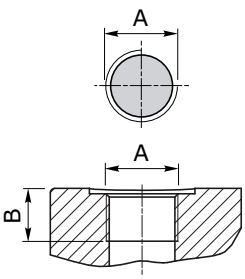
IN = ASPIRAZIONE - *SUCTION*
OUT = MANDATA - *DELIVERY*

TIPO CONNESSIONE • *CONNECTION TYPE*

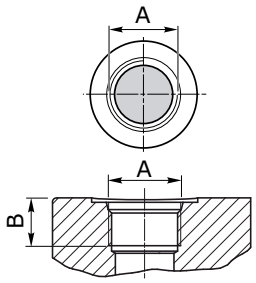
Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

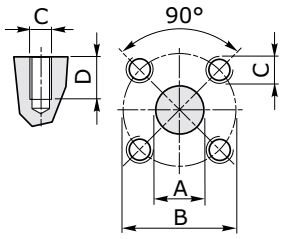
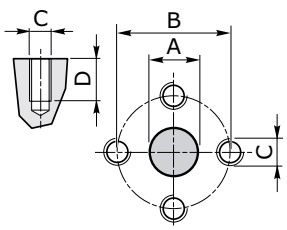
The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

1SP		POSIZIONE CONNESSIONE - *CONNECTION POSITION*					
		0	**1**	**3**	**4**	**2**	**5**
GAS	**G**	◇	◇	◇	◇	◇	◇
UNF	**U**	◇	◇	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇				◇	
	N	◇				◇	

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE - *SUCTION* **IN**			MANDATA - *DELIVERY* **OUT**		
				A	**B**		**A**	**B**	
		**G**	009	G 3/8"	14 [mm] *0.552 [inch]*	40 [Nm] *354 [in.lbs]*	G 3/8"	14 [mm] *0.552 [inch]*	40 [Nm] *354 [in.lbs]*
			012						
			016						
			O20						
			025						
			032						
			037						
			042						
			050						
			063						
			078						
			098						

POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

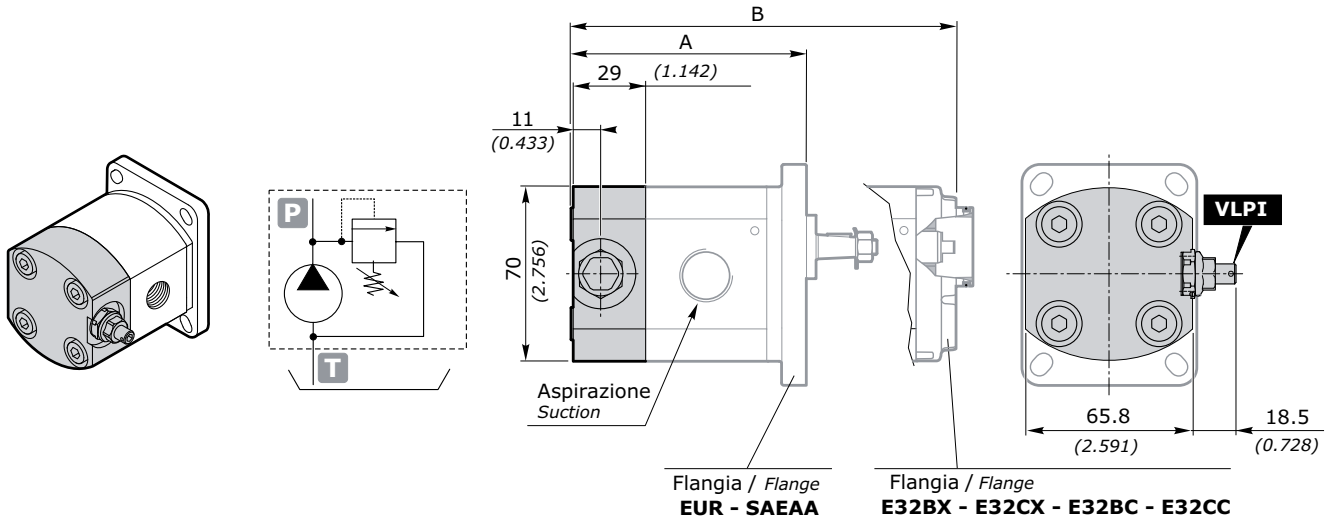
UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE - *SUCTION* **IN** A	B		MANDATA - *DELIVERY* **OUT** A	B	
		**U**	009	SAE 6 9/16"-18 UNF	13 [mm] *0.512 [inch]*	40 [Nm] *354 [in.lbs]*	SAE 6 9/16"-18 UNF	13 [mm] *0.512 [inch]*	40 [Nm] *354 [in.lbs]*
			012						
			016						
			020						
			025	SAE 8 3/4"-14 UNF	15 [mm] *0.591 [inch]*	50 [Nm] *443 [in.lbs]*	SAE 8 3/4"-14 UNF	15 [mm] *0.591 [inch]*	50 [Nm] *443 [in.lbs]*
			032						
			037						
			042						
			050						
			063						
			078						
			098						

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE - *SUCTION* **IN** A	B	C	D		MANDATA - *DELIVERY* **OUT** A	B	C	D	
		**T**	009	12 [mm] *0.472 [inch]*	30 [mm] *1.181 [inch]*	M6	13 [mm] *0.512 [inch]*	8 [Nm] *71 [in.lbs]*	12 [mm] *0.472 [inch]*	30 [mm] *1.181 [inch]*	M6	13 [mm] *0.512 [inch]*	8 [Nm] *71 [in.lbs]*
			012										
			016										
			020										
			025										
			032										
			037										
			042										
			050										
			063										
			078										
			098										
		**N**	009	10 [mm] *0.394 [inch]*	26 [mm] *1.024 [inch]*	M5	11 [mm] *0.433 [inch]*	7 [Nm] *62 [in.lbs]*	10 [mm] *0.394 [inch]*	26 [mm] *1.024 [inch]*	M5	11 [mm] *0.433 [inch]*	7 [Nm] *62 [in.lbs]*
			012										
			016										
			020										
			025	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	11 [mm] *0.433 [inch]*	8 [Nm] *71 [in.lbs]*	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	11 [mm] *0.433 [inch]*	8 [Nm] *71 [in.lbs]*
			032										
			037										
			042										
			050										
			063										
			078										
			098										

OPZIONI • *OPTIONALS*

VLPI

VALVOLA LIMITATRICE DI PRESSIONE A SCARICO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL EXHAUST



GRUPPO GROUP 1	A EUR		A SAEAA		B E32BX - E32CX E32BC - E32CC	
	mm	*inch*	*mm*	*inch*	*mm*	*inch*
1SP 009	82.6	*3.252*	86.1	*3.390*	82.6	*3.252*
1SP 012	83.7	*3.295*	87.2	*3.433*	83.7	*3.295*
1SP 016	85.4	*3.362*	88.9	*3.500*	85.4	*3.362*
1SP 020	86.9	*3.421*	90.4	*3.559*	86.9	*3.421*
1SP 025	88.9	*3.500*	92.4	*3.638*	88.9	*3.500*
1SP 032	91.6	*3.606*	95.1	*3.744*	91.6	*3.606*
1SP 037	93.6	*3.685*	97.1	*3.823*	93.6	*3.685*
1SP 042	95.5	*3.760*	99.0	*3.898*	95.5	*3.760*
1SP 050	98.6	*3.882*	102.1	*4.020*	98.6	*3.882*
1SP 063	103.7	*4.083*	107.2	*4.220*	103.7	*4.083*
1SP 078	109.4	*4.307*	112.9	*4.445*	109.4	*4.307*
1SP 098	117.3	*4.618*	120.8	*4.756*	117.3	*4.618*

ATTENZIONE:

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore (previsto solo scarico interno).
Il corpo VLP è disponibile in alluminio.

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

WARNING:

The pressure relief valve can be applied by substituting the rear cover (only internal relief is set).
VLP cover is available in aluminum.

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.

POMPE AD INGRANAGGI GRUPPO 1SP
GEAR PUMPS GROUP 1SP

esempio ● *example:* **1SP - A - 020 - D - EUR - B - N - 10 - 0 - G - VLPI N 120**

VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso di omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

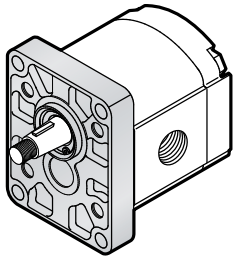
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

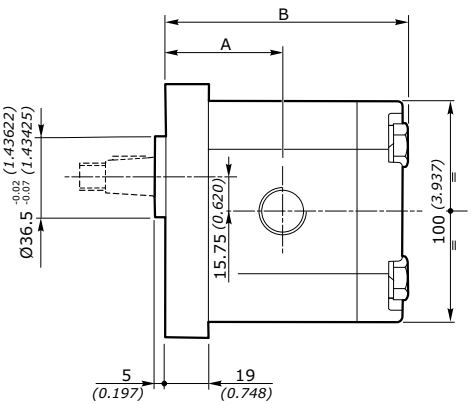
FLANGIA EUROPEA **EUR** *EUROPEAN FLANGE*

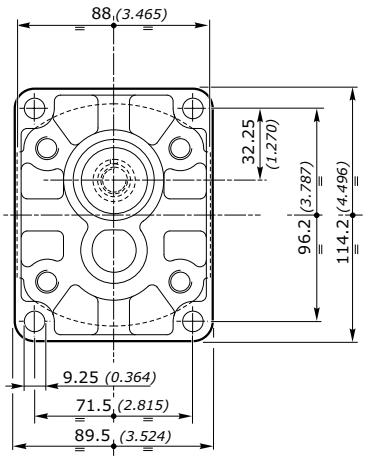
FLANGIA E COPERCHIO IN ALLUMINIO - *FLANGE AND COVER IN ALUMINIUM*

GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	0.24	250	3625	270	3915	290	4205	4000	16	4.23	500	1.9	0.50	95*
2SP 060	6	0.37	250	3625	270	3915	290	4205	4000	24	6.34	500	2.85	0.75	95*
2SP 080	8.5	0.52	250	3625	270	3915	290	4205	3500	29.7	7.85	500	4.03	1.06	95*
2SP 110	11	0.67	250	3625	270	3915	290	4205	3500	38.5	10.17	500	5.22	1.38	95*
2SP 140	14	0.85	250	3625	270	3915	290	4205	3500	49	12.95	500	6.65	1.76	95*
2SP 160	16.5	1.01	230	3335	240	3480	250	3625	3500	57.7	15.24	500	7.83	2.07	95*
2SP 190	19.5	1.19	210	3045	220	3190	230	3335	3300	64.3	16.99	500	9.26	2.45	95*
2SP 220	22.5	1.37	190	2755	200	2900	210	3045	2800	63	16.64	500	10.68	2.82	95*
2SP 260	26	1.59	170	2465	180	2610	190	2755	2500	65	17.17	500	12.35	3.26	95*
2SP 310	31.5	1.92	130	1885	140	2030	150	2175	2200	69	18.22	500	15.75	4.16	95*

DIMENSIONI • *DIMENSIONS*







GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SP 040	44.4	1.748	93.0	3.661	2.30	5.07
2SP 060	46.0	1.811	96.3	3.791	2.45	5.40
2SP 080	48.1	1.894	100.5	3.957	2.60	5.73
2SP 110	50.2	1.976	104.6	4.118	2.70	5.95
2SP 140	52.7	2.075	109.6	4.315	2.80	6.17
2SP 160	54.8	2.157	113.8	4.480	2.95	6.51
2SP 190	57.3	2.256	118.8	4.677	3.10	6.84
2SP 220	59.8	2.354	123.8	4.874	3.25	7.17
2SP 260	62.7	2.469	129.6	5.102	3.40	7.50
2SP 310	66.9	2.636	138.0	5.437	3.61	7.96

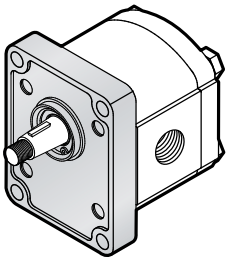
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

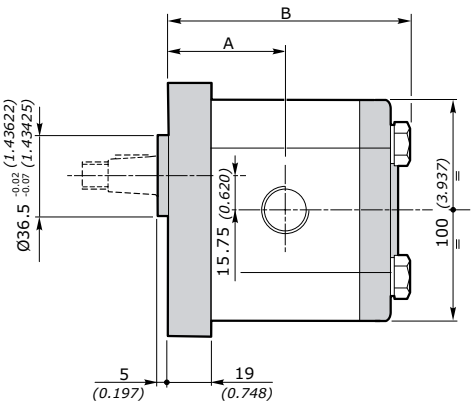
FLANGIA EUROPEA **EUR** *EUROPEAN FLANGE*

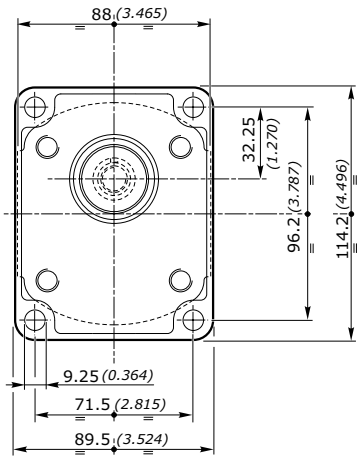
FLANGIA E COPERCHIO IN GHISA - *FLANGE AND COVER IN CAST IRON*

GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	*0.24*	280	*4060*	300	*4350*	320	*4640*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SP 060	6	*0.37*	280	*4060*	300	*4350*	320	*4640*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SP 080	8.5	*0.52*	280	*4060*	300	*4350*	320	*4640*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SP 110	11	*0.67*	280	*4060*	300	*4350*	320	*4640*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SP 140	14	*0.85*	270	*3915*	280	*4060*	290	*4205*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SP 160	16.5	*1.01*	230	*3335*	240	*3480*	250	*3625*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SP 190	19.5	*1.19*	210	*3045*	220	*3190*	230	*3335*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SP 220	22.5	*1.37*	190	*2755*	200	*2900*	210	*3045*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SP 260	26	*1.59*	170	*2465*	180	*2610*	190	*2755*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SP 310	31.5	*1.92*	130	*1885*	140	*2030*	150	*2175*	2200	69	*18.22*	500	15.75	*4.16*	95*

DIMENSIONI • *DIMENSIONS*







GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SP 040	44.4	*1.748*	93.0	*3.661*	3.40	*7.50*
2SP 060	46.0	*1.811*	96.3	*3.791*	3.55	*7.83*
2SP 080	48.1	*1.894*	100.5	*3.957*	3.70	*8.16*
2SP 110	50.2	*1.976*	104.6	*4.118*	3.80	*8.38*
2SP 140	52.7	*2.075*	109.6	*4.315*	3.90	*8.60*
2SP 160	54.8	*2.157*	113.8	*4.480*	4.05	*8.93*
2SP 190	57.3	*2.256*	118.8	*4.677*	4.20	*9.26*
2SP 220	59.8	*2.354*	123.8	*4.874*	4.35	*9.59*
2SP 260	62.7	*2.469*	129.6	*5.102*	4.50	*9.92*
2SP 310	66.9	*2.636*	138.0	*5.437*	4.71	*7.96*

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

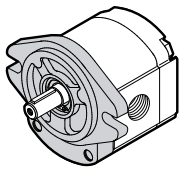
FLANGIA SAE **SAEA-SAEAOR** *SAE FLANGE*

FLANGIA E COPERCHIO IN ALLUMINIO - ***FLANGE AND COVER IN ALUMINIUM***

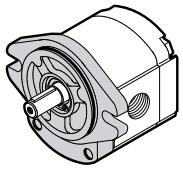
GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	0.24	250	3625	270	3915	290	4205	4000	16	4.23	500	1.9	0.50	95*
2SP 060	6	0.37	250	3625	270	3915	290	4205	4000	24	6.34	500	2.85	0.75	95*
2SP 080	8.5	0.52	250	3625	270	3915	290	4205	3500	29.7	7.85	500	4.03	1.06	95*
2SP 110	11	0.67	250	3625	270	3915	290	4205	3500	38.5	10.17	500	5.22	1.38	95*
2SP 140	14	0.85	250	3625	270	3915	290	4205	3500	49	12.95	500	6.65	1.76	95*
2SP 160	16.5	1.01	230	3335	240	3480	250	3625	3500	57.7	15.24	500	7.83	2.07	95*
2SP 190	19.5	1.19	210	3045	220	3190	230	3335	3300	64.3	16.99	500	9.26	2.45	95*
2SP 220	22.5	1.37	190	2755	200	2900	210	3045	2800	63	16.64	500	10.68	2.82	95*
2SP 260	26	1.59	170	2465	180	2610	190	2755	2500	65	17.17	500	12.35	3.26	95*
2SP 310	31.5	1.92	130	1885	140	2030	150	2175	2200	69	18.22	500	15.75	4.16	95*

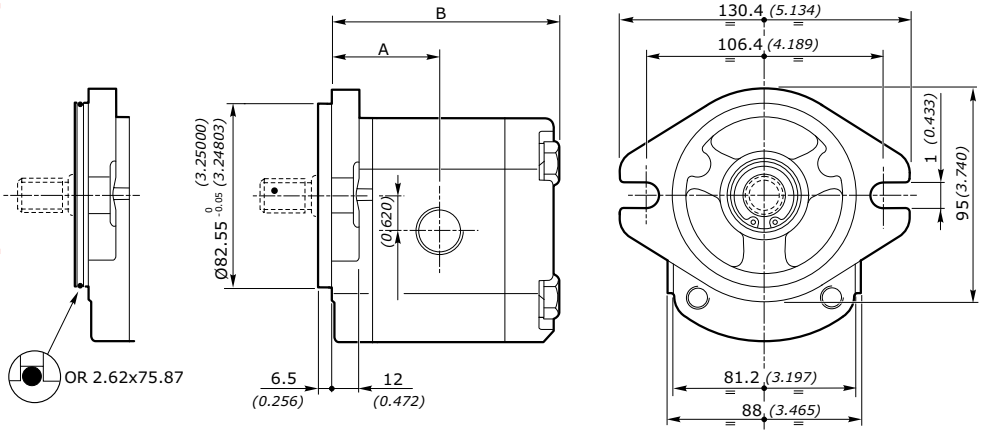
DIMENSIONI • *DIMENSIONS*

SAEA



SAEAOR





GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SP 040	44.4	1.748	93.0	3.661	2.30	5.07
2SP 060	46.0	1.811	96.3	3.791	2.45	5.40
2SP 080	48.1	1.894	100.5	3.957	2.60	5.73
2SP 110	50.2	1.976	104.6	4.118	2.70	5.95
2SP 140	52.7	2.075	109.6	4.315	2.80	6.17
2SP 160	54.8	2.157	113.8	4.480	2.95	6.51
2SP 190	57.3	2.256	118.8	4.677	3.10	6.84
2SP 220	59.8	2.354	123.8	4.874	3.25	7.17
2SP 260	62.7	2.469	129.6	5.102	3.40	7.50
2SP 310	66.9	2.636	138.0	5.437	3.61	7.96

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

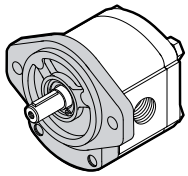
FLANGIA SAE SAEA-SAEAOR *SAE FLANGE*

FLANGIA E COPERCHIO IN GHISA - *FLANGE AND COVER IN CAST IRON*

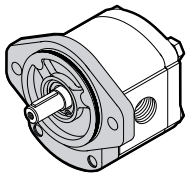
GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	*0.24*	280	*4060*	300	*4350*	320	*4640*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SP 060	6	*0.37*	280	*4060*	300	*4350*	320	*4640*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SP 080	8.5	*0.52*	280	*4060*	300	*4350*	320	*4640*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SP 110	11	*0.67*	280	*4060*	300	*4350*	320	*4640*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SP 140	14	*0.85*	270	*3915*	280	*4060*	290	*4205*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SP 160	16.5	*1.01*	230	*3335*	240	*3480*	250	*3625*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SP 190	19.5	*1.19*	210	*3045*	220	*3190*	230	*3335*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SP 220	22.5	*1.37*	190	*2755*	200	*2900*	210	*3045*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SP 260	26	*1.59*	170	*2465*	180	*2610*	190	*2755*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SP 310	31.5	*1.92*	130	*1885*	140	*2030*	150	*2175*	2200	69	*18.22*	500	15.75	*4.16*	95*

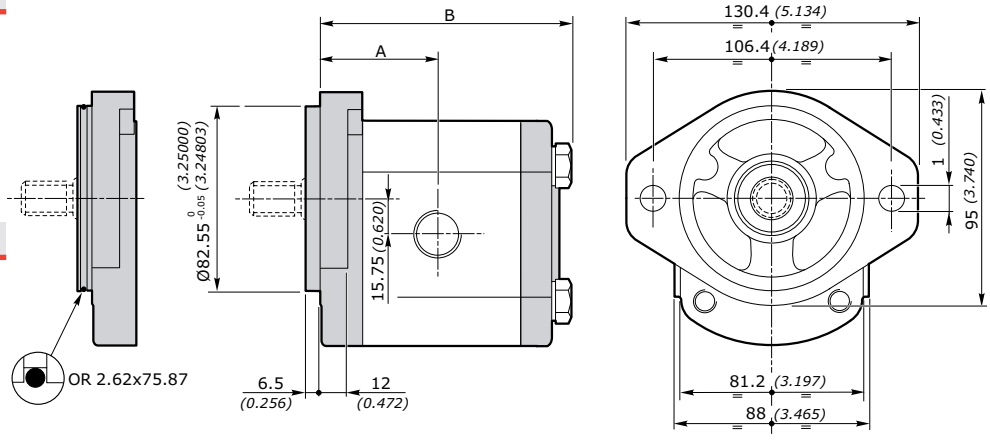
DIMENSIONI • *DIMENSIONS*

SAEA



SAEAOR





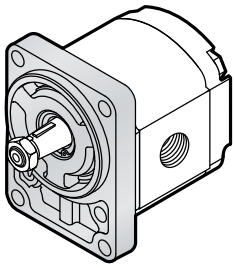
GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SP 040	44.4	*1.748*	93.0	*3.661*	3.40	*7.50*
2SP 060	46.0	*1.811*	96.3	*3.791*	3.55	*7.83*
2SP 080	48.1	*1.894*	100.5	*3.957*	3.70	*8.16*
2SP 110	50.2	*1.976*	104.6	*4.118*	3.80	*8.38*
2SP 140	52.7	*2.075*	109.6	*4.315*	3.90	*8.60*
2SP 160	54.8	*2.157*	113.8	*4.480*	4.05	*8.93*
2SP 190	57.3	*2.256*	118.8	*4.677*	4.20	*9.26*
2SP 220	59.8	*2.354*	123.8	*4.874*	4.35	*9.59*
2SP 260	62.7	*2.469*	129.6	*5.102*	4.50	*9.92*
2SP 310	66.9	*2.636*	138.0	*5.437*	4.71	*7.96*

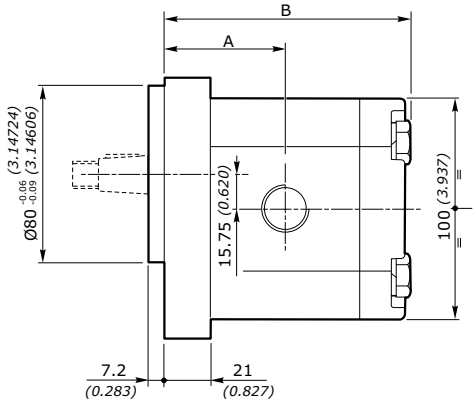
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

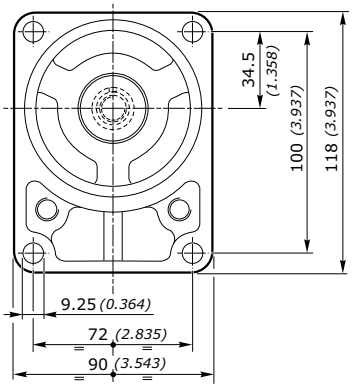
FLANGIA TEDESCA B80C *GERMAN FLANGE*

GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	0.24	250	3625	270	3915	290	4205	4000	16	4.23	500	1.9	0.50	95*
2SP 060	6	0.37	250	3625	270	3915	290	4205	4000	24	6.34	500	2.85	0.75	95*
2SP 080	8.5	0.52	250	3625	270	3915	290	4205	3500	29.7	7.85	500	4.03	1.06	95*
2SP 110	11	0.67	250	3625	270	3915	290	4205	3500	38.5	10.17	500	5.22	1.38	95*
2SP 140	14	0.85	250	3625	270	3915	290	4205	3500	49	12.95	500	6.65	1.76	95*
2SP 160	16.5	1.01	230	3335	240	3480	250	3625	3500	57.7	15.24	500	7.83	2.07	95*
2SP 190	19.5	1.19	210	3045	220	3190	230	3335	3300	64.3	16.99	500	9.26	2.45	95*
2SP 220	22.5	1.37	190	2755	200	2900	210	3045	2800	63	16.64	500	10.68	2.82	95*
2SP 260	26	1.59	170	2465	180	2610	190	2755	2500	65	17.17	500	12.35	3.26	95*
2SP 310	31.5	1.92	130	1885	140	2030	150	2175	2200	69	18.22	500	15.75	4.16	95*

DIMENSIONI • *DIMENSIONS*







GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SP 040	46.4	1.827	95.0	3.740	2.30	5.07
2SP 060	48.0	1.890	98.3	3.870	2.45	5.40
2SP 080	50.1	1.972	102.5	4.035	2.60	5.73
2SP 110	52.2	2.055	106.6	4.197	2.70	5.95
2SP 140	54.7	2.154	111.6	4.394	2.80	6.17
2SP 160	56.8	2.236	115.8	4.559	2.95	6.51
2SP 190	59.3	2.335	120.8	4.756	3.10	6.84
2SP 220	61.8	2.433	125.8	4.953	3.25	7.17
2SP 260	64.7	2.547	131.6	5.181	3.40	7.50
2SP 310	68.9	2.715	140.0	5.516	3.61	7.96

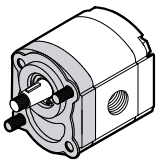
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

FLANGIA B50C *FLANGE*

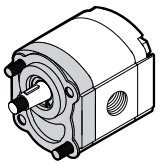
GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*bar*	*psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
2SP 040	4	*0.24*	250	*3625*	270	*3915*	290	*4205*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SP 060	6	*0.37*	250	*3625*	270	*3915*	290	*4205*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SP 080	8.5	*0.52*	250	*3625*	270	*3915*	290	*4205*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SP 110	11	*0.67*	250	*3625*	270	*3915*	290	*4205*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SP 140	14	*0.85*	250	*3625*	270	*3915*	290	*4205*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SP 160	16.5	*1.01*	230	*3335*	240	*3480*	250	*3625*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SP 190	19.5	*1.19*	210	*3045*	220	*3190*	230	*3335*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SP 220	22.5	*1.37*	190	*2755*	200	*2900*	210	*3045*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SP 260	26	*1.59*	170	*2465*	180	*2610*	190	*2755*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SP 310	31.5	*1.92*	130	*1885*	140	*2030*	150	*2175*	2200	69	*18.22*	500	15.75	*4.16*	95*

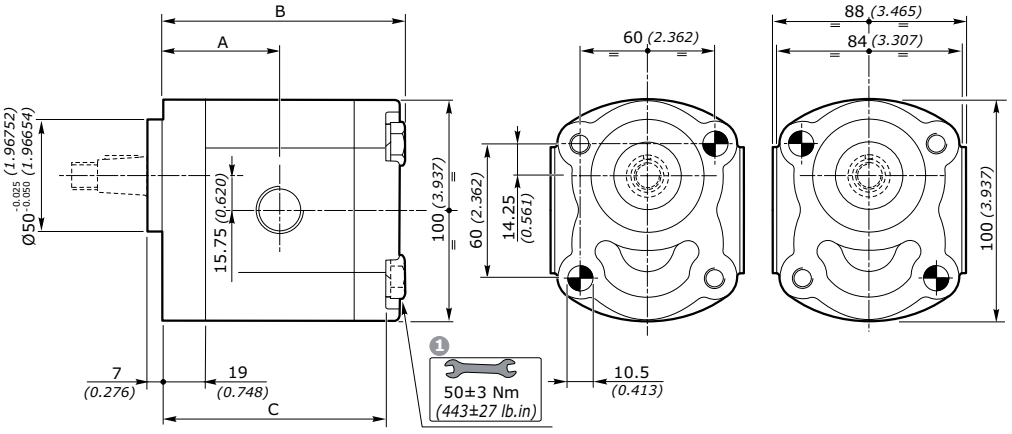
DIMENSIONI • *DIMENSIONS*

B50CX



B50CY





1 Coppia di serraggio viti: 50 ± 3Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0029W** (+ lunghezza **L** - vedi tabella)
Il fissaggio della pompa può essere effettuato con 2 viti prigioniere classe 10.9-12.9 UNI EN 20898/1 preserrate: 40 ± 3Nm. Fissare la pompa mediante dadi autobloccanti con coppia si serraggio: 50 ± 3Nm

1 *Tightening torque of screws: 443 ± 27 lb-in (screws 10.9-12.9 UNI EN 20898/1). The screws kit for the pump assembly should be ordered separately. Ordering code: **0029W** (+ lenght **L** - see table) The assembling of the pump should be effected with 2 screw studs type 10.9-12.9 UNI EN 20898/1 pre-tighten 354 ± 27 lb-in. Fix the pump by self-locking nuts with tightening torque: 443 ± 27 lb-in*

GRUPPO - GROUP 2	A		B		C		L 1		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*kg*	*lbs*
2SP 040	44.4	*1.748*	93.0	*3.661*	84.0	*3.307*	105	*4.134*	2.30	*5.07*
2SP 060	46.0	*1.811*	96.3	*3.791*	87.3	*3.437*	105	*4.134*	2.45	*5.40*
2SP 080	48.1	*1.894*	100.5	*3.957*	91.5	*3.602*	110	*4.331*	2.60	*5.73*
2SP 110	50.2	*1.976*	104.6	*4.118*	95.6	*3.764*	115	*4.528*	2.70	*5.95*
2SP 140	52.7	*2.075*	109.6	*4.315*	100.6	*3.961*	120	*4.724*	2.80	*6.17*
2SP 160	54.8	*2.157*	113.8	*4.480*	104.8	*4.126*	125	*4.921*	2.95	*6.51*
2SP 190	57.3	*2.256*	118.8	*4.677*	109.8	*4.323*	130	*5.118*	3.10	*6.84*
2SP 220	59.8	*2.354*	123.8	*4.874*	114.8	*4.520*	135	*5.315*	3.25	*7.17*
2SP 260	62.7	*2.469*	129.6	*5.102*	120.6	*4.748*	140	*5.512*	3.40	*7.50*
2SP 310	66.9	*2.636*	138.0	*5.437*	129.0	*5.083*	150	*5.910*	3.61	*7.96*

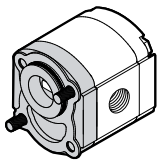
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

FLANGIA E52C *FLANGE*

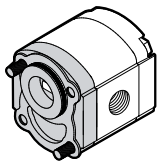
GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	0.24	250	3625	270	3915	290	4205	4000	16	4.23	500	1.9	0.50	95*
2SP 060	6	0.37	250	3625	270	3915	290	4205	4000	24	6.34	500	2.85	0.75	95*
2SP 080	8.5	0.52	250	3625	270	3915	290	4205	3500	29.7	7.85	500	4.03	1.06	95*
2SP 110	11	0.67	250	3625	270	3915	290	4205	3500	38.5	10.17	500	5.22	1.38	95*
2SP 140	14	0.85	250	3625	270	3915	290	4205	3500	49	12.95	500	6.65	1.76	95*
2SP 160	16.5	1.01	230	3335	240	3480	250	3625	3500	57.7	15.24	500	7.83	2.07	95*
2SP 190	19.5	1.19	210	3045	220	3190	230	3335	3300	64.3	16.99	500	9.26	2.45	95*
2SP 220	22.5	1.37	190	2755	200	2900	210	3045	2800	63	16.64	500	10.68	2.82	95*
2SP 260	26	1.59	170	2465	180	2610	190	2755	2500	65	17.17	500	12.35	3.26	95*
2SP 310	31.5	1.92	130	1885	140	2030	150	2175	2200	69	18.22	500	15.75	4.16	95*

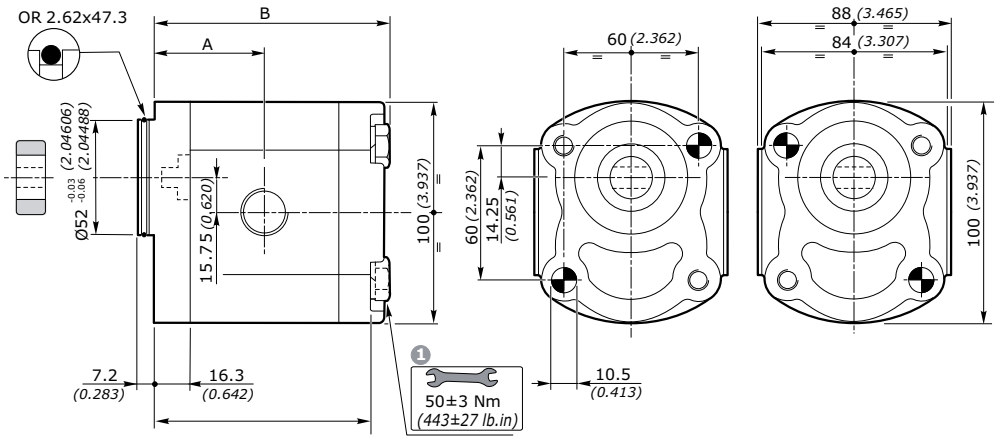
DIMENSIONI • *DIMENSIONS*

E52CX



E52CY





1 Coppia di serraggio viti: 50 ± 3Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: 0029W (+ lunghezza L - vedi tabella)
Il fissaggio della pompa può essere effettuato con 2 viti prigioniere classe 10.9-12.9 UNI EN 20898/1 preserrate: 40 ± 3Nm. Fissare la pompa mediante dadi autobloccanti con coppia si serraggio: 50 ± 3Nm

1 *Tightening torque of screws: 443 ± 27 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
Ordering code: 0029W (+ lenght L - see table)
The assembling of the pump should be effected with 2 screw studs type 10.9-12.9 UNI EN 20898/1 pre-tighten 354 ± 27 lb-in. Fix the pump by self-locking nuts with tightening torque: 443 ± 27 lb-in

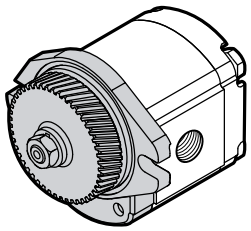
GRUPPO - GROUP 2	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
2SP 040	41.7	1.642	90.3	3.555	81.3	3.201	100	3.937	2.30	5.07
2SP 060	43.3	1.705	93.6	3.685	84.6	3.331	105	4.134	2.45	5.40
2SP 080	45.4	1.787	97.8	3.850	88.8	3.496	110	4.331	2.60	5.73
2SP 110	47.5	1.870	101.9	4.012	92.9	3.657	115	4.528	2.70	5.95
2SP 140	50.0	1.969	106.9	4.209	97.9	3.854	120	4.724	2.80	6.17
2SP 160	52.1	2.051	111.1	4.374	102.1	4.020	120	4.724	2.95	6.51
2SP 190	54.6	2.150	116.1	4.571	107.1	4.217	125	4.921	3.10	6.84
2SP 220	57.1	2.248	121.1	4.768	112.1	4.413	130	5.118	3.25	7.17
2SP 260	60.0	2.362	126.9	4.996	117.9	4.642	140	5.512	3.40	7.50
2SP 310	64.2	2.529	135.3	5.331	126.3	4.988	145	5.713	3.61	7.96

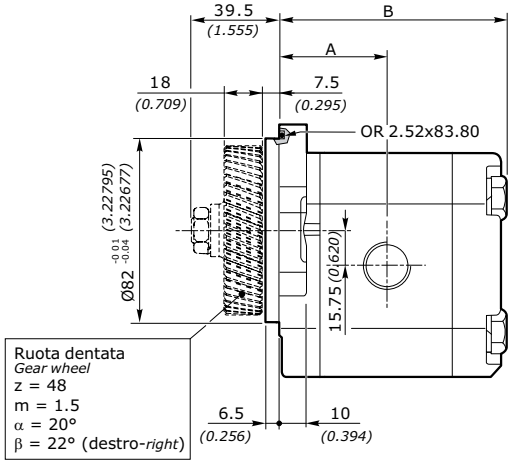
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

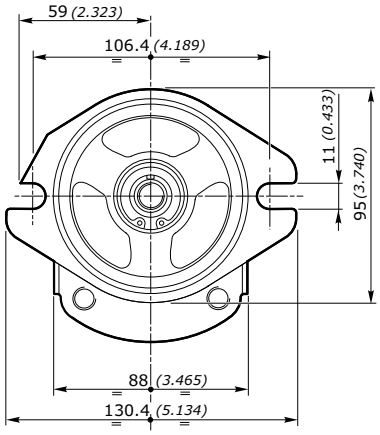
FLANGIA PERKINS P400D *PERKINS FLANGE*

GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*bar*	*psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
2SP 040	4	*0.24*	250	*3625*	270	*3915*	290	*4205*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SP 060	6	*0.37*	250	*3625*	270	*3915*	290	*4205*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SP 080	8.5	*0.52*	250	*3625*	270	*3915*	290	*4205*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SP 110	11	*0.67*	250	*3625*	270	*3915*	290	*4205*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SP 140	14	*0.85*	250	*3625*	270	*3915*	290	*4205*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SP 160	16.5	*1.01*	230	*3335*	240	*3480*	250	*3625*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SP 190	19.5	*1.19*	210	*3045*	220	*3190*	230	*3335*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SP 220	22.5	*1.37*	190	*2755*	200	*2900*	210	*3045*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SP 260	26	*1.59*	170	*2465*	180	*2610*	190	*2755*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SP 310	31.5	*1.92*	130	*1885*	140	*2030*	150	*2175*	2200	69	*18.22*	500	15.75	*4.16*	95*

DIMENSIONI • *DIMENSIONS*







GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*kg*	*lbs*
2SP 040	44.4	*1.748*	93.0	*3.661*	2.30	*5.07*
2SP 060	46.0	*1.811*	96.3	*3.791*	2.45	*5.40*
2SP 080	48.1	*1.894*	100.5	*3.957*	2.60	*5.73*
2SP 110	50.2	*1.976*	104.6	*4.118*	2.70	*5.95*
2SP 140	52.7	*2.075*	109.6	*4.315*	2.80	*6.17*
2SP 160	54.8	*2.157*	113.8	*4.480*	2.95	*6.51*
2SP 190	57.3	*2.256*	118.8	*4.677*	3.10	*6.84*
2SP 220	59.8	*2.354*	123.8	*4.874*	3.25	*7.17*
2SP 260	62.7	*2.469*	129.6	*5.102*	3.40	*7.50*
2SP 310	66.9	*2.636*	138.0	*5.437*	3.61	*7.96*

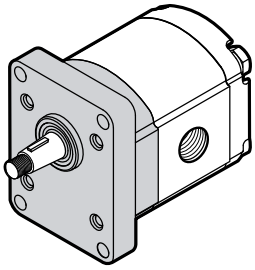
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

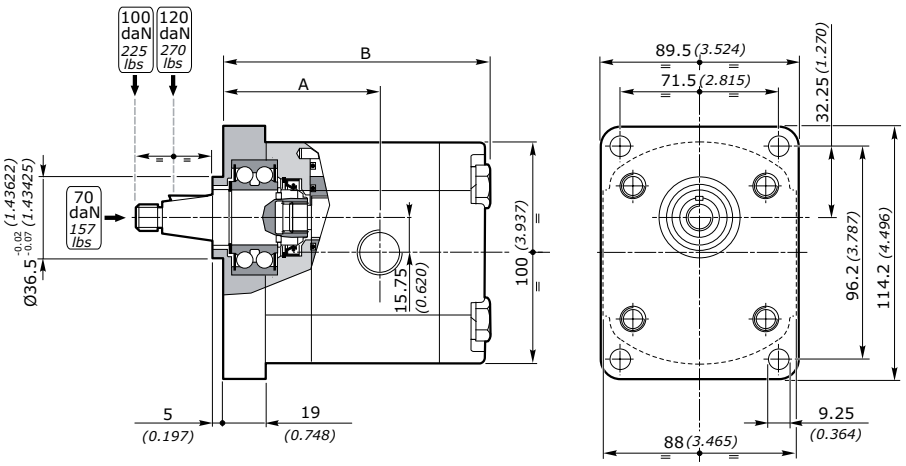
VERSIONE DA UTILIZZARE IN PRESENZA DI CARICHI ASSIALI E/O RADIALI
VERSION TO USE WITH AXIAL AND/OR RADIAL LOADS

FLANGIA SUPEUR *FLANGE*

GRUPPO GROUP 2SP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	$cm^3/giro$	in^3/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SP 040	4	0.24	250	3625	270	3915	290	4205	4000	16	4.23	500	1.9	0.50	95*
2SP 060	6	0.37	250	3625	270	3915	290	4205	4000	24	6.34	500	2.85	0.75	95*
2SP 080	8.5	0.52	250	3625	270	3915	290	4205	3500	29.7	7.85	500	4.03	1.06	95*
2SP 110	11	0.67	250	3625	270	3915	290	4205	3500	38.5	10.17	500	5.22	1.38	95*
2SP 140	14	0.85	250	3625	270	3915	290	4205	3500	49	12.95	500	6.65	1.76	95*
2SP 160	16.5	1.01	230	3335	240	3480	250	3625	3500	57.7	15.24	500	7.83	2.07	95*
2SP 190	19.5	1.19	210	3045	220	3190	230	3335	3300	64.3	16.99	500	9.26	2.45	95*
2SP 220	22.5	1.37	190	2755	200	2900	210	3045	2800	63	16.64	500	10.68	2.82	95*
2SP 260	26	1.59	170	2465	180	2610	190	2755	2500	65	17.17	500	12.35	3.26	95*
2SP 310	31.5	1.92	130	1885	140	2030	150	2175	2200	69	18.22	500	15.75	4.16	95*

DIMENSIONI • *DIMENSIONS*



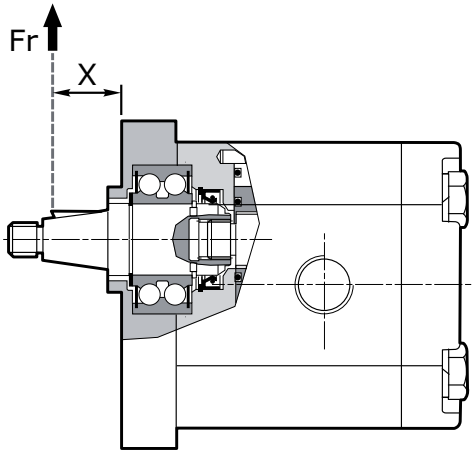


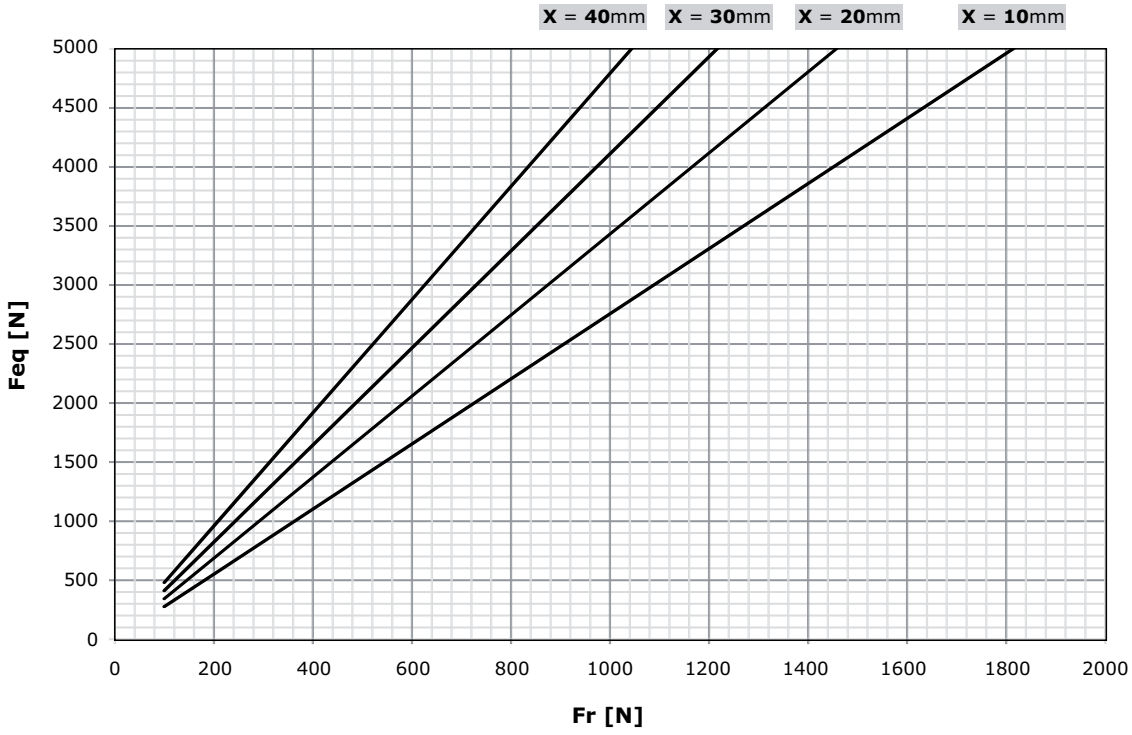
La flangia SUPEUR è sempre allestita con anello di rinforzo.
SUPEUR flange is always equipped with sealing ring

GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SP 040	64.4	2.535	113.0	4.449	2.80	6.17
2SP 060	66.0	2.598	116.3	4.579	2.95	6.50
2SP 080	68.1	2.681	120.5	4.744	3.10	6.84
2SP 110	70.2	2.764	124.6	4.906	3.20	7.06
2SP 140	72.7	2.863	129.6	5.102	3.30	7.28
2SP 160	74.8	2.945	133.8	5.268	3.45	7.61
2SP 190	77.3	3.043	138.8	5.465	3.60	7.94
2SP 220	79.8	3.142	143.8	5.661	3.75	8.27
2SP 260	82.7	3.256	149.6	5.890	3.90	8.60
2SP 310	86.9	3.424	158.0	6.225	4.11	9.06

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

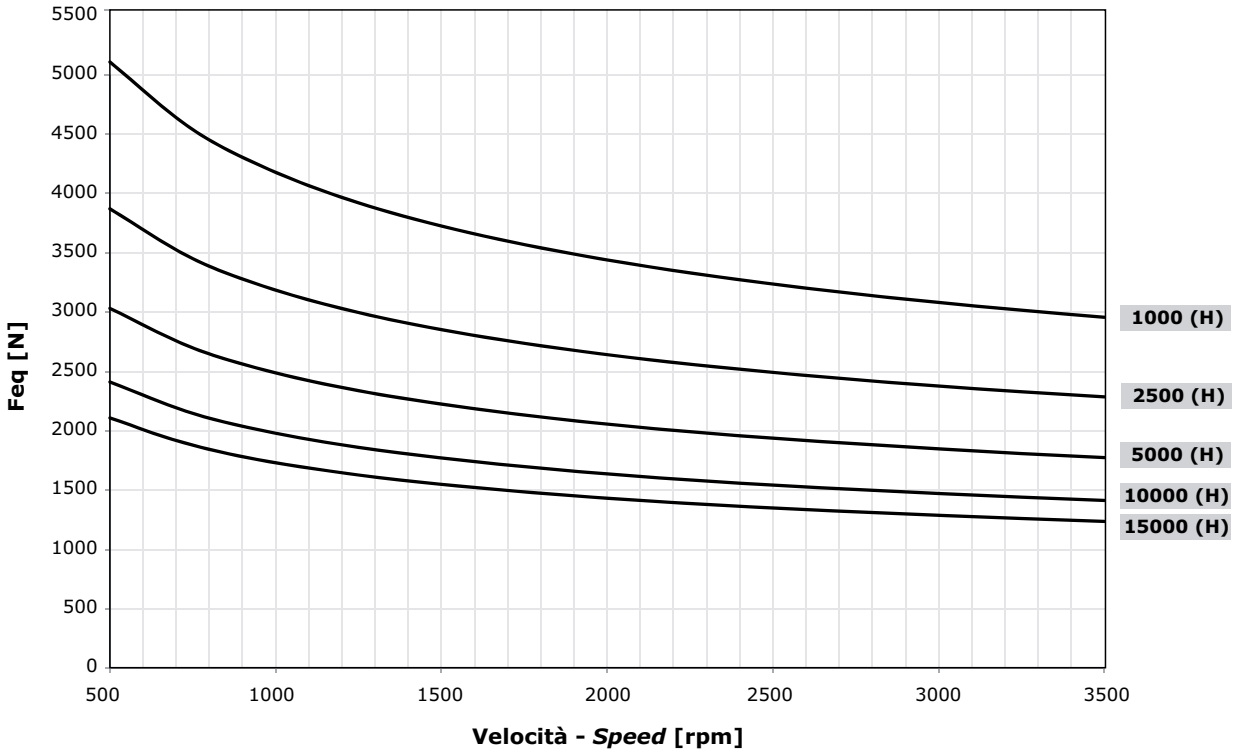
CARICO DINAMICO EQUIVALENTE • *CARICO DINAMICO EQUIVALENTE*





In caso di carichi combinati applicati all'albero (radiale + assiale) contattare il nostro Ufficio Tecnico.
In case of both radial and axial loads applied to the shaft please contact our technical department.

