

H1C



POMPE/MOTORI A CILINDRATA COSTANTE

FIXED DISPLACEMENT MOTORS/PUMPS

DESCRIZIONE - CARATTERISTICHE DESCRIPTION - FEATURES

Le unità della serie H1C sono una famiglia di pompe e motori a pistoni assiali, con corpo inclinato, a cilindrata fissa, progettati per operare sia in circuito chiuso sia in circuito aperto. Il distributore a superficie sferica, l'accurata lavorazione e l'alta qualità dei materiali e dei componenti usati, consentono ai motori della serie H1C di lavorare fino a 350 bar (5000 psi) in continuo e di sopportare un picco di 450 bar (6500 psi). Provati in laboratorio e sperimentati sul campo queste unità hanno dimostrato una lunga durata di esercizio con elevati rendimenti. Il supporto dell'albero, realizzato mediante cuscinetti a rotolamento, è dimensionato in modo da sopportare elevati carichi sia assiali sia radiali. La versatilità delle serie H1C, comprendente vari coperchi, alberi di uscita a valvole flangiabili, consente a queste unità di adattarsi alle più diverse tipologie di impianto, sia nel settore mobile sia in quello industriale. Le unità a pistoni H1C sono disponibili sia in versione metrica sia in versione SAE.

Principali settori applicativi:

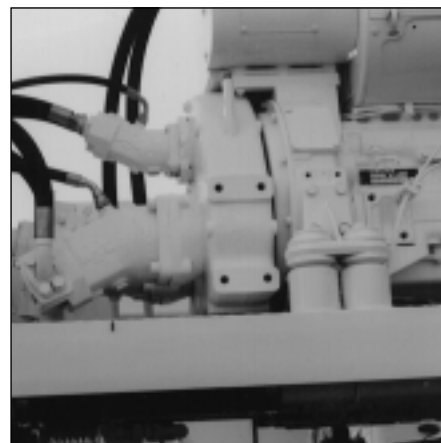
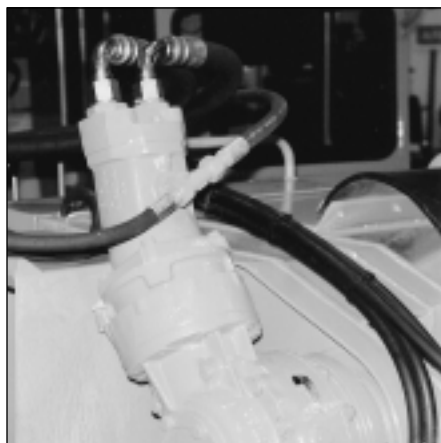
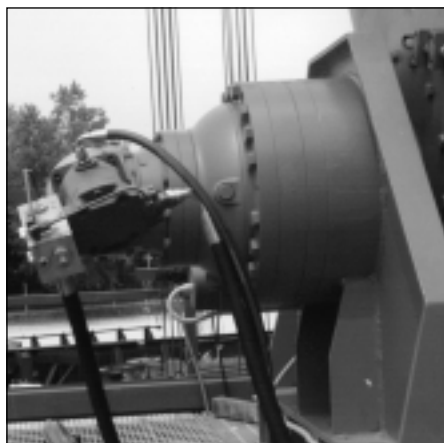
- Macchine industriali
- Macchine movimento terra e da cantiere
- Macchine agricole e forestali
- Macchine per l'industria navale e Off-Shore

H1C series units are a family of fixed displacement pumps and motors, bent axis piston design for operation in both open and closed circuit. The proven design incorporating the lens shape valve plate, the high quality components and manufacturing techniques make the H1C series units to able provide up to 350 bar (5000 psi) continuous and 450 bar (6500 psi) peak performance. Fully laboratory tested and field proven, these units provide maximum efficiency and longlife. Heavy duty bearings permit high radial and axial loads.

Versatile design includes a variety of port plate, shaft end and valves package that will adapt the H1C series units to any application both industrial and mobile. H1C series units are available in both metric and SAE mounting configuration.

Typical application:

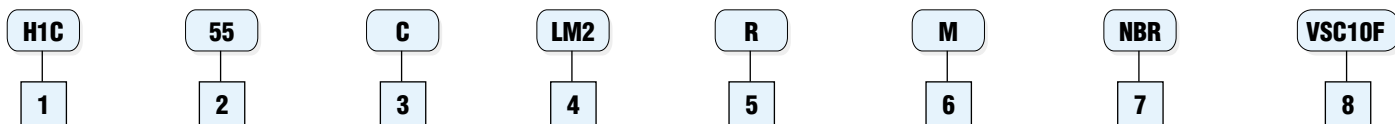
- Industrial equipment
- Earth moving machines and construction machinery
- Agricultural and forestry machines
- Marine and Off-Shore equipment



CODICI DI ORDINAZIONE ORDERING CODE

1	Serie / Series		H1C									
	Dimensione / Size		12	20	30	40	55	75	90	108	160	226
3	Estremità d'albero / Output shaft		C (cilindrico) / C (cylindrical keyed)									
			S (scanalato) / S (splined)									
4	Coperchi pompa (versione metrica) / Pump port plates options (metric configurations)	FP1	•	•	•	•	•	•	•	•		
		FP2									•	•
		LP1		•	•							
		LP2				•	•	•	•	•		
	Coperchi pompa (versione SAE) / Pump port plates options (SAE configuration)	FP2									•	•
		LP2		•	•	•	•	•	•	•		
	Coperchi motore (versione metrica) / Motor port plates options (metric configuration)	LM1	•									
		LM2		•	•	•	•	•	•	•	•	•
		FM1		•	•	•	•	•	•	•		
		VM2		•	•	•	•	•	•	•		
Coperchi motore (versione SAE) / Motor port plates (SAE version)		LM2		•	•	•	•	•	•	•	•	
5	Senso di rotazione (vista lato albero) / Direction of rotation (viewed from shaft side)		D (destra - pompa) / D (CW - pump)									
			S (sinistra - pompa) / S (CCW - pump)									
			R (reversibile - motore) / R (reversible - motor)									
6	Versione / Mounting configuration		M (metrica / metric)	•	•	•	•	•	•	•	•	•
			SAE		•	•	•	•	•	•	•	•
7	Guarnizioni / Seals		NBR (Nitrile)									
			FKM (Viton®)									
8	Valvole flangiabili su LM2 ⁽¹⁾ Flangeable valves on LM2 ⁽¹⁾	Scambio Flushing	VSC10F		•	•	•	•	•	•	•	•
			VSC20F				•	•	•	•	•	•
		Controllo Discesa Overcentre	VCD/1		•	•	•	•	•	•	•	
			VCD/2						•	•	•	
	Valvole flangiabili su VM2 ⁽¹⁾ Flangeable valves on VM2 ⁽¹⁾	Scambio Flushing	VSC10F		•	•	•	•	•	•	•	
			VSC20F				•	•	•	•	•	
		Controllo Discesa Overcentre	VCD/M			•	•	•	•	•	•	

Esempio / Example:



Note:

⁽¹⁾ Per dimensioni e caratteristiche delle valvole vedere la sezione Valvole (pag. N/1). Se si desidera ricevere la valvola tarata il valore di taratura deve essere specificato in fase di ordine. Per valvole speciali contattare S.A.M. Hydraulik S.p.A.

Note:

⁽¹⁾ For technical data and dimensions look at Valves section (page N/1) valves setting value must be specified on order. For special valves contact S.A.M. Hydraulik S.p.A.

Fluidi:

Utilizzare fluidi a base minerale con additivi anticorrosione, antiossidanti e antiusura (HL o HM) con viscosità alla temperatura di esercizio di 15÷40 cSt. Una viscosità limite di 800 cSt è ammissibile solo per brevi periodi in condizione di partenza a freddo. Non sono ammesse viscosità inferiori ai 10 cSt. Viscosità comprese tra i 10 e i 15 cSt sono tollerate solo in casi eccezionali e per brevi periodi. Per maggiori dettagli consultare la sezione Fluidi e filtrazione (pag. A/4).

Temperature:

Non è ammesso il funzionamento dell'unità a pistoni con temperature del fluido idraulico superiori a 90°C (194°F) e inferiori a -25°C (-13°F). Per maggiori dettagli consultare la sezione Fluidi e filtrazione (pag. A/4).

Filtrazione:

Una corretta filtrazione contribuisce a prolungare la durata in esercizio dell'unità a pistoni. Per un corretto impiego dell'unità a pistoni la classe di contaminazione massima ammessa è 19/16 secondo la ISO-DIS 4406 (6 secondo SAE). Per maggiori dettagli consultare la sezione Fluidi e filtrazione (pag. A/4).

Pressione di alimentazione:

(Pompe in circuito aperto) La pressione minima sulla bocca di aspirazione e di 0.8 bar (11.6 psi) assoluti. La pressione sulla bocca di aspirazione non deve mai scendere al di sotto di tale valore.

Pressione di esercizio:

La pressione massima ammissibile sulle bocche in pressione è 350 bar (5000 psi) continui e 450 bar (6500 psi) di picco. Nel caso di due motori collegati in serie limitare la pressione di esercizio ai seguenti valori: P₁ 400 bar massimi (5800 psi) e P₂ 200 bar massimi (2900 psi).

Pressione in carcassa:

La pressione massima ammissibile in carcassa è di 1.5 bar (22 psi). Una pressione superiore può compromettere la durata e la funzionalità della garnizione dell'albero di uscita.

Guarnizioni:

Le guarnizioni utilizzate sulle unità a pistoni assiali H1C standard sono in NBR (Acrylonitrile-Butadiene Elastomer). Per impieghi particolari (alte temperature e fluidi corrosivi) è possibile ordinare l'unità a pistoni con guarnizioni in FKM (Fluoroelastomer). Nel caso di impiego di fluidi speciali contattare la S.A.M. Hydraulik S.p.A.

Albero di uscita:

L'albero di uscita è in grado di sopportare sia carichi radiali sia assiali. Per i valori ammissibili dei carichi applicabili consultare la sezione Durata dei cuscinetti delle unità a pistoni assiali (pag. A/9).

Hydraulic fluids:

Use fluids with mineral oil basis and anticorrosive, antioxidant and wear preventing addition agents (HL or HM). Viscosity range at operating temperature must be of 15÷40 cSt. For short periods and upon cold start, a max. viscosity of 800 cSt is allowed. Viscosities less than 10 cSt are not allowed. A viscosity range of 10÷15 cSt is allowed for extreme operating conditions and for short periods only. For further information see at Fluids and filtering section (page A/4).

Temperature ranges:

The operating temperature of the oil must be within -25°C÷90°C (-13°F÷194°F). The running of the axial piston unit with oil temperature higher than 90°C (194°F) or lower than -25°C (-13°F) is not allowed. For further information see at Fluids and filtering section (page A/4).

Filtering:

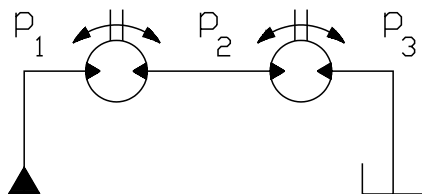
A correct filtering is essential for long and satisfactory life of axial piston units. In order to ensure a correct functioning of the unit, the max. permissible contamination class is 19/16 according to ISO-DIS 4406 (6 according to SAE). For further details see at Fluids and filtering section (page A/4).

Inlet pressure:

(Pumps in open circuit) Minimum absolute pressure at suction port is 0.8 bar (11.6 psi). In no circumstances can inlet pressure be lower.

Operating pressure:

The maximum permissible pressure on pressure ports is 350 bar (5000 psi) continuous and 450 bar (6500 psi) peak. If two motors are connected in series, working pressure has to be limited to following values: P₁ 400 bar max. (5800 psi) and P₂ 200 bar max. (2900 psi).



Case drain pressure:

Maximum permissible case drain pressure is 1.5 bar (22 psi). A higher pressure can affect the main shaft seal or reduce its life.

Seals:

Seals used on standard H1C series axial piston pumps/motors are of NBR (Acrylonitrile-Butadiene Elastomer). For special uses (high temperatures or corrosive fluids) it is possible to order the unit with FKM seals (Fluoroelastomer). In case of use of special fluids, contact S.A.M. Hydraulik S.p.A.

Output shaft:

Main shaft has bearings that can bear both radial and axial loads. As for loads permissible values, see relevant section at Service life of bearings for axial piston units section (page A/9).

Regime minimo di rotazione:

Con regime minimo di rotazione si intende la velocità minima alla quale l'unità a pistoni può ruotare in assenza di sensibili irregolarità di funzionamento. La regolarità di funzionamento a bassi regimi di rotazione è influenzata da numerosi fattori tra cui il tipo di carico applicato e la pressione di funzionamento. Per velocità di rotazione superiori ai 150 rpm la regolarità di funzionamento è assicurata quasi nella totalità dei casi. Velocità inferiori sono generalmente possibili. Per casi particolari contattare la S.A.M. Hydraulik S.p.A.

Installazione:

Le pompe e i motori possono essere installati in qualsiasi direzione e posizione. Queste unità a pistoni hanno le bocche separate dalla carcassa e devono essere obbligatoriamente drenate. Nel caso delle pompe l'installazione con albero verticale e al di sopra del serbatoio comporta alcune limitazioni. Per maggiori dettagli consultare la sezione Norme generali di installazione (pag. A/14).

Valvole flangiabili:

Le valvole sono disponibili per i motori sia in circuito aperto sia chiuso. Per il circuito chiuso sono disponibili le valvole di lavaggio VSC10F e VSC20F. Per il circuito aperto le valvole di controllo discesa VCD/1, VCD/2, VCD/3 e VCD/M. Per maggiori dettagli consultare la sezione Valvole (pag. N/1).

Relazione tra senso di rotazione e direzione di flusso:

La relazione tra il senso di rotazione dell'albero dell'unità a pistoni H1C e la direzione del flusso del fluido è illustrata in figura.

Nota: nel caso di impiego come pompa è la posizione di montaggio del coperchio a determinare il senso di rotazione. Normalmente l'inversione del senso di rotazione di una pompa H1C comporta lo smontaggio del coperchio ed il suo rimontaggio ruotato di 180°.

Minimum rotating speed:

Minimum rotating speed" is the minimum speed ensuring a smooth running of the piston unit. Operation smooth at low speeds depends on many factors, as type of load and operating pressure. At a speed higher than 150 rpm, a smooth running is ensured almost in every case. Lower speeds are, usually, possible. Please contact S.A.M. Hydraulik S.p.A.

Installation:

H1C series pumps and motors can be installed in every position or direction. These axial piston units have separate ports and drain chambers and so must be always drained. As for pumps, installation of the unit with shaft in vertical position and above the tank involves some limitations. For further details see at General installation guidelines (page A/14).

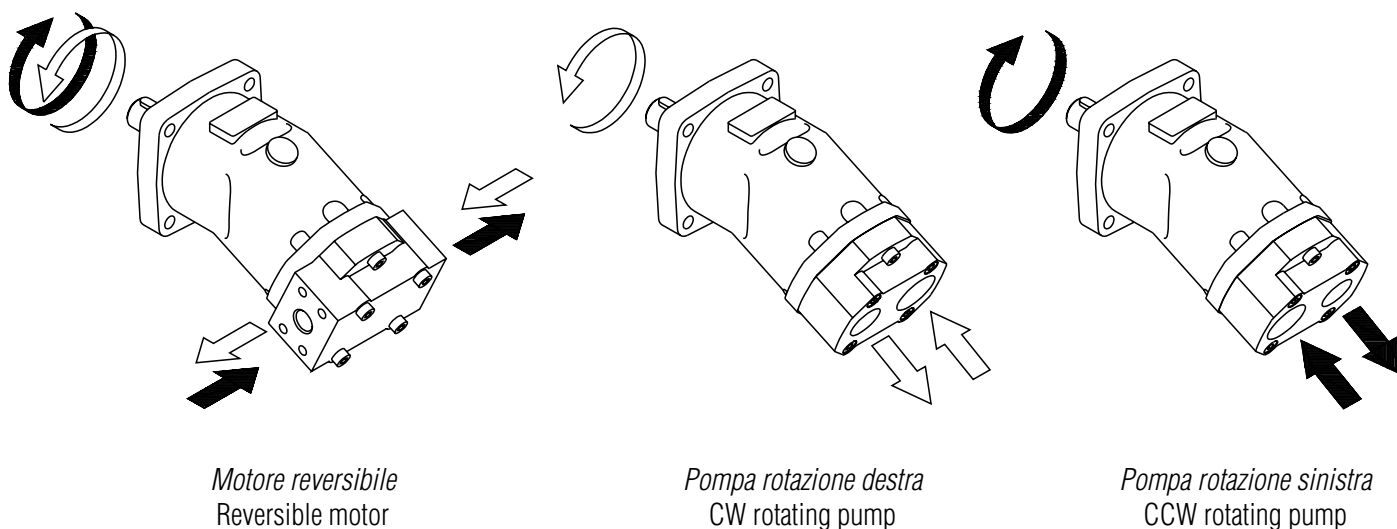
Flangeable valves:

Flangeable valves are available for motors both in open and closed loop. VSC10F and VSC20F flushing valves are for closed loop, VCD/1, VCD/2, VCD/3 and VCD/M overcentre valves are for open loop. For further details see at Valves section (page N/1).

