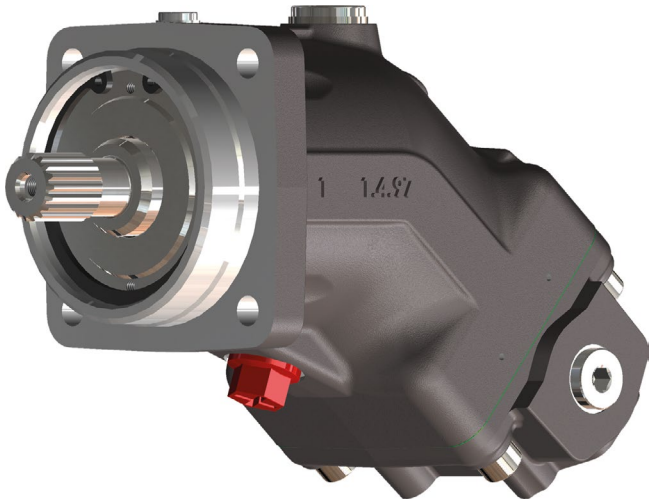
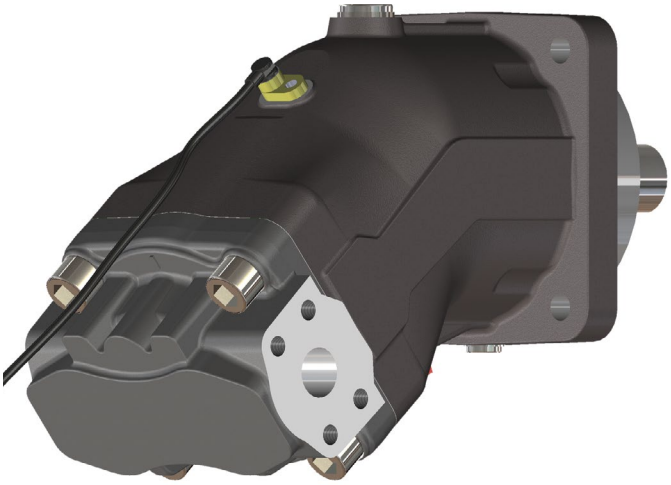
BENT AXIS PISTON MOTORS
HPM series





I motori a pistoni ad asse inclinato bidirezionali serie **HPM**, sono particolarmente indicati per qualsiasi tipologia di impianti oleodinamici che richiedono alte prestazioni. Sono motori compatti, silenziosi e molto robusti, prodotti con l'utilizzo delle tecnologie più moderne. La gamma comprende cilindrate da 12cc fino a 130cc, con diversi alberi di trasmissione, flange di accoppiamento e connessioni.

*The birotational bent axis piston motors series **HPM** are suitable for any kind of hydraulic applications, which require high performances. These motors ensure low level noise in combination with compact size and robust design and are produced using the latest technology.*
The range includes displacements from 12cc up to 130cc, with different drive shafts, coupling flanges and connections.

BENT AXIS PISTON MOTORS HPM series TECHNICAL FEATURES

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BENT AXIS PISTON MOTORS HPM series

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BENT AXIS PISTON MOTORS HPM3 series

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MOTORI HPM FLANGIA ISO - SAE
BENT AXIS PISTON MOTORS HPM FLANGE ISO - SAE

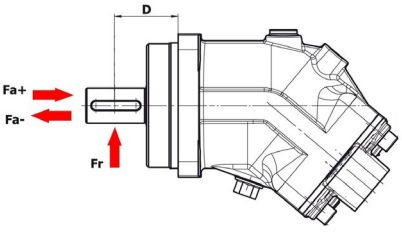
SPECIFICHE TECNICHE / *TECHNICAL FEATURES*																	
Cilindrata/ *Displacement*	cm³/rev		12	17	20	25	34	40	47	55	64	80	91	108	130
Pressione di esercizio *Working pressure*	bar	Massima intermittente *Max. intermittent*	400												
		Massima continua *Max. continuous*	350												
Velocità di rotazione *Rotation speed*	rpm	Massima intermittente *Max. intermittent*	6800					5500				4500			
		Massima continua *Max. continuous*	6300					5000				4000			
		Minima continua *Min. continuous*	100												
Potenza teorica *Theoretical power*	kW	Massima intermittente *Max. intermittent*	54	77	91	113	154	147	172	202	235	240	270	324	390
		Massima continua *Max. continuous*	18	26	30	38	51	49	57	67	78	80	90	108	130
Coppia teorica/ *Theoretical Torque*	Nm/bar		0,20	0,27	0,33	0,40	0,54	0,66	0,76	0,91	1,02	1,28	1,46	1,72	2,09
Momento inerzia di massa (x 10^{-4}) *Mass inertial moment (x 10^{-4})*	kg m²		11,5			12,5		35,5				61			
Peso approssimativo *Approx weight*	HPM ISO	kg	9			11,5		19,5				29,5		38,5	
	HPM SAE B		10			12									
	HPM SAE C					14		20				29			