DIAGRAMMA CUSCINETTI • *DIAGRAM BEARING EXPECTED LIFE*



POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

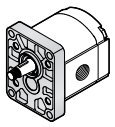
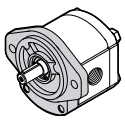
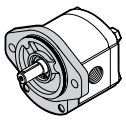
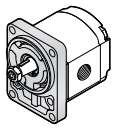
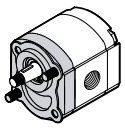
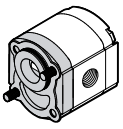
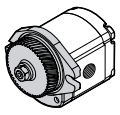
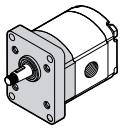
CODICE ORDINAZIONE • *ORDER CODE*

2SP - G - 140 - D - EUR - B - N - 10 - 0 - G

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
2SP	Tipo pompa *Pump type*	Pompa singola gruppo 2 *Single pump group 2*	7
G	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium* **G** = Ghisa / *Cast iron*	
140	Cilindrata *Displacement*	Cilindrata = 14 cm^3/giro *Displacement = 0.85 in^3/rev*	7
D	Senso di rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
EUR	Tipo Flangia *Flange type*	Flangia standard *Standard flange*	48
B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	49
0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	52
G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	53

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

TIPOLOGIA FLANGIA • *FLANGE TYPE*

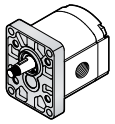
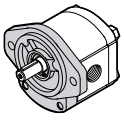
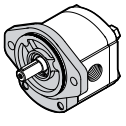
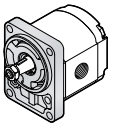
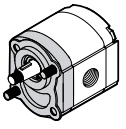
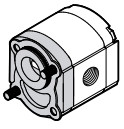
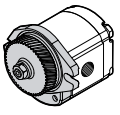
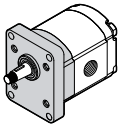
2SP	EUR	SAEA	SAEAOR	B80C	B50C	E52C	P400D	SUPEUR
								
A alluminio *aluminium*	◇	◇	◇	◇	◇	◇	◇	◇
G ghisa *cast iron*	◇	◇	◇	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*

◇ = Combinazione standard - *Standard combination*

ANELLO DI TENUTA • *SEAL RING*

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*
A	Flangia senza anello di tenuta *Flange without seal ring*	
B	Anello di tenuta fino a **3** bar *Sealing ring up to **3** bar*	Per bassissime pressioni *For very low pressure*
H	Anello di tenuta fino a **8** bar *Sealing ring up to **8** bar*	Per basse pressioni (con distanziali di rinforzo) *For low pressure (with stiffering seal)*
K	Anello di tenuta fino a **30** bar *Sealing ring up to **30** bar*	Per alte pressioni *For high pressure*

COMBINAZIONE FLANGIA - ANELLO DI TENUTA - GUARNIZIONE • *FLANGE - SEAL RING - GASKET COMBINATION*

2SP	EUR			SAEA			SAEAOR			B80C			B50C			E52C	P400D			SUPEUR	
																					
	Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*	Anello - *Seal ring*			Anello - *Seal ring*	
	B	H	K	B	H	K	B	H	K	B	H	K	B	H	K	A	B	H	K	B	K
NBR **N**	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Viton **V**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

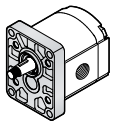
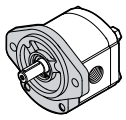
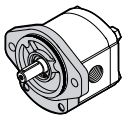
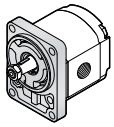
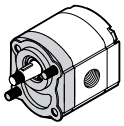
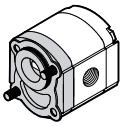
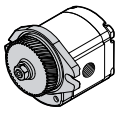
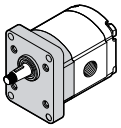
◇ = Combinazione standard - *Standard combination* ● = Combinazione disponibile - *Available combination*

esempio • *example:* **2SP - A - 140 - D - EUR - B - N - 10 - 0 - G**

EUR = Flangia europea / *European flange*
B = Anello tenuta fino a 3 bar / Seal ring up to 3 *bar*
N = *Guarnizione in NBR / NBR o-ring*

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

COMBINAZIONE ALBERO - FLANGIA ● *SHAFT - FLANGE COMBINATION*

2SP	EUR	SAEA	SAEAOR	B80C	B50C	FE32C	P400D	SUPEUR
								
10 Conico 1:8 *Tapered 1:8*	◇	●	●	●	◇		◇	◇
11 Conico 1:5 *Tapered 1:5*	●	●	●	◇	●			
12 Cilindrico EUR *EUR Parallel shaft*	◇	●	●	◇	◇			
13 Cilindrico SAEA *SAEA parallel shaft*	●	◇	◇	●	●			
14 Scanalato SAEA 9 denti *SAEA 9T splined*	●	◇	◇	●	●			
15 Scanalato DIN5482 9 denti (26/24) *DIN5482 9T splined (26/24)*	●	●	●	◇	●			
16 Scanalato DIN5482 9 denti (20) *DIN5482 9T splined (20)*	●	●	●	◇	●			
17 Fresato a dente frontale *Dihedral claw*						◇		
40 Scanalato SAE 10 denti (52) *SAE 10T splined (52)*		●	●					
41 Scanalato SAE 10 denti (37.5) *SAE 10T splined (37.5)*		●	●					
42 Scanalato SAEA 11 denti (55.6) *SAEA 11T splined (55.6)*		●	●					
43 Scanalato SAEA 11 denti (31.5) *SAEA 11T splined (31.5)*		●	●					
44 Scanalato SAEA 11 denti (13.5) *SAEA 11T splined (13.5)*		●	●					

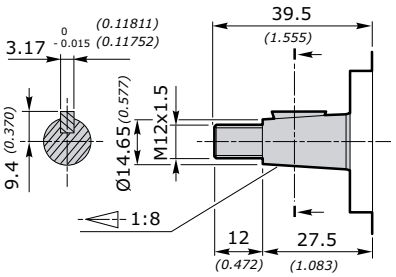
◇ = Combinazione standard - *Standard combination* ● = Combinazione disponibile - *Available combination*

2SP

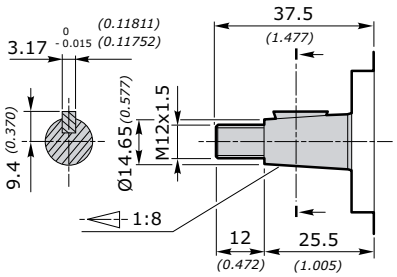
DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

10
Conico 1:8
Tapered 1:8

Coppia 140 Nm
Torque 104 ft-lbs



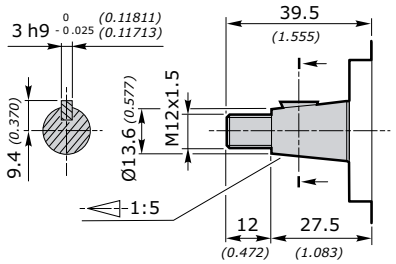
Disponibile per - *available for:* **EUR-SAEA-SAEAOR-B50C-P400D-SUPEUR**



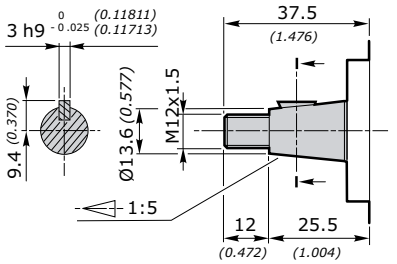
Disponibile per - *available for:* **B80C**

11
Conico 1:5
Tapered 1:5

Coppia 140 Nm
Torque 104 ft-lbs



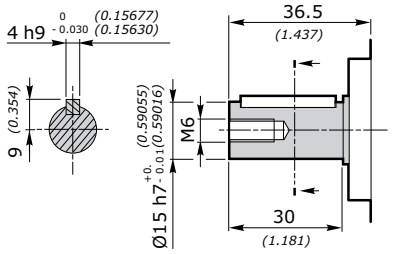
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



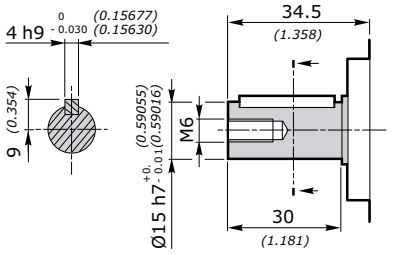
Disponibile per - *available for:* **B80C**

12
Cilindrico EUR
EUR Parall shaft

Coppia 80 Nm
Torque 59 ft-lbs



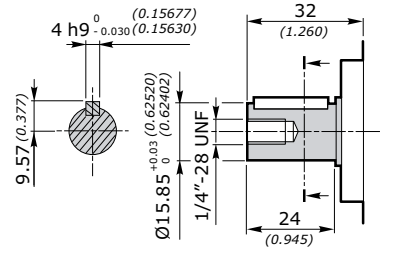
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



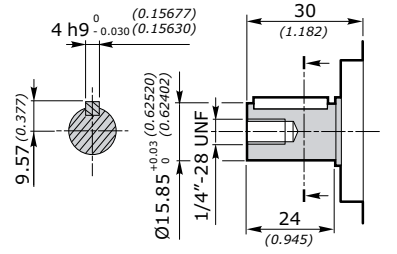
Disponibile per - *available for:* **B80C**

13
Cilindrico SAEA
SAEA parall shaft

Coppia 90 Nm
Torque 67 ft-lbs



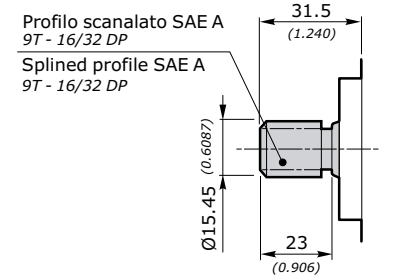
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



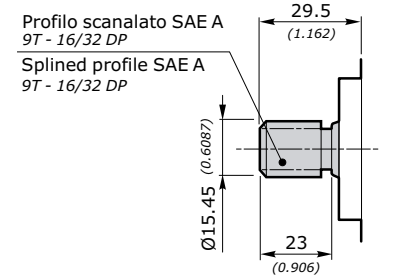
Disponibile per - *available for:* **B80C**

14
Scanalato
SAEA 9 denti
SAEA 9T
splined

Coppia 100 Nm
Torque 74 ft-lbs



Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



Disponibile per - *available for:* **B80C**

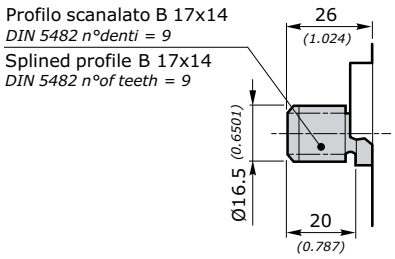
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

2SP

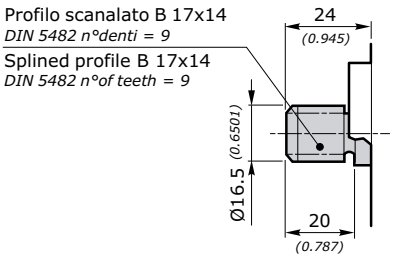
DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

15
Scanalato DIN5482 9 denti (26/24)
DIN5482 9T splined (26/24)

Coppia 100 Nm
Torque 74 ft-lbs



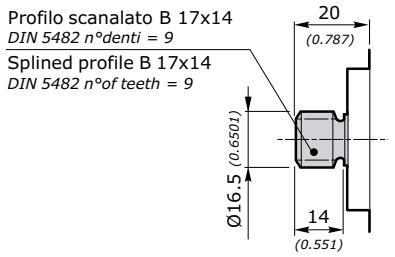
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



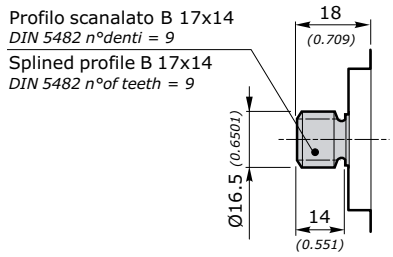
Disponibile per - *available for:* **B80C**

16
Scanalato DIN5482 9 denti (20)
DIN5482 9T splined (20)

Coppia 100 Nm
Torque 74 ft-lbs



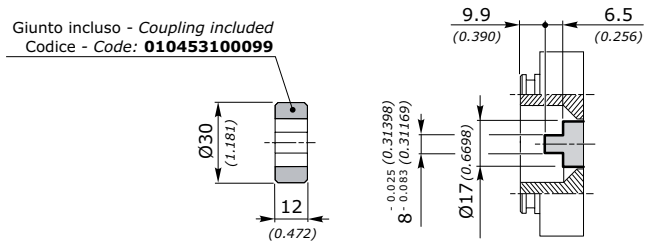
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



Disponibile per - *available for:* **B80C**

17
Fresato a dente frontale
Dihedral claw

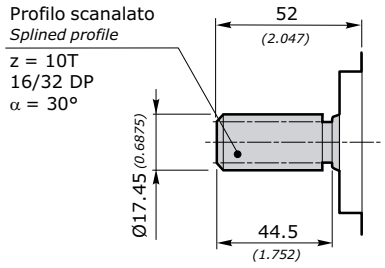
Coppia 80 Nm
Torque 59 ft-lbs



Disponibile per - *available for:* **E52C**

40
Scanalato SAE 10 denti (52)
SAE 10T splined (52)

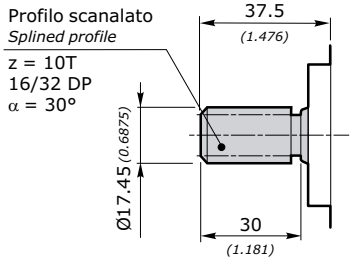
Coppia 130 Nm
Torque 96 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

41
Scanalato SAE 10 denti (37.5)
SAE 10T splined (37.5)

Coppia 130 Nm
Torque 96 ft-lbs



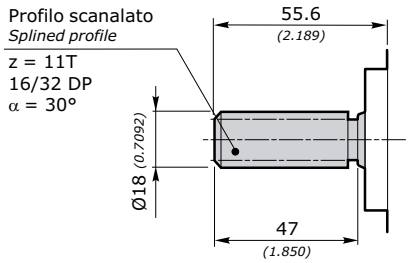
Disponibile per - *available for:* **SAEA - SAEAOR**

2SP

DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

42
Scanalato SAEA
11 denti (55.6)
SAEA 11T
splined (55.6)

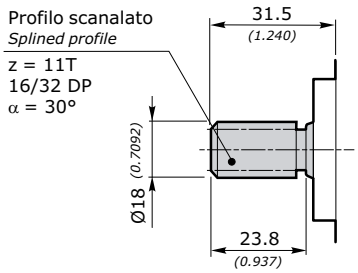
Coppia 150 Nm
Torque 111 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

43
Scanalato SAEA
11 denti (31.5)
SAEA 11T
splined (31.5)

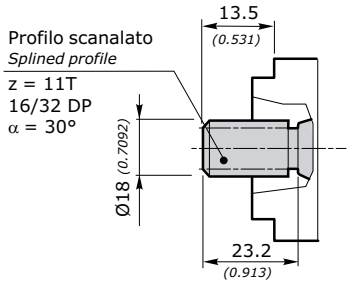
Coppia 150 Nm
Torque 111 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

44
Scanalato SAEA
11 denti (13.5)
SAEA 11T
splined (13.5)

Coppia 150 Nm
Torque 111 ft-lbs

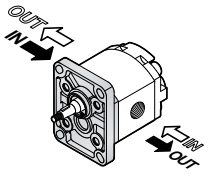
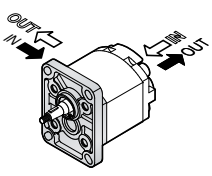
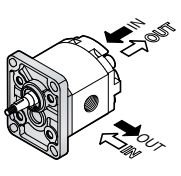
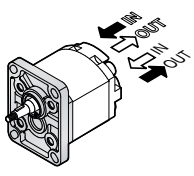


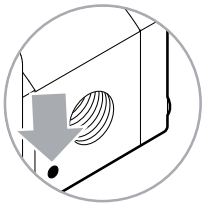
Disponibile per - *available for:* **SAEA - SAEAOR**

POSIZIONE CONNESSIONE • *CONNECTION POSITION*

Rotazione destra - **D**
*Right rotation - **D***

Rotazione sinistra - **S**
*Left rotation - **S***

0	1	3	4
			



Il segno del corpo indica il lato aspirazione per le pompe
The sign on the body identify the suction side for the pumps

IN = ASPIRAZIONE - *SUCTION*
OUT = MANDATA - *DELIVERY*

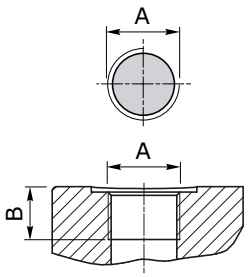
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

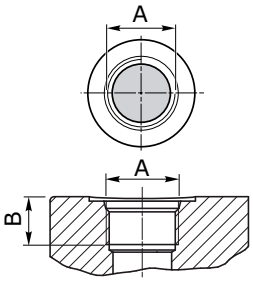
TIPO CONNESSIONE • *CONNECTION TYPE*

Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

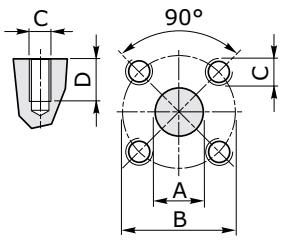
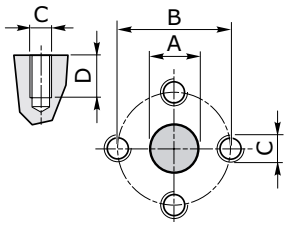
The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

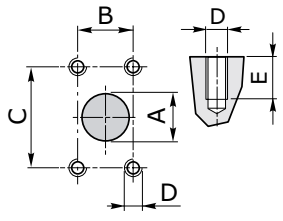
2SP		POSIZIONE CONNESSIONE - *CONNECTION POSITION*			
		0	**1**	**3**	**4**
GAS	**G**	◇	◇	◇	◇
UNF	**U**	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇			
	N	◇			
	M	◇			
	F	◇			

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE - *SUCTION* **IN** A	B	🔧	MANDATA - *DELIVERY* **OUT** A	B	🔧
		**G**	40	G 1/2"	16 [mm] *0.630 [inch]*	50 [Nm] *443 [in.lbs]*	G 1/2"	16 [mm] *0.630 [inch]*	50 [Nm] *443 [in.lbs]*
			60						
			80						
			110	G 3/4"	17 [mm] *0.670 [inch]*	60 [Nm] *531 [in.lbs]*			
			140						
			160						
			190						
			220						
			260						
			310						

UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE *SUCTION* **IN** A	B	🔧	MANDATA *DELIVERY* **OUT** A	B	🔧
		**U**	40	SAE 10 7/8"-14 UNF	17 [mm] *0.670 [inch]*	55 [Nm] *487 [in-lbs]*	SAE 10 7/8"-14 UNF	17 [mm] *0.670 [inch]*	55 [Nm] *487 [in-lbs]*
			60						
			80						
			110	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*			
			140						
			160						
			190						
			220						
			260						
			310						
		W	40	SAE 16 1"5/16-12 UN	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*
			60						
			80						
			110						
			140						
			160						
			190						
			220						
			260						
			310						

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

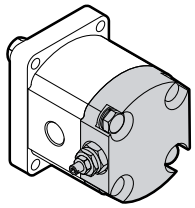
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE *SUCTION* **IN**					MANDATA *DELIVERY* **OUT**				
				A	**B**	**C**	**D**		**A**	**B**	**C**	**D**	
		**T**	40	20 [mm] *0.787 [inch]*	40 [mm] *1.575 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	15 [mm] *0.591 [inch]*	35 [mm] *1.378 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			60										
			80										
			110										
			140										
			160										
			190										
			220										
			260										
			310										
		**N**	40	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			60										
			80										
			110	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*					
			140										
			160										
			190										
			220										
			260										
			310										
		M	40	non disponibile *not available*					non disponibile *not available*				
			60										
			80										
			110	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*
			140										
			160										
			190										
			220										
			260										
			310										

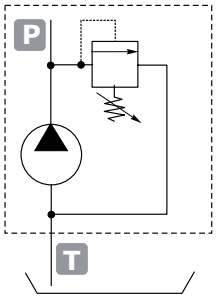
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE *SUCTION* **IN**						MANDATA *DELIVERY* **OUT**					
				A	**B**	**C**	**D**	**E**		**A**	**B**	**C**	**D**	**E**	
		**F**	40	20 [mm] *0.787 [inch]*	17,4 [mm] *0.685 [inch]*	38 [mm] *1.496 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	15 [mm] *0.591 [inch]*	17,4 [mm] *0.685 [inch]*	38 [mm] *1.496 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			60												
			80												
			110												
			140	26 [mm] *1.024 [inch]*	47.6 [mm] *1.874 [inch]*	22.4 [mm] *0.882 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*						
			160												
			190												
			220												
			260												
			310												

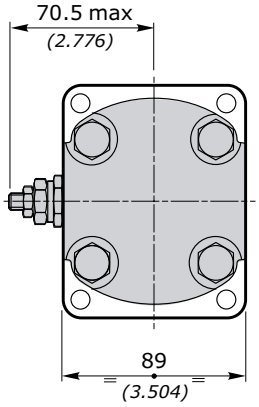
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

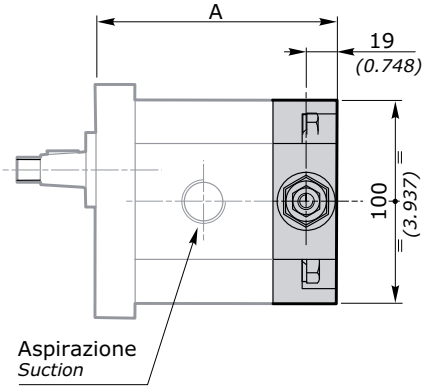
OPZIONI • *OPTIONALS*

VLPI — VALVOLA LIMITATRICE DI PRESSIONE A SCARICO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL EXHAUST









GRUPPO GROUP 2	A					
	EUR-SAEA-B50C		B80C		E52C	
	mm	*inch*	*mm*	*inch*	*mm*	*inch*
2SP 040	104.8	*4.126*	106.8	*4.205*	102.1	*4.020*
2SP 060	108.1	*4.256*	110.1	*4.335*	105.4	*4.150*
2SP 080	112.3	*4.421*	114.3	*4.500*	109.6	*4.315*
2SP 110	116.4	*4.583*	118.4	*4.661*	113.7	*4.476*
2SP 140	121.4	*4.780*	123.4	*4.858*	118.7	*4.673*
2SP 160	125.6	*4.945*	127.6	*5.024*	122.9	*4.839*
2SP 190	130.6	*5.142*	132.6	*5.220*	127.9	*5.035*
2SP 220	135.6	*5.339*	137.6	*5.417*	132.9	*5.232*
2SP 260	141.4	*5.567*	143.4	*5.646*	138.7	*5.461*
2SP 310	149.8	*5.902*	151.8	*5.981*	147.1	*5.796*

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore. Il corpo VLP è disponibile in alluminio. E' rappresentata una pompa con rotazione sinistra.

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

The pressure relief valve can be applied by substituting the rear cover. VLP cover is available in aluminum. The showed pump is anticlockwise rotation. Pump with clockwise rotation.

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.

esempio • *example:* **2SP - A - 140 - D - EUR - B - N - 10 - 0 - G - VLPI N 120**

VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

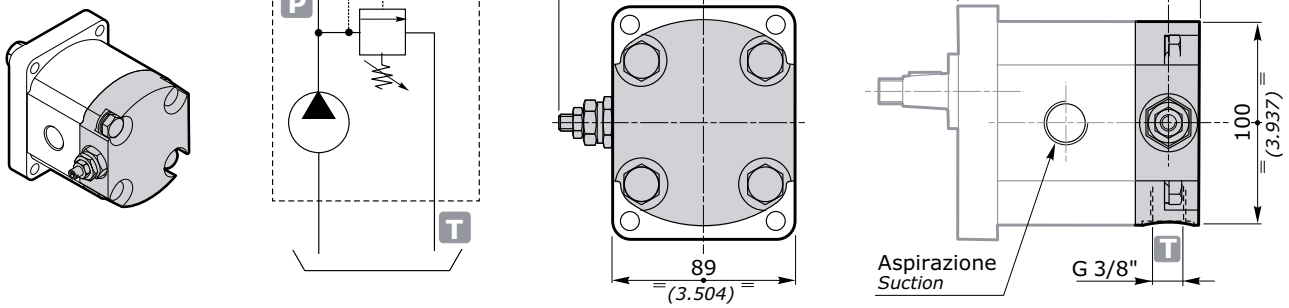
TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso di omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

VLPE

VALVOLA LIMITATRICE DI PRESSIONE A SCARICO ESTERNO
PRESSURE RELIEF VALVE WITH EXTERNAL EXHAUST



GRUPPO GROUP 2	A EUR-SAEA-B50C		B80C		E52C	
	mm	inch	mm	inch	mm	inch
2SP 040	100.8	*3.969*	102.8	*4.047*	98.1	*3.862*
2SP 060	104.1	*4.098*	106.1	*4.177*	101.4	*3.992*
2SP 080	108.3	*4.264*	110.3	*4.343*	105.6	*4.157*
2SP 110	112.4	*4.425*	114.4	*4.504*	109.7	*4.319*
2SP 140	117.4	*4.622*	119.4	*4.701*	114.7	*4.516*
2SP 160	121.6	*4.787*	123.6	*4.866*	118.9	*4.681*
2SP 190	126.6	*4.984*	128.6	*5.063*	123.9	*4.878*
2SP 220	131.6	*5.181*	133.6	*5.260*	128.9	*5.075*
2SP 260	137.4	*5.409*	139.4	*5.488*	134.7	*5.303*
2SP 310	145.8	*5.745*	147.8	*5.823*	143.1	*5.638*

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore. Il coperchio VLP è disponibile in alluminio. E' rappresentata una pompa con rotazione sinistra. Nelle pompe con rotazione destra, la valvola è dal lato opposto

The pressure relief valve can be applied by substituting the rear cover. VLP cover is available in aluminum. The showed pump is anticlockwise rotation. Pump with clockwise rotation, the valve is in the opposite side.

esempio ● *example:* **2SP - A - 140 - D - EUR - B - N - 10 - 0 - G - VLPE N 120**

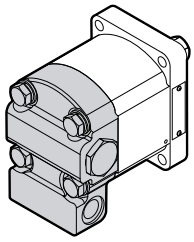
VLPE = Coperchio con VPL a scarico esterno / *Cover with VPL at external exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

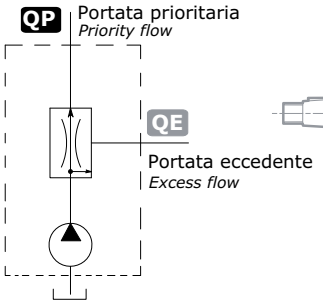
TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso di omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

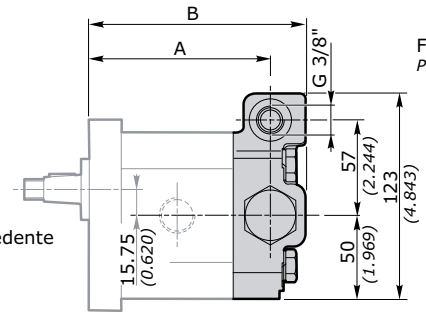
POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

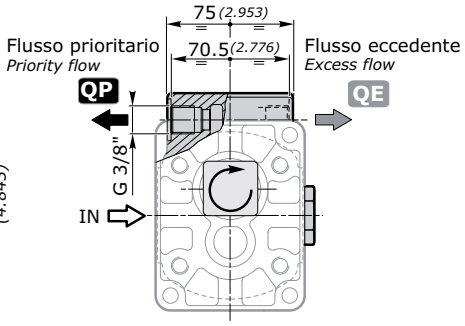
VRF — VALVOLA REGOLATRICE DI FLUSSO
PRIORITY FLOW DIVIDER VALVE

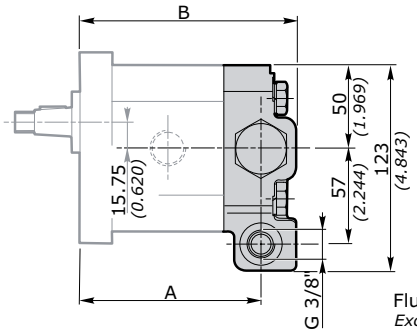


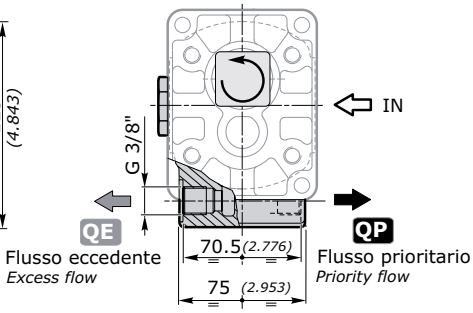


Flusso eccedente per utilizzi o serbatoio
Exceeding flow to actuator or to tank









GRUPPO GROUP 2	A						B					
	EUR - SAEA - B50C		B80C		E52C		EUR - SAEA - B50C		B80C		E52C	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2SP 040	91.8	*3.614*	93.8	*3.693*	89.1	*3.508*	112.8	*4.441*	114.8	*4.520*	110.1	*4.335*
2SP 060	95.1	*3.744*	97.1	*3.823*	92.4	*3.638*	116.1	*4.571*	118.1	*4.650*	113.4	*4.465*
2SP 080	99.3	*3.909*	101.3	*3.988*	96.6	*3.803*	120.3	*4.736*	122.3	*4.815*	117.6	*4.630*
2SP 110	103.4	*4.071*	105.4	*4.150*	100.7	*3.965*	124.4	*4.898*	126.4	*4.976*	121.7	*4.791*
2SP 140	108.4	*4.268*	110.4	*4.346*	105.7	*4.161*	129.4	*5.094*	131.4	*5.173*	126.7	*4.988*
2SP 160	112.6	*4.433*	114.6	*4.512*	109.9	*4.327*	133.6	*5.260*	135.6	*5.339*	130.9	*5.154*
2SP 190	117.6	*4.630*	119.6	*4.709*	114.9	*4.524*	138.6	*5.457*	140.6	*5.535*	135.9	*5.350*
2SP 220	122.6	*4.827*	124.6	*4.906*	119.9	*4.720*	143.6	*5.654*	145.6	*5.732*	140.9	*5.547*
2SP 260	128.4	*5.055*	130.4	*5.134*	125.7	*4.949*	149.4	*5.882*	151.4	*5.961*	146.7	*5.776*
2SP 310	136.8	*5.390*	138.8	*5.469*	134.1	*5.284*	157.8	*6.217*	159.8	*6.296*	155.1	*6.111*

esempio ● *example:* **2SP - A - 140 - D - EUR - B - N - 10 - 0 - G - VRF 5**

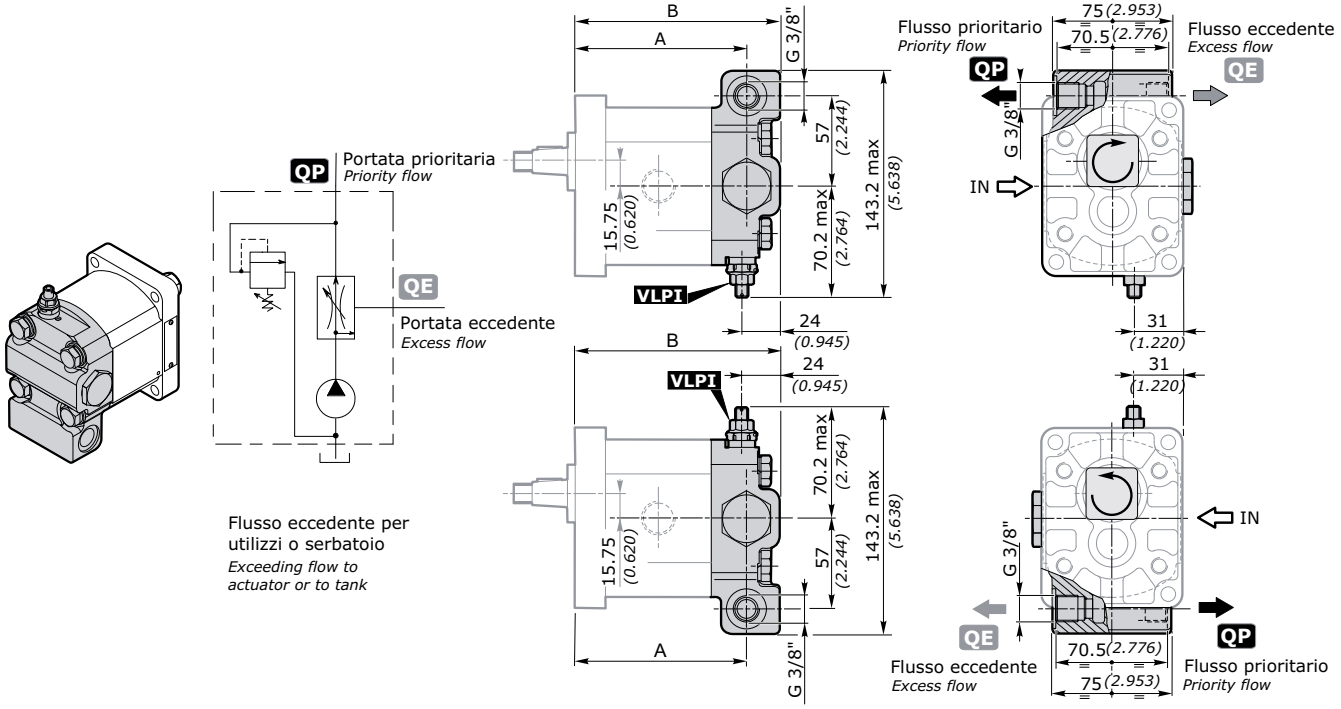
VRF = Coperchio con VRF / *Cover with VRF*
5 = portata prioritaria - vedi tabella / *Priority flow - see table*

VALORE VALUE	PORTATE - FLOWS	
	l/min	US gal/min
5	5	1.32
7	7	*1.85*
8	8	*2.12*
11	11	*2.91*
14	14	*3.70*
21	21	*6.54*

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

VRFVLPI

VALVOLA REGOLATRICE DI FLUSSO E VALVOLA LIMITTRICE DI PRESSIONE (SCARICO INTERNO)
PRIORITY FLOW DIVIDER VALVE AND PRESSURE RELIEF VALVE (INTERNAL EXHAUST)



GRUPPO GROUP 2	A						B					
	STD - SAEA - B50C		B80C		E52C		STD - SAEA - B50C		B80C		E52C	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2SP 040	91.8	*3.614*	93.8	*3.693*	89.1	*3.508*	112.8	*4.441*	114.8	*4.520*	110.1	*4.335*
2SP 060	95.1	*3.744*	97.1	*3.823*	92.4	*3.638*	116.1	*4.571*	118.1	*4.650*	113.4	*4.465*
2SP 080	99.3	*3.909*	101.3	*3.988*	96.6	*3.803*	120.3	*4.736*	122.3	*4.815*	117.6	*4.630*
2SP 110	103.4	*4.071*	105.4	*4.150*	100.7	*3.965*	124.4	*4.898*	126.4	*4.976*	121.7	*4.791*
2SP 140	108.4	*4.268*	110.4	*4.346*	105.7	*4.161*	129.4	*5.094*	131.4	*5.173*	126.7	*4.988*
2SP 160	112.6	*4.433*	114.6	*4.512*	109.9	*4.327*	133.6	*5.260*	135.6	*5.339*	130.9	*5.154*
2SP 190	117.6	*4.630*	119.6	*4.709*	114.9	*4.524*	138.6	*5.457*	140.6	*5.535*	135.9	*5.350*
2SP 220	122.6	*4.827*	124.6	*4.906*	119.9	*4.720*	143.6	*5.654*	145.6	*5.732*	140.9	*5.547*
2SP 260	128.4	*5.055*	130.4	*5.134*	125.7	*4.949*	149.4	*5.882*	151.4	*5.961*	146.7	*5.776*
2SP 310	136.8	*5.390*	138.8	*5.469*	134.1	*5.284*	157.8	*6.217*	159.8	*6.296*	155.1	*6.111*

POMPE AD INGRANAGGI GRUPPO 2SP
GEAR PUMPS GROUP 2SP

esempio ● *example:* **2SP - A - 140 - D - EUR - B - N - 10 - G - VRF 5 VLPI N 120**

VRF = Coperchio con VRF / *Cover with VRF*
5 = portata prioritaria - vedi tabella / *Priority flow - see table*
VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso si omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

VALORE VALUE	PORTATE - FLOWS	
	l/min	US gal/min
5	5	1.32
7	7	*1.85*
8	8	*2.12*
11	11	*2.91*
14	14	*3.70*
21	21	*6.54*

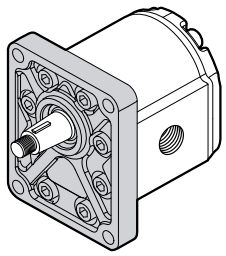
POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

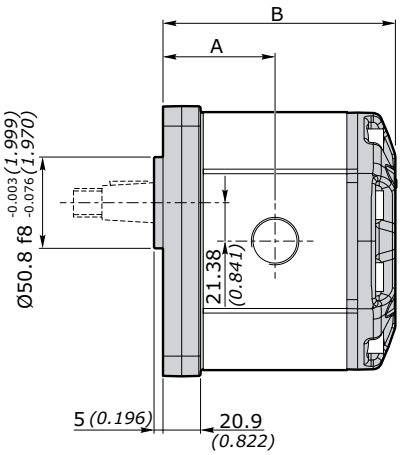
FLANGIA EUROPEA **EUR** *EUROPEAN FLANGE*

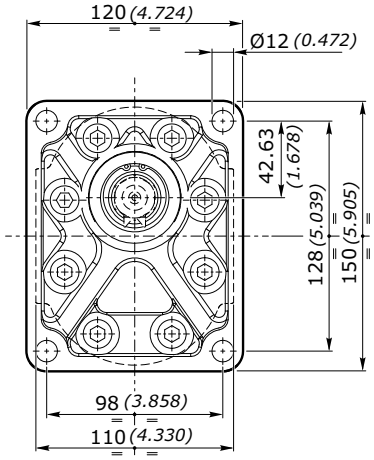
FLANGIA E COPERCHIO IN GHISA - *CAST IRON FLANGE AND COVER*

GRUPPO GROUP 3GP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
3GP 190	19.3	1.2	250	3625	270	3915	300	4350	3500	67.6	17.84	700	12.8	3.39	95*
3GP 230	23.0	1.4	240	3480	260	3770	290	4205	3500	80.3	21.22	700	15.5	4.03	95*
3GP 300	30.2	1.8	220	3190	240	3480	260	3770	3300	99.7	26.33	700	20.1	5.31	95*
3GP 340	33.8	2.1	220	3190	230	3335	260	3770	3300	111.6	29.49	700	22.5	5.94	95*
3GP 370	37.5	2.3	210	3045	230	3335	250	3625	3300	123.6	32.66	700	24.9	6.58	95*
3GP 440	44.6	2.7	200	2900	220	3190	240	3480	3000	133.8	35.35	700	29.7	7.84	95*
3GP 530	53.0	3.2	200	2900	210	3045	240	3480	3000	159.1	42.04	700	35.3	9.32	95*
3GP 620	62.7	3.8	180	2610	190	2755	200	2900	2500	156.8	41.41	700	41.7	11.01	95*
3GP 700	70.5	4.3	180	2610	200	2900	208	3016	2500	176.3	46.58	700	46.9	12.39	95*
3GP 770	77.2	4.7	170	2465	190	2755	196	2842	2200	169.8	44.84	700	51.3	13.56	95*

DIMENSIONI • *DIMENSIONS*







GRUPPO - GROUP 3	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
3GP 190	62.4	2.456	128.3	5.051	7.67	16.91
3GP 230	63.9	2.515	131.3	5.169	7.81	17.21
3GP 300	66.9	2.633	137.3	5.405	8.09	17.82
3GP 340	68.4	2.692	140.3	5.523	8.22	18.12
3GP 370	69.9	2.751	143.3	5.641	8.36	18.43
3GP 440	72.9	2.870	149.3	5.877	8.64	19.04
3GP 530	76.4	3.007	156.3	6.153	8.96	19.75
3GP 620	80.4	3.165	164.3	6.468	9.33	20.56
3GP 700	86.9	3.421	170.8	6.724	9.63	21.22
3GP 770	92.4	3.637	176.3	6.940	9.88	21.77

POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

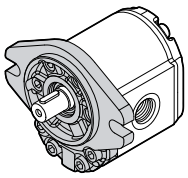
FLANGIA SAE **SAEB-SAEBOR** *SAE FLANGE*

FLANGIA E COPERCHIO IN GHISA - *CAST IRON FLANGE AND COVER*

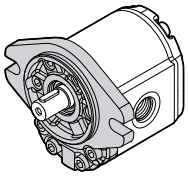
GRUPPO GROUP 3GP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
3GP 190	19.3	1.2	250	3625	270	3915	300	4350	3500	67.6	17.84	700	12.8	3.39	95*
3GP 230	23.0	1.4	240	3480	260	3770	290	4205	3500	80.3	21.22	700	15.5	4.03	95*
3GP 300	30.2	1.8	220	3190	240	3480	260	3770	3300	99.7	26.33	700	20.1	5.31	95*
3GP 340	33.8	2.1	220	3190	230	3335	260	3770	3300	111.6	29.49	700	22.5	5.94	95*
3GP 370	37.5	2.3	210	3045	230	3335	250	3625	3300	123.6	32.66	700	24.9	6.58	95*
3GP 440	44.6	2.7	200	2900	220	3190	240	3480	3000	133.8	35.35	700	29.7	7.84	95*
3GP 530	53.0	3.2	200	2900	210	3045	240	3480	3000	159.1	42.04	700	35.3	9.32	95*
3GP 620	62.7	3.8	180	2610	190	2755	200	2900	2500	156.8	41.41	700	41.7	11.01	95*
3GP 700	70.5	4.3	180	2610	200	2900	208	3016	2500	176.3	46.58	700	46.9	12.39	95*
3GP 770	77.2	4.7	170	2465	190	2755	196	2842	2200	169.8	44.84	700	51.3	13.56	95*

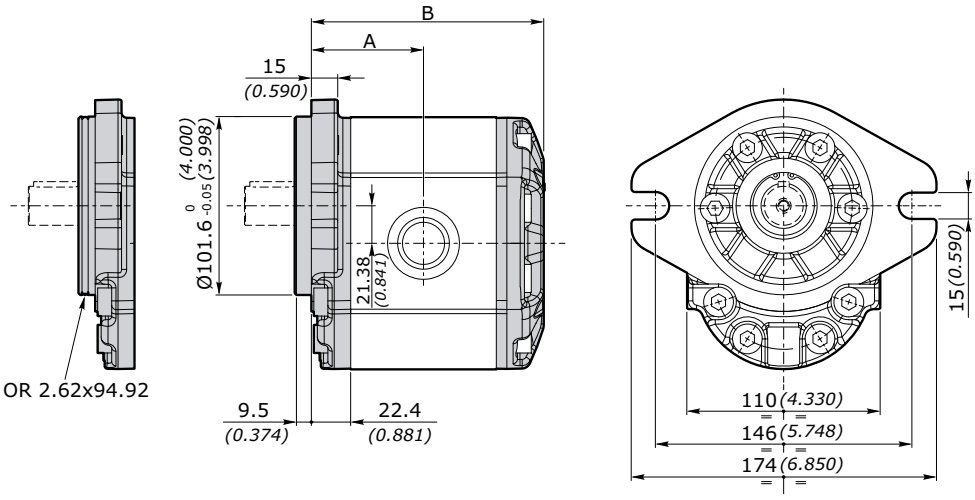
DIMENSIONI • *DIMENSIONS*

SAEB



SAEBOR





GRUPPO - GROUP 3	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
3GP 190	62.4	2.456	128.3	5.051	7.67	16.91
3GP 230	63.9	2.515	131.3	5.169	7.81	17.21
3GP 300	66.9	2.633	137.3	5.405	8.09	17.82
3GP 340	68.4	2.692	140.3	5.523	8.22	18.12
3GP 370	69.9	2.751	143.3	5.641	8.36	18.43
3GP 440	72.9	2.870	149.3	5.877	8.64	19.04
3GP 530	76.4	3.007	156.3	6.153	8.96	19.75
3GP 620	80.4	3.165	164.3	6.468	9.33	20.56
3GP 700	86.9	3.421	170.8	6.724	9.63	21.22
3GP 770	92.4	3.637	176.3	6.940	9.88	21.77

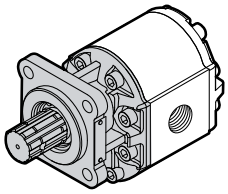
POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

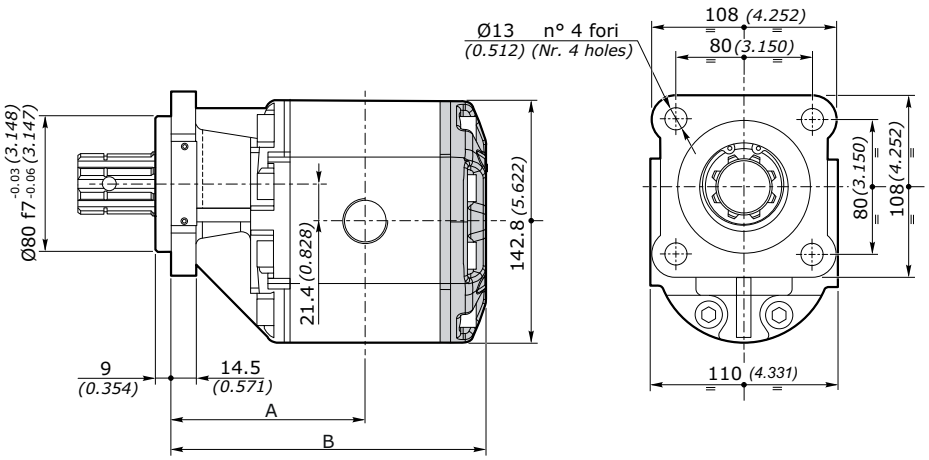
FLANGIA ZFC *FLANGE*

FLANGIA E COPERCHIO IN GHISA - *CAST IRON FLANGE AND COVER*

GRUPPO GROUP 3GP	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		P2		P3		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
3GP 190	19.3	1.2	250	3625	270	3915	300	4350	3500	67.6	17.84	700	12.8	3.39	95*
3GP 230	23.0	1.4	240	3480	260	3770	290	4205	3500	80.3	21.22	700	15.5	4.03	95*
3GP 300	30.2	1.8	220	3190	240	3480	260	3770	3300	99.7	26.33	700	20.1	5.31	95*
3GP 340	33.8	2.1	220	3190	230	3335	260	3770	3300	111.6	29.49	700	22.5	5.94	95*
3GP 370	37.5	2.3	210	3045	230	3335	250	3625	3300	123.6	32.66	700	24.9	6.58	95*
3GP 440	44.6	2.7	200	2900	220	3190	240	3480	3000	133.8	35.35	700	29.7	7.84	95*
3GP 530	53.0	3.2	200	2900	210	3045	240	3480	3000	159.1	42.04	700	35.3	9.32	95*
3GP 620	62.7	3.8	180	2610	190	2755	200	2900	2500	156.8	41.41	700	41.7	11.01	95*
3GP 700	70.5	4.3	180	2610	200	2900	208	3016	2500	176.3	46.58	700	46.9	12.39	95*
3GP 770	77.2	4.7	170	2465	190	2755	196	2842	2200	169.8	44.84	700	51.3	13.56	95*

DIMENSIONI • *DIMENSIONS*





GRUPPO - GROUP 3	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
3GP 190	110.5	4.350	177.4	6.984	7.67	16.91
3GP 230	112.0	4.409	180.4	7.102	7.81	17.21
3GP 300	115.0	4.527	186.4	7.338	8.09	17.82
3GP 340	116.5	4.586	189.4	7.456	8.22	18.12
3GP 370	118.0	4.645	192.4	7.574	8.36	18.43
3GP 440	121.0	4.763	198.4	7.811	8.64	19.04
3GP 530	124.5	4.901	205.4	8.086	8.96	19.75
3GP 620	128.5	5.059	213.4	8.401	9.33	20.56
3GP 700	131.7	5.185	219.9	8.657	9.63	21.22
3GP 770	134.5	5.295	225.4	8.874	9.88	21.77

POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

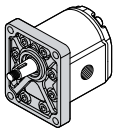
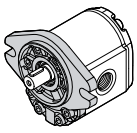
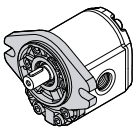
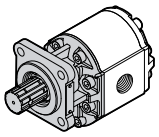
CODICE ORDINAZIONE • *ORDER CODE*

3GP - G - 340 - D - EUR - B - N - 10 - 0 - G

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
3GP	Tipo pompa *Pump type*	Pompa singola gruppo 3 *Single pump group 3*	8
G	Materiale flangia e coperchio *Flange and cover material*	**G** = Ghisa / *Cast iron*	
340	Cilindrata *Displacement*	Cilindrata = 33.8 cm^3/giro *Displacement = 2.1 in^3/rev*	8
D	Senso di rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
EUR	Tipo Flangia *Flange type*	Flangia standard europea *European standard flange*	64
B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	65
0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	67
G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

TIPOLOGIA FLANGIA • *FLANGE TYPE*

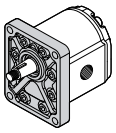
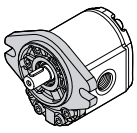
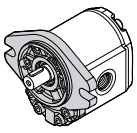
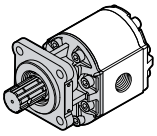
3GP	EUR	SAEB	SAEBOR	ZFC
				
A alluminio *aluminium*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*
G ghisa *cast iron*	◇	◇	◇	◇

◇ = Combinazione standard - *Standard combination*

ANELLO DI TENUTA • *SEAL RING*

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*
B	Anello di tenuta fino a **3** bar *Sealing ring up to **3** bar*	Per bassissime pressioni *For very low pressure*
H	Anello di tenuta fino a **8** bar *Sealing ring up to **8** bar*	Per basse pressioni (con distanziali di rinforzo) *For low pressure (with stiffering seal)*
K	Anello di tenuta fino a **30** bar *Sealing ring up to **30** bar*	Per alte pressioni *For high pressure*

COMBINAZIONE FLANGIA - ANELLO DI TENUTA - GUARNIZIONE • *FLANGE - SEAL RING - GASKET COMBINATION*

3GP		EUR			SAEB			SAEBOR			ZFC
											
		Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*
		B	**H**	**K**	**B**	**H**	**K**	**B**	**H**	**K**	**B**
NBR	**N**	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Viton	**V**	●	●	●	●	●	●	●	●	●	●

◇ = Combinazione standard - *Standard combination*

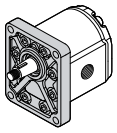
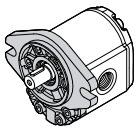
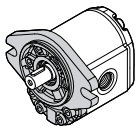
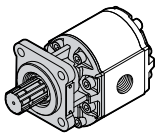
● = Combinazione disponibile - *Available combination*

esempio • *example:* **3GP - G - 340 - D - EUR - B - N - 10 - 0 - G**

EUR = Flangia europea / *European flange*
B = Anello tenuta fino a 3 bar / Seal ring up to 3 *bar*
N = *Guarnizione in NBR / NBR o-ring*

POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

COMBINAZIONE ALBERO - FLANGIA ● *SHAFT - FLANGE COMBINATION*

3GP	EUR	SAEB	SAEBOR	ZFC
				
10 Conico 1:8 *Tapered 1:8*	◇	●	●	
13 Cilindrico SAEB *SAEB Parallel shaft*	●	◇	◇	
14 Scanalato SAEB 13 denti (38.2) *SAEB 13T splined (38.2)*	●	◇	◇	
14R Scanalato SAEB 13 denti (44.7) *SAEB 13T splined (44.7)*	●	●	●	
24 Scanalato UNI8953 *UNI8953 Splined*				◇

◇ = Combinazione standard - *Standard combination*

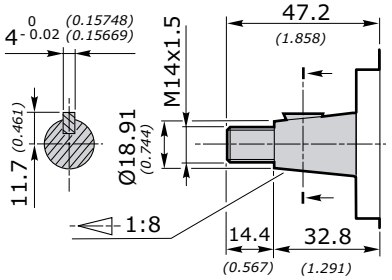
● = Combinazione disponibile - *Available combination*

3GP

DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

10
Conico 1:8
Tapered 1:8

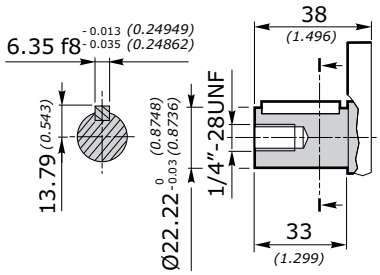
Coppia 240 Nm
Torque 178 ft-lbs



Disponibile per - *available for:* **EUR - SAEB - SAEBOR**

13
Cilindrico SAEB
SAEB Parallel shaft

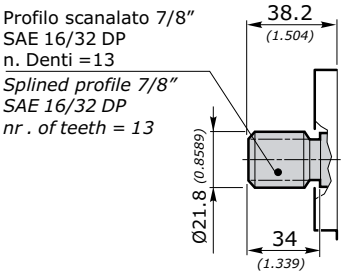
Coppia 200 Nm
Torque 148 ft-lbs



Disponibile per - *available for:* **EUR - SAEB - SAEBOR**

14
Scanalato SAEB
13 denti (38.2)
SAEB 13T splined (38.2)

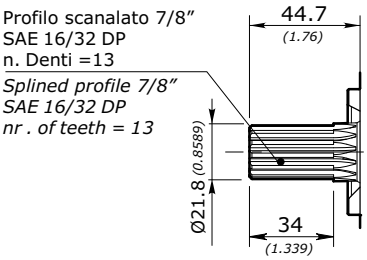
Coppia 270 Nm
Torque 200 ft-lbs



Disponibile per - *available for:* **EUR - SAEB - SAEBOR**

14R
Scanalato SAEB
13 denti (44.7)
SAEB 13T splined (44.7)

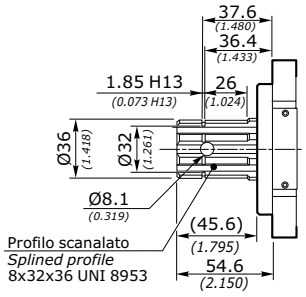
Coppia 270 Nm
Torque 200 ft-lbs



Disponibile per - *available for:* **EUR - SAEB - SAEBOR**

24
Scanalato
UNI8953
UNI8953 Splined

Coppia 330 Nm
Torque 245 ft-lbs



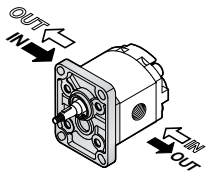
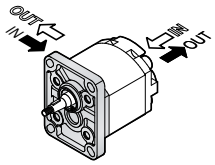
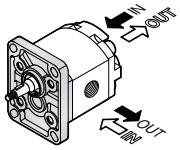
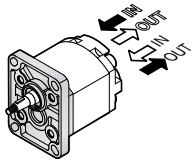
Disponibile per - *available for:* **ZFC**

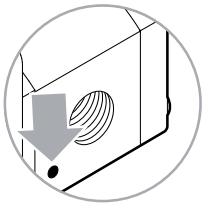
POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

POSIZIONE CONNESSIONE • *CONNECTION POSITION*

Rotazione destra - **D**
*Right rotation - **D***

Rotazione sinistra - **S**
*Left rotation - **S***

0	1	3	4
			



Il segno del corpo indica il lato aspirazione per le pompe
The sign on the body identify the suction side for the pumps

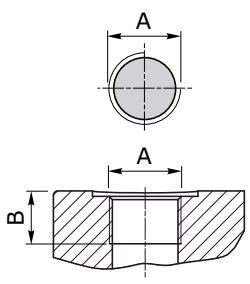
IN = ASPIRAZIONE - *SUCTION*
OUT = MANDATA - *DELIVERY*

TIPO CONNESSIONE • *CONNECTION TYPE*

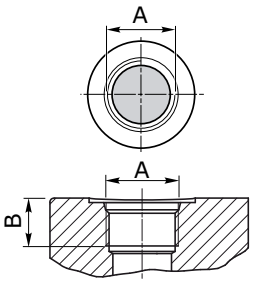
Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

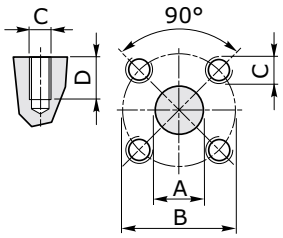
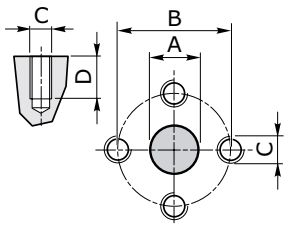
The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

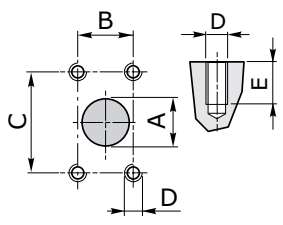
3GP		POSIZIONE CONNESSIONE - *CONNECTION POSITION*			
		0	**1**	**3**	**4**
GAS	**G**	◇	◇	◇	◇
UNF	**W**	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇			
	N	◇			
	F	◇			

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE - *SUCTION* **IN** A	B		MANDATA - *DELIVERY* **OUT** A	B	
		**G**	190	G 1"	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	G 3/4"	17 [mm] *0.670 [in.lbs]*	60 [mm] *531 [in.lbs]*
			230						
			300						
			340						
			370						
			440						
			530						
			630						
			700						
			770						

POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE *SUCTION* **IN** A	B		MANDATA *DELIVERY* **OUT** A	B	
		**W**	190 230 300 340 370 440 530 630 700 770	SAE 16 1"5/16-12 UN	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*

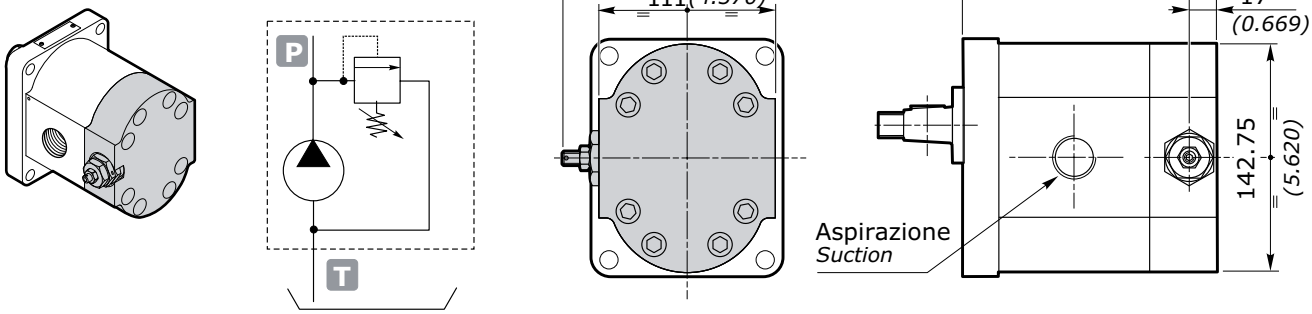
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE *SUCTION* **IN** A	B	C	D		MANDATA *DELIVERY* **OUT** A	B	C	D	
		**T**	190 230 300 340 370 440 530 630 700 770	26 [mm] *1.024* *[inch]*	55 [mm] *2.167* *[inch]*	M8	16 [mm] *0.630* *[inch]*	15 [Nm] *133* *[in.lbs]*	18 [mm] *0.709* *[inch]*	55 [mm] *2.167* *[inch]*	M8	16 [mm] *0.630* *[inch]*	15 [Nm] *133* *[in.lbs]*
		**N**	190 230 300 340 370 440 530 630 700 770	27 [mm] *1.064* *[inch]*	51 [mm] *2.009* *[inch]*	M10	15 [mm] *0.591* *[inch]*	20 [Nm] *177* *[in.lbs]*	19 [mm] *0.748* *[inch]*	40 [mm] *1.575* *[inch]*	M8	15 [mm] *0.591* *[inch]*	15 [Nm] *71* *[in.lbs]*

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	ASPIRAZIONE *SUCTION* **IN** A	B	C	D	E		MANDATA *DELIVERY* **OUT** A	B	C	D	E	
		**F**	190 230 300 340 370	27 [mm] *1.063* *[inch]*	26.2 [mm] *1.031* *[inch]*	52.4 [mm] *2.063* *[inch]*	M8	15 [mm] *0.591* *[inch]*	15 [Nm] *71* *[in.lbs]*	24 [mm] *0.945* *[inch]*	26.2 [mm] *1.031* *[inch]*	52.4 [mm] *2.063* *[inch]*	M8	15 [mm] *0.591* *[inch]*	15 [Nm] *71* *[in.lbs]*
			440 530 630 700 770	42 [mm] *1.654* *[inch]*	69.8 [mm] *2.748* *[inch]*	35.6 [mm] *1.402* *[inch]*	M8	15 [mm] *0.591* *[inch]*	15 [Nm] *71* *[in.lbs]*						

POMPE AD INGRANAGGI GRUPPO 3GP
GEAR PUMPS GROUP 3GP

OPZIONI • *OPTIONALS*

VLPI — VALVOLA LIMITATRICE DI PRESSIONE A SCARICO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL EXHAUST



GRUPPO GROUP 3	A EUR - SAEB - SAEBOR	
	mm	*inch*
3GP 190	146.30	*5.759*
3GP 230	149.30	*5.877*
3GP 300	155.30	*6.114*
3GP 340	158.30	*6.232*
3GP 370	161.30	*6.350*
3GP 440	167.30	*6.586*
3GP 530	174.30	*6.862*
3GP 620	182.30	*7.177*
3GP 700	188.30	*7.413*
3GP 770	194.30	*7.649*

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore (previsto solo scarico interno).
Coperchio VLP disponibile in alluminio
È rappresentata una pompa con rotazione sinistra.