Relation between direction of rotation and direction of flow:

The relation between direction of rotation of shaft and direction of flow in H1C piston units is shown in the picture below.

Note: for pump operation, the direction of rotation is determined by the the port plate mounting position. Usually, in order to change direction of rotation of a pump, port plate has to be removed, turned of 180° and reassembled.



DATI TECNICI TECHNICAL DATA

Dimensione / Size				12	20	30	40	55
<i>Cilindrata / Displacement</i>		V_g	cm ³ /rev (in ³ /rev)	10.9 (0.66)	19.6 (1.20)	30.0 (1.83)	40.1 (2.45)	54.8 (3.34)
<i>Pressione max. / Max. pressure</i>	cont.	p_{nom}	bar (psi)	350 (5100)				
	<i>picco peak</i>	p_{max}	bar (psi)	450 (6500)				
<i>* Velocità max. / Max. speed</i>	<i>motore/motor</i>	$n_{0 max}$	rpm	5590	5590	4500	4950	3900
	<i>pompa⁽¹⁾ pump⁽¹⁾</i>	$n_{1 max}$	rpm	4300	4300	3000	3300	2600
<i>Portata max. / Max. flow</i>	<i>motore/motor</i>	q_{max}	l/min (U.S. gpm)	61 (16.1)	109 (28.7)	135 (35.6)	198 (52.2)	214 (56.4)
	<i>pompa⁽²⁾ pump⁽²⁾</i>	$q_{1 max}$	l/min (U.S. gpm)	47 (12.4)	84 (22.2)	90 (23.7)	132 (34.8)	143 (37.7)
<i>Potenza max. a p_{nom} / Max. power at p_{nom}</i>	<i>motore/motor</i>	P_{max}	kW (hp)	35.5 (47.5)	64 (85.5)	79 (106)	115.5 (154.5)	125 (167.5)
	<i>pompa⁽²⁾ pump⁽²⁾</i>	$P_{1 max}$	kW (hp)	27 (36)	49 (65)	53 (71)	77 (103)	83 (111)
<i>Costante di coppia / Torque constant</i>		T_k	Nm/bar (lbf-ft/psi)	0.17 (0.0087)	0.31 (0.016)	0.48 (0.024)	0.64 (0.032)	0.87 (0.044)
<i>Coppia max. / Max. torque</i>	cont. (p_{nom})	T_{nom}	Nm (lbf-ft)	60.5 (44.5)	109 (80)	167 (123)	223 (164)	306 (225)
	<i>picco/peak</i> (p_{max})	T_{max}	Nm (lbf-ft)	76 (56)	139 (102)	216 (159)	288 (212)	391 (288)
<i>Momento di inerzia ⁽³⁾ / Moment of inertia ⁽³⁾</i>		J	kg·m ² (lbf-ft ²)	0.0007 (0.016)	0.0002 (0.047)	0.0002 (0.047)	0.004 (0.094)	0.004 (0.094)
<i>Peso ⁽³⁾ / Weight ⁽³⁾</i>		m	kg (lbs)	5.5 (12.1)	13 (28.7)	13 (28.7)	22 (48.5)	22 (48.5)
<i>Portata di drenaggio ⁽⁴⁾ / External drain flow ⁽⁴⁾</i>		q_d	l/min (U.S. gpm)	0.4 (0.10)	0.4 (0.10)	0.6 (0.16)	0.7 (0.18)	0.8 (0.21)

(Valori teorici, senza considerare η_{hm} e η_v ; valori arrotondati). Le condizioni di picco non devono durare più dell'1% di ogni minuto. Evitare il funzionamento contemporaneo alla massima velocità e alla massima pressione.

* I valori relativi alle pompe si riferiscono all'impiego in circuito aperto.

(Theoretical values, without considering η_{hm} e η_v ; approximate values). Peak operations must not exceed 1% of every minute. A simultaneous maximum pressure and maximum speed not recommended.

* Pump values refer to open circuit operation.

Dimensione / Size				75	90	108	160	226
Cilindrata / Displacement		V _g	cm ³ /rev (in ³ /rev)	75.3 (4.60)	87.0 (5.30)	107.5 (6.56)	160.8 (9.81)	225.1 (13.73)
Pressione max. / Max. pressure	cont.	p _{nom}	bar (psi)	350 (5100)				
	picco peak	p _{max}	bar (psi)	450 (6500)				
* Velocità max. / Max. speed	motore/motor	n _{0 max}	rpm	3450	3750	3000	2700	2400
	pompa ⁽¹⁾ pump ⁽¹⁾	n _{1 max}	rpm	2300	2500	2000	1800	1600
Portata max. / Max. flow	motore/motor	Q _{max}	l/min (U.S. gpm)	259 (68.3)	325 (85.7)	322 (85)	434 (114.5)	540 (142.5)
	pompa ⁽²⁾ pump ⁽²⁾	Q _{1 max}	l/min (U.S. gpm)	173 (45.6)	217 (57.3)	215 (56.7)	289 (76.3)	360 (95)
Potenza max. a p _{nom} / Max. power at p _{nom}	motore/motor	P _{max}	kW (hp)	151 (202.5)	190.5 (255.5)	188 (252)	253 (339)	315 (422)
	pompa ⁽²⁾ pump ⁽²⁾	P _{1 max}	kW (hp)	101 (135)	127 (170)	125 (167)	169 (226)	210 (281)
Costante di coppia / Torque constant		T _k	Nm/bar (lbf.ft/psi)	1.20 (0.0061)	1.38 (0.070)	1.71 (0.087)	2.56 (0.130)	3.58 (0.182)
Coppia max. / Max. torque	cont. (p _{nom})	T _{nom}	Nm (lbf.ft)	420 (310)	485 (357)	599 (442)	896 (661)	1254 (925)
	picco/peak (p _{max})	T _{max}	Nm (lbf.ft)	540 (398)	623 (460)	770 (568)	1152 (849)	1613 (1189)
Momento di inerzia ⁽³⁾ / Moment of inertia ⁽³⁾		J	kg·m ² (lbf.ft ²)	0.0008 (0.190)	0.0013 (0.308)	0.0013 (0.308)	0.025 (0.593)	0.040 (0.949)
Peso ⁽³⁾ / Weight ⁽³⁾		m	kg (lbs)	30 (66.1)	45 (99.2)	45 (99.2)	61 (134.5)	86 (189.6)
Portata di drenaggio ⁽⁴⁾ / External drain flow ⁽⁴⁾		q _d	l/min (U.S. gpm)	0.9 (0.23)	1.0 (0.26)	1.2 (0.31)	1.8 (0.47)	2.5 (0.66)

(Valori teorici, senza considerare η_{hm} e η_v ; valori arrotondati). Le condizioni di picco non devono durare più dell'1% di ogni minuto. Evitare il funzionamento contemporaneo alla massima velocità e alla massima pressione.

* I valori relativi alle pompe si riferiscono all'impiego in circuito aperto.

Note: Determinazione della velocità ammissibile

⁽¹⁾ La velocità di rotazione della pompa può essere aumentata aumentando la pressione sulla bocca di aspirazione. La velocità di rotazione massima della pompa non deve superare in ogni caso il valore $n_{0 max}$ indicato in tabella. Per la determinazione della velocità massima di rotazione ammissibile in funzione della pressione sulla bocca di aspirazione utilizzare il diagramma a lato. ⁽²⁾ Valori validi per un regime di rotazione pari ad $n_{1 max}$. ⁽³⁾ Valori indicativi. ⁽⁴⁾ Valori medi a 250 bar (3500 psi) con olio minerale a 45°C (113°F) e viscosità 35 cSt.

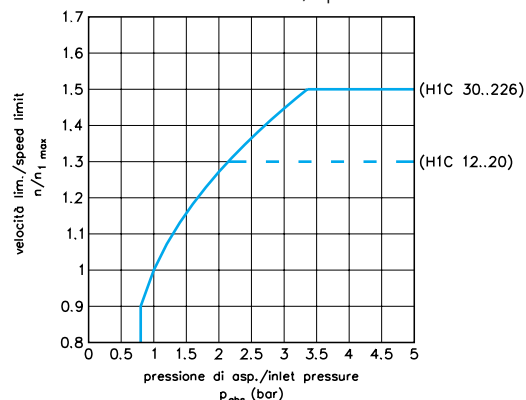
Notes: Calculation of permissible speed

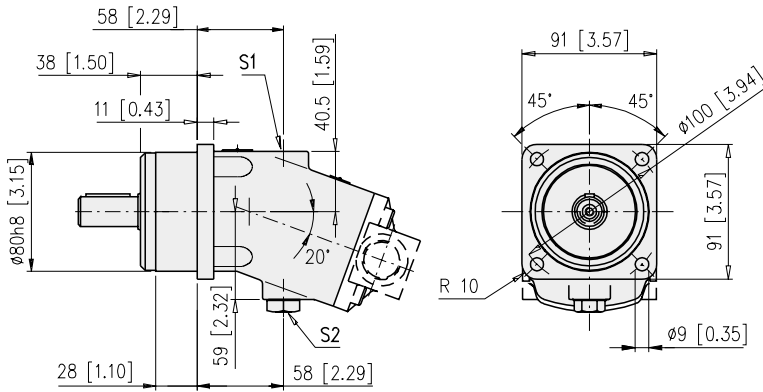
⁽¹⁾ The pump rotation speed may be increased by increasing the suction pressure. The max. pump speed must be always less than value $n_{0 max}$ shown in table. To calculate the max. permissible speed related to the pump suction pressure see the diagram at side. ⁽²⁾ The values are valid for a rotating speed of $n_{1 max}$. ⁽³⁾ Approximate values. ⁽⁴⁾ Average values at 250 bar (3600 psi) with mineral oil at 45°C (113°F) and 35 cSt of viscosity.

(Theoretical values, without considering η_{hm} e η_v ; approximate values). Peak operations must not exceed 1% of every minute. A simultaneous maximum pressure and maximum speed not recommended.

* Pump values refer to open circuit operation.

Determinazione della velocità limite / Speed limits calculation





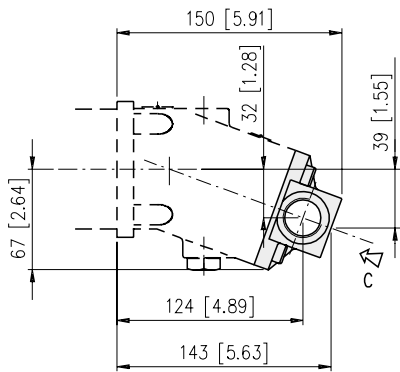
Connessioni / Connections

S1, S2: Drenaggi (1 tappato) G 3/8" / Drain ports (1 plugged) G 3/8"

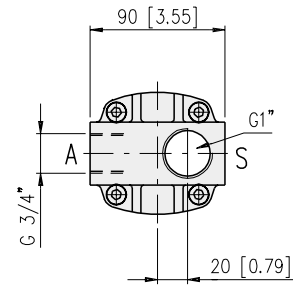
A B: Utenze / Service line ports

S: Aspirazione / Suction port

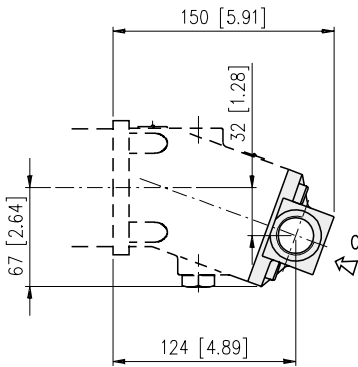
FP1 **Per funzionamento come pompa (circuito aperto)**
For pump operation (open circuit)



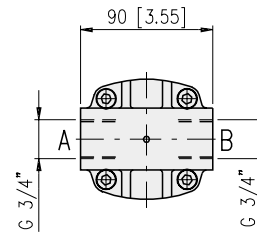
Vista da C/Detail C



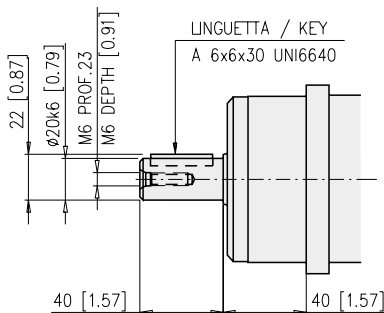
LM1 **Per funzionamento come motore**
For motor operation



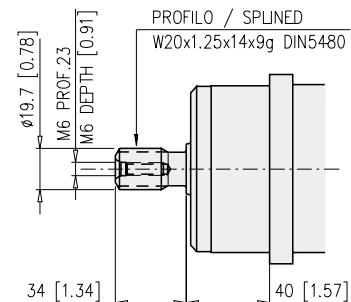
Vista da C/Detail C

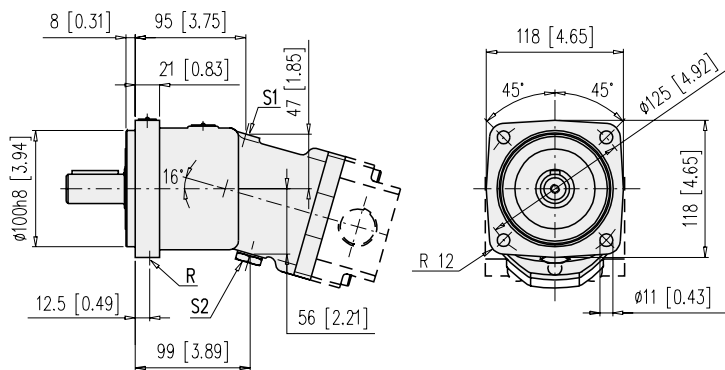


C **Albero cilindrico**
Cylindrical keyed shaft



S **Albero scanalato**
Splined shaft

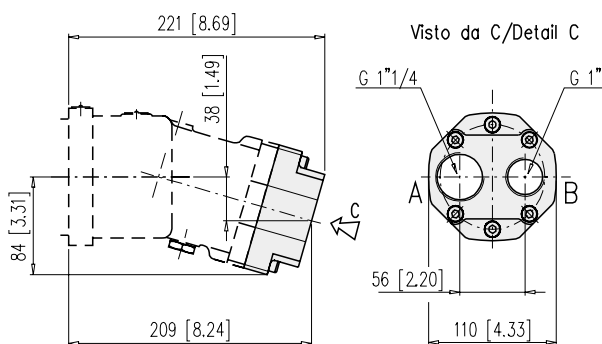




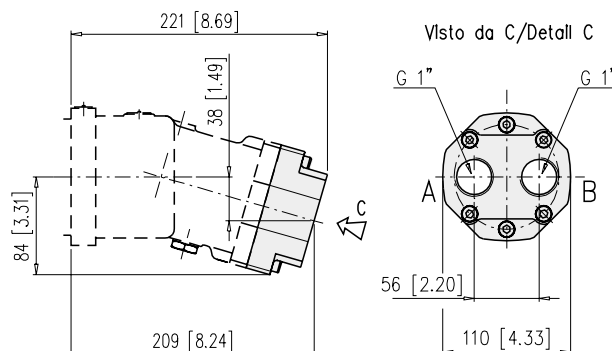
Connessioni / Connections

- S1, S2: Drenaggi (1 tappato) G 3/8" / Drain ports (1 plugged) G 3/8"**
- A, B: Utenze / Service line ports**
- S: Aspirazione / Suction port**
- R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"**