ATTENZIONE: in alcuni casi, la Pressione di esercizio è limitata dalla coppia trasmissibile dall'albero. Verificare se sono presenti indicazioni di limitazione ed eventualmente contattare OMFB per informazioni.
ATTENTION: *in some cases Working Pressure is limited by shaft's torque trasmissible. Check if there are restrictions and if it is necessary contact OMFB for information.*

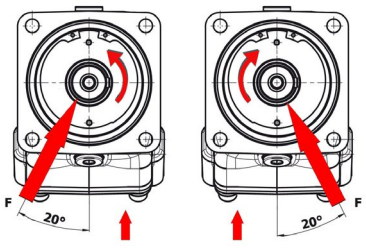
CARICHI SULL'ALBERO / *SHAFT LOADS*

La durata del motore dipende molto da come vengono utilizzati i cuscinetti al suo interno. Condizioni di esercizio quali regime, pressione, viscosità dell'olio usato e grado di pulizia, se correttamente scelti ed applicati, consentono al motore una maggiorne durata, elevate prestazioni e bassa rumorosità. Anche fattori esterni quali valore, direzione e posizionamento del carico esterno sull'albero, influenzano la vita dei cuscinetti. Per condizioni diverse e/o verifica delle vostre condizioni di lavoro, contattare il nostro servizio tecnico-commerciale.

The lifetime of the motor depends on how the bearings are working. Operational parameters such as speed, pressure, oil viscosity and grade of cleanness when are dimensioned and applied correctly can guarantee a longer lifetime to the motor along with higher performances and reduced noise level. Also external factors such as value, weight and position of the external load on the shaft can influence the lifetime of the bearings. For different conditions and/or check of your working conditions please contact our technical/sales department.



Direzione ottimale del carico radiale
Optimal force direction of radial load



Pressione rotazione ANTIORARIA
Pressure ANTICLOCKWISE rotation

Pressione rotazione ORARIA
Pressure CLOCKWISE rotation

MOTORI HPM FLANGIA ISO (240-242-244-246-248) *HPM MOTORS FLANGE ISO*		CILINDRATA / *DISPLACEMENT*												
CARICHI MASSIMI SU ALBERO CONSIGLIATI *MAX RECOMMENDED SHAFT LOADS*		12	17	20	25	34	40	47	55	64	80	91	108	130
Fr=Massimo carico radiale *Fr (radial) max*	kN	7	5	4,6	7	6	9				14,5	12	14,5	12
D=Distanza punto di carico *Distance D (to point of force)*	mm	40			50		62				67		80	
Fa=Massimo carico assiale+ (a 0 bar pressione) *Fa (axial) + (at standstill/ 0 bar pressure) max*	kN	3			3		4				5		5	
Fa=Massimo carico assiale- (a 0 bar pressione) *Fa (axial) - (at standstill/ 0 bar pressure) max*	kN	4	5	6,2	7		7		10	11	13	14	16	19
Fa=Massimo carico assiale+ (a 350 bar pressione)* *Fa (axial) + (at 350 bar pressure) max **	kN	6	8	8,3	10,8	12	16		20		13	14	16	19
Fa=Massimo carico assiale- (a 350 bar pressione)* *Fa (axial) - (at 350 bar pressure) max **	kN	1,2			2,08		2,8		3,5		4	4,5	4,5	5,5