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

The pressure relief valve can be applied by substituting the rear cover (only internal relief is set).
VLP cover available in aluminum.
The showed pump is anticlockwise rotation.

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

esempio • *example:* **3GP - A - 340 - D - EUR - B - N - 10 - 0 - G - VLPI N 120**

VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso si omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

INTRODUZIONE • *INTRODUCTION*

Le nostre pompe possono essere facilmente combinate in unità multiple con differenti cilindrate e gruppi.

Al momento sono disponibili due tipologie di kit intermedi per combinare assieme dette pompe: STANDARD e CORTO.

Lo standard consente di flangiare una pompa tradizionale con albero di tipo 10 senza alcuna necessità di smontare la flangia anteriore ma le dimensioni della pompa multipla finale non risultano contenute.

Più compatta è invece la soluzione corta dove al secondo stadio è necessario non avere la flangia e viene utilizzato un albero speciale di tipo 18. Gli ingombri in questo secondo caso sono ridotti ed è possibile utilizzare anche un'unica aspirazione per ridurre il numero dei tubi.

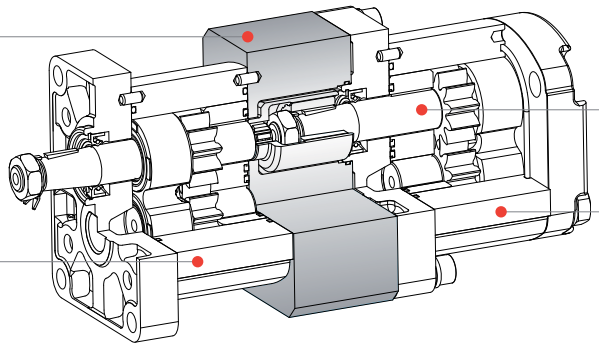
Our pumps can be easily combined into multiple units. Various displacement sizes and groups are available.

Two types of intermediate kit to combine these pumps are manufactured: standard and short.

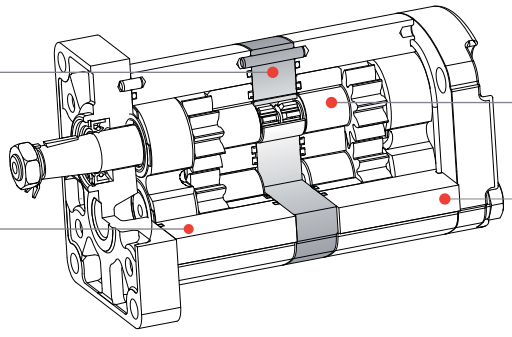
A traditional pump with n°10 shaft is flanged without removing the connection flange by means of the STANDARD kit. The final dimension of the assembly is longer.

The SHORT solution is more compact. In fact the connecting flange of the second stage is removed and the n°18 special shaft is provided. The final dimension is reduced and a single suction connection can be used in order to reduce the pipes number.

TANDEM STANDARD (TS) • *(TS) STANDARD TANDEM*



TANDEM CORTO (TC) • *(TC) SHORT TANDEM*



COPPIE TRASMISSIBILI DALLA GIUNZIONE *MAXIMUM COUPLING ADMISSIBLE TORQUE*	TANDEM STANDARD *STANDARD TANDEM*	TANDEM CORTO *SHORT TANDEM*
GRUPPO - *GROUP* **1SP**	30 [Nm] - *22 [ft.lbs]*	30 [Nm] - *22 [ft.lbs]*
GRUPPO - *GROUP* **2SP**	80 [Nm] - *59 [ft.lbs]*	80 [Nm] - *59 [ft.lbs]*
GRUPPO - *GROUP* **3GP**	230 [Nm] - *170 [ft.lbs]*	230 [Nm] - *170 [ft.lbs]*

POMPE MULTIPLE AD INGRANAGGI INFORMAZIONI TECNICHE
MULTIPLE GEAR PUMPS TECHNICAL INFORMAZIONI TECNICHE

VERIFICA COPPIE • *TORQUE CALCULATION*

Nella configurazione di una pompa multipla, vanno considerate le seguenti regole:

- Le varie unità vanno assemblate in ordine decrescente di potenza assorbita (di conseguenza anche coppia).
- La velocità massima di rotazione della pompa multipla è pari a quella dell'unità con velocità massima minore.
- Le pressioni di lavoro di ogni stadio coincidono con quelle della corrispondente pompa singola.
- La coppia trasmessa da ogni giunzione va verificata in modo che la somma delle coppie richieste dalle pompe successive sia inferiore al valore massimo trasmissibile dal giunto (vedi tabella).
- La somma delle coppie richieste dalle unità della pompa multipla deve risultare inferiore alla massima coppia trasmissibile dell'albero scelto.
- La potenza assorbita dalla pompa multipla è pari alla somma delle potenze assorbite dalle singole unità.

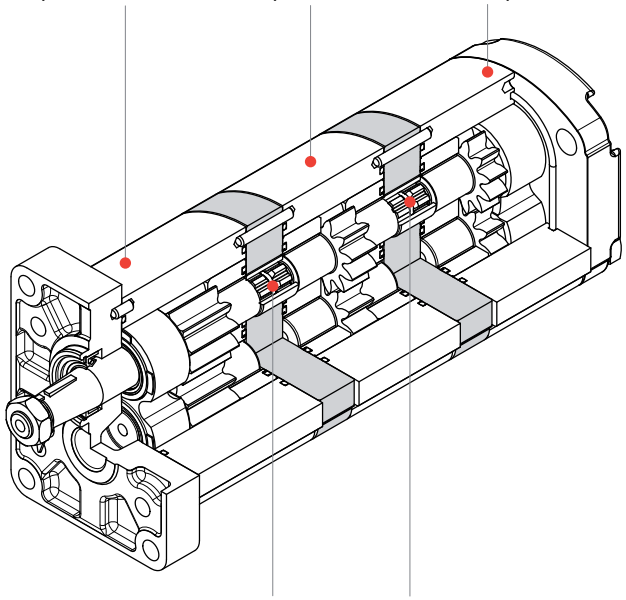
In multiple pumps definition, following aspects must be taken in account:

- *Different stages must be assembled from the biggest to the smallest in terms of required power and torque*
- *Maximum speed of multiple pump is the one of the stage with lowest maximum admissible speed*
- *Admissible working pressures of each stage of the multiple pump are the same of the corresponding single pump*
- *Transmissible torque must be verified for every single coupling: the sum of torque values of following stages must be lower than the transmissible torque of the coupling (see table)*
- *The sum of the torques required by the multiple pump unit must be lower than the shaft torque capacity*
- *The power required by multiple pump is equal to the sum of the power absorbed by the individual stages*

ESEMPIO POMPA TRIPLA *TRIPLE PUMP EXAMPLE*	UNITÀ *STAGE*	PRESSIONE LAVORO *WORKING PRESSURE*	COPPIA *TORQUE*
	2SP 160	150 bar	$M1 = \frac{150 \cdot 16}{62{,}83 \cdot 0{,}9}$ 42,4 Nm
2SP 160... + 2SP 080... + 2SP 060...	2SP 80	180 bar	$M2 = \frac{180 \cdot 8}{62{,}83 \cdot 0{,}9}$ 25,5 Nm
	2SP 60	120 bar	$M3 = \frac{120 \cdot 6}{62{,}83 \cdot 0{,}9}$ 12,7 Nm

$$\mathbf{M = \frac{\Delta p \cdot V}{63.83 \cdot \eta_m}}$$

Pompa **2SP 160** *Pump **2SP 160***
Pompa **2SP 080** *Pump **2SP 080***
Pompa **2SP 060** *Pump **2SP 060***



Giunzione **1/2** *Coupling **1/2***
Giunzione **2/3** *Coupling **2/3***

- VERIFICA GIUNZIONE 2/3 - *COUPLING 2/3:*

M3 = 12,7 Nm < 80 Nm √

- VERIFICA GIUNZIONE 1/2 - *COUPLING 1/2:*

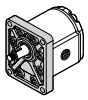
M2+M3 = 25,5 + 12,7 Nm = 38,2 Nm < 80 Nm √

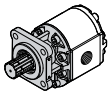
- VERIFICA ALBERO (TIPO 10) - *SHAFT (TYPE 10)*

M1 + M2 + M3 = 42,4 + 25,5 + 12,7 Nm = 80,6 Nm < 140 Nm √

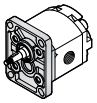
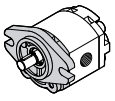
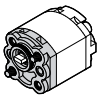
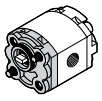
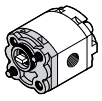
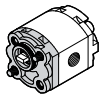
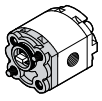
- VELOCITÀ MASSIMA - *MAXIMUN SPEED*

3500 giri/min - *rpm*

COMBINAZIONI POMPE MULTIPLE AD INGRANAGGI *MULTIPLE GEAR PUMPS COMBINATIONS*			**POMPA - *PUMP* 2**		
					
			1SP	**2SP**	**3GP**
POMPA - *PUMP* 1	**1SP**	Standard *Standard* **TS**	010911000000000		
		Corto *Short* **TC**	010911308680___ [1]		
	2SP	Standard *Standard* **TS**	010921100000000	010922000000000	
		Corto *Short* **TC**	010921010000000	010922291890___ [2]	
	3GP	Standard *Standard* **TS**	010G31000000000	010G32000000000	010G33000000000
		Corto *Short* **TC**	010G31010000000	010932100000000	010933100000000

EUR	SAEB	SAEBOR	ZFC
			
60	61	61	62

EUR	SAEA	SAEAOR	B80C	B50C	E52C	P400D	SUPEUR
							
36	38	38	40	41	42	43	44

EUR	SAEAA	MC32	E32BX	E32BC	E32CX	E32CC
						
20	21	22	23	24	25	26

(1) = vedi tabella 1.a pagina 73 / *see table 1.a page 73*
(2) = vedi tabella 2.a pagina 73 / *see table 2.a page 73*

POMPE MULTIPLE AD INGRANAGGI COMBINAZIONI
MULTIPLE GEAR PUMPS COMBINATIONS

1.a

ELENCO CODICI KIT FLANGIA INTERMEDIA E TIRANTE **1SP - 1SP** (TANDEM CORTO)
*PART LIST INTERMEDIATE FLANGE AND TIE ROD KIT **1SP - 1SP** (SHORT TANDEM)*

1SP	009	012	016	020	025	032	037	042	050	063	078	098
009	100											
012	100	100										
016	100	100	100									
020	100	100	100	100								
025	100	100	100	100	100							
032	100	100	100	100	200	200						
037	100	100	200	200	200	200	200					
042	100	200	200	200	200	200	200	300				
050	200	200	200	200	200	200	300	300	300			
063	200	200	200	200	300	300	300	300	300	400		
078	300	300	300	300	300	300	400	400	400	400	500	
098	300	300	300	400	400	400	400	400	500	500	600	600

Esempio codice di ordinazione - *Order code example*: 010911308680**100**
010911308680 = codice fisso - *fixed code*
100 = vedi tabella 1.a **-** *see table 1.a*

2.a

ELENCO CODICI KIT FLANGIA INTERMEDIA E TIRANTE **2SP - 2SP** (TANDEM CORTO)
*PART LIST INTERMEDIATE FLANGE AND TIE ROD KIT **2SP - 2SP** (SHORT TANDEM)*

2SP	040	060	080	110	140	160	190	220	260	310
040	100									
060	100	100								
080	100	100	200							
110	100	200	200	200						
140	200	200	200	300	300					
160	200	200	300	300	300	400				
190	200	300	300	300	400	400	500			
220	300	300	300	400	400	500	500	500		
260	300	400	400	400	500	500	500	600	600	
310	400	400	500	500	500	600	600			

Esempio codice di ordinazione - *Order code example*: 010922291890**100**
010922291890 = codice fisso - *fixed code*
100 = vedi tabella 2.a **-** *see table 2.a*

CODICE ORDINAZIONE • *ORDER CODE*

POMPA DOPPIA • *DOUBLE PUMP*
1SP + 1SP

PRIMA POMPA *FIRST PUMP* — SECONDA POMPA *SECOND PUMP*

1SP - A - 020 - D - EUR - B - N - 10 - 0 - G / TS / 1SP - A - 020 - 0 - G

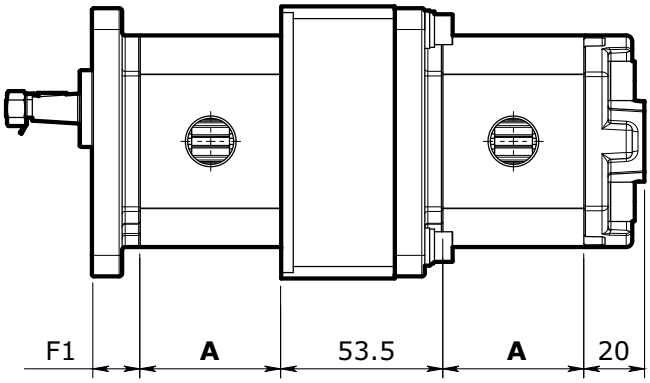
KIT INTERMEDIO *INTERMEDIATE KIT*

SIGLA - *CODE*		TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
PRIMA POMPA - *FIRST PUMP*	**1SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 1 *Single pump - group 1*	6
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	020	Cilindrata *Displacement*	Cilindrata = 2 cm³/giro *Displacement = 0.12 in³/rev*	6
	D	Senso di rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
	EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	28
	B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
	N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
	10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	29
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	32
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	
TS		Tipo TANDEM *TANDEM type*	**TS** = Tandem Standard / *Standard tandem* **TC** = Tandem Corto / *Short tandem*	
SECONDA POMPA - *SECOND PUMP*	**1SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 1 *Single pump - group 1*	6
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	020	Cilindrata *Displacement*	Cilindrata = 2 cm³/giro *Displacement = 0.12 in³/rev*	6
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	32
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

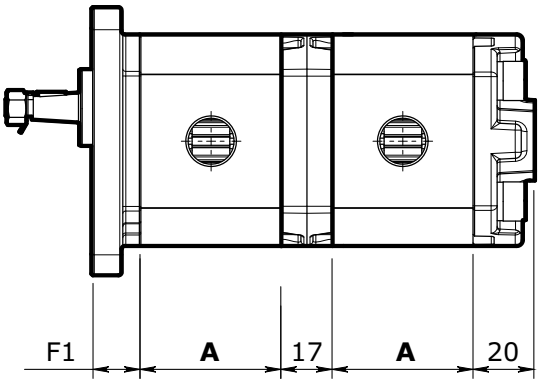
POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

DIMENSIONI • *DIMENSIONS*

TANDEM STANDARD TS • *TS STANDARD TANDEM*



TANDEM STANDARD TC • *TC STANDARD TANDEM*



1SP		CILINDRATA - *DISPLACEMENT*											
		009	**012**	**016**	**020**	**025**	**032**	**037**	**042**	**050**	**063**	**078**	**098**
A	mm	37.6	38.7	40.4	41.9	43.9	46.6	48.6	50.0	53.6	58.7	64.4	72.3
	in	*1.48*	*1.52*	*1.59*	*1.65*	*1.73*	*1.83*	*1.91*	*1.99*	*2.11*	*2.31*	*2.54*	*2.85*

1SP		FLANGIA - *FLANGE*						
		EUR	**SAEAA**	**MC32**	**E32BX**	**E32BC**	**E32CX**	**E32CC**
F1	mm	16	19,5	16	16	16	16	16
	in	*0,63*	*0,77*	*0,63*	*0,63*	*0,63*	*0,63*	*0,63*

VD

POMPA CON VALVOLA DISGIUNTRICE **1SP + 1SP**
*HIGH LOW PUMPS **1SP + 1SP***

La pompa con valvola disgiuntrice è una pompa in tandem a due stadi con una valvola di sequenza posta nella flangia intermedia. Quando la pompa lavora a bassa pressione la portata delle due pompe si somma per un avvicinamento o allontanamento rapido. Quando la pressione supera il valore di taratura della valvola di sequenza, questa mette a scarico la seconda pompa. La versatilità delle nostre pompe consente il montaggio di una pompa con valvola disgiuntrice utilizzando pompe singole ed effettuando solo operazioni di disassemblaggio/assemblaggio di estrema semplicità.

The high low pump is a two-stages tandem pump having a sequence valve on the intermediate flange.
When the pumps works at law pressure, the flows of the two pumps add up, allowing a rapid approaching or moving away of the actuator.
When the pressure exceeds the setting value of the sequence valve, the second pump's exhaust goes to the tank.
The versatility of our pumps allows the assembling a high low pump by using single pumps and only by carrying out very simple assembling/disassembling processes.

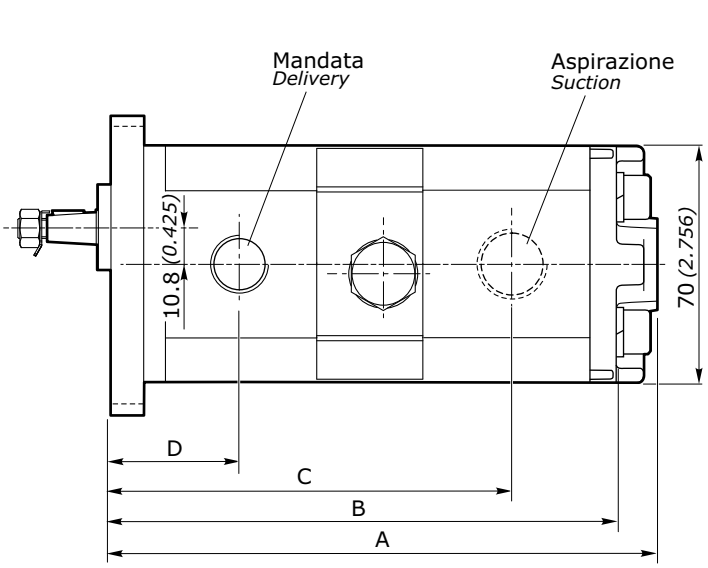
CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

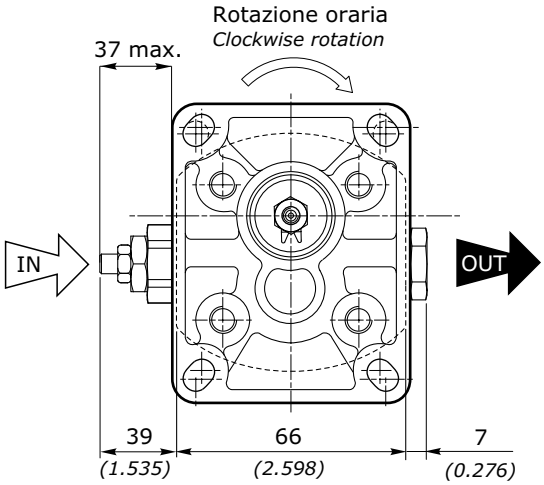
• Le prestazioni delle unità che compongono la pompa multipla sono identiche a quelle delle singole pompe precedenti.
• Questa pompa ha l'aspirazione unica e la mandata unica, l'aspirazione deve sempre essere nel secondo stadio e la mandata nel primo.
Può essere dotata di tutte le tipologie di flange presenti nella nostra gamma, di alberi e le relative connessioni.
• La valvola disgiuntrice è registrabile da 20 a 100 bar.

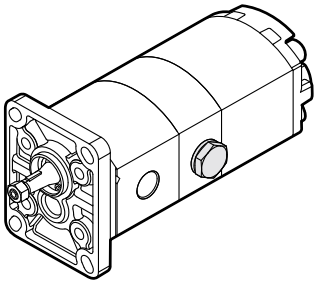
• *The performances of the units which make the multiple pump are identical to the ones of the previous single pumps.*
• *This pump has common suction and delivery: the suction always has to be at the second stage, while delivery always has to be at the first stage.*
It can be supplied with every kind of flanges, shafts and corresponding connections available in our range.
• *The high low pump can be set at 20 bar up to 100 bar.*

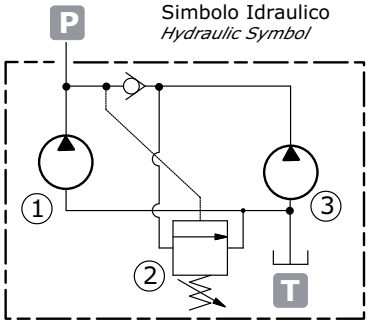
CILINDRATA 1° STADIO DISPLACEMENT 1ST STAGE		CILINDRATA 2° STADIO DISPLACEMENT 2ND STAGE		PRESSIONE MAX MAX PRESSURE P1		CAMPO TARATURA SETTING RANGE P1		DIMENSIONI - DIMENSIONS A		B		C		D		MASSA MASS	
cm³/giro	in³/rev	cm³/giro	in³/rev	bar	psi	bar	psi	mm	inch	mm	inch	mm	inch	mm	inch	Kg	lbs
		3.7	*0.23*					154.2	*6.071*	142.2	*5.598*	109.9	*4.327*			1.89	*4.17*
		4.2	*0.26*					156.1	*6.146*	144.1	*5.673*	110.9	*4.364*			1.91	*4.21*
0.9	*0.05*	**5.0**	*0.31*	240	*3480*	20÷100	*218÷725*	159.2	*6.268*	147.2	*5.795*	112.4	*4.425*	34.8	*1.370*	1.96	*4.32*
		6.3	*0.38*					164.3	*6.469*	152.3	*5.996*	115.0	*4.526*			2.04	*4.50*
		7.8	*0.47*					160.0	*6.299*	148.0	*5.827*	112.8	*4.441*			2.13	*4.70*
		9.8	*0.60*					177.9	*7.004*	165.9	*6.531*	121.8	*4.793*			2.23	*4.92*
		3.7	*0.23*					155.3	*6.114*	143.3	*5.642*	111.0	*4.370*			1.91	*4.21*
		4.2	*0.26*					157.2	*6.189*	145.2	*5.717*	112.0	*4.407*			1.92	*4.23*
1.2	*0.07*	**5.0**	*0.31*	240	*3480*	20÷100	*218÷725*	160.3	*6.311*	148.3	*5.839*	113.5	*4.469*	35.1	*1.382*	1.98	*4.37*
		6.3	*0.38*					165.4	*6.512*	153.4	*6.039*	116.1	*4.569*			2.05	*4.52*
		7.8	*0.47*					161.1	*6.343*	149.1	*5.870*	113.9	*4.484*			2.14	*4.72*
		9.8	*0.60*					179.0	*7.047*	167.0	*6.575*	122.9	*4.837*			2.25	*4.96*
		3.7	*0.23*					157.0	*6.181*	145.0	*5.709*	112.7	*4.437*			1.93	*4.26*
		4.2	*0.26*					158.9	*6.256*	146.9	*5.783*	113.7	*4.474*			1.95	*4.30*
1.6	*0.10*	**5.0**	*0.31*	240	*3480*	20÷100	*218÷725*	162.0	*6.378*	150.0	*5.906*	115.2	*4.535*	36.2	*1.425*	2.00	*4.41*
		6.3	*0.38*					167.1	*6.579*	155.1	*6.106*	117.8	*4.636*			2.07	*4.56*
		7.8	*0.47*					162.8	*6.409*	150.8	*5.937*	115.6	*4.551*			2.17	*4.78*
		9.8	*0.60*					180.7	*7.114*	168.7	*6.642*	124.6	*4.904*			2.27	*5.01*
		3.7	*0.23*					158.5	*6.240*	146.5	*5.768*	114.2	*4.496*			1.95	*4.30*
		4.2	*0.26*					160.4	*6.315*	148.4	*5.843*	115.2	*4.533*			1.97	*4.34*
2.0	*0.12*	**5.0**	*0.31*	220	*3190*	20÷100	*218÷725*	163.5	*6.437*	151.5	*5.965*	116.7	*4.594*	37.0	*1.457*	2.02	*4.45*
		6.3	*0.38*					168.6	*6.638*	156.6	*6.165*	119.3	*4.695*			2.09	*4.61*
		7.8	*0.47*					164.3	*6.469*	152.3	*5.996*	117.1	*4.610*			2.19	*4.83*
		9.8	*0.60*					182.2	*7.173*	170.2	*6.701*	126.1	*4.963*			2.29	*5.05*
		3.7	*0.23*					160.5	*6.319*	148.5	*5.846*	116.2	*4.575*			1.98	*4.37*
		4.2	*0.26*					162.4	*6.394*	150.4	*5.921*	117.2	*4.612*			1.99	*4.39*
2.5	*0.15*	**5.0**	*0.31*	220	*3190*	20÷100	*218÷725*	165.5	*6.516*	153.5	*6.043*	118.7	*4.673*	38.0	*1.496*	2.04	*4.50*
		6.3	*0.38*					170.6	*6.717*	158.6	*6.244*	121.3	*4.774*			2.12	*4.67*
		7.8	*0.47*					166.3	*6.547*	154.3	*6.075*	119.1	*4.689*			2.21	*4.87*
		9.8	*0.60*					184.2	*7.252*	172.2	*6.780*	128.1	*5.041*			2.32	*5.12*
		3.7	*0.23*					163.2	*6.425*	151.2	*5.953*	118.9	*4.681*			2.01	*4.43*
		4.2	*0.26*					165.1	*6.500*	153.1	*6.028*	119.9	*4.719*			2.03	*4.48*
3.2	*0.20*	**5.0**	*0.31*	210	*3045*	20÷100	*218÷725*	168.2	*6.622*	156.2	*6.150*	121.4	*4.780*	39.3	*1.547*	2.08	*4.59*
		6.3	*0.38*					173.3	*6.823*	161.3	*6.350*	124.0	*4.880*			2.15	*4.74*
		7.8	*0.47*					169.0	*6.654*	157.0	*6.181*	121.8	*4.795*			2.25	*4.96*
		9.8	*0.60*					186.9	*7.358*	174.9	*6.886*	130.8	*5.148*			2.35	*5.18*

POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS









1 Stadio alta pressione
Stage high pressure

2 Flangia intermedia con valvola disgiuntrice
Intermediate flange with high low pump

3 Stadio bassa pressione
Stage low pressure

esempio ● *example:* **1SP - A - 020 - D - EUR - B - N - 10 - 0 - G / VD 100 / 1SP - A - 020 - 0 - G**

VD = Valvola disgiuntrice / *High low pump*
100 = Campo di Taratura 20÷100 (bar) / *Setting range 20÷100 (bar)*

CODICE ORDINAZIONE • *ORDER CODE*

POMPA DOPPIA • *DOUBLE PUMP*
2SP + 1SP

PRIMA POMPA
FIRST PUMP

SECONDA POMPA
SECOND PUMP

2SP - A - 140 - D - EUR - B - N - 10 - 0 - G / TS / 1SP - A - 020 - 0 - G

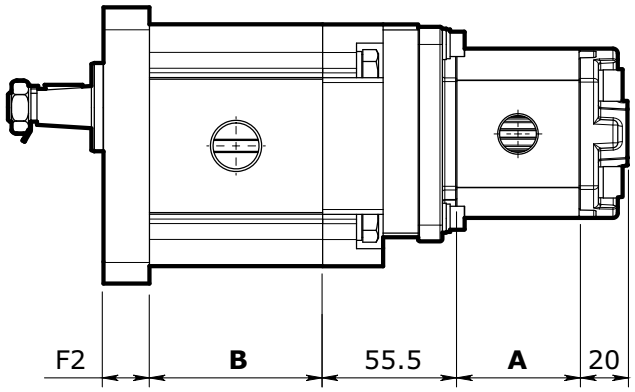
KIT INTERMEDIO
INTERMEDIATE KIT

SIGLA - *CODE*		TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
PRIMA POMPA - *FIRST PUMP*	**2SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 2 *Single pump - group 2*	7
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	140	Cilindrata *Displacement*	Cilindrata = 12 cm^3/giro *Displacement = 0.85 in^3/rev*	7
	D	Senso di rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
	EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	48
	B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
	N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
	10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	49
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	52
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	53
TS		Tipo TANDEM *TANDEM type*	**TS** = Tandem Standard / *Standard tandem* **TC** = Tandem Corto / *Short tandem*	
SECONDA POMPA - *SECOND PUMP*	**1SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 1 *Single pump - group 1*	6
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	020	Cilindrata *Displacement*	Cilindrata = 2 cm^3/giro *Displacement = 0.12 in^3/rev*	6
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	32
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

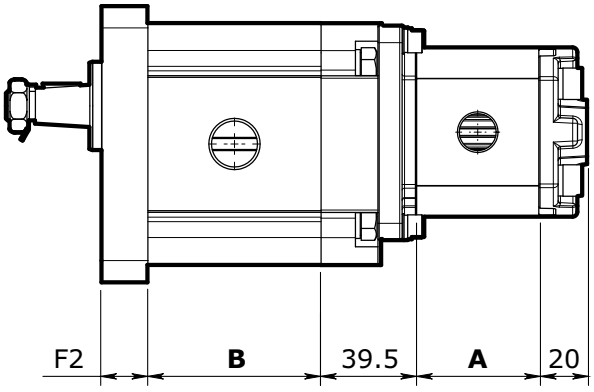
POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

DIMENSIONI • *DIMENSIONS*

TANDEM STANDARD TS • *TS STANDARD TANDEM*



TANDEM CORTO TC • *TC SHORT TANDEM*



1SP		CILINDRATA - *DISPLACEMENT*											
		009	**012**	**016**	**020**	**025**	**032**	**037**	**042**	**050**	**063**	**078**	**098**
A	mm	37.6	38.7	40.4	41.9	43.9	46.6	48.6	50.0	53.6	58.7	64.4	72.3
	in	*1.48*	*1.52*	*1.59*	*1.65*	*1.73*	*1.83*	*1.91*	*1.99*	*2.11*	*2.31*	*2.54*	*2.85*

2SP		CILINDRATA - *DISPLACEMENT*									
		040	**060**	**080**	**110**	**140**	**160**	**190**	**220**	**260**	**310**
B	mm	50.8	54.1	58.3	62.4	67.4	71.6	76.6	81.6	87.4	95.8
	in	*2.00*	*2.13*	*2.30*	*2.46*	*2.65*	*2.82*	*3.02*	*3.21*	*3.44*	*3.77*

2SP		FLANGIA - *FLANGE*						
		EUR	**SAEA**	**B80C**	**B50C**	**E32C**	**M52C**	**P400D**
F2	mm	19	19	21	19	16.3	16.3	19
	in	*0.75*	*0.75*	*0.83*	*0.75*	*0.64*	*0.64*	*0.75*

POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

CODICE ORDINAZIONE • *ORDER CODE*

POMPA DOPPIA • *DOUBLE PUMP*
2SP + 2SP

PRIMA POMPA *FIRST PUMP* — SECONDA POMPA *SECOND PUMP*

2SP - A - 140 - D - EUR - B - N - 10 - 0 - G / TS / 2SP - A - 140 - 0 - G

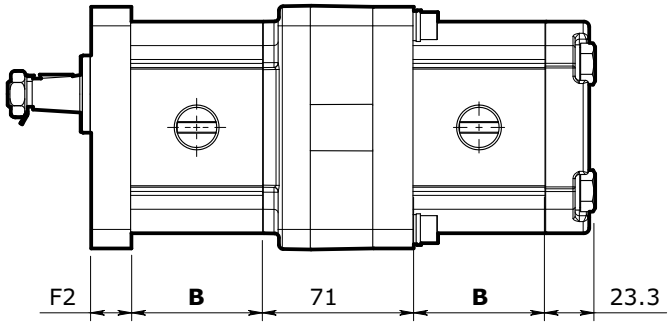
KIT INTERMEDIO *INTERMEDIATE KIT*

SIGLA - *CODE*		TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
PRIMA POMPA - *FIRST PUMP*	**2SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 2 *Single pump - group 2*	7
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	140	Cilindrata *Displacement*	Cilindrata = 14 cm³/giro *Displacement = 0.85 in³/rev*	7
	D	Tipo rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
	EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	48
	B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
	N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
	10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	49
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	52
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	53
TS		Tipo TANDEM *TANDEM type*	**TS** = Tandem Standard / *Standard tandem* **TC** = Tandem Corto / *Short tandem*	
SECONDA POMPA - *SECOND PUMP*	**2SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 2 *Single pump - group 2*	7
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	140	Cilindrata *Displacement*	Cilindrata = 14 cm³/giro *Displacement = 0.85 in³/rev*	7
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	52
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	53

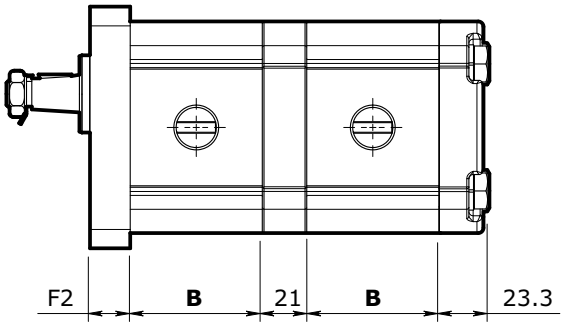
POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

DIMENSIONI • *DIMENSIONS*

TANDEM STANDARD TS • *TS STANDARD TANDEM*



TANDEM CORTO TC • *TC SHORT TANDEM*



2SP		CILINDRATA - *DISPLACEMENT*									
		040	**060**	**080**	**110**	**140**	**160**	**190**	**220**	**260**	**310**
B	mm	50.8	54.1	58.3	62.4	67.4	71.6	76.6	81.6	87.4	95.8
	in	*2.00*	*2.13*	*2.30*	*2.46*	*2.65*	*2.82*	*3.02*	*3.21*	*3.44*	*3.77*

2SP		FLANGIA - *FLANGE*					
		EUR	**SAEA**	**B80C**	**B50C**	**E32C**	**P400D**
F2	mm	19	19	21	19	16.3	19
	in	*0.75*	*0.75*	*0.83*	*0.75*	*0.64*	*0.75*

VD

POMPA CON VALVOLA DISGIUNTRICE **2SP + 2SP**
*HIGH LOW PUMPS **2SP + 2SP***

La pompa con valvola disgiuntrice è una pompa in tandem a due stadi con una valvola di sequenza posta nella flangia intermedia. Quando la pompa lavora a bassa pressione la portata delle due pompe si somma per un avvicinamento o allontanamento rapido. Quando la pressione supera il valore di taratura della valvola di sequenza, questa mette a scarico la seconda pompa. La versatilità delle nostre pompe consente il montaggio di una pompa con valvola disgiuntrice utilizzando pompe singole ed effettuando solo operazioni di disassemblaggio/assemblaggio di estrema semplicità.

The high low pump is a two-stages tandem pump having a sequence valve on the intermediate flange.
When the pumps works at law pressure, the flows of the two pumps add up, allowing a rapid approaching or moving away of the actuator.
When the pressure exceeds the setting value of the sequence valve, the second pump's exhaust goes to the tank.
The versatility of our pumps allows the assembling a high low pump by using single pumps and only by carrying out very simple assembling/disassembling processes.

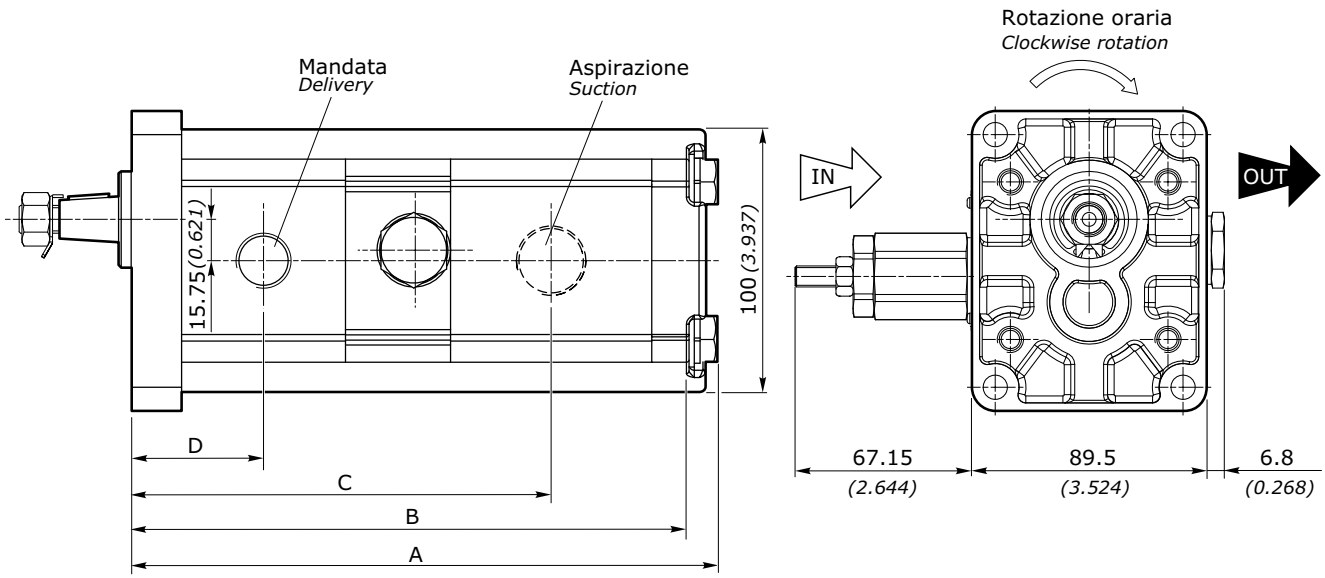
CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

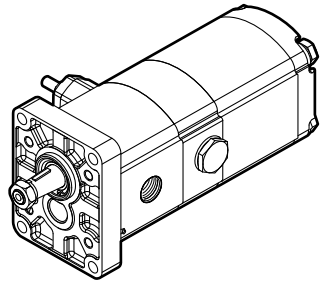
• Le prestazioni delle unità che compongono la pompa multipla sono identiche a quelle delle singole pompe precedenti.
• Questa pompa ha l'aspirazione unica e la mandata unica, l'aspirazione deve sempre essere nel secondo stadio e la mandata nel primo. Può essere dotata di tutte le tipologie di flange presenti nella nostra gamma, di alberi e le relative connessioni (tranne gli attacchi N, M e F).
• La valvola disgiuntrice è registrabile da 25 a 100 bar.

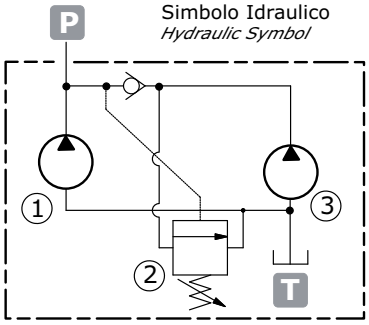
• *The performances of the units which make the multiple pump are identical to the ones of the previous single pumps.*
• *This pump has common suction and delivery: the suction always has to be at the second stage, while delivery always has to be at the first stage. It can be supplied with every kind of flanges, shafts and corresponding connections except the connections type N, M and F.*
• *The high low pump can be set at 25 bar up to 100 bar.*

CILINDRATA 1° STADIO DISPLACEMENT 1ST STAGE		CILINDRATA 2° STADIO DISPLACEMENT 2ND STAGE		PRESSIONE MAX MAX PRESSURE P1		CAMPO TARATURA SETTING RANGE P1		DIMENSIONI - DIMENSIONS A		B		C		D		MASSA MASS	
cm³/giro	*in³/rev*	*cm³/giro*	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*Kg*	*lbs*
		16	*0.88*					204.7	*8.06*	195.6	*7.70*	145.6	*5.73*			5.22	*11.52*
		19	*1.05*					209.7	*8.26*	200.6	*7.90*	148.1	*5.83*			5.34	*11.78*
4	*0.22*	**22**	*1.21*	250	*3625*	25÷100	*363÷1450*	214.7	*8.45*	205.6	*8.09*	150.6	*5.93*	44.4	*1.75*	5.47	*12.07*
		26	*1.43*					220.5	*8.68*	211.4	*8.32*	153.5	*6.04*			5.61	*12.38*
		28	*1.54*					223.8	*8.81*	214.7	*8.45*	155.2	*6.12*			5.77	*12.73*
		16	*0.88*					208.0	*8.19*	198.9	*7.83*	148.9	*5.86*			5.29	*11.67*
		19	*1.05*					213.0	*8.39*	203.9	*8.03*	151.4	*5.96*			5.42	*11.96*
6	*0.33*	**22**	*1.21*	250	*3625*	25÷100	*363÷1450*	218.0	*8.58*	208.9	*8.22*	153.9	*6.06*	46.1	*1.82*	5.54	*12.22*
		26	*1.43*					223.8	*8.81*	214.7	*8.45*	156.8	*6.17*			5.75	*12.68*
		28	*1.54*					229.1	*9.02*	218.0	*8.58*	158.5	*6.25*			5.86	*12.93*
		16	*0.88*					214.2	*8.43*	203.1	*8.00*	153.1	*6.03*			5.43	*11.98*
		19	*1.05*					219.2	*8.63*	208.1	*8.19*	155.6	*6.13*			5.57	*12.29*
8	*0.44*	**22**	*1.21*	250	*3625*	25÷100	*363÷1450*	224.2	*8.83*	213.1	*8.39*	158.1	*6.22*	48.2	*1.90*	5.71	*12.60*
		26	*1.43*					230.0	*9.06*	218.9	*8.62*	161.0	*6.34*			5.85	*12.91*
		28	*1.54*					233.3	*9.19*	222.2	*8.75*	162.7	*6.41*			5.97	*13.17*
		16	*0.88*					218.3	*8.59*	207.2	*8.16*	157.2	*6.19*			5.54	*12.22*
		19	*1.05*					223.3	*8.79*	212.2	*8.35*	159.7	*6.29*			5.69	*12.55*
11	*0.61*	**22**	*1.21*	250	*3625*	25÷100	*363÷1450*	228.3	*8.99*	217.2	*8.55*	162.2	*6.39*	50.2	*1.98*	5.82	*12.84*
		26	*1.43*					234.1	*9.22*	223.0	*8.78*	165.1	*6.50*			5.98	*13.19*
		28	*1.54*					235.4	*9.27*	226.3	*8.91*	166.8	*6.57*			6.17	*13.61*
		16	*0.88*					223.3	*8.79*	212.2	*8.35*	162.2	*6.39*			5.69	*12.55*
		19	*1.05*					228.3	*8.99*	217.2	*8.55*	164.7	*6.48*			5.81	*12.82*
14	*0.77*	**22**	*1.21*	250	*3625*	25÷100	*363÷1450*	233.3	*9.19*	222.2	*8.75*	167.2	*6.58*	52.7	*2.07*	5.94	*13.10*
		26	*1.43*					239.1	*9.41*	228.0	*8.98*	170.1	*6.70*			6.08	*13.41*
		28	*1.54*					240.4	*9.46*	231.3	*9.11*	171.8	*6.77*			6.20	*13.68*

POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS







1 Stadio alta pressione
Stage high pressure

2 Flangia intermedia con valvola disgiuntrice
Intermediate flange with high low pump

3 Stadio bassa pressione
Stage low pressure

esempio ● *example:* **2SP - A - 140 - D - EUR - B - N - 10 - 0 - G / VD 100 / 2SP - A - 110 - 0 - G**

VD = Valvola disgiuntrice / *High low pump*
100 = Campo di Taratura 25÷100 (bar) / *Setting range 25÷100 (bar)*

CODICE ORDINAZIONE • *ORDER CODE*

POMPA DOPPIA • *DOUBLE PUMP*
3GP + 1SP

PRIMA POMPA
FIRST PUMP

SECONDA POMPA
SECOND PUMP

3GP - A - 340 - D - EUR - B - N - 10 - 0 - G / TS / 1SP - A - 020 - 0 - G

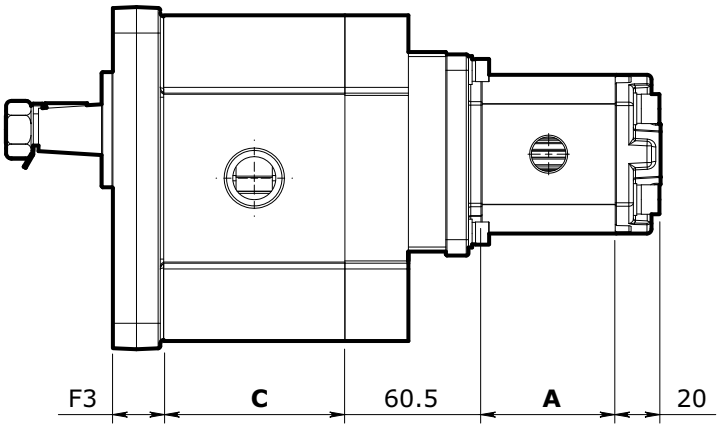
KIT INTERMEDIO
INTERMEDIATE KIT

SIGLA - *CODE*		TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
PRIMA POMPA - *FIRST PUMP*	**3GP**	Tipo pompa *Pump type*	Pompa singola - gruppo 3 *Single pump - group 3*	8
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	340	Cilindrata *Displacement*	Cilindrata = 33,8 cm^3/giro *Displacement = 2.1 in^3/rev*	8
	D	Tipo rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
	EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	64
	B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
	N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
	10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	65
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	67
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	
TS		Tipo TANDEM *TANDEM type*	**TS** = Tandem Standard / *Standard tandem* **TC** = Tandem Corto / *Short tandem*	
SECONDA POMPA - *SECOND PUMP*	**1SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 1 *Single pump - group 1*	6
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	020	Cilindrata *Displacement*	Cilindrata = 2 cm^3/giro *Displacement = 0.12 in^3/rev*	6
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	32
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

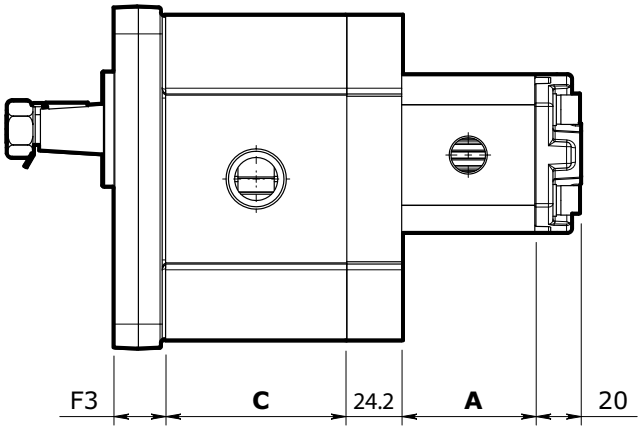
POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

DIMENSIONI • *DIMENSIONS*

TANDEM STANDARD TS • *TS STANDARD TANDEM*



TANDEM CORTO TC • *TC SHORT TANDEM*



1SP		CILINDRATA - *DISPLACEMENT*											
		009	**012**	**016**	**020**	**025**	**032**	**037**	**042**	**050**	**063**	**078**	**098**
A	mm	37.6	38.7	40.4	41.9	43.9	46.6	48.6	50.0	53.6	58.7	64.4	72.3
	in	*1.48*	*1.52*	*1.59*	*1.65*	*1.73*	*1.83*	*1.91*	*1.99*	*2.11*	*2.31*	*2.54*	*2.85*