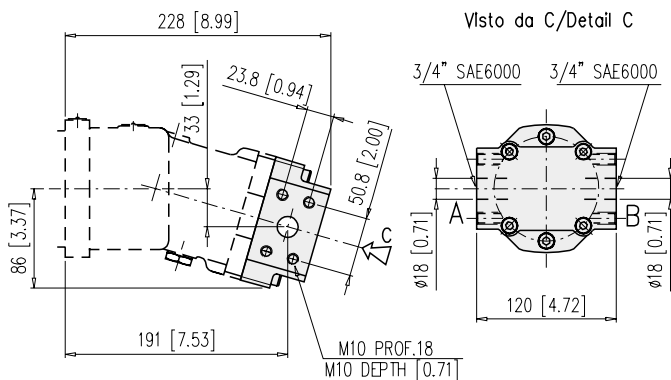
FP1 Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)



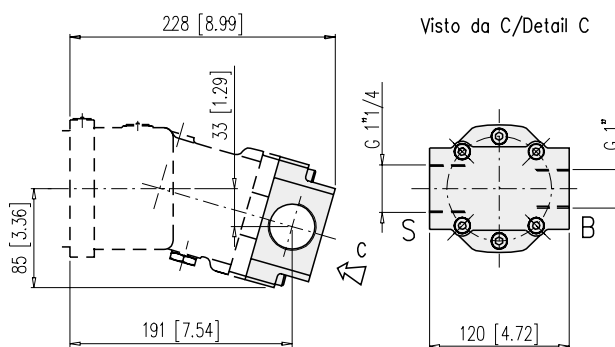
FM1 Per funzionamento come motore
For motor operation



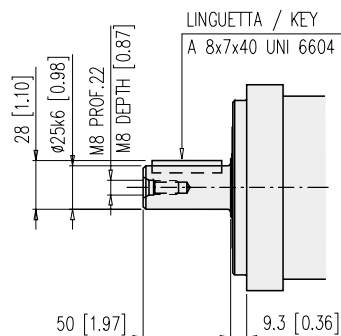
LM2 Per funzionamento come motore
For motor operation



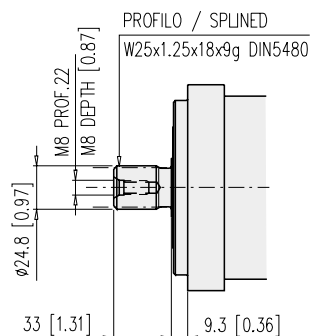
LP1 Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)



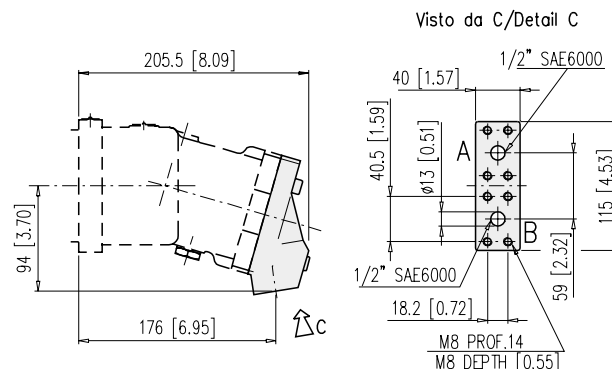
C Albero cilindrico
Cylindrical keyed shaft

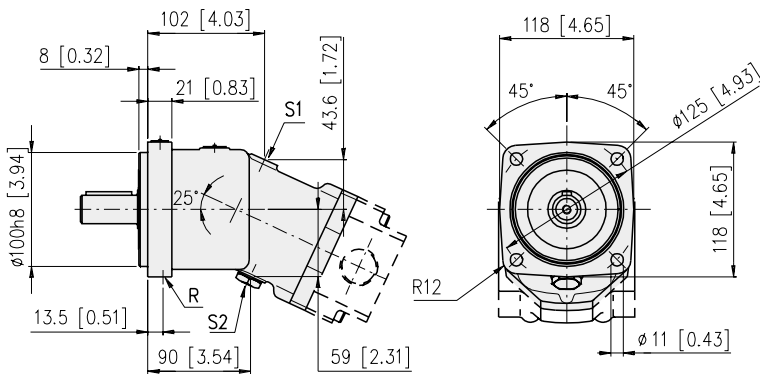


S Albero scanalato
Splined shaft



VM2 Per funzionamento come motore
For motor operation





Connessioni / Connections

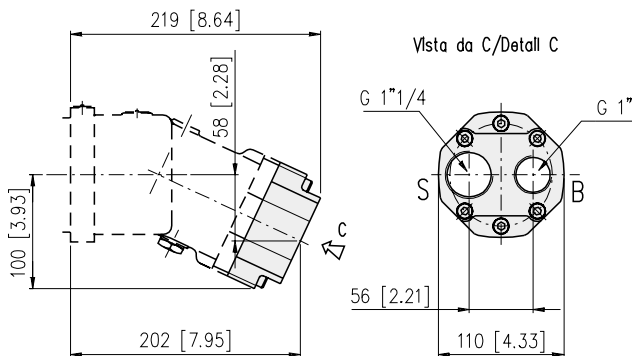
S1, S2: Drenaggi (1 tappato) G 3/8" / Drain ports (1 plugged) G 3/8"

A, B: Utenze / Service line ports

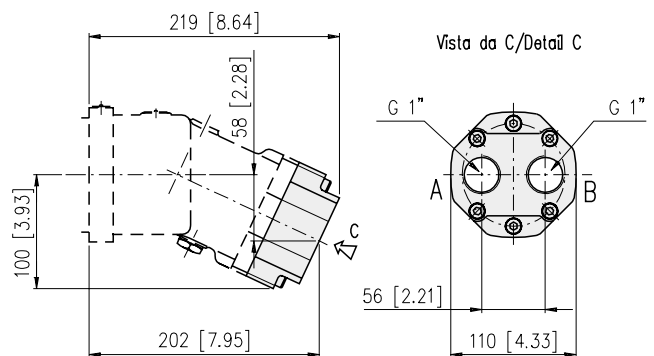
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

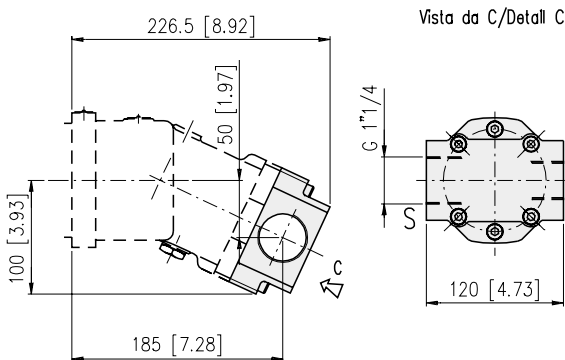
FP1 Per funzionamento come pompa (circuito aperto)
 For pump operation (open circuit)



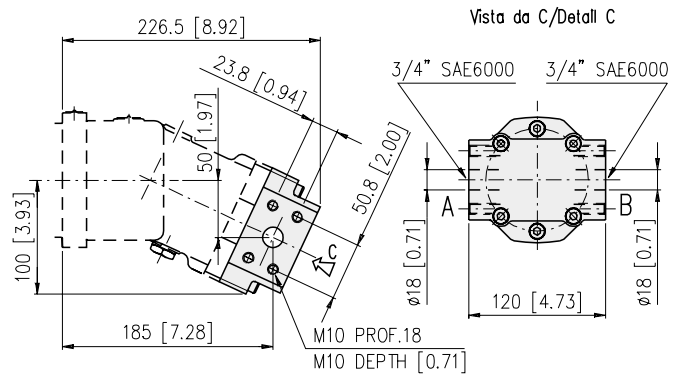
FM1 Per funzionamento come motore
 For motor operation



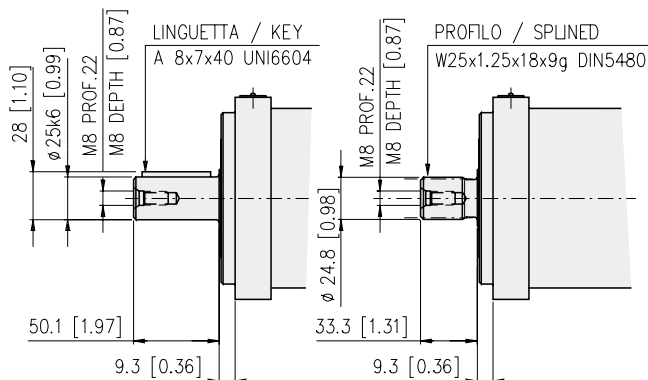
LP1 Per funzionamento come pompa (circuito aperto)
 For pump operation (open circuit)



LM2 Per funzionamento come motore
 For motor operation

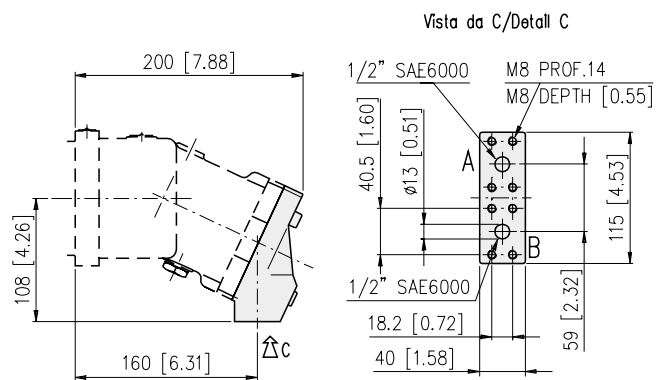


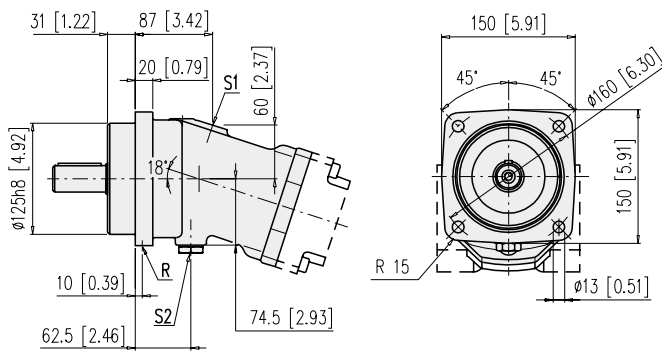
C Albero cilindrico
 Cylindrical keyed shaft



S Albero scanalato
 Splined shaft

VM2 Per funzionamento come motore
 For motor operation





Connessioni / Connections

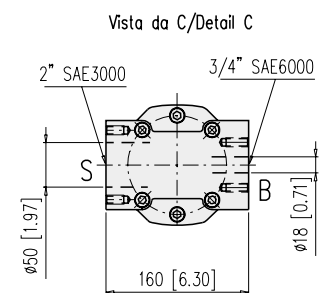
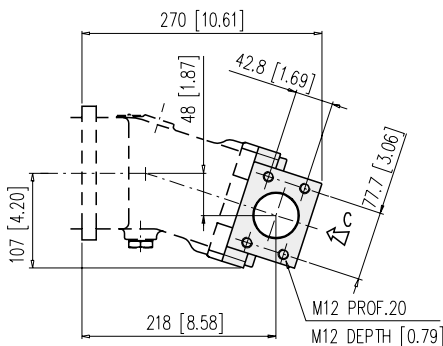
S1, S2: Drenaggi (1 tappato) G 1/2" / Drain ports (1 plugged) G 1/2"

A, B: Utenze / Service line ports

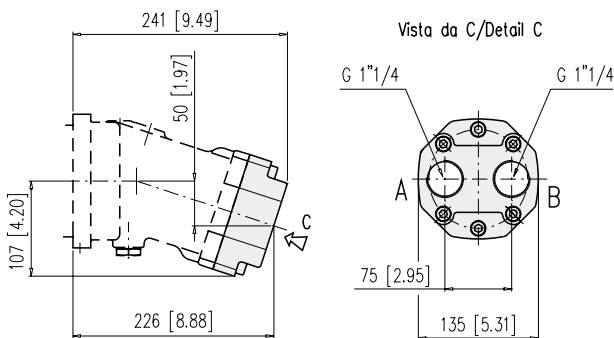
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

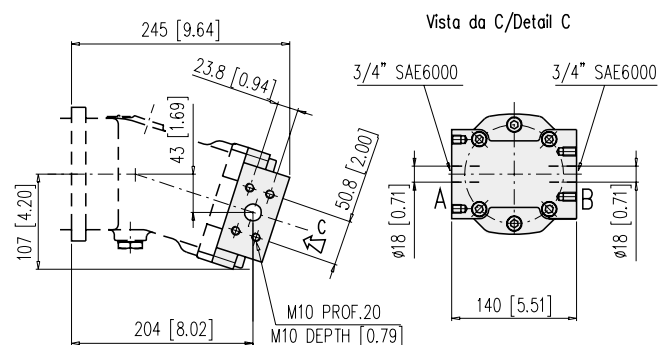
LP2 *Per funzionamento come pompa (circuito aperto)*
For pump operation (open circuit)



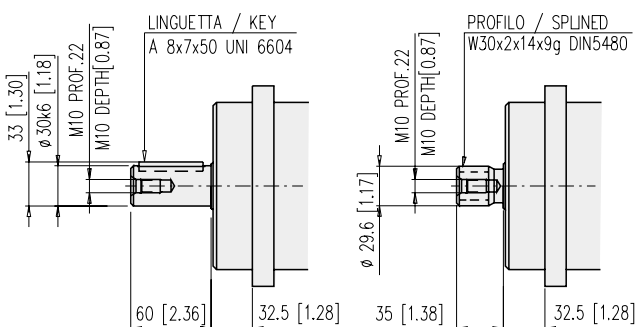
FM1 - FP1 *Per funzionamento come pompa circuito aperto/motore*
For pump operation (open circuit) / motor



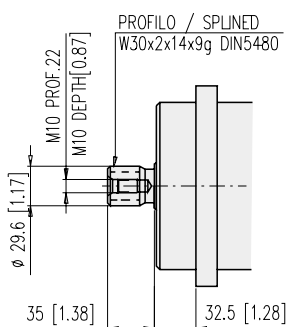
LM2 *Per funzionamento come motore*
For motor operation



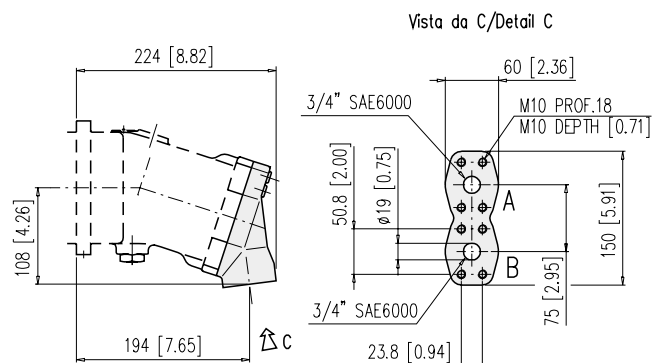
C *Albero cilindrico*
Cylindrical keyed shaft