MOTORI HPM FLANGIA SAE (221-222-224) *HPM MOTORS FLANGE SAE*		CILINDRATA / *DISPLACEMENT*											
CARICHI MASSIMI SU ALBERO CONSIGLIATI *MAX RECOMMENDED SHAFT LOADS*		12	17	20	25	34	40	47	55	64	80	91	108
Fr=Massimo carico radiale *Fr (radial) max*	kN	7	5	4,6	7	6	9				14,5	12	10
D=Distanza punto di carico *Distance D (to point of force)*	mm	28			32		38				35		
Fa=Massimo carico assiale+ (a 0 bar pressione) *Fa (axial) + (at standstill/ 0 bar pressure) max*	kN	3			3		4				5		
Fa=Massimo carico assiale- (a 0 bar pressione) *Fa (axial) - (at standstill/ 0 bar pressure) max*	kN	4	5	6,2	7		7		10	11	13	14	15
Fa=Massimo carico assiale+ (a 350 bar pressione)* *Fa (axial) + (at 350 bar pressure) max **	kN	6	8	8,3	10,8	12	16		20		13	14	15
Fa=Massimo carico assiale- (a 350 bar pressione)* *Fa (axial) - (at 350 bar pressure) max **	kN	1,2			2,08		2,8		3,5		4	4,5	4,5

* Fa = Carico assiale + incremento vita dei cuscinetti / *(axial) + Will increase bearing life.*
* Fa = Carico assiale - decremento vita dei cuscinetti / *(axial) - Will decrease bearing life.*

DIMENSIONAMENTO DEI TUBI / *HOSE SIZING*

La portata raccomandata nel tubo di alimentazione non deve generare una velocità del fluido superiore a 5m/s.
The recommended flow of the delivery hose should not exceed a fluid maximum speed of 5m/s.

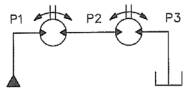
Filettatura *Thread*	Coppia di serraggio max. raccordi su attacchi filettati *Max. fittings tightening torque*
M10 x 1	50 Nm
M12 x 1,5	80 Nm
G 1/2	80 Nm
G 3/4	100-120 Nm
G 1	180-200 Nm
G 1-1/4	310-330 Nm

FILTRAGGIO / *FILTRATION*

Si raccomanda un grado di pulizia a norma ISO 4406-2021
- codice 19/17/14 fino a 140 bar.
- codice 18/16/13 da 140 bar a 200 bar.
- codice 17/15/12 superiore a 200 bar.

We recommend a cleanness grade according to ISO 4406-2021
- code 19/17/14 up to 140 bar.
- code 18/16/13 from 140 bar to 200 bar.
- code 17/15/12 over 200 bar.

MONTAGGIO IN SERIE MOTORI HPM / *SERIES CONNECTION OF HPM MOTORS*



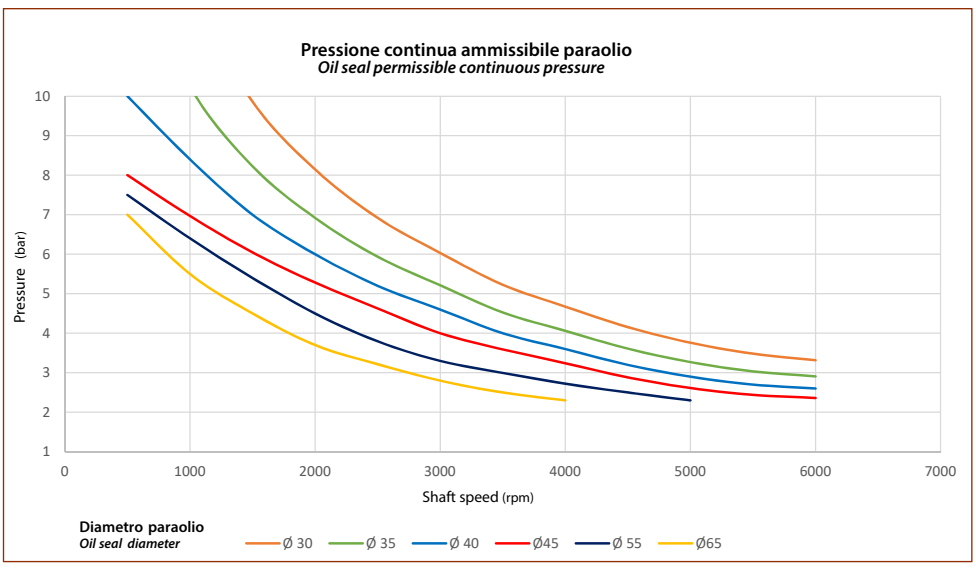
La pressione massima ammissibile sulle bocche è di 350bar continua e 400bar intermittente. Nel caso di motori collegati in serie, limitare la pressione di esercizio totale P1 + P2 a 350bar continua e 400bar intermittente.
The maximum allowed pressure on the ports is 350 bar continuous and 400 bar intermittent. In case of series connection we recommend to limit the total working pressure P1+P2 always to 350 bar continuous and 400 bar intermittent.