3GP		CILINDRATA - *DISPLACEMENT*									
		190	**230**	**300**	**340**	**370**	**440**	**530**	**620**	**700**	**770**
C	mm	79.9	82.9	88.9	91.9	94.9	100.9	107.9	115.9	112.5	127.9
	in	*3.15*	*3.26*	*3.50*	*3.62*	*3.74*	*3.97*	*4.25*	*4.56*	*4.82*	*5.04*

3GP		FLANGIA - *FLANGE*		
		EUR	**SAEB**	**ZFC**
F3	mm	22.4	22.4	70.5
	in	*0.88*	*0.88*	*2.78*

CODICE ORDINAZIONE • *ORDER CODE*

POMPA DOPPIA • *DOUBLE PUMP*
3GP + 2SP

PRIMA POMPA
FIRST PUMP

SECONDA POMPA
SECOND PUMP

3GP - A - 340 - D - EUR - B - N - 10 - 0 - G / TS / 2SP - A - 140 - 0 - G

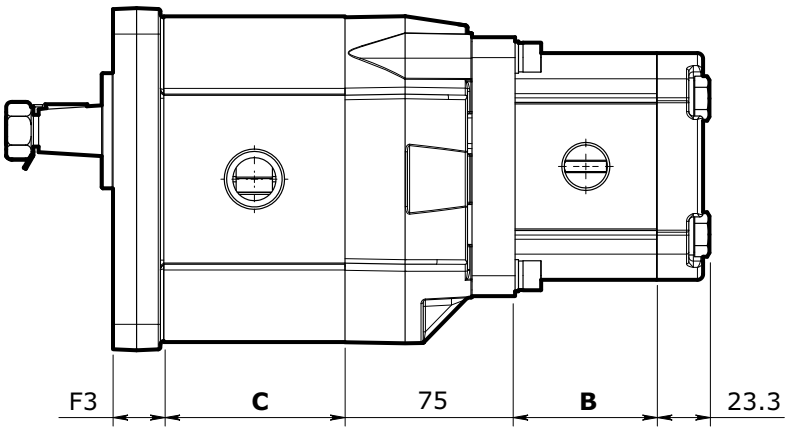
KIT INTERMEDIO
INTERMEDIATE KIT

SIGLA - *CODE*		TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
PRIMA POMPA - *FIRST PUMP*	**3GP**	Tipo pompa *Pump type*	Pompa singola - gruppo 3 *Single pump - group 3*	8
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	340	Cilindrata *Displacement*	Cilindrata = 33.8 cm³/giro *Displacement = 2.1 in³/rev*	8
	D	Tipo rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
	EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	64
	B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
	N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
	10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	65
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	67
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	
TS		Tipo TANDEM *TANDEM type*	**TS** = Tandem Standard / *Standard tandem* **TC** = Tandem Corto / *Short tandem*	
SECONDA POMPA - *SECOND PUMP*	**2SP**	Tipo pompa *Pump type*	Pompa singola - gruppo 2 *Single pump - group 2*	7
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	140	Cilindrata *Displacement*	Cilindrata = 14 cm³/giro *Displacement = 0.85 in³/rev*	7
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	52
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	53

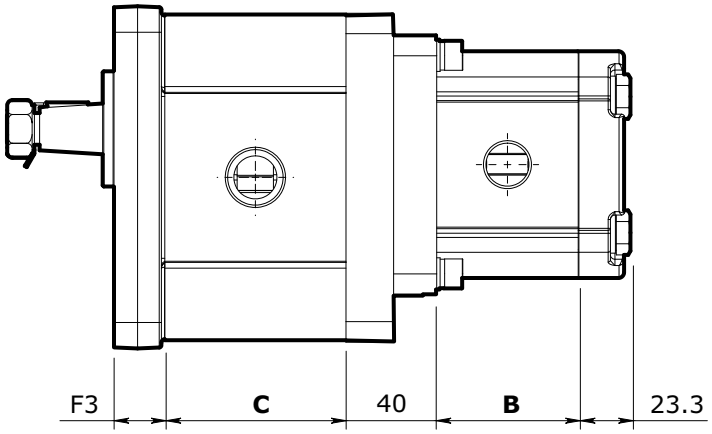
POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

DIMENSIONI • *DIMENSIONS*

TANDEM STANDARD TS • *TS STANDARD TANDEM*



TANDEM CORTO TC • *TC SHORT TANDEM*



2SP		CILINDRATA - *DISPLACEMENT*									
		040	**060**	**080**	**110**	**140**	**160**	**190**	**220**	**260**	**310**
B	mm	50.8	54.1	58.3	62.4	67.4	71.6	76.6	81.6	87.4	95.8
	in	*2.00*	*2.13*	*2.30*	*2.46*	*2.65*	*2.82*	*3.02*	*3.21*	*3.44*	*3.77*

3GP		CILINDRATA - *DISPLACEMENT*									
		190	**230**	**300**	**340**	**370**	**440**	**530**	**620**	**700**	**770**
C	mm	79.9	82.9	88.9	91.9	94.9	100.9	107.9	115.9	112.5	127.9
	in	*3.15*	*3.26*	*3.50*	*3.62*	*3.74*	*3.97*	*4.25*	*4.56*	*4.82*	*5.04*

3GP		FLANGIA - *FLANGE*		
		EUR	**SAEB**	**ZFC**
F3	mm	22.4	22.4	70.5
	in	*0.88*	*0.88*	*2.78*

CODICE ORDINAZIONE • *ORDER CODE*

POMPA DOPPIA • *DOUBLE PUMP*
3GP + 3GP

PRIMA POMPA *FIRST PUMP* — SECONDA POMPA *SECOND PUMP*

3GP - A - 340 - D - EUR - B - N - 10 - 0 - G / TS / 3GP - A - 340 - 0 - G

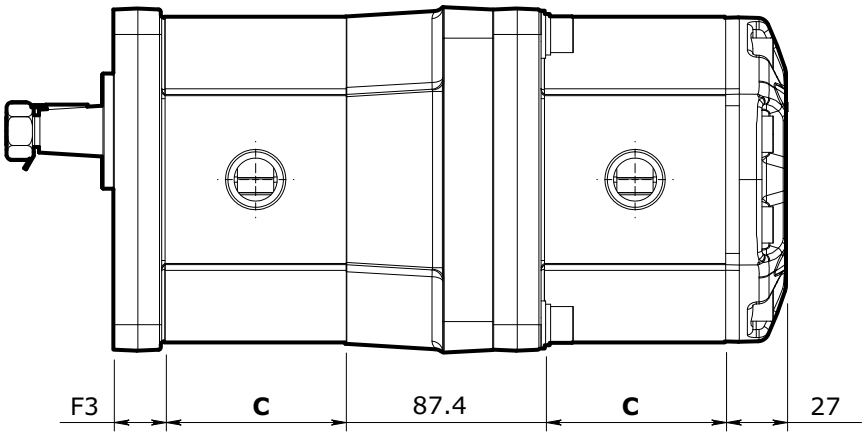
KIT INTERMEDIO *INTERMEDIATE KIT*

SIGLA - *CODE*		TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
PRIMA POMPA - *FIRST PUMP*	**3GP**	Tipo pompa *Pump type*	Pompa singola - gruppo 3 *Single pump - group 3*	8
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	340	Cilindrata *Displacement*	Cilindrata = 33.8 cm^3/g *Displacement = 2.1 in^3/rev*	8
	D	Tipo rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	10
	EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	64
	B	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
	N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
	10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	65
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	67
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	
TS		Tipo TANDEM *TANDEM type*	**TS** = Tandem Standard / *Standard tandem* **TC** = Tandem Corto / *Short tandem*	
SECONDA POMPA - *SECOND PUMP*	**3GP**	Tipo pompa *Pump type*	Pompa singola - gruppo 3 *Single pump - group 3*	8
	A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
	340	Cilindrata *Displacement*	Cilindrata = 33.8 cm^3/giro *Displacement = 2.1 in^3/rev*	8
	0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	67
	G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

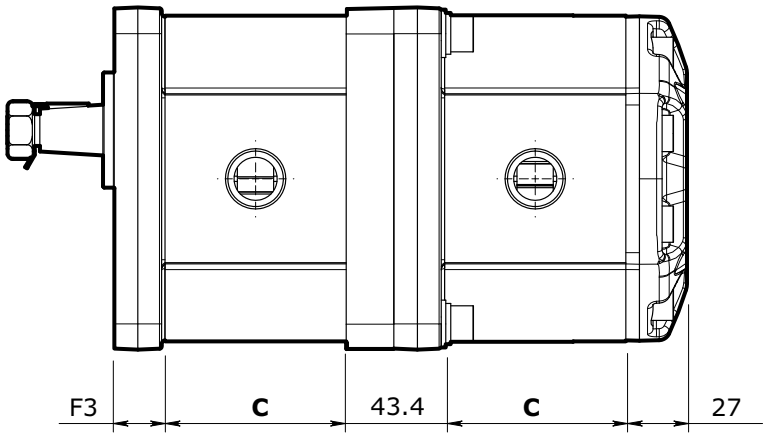
POMPE MULTIPLE AD INGRANAGGI
MULTIPLE GEAR PUMPS

DIMENSIONI • *DIMENSIONS*

TANDEM STANDARD TS • *TS STANDARD TANDEM*



TANDEM CORTO TC • *TC SHORT TANDEM*



3GP		CILINDRATA - *DISPLACEMENT*									
		190	**230**	**300**	**340**	**370**	**440**	**530**	**620**	**700**	**770**
C	mm	79.9	82.9	88.9	91.9	94.9	100.9	107.9	115.9	112.5	127.9
	in	*3.15*	*3.26*	*3.50*	*3.62*	*3.74*	*3.97*	*4.25*	*4.56*	*4.82*	*5.04*

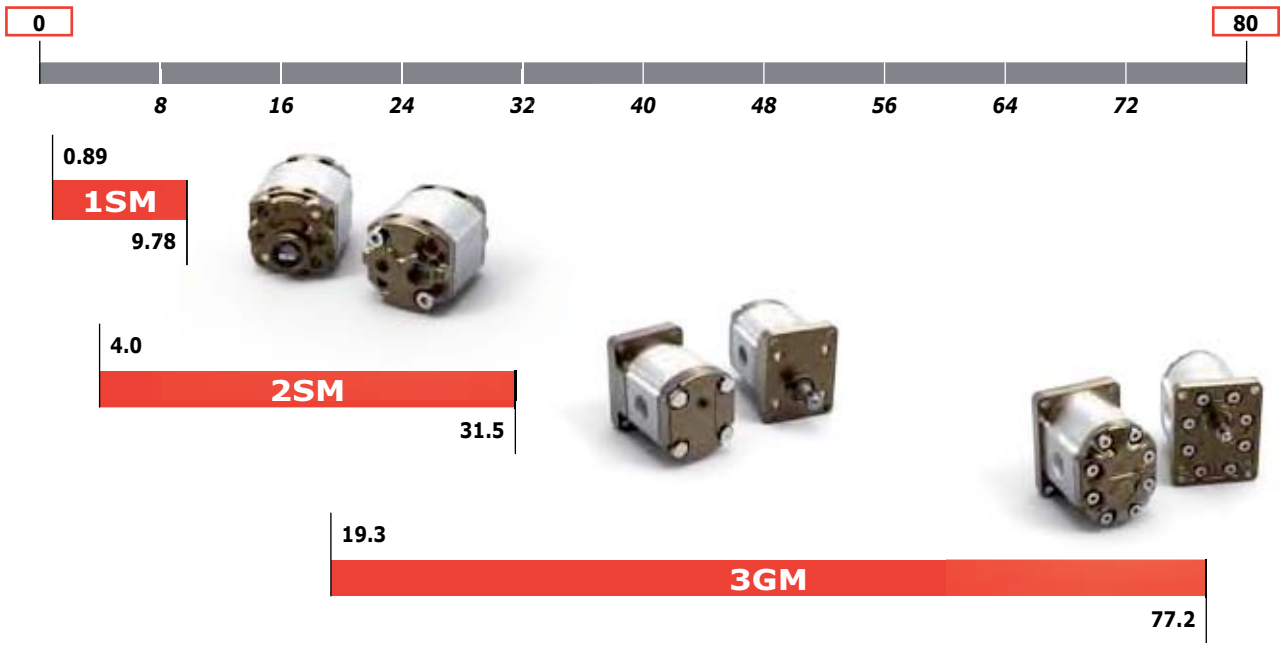
3GP		FLANGIA - *FLANGE*		
		EUR	**SAEB**	**ZFC**
F3	mm	22.4	22.4	70.5
	in	*0.88*	*0.88*	*2.78*

INTRODUZIONE • *INTRODUCTION*

Il motore ad ingranaggi esterni è un componete utilizzato per applicazioni oleodinamiche dove all'albero è richiesta una buona erogazione di coppia. La semplicità nella costruzione (rispetto ad altre tipologie di motori più complessi come ad esempio motori orbitali o a pistoni) unita alla grande versatilità, resistenza e lunga durata consentono una manutenzione ridotta e costi d'acquisto più contenuti.
Tali motori possono sia lavorare in condizioni gravose con elevate potenze idrauliche, sia in condizioni standard con una bassa emissione acustica ed elevati rendimenti idromeccanici e volumetrici grazie all'ottima bilanciatura.
La gamma, grazie ad un costante lavoro di ricerca unito all'esperienza pluriennale, alla meticolosa scelta dei materiali e alla costante cura nel processo non solo di produzione, ma anche nei test di validazione si è ampliata mantenendo elevati standard qualitativi.
I motori ad ingranaggi esterni sono costituiti da 3 gruppi: 1SM, 2SM e 3GM con 20 cilindrate da 0.89 a 77.2 cc/giro adatte alle più variate applicazioni sia industriali che nel campo del mobile con elevati rapporti potenza/peso e potenza/dimensioni. Si possono raggiungere pressioni elevate fino a 270 bar e una velocità massima di rotazione di 4000 giri/min.
Sia nella versione monodirezionale che bidirezionale i nostri motori possono essere assemblati con totale intercambiabilità sia con flange standard (europea, tedesca, SAE) sia con tipologie speciali ed utilizzare una vasta gamma di alberi come quelli conici, cilindrici scanalati e con dente frontale. Sono disponibili vari coperchi e flange in ghisa per ridurre la rumorosità e aumentare i limiti operativi. Inoltre è possibile montare coperchi valvola limitatrice di pressione anche per la regolazione a due velocità.

External gear motor is a component used for hydraulic applications where a good torque output is required at the shaft. Simple construction (compared with other types of more complex motors such as orbital or piston motors) and great versatility, durability and endurance allow to reduce maintenance and tolower the purchasing costs.
These motors can work both under heavy operating conditions ant transmit high hydraulic power output or in standard conditions with a low noise level and high hydromechanical and volumetric efficiencies by means of an excellent balancing.
Our range is increased maintaining high quality standards by means of a constant research combined with years of experience, meticulous choice of materials and constant care not only in the production processes but also in the validation tests.
External gear motors range is composed by 3 groups: 1SM, 2SM and 3GM with 20 displacement sizes from 0.89 to 77.2 cc/rev. high pressures up to 270 bar and a maximum speed of 4000 RPM. These motors can be used in different industrial and mobile applications with good power/weight and power/size ratios.
Both unidirectional and bidirectional motors can be assembled with a full interchangeability with standard flanges (European, German, SAE) or with special types.
A wide variety of shafts is manufactured: tapered, splined, parallel and dihedral claw. Cast iron covers and flanges to reduce noise level and increase the operating limits are available. It is also possible to assemble covers with pressure relief valve for two-speed adjustment

Le cilindrate disponibili sono evidenziate nel seguente diagramma (cm^3/giro):
Available displacements are indicated below (cm^3/rev):

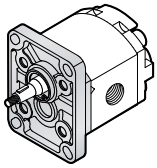
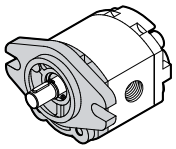
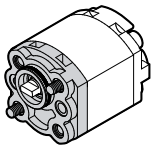
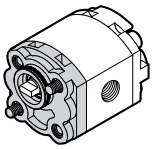
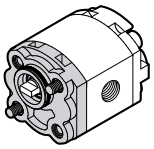


MOTORI AD INGRANAGGI GAMMA PRODOTTO
GEAR MOTORS PRODUCT RANGE

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
1SM 009	0.89	*0.05*	6000	5.3	*1.40*	600	0.49	0.13	92*
1SM 012	1.18	*0.07*	6000	7.1	*1.88*	600	0.65	0.17	92*
1SM 016	1.6	*0.10*	6000	9.6	*2.54*	400	0.61	0.16	95*
1SM 020	2.0	*0.12*	5500	11	*2.91*	400	0.76	0.20	95*
1SM 025	2.5	*0.15*	5000	12.5	*3.30*	400	0.95	0.25	95*
1SM 032	3.2	*0.20*	4500	14.4	*3.80*	400	1.21	0.32	95*
1SM 037	3.7	*0.23*	4000	14.8	*3.91*	400	1.40	0.37	95*
1SM 042	4.2	*0.26*	3500	14.7	*3.88*	400	1.60	0.42	95*
1SM 050	5.0	*0.31*	3000	15	*3.96*	400	1.90	0.50	95*
1SM 063	6.3	*0.38*	2700	17	*4.49*	400	2.39	0.63	95*
1SM 078	7.76	*0.47*	2500	19.4	*5.13*	400	2.95	0.78	95*
1SM 098	9.78	*0.60*	2000	19.6	*5.18*	400	3.71	0.98	95*

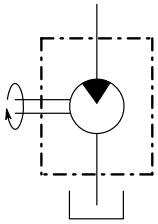
* = Valori medi rilevati in fase di collaudo a 1500 giri/min. *Average values collected during the testing at 1500 rpm.*

FLANGE - *FLANGES*

EUR	**SAEAA**	**MC32**	**E32BX - E32BC**	**E32CX - E32CC**
				
pagina/*page* 104	pagina/*page* 105	pagina/*page* 106	pagina/*page* 107	pagina/*page* 109

VERSIONI DISPONIBILI • *AVAILABLE VERSIONS*

Motore unidirezionale (D-S)
Unidirectional motor (D-S)

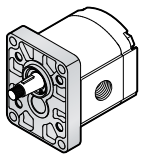
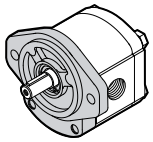
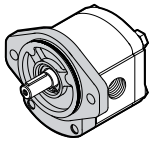
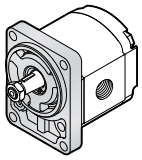
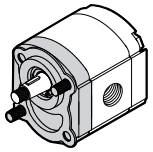
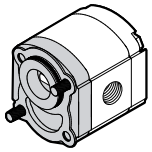


MOTORI AD INGRANAGGI GAMMA PRODOTTO
GEAR MOTORS PRODUCT RANGE

GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
2SM 040	4	*0.24*	4000	16	*4.23*	500	*1.9*	0.50	95*
2SM 060	6	*0.37*	4000	24	*6.34*	500	*2.85*	0.75	95*
2SM 080	8.5	*0.52*	3500	29.7	*7.85*	500	*4.03*	1.06	95*
2SM 110	11	*0.67*	3500	38.5	*10.17*	500	*5.22*	1.38	95*
2SM 140	14	*0.85*	3500	49	*12.95*	500	*6.65*	1.76	95*
2SM 160	16.5	*1.01*	3500	57.7	*15.24*	500	*7.83*	2.07	95*
2SM 190	19.5	*1.19*	3300	64.3	*16.99*	500	*9.26*	2.45	95*
2SM 220	22.5	*1.37*	2800	63	*16.64*	500	*10.68*	2.82	95*
2SM 260	26	*1.59*	2500	65	*17.17*	500	*12.35*	3.26	95*
2SM 310	31.5	*1.92*	2200	69	*18.22*	500	*15.75*	4.16	95*

* = Valori rilevati in fase di collaudo a 1500 giri/min. *Value collected during the testing at 1500 rpm.*

FLANGE - *FLANGES*

EUR	SAEA	SAEAOR	B80C	B50C	E52C
					
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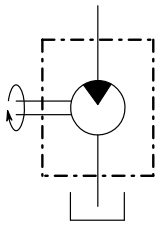
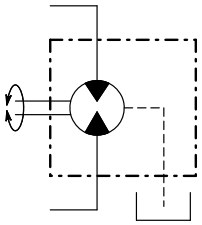
VERSIONI DISPONIBILI • *AVAILABLE VERSIONS*

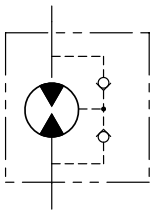
Motore unidirezionale (D-S)
Unidirectional motor (D-S)



Motore reversibile con drenaggio esterno (R)
Reversible motor with external drain (R)



Motore reversibile con drenaggio interno (X)
Reversible motor with internal drain (X)



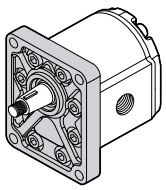
MOTORI AD INGRANAGGI GAMMA PRODOTTO
GEAR MOTORS PRODUCT RANGE

GRUPPO GROUP 3GM	CILINDRATA DISPLACEMENT		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
3GM 190	19.3	*1.2*	3500	67.6	*17.84*	700	12.8	*3.39*	95*
3GM 230	23.0	*1.4*	3500	80.3	*21.22*	700	15.5	*4.03*	95*
3GM 300	30.2	*1.8*	3300	99.7	*26.33*	700	20.1	*5.31*	95*
3GM 340	33.8	*2.1*	3300	111.6	*29.49*	700	22.5	*5.94*	95*
3GM 370	37.5	*2.3*	3300	123.6	*32.66*	700	24.9	*6.58*	95*
3GM 440	44.6	*2.7*	3000	133.8	*35.35*	700	29.7	*7.84*	95*
3GM 530	53.0	*3.2*	3000	159.1	*42.04*	700	35.3	*9.32*	95*
3GM 620	62.7	*3.8*	2500	156.8	*41.41*	700	41.7	*11.01*	95*
3GM 700	70.5	*4.3*	2500	176.3	*46.58*	700	46.9	*12.39*	95*
3GM 770	77.2	*4.7*	2200	169.8	*44.84*	700	51.3	*13.56*	95*

* = Valori rilevati in fase di collaudo a 1500 giri/min. *Value collected during the testing at 1500 rpm.*

FLANGE - *FLANGES*

EUR



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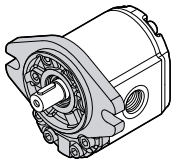
SAEB



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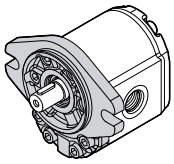
SAEBOR



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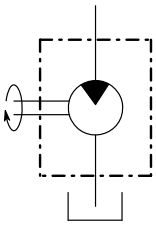
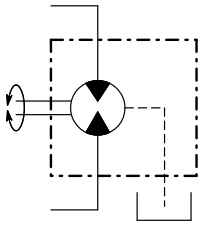
VERSIONI DISPONIBILI • *AVAILABLE VERSIONS*

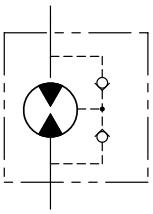
Motore unidirezionale (D-S)
Unidirectional motor (D-S)



Motore reversibile con drenaggio esterno (R)
Reversible motor with external drain (R)



Motore reversibile con drenaggio interno (X)
Reversible motor with internal drain (X)



FLUIDI IDRAULICI • *HYDRAULIC FLUIDS*

È consigliabile utilizzare oli idraulici di origine minerale con buone caratteristiche antischiuma, antiusura , antiossidanti, anticorrosione e con proprietà di rapida disareazione ed elevato indice di viscosità;

- viscosità raccomandata 15÷92 mm^2/s
- viscosità limite d'avviamento 2000 mm^2/s

Durante il normale funzionamento la temperatura dell'olio dovrà essere compresa tra 20° C e 65° C con valori limite compresi tra -20° C e 80° C con le guarnizioni in NBR e -15 °C e 100 °C con le stesse in Viton.

It is advisable to use hydraulic oils of mineral origin with anti-foaming, antiwear, anti-oxidant and anti-corrosion characteristics and rapid air removal properties and a high viscosity index;

- *Recommended viscosity 15÷92 mm^2/s (cSt)*
- *Start-up viscosity limit 2000 mm^2/s (cSt)*

During normal operation, the temperature of the oil must be between 20°C and 65°C and limit values between -20°C and 80°C with NBR gasket and limit values between -15°C and 100°C with Viton gasket.

PRESSIONE DI DRENAGGIO • *DRAINAGE PRESSURE*

Qualora il drenaggio non fosse interno il limite massimo di pressione su tale linea è pari a 6 bar.

Without external drain, 6 bar is the maximum counterpressure allowed.

FILTRAZIONE • *FILTRATION*

Per eliminare eventuali impurità presenti nell'olio e garantire una durata superiore del motore, è necessario introdurre nell'impianto un'efficace filtrazione verificandone periodicamente la funzionalità.
I livelli di filtrazione raccomandati sono i seguenti:

Utilizzo fino a 150 bar:
21/19/16 (ISO 4406) classe 10 (NAS 1638)

Utilizzo oltre 150 bar:
20/18/15 (ISO 4406) classe 9 (NAS 1638)

In order to eliminate any impurities present in the oil and to guarantee a longer duration of the motor, the system must be equipped with effective filtration which must be periodically checked to ensure that it is operating correctly.
The following are the recommended filtration levels:

Up to 150 bar:
21/19/16 (ISO 4406) classe 10 (NAS 1638)

Over to 150 bar:
20/18/15 (ISO 4406) classe 9 (NAS 1638)

NOTE INSTALLAZIONE • *INSTALLATION NOTES*

Prima di avviare l'impianto a regime, sono consigliati alcuni accorgimenti:

- Verificare in caso di motore unidirezionale, che il senso di rotazione sia coerente con il lato da cui proviene l'alimentazione.
- Verificare che nelle flange di connessione alle porte di mandata non siano presenti trucioli, sporco o altro.
- Se il motore è sottoposto a verniciatura, proteggere l'anello di tenuta verificando anche che la zona di contatto fra anello di tenuta e albero sia priva di polvere o di sedimenti abrasivi che possono accelerare le usure e causare delle perdite.
- Assicurarsi che il giunto utilizzato per la trasmissione compensi disallineamenti assiali che potrebbero pregiudicare l'integrità del motore.
- In caso in cui il motore trasmetta dei carichi radiali e/o assiali sull'albero (come ad esempio quando trascina pulegge e cinghie) è necessario optare per le versioni con supporto rinforzato.
- Il giunto di collegamento fra alberi scanalati dovrà essere lubrificato, libero di muoversi assialmente e di lunghezza adatta a coprire tutta l'estensione dei due alberi (motore e pompa).

Durante il primo avviamento:

- scollegare lo scarico della pompa di alimentazione per permettere di spurgare l'aria nel circuito e, in caso di valvole di massima, tarare le valvole limitatrici di pressione al minimo valore.
- Evitare, in presenza di livelli di pressione di alimentazione superiori alla pressione massima continuativa, di sottoporre il motore ad un regime di rotazione inferiore a quello minimo consentito.
- Evitare partenze sotto carico in condizioni di bassa temperatura o di lunghi periodi di inattività.

Before you start setting system, some precautions are recommended:

- *In case of a monodirectional motor check for the direction of rotation to be consistent with the inlet side.*
- *Remove all dirt, chips and all foreign bodies from flange connecting inlet and delivery ports.*
- *Protect the drive shaft sealing ring during pump painting; check that the contact area between ring and shaft is clean: dust or abrasive sediments could accelerate the wear and cause leakage.*
- *Make sure that the transmission joint balances any axial misalignment that might compromise the engine working.*
- *With radial and/or axial loads provided by the motor shaft (such as when it drives pulleys or chains) use the available versions with strengthen shaft.*
- *The coupling joint between the spline shafts has to be properly lubricated, free to move axially and of suitable length to cover both motor and pump shafts.*

Installation notes:

- *Disconnect the drain pump to bleed off the air in the circuit and, set the pressure relief valve at the minimum value (if installed).*
- *Avoid lower rotation speed than min. allowed with an inlet pressure higher than the continuous max pressure.*
- *Do not start the system under load at low temperatures or after long stops.*
- *Check the whole system filling by bleeding off the whole air*

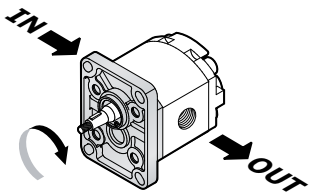
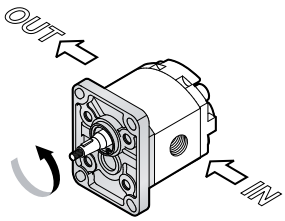
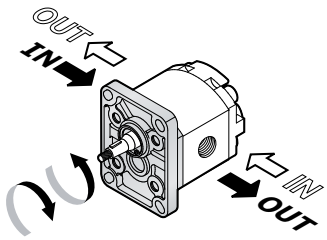
MOTORI AD INGRANAGGI INFORMAZIONI TECNICHE
GEAR MOTORS TECHNICAL INFORMATIONS

• Per verificare l'effettivo riempimento sfiatare il circuito dopo un primo avviamento di qualche istante dove è stata attivata tutta la componentistica.
• Tenendo controllata la temperatura del fluido e delle parti in movimento e la velocità di rotazione è infine possibile aumentare la pressione fino al raggiungimento delle condizioni di esercizio previste che devono mantenersi entro i limiti indicati nel presente catalogo.

amount after few minutes of system working.
• Increase the pressure until you reach the operating values by keeping checked the fluid and the moving parts temperature and the rotation speed. Maintain the set values within the limits depicted in this catalogue.

DEFINIZIONE DEL VERSO DI ROTAZIONE GUARDANDO L'ALBERO DI TRASCINAMENTO
DEFINITION OF ROTATION LOOKING AT THE DRIVE SHAFT

USCITA FLUIDO AD ALTA PRESSIONE
HIGH PRESSURE FLUID EXIT

D	ROTAZIONE DESTRA *CLOCKWISE ROTATION*	S	ROTAZIONE SINISTRA *COUNTER CLOCKWISE ROTATION*	R	ROTAZIONE REVERSIBILE *CLOCKWISE COUNTER CLOCKWISE ROTATION*
Ingresso - bassa pressione ***Inlet** - low pressure*  **Scarico** - alta pressione ***Outlet** - high pressure*		**Scarico** - alta pressione ***Outlet** - high pressure*  **Ingresso** - bassa pressione ***Inlet** - low pressure*			

SENSO DI ROTAZIONE • *WISE ROTATION*

Il senso di rotazione viene definito S (sinistro) e D (destro) osservando l'albero frontalmente.
In caso di rotazione sinistra S lo scarico sarà a sinistra dell'albero mentre l'ingresso alla sua destra; il contrario sarà per motore monodirezionale destro.
Se i motori sono monodirezionali in fase di ordine è necessario precisare il senso di rotazione desiderato, oppure intervenire modificando l'assetto interno come illustrato di seguito (inversione del senso di rotazione).

The direction of rotation is defined by observing head on the shaft: S (left) and D (right).
In cases of anticlockwise S rotation , outlet port will be on the left of the shaft while inlet port on the right; the opposite layout is observed in case of clockwise D rotation.
Please specify the require direction in case of monodirectional motors during the ordering phase, otherwise modify the internal assembly layout as depicted in the following pages.

INVERSIONE • *REVERSAL*

Il senso di rotazione dei motori è evidenziato da una freccia sulla targhetta.
La targhetta è posizionata sul corpo. (vedi pag. 96)

L'inversione del senso di rotazione di un motore si esegue nel seguente modo:

- Smontare il motore come da figura 1.
- 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 il motore serrando le viti con una chiave dinamometrica.
- Per i motori 3GM, smontare solo la flangia anteriore.

Motors wise rotation is indicated by an arrow on the label.
The plate is placed on the body (see page 96).

How to invert the motor wise rotation:

- *Disassemble motor as shown in figure 1.*
- *Pull off gears C - D and reassemble according to figure 2.*
- *Reassemble bushing B as before.*
- *Reverse the flange A and reassemble the motor tightening the screws by dynamometric wrench.*
- *For the motors 3GM, disassemble only front flange.*

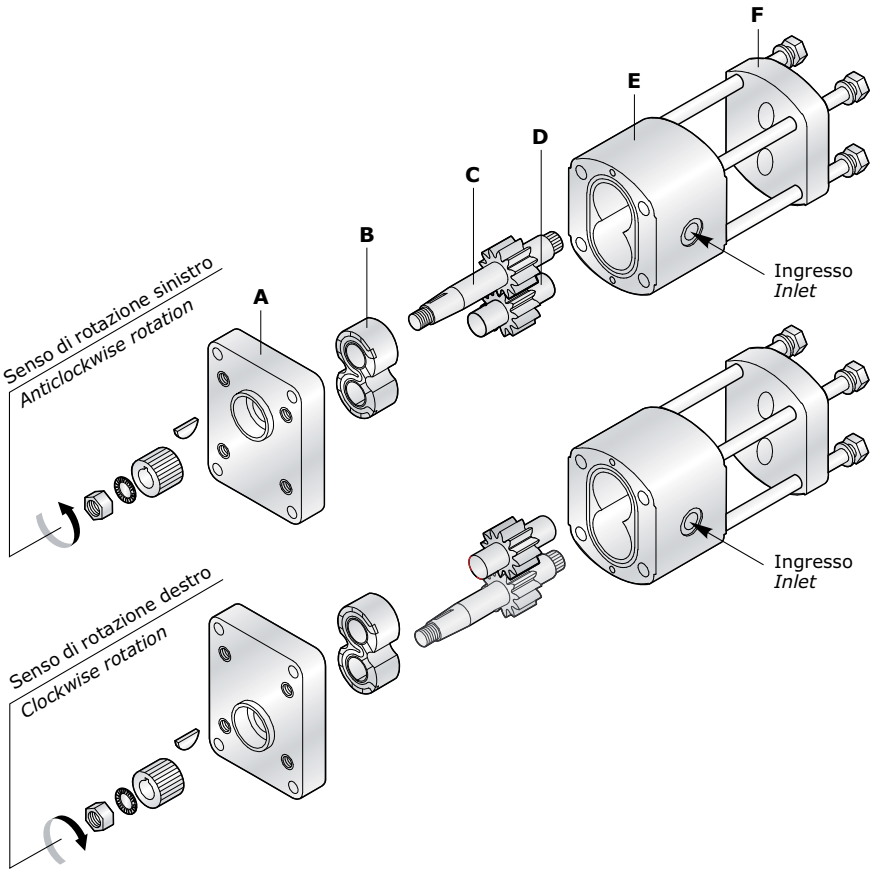
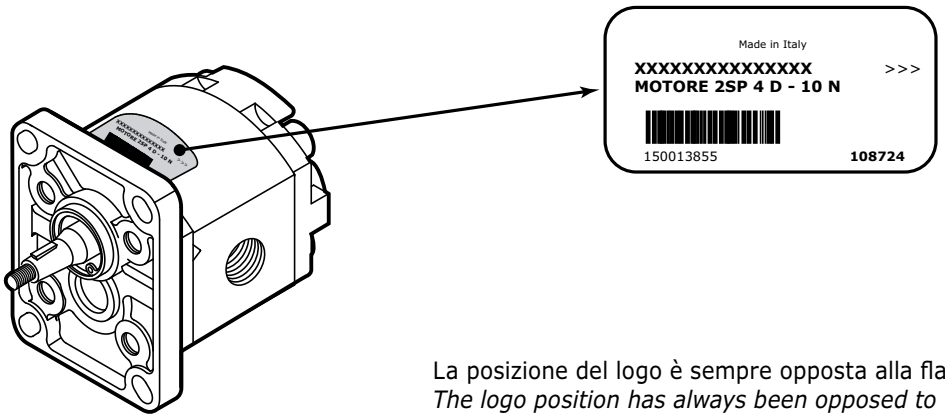


Fig. 1

Fig. 2

TARGHETTA • *PLATE*



La posizione del logo è sempre opposta alla flangia.
The logo position has always been opposed to the flange.

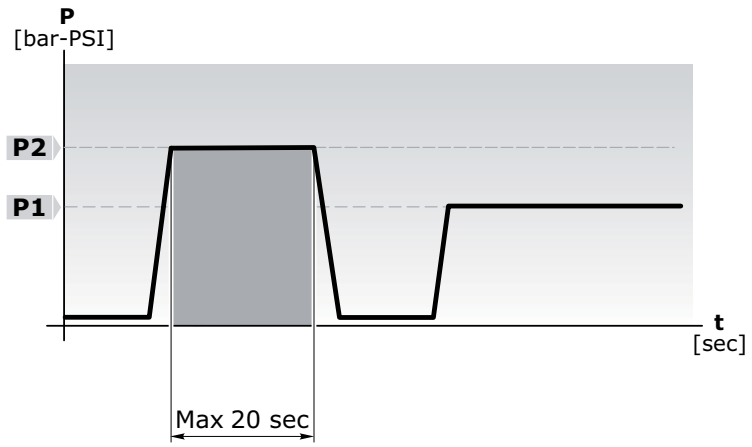
MOTORI AD INGRANAGGI INFORMAZIONI TECNICHE
GEAR MOTORS TECHNICAL INFORMATIONS

TIPO DI MOTORE - *TYPE OF MOTOR*	GRUPPO - *GROUP* **1SM**	GRUPPO - *GROUP* **2SM**	GRUPPO - *GROUP* **3GM**
Numero di viti *numbers of screws*	4	4	16
Tipo di filetto *Type of thread*	M8	M10	M10
Coppia di serraggio viti *Tightening torque of screws*	30 Nm / 266 in-lbs	50 Nm / 443 in-lbs	60 Nm / 531 in-lbs
Tipo di giunto *Type of coupling*	1IS 12M	2IS 14M / 2IS 15M	3IS 18M
Coppia di serraggio dado giunto *Tightening torque at nut coupling*	9 ÷ 10 Nm / 80 ÷ 90 in-lbs	22 ÷ 25 Nm / 195 ÷ 221 in-lbs 32 ÷ 35 Nm / 283 ÷ 310 in-lbs	50 ÷ 55 Nm / 443 ÷ 487 in-lbs

DEFINIZIONE DELLE PRESSIONI • *DEFINITION OF PRESSURES*

I motori possono essere sottoposti alle pressioni P1, P2, indicate nelle tabelle delle prestazioni.
Il grafico seguente ne illustra le definizioni e l'applicabilità rispettando i limiti delle velocità di rotazione riportati.

The motors can be subjected to the pressures P1, P2 indicated in the performance tables.
The following diagram illustrates the definitions and applicability of these, compared to the rotation speed limits included.



P2 Pressione massima intermittente
Max intermittent pressure

P1 Pressione massima continua
Continuos max pressure

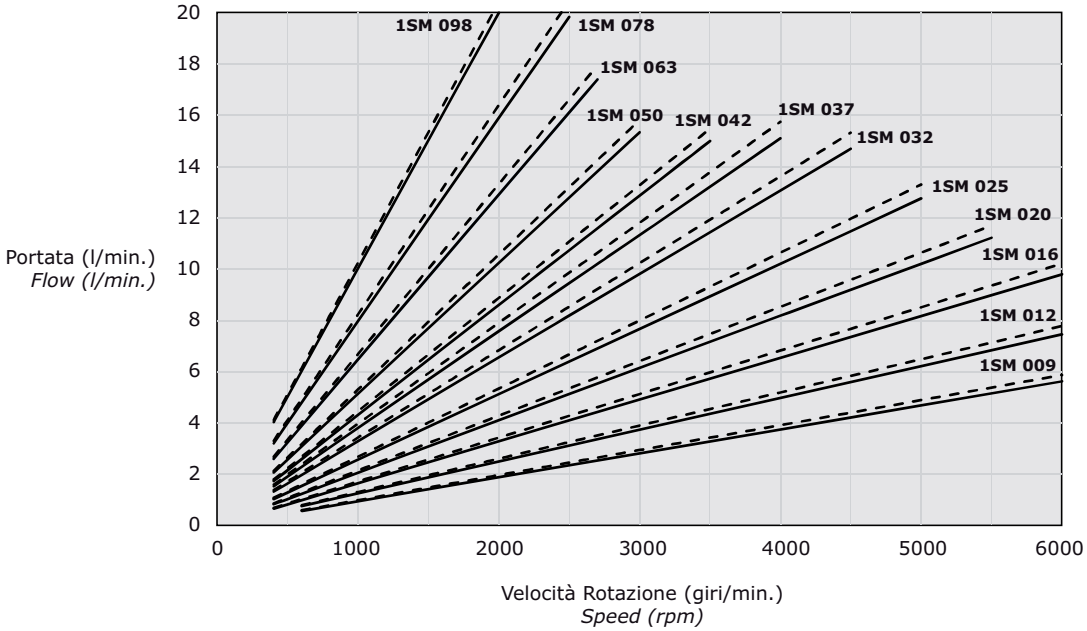
MISURE IDRAULICHE - *HYDRAULIC MEASURES*		
Q	Portata *Flow*	[l/min] [Gal/min]
M	Coppia *Torque*	[Nm] [lfb.in]
P	Potenza *Power*	[kW] [HP]
V	Cilindrata *Displacement*	[cm³/giro] [in³/rev]
n	Velocità *Speed*	[min⁻¹]
Δp	Pressione *Pressure*	[bar] [PSI]
η_v	Rendimento volumetrico *Volumetric efficiency*	
η_m	Rendimento meccanico *Mechanical efficiency*	
η_t	Rendimento totale *Overal efficiency*	

FORMULE UTILI - *USEFUL FORMULAS*		
Q =	$\frac{V \cdot n}{1000 \cdot \eta_v}$	[l/min]
	$\frac{V \cdot n}{231 \cdot \eta_v}$	[Gal/min]
M =	$\frac{\Delta p \cdot V \cdot \eta_m}{63.83}$	[Nm]
	$\frac{\Delta p \cdot V \cdot \eta_m}{2 \cdot 3.14}$	[lfb.in]
P =	$\frac{\Delta p \cdot V \cdot n \cdot \eta_t}{600 \cdot 1000}$	[kW]
	$\frac{\Delta p \cdot V \cdot n \cdot \eta_t}{395934}$	[HP]

FATTORE CONVERSIONE - *CONVERSION FACTOR*	
1 l/min	0.2641 US Gal/min
1 Nm	8.851 in-lbs
1 Nm	0.7375 ft-lbs
1 N	0.2248 lbs
1 kW	1.34 HP
1 cm³/giro	0.061 in³/rev
1 bar	14.5 PSI
1 mm	0.0394 in
1 kg	2.205 lbs

GRUPPO *GROUP* 1SM

DIAGRAMMA PORTATA - VELOCITÀ DI ROTAZIONE
FLOW - SPEED CHART

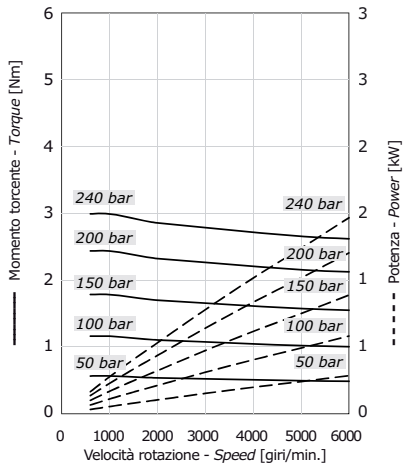


GRUPPO *GROUP* 1SM

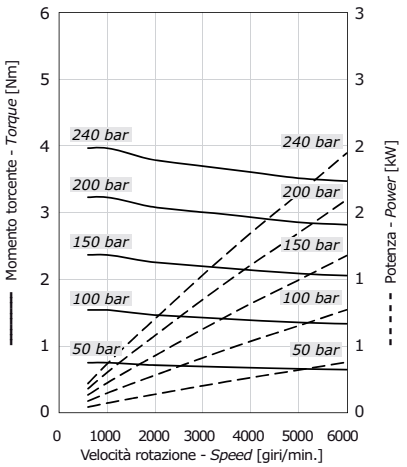
DIAGRAMMI POTENZE
POWER DIAGRAM

Grafici rilevati a banco di collaudo a 40°C con olio VG46
Diagrams collected on test bench at 40°C with VG46 mineral oil

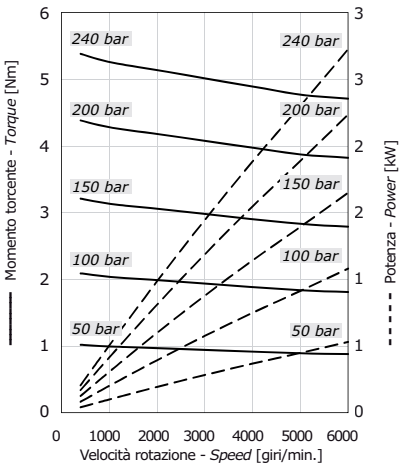
1SM 009



1SM 012

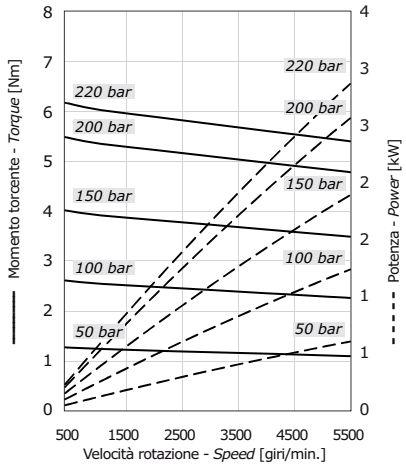


1SM 016

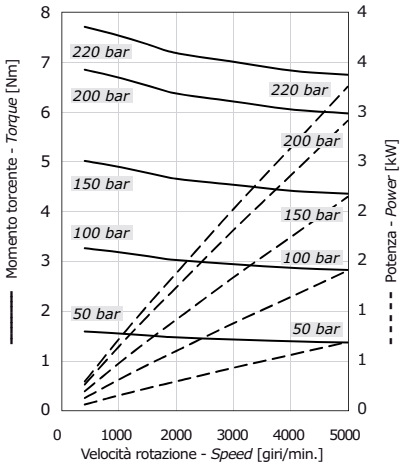


MOTORI AD INGRANAGGI PRESTAZIONI
GEAR MOTORS PERFORMANCES

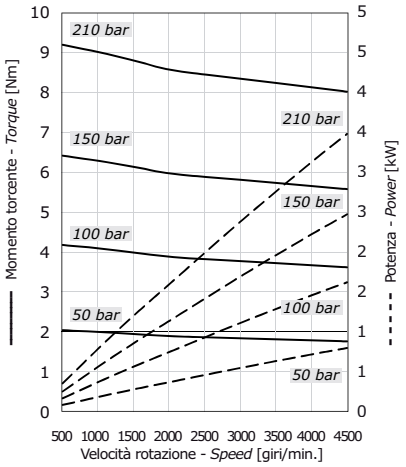
1SM 020



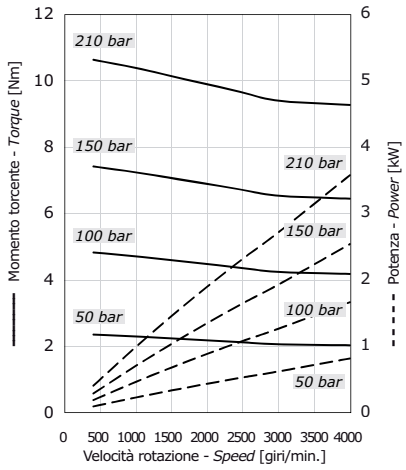
1SM 025



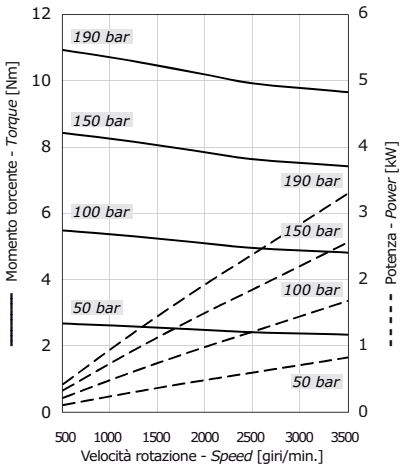
1SM 032



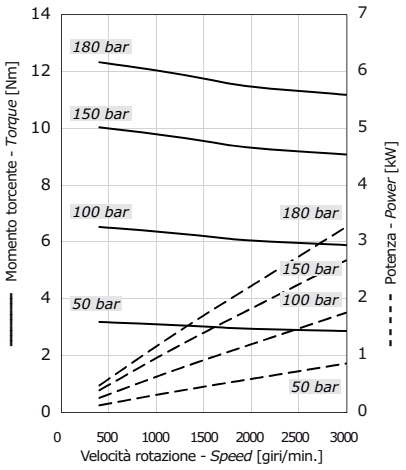
1SM 037



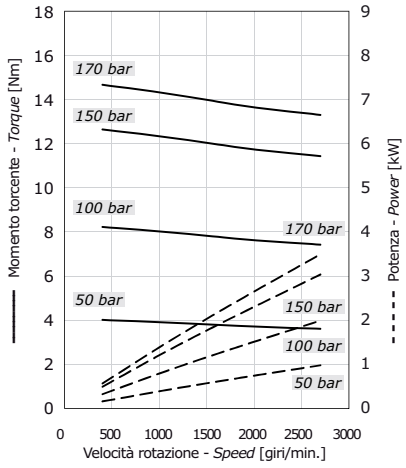
1SM 042



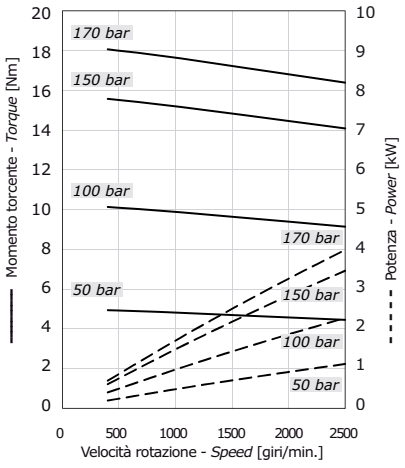
1SM 050



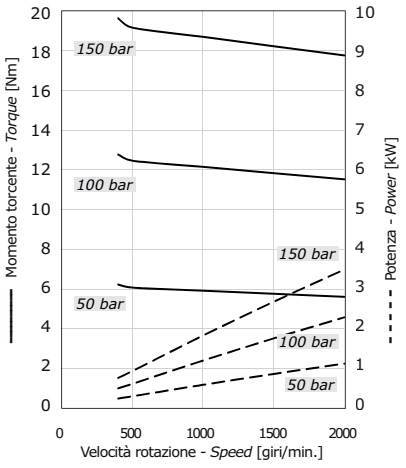
1SM 063



1SM 078

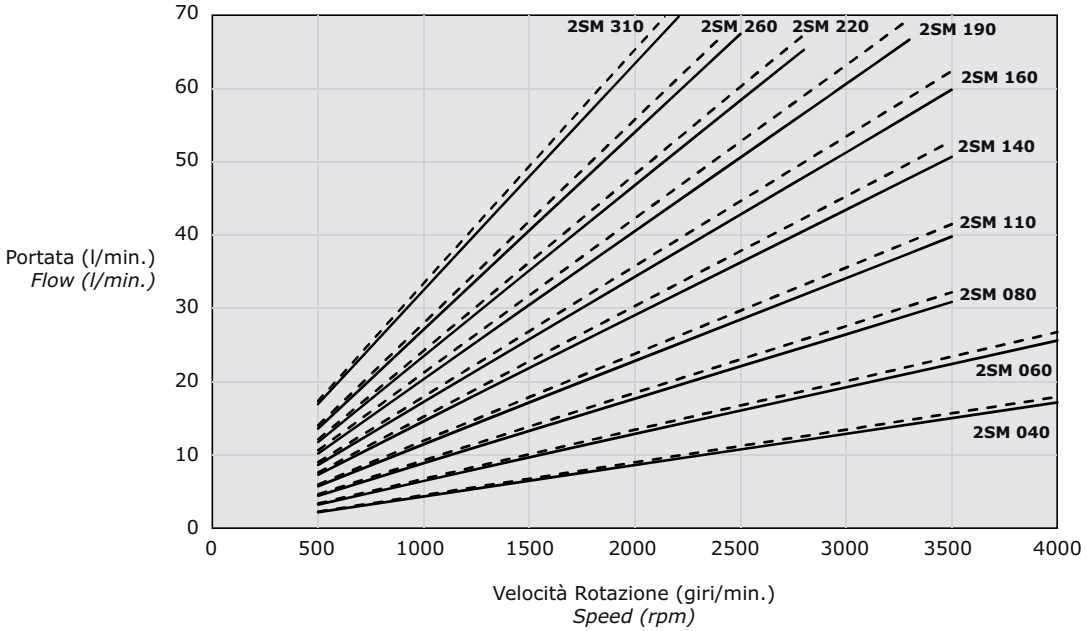


1SM 098



GRUPPO *GROUP* 2SM

DIAGRAMMA PORTATA - VELOCITÀ DI ROTAZIONE
FLOW - SPEED CHART

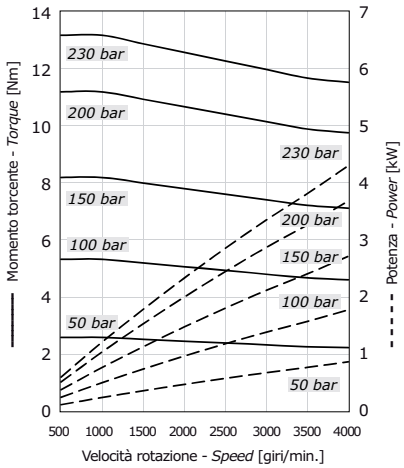


GRUPPO *GROUP* 2SM

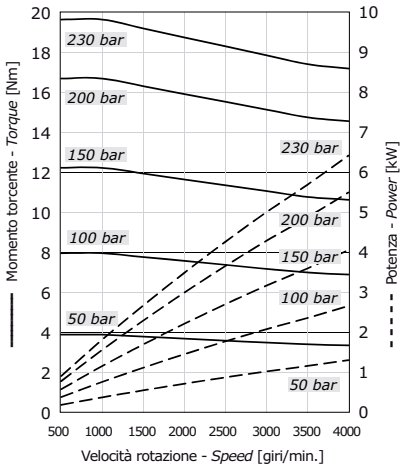
DIAGRAMMI POTENZE
POWER DIAGRAM

Grafici rilevati a banco di collaudo a 40°C con olio VG46
Diagrams collected on test bench at 40°C with VG46 mineral oil