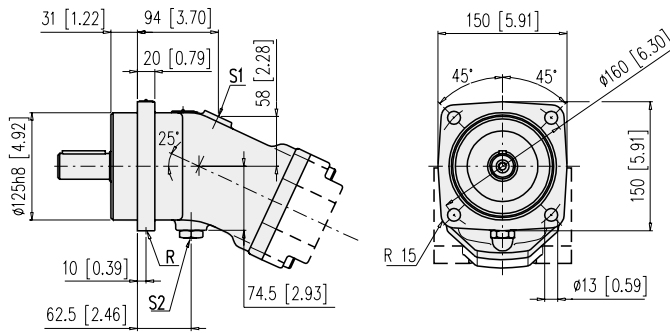


S *Albero scanalato*
Splined shaft



VM2 *Per funzionamento come motore*
For motor operation





Connessioni / Connections

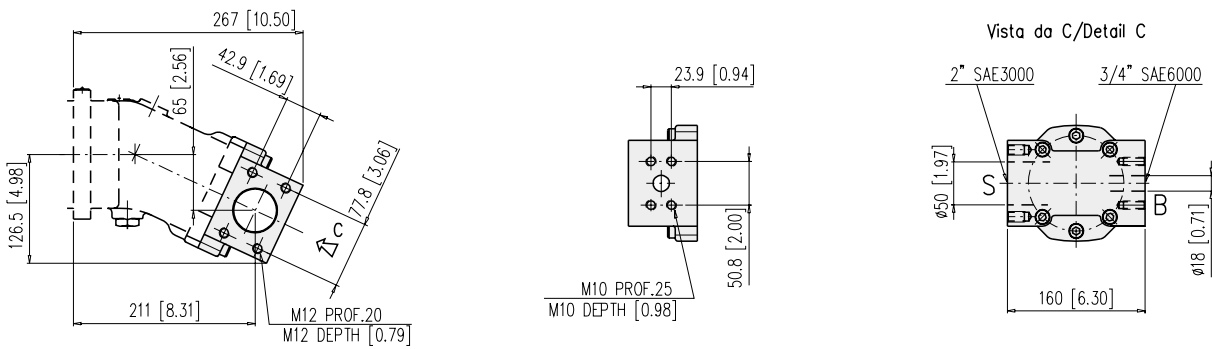
S1, S2: Drenaggi (1 tappato) G 1/2" / Drain ports (1 plugged) G 1/2"

A, B: Utenze / Service line ports

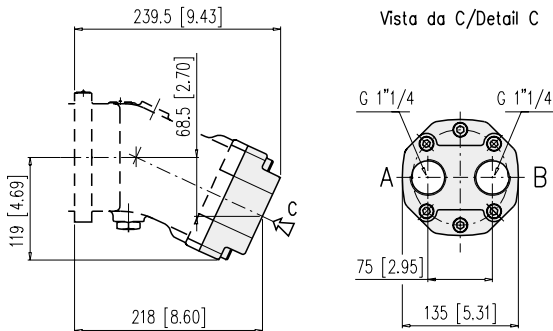
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

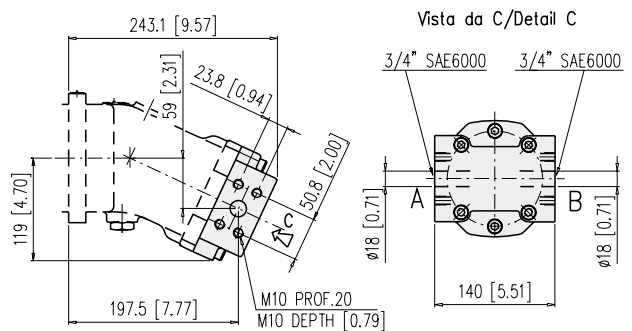
LP2 Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)



FM1 - FP1 Per funzionamento come pompa circuito aperto/motore
For pump operation (open circuit) / motor

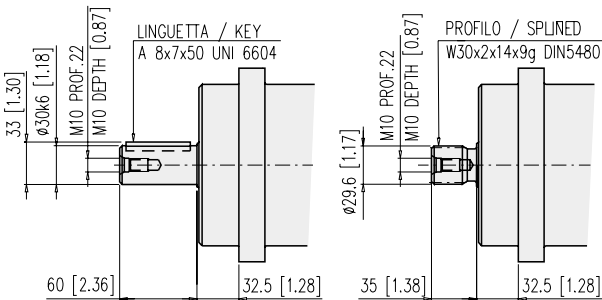


LM2 Per funzionamento come motore
For motor operation

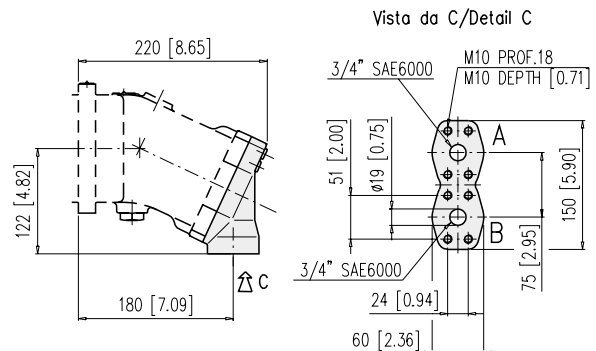


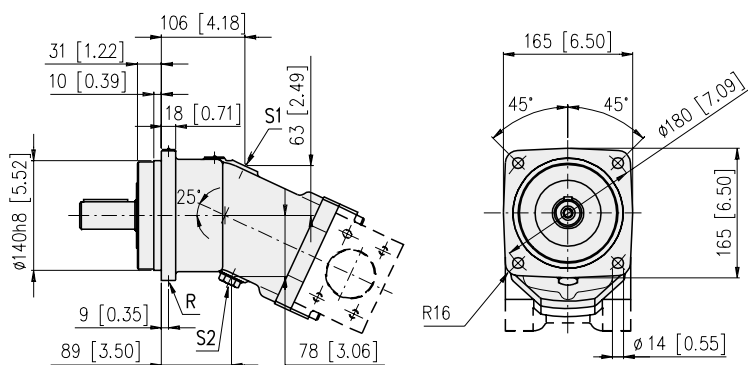
C Albero cilindrico
Cylindrical keyed shaft

S Albero scanalato
Splined shaft



VM2 Per funzionamento come motore
For motor operation





Connessioni / Connections

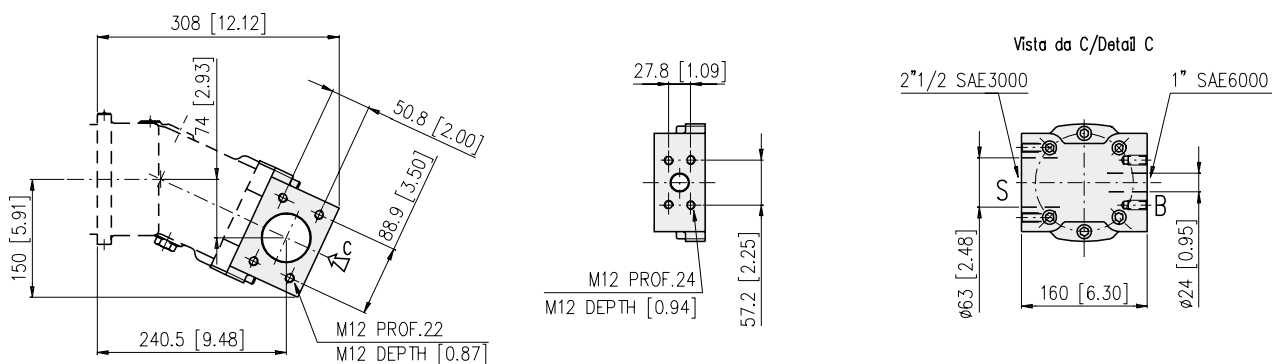
S1, S2: Drenaggi (1 tappato) G 1/2" / Drain ports (1 plugged) G 1/2"

A, B: Utenze / Service line ports

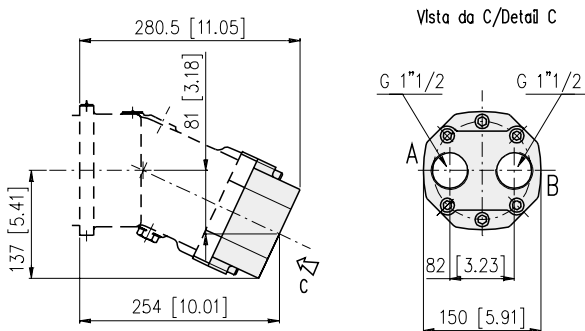
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

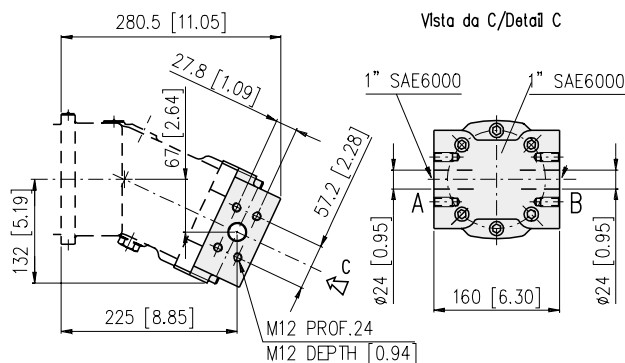
LP2 Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)



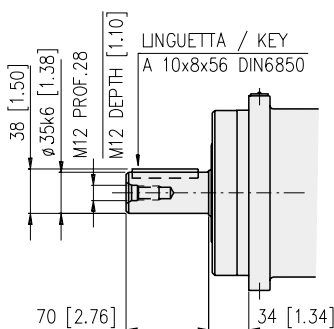
FM1-FP1 Per funzionamento come pompa circuito aperto/motore
For pump operation (open circuit) / motor



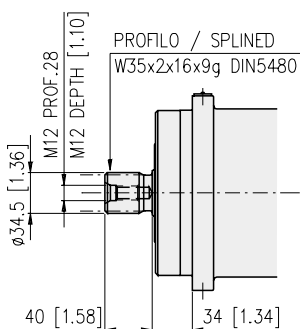
LM2 Per funzionamento come motore
For motor operation



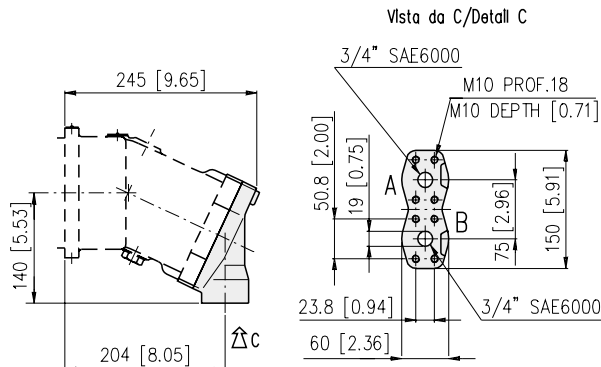
C Albero cilindrico
Cylindrical keyed shaft



S Albero scanalato
Splined shaft

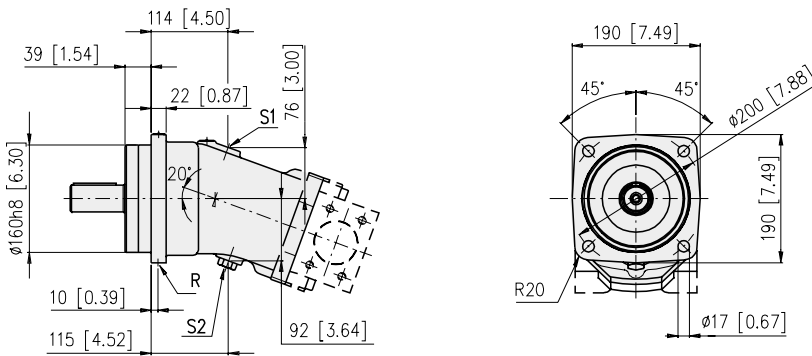


VM2 Per funzionamento come motore
For motor operation



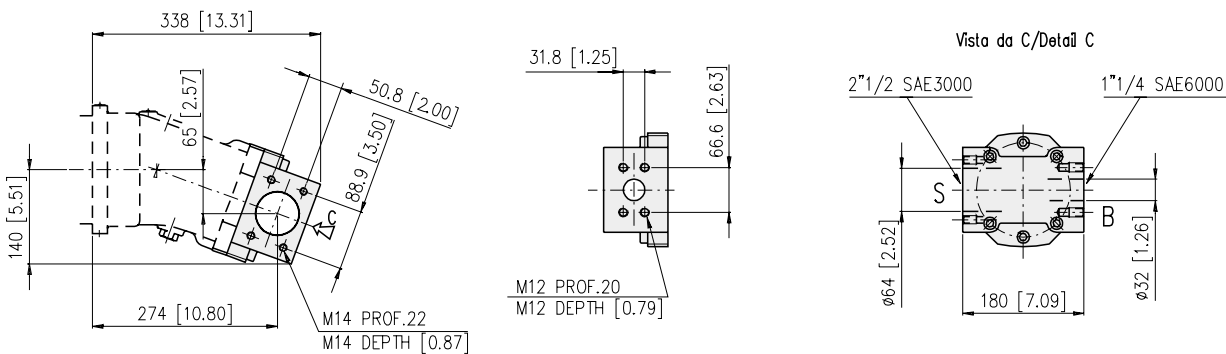
DIMENSIONI FLANGIA ISO 4 FORI DIMENSIONS ISO 4 BOLTS FLANGE

H1C 90 M

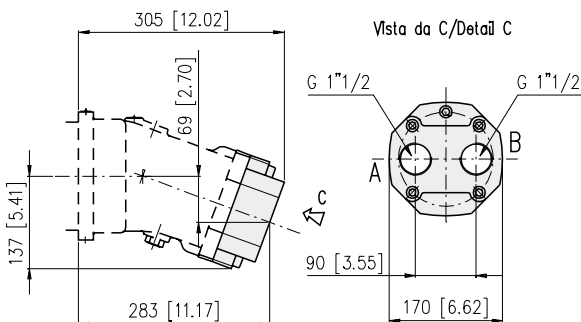


Connessioni / Connections
S1, S2: Drenaggi (1 tappato) G 1/2" / Drain ports (1 plugged) G 1/2"
A, B: Utenze / Service line ports
S: Aspirazione / Suction port
R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

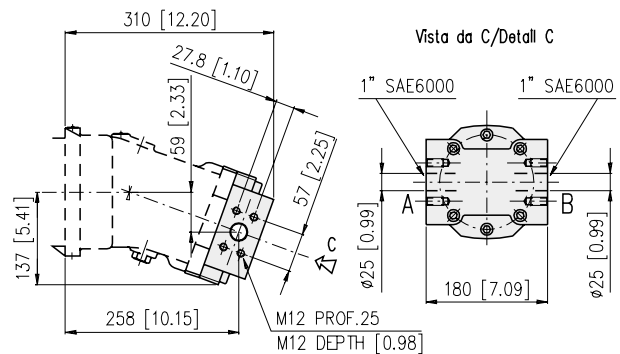
LP2 Per funzionamento come pompa (circuito aperto) For pump operation (open circuit)



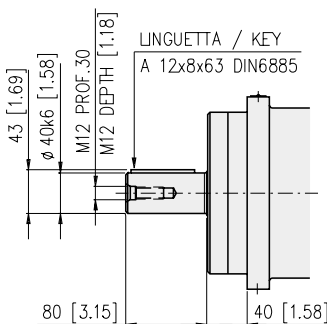
FM1-FP1 Per funzionamento come pompa circuito aperto/motore For pump operation (open circuit) / motor



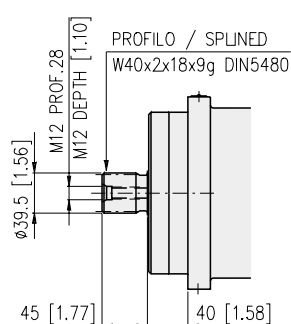
LM2 Per funzionamento come motore For motor operation



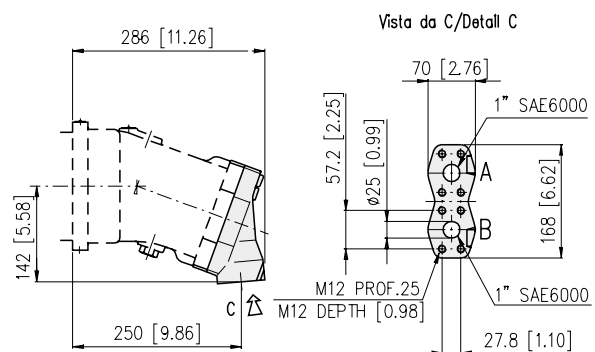
C Albero cilindrico Cylindrical keyed shaft