PRESSIONE MASSIMA IN CARCASSA / *MAX. PRESSURE IN THE CASING*

Pressione pulsante fino a 25 bar (a seconda della frequenza).
La durata del paraolio dipende dalla velocità del motore e dalla pressione della carcassa e diminuisce all'aumentare della frequenza dei picchi.
La durata può essere ridotta anche a causa di altri fattori sfavorevoli come ad esempio alta temperatura, bassa viscosità dell'olio o olio contaminato.
I dati indicati sono riferiti a condizioni ottimali di esercizio.
La pressione della carcassa deve essere comunque uguale o superiore alla pressione esterna.
Per assicurare la corretta pressione sul paraolio è necessario collegare le bocche di drenaggio a serbatoio utilizzando se necessario una valvola di non ritorno.

Pulse pressure up to 25 bar (depending on the frequency).
The life of the oil seal depends on the speed of the motor and the pressure of the casing and decreases as the frequency of the peaks increases.
The service life can also be reduced due to other unfavorable factors such as high temperature, low oil viscosity or contaminated oil.
The data shown refer to optimal operating conditions.
The case pressure shall in any case be equal to or greater than the external pressure.
To ensure the correct pressure on the oil seal, it is necessary to connect the drain line to the tank using a check valve if it is necessary.

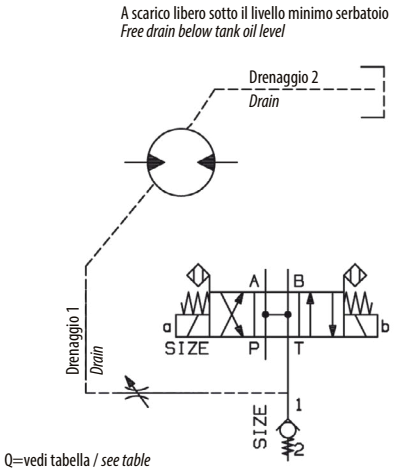
	Diametro interno paraolio *Oil seal internal diameter (mm)*												
Cilindrata *Displacement cc*	012	017	020	025	034	040	047	055	064	080	091	108	130
SAE B albero / *shaft* 074	35	35	35	30	30								
SAE B alberi / *shafts* 077/091	35	35	35	35	35								
SAE C				40	40	45	45	45	45	55	55	55	
ISO	35	35	35	35	35	45	45	45	45	55	55	65	65



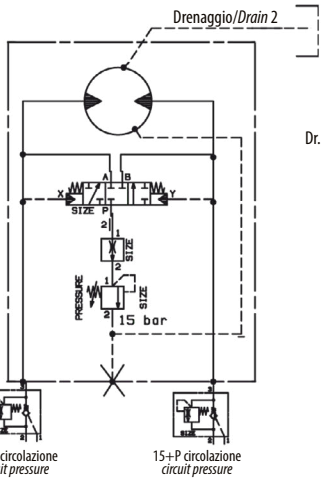
TEMPERATURE - RAFFREDDAMENTO DEL CORPO MOTORE / *TEMPERATURE - COOLING OF MOTOR CASING*

Una temperatura elevata dell'olio riduce la durata della guarnizione dell'albero e può far scendere la viscosità dell'olio al di sotto del livello raccomandato. La temperatura dell'impianto non deve superare 60°C e quella di scarico i 90°C. Può rendersi necessario il raffreddamento/lavaggio del corpo motore al fine di mantenere la temperatura di scarico alla temperatura raccomandata. Il lavaggio del corpo motore può avvenire mediante una valvola di lavaggio, oppure direttamente dal tubo di ritorno. Una pressione di ritorno troppo bassa deve essere compensata da una valvola di contropressione. Il tubo del serbatoio deve essere collegato nel punto più alto del motorecome indicato in figura.

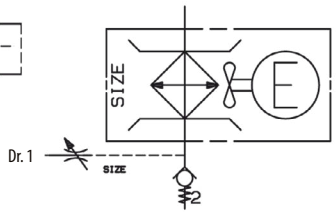
High oil temperature reduces the lifetime of shaft oil seal and can lower the oil viscosity below the recommended level- The temperature of the system shall not exceed 60°C while temperature of return line shall not exceed 90°C. Cooling/flushing of motor casing might be necessary to keep return temperature within the recommended level. The motor casing flushing can be achieved by means of a flushing valve or directly from the return hose. Too low return pressure must be compensated by a back-pressure valve. The tank hose must be connected into the highest point of the motor as shown in the picture.