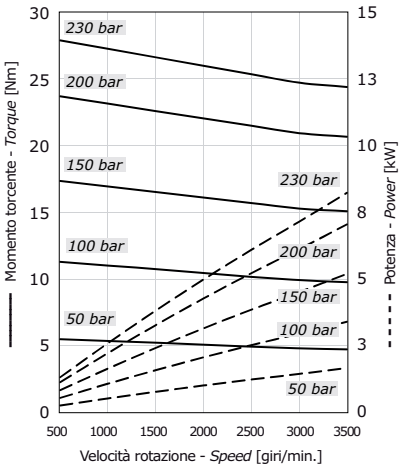
2SM 040



2SM 060

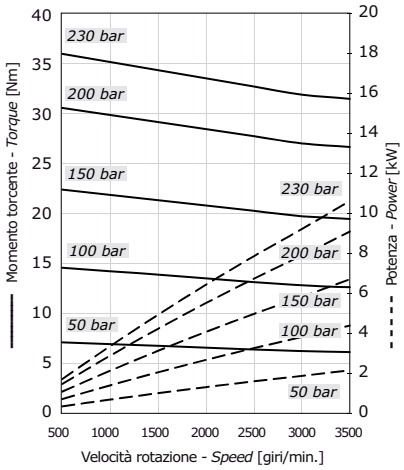


2SM 080

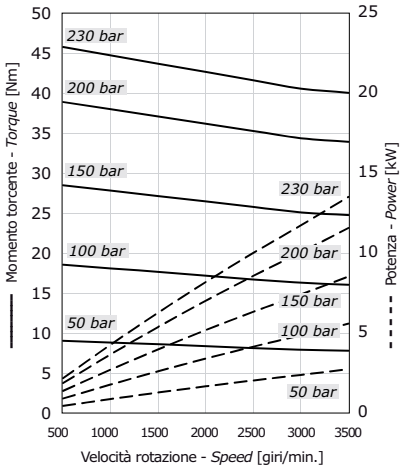


MOTORI AD INGRANAGGI PRESTAZIONI
GEAR MOTORS PERFORMANCES

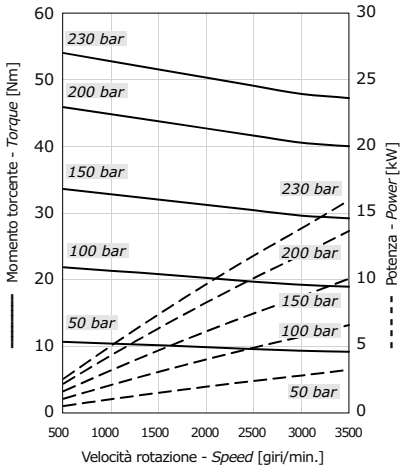
2SM 110



2SM 140



2SM 160



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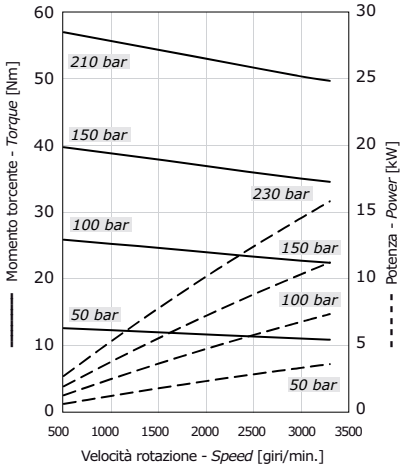

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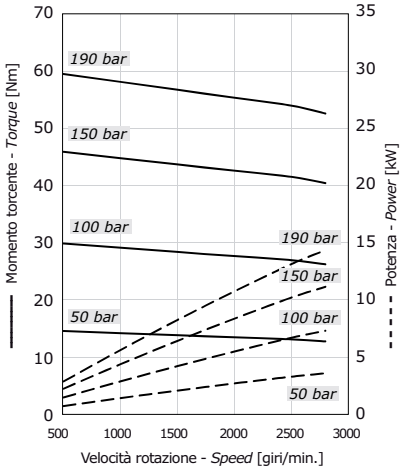

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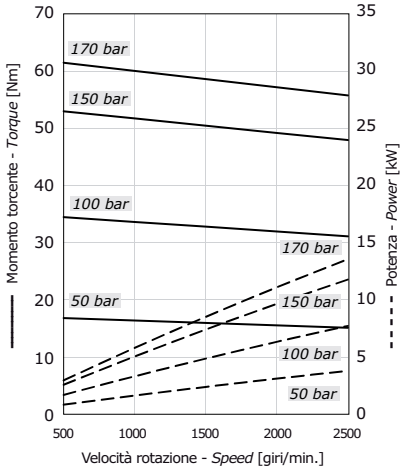

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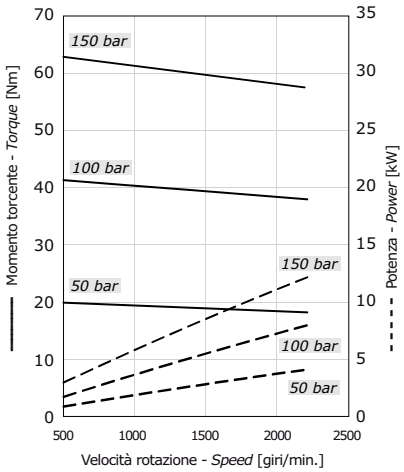
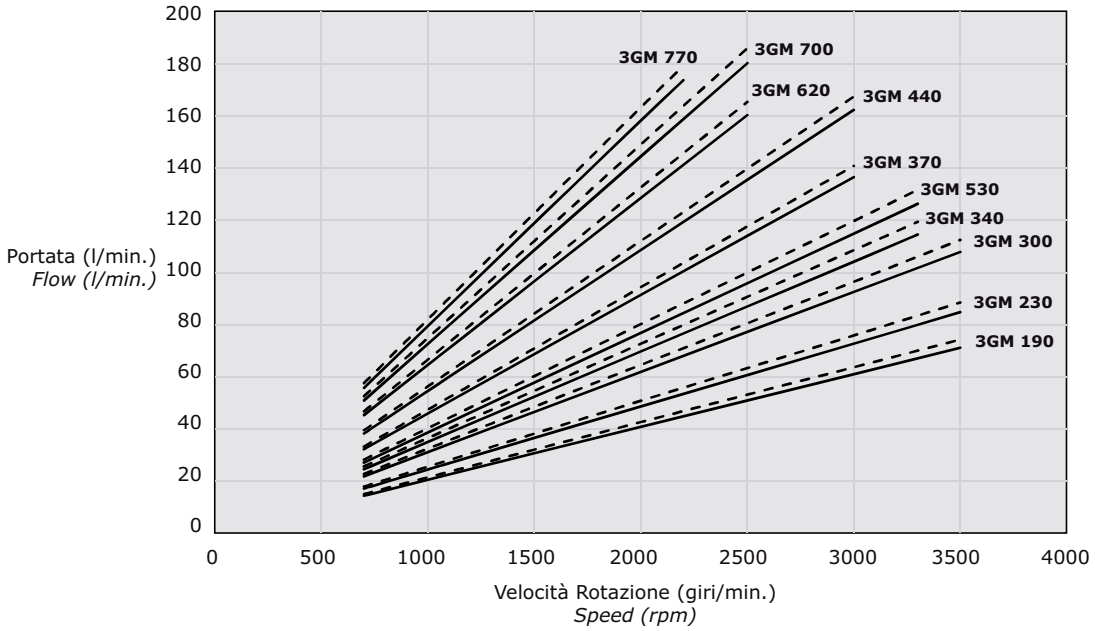


GRUPPO / GROUP 3GM

DIAGRAMMA PORTATA - VELOCITÀ DI ROTAZIONE
FLOW - SPEED CHART

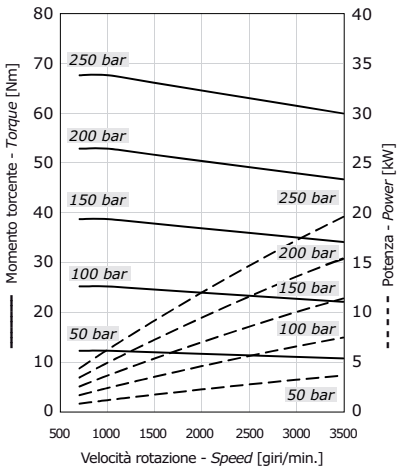


GRUPPO / GROUP 3GM

DIAGRAMMI POTENZE
POWER DIAGRAM

Grafici rilevati a banco di collaudo a 40°C con olio VG46
Diagrams collected on test bench at 40°C with VG46 mineral oil

3GM 190



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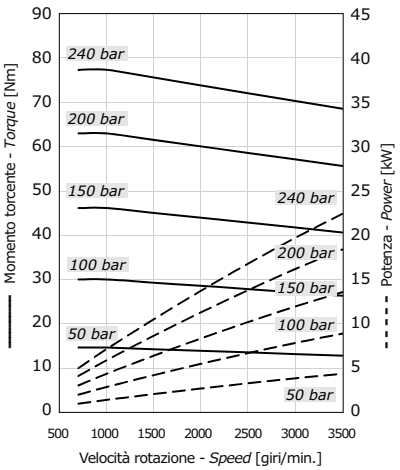
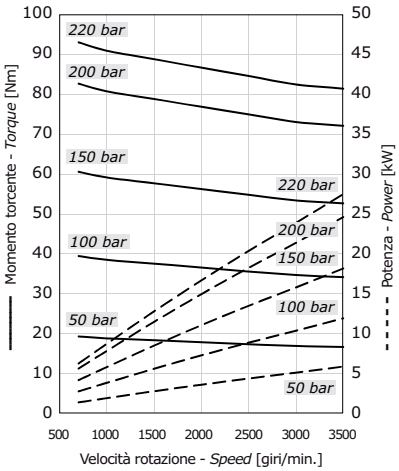
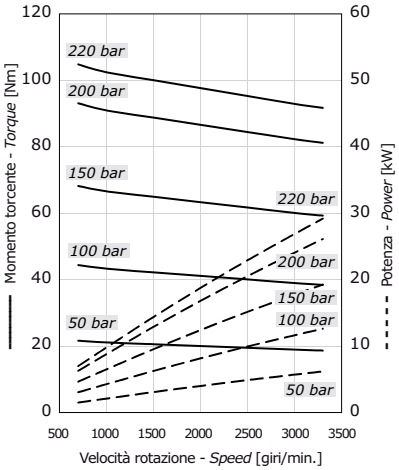


3GM 300

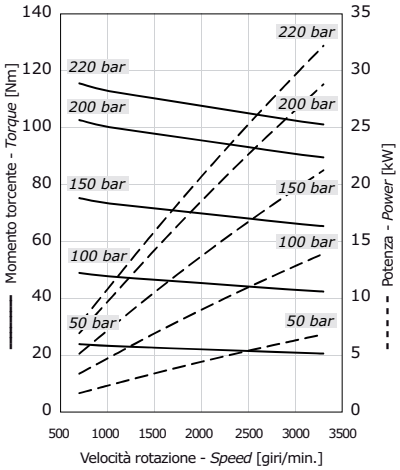


MOTORI AD INGRANAGGI PRESTAZIONI
GEAR MOTORS PERFORMANCES

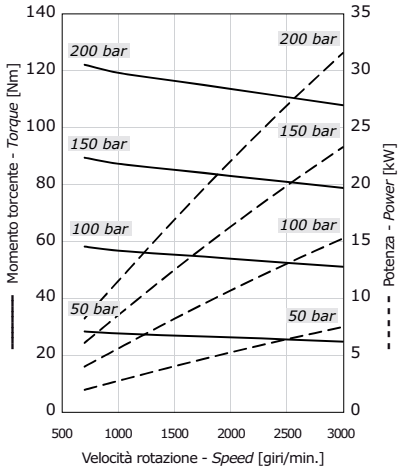
3GM 340



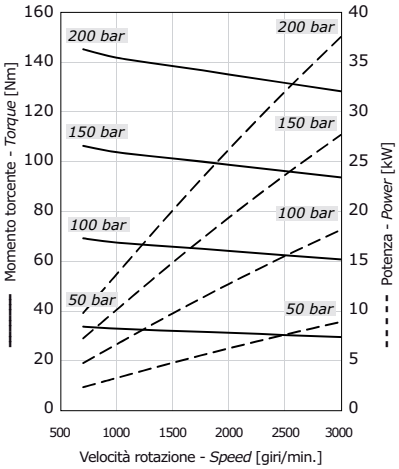
3GM 370



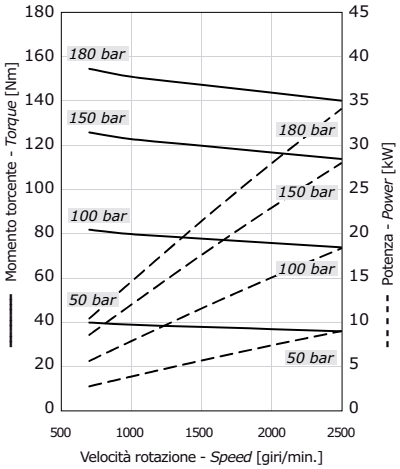
3GM 440



3GM 530



3GM 620



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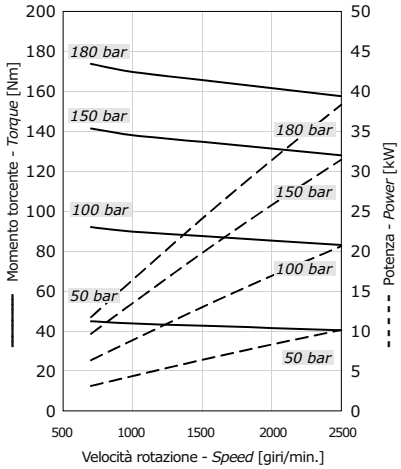
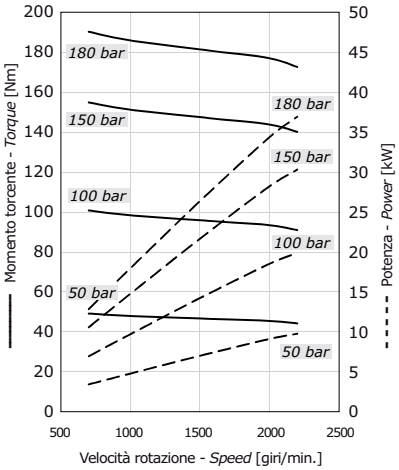


3GM 770

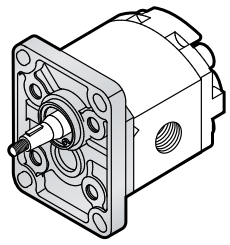


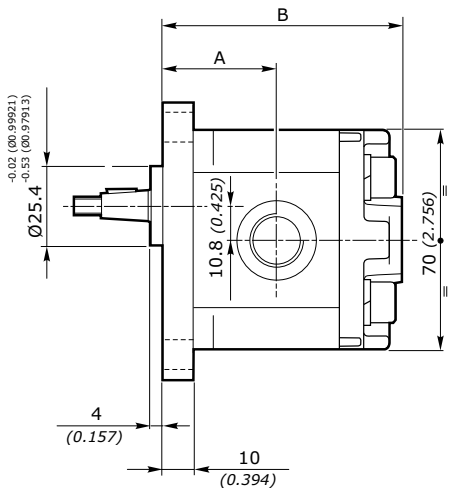
MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

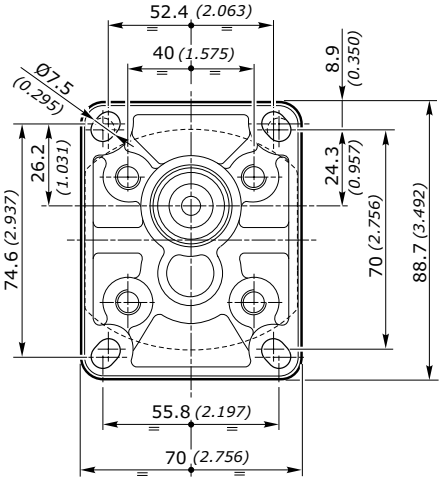
FLANGIA EUROPEA EUR *EUROPEAN FLANGE*

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	240	*3480*	260	*3770*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	240	*3480*	260	*3770*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	240	*3480*	260	*3770*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	220	*3190*	250	*3625*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	220	*3190*	250	*3625*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	210	*3045*	240	*3480*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	210	*3045*	240	*3480*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	190	*2755*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*







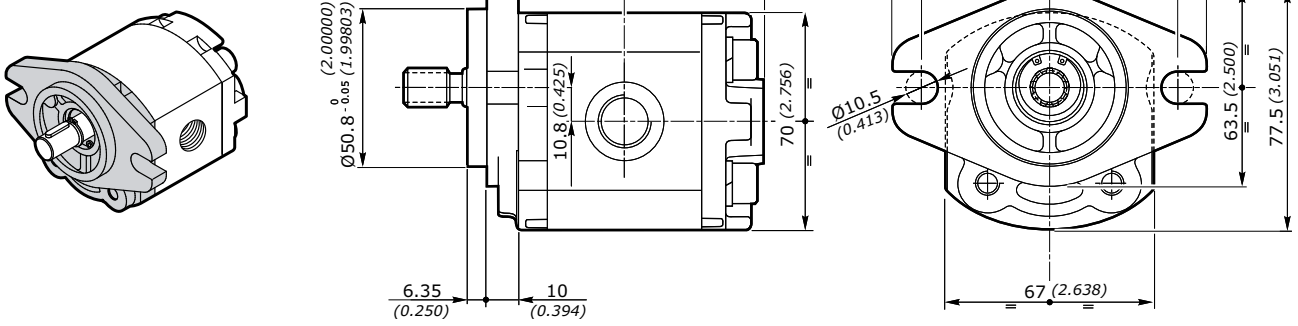
GRUPPO - GROUP 1	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
1SM 009	34.80	*1.370*	73.6	*2.898*	0.91	*2.01*
1SM 012	35.35	*1.392*	74.7	*2.941*	0.93	*2.05*
1SM 016	36.20	*1.425*	76.4	*3.008*	0.95	*2.09*
1SM 020	36.95	*1.455*	77.9	*3.067*	0.97	*2.14*
1SM 025	37.95	*1.494*	79.9	*3.146*	1.00	*2.21*
1SM 032	39.30	*1.547*	82.6	*3.252*	1.04	*2.29*
1SM 037	40.30	*1.587*	84.6	*3.331*	1.07	*2.36*
1SM 042	41.25	*1.624*	86.5	*3.406*	1.10	*2.43*
1SM 050	42.80	*1.685*	89.6	*3.528*	1.14	*2.51*
1SM 063	45.35	*1.785*	94.7	*3.728*	1.22	*2.69*
1SM 078	48.20	*1.898*	100.4	*3.953*	1.30	*2.87*
1SM 098	52.15	*2.053*	108.3	*4.264*	1.41	*3.11*

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

FLANGIA SAE SAEAA *SAE FLANGE*

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		PRESSIONE MAX MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	240	*3480*	260	*3770*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	240	*3480*	260	*3770*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	240	*3480*	260	*3770*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	220	*3190*	250	*3625*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	220	*3190*	250	*3625*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	210	*3045*	240	*3480*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	210	*3045*	240	*3480*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	190	*2755*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*



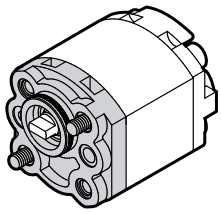
GRUPPO - GROUP 1	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
1SP 009	38.30	*1.508*	77.10	*3.035*	0.91	*2.01*
1SP 012	38.85	*1.530*	78.20	*3.079*	0.93	*2.05*
1SP 016	39.70	*1.563*	79.90	*3.146*	0.95	*2.09*
1SP 020	40.45	*1.593*	81.40	*3.205*	0.97	*2.14*
1SP 025	41.45	*1.632*	83.40	*3.283*	1.00	*2.21*
1SP 032	42.80	*1.685*	86.10	*3.390*	1.04	*2.29*
1SP 037	43.80	*1.724*	88.10	*3.469*	1.07	*2.36*
1SP 042	44.75	*1.762*	90.00	*3.543*	1.10	*2.43*
1SP 050	46.30	*1.823*	93.10	*3.665*	1.14	*2.51*
1SP 063	48.85	*1.923*	98.20	*3.866*	1.22	*2.69*
1SP 078	51.70	*2.035*	103.90	*4.091*	1.30	*2.87*
1SP 098	55.65	*2.191*	111.80	*4.402*	1.41	*3.11*

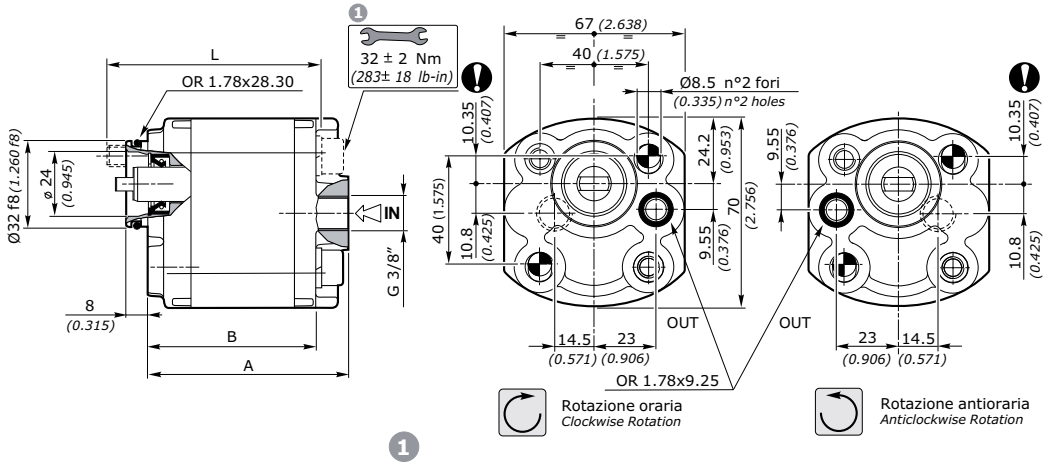
MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

FLANGIA PER MINICENTRALINA MC32 *POWER-PACK FLANGE*

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		PRESSIONE MAX MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	210	*3045*	240	*3480*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	210	*3045*	240	*3480*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	210	*3045*	240	*3480*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	210	*3045*	240	*3480*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	210	*3045*	240	*3480*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	200	*2900*	230	*3335*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	200	*2900*	230	*3335*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	180	*2610*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*





1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio del motore è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio del motore può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare il motore mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the motor assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

The assembling of the motor should be effected by 2 screw (221 ± 18 lb-in).
Fix the motor by self-locking nuts (283 ± 18 lb-in).

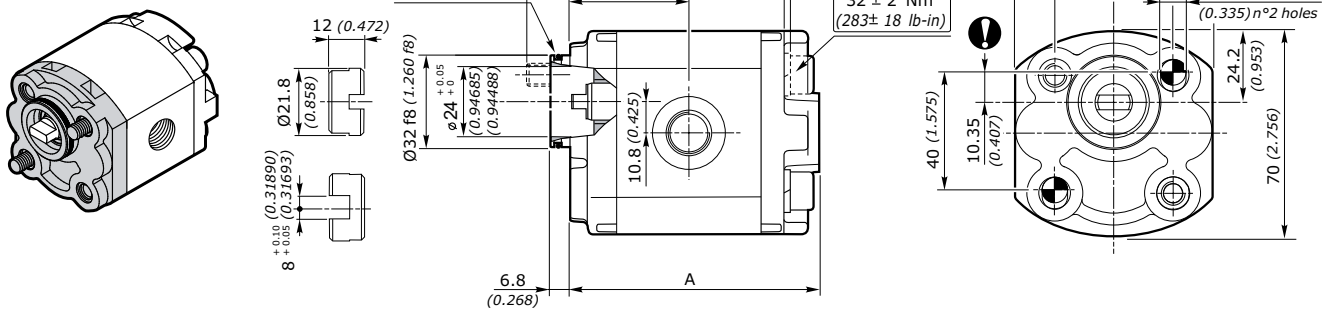
GRUPPO - GROUP 1	A		B		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	kg	lbs
1SM 009	73.1	*2.878*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SM 012	74.2	*2.921*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SM 016	75.9	*2.988*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SM 020	77.4	*3.047*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SM 025	79.4	*3.126*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SM 032	82.1	*3.232*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SM 037	84.1	*3.311*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SM 042	86.0	*3.386*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SM 050	89.1	*3.508*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SM 063	94.2	*3.709*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SM 078	99.9	*3.933*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SM 098	107.8	*4.244*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

FLANGIA TEDESCA FISSAGGIO MINICENTRALINA **E32BX** *POWER-PACK FIXING GERMAN FLANGE*

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		PRESSIONE MAX MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	210	*3045*	240	*3480*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	210	*3045*	240	*3480*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	210	*3045*	240	*3480*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	210	*3045*	240	*3480*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	210	*3045*	240	*3480*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	200	*2900*	230	*3335*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	200	*2900*	230	*3335*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	180	*2610*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*



1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio del motore è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio del motore può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare il motore mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the motor assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

The assembling of the motor should be effected by 2 screw (221 ± 18 lb-in).
Fix the motor by self-locking nuts (283 ± 18 lb-in).

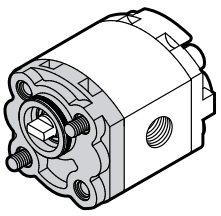
GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
1SM 009	73.6	*2.898*	34.80	*1.370*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SM 012	74.7	*2.941*	35.35	*1.392*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SM 016	76.4	*3.008*	36.20	*1.425*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SM 020	77.9	*3.067*	36.95	*1.455*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SM 025	79.9	*3.146*	37.95	*1.494*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SM 032	82.6	*3.252*	39.30	*1.547*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SM 037	84.6	*3.331*	40.30	*1.587*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SM 042	86.5	*3.406*	41.25	*1.624*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SM 050	89.6	*3.528*	42.80	*1.685*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SM 063	94.7	*3.728*	45.35	*1.785*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SM 078	100.4	*3.953*	48.20	*1.898*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SM 098	108.3	*4.264*	52.15	*2.053*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

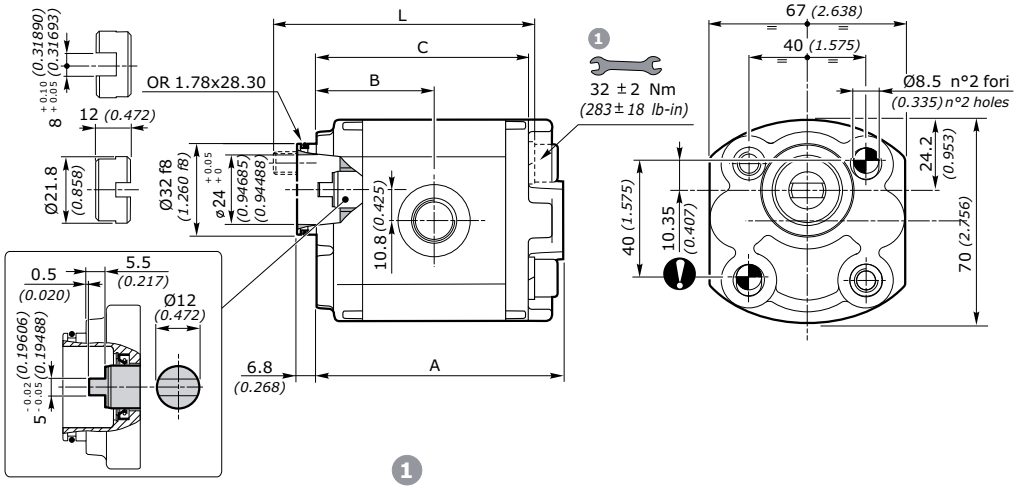
MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

FLANGIA TEDESCA FISSAGGIO MINICENTRALINA CON ANELLO DI TENUTA **E32BC** ***POWER-PACK FIXING GERMAN FLANGE WITH SEAL SHAFT***

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		PRESSIONE MAX MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	210	*3045*	240	*3480*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	210	*3045*	240	*3480*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	210	*3045*	240	*3480*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	210	*3045*	240	*3480*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	210	*3045*	240	*3480*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	200	*2900*	230	*3335*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	200	*2900*	230	*3335*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	180	*2610*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*





1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio del motore è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio del motore può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare il motore mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the motor assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

The assembling of the motor should be effected by 2 screw (221 ± 18 lb-in).
Fix the motor by self-locking nuts (283 ± 18 lb-in).

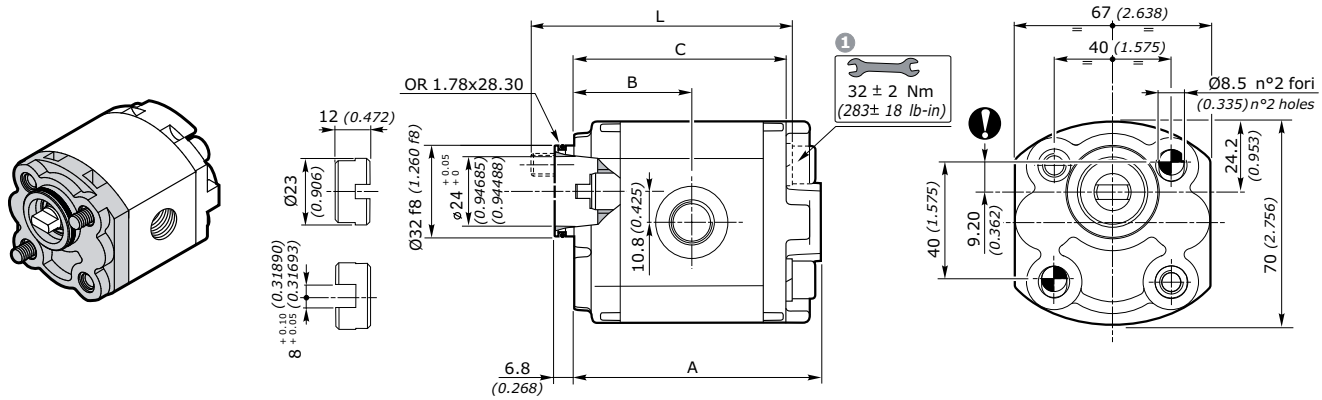
GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
1SM 009	73.6	*2.898*	34.80	*1.370*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SM 012	74.7	*2.941*	35.35	*1.392*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SM 016	76.4	*3.008*	36.20	*1.425*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SM 020	77.9	*3.067*	36.95	*1.455*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SM 025	79.9	*3.146*	37.95	*1.494*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SM 032	82.6	*3.252*	39.30	*1.547*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SM 037	84.6	*3.331*	40.30	*1.587*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SM 042	86.5	*3.406*	41.25	*1.624*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SM 050	89.6	*3.528*	42.80	*1.685*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SM 063	94.7	*3.728*	45.35	*1.785*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SM 078	100.4	*3.953*	48.20	*1.898*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SM 098	108.3	*4.264*	52.15	*2.053*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

FLANGIA PER ELETTROPOMPA E32CX *ELECTRO-PUMP FLANGE*

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		PRESSIONE MAX MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	210	*3045*	240	*3480*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	210	*3045*	240	*3480*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	210	*3045*	240	*3480*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	210	*3045*	240	*3480*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	210	*3045*	240	*3480*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	200	*2900*	230	*3335*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	200	*2900*	230	*3335*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	180	*2610*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*



1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio del motore è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio del motore può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare il motore mediante dadi autobloccanti (32 ± 2 Nm).

1 *Tightening torque of screws: 283 ± 18 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the motor assembly should be ordered separately.
*Ordering code: **0019W** (+ lenght **L** - see table)*

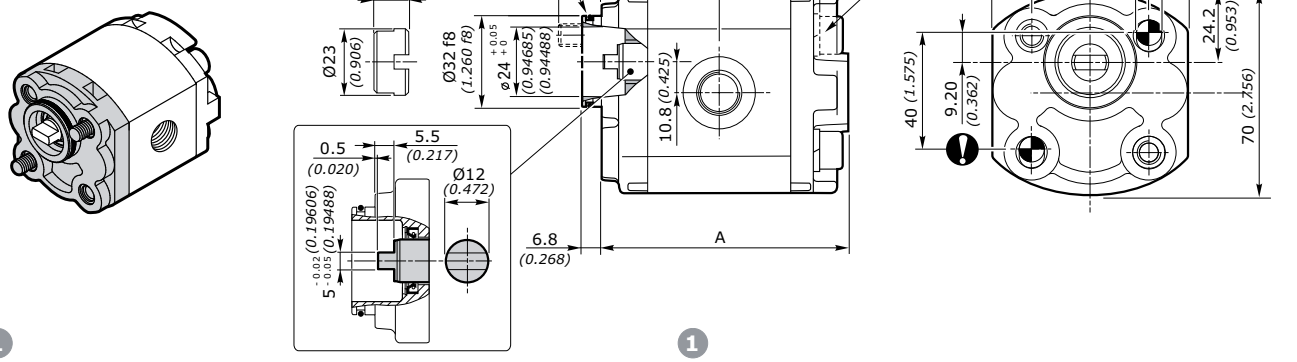
The assembling of the motor should be effected by 2 screw (221 ± 18 lb-in).
Fix the motor by self-locking nuts (283 ± 18 lb-in).

GRUPPO - GROUP 1	A		B		C		L 1		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
1SM 009	73.6	*2.898*	34.80	*1.370*	61.6	*2.425*	80	*3.150*	0.91	*2.01*
1SM 012	74.7	*2.941*	35.35	*1.392*	62.7	*2.469*	80	*3.150*	0.93	*2.05*
1SM 016	76.4	*3.008*	36.20	*1.425*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SM 020	77.9	*3.067*	36.95	*1.455*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SM 025	79.9	*3.146*	37.95	*1.494*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SM 032	82.6	*3.252*	39.30	*1.547*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SM 037	84.6	*3.331*	40.30	*1.587*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SM 042	86.5	*3.406*	41.25	*1.624*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SM 050	89.6	*3.528*	42.80	*1.685*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SM 063	94.7	*3.728*	45.35	*1.785*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SM 078	100.4	*3.953*	48.20	*1.898*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SM 098	108.3	*4.264*	52.15	*2.053*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

FLANGIA PER ELETTROPOMPA CON ANELLO DI TENUTA **E32CC** ***ELECTRO-PUMP FLANGE WITH SEAL SHAFT***

GRUPPO GROUP 1SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX MAX PRESSURE P1		PRESSIONE MAX MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
1SM 009	0.89	*0.05*	210	*3045*	240	*3480*	6000	5.3	*1.40*	600	0.49	*0.13*	92*
1SM 012	1.18	*0.07*	210	*3045*	240	*3480*	6000	7.1	*1.88*	600	0.65	*0.17*	92*
1SM 016	1.6	*0.10*	210	*3045*	240	*3480*	6000	9.6	*2.54*	400	0.61	*0.16*	95*
1SM 020	2.0	*0.12*	210	*3045*	240	*3480*	5500	11	*2.91*	400	0.76	*0.20*	95*
1SM 025	2.5	*0.15*	210	*3045*	240	*3480*	5000	12.5	*3.30*	400	0.95	*0.25*	95*
1SM 032	3.2	*0.20*	200	*2900*	230	*3335*	4500	14.4	*3.80*	400	1.21	*0.32*	95*
1SM 037	3.7	*0.23*	200	*2900*	230	*3335*	4000	14.8	*3.91*	400	1.40	*0.37*	95*
1SM 042	4.2	*0.26*	180	*2610*	210	*3045*	3500	14.7	*3.88*	400	1.60	*0.42*	95*
1SM 050	5.0	*0.31*	180	*2610*	210	*3045*	3000	15	*3.96*	400	1.90	*0.50*	95*
1SM 063	6.3	*0.38*	170	*2465*	190	*2755*	2700	17	*4.49*	400	2.39	*0.63*	95*
1SM 078	7.76	*0.47*	170	*2465*	190	*2755*	2500	19.4	*5.13*	400	2.95	*0.78*	95*
1SM 098	9.78	*0.60*	150	*2175*	170	*2465*	2000	19.6	*5.18*	400	3.71	*0.98*	95*

DIMENSIONI • *DIMENSIONS*



1 Coppia di serraggio viti: 32 ± 2Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio del motore è da ordinare separatamente.
Codice di ordinazione: **0019W** (+ lunghezza **L** - vedi tabella)

Il fissaggio del motore può essere effettuato con 2 viti prigioniere (25 ± 2Nm).
Fissare il motore mediante dadi autobloccanti (32 ± 2 Nm).

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The assembling of the motor should be effected by 2 screw (221 ± 18 lb-in).
Fix the motor by self-locking nuts (283 ± 18 lb-in).

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1SM 016	76.4	*3.008*	36.20	*1.425*	64.4	*2.535*	80	*3.150*	0.95	*2.09*
1SM 020	77.9	*3.067*	36.95	*1.455*	65.9	*2.594*	80	*3.150*	0.97	*2.14*
1SM 025	79.9	*3.146*	37.95	*1.494*	67.9	*2.673*	85	*3.346*	1.00	*2.21*
1SM 032	82.6	*3.252*	39.30	*1.547*	70.6	*2.780*	85	*3.346*	1.04	*2.29*
1SM 037	84.6	*3.331*	40.30	*1.587*	72.6	*2.858*	90	*3.543*	1.07	*2.36*
1SM 042	86.5	*3.406*	41.25	*1.624*	74.5	*2.933*	90	*3.543*	1.10	*2.43*
1SM 050	89.6	*3.528*	42.80	*1.685*	77.6	*3.055*	95	*3.740*	1.14	*2.51*
1SM 063	94.7	*3.728*	45.35	*1.785*	82.7	*3.256*	100	*3.937*	1.22	*2.69*
1SM 078	100.4	*3.953*	48.20	*1.898*	88.4	*3.480*	105	*4.134*	1.30	*2.87*
1SM 098	108.3	*4.264*	52.15	*2.053*	96.3	*3.791*	115	*4.528*	1.41	*3.11*

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

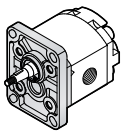
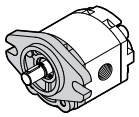
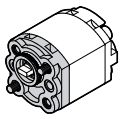
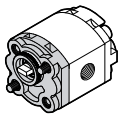
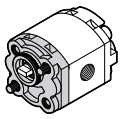
CODICE ORDINAZIONE • *ORDER CODE*

1SM - A - 020 - D - EUR - H - N - 10 - 0 - G

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
1SM	Tipo motore *Motor type*	Motore - gruppo 1 *Motor - group 1*	91
A	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium*	
020	Cilindrata *Displacement*	Cilindrata = 2 cm^3/g *Displacement = 0.12 in^3/rev*	91
D	Senso di rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	95
EUR	Tipo Flangia *Flange type*	Flangia europea standard *Standard european flange*	112
H	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	113
0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	116
G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

TIPOLOGIA FLANGIA • *FLANGE TYPE*

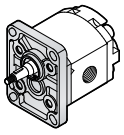
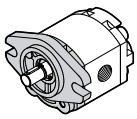
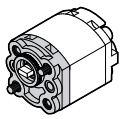
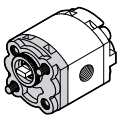
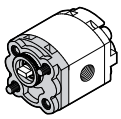
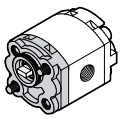
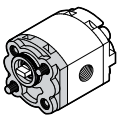
1SM	EUR	SAEAA	MC32	E32BX - E32BC	E32CX - E32CC
					
A alluminio *aluminium*	◇	◇	◇	◇	◇
G ghisa *cast iron*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*

◇ = Combinazione standard - *Standard combination*

ANELLO DI TENUTA • *SEAL RING*

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*
A	Flangia senza anello di tenuta *Flange without seal ring*	
H	Anello di tenuta fino a **8** bar *Sealing ring up to **8** bar*	Per basse pressioni (con distanziali di rinforzo) *For low pressures (with stiffering seal)*
K	Anello di tenuta fino a **30** bar *Sealing ring up to **30** bar*	Per alte pressioni *For high pressures*
W	Anello di tenuta fino a **100** bar *Sealing ring up to **100** bar*	Per altissime pressioni *For very high pressures*

COMBINAZIONE FLANGIA - ANELLO DI TENUTA - GUARNIZIONE • *FLANGE - SEAL RING - GASKET COMBINATION*

1SM	EUR			SAEAA			MC32			E32BX	E32BC		E32CX	E32CC	
															
	Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*	Anello - *seal ring*		Anello - *seal ring*	Anello - *seal ring*	
	H	**K**	**W**	**H**	**K**	**W**	**H**	**K**	**W**	**A**	**B**	**K**	**A**	**B**	**K**
NBR **N**	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Viton **V**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

◇ = Combinazione standard - *Standard combination*

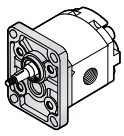
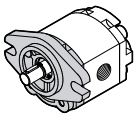
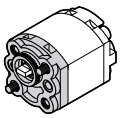
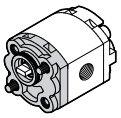
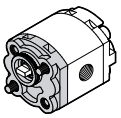
● = Combinazione disponibile - *Available combination*

esempio • *example:* **1SM - A - 020 - D - EUR - H - N - 10 - 0 - G**

EUR = Flangia europea / *European flange*
H = Anello tenuta fino a 8 bar / Seal ring up to 8 *bar*
N = *Guarnizione in NBR / NBR o-ring*

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

COMBINAZIONE ALBERO - FLANGIA ● *SHAFT - FLANGE COMBINATION*

1SM	EUR	SAEAA	MC32	E32BX-E32BC	E32CX-E32CC
					
10 Conico 1:8 *Tapered 1:8*	◇	●	●		
11 Conico 1:5 *Tapered 1:5*	●	●	●		
13 Cilindrico SAEAA *Parallel shaft SAEAA*	●	◇			
14 Scanalato SAEAA 9 denti *SAEAA 9T splined*	●	◇			
15 Scanalato DIN5480 6 denti 12x9 *DIN5480 Splined*	●	●	●		
17 Fresato a dente frontale *Dihedral claw*				◇	◇
27 Fresato a dente frontale (con anello) *Dihedral claw (with sealing ring)*	●	●	◇		

◇ = Combinazione standard - *Standard combination*

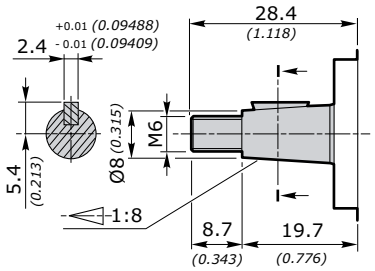
● = Combinazione disponibile - *Available combination*

1SM

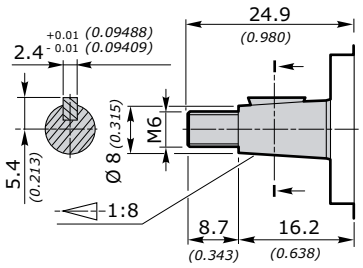
DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

10
Conico 1:8
Tapered 1:8

Coppia 30 Nm
Torque 22 ft-lbs



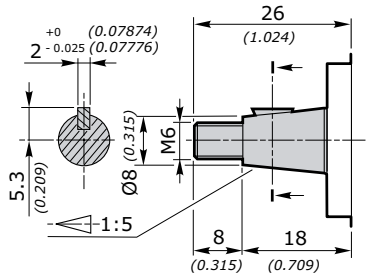
Disponibile per - *available for:* **EUR - MC32**



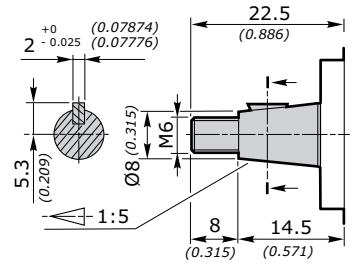
Disponibile per - *available for:* **SAEAA**

11
Conico 1:5
Tapered 1:5

Coppia 30 Nm
Torque 22 ft-lbs



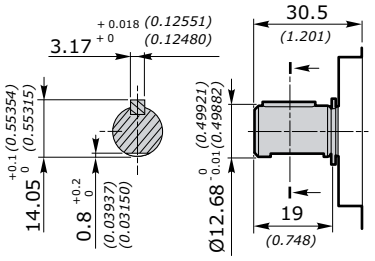
Disponibile per - *available for:* **EUR - MC32**



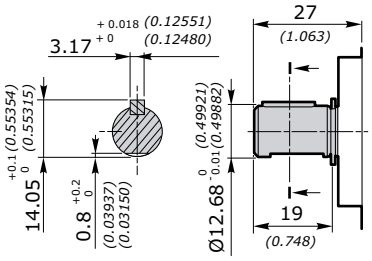
Disponibile per - *available for:* **SAEAA**

13
Cilindrico
SAEAA
Parallel shaft
SAEAA

Coppia 35 Nm
Torque 26 ft-lbs



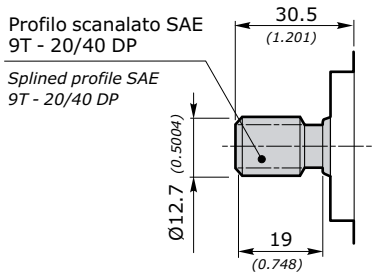
Disponibile per - *available for:* **EUR**



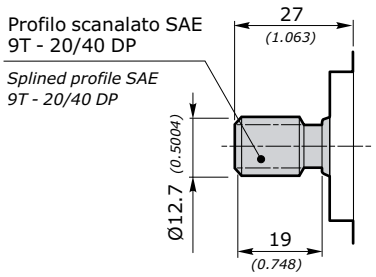
Disponibile per - *available for:* **SAEAA**

14
Scanalato
SAEAA 9 denti
SAEAA
9T splined

Coppia 40 Nm
Torque 30 ft-lbs



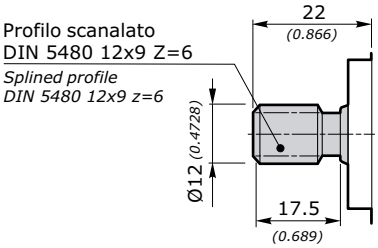
Disponibile per - *available for:* **EUR**



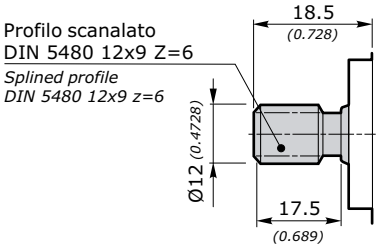
Disponibile per - *available for:* **SAEAA**

15
Scanalato
DIN 5480
6 denti 12x9
DIN 5480
splined

Coppia 30 Nm
Torque 22 ft-lbs

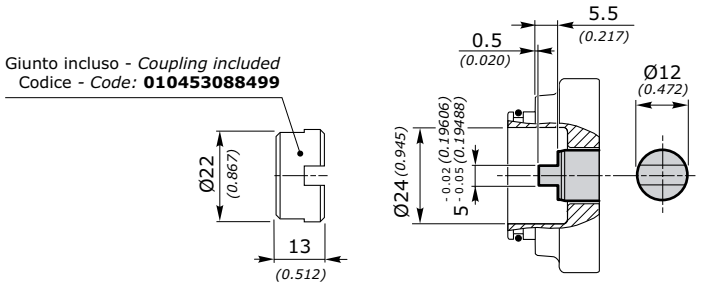
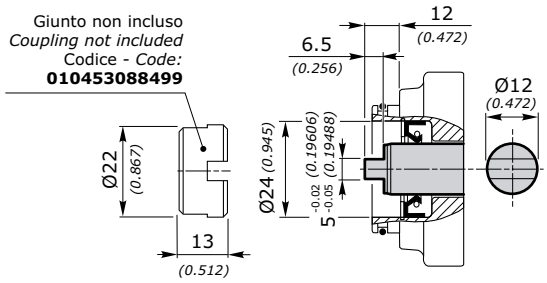
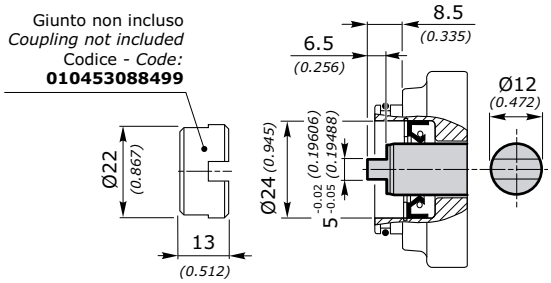


Disponibile per - *available for:* **EUR - MC32**



Disponibile per - *available for:* **SAEAA**

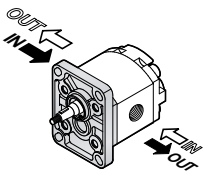
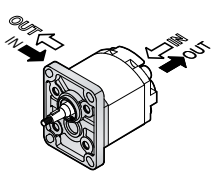
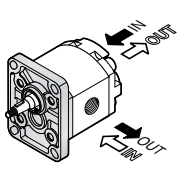
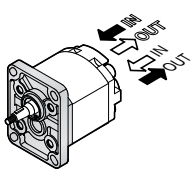
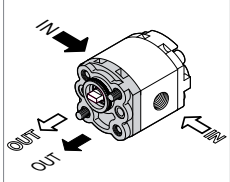
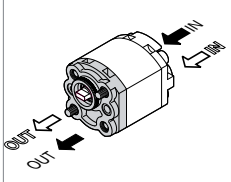
MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

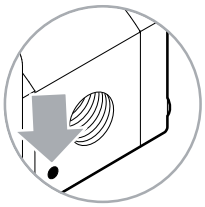
1SM	DIMENSIONI ALBERO - *SHAFT DIMENSIONS*
17 Fresato a dente frontale *Dihedral craw* Coppia 25 Nm *Torque 19 ft-lbs*	 Disponibile per - *available for:* **E32BX - E32BC - E32CX - E32CC**
27 Fresato a dente frontale (con anello) *Dihedral claw* *(with sealing ring)* Coppia 25 Nm *Torque 19 ft-lbs*	 Disponibile per - *available for:* **EUR - MC32**  Disponibile per - *available for:* **SAEAA**

POSIZIONE CONNESSIONE • *CONNECTION POSITION*

Rotazione destra - **D**
*Right rotation - **D***

Rotazione sinistra - **S**
*Left rotation - **S***

0	**1**	**3**	**4**	**2** (per - *for* MC32)	**5** (per - *for* MC32)
					



Il segno del corpo indica il LATO SCARICO per i motori
The sign on the body identify the OUTLET SIDE for the motors

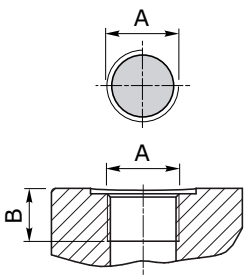
IN = INGRESSO - *INLET*
OUT = SCARICO - *OUTLET*

TIPO CONNESSIONE • *CONNECTION TYPE*

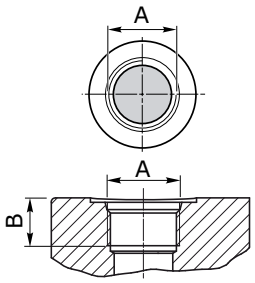
Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

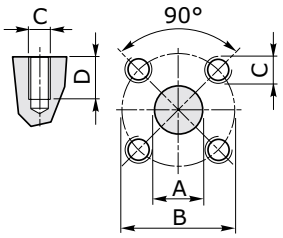
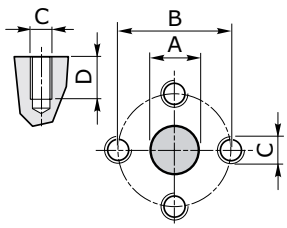
The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

1SP		POSIZIONE CONNESSIONE - *CONNECTION POSITION*					
		0	**1**	**3**	**4**	**2**	**5**
GAS	**G**	◇	◇	◇	◇	◇	◇
UNF	**U**	◇	◇	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇				◇	
	N	◇				◇	

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**			INGRESSO - *INLET* **IN**		
				A	**B**		**A**	**B**	
		**G**	009	G 3/8"	14 [mm] *0.552 [inch]*	40 [Nm] *354 [in.lbs]*	G 3/8"	14 [mm] *0.552 [inch]*	40 [Nm] *354 [in.lbs]*
			012						
			016						
			020						
			025						
			032						
			037						
			042						
			050						
			063						
			078						
			098						

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

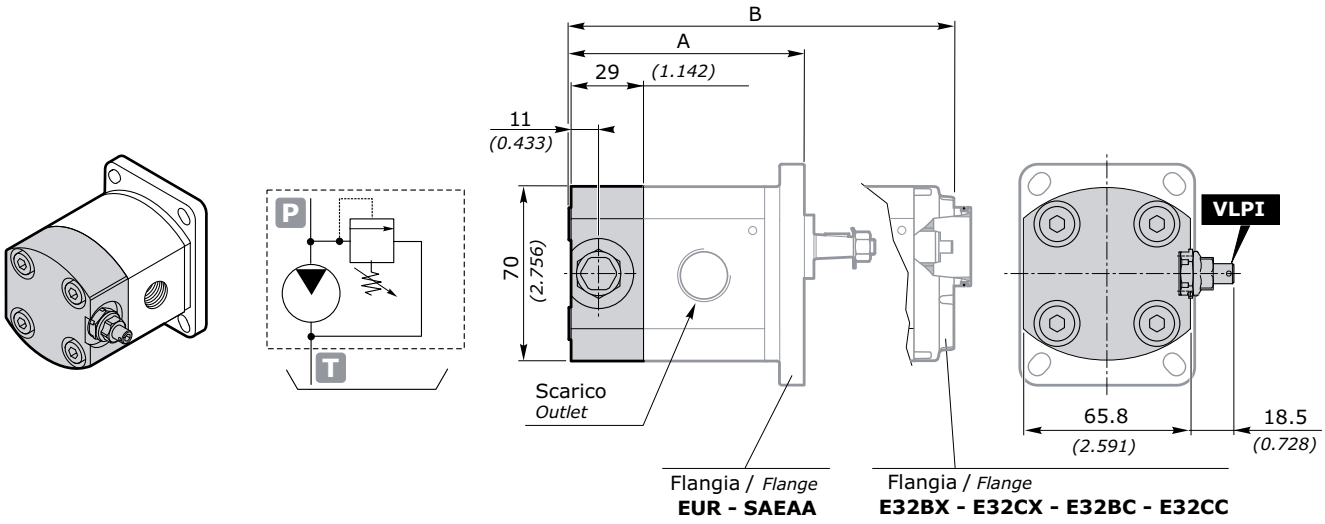
UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	B		INGRESSO - *INLET* **IN** A	B	
		**U**	009	SAE 6 9/16"-18 UNF	13 [mm] *0.512 [inch]*	40 [Nm] *354 [in.lbs]*	SAE 6 9/16"-18 UNF	13 [mm] *0.512 [inch]*	40 [Nm] *354 [in.lbs]*
			012						
			016						
			020						
			025	SAE 8 3/4"-14 UNF	15 [mm] *0.591 [inch]*	50 [Nm] *443 [in.lbs]*	SAE 8 3/4"-14 UNF	15 [mm] *0.591 [inch]*	50 [Nm] *443 [in.lbs]*
			032						
			037						
			042						
			050						
			063						
			078						
			098						

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	B	C	D		INGRESSO - *INLET* **IN** A	B	C	D	
		**T**	009	12 [mm] *0.472 [inch]*	30 [mm] *1.181 [inch]*	M6	13 [mm] *0.512 [inch]*	8 [Nm] *71 [in.lbs]*	12 [mm] *0.472 [inch]*	30 [mm] *1.181 [inch]*	M6	13 [mm] *0.512 [inch]*	8 [Nm] *71 [in.lbs]*
			012										
			016										
			020										
			025										
			032										
			037										
			042										
			050										
			063										
			078										
			098										
		**N**	009	10 [mm] *0.394 [inch]*	26 [mm] *1.024 [inch]*	M5	11 [mm] *0.433 [inch]*	7 [Nm] *62 [in.lbs]*	10 [mm] *0.394 [inch]*	26 [mm] *1.024 [inch]*	M5	11 [mm] *0.433 [inch]*	7 [Nm] *62 [in.lbs]*
			012										
			016										
			020										
			025	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	11 [mm] *0.433 [inch]*	8 [Nm] *71 [in.lbs]*	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	11 [mm] *0.433 [inch]*	8 [Nm] *71 [in.lbs]*
			032										
			037										
			042										
			050										
			063										
			078										
			098										

OPZIONI • *OPTIONALS*

VLPI

VALVOLA LIMITATRICE DI PRESSIONE A SCARICO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL EXHAUST



GRUPPO GROUP 1	A EUR		A SAEAA		B E32BX - E32CX E32BC - E32CC	
	mm	inch	mm	inch	mm	inch
1SM 009	82.6	*3.252*	86.1	*3.390*	82.6	*3.252*
1SM 012	83.7	*3.295*	87.2	*3.433*	83.7	*3.295*
1SM 016	85.4	*3.362*	88.9	*3.500*	85.4	*3.362*
1SM 020	86.9	*3.421*	90.4	*3.559*	86.9	*3.421*
1SM 025	88.9	*3.500*	92.4	*3.638*	88.9	*3.500*
1SM 032	91.6	*3.606*	95.1	*3.744*	91.6	*3.606*
1SM 037	93.6	*3.685*	97.1	*3.823*	93.6	*3.685*
1SM 042	95.5	*3.760*	99.0	*3.898*	95.5	*3.760*
1SM 050	98.6	*3.882*	102.1	*4.020*	98.6	*3.882*
1SM 063	103.7	*4.083*	107.2	*4.220*	103.7	*4.083*
1SM 078	109.4	*4.307*	112.9	*4.445*	109.4	*4.307*
1SM 098	117.3	*4.618*	120.8	*4.756*	117.3	*4.618*

ATTENZIONE:

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore (previsto solo scarico interno).
Il coperchio VLP è disponibile in allumnio.