S Albero scanalato Splined shaft

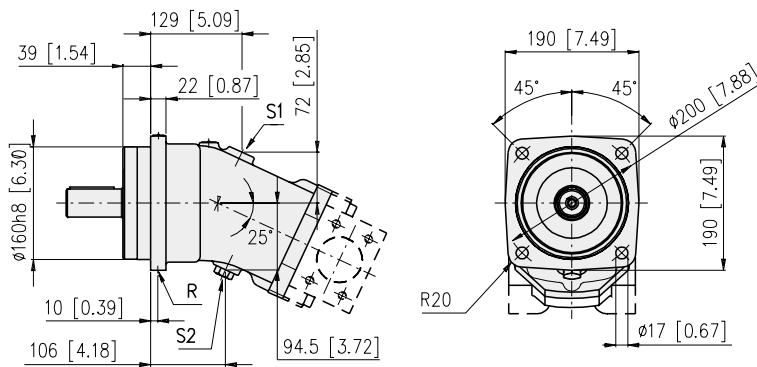


VM2 Per funzionamento come motore For motor operation



DIMENSIONI FLANGIA ISO 4 FORI DIMENSIONS ISO 4 BOLTS FLANGE

H1C 108 M



Connessioni / Connections

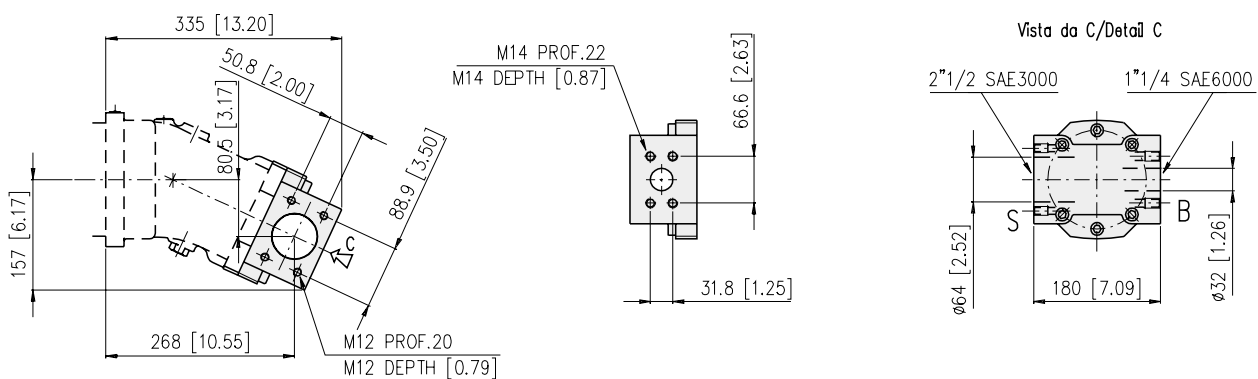
S1, S2: Drenaggi (1 tappato) G 1/2" / Drain ports (1 plugged) G 1/2"

A, B: Utenze / Service line ports

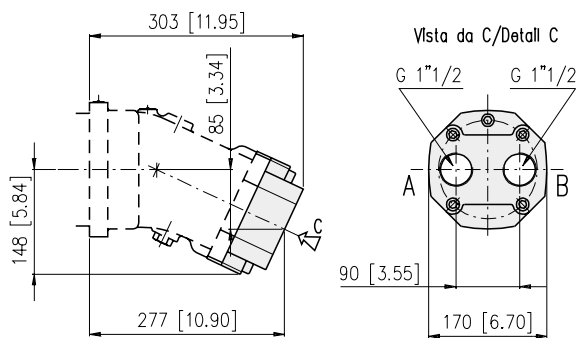
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

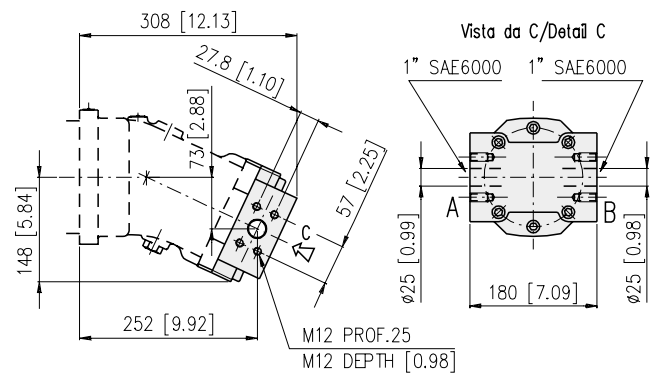
LP2 Per funzionamento come pompa (circuito aperto) For pump operation (open circuit)



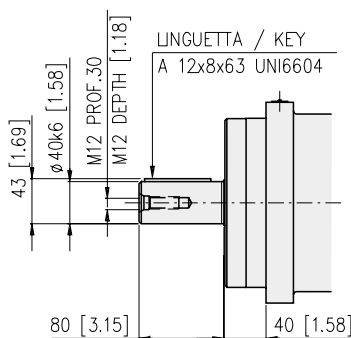
FM1-FP1 Per funzionamento come pompa circuito aperto/motore For pump operation (open circuit) / motor



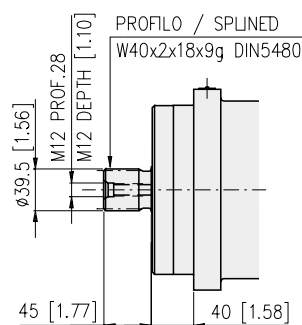
LM2 Per funzionamento come motore For motor operation



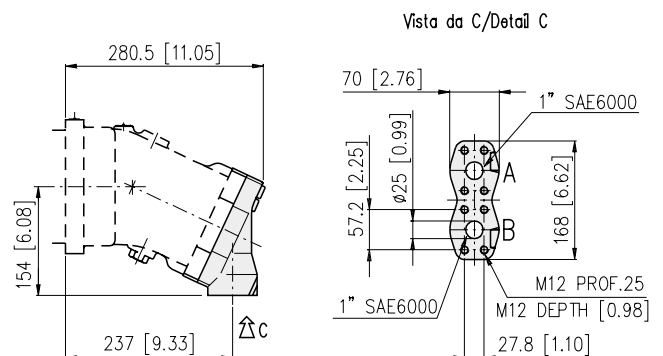
C Albero cilindrico Cylindrical keyed shaft

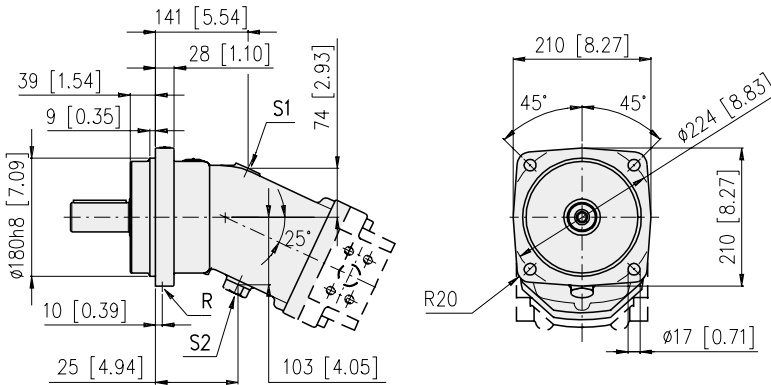


S Albero scanalato Splined shaft



VM2 Per funzionamento come motore For motor operation





Connessioni / Connections

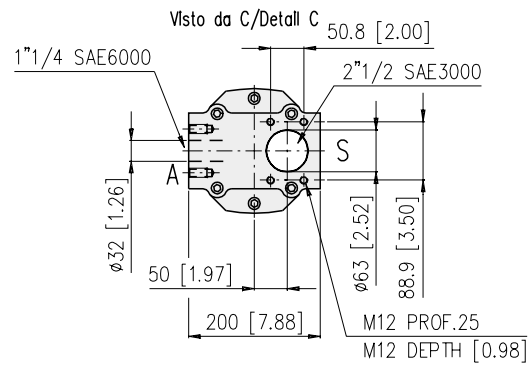
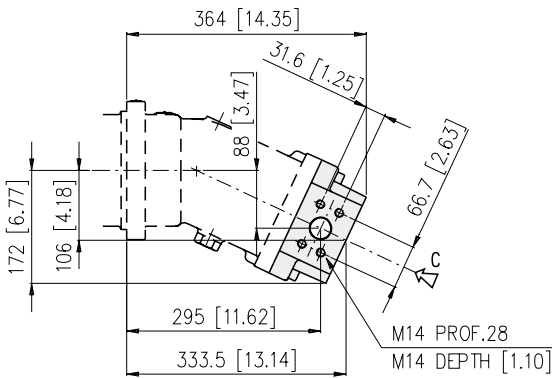
S1, S2: Drenaggi (1 tappato) G 3/4" / Drain ports (1 plugged) G 3/4"

A, B: Utenze / Service line ports

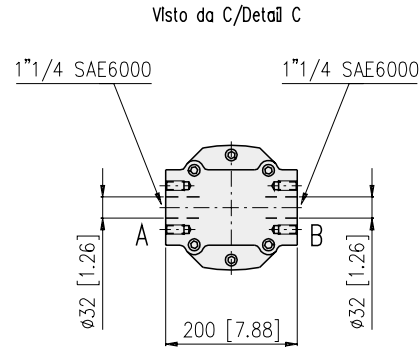
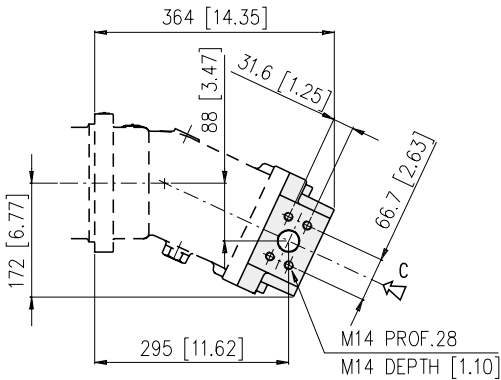
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

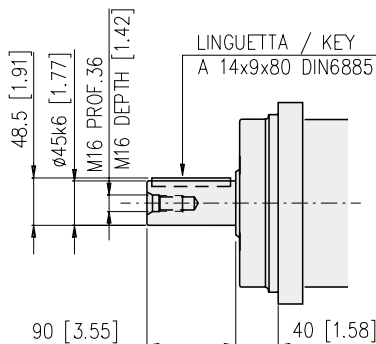
FP2 **Per funzionamento come pompa (circuito aperto)**
For pump operation (open circuit)



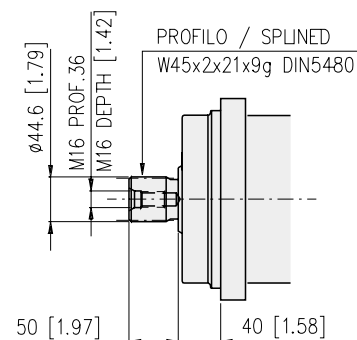
LM2 **Per funzionamento come motore**
For motor operation

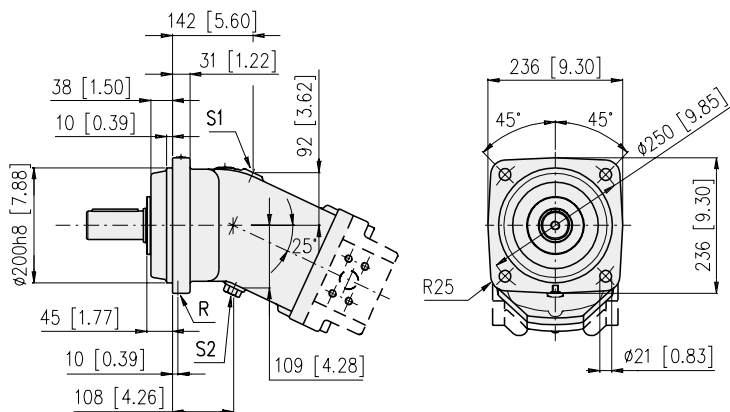


C **Albero cilindrico**
Cylindrical keyed shaft



S **Albero scanalato**
Splined shaft





Connessioni / Connections

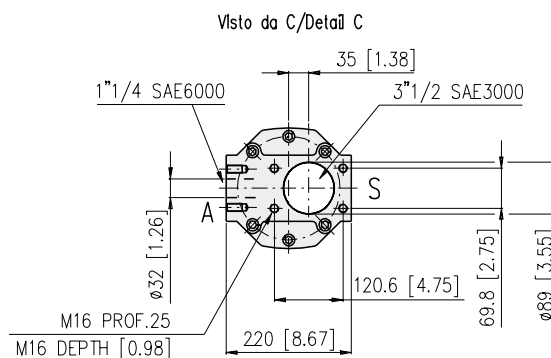
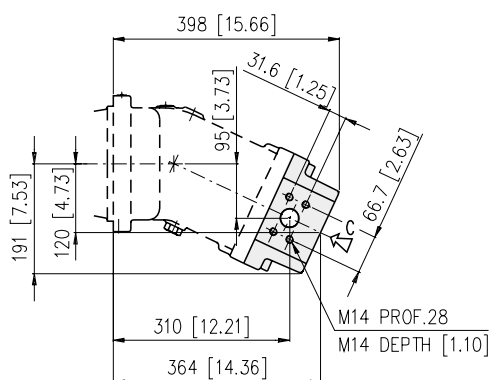
S1, S2: Drenaggi (1 tappato) G 3/4" / Drain ports (1 plugged) G 3/4"

A, B: UtENZE / Service line ports

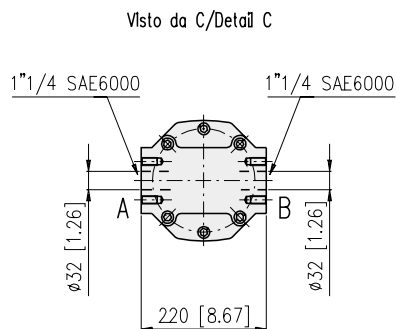
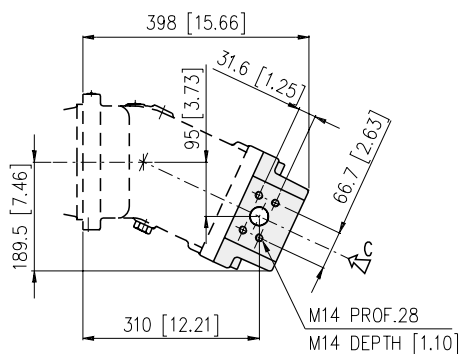
S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

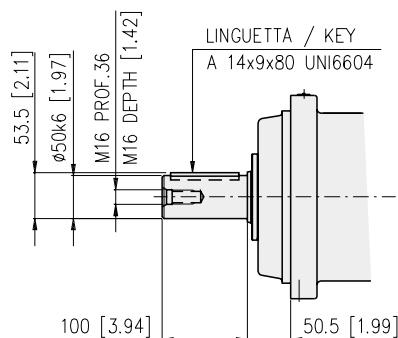
FP2 **Per funzionamento come pompa (circuito aperto)**
For pump operation (open circuit)



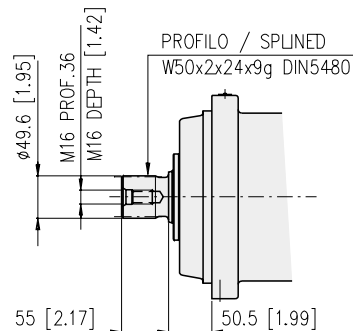
LM2 **Per funzionamento come motore**
For motor operation