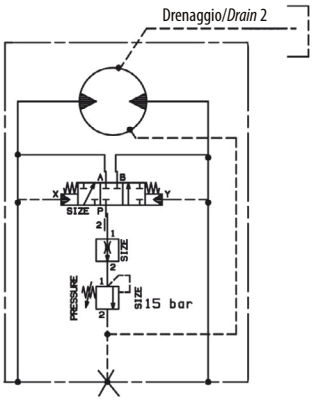
Q=vedi tabella / *see table*
P=necessaria alla circolazione tra drenaggio 1 e drenaggio 2
P= Pressure required for oil circulation between drain 1 and drain 2 port



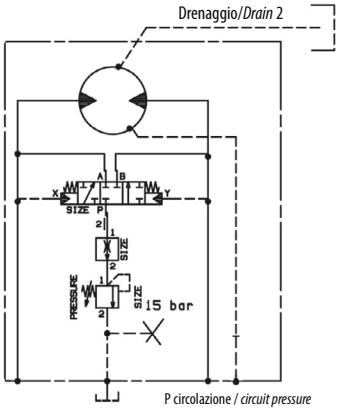
CIRCUITO APERTO DRENAGGIO INTERNO
OPEN CIRCUIT INNER DRAIN



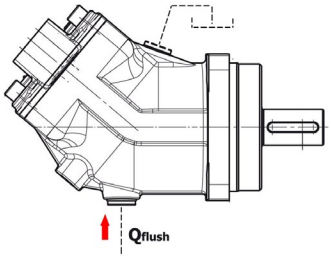
Q=vedi tabella
P=necessaria alla circolazione tra drenaggio 1 e drenaggio 2
Q= see table
P= Pressure required for oil circulation between drain 1 and drain 2 port



CIRCUITO CHIUSO DRENAGGIO INTERNO
CLOSE CIRCUIT INNER DRAIN



CIRCUITO CHIUSO DRENAGGIO ESTERNO
CLOSED CIRCUIT OUTER DRAIN



Valori di riferimento per il lavaggio del corpo motore.
Reference value for motor casing flushing.

	MOTORE *MOTOR*	LAVAGGIO *FLUSHING*	CONT.
Q	12-34	2-8 l/min.	≥ 2800 giri/min.
	40-64	4-10 l/min.	≥ 2500 giri/min.
	80-130	6-12 l/min.	≥ 2000 giri/min.

TIPI DI FLUIDO / *TYPES OF FLUID*
La tabella a fianco riporta le principali categorie di fluidi idraulici. Classificazione ISO 6743-4.
The table below shows the main types of hydraulic fluid as set out in ISO 6743-4 standard.

HL RACCOMANDATO / *HL RECOMMENDED*
(Per altri tipi di fluido, rivolgersi al nostro ufficio tecnico/commerciale)
(For other type of fluid please contact our sales/technical dept).

Fluidi a base minerale	
HH	Privo di additivi
HL	Anticorrosivi e antiossidanti **(RACCOMANDATO)**
HM	Additivi HL + antiusura
HV	Additivi HM e correttori di viscosit
Fluidi resistenti alla fiamma	
HFA	Emulsione di olio in acqua (acqua > 90%)
HFB	Emulsione acqua in olio (acqua > 40%)
HFC	Acqua in soluzione di glicoli (alcoli polidrati)
HFD	Fluidi sintetici privi di acqua (esteri fosforici)
Fluidi ecologici	
HETG	Fluidi a base vegetale
HEPG	Fluidi sintetici a base di poliglicoli
HEE	Fluidi sintetici a base di esteri

Mineral oil-based fluids	
HH	Additive-free
HL	Anticorrosive, antioxidant (RECOMMENDED)
HM	HL and anti-wear additives
HV	HM additives and viscosity controls
Flame-resitant fluids	
HFA	Oil-based emulsion in water (water > 90%)
HFB	Water-based emulsion in oil (water > 40%)
HFC	Water in glycol solution (polyhydrate alcohols)
HFD	Water-free synthetic fluids (phosphoric esters)
Organic fluids	
HETG	Vegetable-based fluids
HEPG	Synthetic polyglycol-based fluids
HEE	Synthetic ester-based fluids

CAMPO DI VISCOSITA' DEL FLUIDO / *VISCOSITY INDEX*

La viscosità ottimale Vopt del fluido alla temperatura di funzionamento (temperatura serbatoio per i circuiti aperti o temperatura del circuito per i quelli chiusi) deve essere compresa tra i valori indicati in tabella. In condizioni estreme e per brevi periodi di tempo è ammessa una viscosità minima Vmin riportata nella tabella. Tale viscosità minima è riferita ad una temperatura massima del fluido di 90°C (temperatura del fluido di drenaggio). La massima viscosità ammessa Vmax per brevi periodi e durante l'avviamento a freddo è riportata nella tabella. In ogni caso la temperatura del fluido non deve mai essere superiore ai +90°C ed inferiore ai -25°C.