WARNING:

The pressure relief valve can be applied by substituting the rear cover (only internal relief is set).
VLP cover is available in aluminum.

MOTORI AD INGRANAGGI GRUPPO 1SM
GEAR MOTORS GROUP 1SM

esempio ● *example:* **1SM - A - 020 - D - EUR - H - N - 10 - 0 - G - VLPI N 120**

VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso di omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

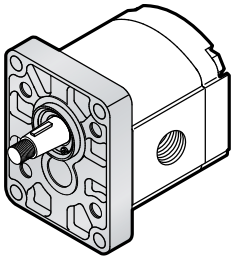
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

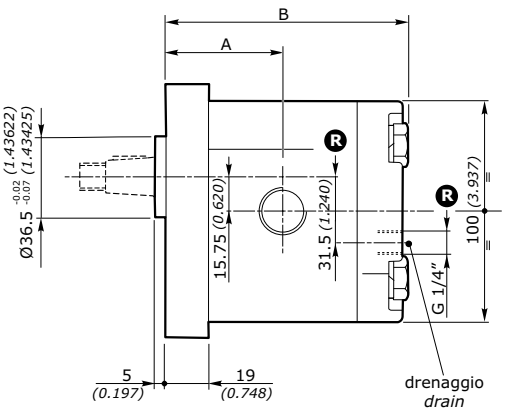
FLANGIA EUROPEA **EUR** *EUROPEAN FLANGE*

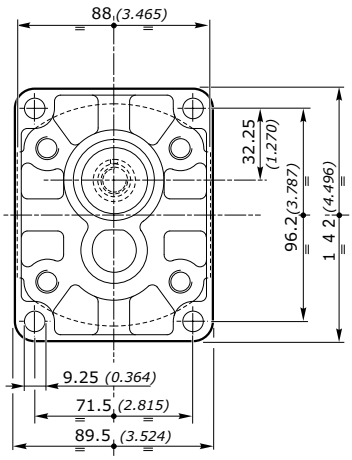
FLANGIA E COPERCHIO IN ALLUMINIO - ***FLANGE AND COVER IN ALUMINIUM***

GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D		R		S - D		R		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm³/giro	in³/rev	P1 bar	P1 psi	P1 bar	P1 psi	P2 bar	P2 psi	P2 bar	P2 psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	0.24	230	3335	230	3335	270	3915	230	3335	4000	16	4.23	500	1.9	0.50	95*
2SM 060	6	0.37	230	3335	230	3335	270	3915	230	3335	4000	24	6.34	500	2.85	0.75	95*
2SM 080	8.5	0.52	230	3335	230	3335	270	3915	230	3335	3500	29.7	7.85	500	4.03	1.06	95*
2SM 110	11	0.67	230	3335	230	3335	270	3915	230	3335	3500	38.5	10.17	500	5.22	1.38	95*
2SM 140	14	0.85	230	3335	230	3335	270	3915	230	3335	3500	49	12.95	500	6.65	1.76	95*
2SM 160	16.5	1.01	230	3335	200	2900	240	3480	200	2900	3500	57.7	15.24	500	7.83	2.07	95*
2SM 190	19.5	1.19	210	3045	185	2683	220	3190	185	2683	3300	64.3	16.99	500	9.26	2.45	95*
2SM 220	22.5	1.37	190	2755	170	2465	200	2900	170	2465	2800	63	16.64	500	10.68	2.82	95*
2SM 260	26	1.59	170	2465	150	2175	180	2610	155	2248	2500	65	17.17	500	12.35	3.26	95*
2SM 310	31.5	1.92	130	1885	120	1740	140	2030	130	1885	2200	69	18.22	500	15.75	4.16	95*

DIMENSIONI • *DIMENSIONS*







Ⓡ Solo per motori reversibili - *Only for reversible motors*

GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SM 040	44.4	1.748	93.0	3.661	2.30	5.07
2SM 060	46.0	1.811	96.3	3.791	2.45	5.40
2SM 080	48.1	1.894	100.5	3.957	2.60	5.73
2SM 110	50.2	1.976	104.6	4.118	2.70	5.95
2SM 140	52.7	2.075	109.6	4.315	2.80	6.17
2SM 160	54.8	2.157	113.8	4.480	2.95	6.51
2SM 190	57.3	2.256	118.8	4.677	3.10	6.84
2SM 220	59.8	2.354	123.8	4.874	3.25	7.17
2SM 260	62.7	2.469	129.6	5.102	3.40	7.50
2SM 310	66.9	2.636	138.0	5.437	3.61	7.96

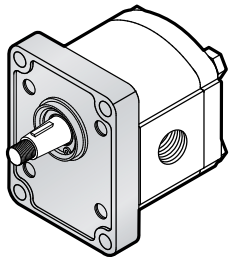
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

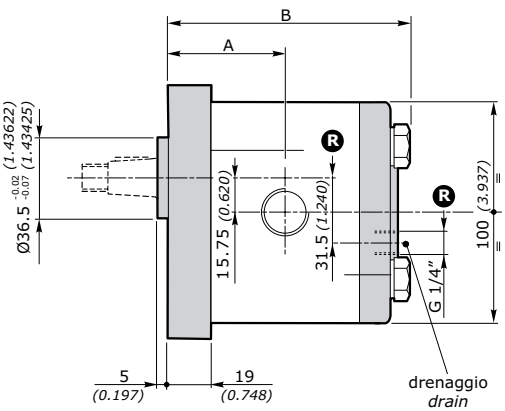
FLANGIA EUROPEA **EUR** *EUROPEAN FLANGE*

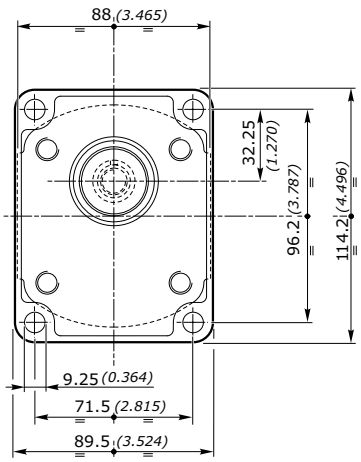
FLANGIA E COPERCHIO IN GHISA - *FLANGE AND COVER IN CAST IRON*

GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE								VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
			S - D		R		S - D		R								
	cm³/giro	in³/rev	P1 bar	P1 psi	P1 bar	P1 psi	P2 bar	P2 psi	P2 bar	P2 psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	*0.24*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SM 060	6	*0.37*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SM 080	8.5	*0.52*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SM 110	11	*0.67*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SM 140	14	*0.85*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SM 160	16.5	*1.01*	230	*3335*	200	*2900*	240	*3480*	200	*2900*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SM 190	19.5	*1.19*	210	*3045*	185	*2683*	220	*3190*	185	*2683*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SM 220	22.5	*1.37*	190	*2755*	170	*2465*	200	*2900*	170	*2465*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SM 260	26	*1.59*	170	*2465*	150	*2175*	180	*2610*	155	*2248*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SM 310	31.5	*1.92*	130	*1885*	120	*1740*	140	*2030*	130	*1885*	2200	69	*18.22*	500	15.75	*4.16*	95*

DIMENSIONI • *DIMENSIONS*







Ⓡ Solo per motori reversibili - *Only for reversible motors*

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	mm	inch	mm	inch	kg	lbs
2SM 040	44.4	*1.748*	93.0	*3.661*	3.40	*7.50*
2SM 060	46.0	*1.811*	96.3	*3.791*	3.55	*7.83*
2SM 080	48.1	*1.894*	100.5	*3.957*	3.70	*8.16*
2SM 110	50.2	*1.976*	104.6	*4.118*	3.80	*8.38*
2SM 140	52.7	*2.075*	109.6	*4.315*	3.90	*8.60*
2SM 160	54.8	*2.157*	113.8	*4.480*	4.05	*8.93*
2SM 190	57.3	*2.256*	118.8	*4.677*	4.20	*9.26*
2SM 220	59.8	*2.354*	123.8	*4.874*	4.35	*9.59*
2SM 260	62.7	*2.469*	129.6	*5.102*	4.50	*9.92*
2SM 310	66.9	*2.636*	138.0	*5.437*	4.71	*7.96*

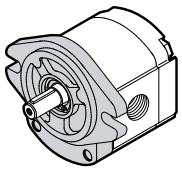
FLANGIA SAE SAEA-SAEAOR *SAE FLANGE*

FLANGIA E COPERCHIO IN ALLUMINIO - *FLANGE AND COVER IN ALUMINIUM*

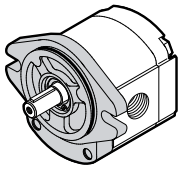
GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D		PRESSIONE MAX - MAX PRESSURE R		PRESSIONE MAX - MAX PRESSURE S - D		PRESSIONE MAX - MAX PRESSURE R		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm^3/giro	in^3/rev	P1 bar	P1 psi	P1 bar	P1 psi	P2 bar	P2 psi	P2 bar	P2 psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	0.24	230	3335	230	3335	270	3915	230	3335	4000	16	4.23	500	1.9	0.50	95*
2SM 060	6	0.37	230	3335	230	3335	270	3915	230	3335	4000	24	6.34	500	2.85	0.75	95*
2SM 080	8.5	0.52	230	3335	230	3335	270	3915	230	3335	3500	29.7	7.85	500	4.03	1.06	95*
2SM 110	11	0.67	230	3335	230	3335	270	3915	230	3335	3500	38.5	10.17	500	5.22	1.38	95*
2SM 140	14	0.85	230	3335	230	3335	270	3915	230	3335	3500	49	12.95	500	6.65	1.76	95*
2SM 160	16.5	1.01	230	3335	200	2900	240	3480	200	2900	3500	57.7	15.24	500	7.83	2.07	95*
2SM 190	19.5	1.19	210	3045	185	2683	220	3190	185	2683	3300	64.3	16.99	500	9.26	2.45	95*
2SM 220	22.5	1.37	190	2755	170	2465	200	2900	170	2465	2800	63	16.64	500	10.68	2.82	95*
2SM 260	26	1.59	170	2465	150	2175	180	2610	155	2248	2500	65	17.17	500	12.35	3.26	95*
2SM 310	31.5	1.92	130	1885	120	1740	140	2030	130	1885	2200	69	18.22	500	15.75	4.16	95*

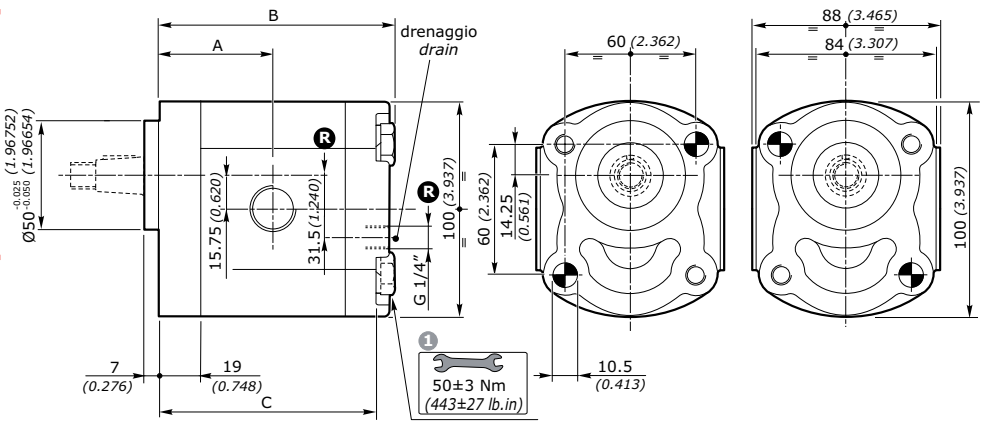
DIMENSIONI • *DIMENSIONS*

SAEA



SAEAOR





Ⓡ Solo per motori reversibili - *Only for reversible motors*

GRUPPO - GROUP 2	A mm	A inch	B mm	B inch	MASSA - MASS kg	MASSA - MASS lbs
2SM 040	44.4	1.748	93.0	3.661	2.30	5.07
2SM 060	46.0	1.811	96.3	3.791	2.45	5.40
2SM 080	48.1	1.894	100.5	3.957	2.60	5.73
2SM 110	50.2	1.976	104.6	4.118	2.70	5.95
2SM 140	52.7	2.075	109.6	4.315	2.80	6.17
2SM 160	54.8	2.157	113.8	4.480	2.95	6.51
2SM 190	57.3	2.256	118.8	4.677	3.10	6.84
2SM 220	59.8	2.354	123.8	4.874	3.25	7.17
2SM 260	62.7	2.469	129.6	5.102	3.40	7.50
2SM 310	66.9	2.636	138.0	5.437	3.61	7.96

MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

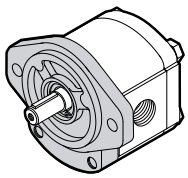
FLANGIA SAE SAEA-SAEAOR *SAE FLANGE*

FLANGIA E COPERCHIO IN GHISA - *FLANGE AND COVER IN CAST IRON*

GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D		PRESSIONE MAX - MAX PRESSURE R		PRESSIONE MAX - MAX PRESSURE S - D		PRESSIONE MAX - MAX PRESSURE R		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm^3/giro	in^3/rev	P1 bar	P1 psi	P1 bar	P1 psi	P2 bar	P2 psi	P2 bar	P2 psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	*0.24*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SM 060	6	*0.37*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SM 080	8.5	*0.52*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SM 110	11	*0.67*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SM 140	14	*0.85*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SM 160	16.5	*1.01*	230	*3335*	200	*2900*	240	*3480*	200	*2900*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SM 190	19.5	*1.19*	210	*3045*	185	*2683*	220	*3190*	185	*2683*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SM 220	22.5	*1.37*	190	*2755*	170	*2465*	200	*2900*	170	*2465*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SM 260	26	*1.59*	170	*2465*	150	*2175*	180	*2610*	155	*2248*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SM 310	31.5	*1.92*	130	*1885*	120	*1740*	140	*2030*	130	*1885*	2200	69	*18.22*	500	15.75	*4.16*	95*

DIMENSIONI • *DIMENSIONS*

SAEA



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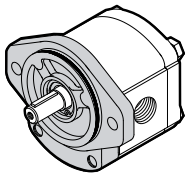
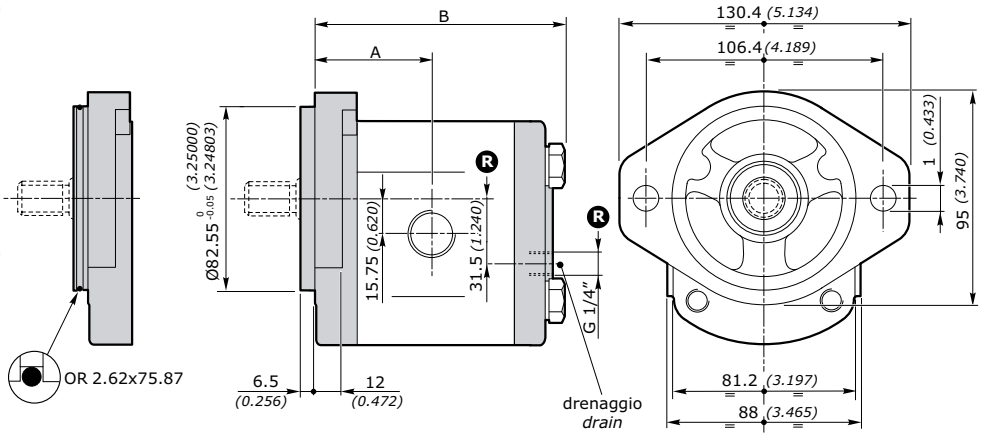




Ⓡ Solo per motori reversibili - *Only for reversible motors*

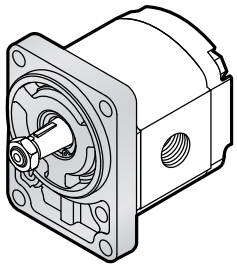
GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
2SM 040	44.4	*1.748*	93.0	*3.661*	3.40	*7.50*
2SM 060	46.0	*1.811*	96.3	*3.791*	3.55	*7.83*
2SM 080	48.1	*1.894*	100.5	*3.957*	3.70	*8.16*
2SM 110	50.2	*1.976*	104.6	*4.118*	3.80	*8.38*
2SM 140	52.7	*2.075*	109.6	*4.315*	3.90	*8.60*
2SM 160	54.8	*2.157*	113.8	*4.480*	4.05	*8.93*
2SM 190	57.3	*2.256*	118.8	*4.677*	4.20	*9.26*
2SM 220	59.8	*2.354*	123.8	*4.874*	4.35	*9.59*
2SM 260	62.7	*2.469*	129.6	*5.102*	4.50	*9.92*
2SM 310	66.9	*2.636*	138.0	*5.437*	4.71	*7.96*

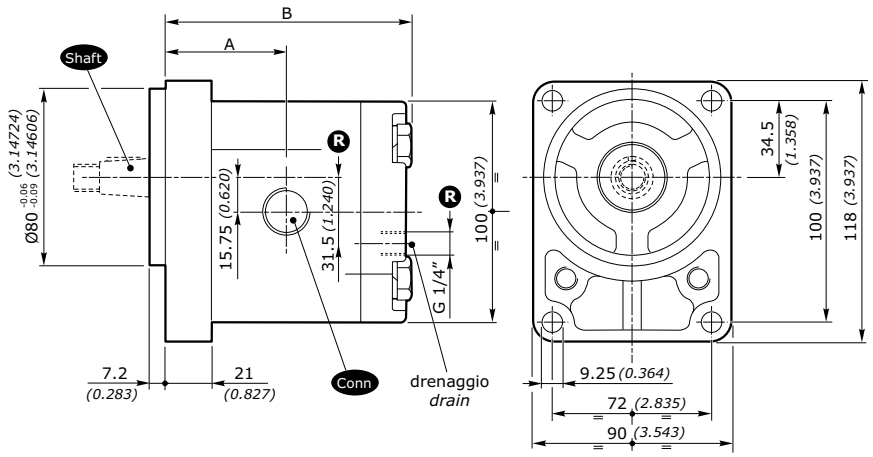
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

FLANGIA TEDESCA B80C *GERMAN FLANGE*

GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D		R		S - D		R		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm³/giro	*in³/rev*	**P1** *bar*	**P1** *psi*	**P1** *bar*	**P1** *psi*	**P2** *bar*	**P2** *psi*	**P2** *bar*	**P2** *psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	%
2SM 040	4	*0.24*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SM 060	6	*0.37*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SM 080	8.5	*0.52*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SM 110	11	*0.67*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SM 140	14	*0.85*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SM 160	16.5	*1.01*	230	*3335*	200	*2900*	240	*3480*	200	*2900*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SM 190	19.5	*1.19*	210	*3045*	185	*2683*	220	*3190*	185	*2683*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SM 220	22.5	*1.37*	190	*2755*	170	*2465*	200	*2900*	170	*2465*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SM 260	26	*1.59*	170	*2465*	150	*2175*	180	*2610*	155	*2248*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SM 310	31.5	*1.92*	130	*1885*	120	*1740*	140	*2030*	130	*1885*	2200	69	*18.22*	500	15.75	*4.16*	95*

DIMENSIONI • *DIMENSIONS*





Ⓡ Solo per motori reversibili - *Only for reversible motors*

GRUPPO - GROUP 2	A		B		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*kg*	*lbs*
2SM 040	46.4	*1.827*	95.0	*3.740*	2.30	*5.07*
2SM 060	48.0	*1.890*	98.3	*3.870*	2.45	*5.40*
2SM 080	50.1	*1.972*	102.5	*4.035*	2.60	*5.73*
2SM 110	52.2	*2.055*	106.6	*4.197*	2.70	*5.95*
2SM 140	54.7	*2.154*	111.6	*4.394*	2.80	*6.17*
2SM 160	56.8	*2.236*	115.8	*4.559*	2.95	*6.51*
2SM 190	59.3	*2.335*	120.8	*4.756*	3.10	*6.84*
2SM 220	61.8	*2.433*	125.8	*4.953*	3.25	*7.17*
2SM 260	64.7	*2.547*	131.6	*5.181*	3.40	*7.50*
2SM 310	68.9	*2.715*	140.0	*5.516*	3.61	*7.96*

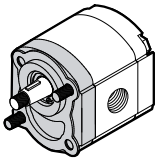
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

FLANGIA B50C *FLANGE*

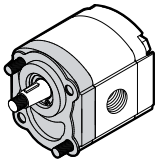
GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D		R		S - D		R		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm^3/giro	in^3/rev	P1 bar	P1 psi	P1 bar	P1 psi	P2 bar	P2 psi	P2 bar	P2 psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	0.24	230	3335	230	3335	270	3915	230	3335	4000	16	4.23	500	1.9	0.50	95*
2SM 060	6	0.37	230	3335	230	3335	270	3915	230	3335	4000	24	6.34	500	2.85	0.75	95*
2SM 080	8.5	0.52	230	3335	230	3335	270	3915	230	3335	3500	29.7	7.85	500	4.03	1.06	95*
2SM 110	11	0.67	230	3335	230	3335	270	3915	230	3335	3500	38.5	10.17	500	5.22	1.38	95*
2SM 140	14	0.85	230	3335	230	3335	270	3915	230	3335	3500	49	12.95	500	6.65	1.76	95*
2SM 160	16.5	1.01	230	3335	200	2900	240	3480	200	2900	3500	57.7	15.24	500	7.83	2.07	95*
2SM 190	19.5	1.19	210	3045	185	2683	220	3190	185	2683	3300	64.3	16.99	500	9.26	2.45	95*
2SM 220	22.5	1.37	190	2755	170	2465	200	2900	170	2465	2800	63	16.64	500	10.68	2.82	95*
2SM 260	26	1.59	170	2465	150	2175	180	2610	155	2248	2500	65	17.17	500	12.35	3.26	95*
2SM 310	31.5	1.92	130	1885	120	1740	140	2030	130	1885	2200	69	18.22	500	15.75	4.16	95*

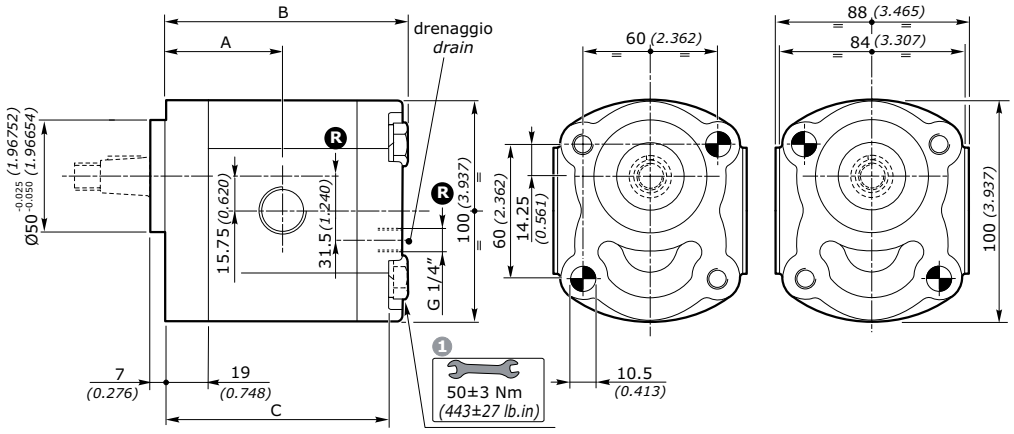
DIMENSIONI • *DIMENSIONS*

B50CX



B50CY





Ⓡ Solo per motori reversibili - *Only for reversible motors*

① Coppia di serraggio viti: 50 ± 3Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio della pompa è da ordinare separatamente.
Codice di ordinazione: **0029W** (+ lunghezza **L** - vedi tabella)
Il fissaggio della pompa può essere effettuato con 2 viti prigioniere classe 10.9-12.9 UNI EN 20898/1 preserrate: 40 ± 3Nm. Fissare la pompa mediante dadi autobloccanti con coppia si serraggio: 50 ± 3Nm

① *Tightening torque of screws: 443 ± 27 lb-in (screws 10.9-12.9 UNI EN 20898/1).*
The screws kit for the pump assembly should be ordered separately.
*Ordering code: **0029W** (+ lenght **L** - see table)*
The assembling of the pump should be effected with 2 screw studs type 10.9-12.9 UNI EN 20898/1 pre-tighten 354 ± 27 lb-in. Fix the pump by self-locking nuts with tightening torque: 443 ± 27 lb-in

GRUPPO - GROUP 2	A		B		C		L ①		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
2SM 040	44.4	1.748	93.0	3.661	84.0	3.307	105	4.134	2.30	5.07
2SM 060	46.0	1.811	96.3	3.791	87.3	3.437	105	4.134	2.45	5.40
2SM 080	48.1	1.894	100.5	3.957	91.5	3.602	110	4.331	2.60	5.73
2SM 110	50.2	1.976	104.6	4.118	95.6	3.764	115	4.528	2.70	5.95
2SM 140	52.7	2.075	109.6	4.315	100.6	3.961	120	4.724	2.80	6.17
2SM 160	54.8	2.157	113.8	4.480	104.8	4.126	125	4.921	2.95	6.51
2SM 190	57.3	2.256	118.8	4.677	109.8	4.323	130	5.118	3.10	6.84
2SM 220	59.8	2.354	123.8	4.874	114.8	4.520	135	5.315	3.25	7.17
2SM 260	62.7	2.469	129.6	5.102	120.6	4.748	140	5.512	3.40	7.50
2SM 310	66.9	2.636	138.0	5.437	129.0	5.083	150	5.910	3.61	7.96

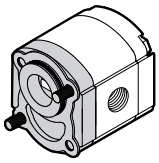
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

FLANGIA E52C *FLANGE*

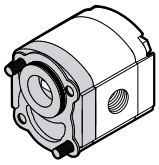
GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D		R		S - D		R		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm³/giro	in³/rev	P1 bar	P1 psi	P1 bar	P1 psi	P2 bar	P2 psi	P2 bar	P2 psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	0.24	230	3335	230	3335	270	3915	230	3335	4000	16	4.23	500	1.9	0.50	95*
2SM 060	6	0.37	230	3335	230	3335	270	3915	230	3335	4000	24	6.34	500	2.85	0.75	95*
2SM 080	8.5	0.52	230	3335	230	3335	270	3915	230	3335	3500	29.7	7.85	500	4.03	1.06	95*
2SM 110	11	0.67	230	3335	230	3335	270	3915	230	3335	3500	38.5	10.17	500	5.22	1.38	95*
2SM 140	14	0.85	230	3335	230	3335	270	3915	230	3335	3500	49	12.95	500	6.65	1.76	95*
2SM 160	16.5	1.01	230	3335	200	2900	240	3480	200	2900	3500	57.7	15.24	500	7.83	2.07	95*
2SM 190	19.5	1.19	210	3045	185	2683	220	3190	185	2683	3300	64.3	16.99	500	9.26	2.45	95*
2SM 220	22.5	1.37	190	2755	170	2465	200	2900	170	2465	2800	63	16.64	500	10.68	2.82	95*
2SM 260	26	1.59	170	2465	150	2175	180	2610	155	2248	2500	65	17.17	500	12.35	3.26	95*
2SM 310	31.5	1.92	130	1885	120	1740	140	2030	130	1885	2200	69	18.22	500	15.75	4.16	95*

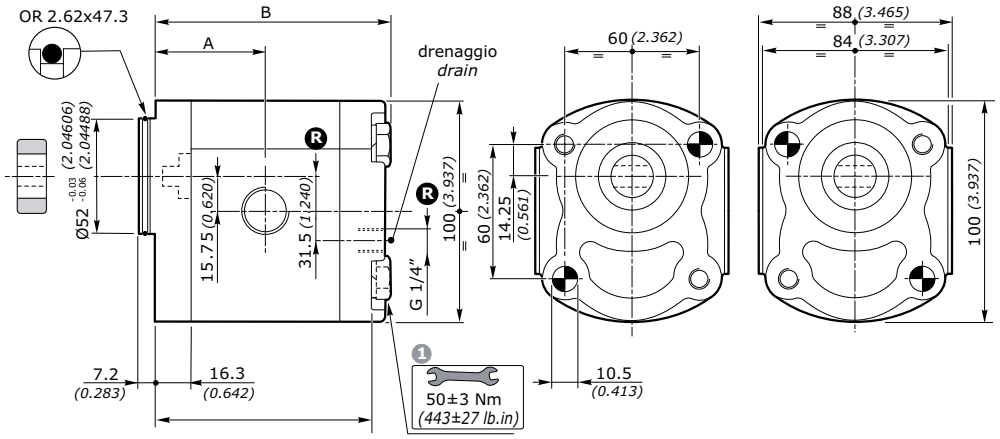
DIMENSIONI • *DIMENSIONS*

E52CX



E52CY





Ⓡ Solo per motori reversibili - *Only for reversible motors*

① Coppia di serraggio viti: 50 ± 3Nm (viti classe 10.9-12.9 UNI EN 20898/1)
Il kit viti per il fissaggio del motore è da ordinare separatamente.
Codice di ordinazione: 0029W (+ lunghezza L - vedi tabella)
Il fissaggio del motore può essere effettuato con 2 viti prigioniere classe 10.9-12.9 UNI EN 20898/1 preserrate: 40 ± 3Nm. Fissare il motore mediante dadi autobloccanti con coppia si serraggio: 50 ± 3Nm

① *Tightening torque of screws: 443 ± 27 lb-in (screws 10.9-12.9 UNI EN 20898/1). The screws kit for the motor assembly should be ordered separately.*
Ordering code: 0029W (+ lenght L - see table)
The assembling of the motor should be effected with 2 screw studs type 10.9-12.9 UNI EN 20898/1 pre-tighten 354 ± 27 lb-in. Fix the motor by self-locking nuts with tightening torque: 443 ± 27 lb-in

GRUPPO - GROUP 2	A		B		C		L ①		MASSA - MASS	
	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
2SP 040	41.7	1.642	90.3	3.555	81.3	3.201	100	3.937	2.30	5.07
2SP 060	43.3	1.705	93.6	3.685	84.6	3.331	105	4.134	2.45	5.40
2SP 080	45.4	1.787	97.8	3.850	88.8	3.496	110	4.331	2.60	5.73
2SP 110	47.5	1.870	101.9	4.012	92.9	3.657	115	4.528	2.70	5.95
2SP 140	50.0	1.969	106.9	4.209	97.9	3.854	120	4.724	2.80	6.17
2SP 160	52.1	2.051	111.1	4.374	102.1	4.020	120	4.724	2.95	6.51
2SP 190	54.6	2.150	116.1	4.571	107.1	4.217	125	4.921	3.10	6.84
2SP 220	57.1	2.248	121.1	4.768	112.1	4.413	130	5.118	3.25	7.17
2SP 260	60.0	2.362	126.9	4.996	117.9	4.642	140	5.512	3.40	7.50
2SP 310	64.2	2.529	135.3	5.331	126.3	4.988	145	5.713	3.61	7.96

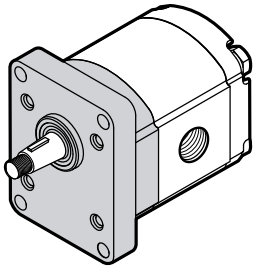
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

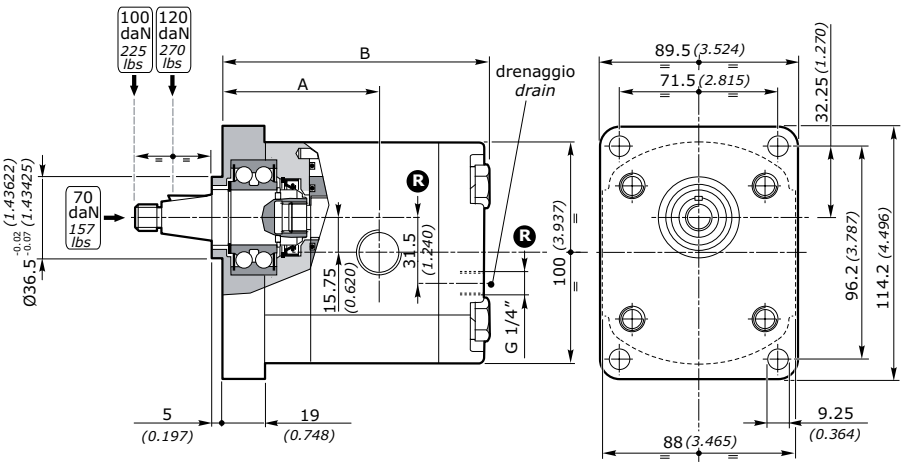
VERSIONE DA UTILIZZARE IN PRESENZA DI CARICHI ASSIALI E/O RADIALI
VERSION TO USE WITH AXIAL AND/OR RADIAL LOADS

FLANGIA SUPEUR *FLANGE*

GRUPPO GROUP 2SM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE S - D P1		PRESSIONE MAX - MAX PRESSURE R P1		PRESSIONE MAX - MAX PRESSURE S - D P2		PRESSIONE MAX - MAX PRESSURE R P2		VELOCITÀ MAX MAXSPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUM. MIN. MIN. VOLUM. EFFICIENCY
	cm^3/giro	in^3/rev	bar	psi	bar	psi	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
2SM 040	4	*0.24*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	16	*4.23*	500	1.9	*0.50*	95*
2SM 060	6	*0.37*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	4000	24	*6.34*	500	2.85	*0.75*	95*
2SM 080	8.5	*0.52*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	29.7	*7.85*	500	4.03	*1.06*	95*
2SM 110	11	*0.67*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	38.5	*10.17*	500	5.22	*1.38*	95*
2SM 140	14	*0.85*	230	*3335*	230	*3335*	270	*3915*	230	*3335*	3500	49	*12.95*	500	6.65	*1.76*	95*
2SM 160	16.5	*1.01*	230	*3335*	200	*2900*	240	*3480*	200	*2900*	3500	57.7	*15.24*	500	7.83	*2.07*	95*
2SM 190	19.5	*1.19*	210	*3045*	185	*2683*	220	*3190*	185	*2683*	3300	64.3	*16.99*	500	9.26	*2.45*	95*
2SM 220	22.5	*1.37*	190	*2755*	170	*2465*	200	*2900*	170	*2465*	2800	63	*16.64*	500	10.68	*2.82*	95*
2SM 260	26	*1.59*	170	*2465*	150	*2175*	180	*2610*	155	*2248*	2500	65	*17.17*	500	12.35	*3.26*	95*
2SM 310	31.5	*1.92*	130	*1885*	120	*1740*	140	*2030*	130	*1885*	2200	69	*18.22*	500	15.75	*4.16*	95*

DIMENSIONI • *DIMENSIONS*



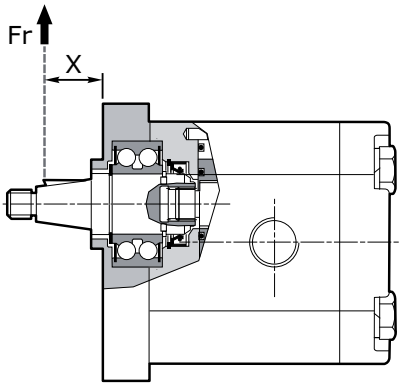


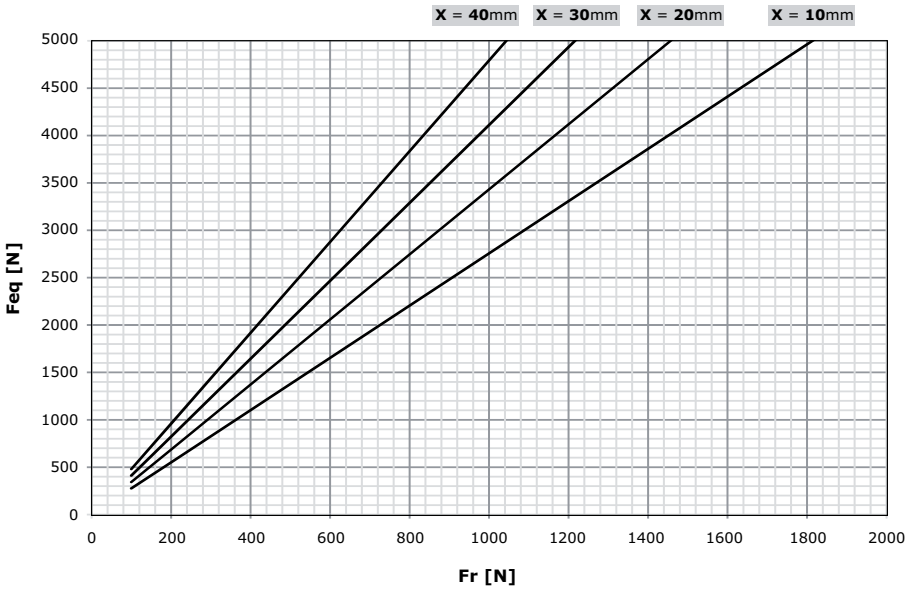
Ⓡ Solo per motori reversibili - *Only for reversible motors*

La flangia SUPEUR è sempre allestita con anello di rinforzo. *SUPEUR flange is always equipped with sealing ring*

GRUPPO - GROUP 2	A mm	A inch	B mm	B inch	MASSA - MASS kg	MASSA - MASS lbs
2SP 040	64.4	*2.535*	113.0	*4.449*	2.80	*6.17*
2SP 060	66.0	*2.598*	116.3	*4.579*	2.95	*6.50*
2SP 080	68.1	*2.681*	120.5	*4.744*	3.10	*6.84*
2SP 110	70.2	*2.764*	124.6	*4.906*	3.20	*7.06*
2SP 140	72.7	*2.863*	129.6	*5.102*	3.30	*7.28*
2SP 160	74.8	*2.945*	133.8	*5.268*	3.45	*7.61*
2SP 190	77.3	*3.043*	138.8	*5.465*	3.60	*7.94*
2SP 220	79.8	*3.142*	143.8	*5.661*	3.75	*8.27*
2SP 260	82.7	*3.256*	149.6	*5.890*	3.90	*8.60*
2SP 310	86.9	*3.424*	158.0	*6.225*	4.11	*9.06*

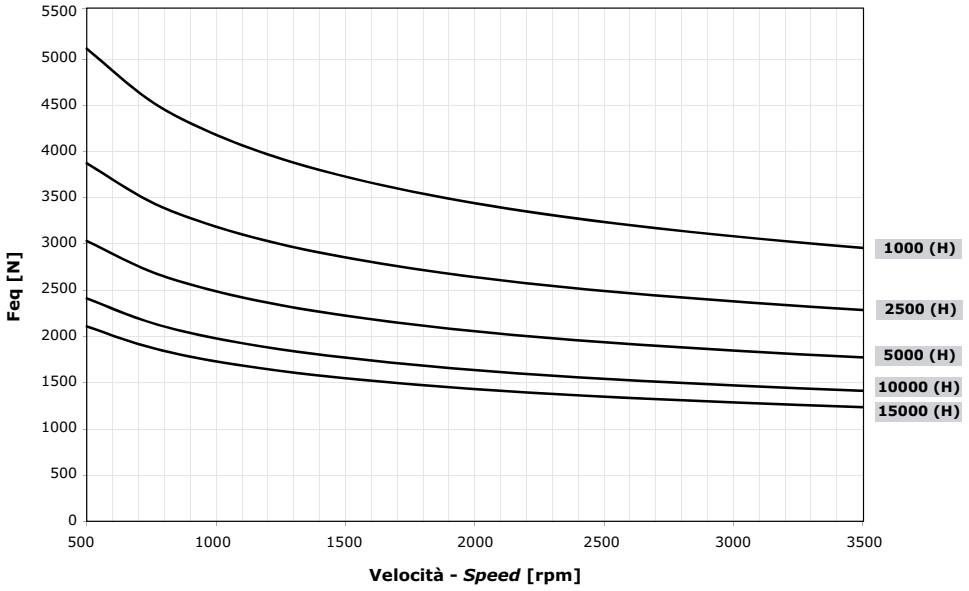
CARICO DINAMICO EQUIVALENTE • *CARICO DINAMICO EQUIVALENTE*





In caso di carichi combinati applicati all'albero (radiale + assiale) contattare il nostro Ufficio Tecnico.
In case of both radial and axial loads applied to the shaft please contact our technical department.