C **Albero cilindrico**
Cylindrical keyed shaft

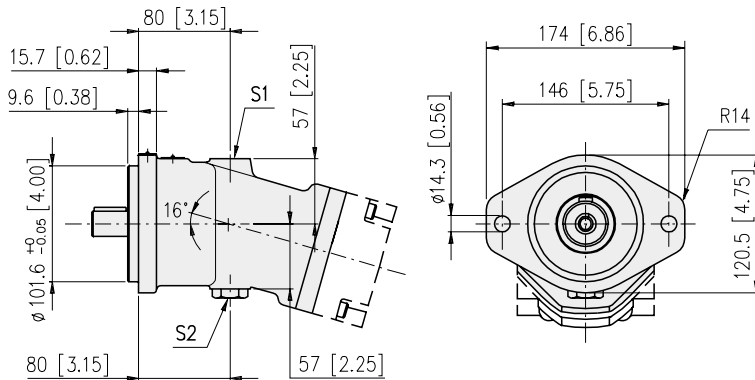


S **Albero scanalato**
Splined shaft



DIMENSIONI FLANGIA SAE B 2 FORI DIMENSIONS SAE B 2 BOLTS FLANGE

H1C 20 SAE



Connessioni / Connections

S1, S2: Drenaggi (1 tappato) G 7/8"-14 UNF 2B

Drain ports (1 plugged) G 7/8"-14 UNF 2B

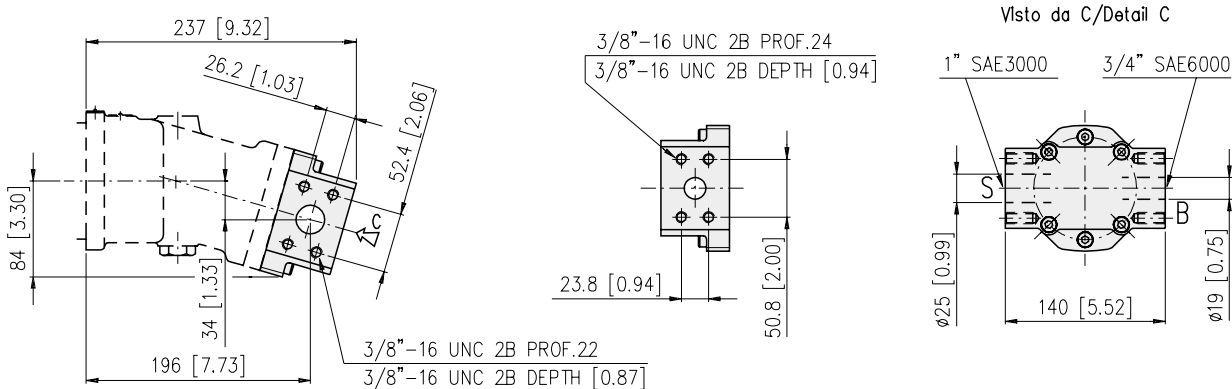
A, B: Utenze / Service line ports

S: Aspirazione / Suction port

R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

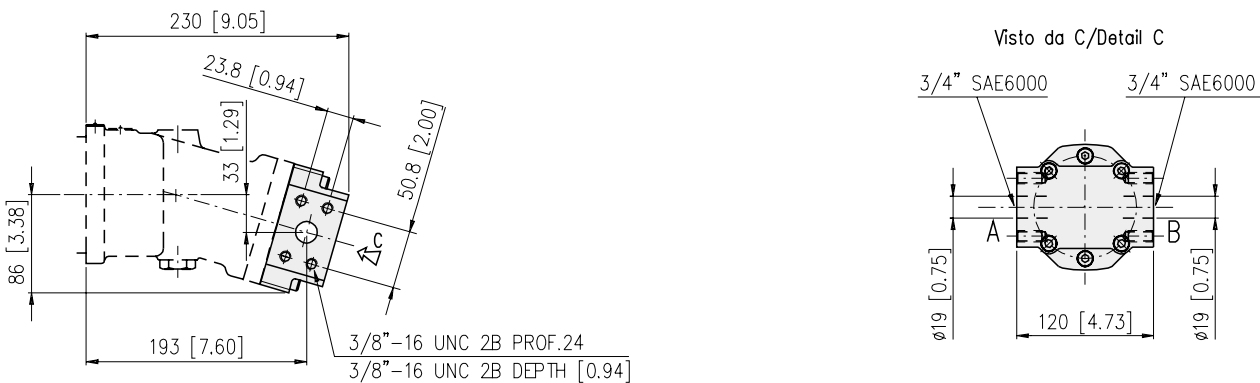
LP2

**Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)**



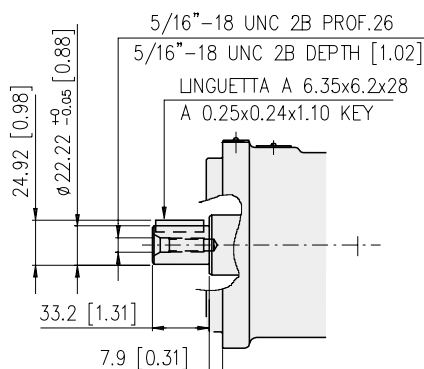
LM2

**Per funzionamento come motore
For motor operation**



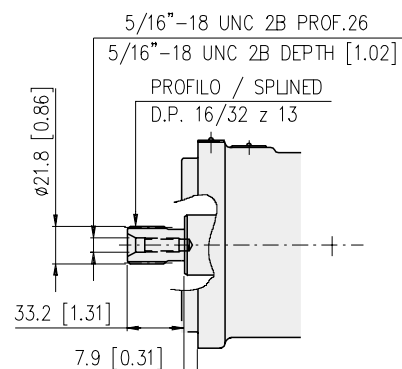
C

**Albero cilindrico
Cylindrical keyed shaft**



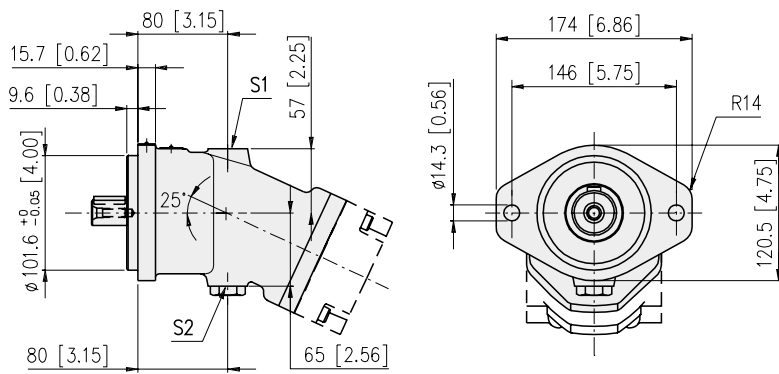
S

**Albero scanalato
Splined shaft**



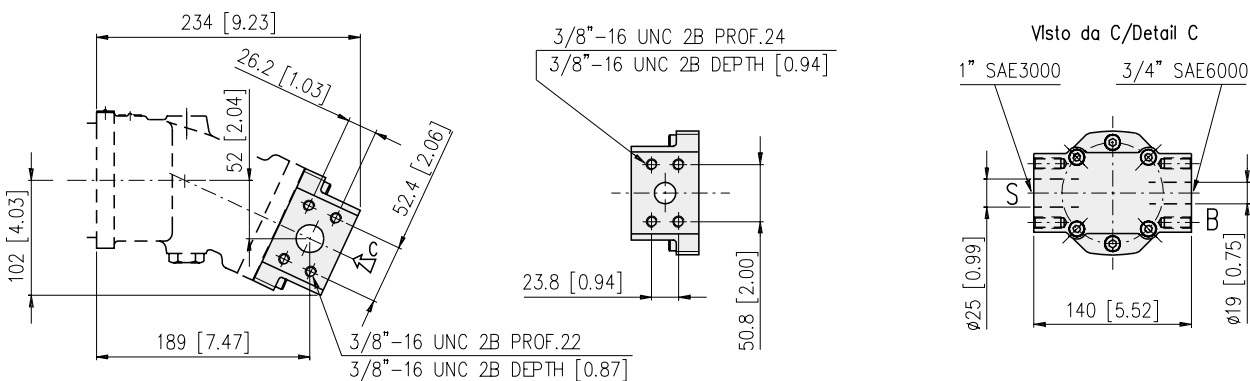
DIMENSIONI FLANGIA SAE B 2 FORI DIMENSIONS SAE B 2 BOLTS FLANGE

H1C 30 SAE

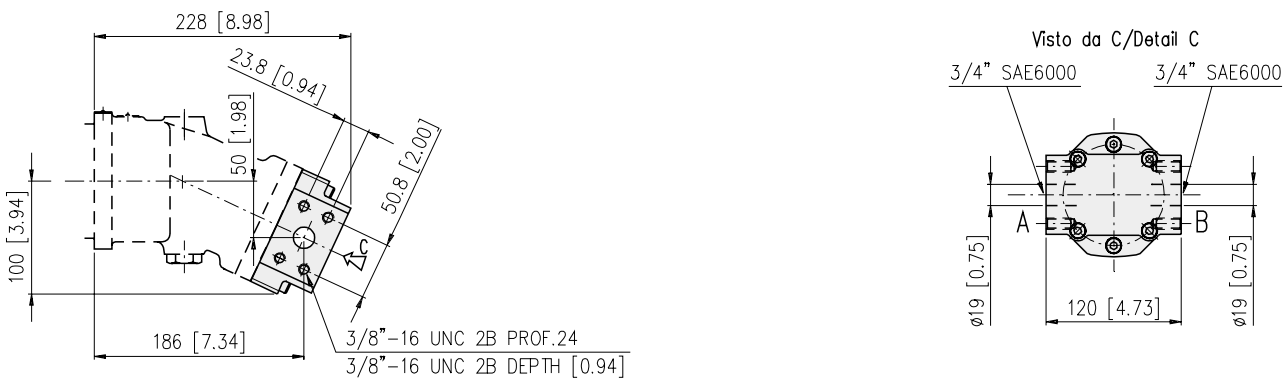


Connessioni / Connections
S1, S2: Drenaggi (1 tappato) 7/8"-14 UNF 2B
 Drain ports (1 plugged) 7/8"-14 UNF 2B
A, B: Utenze / Service line ports
S: Aspirazione / Suction port

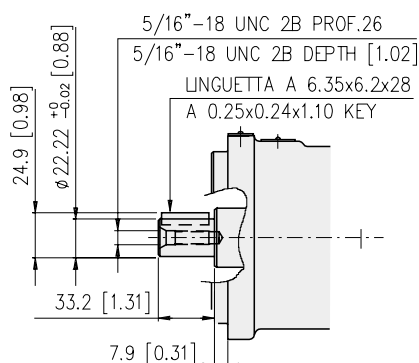
LP2 Per funzionamento come pompa (circuito aperto) For pump operation (open circuit)



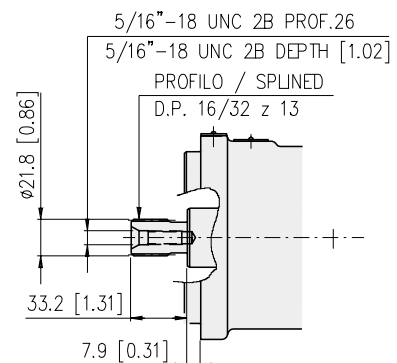
LM2 Per funzionamento come motore For motor operation

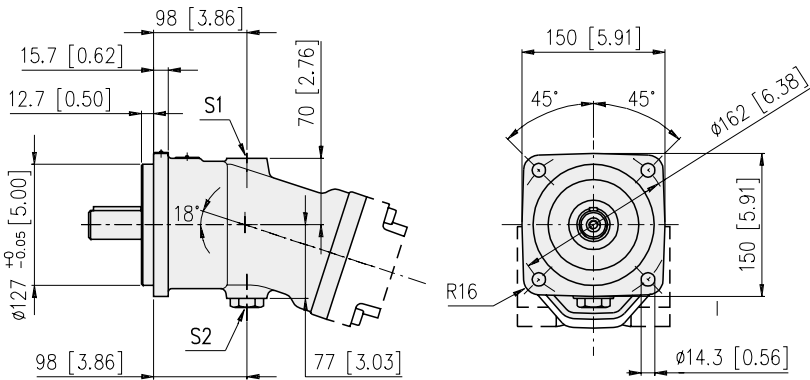


C Albero cilindrico Cylindrical keyed shaft



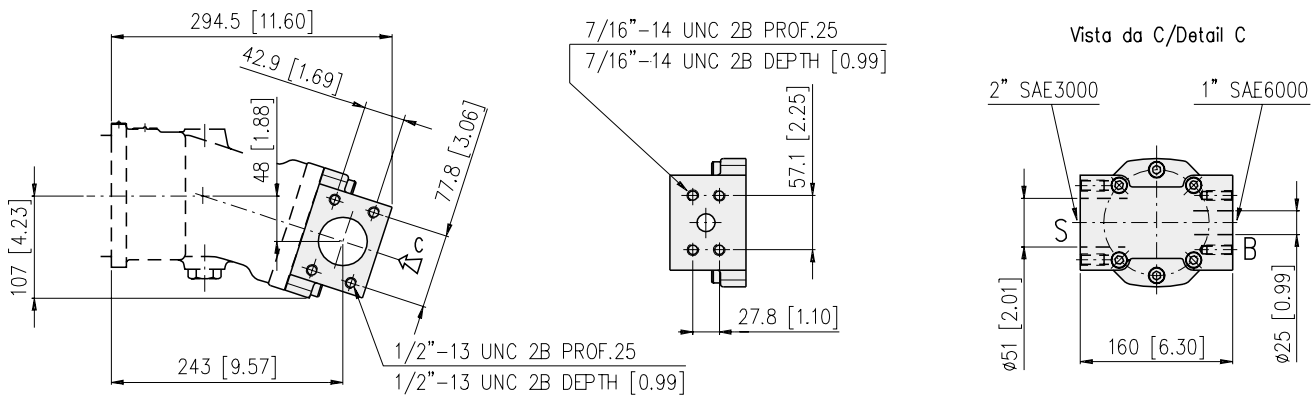
S Albero scanalato Splined shaft



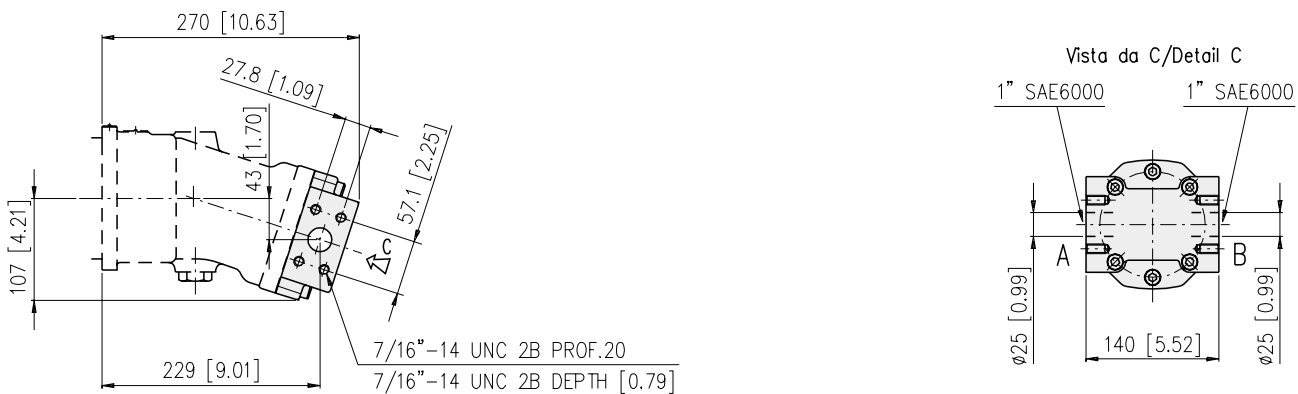


Connessioni / Connections
S1, S2: Drenaggi (1 tappato) 1" 1/16-12 UN 2B
Drain ports (1 plugged) 1" 1/16-12 UN 2B
A, B: Utenze / Service line ports
S: Aspirazione / Suction port
R: Spurgo (tappato) G 1/8" / Air bleed (plugged) G 1/8"

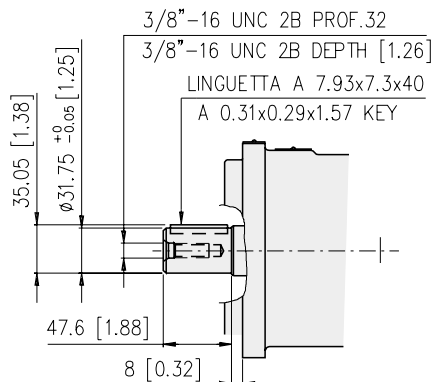
LP2 **Per funzionamento come pompa (circuito aperto)**
For pump operation (open circuit)