	Vopt (cSt)	**V**min (cSt)	**V**max (cSt)
HPM	15÷40	10	800

The optimum viscosity of the fluid Vopt at the operating temperature (temperature of the tank for open circuits or temperature of the circuit for closed circuits) must fall between the minimum and maximum values shown in the table below. The minimum viscosity Vmin shown in the table is permitted in extreme conditions and for short periods. This value refers to a maximum fluid temperature of 90°C (temperature of drainage fluid). The maximum viscosity Vmax for short intervals and during cold starts is shown in the table below. The temperature of the fluid must never exceed a maximum of +90°C and a minimum of -25°C.

CLASSI DI VISCOSITA' / *VISCOSITY GRADES*

La norma ISO divide i fluidi idraulici in 6 classi di viscosità (tabella sotto). La classe di viscosità è indicata dalle lettere VG seguite dal valore espresso in cSt, alla temperatura di 40 °C.

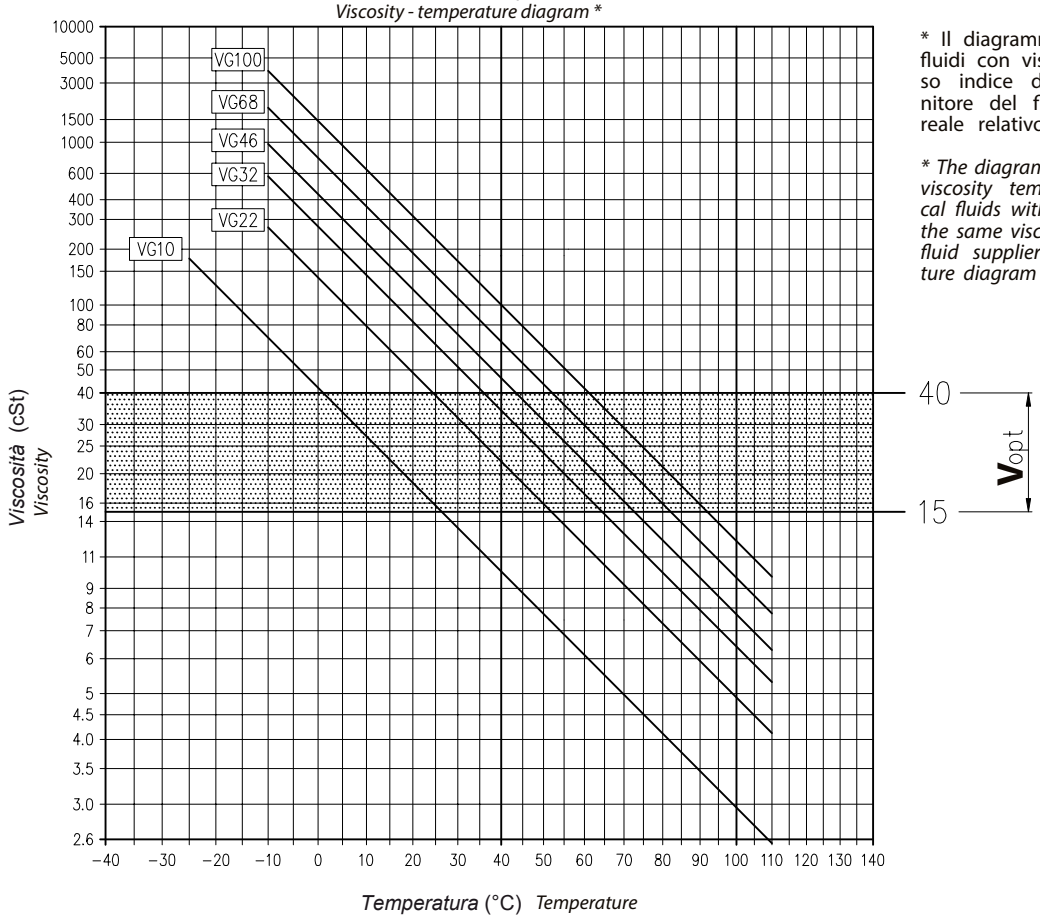
Under the ISO standard, hydraulic fluids are divided into 6 grades of viscosity (see table below). Viscosity grades are shown by the letters VG followed by the viscosity of the fluid in cSt at a temperature of 40 °C.