DIAGRAMMA CUSCINETTI • *DIAGRAM BEARING EXPECTED LIFE*



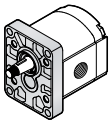
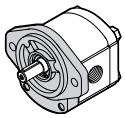
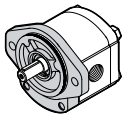
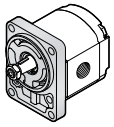
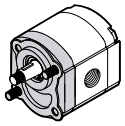
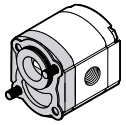
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

CODICE ORDINAZIONE • *ORDER CODE*

2SM - G - 140 - D - EUR - H - N - 10 - 0 - G

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
2SP	Tipo motore *Motor type*	Motore - gruppo 2 *Motor - group 2*	92
G	Materiale flangia e coperchio *Flange and cover material*	**A** = alluminio / *aluminium* **G** = Ghisa / *Cast iron*	
140	Cilindrata *Displacement*	Cilindrata = 14 cm^3/g *Displacement = 0.85 in^3/rev*	92
D	Tipo rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation* **R** = Reversibile / *Reversible* **X** = Reversibile con drenagio interno *Reversible with internal draiion*	95
EUR	Tipo Flangia *Flange type*	Flangia standard *Standard flange*	130
H	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	131
0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	135
G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

TIPOLOGIA FLANGIA • *FLANGE TYPE*

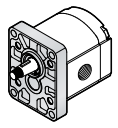
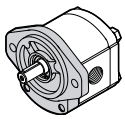
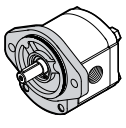
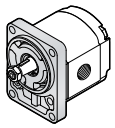
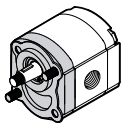
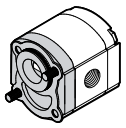
2SM	EUR	SAEA	SAEAOR	B80C	B50C	E52C
						
A alluminio *aluminium*	◇	◇	◇	◇	◇	◇
G ghisa *cast iron*	◇	◇	◇	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*

◇ = Combinazione standard - *Standard combination*

ANELLO DI TENUTA • *SEAL RING*

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*
A	Flangia senza anello di tenuta *Flange without seal ring*	
H	Anello di tenuta fino a **8** bar *Sealing ring up to **8** bar*	Per basse pressioni (con distanziali di rinforzo) *For low pressures (with stiffering seal)*
K	Anello di tenuta fino a **30** bar *Sealing ring up to **30** bar*	Per alte pressioni *For high pressures*
W	Anello di tenuta fino a **100** bar *Sealing ring up to **100** bar*	Per altissime pressioni *For very high pressures*

COMBINAZIONE FLANGIA - ANELLO DI TENUTA - GUARNIZIONE • *FLANGE - SEAL RING - GASKET COMBINATION*

2SM	EUR			SAEA			SAEAOR			B80C			B50C			E52C
																
	Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*			Anello - *Seal ring*
	H	**K**	**W**	**H**	**K**	**W**	**H**	**K**	**W**	**H**	**K**	**W**	**H**	**K**	**W**	**A**
NBR **N**	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Viton **V**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

◇ = Combinazione standard - *Standard combination*

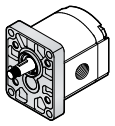
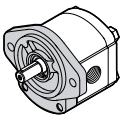
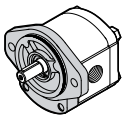
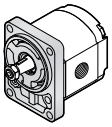
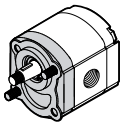
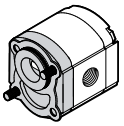
● = Combinazione disponibile - *Available combination*

esempio • *example:* **1SM - A - 140 - D - EUR - H - N - 10 - 0 - G**

EUR = Flangia europea / *European flange*
H = Anello tenuta fino a 8 bar / Seal ring up to 8 *bar*
N = *Guarnizione in NBR / NBR o-ring*

MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

COMBINAZIONE ALBERO - FLANGIA ● *SHAFT - FLANGE COMBINATION*

2SM	EUR	SAEA	SAEAOR	B80C	B50C	FE32C
						
10 Conico 1:8 *Tapered 1:8*	◇	●	●	●	◇	
11 Conico 1:5 *Tapered 1:5*	●	●	●	◇	●	
12 Cilindrico EUR *EUR Parallel shaft*	●	●	●	●	●	
13 Cilindrico SAEA *SAEA parallel shaft*	●	◇	◇	●	●	
14 Scanalato SAEA 9 denti *SAEA 9T splined*	●	◇	◇	●	●	
15 Scanalato DIN5482 9 denti (26/24) *DIN5482 9T splined (26/24)*	●	●	●	◇	●	
16 Scanalato DIN5482 9 denti (20) *DIN5482 9T splined (20)*	●	●	●	◇	●	
17 Fresato a dente frontale *Dihedral claw*						◇
40 Scanalato SAE 10 denti (52) *SAE 10T splined (52)*		●	●			
41 Scanalato SAE 10 denti (37.5) *SAE 10T splined (37.5)*		●	●			
42 Scanalato SAEA 11 denti (55.6) *SAEA 11T splined (55.6)*		●	●			
43 Scanalato SAEA 11 denti (31.5) *SAEA 11T splined (31.5)*		●	●			
44 Scanalato SAEA 11 denti (13.5) *SAEA 11T splined (13.5)*		●	●			

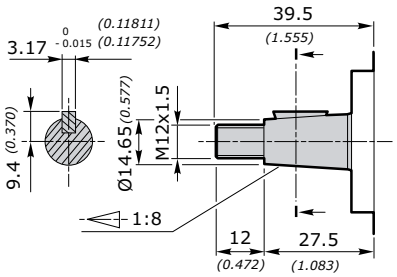
◇ = Combinazione standard - *Standard combination* ● = Combinazione disponibile - *Available combination*

2SM

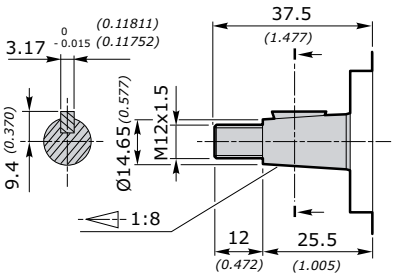
DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

10
Conico 1:8
Tapered 1:8

Coppia 140 Nm
Torque 104 ft-lbs



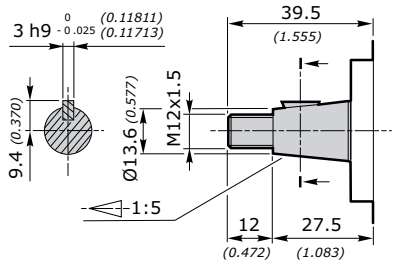
Disponibile per - *available for:* **EUR-SAEA-SAEAOR-B50C-P400D-SUPEUR**



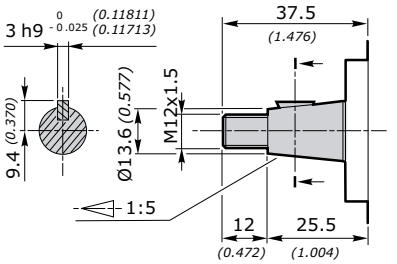
Disponibile per - *available for:* **B80C**

11
Conico 1:5
Tapered 1:5

Coppia 140 Nm
Torque 104 ft-lbs



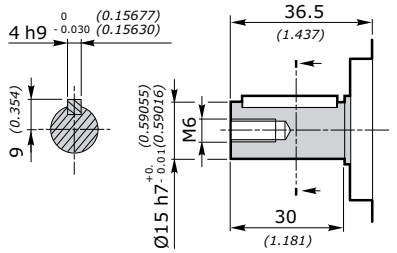
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



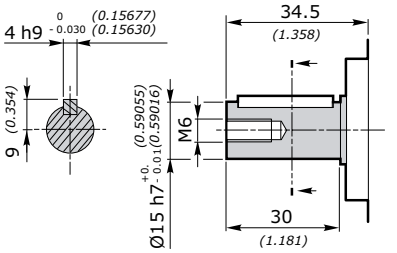
Disponibile per - *available for:* **B80C**

12
Cilindrico EUR
EUR Parall shaft

Coppia 80 Nm
Torque 59 ft-lbs



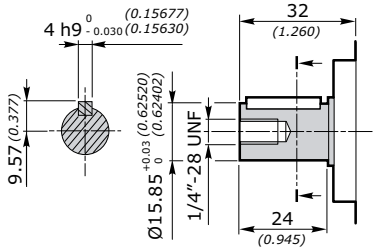
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



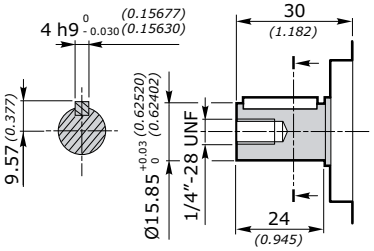
Disponibile per - *available for:* **B80C**

13
Cilindrico SAEA
SAEA parall shaft

Coppia 90 Nm
Torque 67 ft-lbs



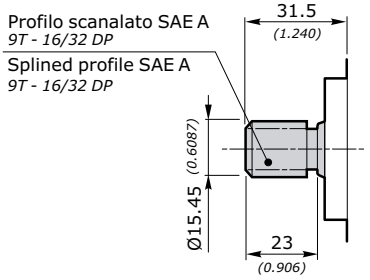
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



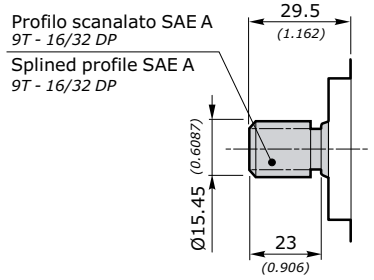
Disponibile per - *available for:* **B80C**

14
Scanalato SAEA 9 denti
SAEA 9T splined

Coppia 100 Nm
Torque 74 ft-lbs



Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



Disponibile per - *available for:* **B80C**

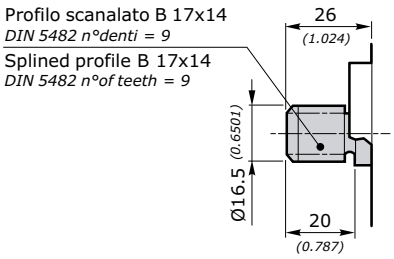
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

2SM

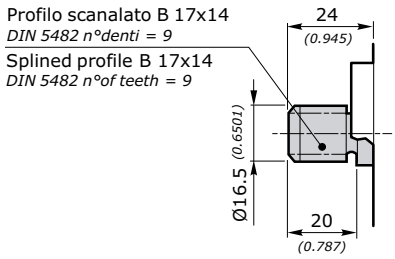
DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

15
Scanalato DIN5482 9 denti (26/24)
DIN5482 9T splined (26/24)

Coppia 100 Nm
Torque 74 ft-lbs



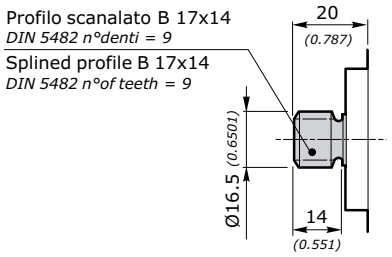
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



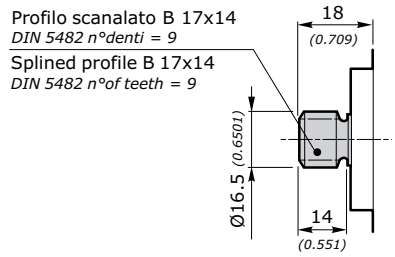
Disponibile per - *available for:* **B80C**

16
Scanalato DIN5482 9 denti (20)
DIN5482 9T splined (20)

Coppia 100 Nm
Torque 74 ft-lbs



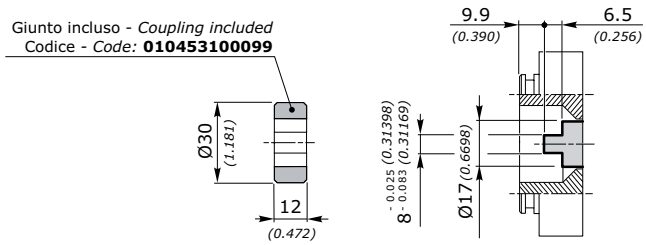
Disponibile per - *available for:* **EUR - SAEA - SAEAOR - B50C**



Disponibile per - *available for:* **B80C**

17
Fresato a dente frontale
Dihedral claw

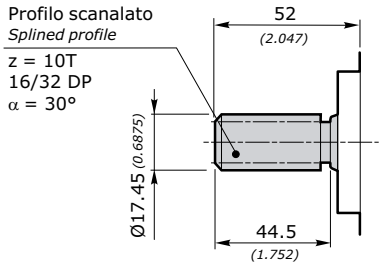
Coppia 80 Nm
Torque 59 ft-lbs



Disponibile per - *available for:* **E52C**

40
Scanalato SAE 10 denti (52)
SAE 10T splined (52)

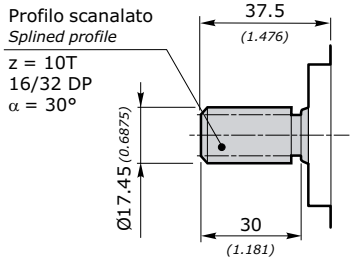
Coppia 130 Nm
Torque 96 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

41
Scanalato SAE 10 denti (37.5)
SAE 10T splined (37.5)

Coppia 130 Nm
Torque 96 ft-lbs



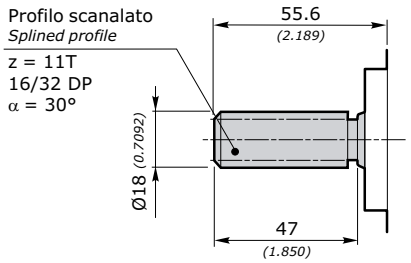
Disponibile per - *available for:* **SAEA - SAEAOR**

2SM

DIMENSIONI ALBERO - *SHAFT DIMENSIONS*

42
Scanalato SAEA
11 denti (55.6)
SAEA 11T
splined (55.6)

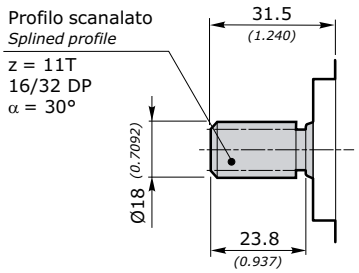
Coppia 150 Nm
Torque 111 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

43
Scanalato SAEA
11 denti (31.5)
SAEA 11T
splined (31.5)

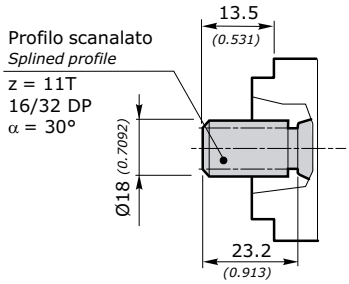
Coppia 150 Nm
Torque 111 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

44
Scanalato SAEA
11 denti (13.5)
SAEA 11T
splined (13.5)

Coppia 150 Nm
Torque 111 ft-lbs



Disponibile per - *available for:* **SAEA - SAEAOR**

MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

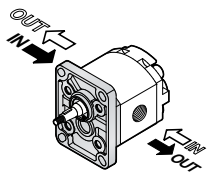
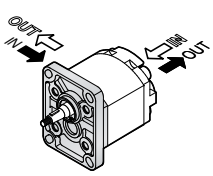
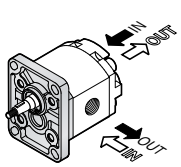
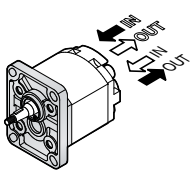
POSIZIONE CONNESSIONE PER MOTORI (D-S) • *CONNECTION POSITION FOR (D-S) MOTORS*

Rotazione destra - **D**
*Right rotation - **D***

Rotazione sinistra - **S**
*Left rotation - **S***

POSIZIONE CONNESSIONE PER MOTORI (R) • *CONNECTION POSITION FOR (R) MOTORS*

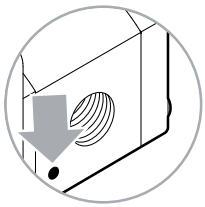
Rotazione - **R**
*Rotation - **R***

0	1	3	4
			

TIPO CONNESSIONE PER MOTORI D-S • *CONNECTION TYPE FOR D-S MOTORS*

Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

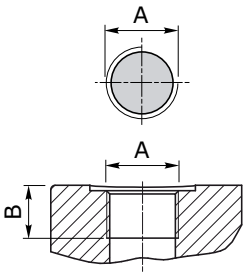


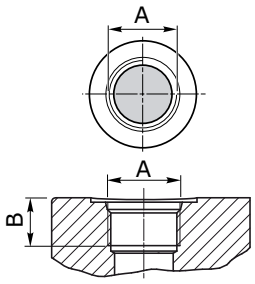
Il segno del corpo indica il LATO SCARICO per i motori
The sign on the body identify the OUTLET SIDE for the motors

IN = INGRESSO - *INLET*
OUT = SCARICO - *OUTLET*

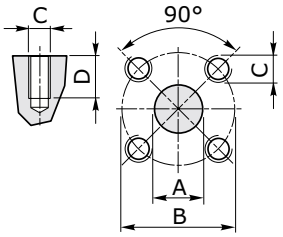
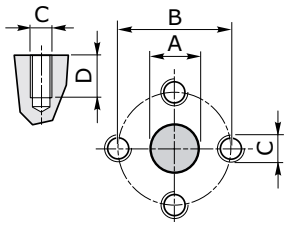
2SM		POSIZIONE CONNESSIONE - *CONNECTION POSITION*			
		0	**1**	**3**	**4**
GAS	**G**	◇	◇	◇	◇
UNF	**U**	◇	◇	◇	◇
	W	◇			
FLANGIATE *FLANGED*	**T**	◇			
	N	◇			
	M	◇			
	F	◇			

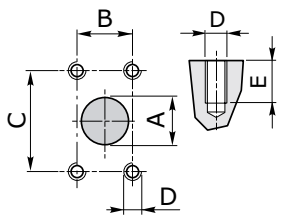
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	SCARICO - *OUTLET* **OUT** B	SCARICO - *OUTLET* **OUT**	INGRESSO - *INLET* **IN** A	INGRESSO - *INLET* **IN** B	INGRESSO - *INLET* **IN**
		**G**	40	G 1/2"	16 [mm] *0.630 [inch]*	50 [Nm] *443 [in.lbs]*	G 1/2"	16 [mm] *0.630 [inch]*	50 [Nm] *443 [in.lbs]*
			60						
			80						
			110	G 3/4"	17 [mm] *0.670 [inch]*	60 [Nm] *531 [in.lbs]*			
			140						
			160						
			190						
			220						
			260						
			310						

UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	SCARICO - *OUTLET* **OUT** B	SCARICO - *OUTLET* **OUT**	INGRESSO - *INLET* **IN** A	INGRESSO - *INLET* **IN** B	INGRESSO - *INLET* **IN**
		**U**	40	SAE 10 7/8"-14 UNF	17 [mm] *0.670 [inch]*	55 [Nm] *487 [in-lbs]*	SAE 10 7/8"-14 UNF	17 [mm] *0.670 [inch]*	55 [Nm] *487 [in-lbs]*
			60						
			80						
			110	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*			
			140						
			160						
			190						
			220						
			260						
			310						
		W	40	SAE 16 1"5/16-12 UN	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*
			60						
			80						
			110						
			140						
			160						
			190						
			220						
			260						
			310						

MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

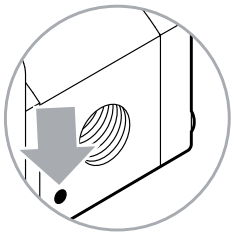
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	B	C	D		INGRESSO - *INLET* **IN** A	B	C	D	
		**T**	40	20 [mm] *0.787 [inch]*	40 [mm] *1.575 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	15 [mm] *0.591 [inch]*	35 [mm] *1.378 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			60										
			80										
			110										
			140										
			160										
			190										
			220										
			260										
			310										
		**N**	40	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			60										
			80										
			110	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*					
			140										
			160										
			190										
			220										
			260										
			310										
		M	40	non disponibile *not available*					non disponibile *not available*				
			60										
			80										
			110	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*
			140										
			160										
			190										
			220										
			260										
			310										

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	B	C	D	E		INGRESSO - *INLET* **IN** A	B	C	D	E	
		**F**	40	20 [mm] *0.787 [inch]*	17,4 [mm] *0.685 [inch]*	38 [mm] *1.496 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	15 [mm] *0.591 [inch]*	17,4 [mm] *0.685 [inch]*	38 [mm] *1.496 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			60												
			80												
			110												
			140	26 [mm] *1.024 [inch]*	47.6 [mm] *1.874 [inch]*	22.4 [mm] *0.882 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*						
			160												
			190												
			220												
			260												
			310												

TIPO CONNESSIONE PER MOTORI (R) • *CONNECTION TYPE FOR (R) MOTORS*

Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

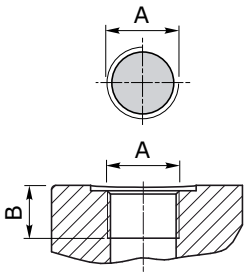
The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

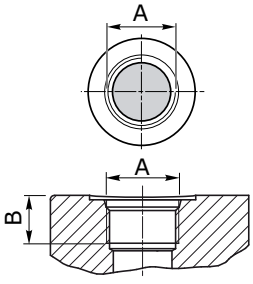


L'eventuale segno sul corpo dei Motori REVERSIBILI non è da considerare.
Any sign on the body in REVERSIBLE Motors is not considered.

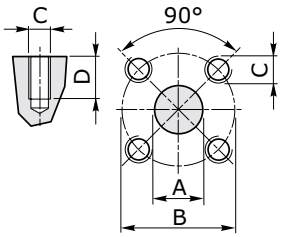
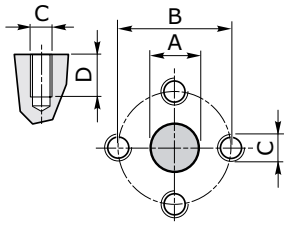
IN = INGRESSO - *INLET*
OUT = SCARICO - *OUTLET*

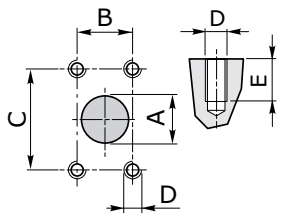
2SM		POSIZIONE CONNESSIONE - *CONNECTION POSITION*			
		0	**1**	**3**	**4**
GAS	**G**	◇	◇	◇	◇
UNF	**U**	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇			
	N	◇			
	F	◇			

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**			INGRESSO - *INLET* **IN**		
				A	**B**		**A**	**B**	
		**G**	40	G 1/2"	16 [mm] *0.630 [inch]*	50 [Nm] *443 [in.lbs]*	G 1/2"	16 [mm] *0.630 [inch]*	50 [Nm] *443 [in.lbs]*
			60						
			80						
			110	G 3/4"	17 [mm] *0.670 [inch]*	60 [Nm] *531 [in.lbs]*	G 3/4"	17 [mm] *0.670 [inch]*	60 [Nm] *531 [in.lbs]*
			140						
			160						
			190						
			220						
			260						
			310						

UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**			INGRESSO - *INLET* **IN**		
				A	**B**		**A**	**B**	
		**U**	40	SAE 10 7/8"-14 UNF	17 [mm] *0.670 [inch]*	55 [Nm] *487 [in-lbs]*	SAE 10 7/8"-14 UNF	17 [mm] *0.670 [inch]*	55 [Nm] *487 [in-lbs]*
			60						
			80						
			110	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*
			140						
			160						
			190						
			220						
			260						
			310						

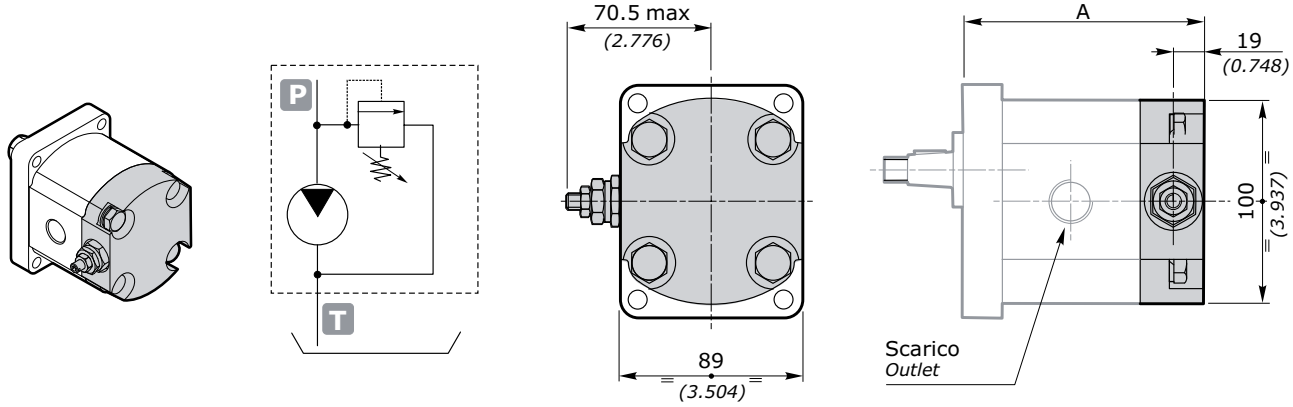
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**					INGRESSO - *INLET* **IN**				
				A	**B**	**C**	**D**		**A**	**B**	**C**	**D**	
		**T**	40 60 80	15 [mm] *0.591 [inch]*	35 [mm] *1.378 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	15 [mm] *0.591 [inch]*	35 [mm] *1.378 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			110 140 160 190 220 260 310	20 [mm] *0.787 [inch]*	40 [mm] *1.575 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	20 [mm] *0.787 [inch]*	40 [mm] *1.575 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
		**N**	40 60 80	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	13 [mm] *0.512 [inch]*	30 [mm] *1.181 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			110 140 160 190 220 260 310	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	14 [mm] *0.552 [inch]*	15 [Nm] *133 [in.lbs]*

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**						INGRESSO - *INLET* **IN**					
				A	**B**	**C**	**D**	**E**		**A**	**B**	**C**	**D**	**E**	
		**F**	40 60 80 110	20 [mm] *0.787 [inch]*	17,4 [mm] *0.685 [inch]*	38 [mm] *1.496 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	20 [mm] *0.787 [inch]*	17,4 [mm] *0.685 [inch]*	38 [mm] *1.496 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*
			140 160 190 220 260 310	26 [mm] *1.024 [inch]*	47.6 [mm] *1.874 [inch]*	22.4 [mm] *0.882 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*	26 [mm] *1.024 [inch]*	47.6 [mm] *1.874 [inch]*	22.4 [mm] *0.882 [inch]*	M6	15 [mm] *0.591 [inch]*	8 [Nm] *71 [in.lbs]*

OPZIONI • *OPTIONALS*

VLPI — VALVOLA LIMITATRICE DI PRESSIONE A SCARICO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL EXHAUST



GRUPPO GROUP 2	A EUR-SAEA-B50C mm	A EUR-SAEA-B50C inch	A B80C mm	A B80C inch	A E52C mm	A E52C inch
2SM 040	104.8	*4.126*	106.8	*4.205*	102.1	*4.020*
2SM 060	108.1	*4.256*	110.1	*4.335*	105.4	*4.150*
2SM 080	112.3	*4.421*	114.3	*4.500*	109.6	*4.315*
2SM 110	116.4	*4.583*	118.4	*4.661*	113.7	*4.476*
2SM 140	121.4	*4.780*	123.4	*4.858*	118.7	*4.673*
2SM 160	125.6	*4.945*	127.6	*5.024*	122.9	*4.839*
2SM 190	130.6	*5.142*	132.6	*5.220*	127.9	*5.035*
2SM 220	135.6	*5.339*	137.6	*5.417*	132.9	*5.232*
2SM 260	141.4	*5.567*	143.4	*5.646*	138.7	*5.461*
2SM 310	149.8	*5.902*	151.8	*5.981*	147.1	*5.796*

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore. Il coperchio VLP è disponibile in alluminio. E' rappresentata un motore con rotazione destra. Nei motori con rotazione sinistra, la valvola è nel lato opposto.

The pressure relief valve can be applied by substituting the rear cover. VLP cover is available in aluminum. The showed motor is clockwise rotation. Motor with anticlockwise rotation, the valve is in opposite side.

esempio • *example:* **2SM - A - 140 - D - EUR - H - N - 10 - 0 - G - VLPI N 120**

VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso si omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

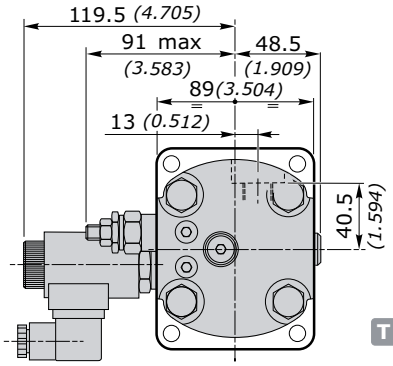
MOTORI AD INGRANAGGI GRUPPO 2SM
GEAR MOTORS GROUP 2SM

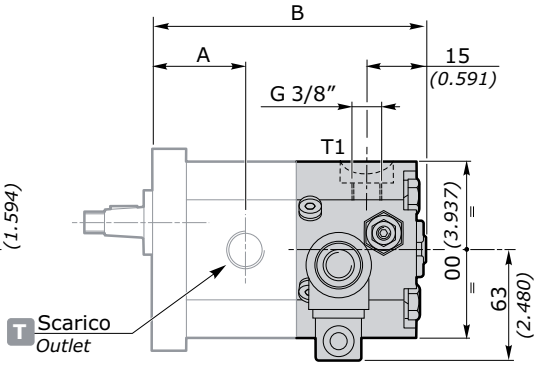
VLP

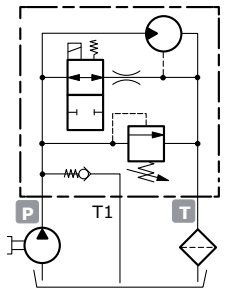
MOTORE UNIDIREZIONALE A 2 VELOCITÀ CON VALVOLA LIMITATRICE DI PRESSIONE
2 SPEED UNIDIRECTIONAL MOTOR WITH PRESSURE RELIEF VALVE

Solo per motori con flangia e coperchio in alluminio. *Only motors with flange and cover alluminium.*

ROTAZIONE DESTRA - *CLOCKWISE ROTATION*

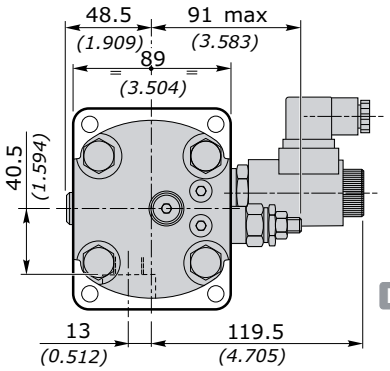


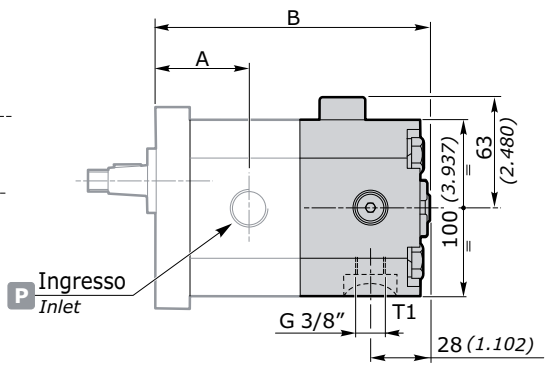


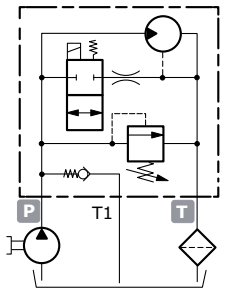


Elettrovalvola normalmente aperta (NA)
Usually open (NA)

ROTAZIONE SINISTRA - *ANTICLOCKWISE ROTATION*







Elettrovalvola normalmente chiusa (NC)
Usually closed (NC)

GRUPPO - GROUP 2		2SM 040	2SM 060	2SM 080	2SM 110	2SM 140	2SM 160	2SM 190	2SM 220	2SM 260	2SM 310
A	*mm*	44.4	46.0	48.1	50.2	52.7	54.8	57.3	59.8	62.7	66.9
	inch	*1.748*	*1.811*	*1.894*	*1.976*	*2.075*	*2.157*	*2.256*	*2.354*	*2.469*	*2.636*
B	*mm*	142.3	*145.6*	149.8	*153.9*	*158.9*	*163.1*	*168.1*	*173.1*	*182.0*	*190.4*
	inch	*5.602*	*5.732*	*5.898*	*6.059*	*6.256*	*6.421*	*6.618*	*6.815*	*7.165*	*7.502*

esempio ● *example:* **2SM - A - 140 - D - EUR - H - N - 10 - 0 - G - NA 24VDC VLP N 150**

NA = Normalmente aperta / *Usually open* **NC =** Normalmente chiusa / *Usually closed*
24VDC = Tensione magnete / *Electromagnete voltage* (12VDC - 24VDC - 48VDC)
VLP = Coperchio con VPL / *Cover with VPL*
N = Tipo molla - vedi tabella / *Spring type - see table*
150 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS					
	molla bianca - *white spring*	**B**	molla nera - *black spring*	**N**	molla rossa - *red spring*	**R**
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

NOTA: In caso si omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

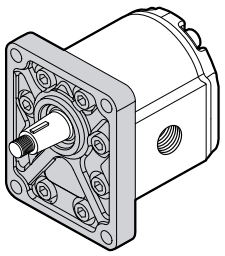
MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

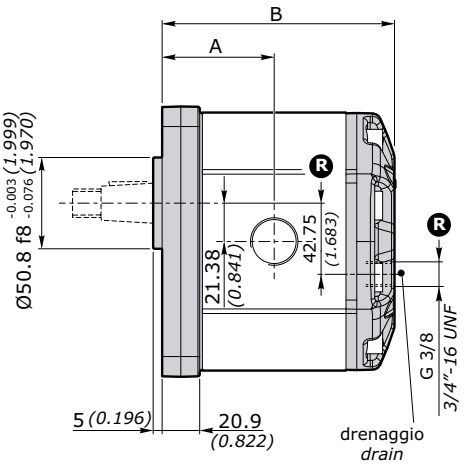
FLANGIA EUROPEA **EUR** *EUROPEAN FLANGE*

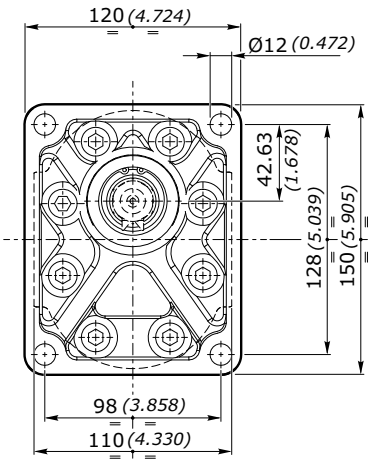
FLANGIA E COPERCHIO IN GHISA - *CAST IRON FLANGE AND COVER*

GRUPPO GROUP 3GM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		PRESSIONE MAX - MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	in³/rev	bar	psi	bar	psi	giri/min - rpm	l/min	Gal/min	giri/min - rpm	l/min	Gal/min	%
3GM 190	19.3	1.2	250	3625	270	3915	3500	67.6	17.84	700	12.8	3.39	95*
3GM 230	23.0	1.4	240	3480	260	3770	3500	80.3	21.22	700	15.5	4.03	95*
3GM 300	30.2	1.8	220	3190	240	3480	3300	99.7	26.33	700	20.1	5.31	95*
3GM 340	33.8	2.1	220	3190	230	3335	3300	111.6	29.49	700	22.5	5.94	95*
3GM 370	37.5	2.3	210	3045	230	3335	3300	123.6	32.66	700	24.9	6.58	95*
3GM 440	44.6	2.7	200	2900	220	3190	3000	133.8	35.35	700	29.7	7.84	95*
3GM 530	53.0	3.2	200	2900	210	3045	3000	159.1	42.04	700	35.3	9.32	95*
3GM 620	62.7	3.8	180	2610	190	2755	2500	156.8	41.41	700	41.7	11.01	95*
3GM 700	70.5	4.3	180	2610	200	2900	2500	176.3	46.58	700	46.9	12.39	95*
3GM 770	77.2	4.7	170	2465	190	2755	2200	169.8	44.84	700	51.3	13.56	95*

DIMENSIONI • *DIMENSIONS*







R Solo per motori reversibili - *Only for reversible motors*

GRUPPO - GROUP 3	A		B		MASSA - MASS	
	mm	inch	mm	inch	kg	lbs
3GM 190	62.4	2.456	128.3	5.051	7.67	16.91
3GM 230	63.9	2.515	131.3	5.169	7.81	17.21
3GM 300	66.9	2.633	137.3	5.405	8.09	17.82
3GM 340	68.4	2.692	140.3	5.523	8.22	18.12
3GM 370	69.9	2.751	143.3	5.641	8.36	18.43
3GM 440	72.9	2.870	149.3	5.877	8.64	19.04
3GM 530	76.4	3.007	156.3	6.153	8.96	19.75
3GM 620	80.4	3.165	164.3	6.468	9.33	20.56
3GM 700	86.9	3.421	170.8	6.724	9.63	21.22
3GM 770	92.4	3.637	176.3	6.940	9.88	21.77

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

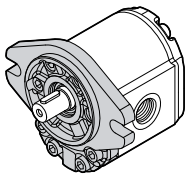
FLANGIA SAE SAEB-SAEBOR *SAE FLANGE*

FLANGIA E COPERCHIO IN GHISA - *CAST IRON FLANGE AND COVER*

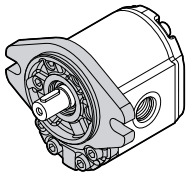
GRUPPO GROUP 3GM	CILINDRATA DISPLACEMENT		PRESSIONE MAX - MAX PRESSURE P1		PRESSIONE MAX - MAX PRESSURE P2		VELOCITÀ MAX MAX SPEED	PORTATA MAX MAX FLOW		VELOCITÀ MIN MIN SPEED	PORTATA MIN MIN FLOW		RENDIMENTO VOLUMETRICO MIN. MIN. VOLUMETRIC EFFICIENCY
	cm³/giro	*in³/rev*	*bar*	*psi*	*bar*	*psi*	*giri/min - rpm*	*l/min*	*Gal/min*	*giri/min - rpm*	*l/min*	*Gal/min*	*%*
3GM 190	19.3	*1.2*	250	*3625*	270	*3915*	3500	67.6	*17.84*	700	12.8	*3.39*	95*
3GM 230	23.0	*1.4*	240	*3480*	260	*3770*	3500	80.3	*21.22*	700	15.5	*4.03*	95*
3GM 300	30.2	*1.8*	220	*3190*	240	*3480*	3300	99.7	*26.33*	700	20.1	*5.31*	95*
3GM 340	33.8	*2.1*	220	*3190*	230	*3335*	3300	111.6	*29.49*	700	22.5	*5.94*	95*
3GM 370	37.5	*2.3*	210	*3045*	230	*3335*	3300	123.6	*32.66*	700	24.9	*6.58*	95*
3GM 440	44.6	*2.7*	200	*2900*	220	*3190*	3000	133.8	*35.35*	700	29.7	*7.84*	95*
3GM 530	53.0	*3.2*	200	*2900*	210	*3045*	3000	159.1	*42.04*	700	35.3	*9.32*	95*
3GM 620	62.7	*3.8*	180	*2610*	190	*2755*	2500	156.8	*41.41*	700	41.7	*11.01*	95*
3GM 700	70.5	*4.3*	180	*2610*	200	*2900*	2500	176.3	*46.58*	700	46.9	*12.39*	95*
3GM 770	77.2	*4.7*	170	*2465*	190	*2755*	2200	169.8	*44.84*	700	51.3	*13.56*	95*

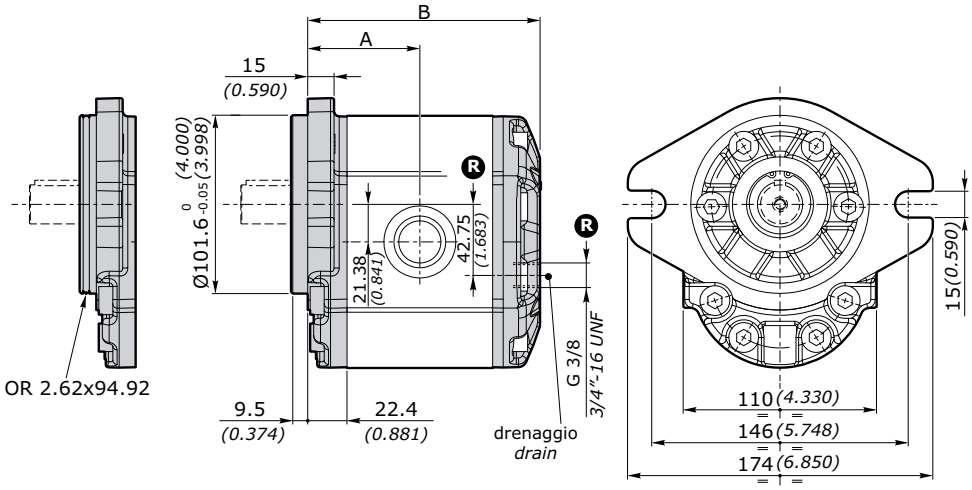
DIMENSIONI • *DIMENSIONS*

SAEB



SAEBOR





Ⓡ Solo per motori reversibili - *Only for reversible motors*

GRUPPO - GROUP 3	A		B		MASSA - MASS	
	mm	*inch*	*mm*	*inch*	*kg*	*lbs*
3GM 190	62.4	*2.456*	128.3	*5.051*	7.67	*16.91*
3GM 230	63.9	*2.515*	131.3	*5.169*	7.81	*17.21*
3GM 300	66.9	*2.633*	137.3	*5.405*	8.09	*17.82*
3GM 340	68.4	*2.692*	140.3	*5.523*	8.22	*18.12*
3GM 370	69.9	*2.751*	143.3	*5.641*	8.36	*18.43*
3GM 440	72.9	*2.870*	149.3	*5.877*	8.64	*19.04*
3GM 530	76.4	*3.007*	156.3	*6.153*	8.96	*19.75*
3GM 620	80.4	*3.165*	164.3	*6.468*	9.33	*20.56*
3GM 700	86.9	*3.421*	170.8	*6.724*	9.63	*21.22*
3GM 770	92.4	*3.637*	176.3	*6.940*	9.88	*21.77*

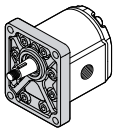
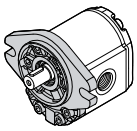
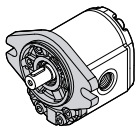
CODICE ORDINAZIONE • *ORDER CODE*

3GM - G - 340 - D - EUR - H - N - 10 - 0 - G

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*	PAGINA - *PAGE*
3GM	Tipo motore *Motor type*	Motore - gruppo 3 *Motor - group 3*	93
G	Materiale flangia e coperchio *Flange and cover material*	**G** = Ghisa / *Cast iron*	
340	Cilindrata *Displacement*	Cilindrata = 23 cm^3/g *Displacement = 1.40 in^3/rev*	93
D	Tipo rotazione *Rotation type*	**D** = Rotazione destra / *Clockwise rotation* **S** = Rotazione sinistra / *Anticlockwise rotation*	95
EUR	Tipo Flangia *Flange type*	Flangia standard europea *European standard flange*	145
H	Tipo anello di tenuta *Seal ring type*	Vedi tabella compatibilità *See compatibility table*	
N	Tipo guarnizione *Gasket type*	**N** = NBR **V** = Viton	
10	Tipo Albero *Shaft type*	Vedi tabella compatibilità *See compatibility table*	146
0	Posizione connessione *Connection position*	Vedi tabella compatibilità *See compatibility table*	148
G	Tipo connessione *Connection type*	Vedi tabella compatibilità *See compatibility table*	

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

TIPOLOGIA FLANGIA • *FLANGE TYPE*

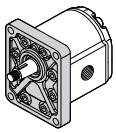
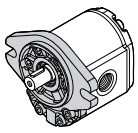
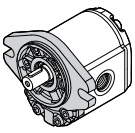
3GM	EUR	SAEB	SAEBOR
			
A alluminio *aluminium*	non disponibile *not available*	non disponibile *not available*	non disponibile *not available*
G ghisa *cast iron*	◇	◇	◇

◇ = Combinazione standard - *Standard combination*

ANELLO DI TENUTA • *SEAL RING*

SIGLA - *CODE*	TIPO - *TYPE*	DESCRIZIONE - *DESCRIPTION*
H	Anello di tenuta fino a **8** bar *Sealing ring up to **8** bar*	Per basse pressioni (con distanziali di rinforzo) *For low pressure (with stiffering seal)*
K	Anello di tenuta fino a **30** bar *Sealing ring up to **30** bar*	Per alte pressioni *For high pressure*
W	Anello di tenuta fino a **100** bar *Sealing ring up to **100** bar*	Per altissime pressioni *For very high pressure*

COMBINAZIONE FLANGIA - ANELLO DI TENUTA - GUARNIZIONE • *FLANGE - SEAL RING - GASKET COMBINATION*

3GM		EUR			SAEB			SAEBOR		
										
		Anello - *seal ring*			Anello - *seal ring*			Anello - *seal ring*		
		H	**K**	**W**	**H**	**K**	**W**	**H**	**K**	**W**
NBR	**N**	◇	◇	◇	◇	◇	◇	◇	◇	◇
Viton	**V**	●	●	●	●	●	●	●	●	●

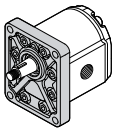
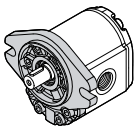
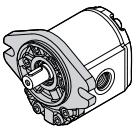
◇ = Combinazione standard - *Standard combination*

● = Combinazione disponibile - *Available combination*

esempio • *example:* **3GM - G - 340 - D - EUR - H - N - 10 - 0 - G**

EUR = flangia europea std / *Std european flange*
H = Anello tenuta fino a 8 bar / Seal ring up to 8 *bar*
N = *guarnizione in NBR / NBR o-ring*

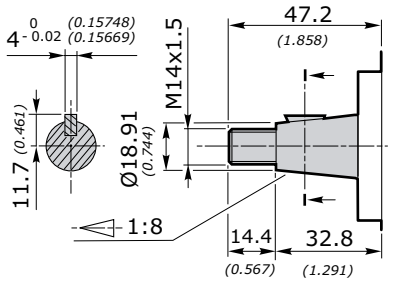
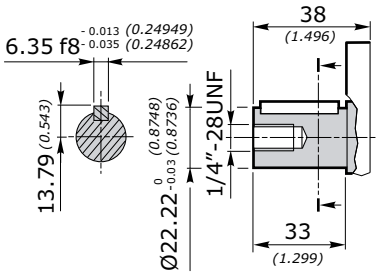
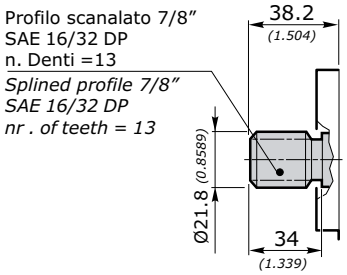
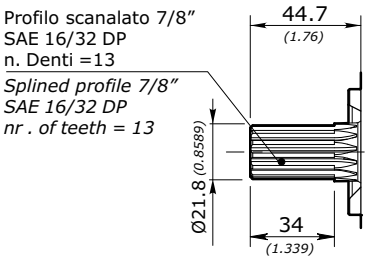
COMBINAZIONE ALBERO - FLANGIA • *SHAFT - FLANGE COMBINATION*

3GM	EUR	SAEB	SAEBOR
			
10 Conico 1:8 *Tapered 1:8*	◇	●	●
13 Cilindrico SAEB *SAEB Parallel shaft*	●	◇	◇
14 Scanalato SAEB 13 denti (38.2) *SAEB 13T splined (38.2)*	●	◇	◇
14R Scanalato SAEB 13 denti (44.7) *SAEB 13T splined (44.7)*	●	●	●

◇ = Combinazione standard - *Standard combination*

● = Combinazione disponibile - *Available combination*

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

3GM	DIMENSIONI ALBERO - *SHAFT DIMENSIONS*
10 Conico 1:8 *Tapered 1:8* Coppia 240 Nm *Torque 178 ft-lbs*	 Disponibile per - *available for:* **EUR - SAEB - SAEBOR**
13 Cilindrico SAEB *SAEB Parallel shaft* Coppia 200 Nm *Torque 148 ft-lbs*	 Disponibile per - *available for:* **EUR - SAEB - SAEBOR**
14 Scanalato SAEB 13 denti (38.2) *SAEB 13T splined (38.2)* Coppia 270 Nm *Torque 200 ft-lbs*	 Disponibile per - *available for:* **EUR - SAEB - SAEBOR**
14R Scanalato SAEB 13 denti (44.7) *SAEB 13T splined (44.7)* Coppia 270 Nm *Torque 200 ft-lbs*	 Disponibile per - *available for:* **EUR - SAEB - SAEBOR**

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

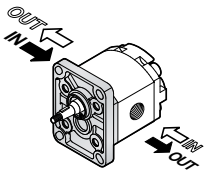
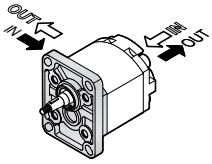
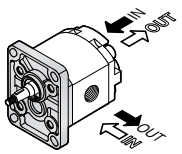
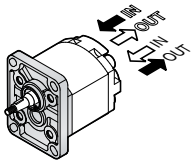
POSIZIONE CONNESSIONE PER MOTORI (D-S) • *CONNECTION POSITION FOR (D-S) MOTORS*

Rotazione destra - **D**
*Right rotation - **D***

Rotazione sinistra - **S**
*Left rotation - **S***

POSIZIONE CONNESSIONE PER MOTORI (R) • *CONNECTION POSITION FOR (R) MOTORS*

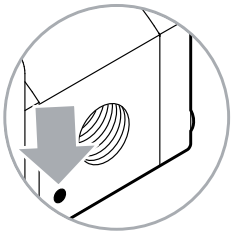
Rotazione - **R**
*Rotation - **R***

0	1	3	4
			

TIPO CONNESSIONE PER MOTORI D-S • *CONNECTION TYPE FOR D-S MOTORS*

Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

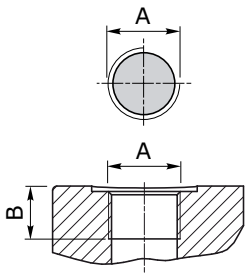


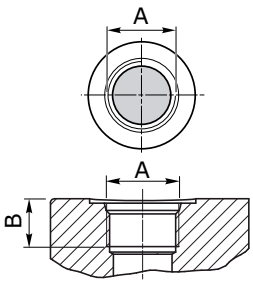
Il segno sul corpo indica il lato scarico per i motori
The sign on the body identify the outlet side for the motors

IN = INGRESSO - *INLET*
OUT = SCARICO - *OUTLET*

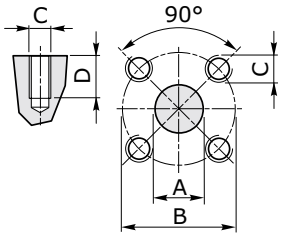
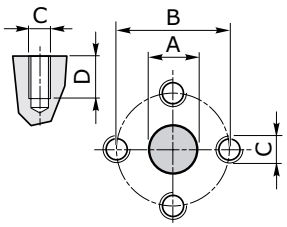
3GM		POSIZIONE CONNESSIONE - *CONNECTION POSITION*			
		0	**1**	**3**	**4**
GAS	**G**	◇	◇	◇	◇
UNF	**W**	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇			
	N	◇			
	F	◇			

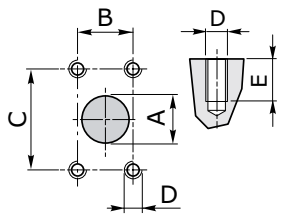
MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	SCARICO - *OUTLET* **OUT** B	SCARICO - *OUTLET* **OUT**	INGRESSO - *INLET* **IN** A	INGRESSO - *INLET* **IN** B	INGRESSO - *INLET* **IN**
		**G**	190	G 1"	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	G 3/4"	17 [mm] *0.670 [in.lbs]*	60 [mm] *531 [in.lbs]*
			230						
			300						
			340						
			370						
			440						
			530						
			630						
			700						
			770						

UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	SCARICO - *OUTLET* **OUT** B	SCARICO - *OUTLET* **OUT**	INGRESSO - *INLET* **IN** A	INGRESSO - *INLET* **IN** B	INGRESSO - *INLET* **IN**
		**W**	190	SAE 16 1"5/16-12 UN	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	SAE 12 1"1/16-12 UN	20 [mm] *0.788 [inch]*	60 [Nm] *531 [in.lbs]*
			230						
			300						
			340						
			370						
			440						
			530						
			630						
			700						
			770						

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**					INGRESSO - *INLET* **IN**				
				A	**B**	**C**	**D**		**A**	**B**	**C**	**D**	
		**T**	190 230 300 340 370 440 530 630 700 770	26 [mm] *1.024 [inch]*	55 [mm] *2.167 [inch]*	M8	16 [mm] *0.630 [inch]*	15 [Nm] *133 [in.lbs]*	18 [mm] *0.709 [inch]*	55 [mm] *2.167 [inch]*	M8	16 [mm] *0.630 [inch]*	15 [Nm] *133 [in.lbs]*
		**N**	190 230 300 340 370 440 530 630 700 770	27 [mm] *1.064 [inch]*	51 [mm] *2.009 [inch]*	M10	15 [mm] *0.591 [inch]*	20 [Nm] *177 [in.lbs]*	19 [mm] *0.748 [inch]*	40 [mm] *1.575 [inch]*	M8	15 [mm] *0.591 [inch]*	15 [Nm] *133 [in.lbs]*

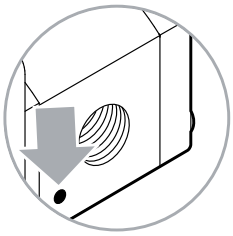
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT**						INGRESSO - *INLET* **IN**					
				A	**B**	**C**	**D**	**E**		**A**	**B**	**C**	**D**	**E**	
		**F**	190 230 300 340 370	27 [mm] *1.063 [inch]*	26.2 [mm] *1.031 [inch]*	52.4 [mm] *2.063 [inch]*	M8	15 [mm] *0.591 [inch]*	15 [Nm] *133 [in.lbs]*	24 [mm] *0.945 [inch]*	26.2 [mm] *1.031 [inch]*	52.4 [mm] *2.063 [inch]*	M8	15 [mm] *0.591 [inch]*	15 [Nm] *133 [in.lbs]*
			440 530 630 700 770	42 [mm] *1.654 [inch]*	69.8 [mm] *2.748 [inch]*	35.6 [mm] *1.402 [inch]*	M8	15 [mm] *0.591 [inch]*	15 [Nm] *133 [in.lbs]*						

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

TIPO CONNESSIONE PER MOTORI (R) • *CONNECTION TYPE FOR (R) MOTORS*

Le connessioni rappresentate corrispondono alle versioni standard; per connessioni differenti, contattare il nostro Ufficio Commerciale.

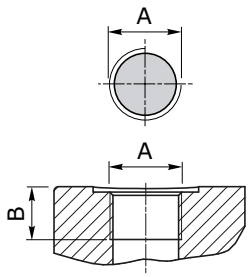
The connections type shown correspond to standard configuration; for different applications contact our Commercial Dept.

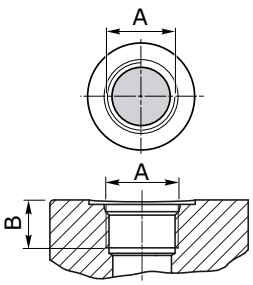


L'eventuale segno sul corpo dei Motori REVERSIBILI non è da considerare.
Any sign on the body in REVERSIBLE Motors is not considered.

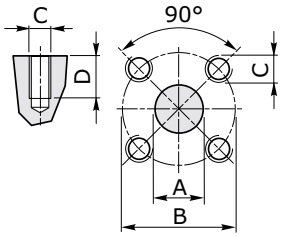
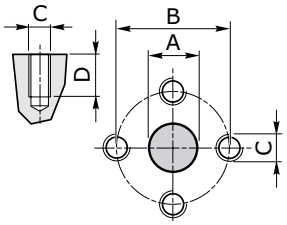
IN = MANDATA - *DELIVERY*
OUT = SCARICO - *OUTLET*

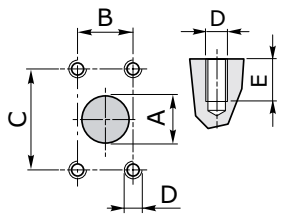
3GM		POSIZIONE CONNESSIONE - *CONNECTION POSITION*			
		0	**1**	**3**	**4**
GAS	**G**	◇	◇	◇	◇
UNF	**W**	◇	◇	◇	◇
FLANGIATE *FLANGED*	**T**	◇			
	N	◇			
	F	◇			

GAS	UNI ISO 228/1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	B		INGRESSO - *INLET* **IN** A	B	
		**G**	190	G 1″	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*	G 1″	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*
			230						
			300						
			340						
			370						
			440						
			530						
			630						
			700						
			770						

UNF	ANSI/ASME B1.1	SIGLA *CODE*	CIL. *DISPL.*	SCARICO - *OUTLET* **OUT** A	B		INGRESSO - *INLET* **IN** A	B	
		**W**	190	SAE 16 1″5/16-12 UN	20 [mm] *0.788 [inch]*	70 [Nm] *620 [in.lbs]*			
			230						
			300						
			340						
			370						
			440						
			530						
			630						
			700						
			770						

MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

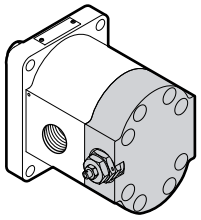
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO *OUTLET* **OUT**					INGRESSO - *INLET* **IN**				
				A	**B**	**C**	**D**		**A**	**B**	**C**	**D**	
		**T**	190 230 300 340 370 440 530 630 700 770	26 [mm] *1.024 [inch]*	55 [mm] *2.167 [inch]*	M8	16 [mm] *0.630 [inch]*	15 [Nm] *133 [in.lbs]*					
		**N**	190 230 300 340 370 440 530 630 700 770	27 [mm] *1.064 [inch]*	51 [mm] *2.009 [inch]*	M10	15 [mm] *0.591 [inch]*	20 [Nm] *177 [in.lbs]*	27 [mm] *1.064 [inch]*	51 [mm] *2.009 [inch]*	M10	15 [mm] *0.591 [inch]*	20 [Nm] *177 [in.lbs]*

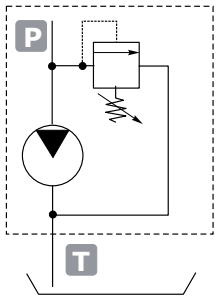
FLANGIATE FLANGED	ISO/R 262	SIGLA *CODE*	CIL. *DISPL.*	SCARICO *OUTLET* **OUT**						INGRESSO - *INLET* **IN**					
				A	**B**	**C**	**D**	**E**		**A**	**B**	**C**	**D**	**E**	
		**F**	190 230 300 340 370	27 [mm] *1.064 [inch]*	26.2 [mm] *1.031 [inch]*	52.4 [mm] *2.063 [inch]*	M8	15 [mm] *0.591 [inch]*	15 [Nm] *133 [in.lbs]*						
			440 530 630 700 770	42 [mm] *1.654 [inch]*	69.8 [mm] *2.748 [inch]*	35.6 [mm] *1.402 [inch]*	M8	15 [mm] *0.591 [inch]*	15 [Nm] *133 [in.lbs]*						

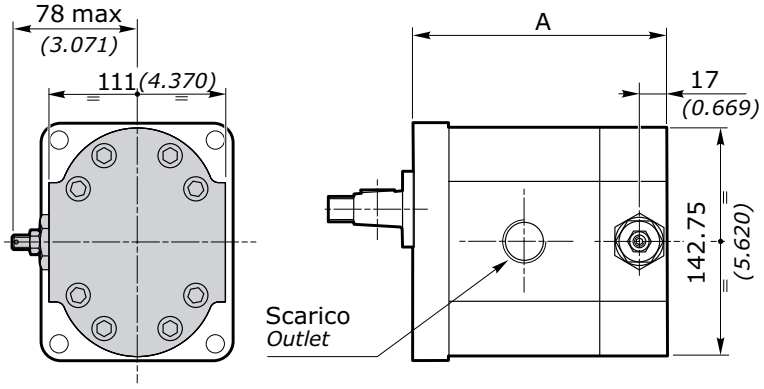
MOTORI AD INGRANAGGI GRUPPO 3GM
GEAR MOTORS GROUP 3GM

OPZIONI • *OPTIONALS*

VLPI — VALVOLA LIMITATRICE DI PRESSIONE A SCARICO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL EXHAUST







GRUPPO GROUP 3	A EUR - SAEB - SAEBOR mm	inch
3GM 190	146.30	*5.759*
3GM 230	149.30	*5.877*
3GM 300	155.30	*6.114*
3GM 340	158.30	*6.232*
3GM 370	161.30	*6.350*
3GM 440	167.30	*6.586*
3GM 530	174.30	*6.862*
3GM 620	182.30	*7.177*
3GM 700	188.30	*7.413*
3GM 770	194.30	*7.649*

La valvola limitatrice di pressione si applica sostituendo il coperchio posteriore (previsto solo scarico interno).
Il corpo VLP è disponibile in alluminio.
È rappresentato unmotore con rotazione destra.