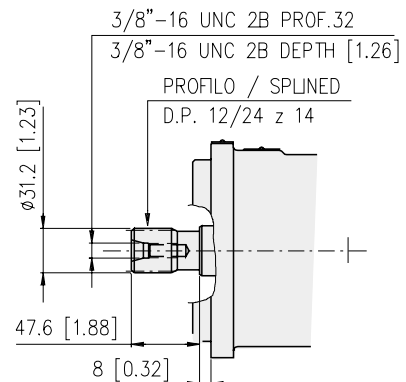
LM2 **Per funzionamento come motore**
For motor operation



C **Albero cilindrico**
Cylindrical keyed shaft

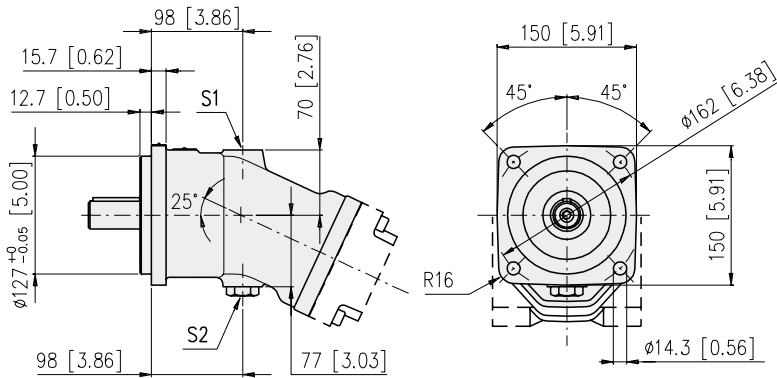


S **Albero scanalato**
Splined shaft



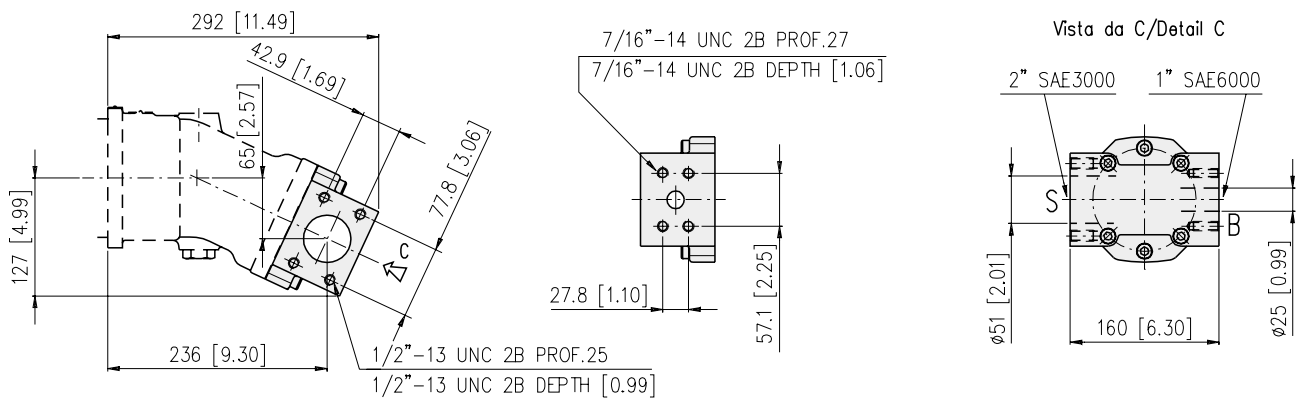
DIMENSIONI FLANGIA SAE C 4 FORI DIMENSIONS SAE C 4 BOLTS FLANGE

H1C 55 SAE

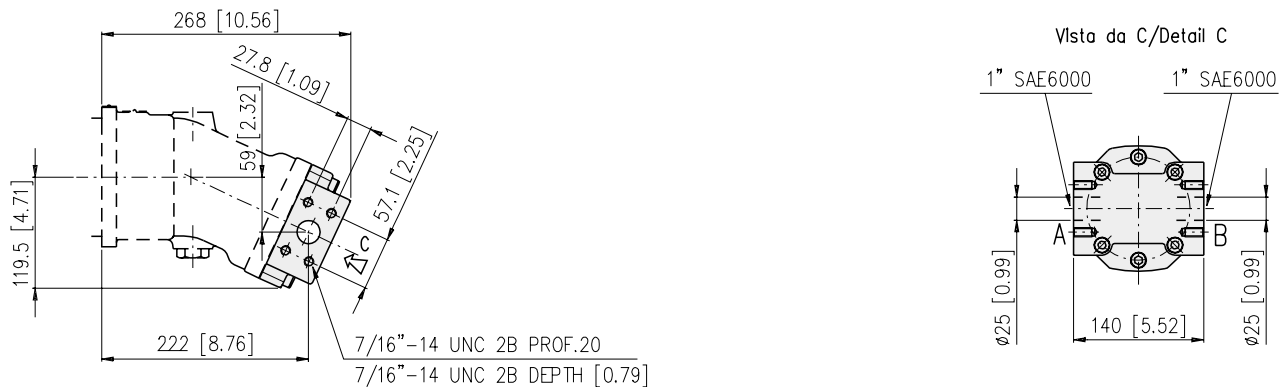


Connessioni / Connections
S1, S2: Drenaggi (1 tappato) 1" 1/16-12 UN 2B
Drain ports (1 plugged) 1" 1/16-12 UN 2B
A, B: Utenze / Service line ports
S: Aspirazione / Suction port

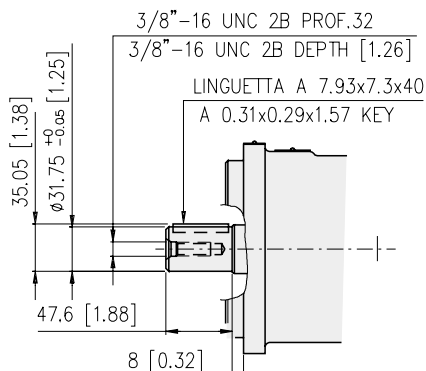
LP2 Per funzionamento come pompa (circuito aperto) For pump operation (open circuit)



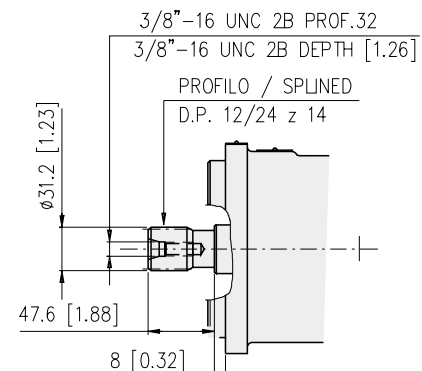
LM2 Per funzionamento come motore For motor operation

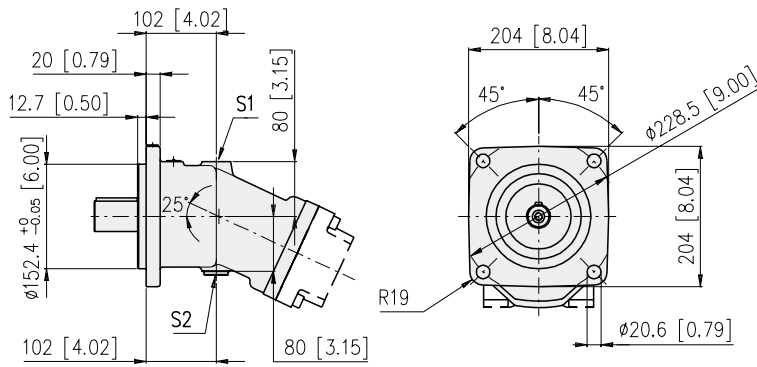


C Albero cilindrico Cylindrical keyed shaft



S Albero scanalato Splined shaft





Connessioni / Connections

S1, S2: Drenaggi (1 tappato) 1" 1/16-12 UN 2B

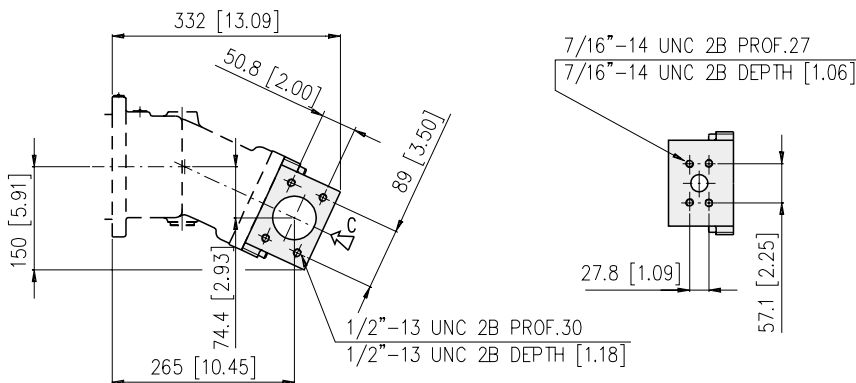
Drain ports (1 plugged) 1" 1/16-12 UN 2B

A, B: Utenze / Service line ports

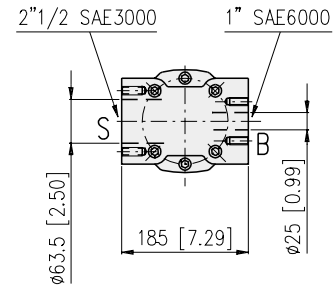
S: Aspirazione / Suction port

LP2

Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)

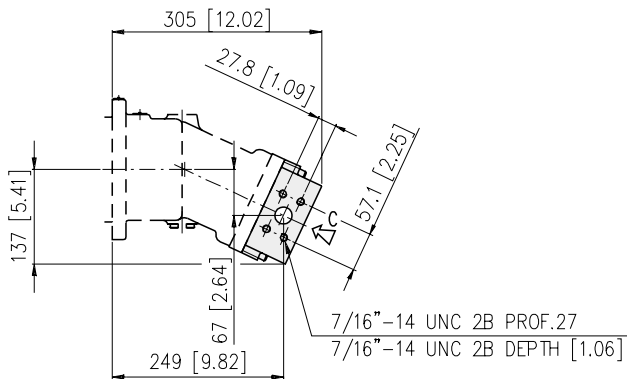


Vista da C/Detail C

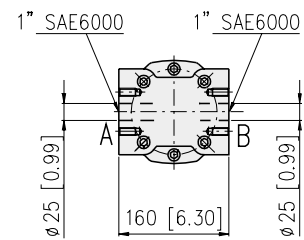


LM2

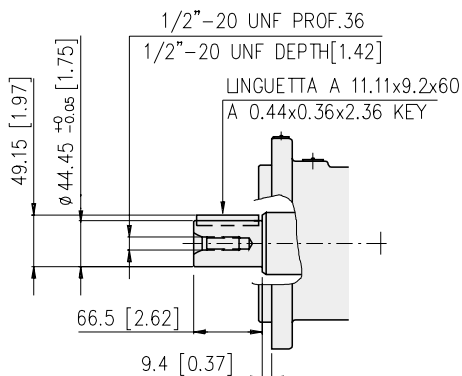
Per funzionamento come motore
For motor operation



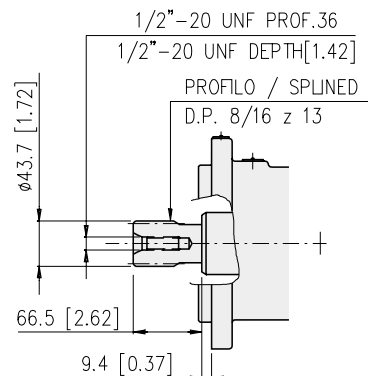
Vista da C/Detail C



C Albero cilindrico
Cylindrical keyed shaft

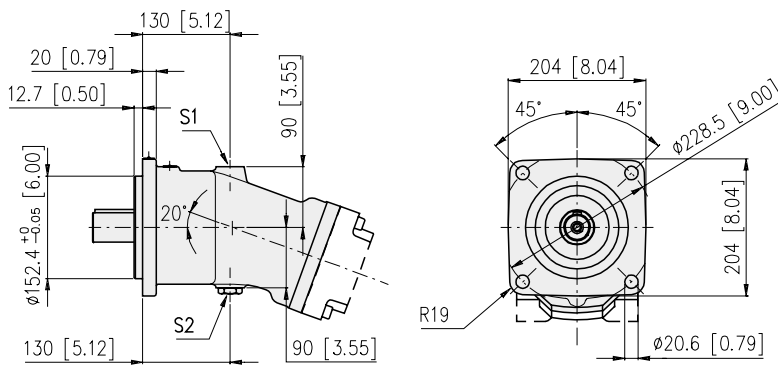


S Albero scanalato
Splined shaft



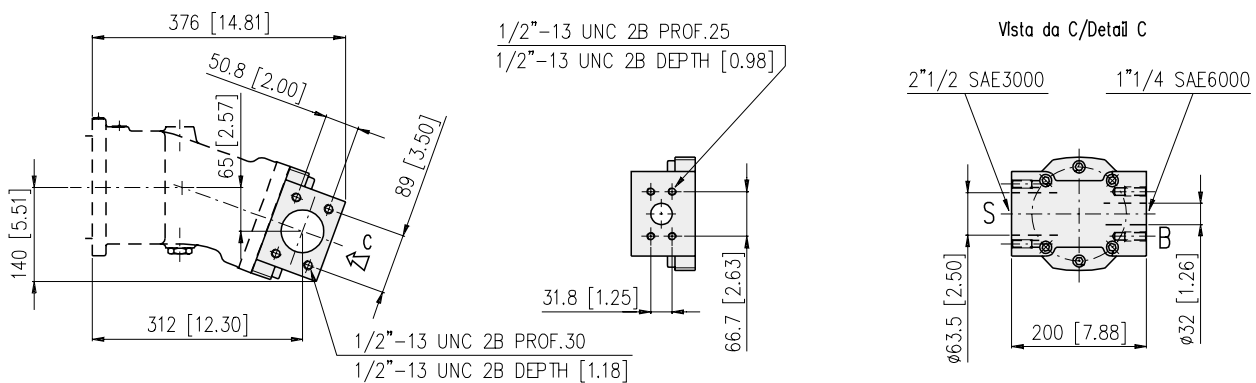
DIMENSIONI FLANGIA SAE D 4 FORI DIMENSIONS SAE D 4 BOLTS FLANGE

H1C 90 SAE

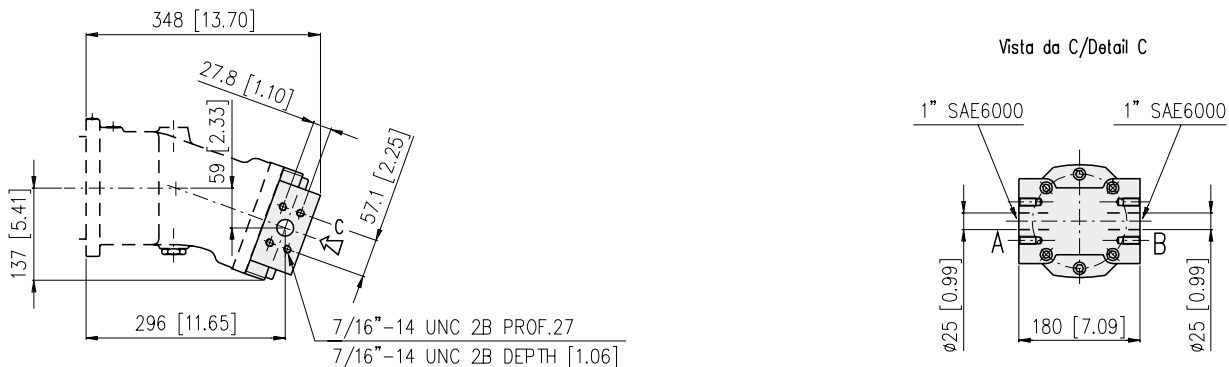


Connessioni / Connections
S1, S2: Drenaggi (1 tappato) 1" 1/16-12 UN 2B
Drain ports (1 plugged) 1" 1/16-12 UN 2B
A, B: Utenze / Service line ports
S: Aspirazione / Suction port