Classe di viscosità Viscosity grades ISO	**V** (*40°*) (cSt)
VG 10	9÷11
VG 22	19.8÷24.2
VG 32	28.8÷35.2
VG 46	41.4÷50.6
VG 68	61.2÷71.5
VG 188	100

Per una corretta scelta del tipo di fluido da impiegare, è necessario sapere la temperatura di lavoro del fluido (temperatura serbatoio per i circuiti aperti o temperatura del circuito per quelli chiusi) ed il suo indice di viscosità. Il fluido dovrebbe essere scelto in modo che la sua viscosità, alla temperatura di lavoro, sia compresa all'interno dei valori di viscosità ottimale (Vopt). Il diagramma sotto, illustra l'andamento della viscosità in funzione della temperatura per una classe di fluidi con lo stesso indice di viscosità.

In order to choose the correct type of fluid, it is essential to know the operating temperature of the fluid (temperature of the tank for open circuits or temperature of the circuit for closed circuits) and its viscosity index. At the operating temperature, the viscosity of the fluid must fall within the optimum viscosity values (Vopt). The diagram below shows the variations of viscosity at various temperatures of a class of fluids sharing the same viscosity index.

*Grafico viscosità - temperatura **
*Viscosity - temperature diagram **



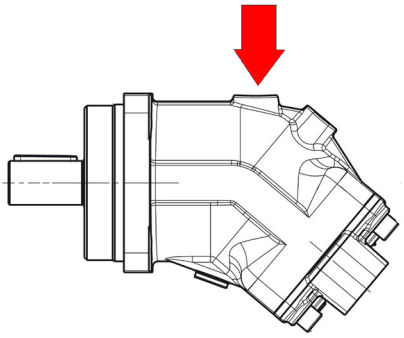
* Il diagramma è indicativo e si riferisce a fluidi con viscosità diversa ma con lo stesso indice di viscosità. Consultare il fornitore del fluido per avere il diagramma reale relativo al fluido che si sta usando.

** The diagram is only an example. It shows the viscosity temperature characterisics of typical fluids with different viscosities but sharing the same viscosity index. Ask to your hydraulic fluid supplier for the real viscosity-temperature diagram of the fluid used in your system.*

OPERAZIONE PRELIMINARE / *PRELIMINARY OPERATION*

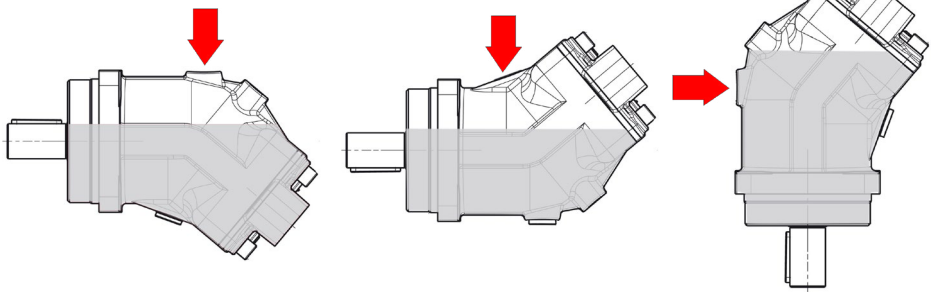
Prima della messa in funzione del motore **RIEMPIRE** di olio la carcassa. Si raccomanda la massima pulizia nelle fasi sia di rabbocco che successivamente del cambio olio.
Coppia serraggio tappi: 20-25 Nm.

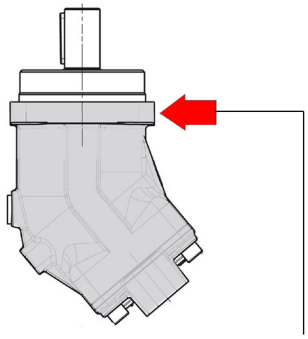
*Before to start up the motor please **FILL-UP** the the casing with oil.*
We recommend the highest level of cleanness during the operations of oil filling-up and change.
Plugs tightening torque: 20-25 Nm.



Prima di utilizzare il motore, collegare il drenaggio. Usare sempre il drenaggio più ALTO in conformità con il posizionamento del motore e comunque il drenaggio che garantisca **SEMPRE** il pieno carcassa.