The pressure relief valve can be applied by substituting the rear cover (only internal relief is set).
VLP cover is available in aluminum.
The showed pump is clockwise rotation.

esempio • *example:* **3GM - A - 340 - D - EUR - H - N - 10 - 0 - G - VLPI N 120**

VLPI = Coperchio con VPL a scarico interno / *Cover with VPL at internal exhaust*
N = Tipo molla - vedi tabella / *Spring type - see table*
120 = Taratura - vedi tabella / *Setting - see table*

TIPO - TYPE	CAMPI DI TARATURE - CALIBRATION FIELDS molla bianca - *white spring*	B	molla nera - *black spring*	N	molla rossa - *red spring*	R
bar	30 ÷ 80		81 ÷ 200		201 ÷ 350	
psi	*435 ÷ 1160*		*1175 ÷ 2900*		*2915 ÷ 5075*	
STANDARD	70 bar *(1015 psi)*		150 bar *(2175 psi)*		250 bar *(3625 psi)*	

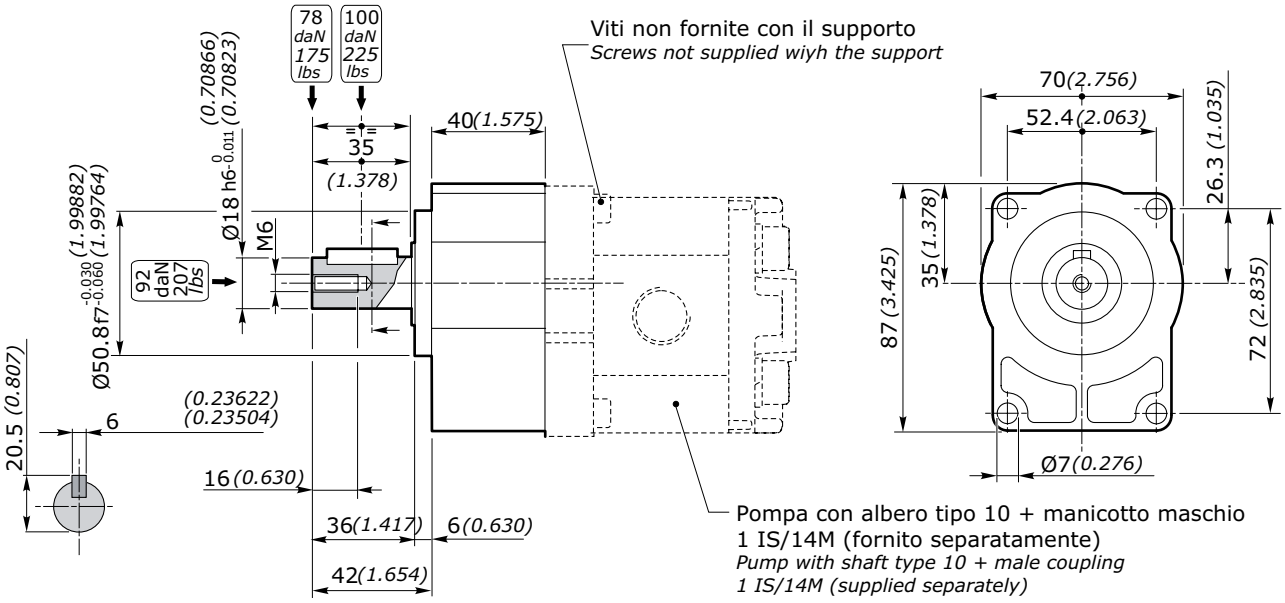
NOTA: In caso si omissione del valore di taratura, esso sarà inteso standard (vedi tabella).
NOTE: Without setting request, it will be considered standard (see table).

SUPPORTI • *SUPPORTS*

GRUPPO - GROUP 1

SUPPORTO CON ALBERO TIPO 12 • *SUPPORT WITH SHAFT TYPE 12*

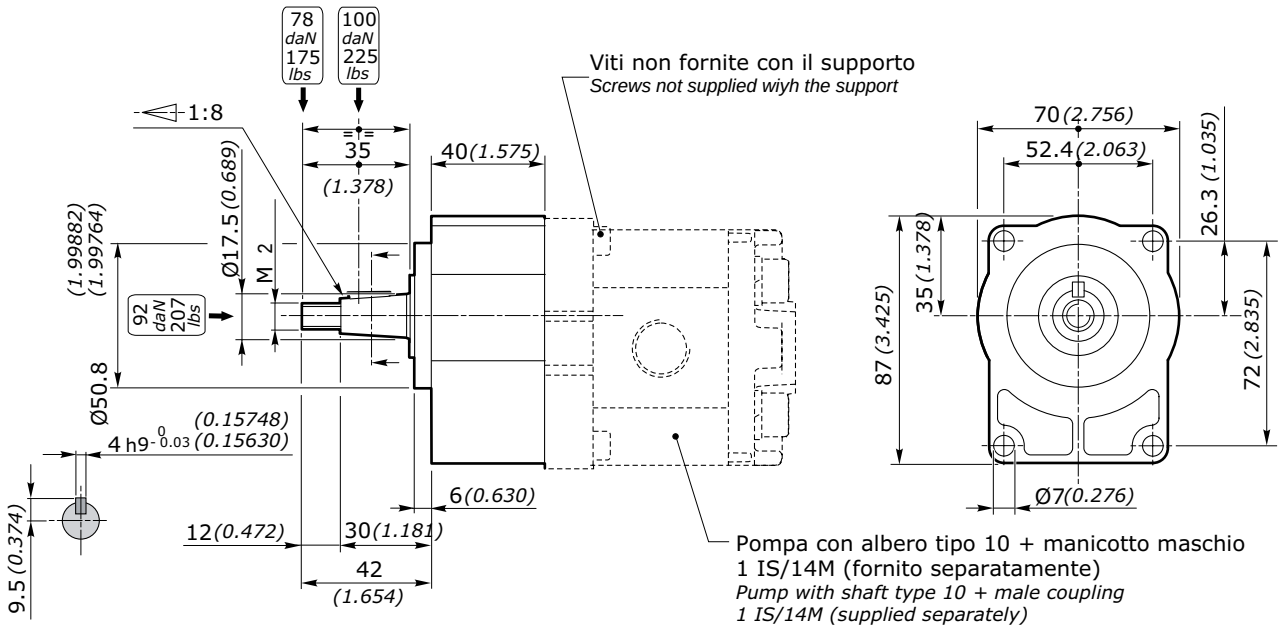
Codice ordinazione - *Order code:* **015104000000000**



GRUPPO - GROUP 1

SUPPORTO CON ALBERO TIPO 10 • *SUPPORT WITH SHAFT TYPE 10*

Codice ordinazione - *Order code:* **015105000000000**



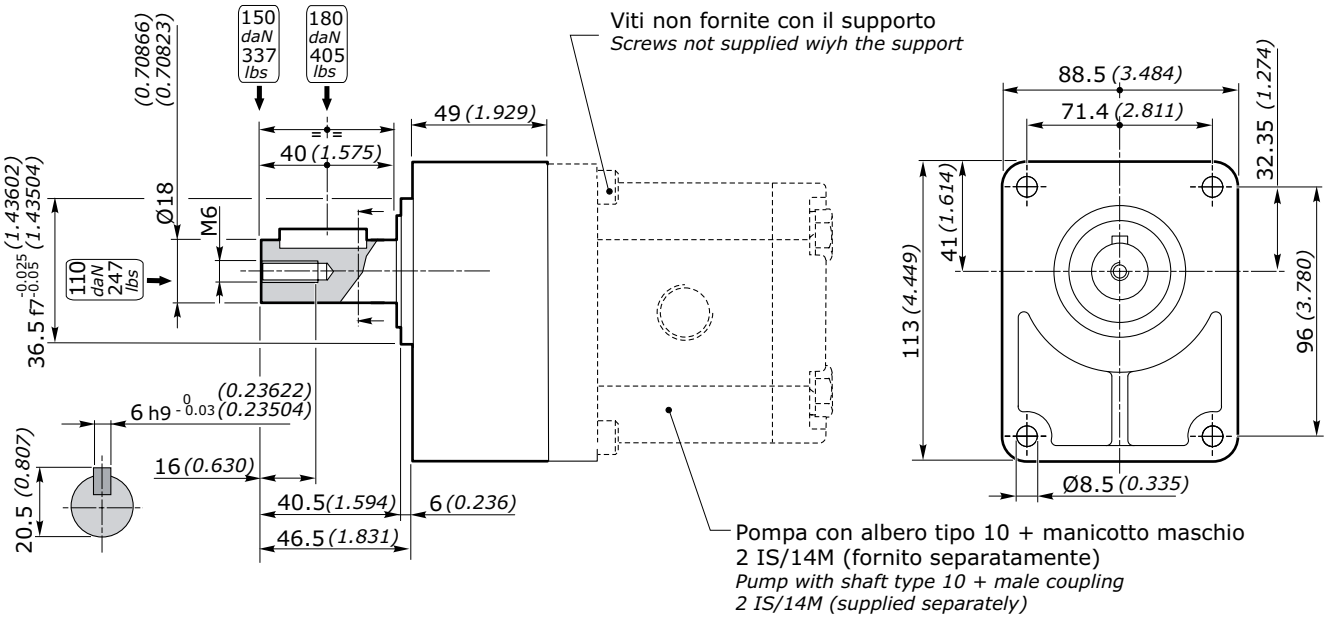
ACCESSORI
ACCESSORIES

SUPPORTI • *SUPPORTS*

GRUPPO - GROUP 2

SUPPORTO CON ALBERO TIPO 12 • *SUPPORT WITH SHAFT TYPE 12*

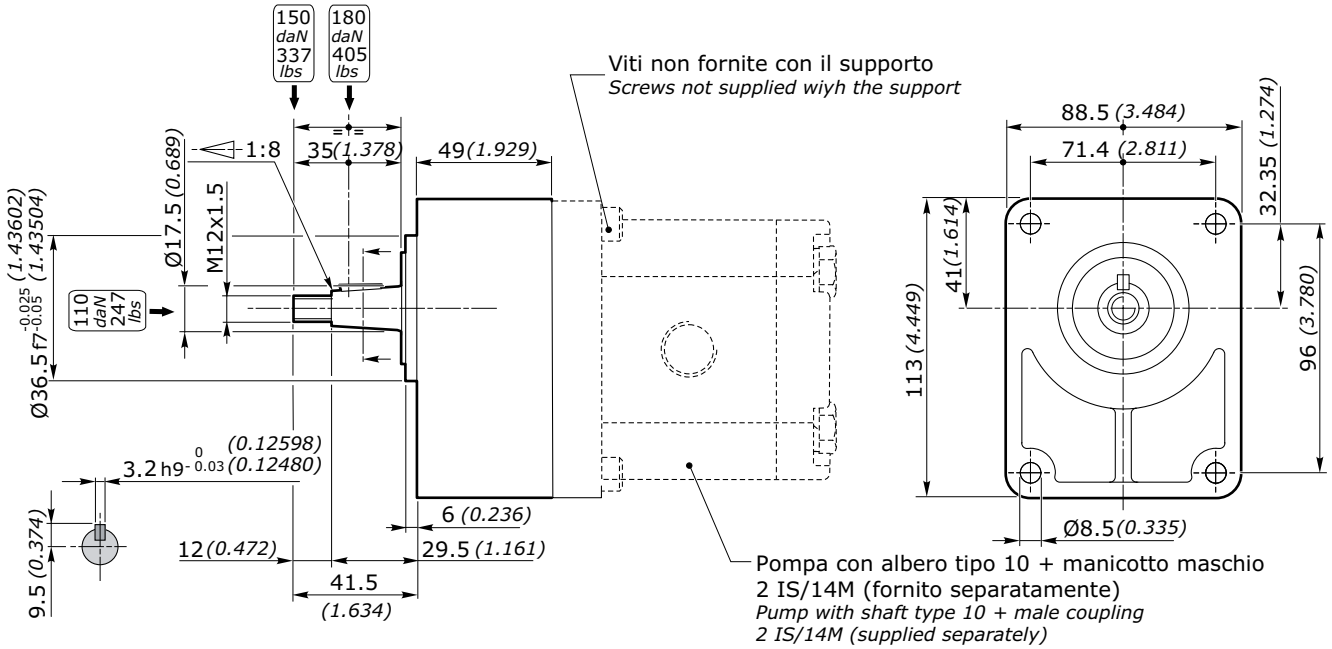
Codice ordinazione - *Order code:* **015212000000000**



GRUPPO - GROUP 2

SUPPORTO CON ALBERO TIPO 10 • *SUPPORT WITH SHAFT TYPE 10*

Codice ordinazione - *Order code:* **015212010000000**

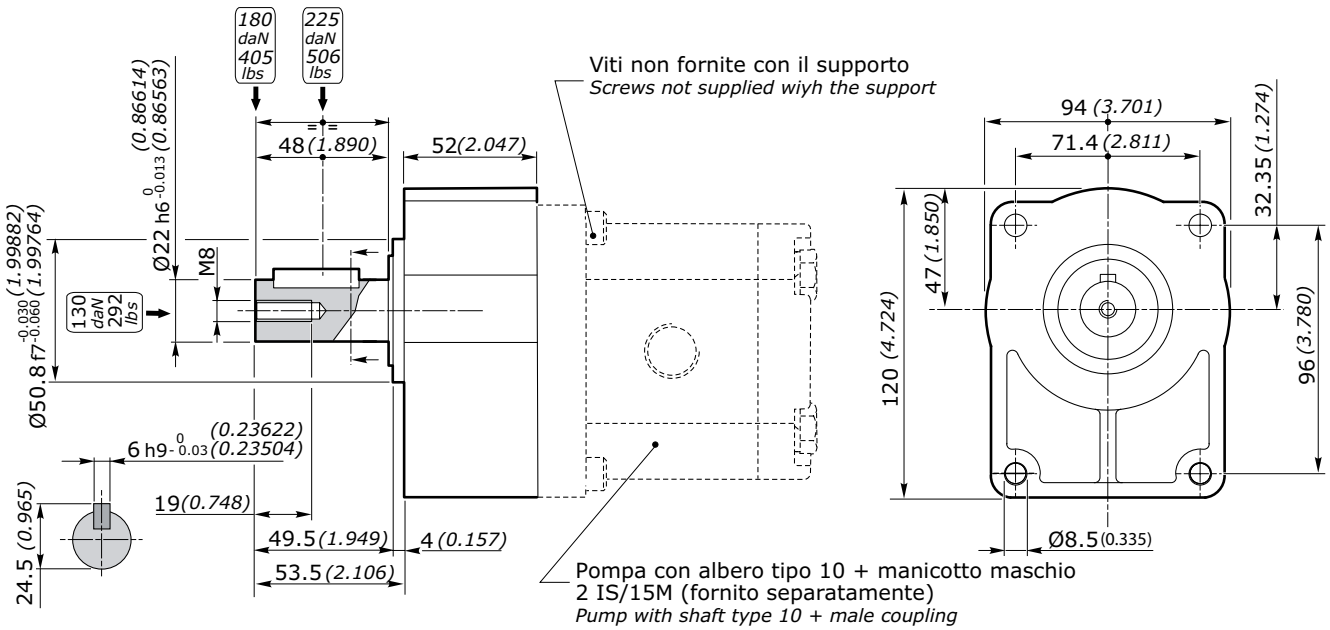


SUPPORTI • *SUPPORTS*

GRUPPO - GROUP 2

SUPPORTO RINFORZATO CON ALBERO TIPO 12 • *RENFORCED SUPPORT WITH SHAFT TYPE 12*

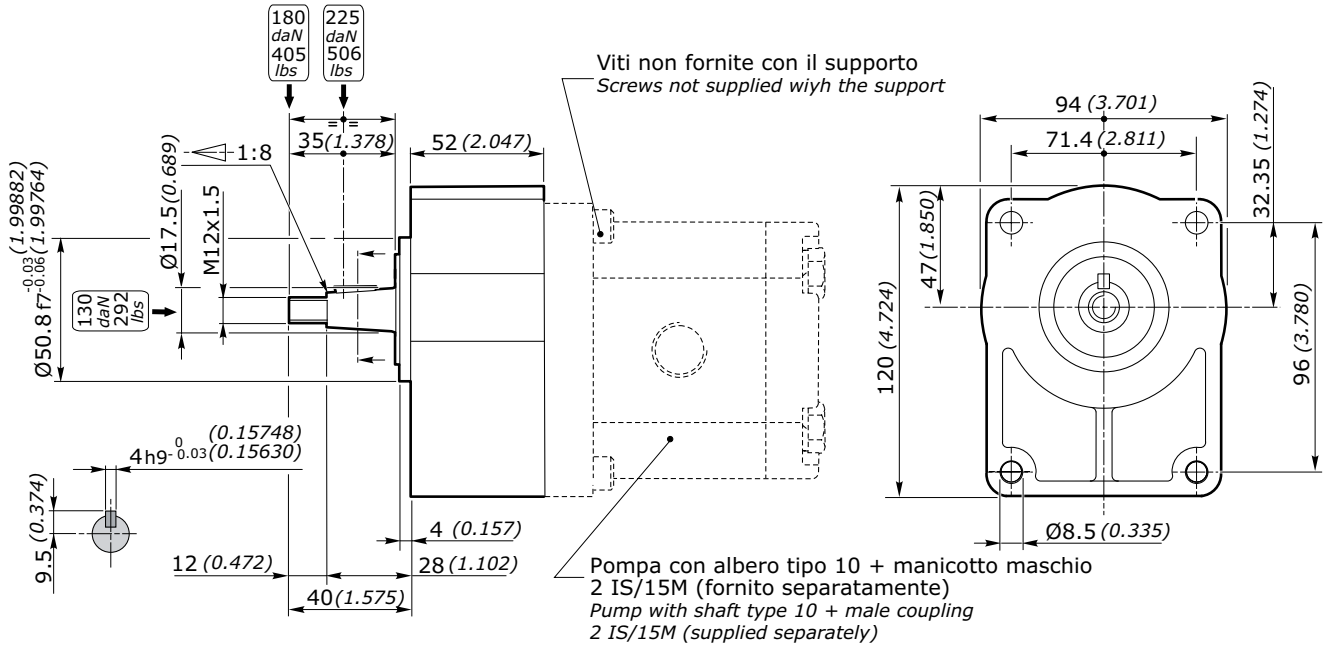
Codice ordinazione - *Order code:* **015213000000000**



GRUPPO - GROUP 2

SUPPORTO RINFORZATO CON ALBERO TIPO 10 • *RENFORCED SUPPORT WITH SHAFT TYPE 10*

Codice ordinazione - *Order code:* **015213010000000**



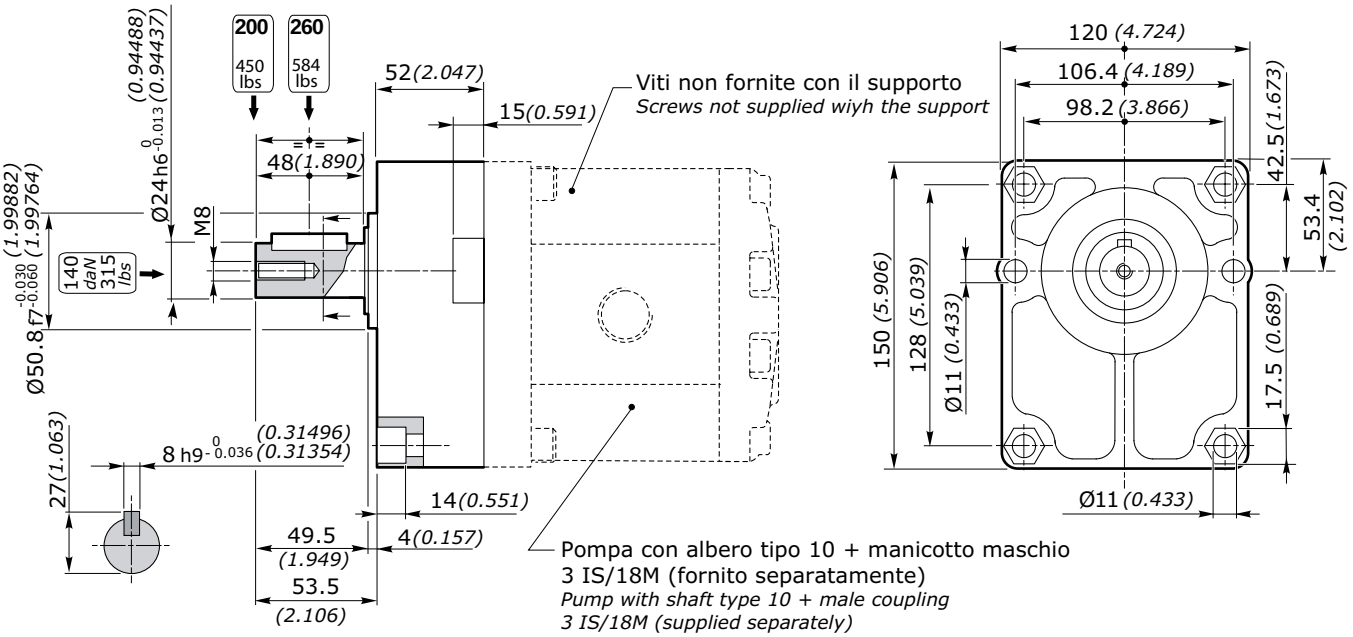
ACCESSORI
ACCESSORIES

SUPPORTI • *SUPPORTS*

GRUPPO - GROUP 3

SUPPORTO CON ALBERO TIPO 12 • *SUPPORT WITH SHAFT TYPE 12*

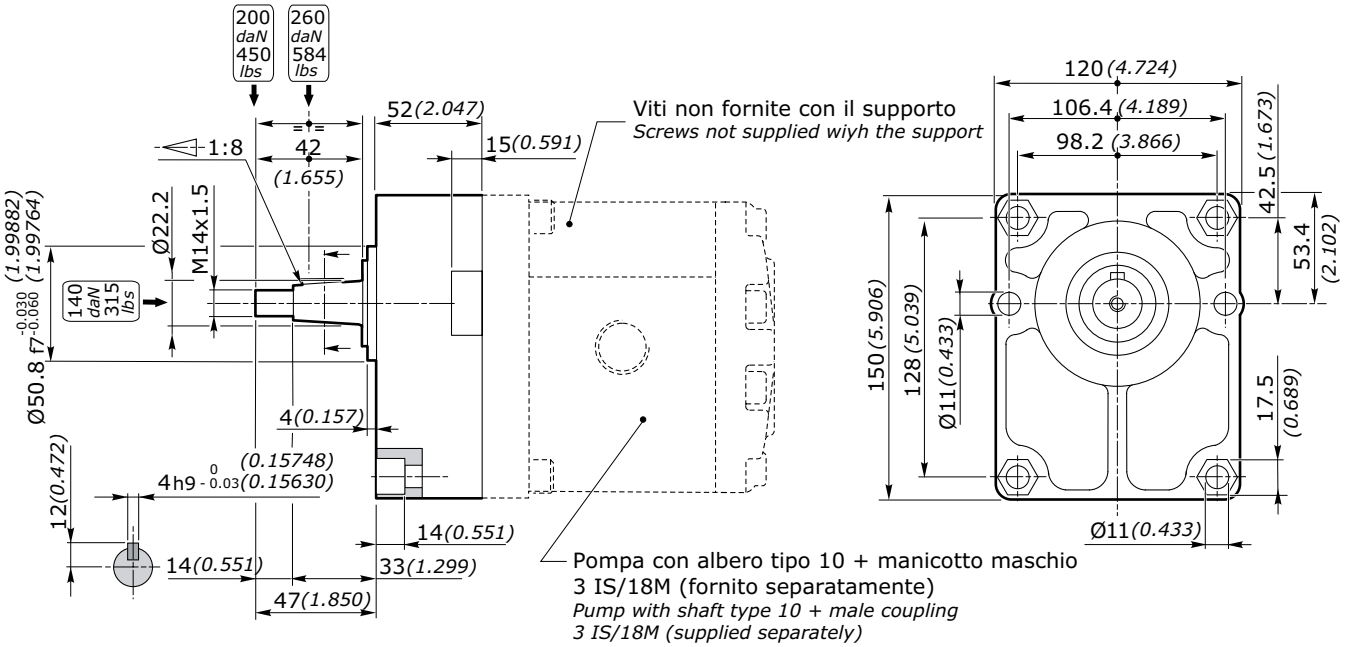
Codice ordinazione - *Order code:* **015302100000000**



GRUPPO - GROUP 3

SUPPORTO CON ALBERO TIPO 12 • *SUPPORT WITH SHAFT TYPE 12*

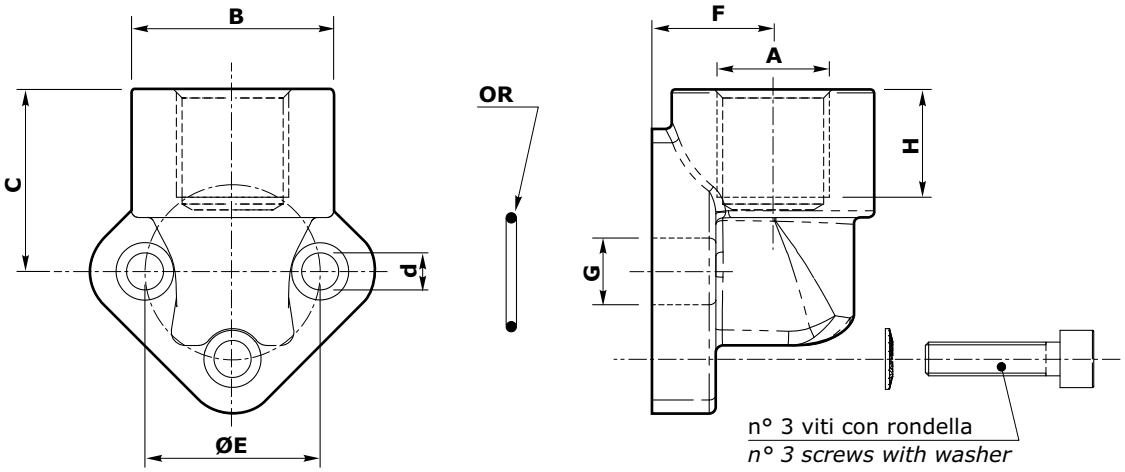
Codice ordinazione - *Order code:* **01530220000000**



RACCORDI • *CONNECTORS*

RACCORDO A GOMITO • *ELBOW CONNECTORS*

per connessioni tipo "N" - *for connections type "N"*



ACCIAIO • *STEEL*

TIPO - TYPE	A	B		C		d		E		F		G		H		OR
		mm	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	
FG 3/8" - 26	G 3/8	30	*1.181*	27.5	*1.083*	5.5	*0.217*	26	*1.024*	17	*0.669*	11	*0.433*	12	*0.472*	14.00 X 1.78
FG 3/8" - 30	G 3/8	30	*1.181*	27.5	*1.083*	6.5	*0.256*	30	*1.181*	17	*0.669*	12	*0.472*	12	*0.472*	15.88 X 2.62
FG 1/2" - 30	G 1/2	30	*1.181*	27.5	*1.083*	6.5	*0.256*	30	*1.181*	17	*0.669*	12	*0.472*	12	*0.472*	15.88 X 2.62
FG 3/4" - 40	G 3/4	38	*1.496*	36	*1.417*	8.5	*0.335*	40	*1.575*	21	*0.817*	19	*0.748*	16	*0.630*	23.81 X 2.62
FG 1" - 51	G 1	45	*1.772*	47	*1.850*	10.5	*0.413*	51	*2.008*	26	*1.024*	25	*0.984*	18	*0.709*	31.42 X 2.62
FG 1"1/2 - 72.5	G 1"1/2	63	*2.480*	56	*2.205*	13	*0.512*	72,5	*2.854*	34.5	*1.358*	40	*1.575*	24	*0.945*	47.22 X 3.53

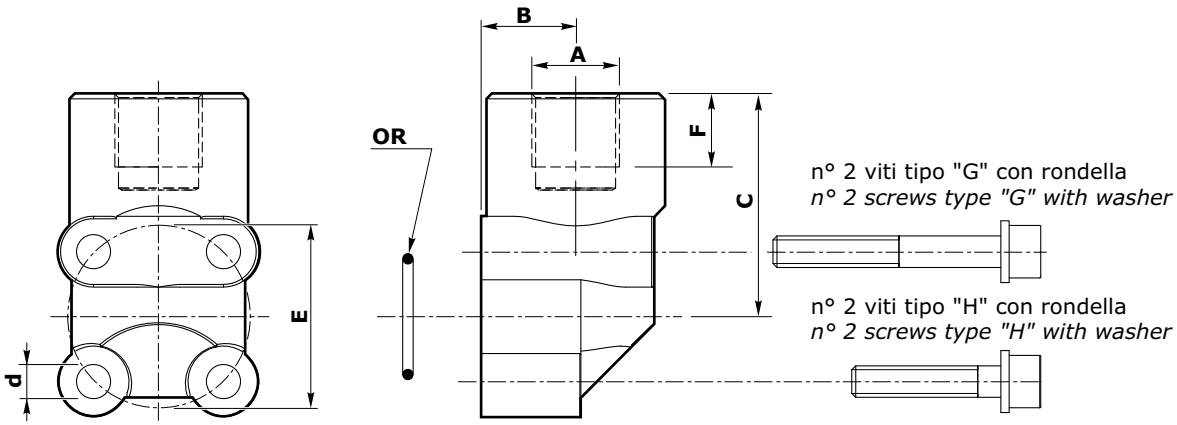
ACCIAIO - STEEL	
TIPO - TYPE	**CODICE ORDINAZIONE - ORDER CODE**
FG 3/8" - 26	016000000
FG 3/8" - 30	016100000
FG 1/2" - 30	016200000
FG 3/4" - 40	016300000
FG 1" - 51	016400000
FG 1"1/2 - 72.5	016500000

ACCESSORI
ACCESSORIES

RACCORDI • *CONNECTORS*

RACCORDO A GOMITO • *ELBOW CONNECTORS*

per connessioni tipo "T" - *for connections type "T"*



ACCIAIO • *STEEL*

TIPO - TYPE	A	B		C		d		E		F		OR	VITI TIPO H SCREW TYPE H	VITI TIPO G SCREW TYPE G
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			
FG 3/8" 0.5 BKA	G 3/8	18	*0.709*	40	*1.575*	6.5	*0.256*	30	*1.181*	16	*0.630*	15.88 X 2.62	M6 X 35 UNI 5931	M6 X 45 UNI 5931
FG 1/2" 0.5 BKA	G 1/2	18	*0.709*	40	*1.575*	6.5	*0.256*	30	*1.181*	16	*0.630*	15.88 X 2.62		
FG 3/8" 1 BKA	G 3/8	18	*0.709*	40	*1.575*	6.5	*0.256*	35	*1.378*	16	*0.630*	18.72 X 2.62	M6 X 20 UNI 5931	M6 X 35 UNI 5931
FG 1/2" 1 BKA	G 1/2	18	*0.709*	40	*1.575*	6.5	*0.256*	35	*1.378*	16	*0.630*	18.72 X 2.62		
FG 1/2" 2 BKA	G 1/2	24	*0.945*	41.5	*1.634*	6.5	*0.256*	40	*1.575*	16	*0.630*	23.81 X 2.62		M6 X 45 UNI 5931
FG 3/4" 2 BKA	G 3/4	24	*0.945*	41.5	*1.634*	6.5	*0.256*	40	*1.575*	16	*0.630*	23.81 X 2.62		

ALLUMINIO • *ALUMINIUM*

TIPO - TYPE	A	B		C		d		E		F		OR	VITI TIPO H SCREW TYPE H	VITI TIPO G SCREW TYPE G
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			
FG 3/8" 0.5 BKAL	G 3/8	18	*0.709*	40	*1.575*	6.5	*0.256*	30	*1.181*	14	*0.551*	15.88 X 2.62	M6 X 30 UNI 5931	M6 X 45 UNI 5931
FG 1/2" 0.5 BKAL	G 1/2	18	*0.709*	40	*1.575*	6.5	*0.256*	30	*1.181*	14	*0.551*	15.88 X 2.62		
FG 3/8" 1 BKAL	G 3/8	18	*0.709*	40	*1.575*	6.5	*0.256*	35	*1.378*	16	*0.630*	18.72 X 2.62		
FG 1/2" 1 BKAL	G 1/2	18	*0.709*	40	*1.575*	6.5	*0.256*	35	*1.378*	16	*0.630*	18.72 X 2.62		
FG 1/2" 2 BKAL	G 1/2	24	*0.945*	41.5	*1.634*	6.5	*0.256*	40	*1.575*	16	*0.630*	23.81 X 2.62	M6 X 35 UNI 5931	M6 X 55 UNI 5931
FG 3/4" 2 BKAL	G 3/4	24	*0.945*	41.5	*1.634*	6.5	*0.256*	40	*1.575*	16	*0.630*	23.81 X 2.62		

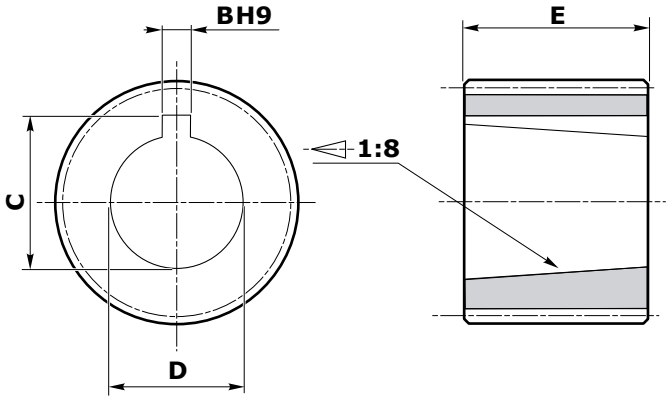
ACCIAIO - STEEL	
TIPO - TYPE	**CODICE ORDINAZIONE - ORDER CODE**
FG 3/8" 0.5 BKA	-
FG 1/2" 0.5 BKA	-
FG 3/8" 1 BKA	01999110.000.000
FG 1/2" 1 BKA	01999120.000.000
FG 1/2" 2 BKA	01999220.000.000
FG 3/4" 2 BKA	01999230.000.000

ALLUMINIO - ALUMINIUM	
TIPO - TYPE	**CODICE ORDINAZIONE - ORDER CODE**
FG 3/8" 0.5 BKAL	01998010.000.000
FG 1/2" 0.5 BKAL	01998020.000.000
FG 3/8" 1 BKAL	01998110.000.000
FG 1/2" 1 BKAL	01998120.000.000
FG 1/2" 2 BKAL	01998220.000.000
FG 3/4" 2 BKAL	01998230.000.000

MANICOTTI DI TRASCINAMENTO • *MALES COUPLING*

MANICOTTO DI TRASCINAMENTO POMPE • *COUPLING FOR GEAR PUMPS*

maschio - *male*

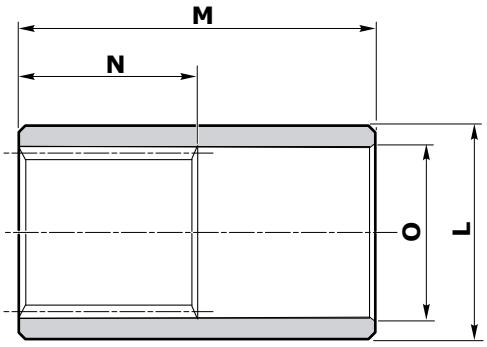


TIPO - TYPE	CODICE ORDINAZIONE - ORDER CODE
1 IS / 12M	018.001.000.000.000
1 IS / 14M	018.002.000.000.000
2 IS / 14M	018.003.000.000.000
2 IS / 15M	018.004.000.000.000
3 IS / 18M	018.005.000.000.000
4 IS / 23M	018.006.000.000.000

TIPO - TYPE	PROFILO PROFILE **DIN 5482**	N. DENTI N. TEETH	B		C		D		E		COPPIA SERRAGGIO DADO-GIUNTO NUT-JOINT SCREW TIGHTENING TORQUE	
			mm	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*	*Nm*	*in-lbs*
1 IS / 12M	B20 X 17	12	2.4	*0.094*	9.6	*0.378*	7.82	*0.308*	14.5	*0.571*	9 ÷ 10	*80 ÷ 89*
1 IS / 14M	B25 X 22	14	2.4	*0.094*	9.6	*0.378*	7.82	*0.308*	14.5	*0.571*	9 ÷ 10	*80 ÷ 89*
2 IS / 14M	B25 X 22	14	3.17	*0.125*	16.5	*0.650*	14.31	*0.563*	22	*0.866*	22 ÷ 25	*195 ÷ 221*
2 IS / 15M	B28 X 25	15	3.17	*0.125*	15.8	*0.622*	14.31	*0.563*	22	*0.866*	32 ÷ 35	*283 ÷ 310*
3 IS / 18M	B35 X 31	18	4	*0.157*	21	*0.827*	18.39	*0.724*	26	*1.024*	50 ÷ 55	*443 ÷ 487*
4 IS / 23M	B48 X 44	23	6.35	*0.250*	30.2	*1.189*	27.50	*1.083*	42	*1.654*	100 ÷ 120	*885 ÷ 1062*

MANICOTTO DI TRASCINAMENTO POMPE • *COUPLING FOR GEAR PUMPS*

femmina - *female*



TIPO - TYPE	CODICE ORDINAZIONE - ORDER CODE
1 IS / 12F	018.021.000.000.000
1 IS / 14F	018.022.000.000.000
2 IS / 15F	018.023.000.000.000
3 IS / 18F	018.024.000.000.000
4 IS / 23F	018.025.000.000.000

TIPO - TYPE	PROFILO PROFILE **DIN 5482**	N. DENTI N. TEETH	L		M		N		O	
			mm	*inch*	*mm*	*inch*	*mm*	*inch*	*mm*	*inch*
1 IS / 12F	A20 X 17	12	2.4	*0.094*	9.6	*0.378*	7.82	*0.308*	14.5	*0.571*
1 IS / 14F	A25 X 22	14	2.4	*0.094*	9.6	*0.378*	7.82	*0.308*	14.5	*0.571*
2 IS / 15F	A28 X 25	15	3.17	*0.125*	15.8	*0.622*	14.31	*0.563*	22	*0.866*
3 IS / 18F	A35 X 31	18	4	*0.157*	21	*0.827*	18.39	*0.724*	26	*1.024*
4 IS / 23F	A48 X 44	23	6.35	*0.250*	30.2	*1.189*	27.50	*1.083*	42	*1.654*

CODICI ORDINAZIONE
ORDER CODES

1SP	CODICI COMPLETI POMPA SINGOLA - GRUPPO 1 *COMPLETE ORDER CODE SINGLE PUMP - GROUP 1*	
CODICE *CODE*	SIGLA DI ORDINAZIONE COMPLETA *COMPLETE ORDER CODE*	DESCRIZIONE *DESCRIPTION*
1GP10010000	1SP-A-090-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 0.89 cm³/giro - connessione GAS *European flange - displacement 0.05 in³/rev - connection GAS*
1GP10010028	1SP-A-012-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 1.18 cm³/giro - connessione GAS *European flange - displacement 0.07 in³/rev - connection GAS*
1GP10010032	1SP-A-012-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 1.18 cm³/giro - connessione UNF *European flange - displacement 0.07 in³/rev - connection UNF*
1GP10010066	1SP-A-016-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 1.6 cm³/giro - connessione UNF *European flange - displacement 0.10 in³/rev - connection UNF*
1GP10010088	1SP-A-020-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 2.0 cm³/giro - connessione GAS *European flange - displacement 0.12 in³/rev - connection GAS*
1GP10010090	1SP-A-020-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 2.0 cm³/giro - connessione UNF *European flange - displacement 0.12 in³/rev - connection UNF*
1GP10010126	1SP-A-025-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 2.5 cm³/giro - connessione GAS *European flange - displacement 0.15 in³/rev - connection GAS*
1GP10010129	1SP-A-025-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 2.5 cm³/giro - connessione UNF *European flange - displacement 0.15 in³/rev - connection UNF*
1GP10010163	1SP-A-032-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 3.2 cm³/giro - connessione GAS *European flange - displacement 0.20 in³/rev - connection GAS*
1GP10010167	1SP-A-032-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 3.2 cm³/giro - connessione UNF *European flange - displacement 0.20 in³/rev - connection UNF*
1GP10010204	1SP-A-032-S-MC32-B-N-27-5-G	Flangia per minicentralina - cilindrata 3.2 cm³/giro - connessione GAS *Power-pack Flange - displacement 0.20 in³/rev - connection GAS*
1GP10010211	1SP-A-037-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 3.7 cm³/giro - connessione GAS *European flange - displacement 0.23 in³/rev - connection GAS*
1GP10010241	1SP-A-042-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 4.2 cm³/giro - connessione GAS *European flange - displacement 0.26 in³/rev - connection GAS*
1GP10010243	1SP-A-042-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 4.2 cm³/giro - connessione UNF *European flange - displacement 0.26 in³/rev - connection UNF*
1GP10010275	1SP-A-050-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 5.0 cm³/giro - connessione GAS *European flange - displacement 0.31 in³/rev - connection GAS*
1GP10010278	1SP-A-050-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 5.0 cm³/giro - connessione UNF *European flange - displacement 0.31 in³/rev - connection UNF*
1GP10010312	1SP-A-063-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 6.3 cm³/giro - connessione GAS *European flange - displacement 0.38 in³/rev - connection GAS*
1GP10010316	1SP-A-063-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 6.3 cm³/giro - connessione UNF *European flange - displacement 0.38 in³/rev - connection UNF*
1GP10010320	1SP-A-063-D-EUR-B-N-14-0-N	Flangia Europea - cilindrata 6.3 cm³/giro - albero 14 - connessione UNF *European flange - displacement 0.38 in³/rev - shaft 14 - connection UNF*
1GP10010374	1SP-A-078-S-MC32-B-N-27-5-G	Flangia per minicentralina - cilindrata 7.76 cm³/giro - connessione GAS *Power-pack Flange - displacement 0.47 in³/rev - connection GAS*

CODICI ORDINAZIONE
ORDER CODES

2SP	CODICI COMPLETI POMPA SINGOLA - GRUPPO 2 *COMPLETE ORDER CODE SINGLE PUMP - GROUP 2*	
CODICE *CODE*	SIGLA DI ORDINAZIONE COMPLETA *COMPLETE ORDER CODE*	DESCRIZIONE *DESCRIPTION*
1GP20010000	2SP-A-040-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 4.0 cm³/giro - connessione GAS *European flange - displacement 0.24 in³/rev - connection GAS*
1GP20010005	2SP-A-040-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 4.0 cm³/giro - connessione UNF *European flange - displacement 0.24 in³/rev - connection UNF*
1GP20010075	2SP-A-060-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 6.0 cm³/giro - connessione GAS *European flange - displacement 0.37 in³/rev - connection GAS*
1GP20010081	2SP-A-060-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 6.0 cm³/giro - connessione UNF *European flange - displacement 0.37 in³/rev - connection UNF*
1GP20010172	2SP-A-080-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 8.5 cm³/giro - connessione GAS *European flange - displacement 0.52 in³/rev - connection GAS*
1GP20010179	2SP-A-080-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 8.5 cm³/giro - connessione UNF *European flange - displacement 0.52 in³/rev - connection UNF*
1GP20010299	2SP-A-110-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 11 cm³/giro - connessione GAS *European flange - displacement 0.67 in³/rev - connection GAS*
1GP20010307	2SP-A-110-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 11 cm³/giro - connessione UNF (destra) *European flange - displacement 0.67 in³/rev - connection UNF (right)*
1GP20010375	2SP-A-110-D-SAEA-B-N-14-0-N	Flangia SAEA - cilindrata 11 cm³/giro - albero 14 - connessione UNF *SAEA flange - displacement 0.67 in³/rev - shaft 14 - connection UNF*
1GP20010396	2SP-A-110-S-EUR-B-N-10-0-N	Flangia Europea - cilindrata 11 cm³/giro - connessione UNF (sinistra) *European flange - displacement 0.67 in³/rev - connection UNF (left)*
1GP20010447	2SP-A-140-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 14 cm³/giro - connessione GAS *European flange - displacement 0.85 in³/rev - connection GAS*
1GP20010454	2SP-A-140-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 14 cm³/giro - connessione UNF *European flange - displacement 0.85 in³/rev - connection UNF*
1GP20010515	2SP-A-140-D-SAEA-B-N-14-0-N	Flangia SAEA - cilindrata 14 cm³/giro - albero 14 - connessione UNF *SAEA flange - displacement 0.85 in³/rev - shaft 14 - connection UNF*
1GP20010572	2SP-A-160-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 16.5 cm³/giro - connessione GAS *European flange - displacement 1.01 in³/rev - connection GAS*
1GP20010579	2SP-A-160-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 16.5 cm³/giro - connessione UNF (destra) *European flange - displacement 1.01 in³/rev - connection UNF (right)*
1GP20010637	2SP-A-160-D-SAEA-B-N-14-0-N	Flangia SAEA - cilindrata 16.5 cm³/giro - albero 14 - connessione UNF *SAEA flange - displacement 1.01 in³/rev - shaft 14 - connection UNF*
1GP20010657	2SP-A-160-S-EUR-B-N-10-0-N	Flangia Europea - cilindrata 16.5 cm³/giro - connessione UNF (sinistra) *European flange - displacement 1.01 in³/rev - connection UNF (left)*
1GP20010706	2SP-A-190-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 19.5 cm³/giro - connessione GAS *European flange - displacement 1.19 in³/rev - connection GAS*
1GP20010715	2SP-A-190-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 19.5 cm³/giro - connessione UNF *European flange - displacement 1.19 in³/rev - connection UNF*
1GP20010706	2SP-A-220-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 22.5 cm³/giro - connessione GAS *European flange - displacement 1.37 in³/rev - connection GAS*
1GP20010715	2SP-A-220-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 22.5 cm³/giro - connessione UNF *European flange - displacement 1.37 in³/rev - connection UNF*
1GP20010921	2SP-A-260-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 26 cm³/giro - connessione GAS *European flange - displacement 1.59 in³/rev - connection GAS*
1GP20010929	2SP-A-260-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 26 cm³/giro - connessione UNF *European flange - displacement 1.59 in³/rev - connection UNF*

CODICI ORDINAZIONE
ORDER CODES

3GP	CODICI COMPLETI POMPA SINGOLA - GRUPPO 3 *COMPLETE ORDER CODE SINGLE PUMP - GROUP 3*	
CODICE *CODE*	SIGLA DI ORDINAZIONE COMPLETA *COMPLETE ORDER CODE*	DESCRIZIONE *DESCRIPTION*
1GP30010066	3GP-G-230-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 23 cm³/giro - connessione UNF *European flange - displacement 1.4 in³/rev - connection UNF*
1GP30010116	3GP-G-300-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 30.2 cm³/giro - connessione GAS *European flange - displacement 1.8 in³/rev - connection GAS*
1GP30010117	3GP-G-300-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 30.2 cm³/giro - connessione UNF *European flange - displacement 1.8 in³/rev - connection UNF*
1GP30010178	3GP-G-340-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 33.8 cm³/giro - connessione GAS *European flange - displacement 2.1 in³/rev - connection GAS*
1GP30010179	3GP-G-340-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 33.8 cm³/giro - connessione UNF *European flange - displacement 2.1 in³/rev - connection UNF*
1GP30010234	3GP-G-370-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 37.5 cm³/giro - connessione GAS *European flange - displacement 2.3 in³/rev - connection GAS*
1GP30010235	3GP-G-370-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 37.5 cm³/giro - connessione UNF *European flange - displacement 2.3 in³/rev - connection UNF*
1GP30010244	3GP-G-440-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 44.6 cm³/giro - connessione GAS *European flange - displacement 2.7 in³/rev - connection GAS*
1GP30010245	3GP-G-440-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 44.6 cm³/giro - connessione UNF *European flange - displacement 2.7 in³/rev - connection UNF*
1GP30010349	3GP-G-530-D-EUR-B-N-10-0-G	Flangia Europea - cilindrata 53 cm³/giro - connessione GAS *European flange - displacement 3.2 in³/rev - connection GAS*
1GP30010351	3GP-G-530-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 53 cm³/giro - connessione UNF *European flange - displacement 3.2 in³/rev - connection UNF*
1GP30010359	3GP-G-620-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 62.7 cm³/giro - connessione UNF *European flange - displacement 3.8 in³/rev - connection UNF*
1GP30010408	3GP-G-700-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 70.5 cm³/giro - connessione UNF *European flange - displacement 4.3 in³/rev - connection UNF*
1GP30010413	3GP-G-770-D-EUR-B-N-10-0-N	Flangia Europea - cilindrata 77.2 cm³/giro - connessione UNF *European flange - displacement 4.7 in³/rev - connection UNF*

CODICI ORDINAZIONE
ORDER CODES

2SM	CODICI COMPLETI MOTORE - GRUPPO 2 *COMPLETE ORDER CODE MOTOR - GROUP 2*	
CODICE *CODE*	SIGLA DI ORDINAZIONE COMPLETA *COMPLETE ORDER CODE*	DESCRIZIONE *DESCRIPTION*
1GM20010126	2SM-A-110-R-EUR-B-N-10-0-G	Flangia europea - cilindrata 11 cm^3/giro - connessione GAS (reversibile) *European flange - displacement 0.67 in^3/rev - connection GAS (reversible)*
1GM20010128	2SM-A-110-R-EUR-B-N-10-0-N	Flangia europea - cilindrata 11 cm^3/giro - connessione UNF (reversibile) *European flange - displacement 0.67 in^3/rev - connection UNF (reversible)*
1GM20010180	2SM-A-140-R-EUR-B-N-10-0-G	Flangia europea - cilindrata 14 cm^3/giro - connessione GAS (reversibile) *European flange - displacement 0.85 in^3/rev - connection GAS (reversible)*
1GM20010181	2SM-A-140-R-EUR-B-N-10-0-N	Flangia europea - cilindrata 14 cm^3/giro - connessione UNF (reversibile) *European flange - displacement 0.85 in^3/rev - connection UNF (reversible)*
1GM20010223	2SM-A-160-R-EUR-B-N-10-0-G	Flangia europea - cilindrata 16.5 cm^3/giro - connessione GAS (reversibile) *European flange - displacement 1.01 in^3/rev - connection GAS (reversible)*
1GM20010225	2SM-A-160-R-EUR-B-N-10-0-N	Flangia europea - cilindrata 16.5 cm^3/giro - connessione UNF (reversibile) *European flange - displacement 1.01 in^3/rev - connection UNF (reversible)*
1GM20010269	2SM-A-190-R-EUR-B-N-10-0-G	Flangia europea - cilindrata 19.5 cm^3/giro - connessione GAS (reversibile) *European flange - displacement 1.19 in^3/rev - connection GAS (reversible)*
1GM20010271	2SM-A-190-R-EUR-B-N-10-0-N	Flangia europea - cilindrata 19.5 cm^3/giro - connessione UNF (reversibile) *European flange - displacement 1.19 in^3/rev - connection UNF (reversible)*

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