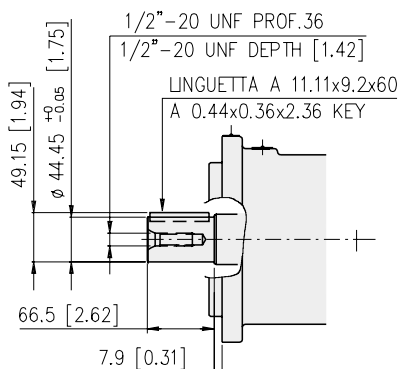
LP2 Per funzionamento come pompa (circuito aperto) For pump operation (open circuit)



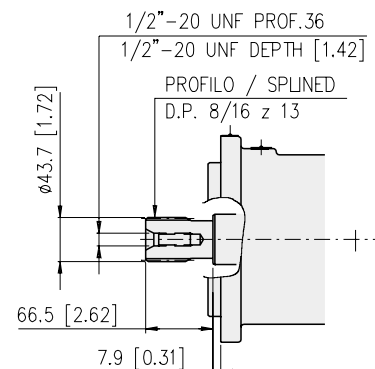
LM2 Per funzionamento come motore For motor operation

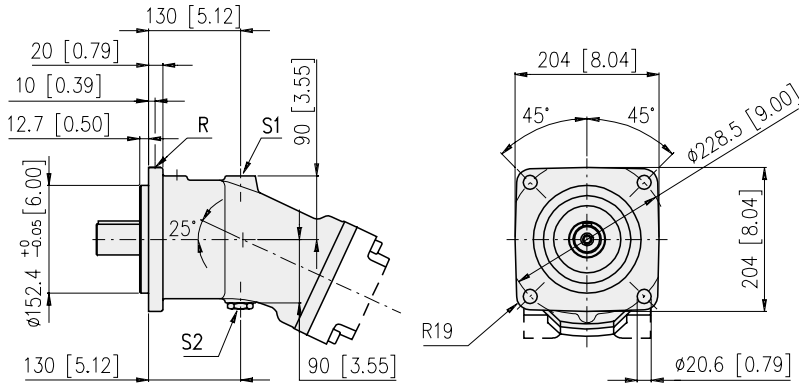


C Albero cilindrico Cylindrical keyed shaft



S Albero scanalato Splined shaft





Connessioni / Connections

S1, S2: Drenaggi (1 tappato) 1" 1/16-12 UN 2B
Drain ports (1 plugged) 1" 1/16-12 UN 2B

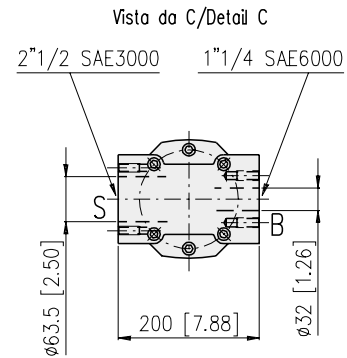
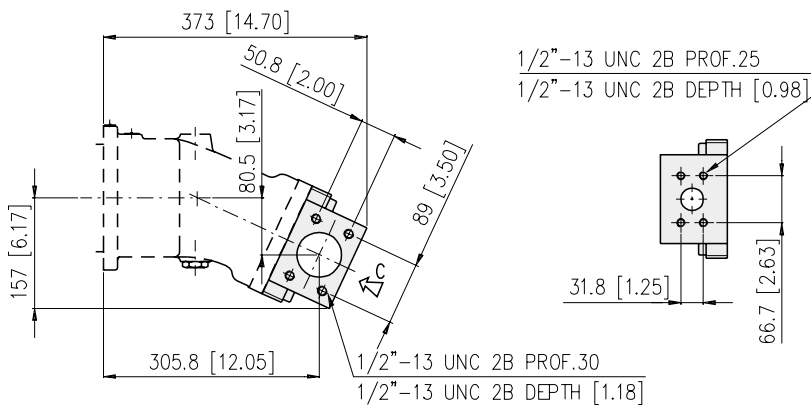
A, B: Utenze / Service line ports

S: Aspirazione / Suction port

R: Spurgo (tappato) 7/16"-20 UNF / Air bleed (plugged) 7/16"-20 UNF

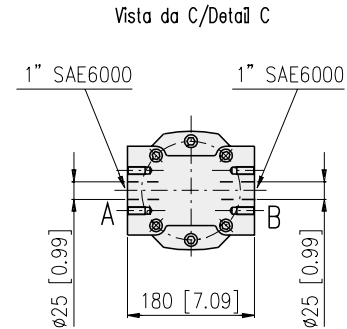
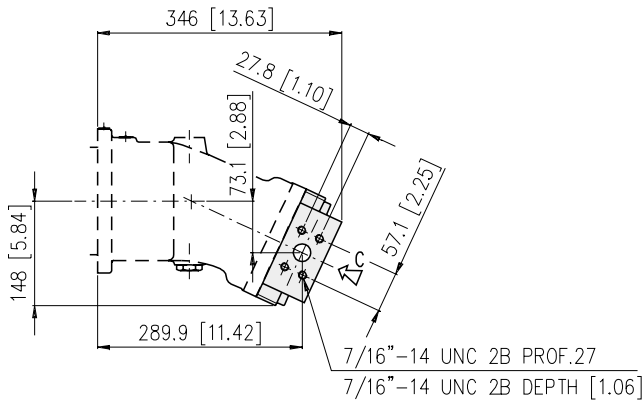
LP2

Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)

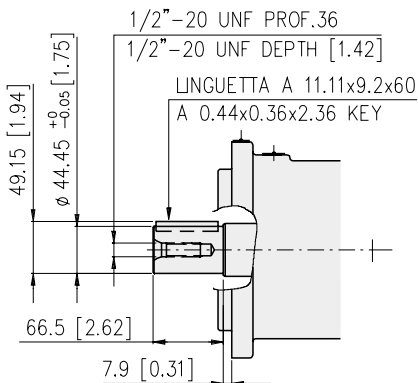


LM2

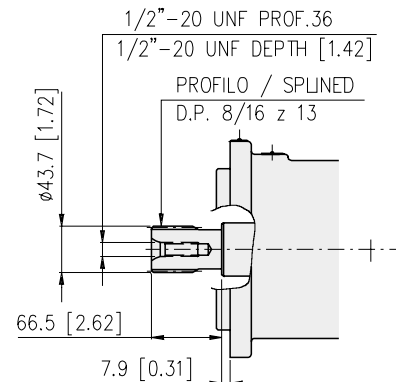
Per funzionamento come motore
For motor operation

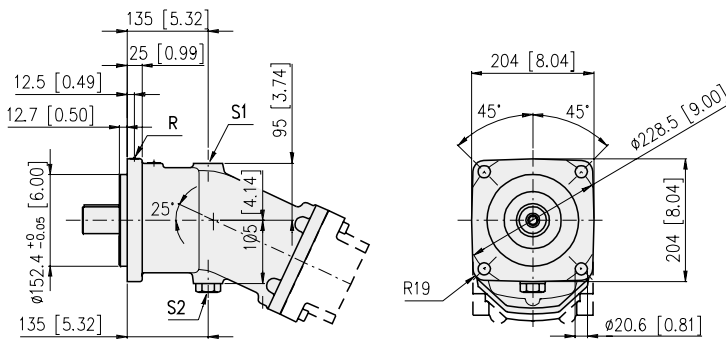


C Albero cilindrico
Cylindrical keyed shaft



S Albero scanalato
Splined shaft





Connessioni / Connections

S1, S2: Drenaggi (1 tappato) 1" 3/16 - 12 UN 2B

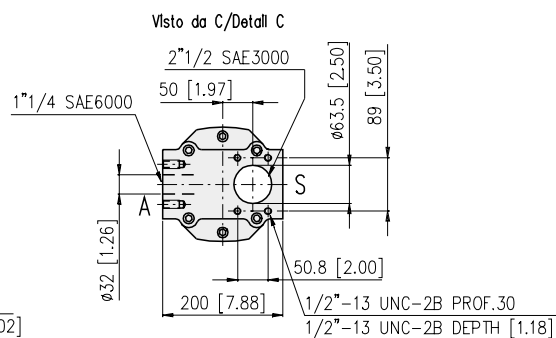
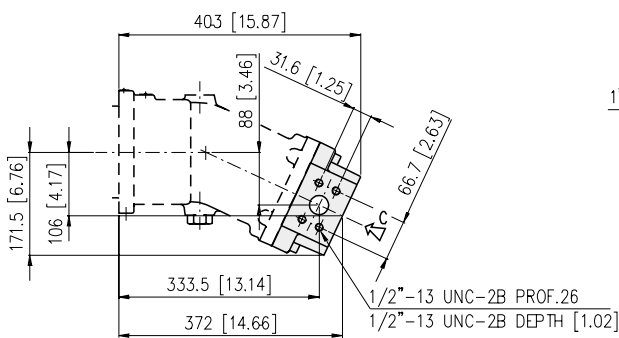
Drain ports (1 plugged) 1" 3/16 - 12 UN 2B

A, B: Utenze / Service line ports

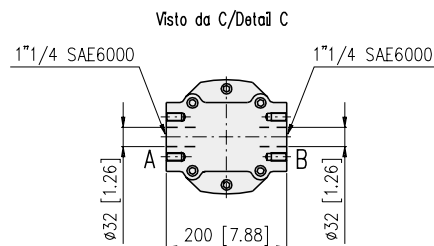
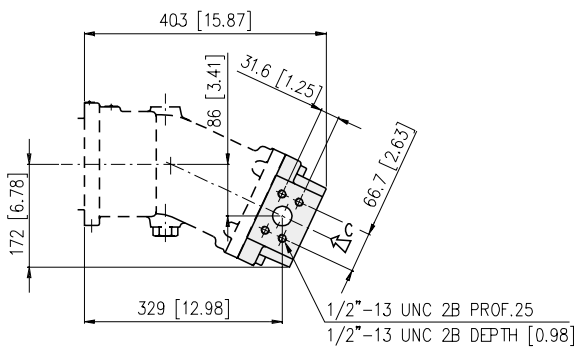
S: Aspirazione / Suction port

R: Spurgo (tappato) 7/16"-20 UNF / Air bleed (plugged) 7/16"-20 UNF

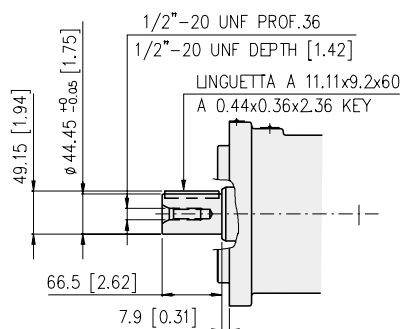
FP2 **Per funzionamento come motore**
For motor operation



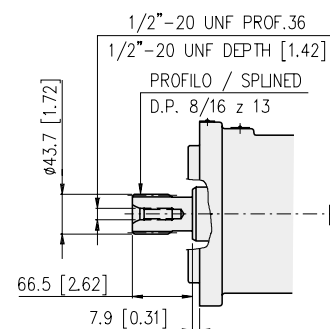
LM2 **Per funzionamento come motore**
For motor operation

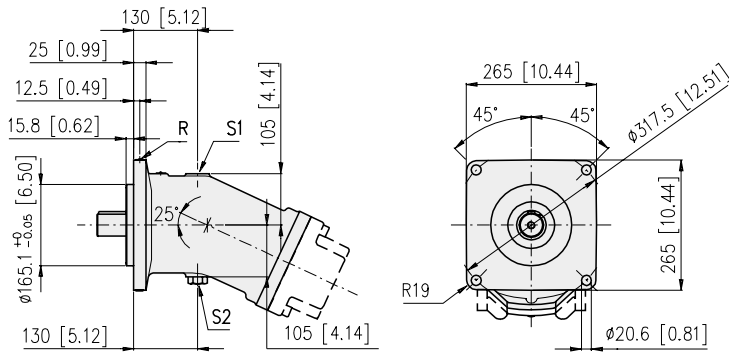


C **Albero cilindrico**
Cylindrical keyed shaft



S **Albero scanalato**
Splined shaft





Connessioni / Connections

S1, S2: Drenaggi (1 tappato) 1" 3/16-12 UN 2B

Drain ports (1 plugged) 1" 3/16-12 UN 2B

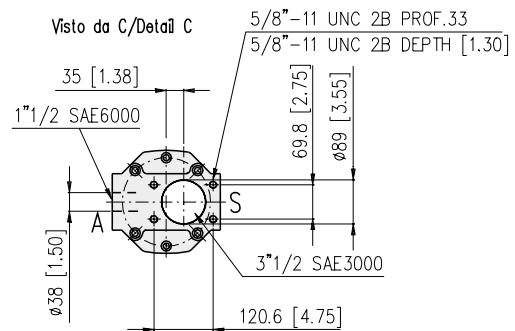
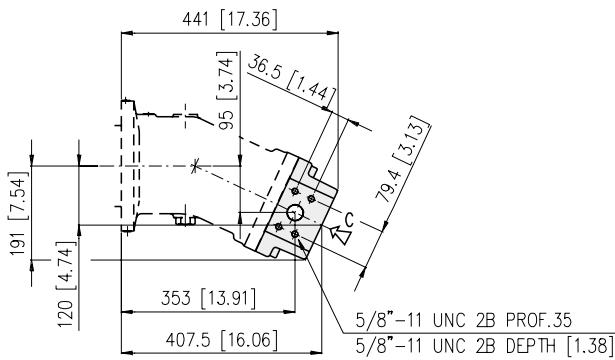
A, B: Utenze / Service line ports

S: Aspirazione / Suction port

R: Spurgo (tappato) 7/16"-20 UNF / Air bleed (plugged) 7/16"-20 UNF

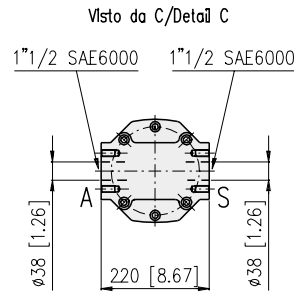
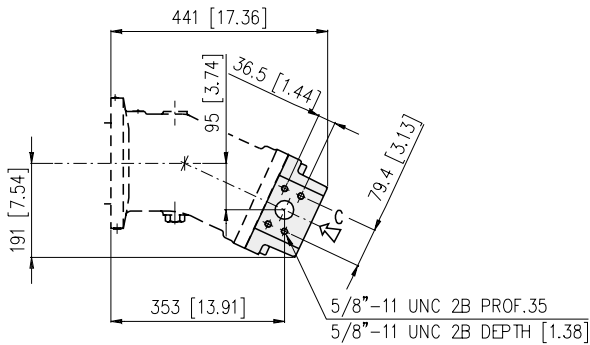
FP2

Per funzionamento come pompa (circuito aperto)
For pump operation (open circuit)

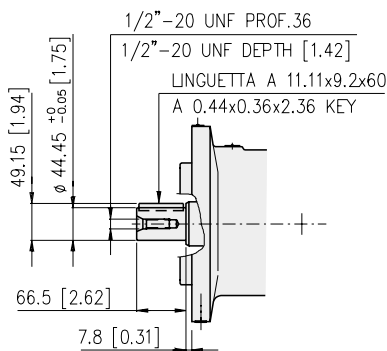


LM2

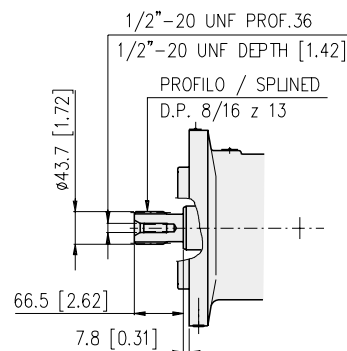
Per funzionamento come motore
For motor operation



C **Albero cilindrico**
Cylindrical keyed shaft



S **Albero scanalato**
Splined shaft



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