Connect the drain line before using the motor.
*Use **ALWAYS** the upper drain port according to the motor position and in any case always use the drain port that can ensure the casing being filled-up.*





Nel montaggio del motore con l'albero in verticale, come indicato in figura, il 3° drenaggio facilita la corretta lubrificazione dei cuscinetti e consente l'uscita di eventuali bolle d'aria.

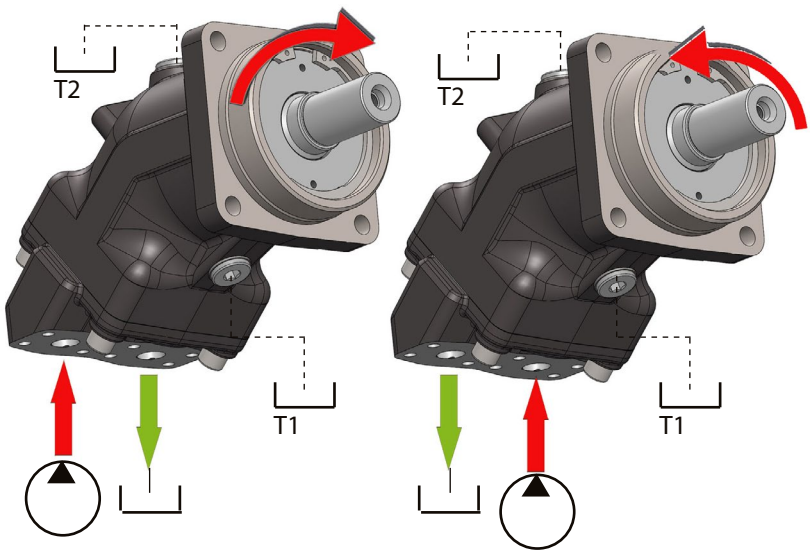
For vertical mounting position as shown in the picture, we suggest to use the 3rd drain port to ensure proper lubrication to the bearings and to facilitate air bleed.

Per altre installazioni, rivolgersi al produttore
For other installations, contact manufacturer

Il senso di rotazione del motore è in funzione della direzione di mandata olio come indicato nella figura sotto. Porre attenzione al corretto dimensionamento e posizionamento delle tubazioni dell'olio. Infatti diametri insufficienti e/o curve troppo strette, possono creare cavitazione e, di conseguenza, ulteriori danni ed una rumorosità accentuata.

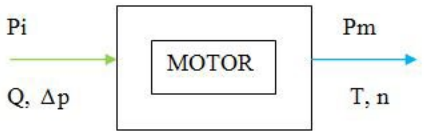
The direction of rotation of the motor depends from direction of delivery oil as shown in the picture below. Make sure about the correct sizing and positioning of the oil hoses. Insufficient diameter, kinks and/or tight elbows may lead to cavitation and consequently further damages and high noise level.

Rotazione ORARIA *CLOCKWISE rotation*



Rotazione ANTIORARIA *ANTICLOCKWISE rotation*

FORMULE MOTORI / FORMULAS FOR MOTORS



POTENZA IDRAULICA ENTRANTE
In un motore la potenza idraulica entrante è proporzionale alla differenza di pressione fra le bocche e alla portata secondo la relazione dove:
Pi è la potenza idraulica espressa in kW
Q è la portata espressa in l/min
Δp è la differenza di pressione fra le bocche espressa in bar

$$Pi = \frac{Q \cdot \Delta p}{600}$$

INPUT HYDRAULIC POWER
In a motor the input hydraulic power is proportional to the pressure difference between the ports and to the flow according to the ratio where:
***Pi** is the hydraulic power in kW*
***Q** is the flow in l/min*
***Δp** is the pressure difference in bar between the ports*

POTENZA MECCANICA RESA ALL'ALBERO
In un motore la potenza meccanica disponibile all'albero è proporzionale alla coppia all'albero e alla velocità angolare dell'albero secondo la relazione dove:
Pm è la potenza meccanica espressa in kW
T è la coppia (Torque) espressa in Nm
n è il numero di giri espresso in rpm

$$Pm = \frac{T \cdot n}{9550}$$

MECHANICAL POWER TO THE SHAFT
In a motor the mechanical power available is proportional to the torque at the shaft and to the angular speed of the shaft according to the ratio where:
***Pm** is the mechanical power in kW*
***T** is the torque in Nm*
***n** is the rpm*

PORTATA IN INGRESSO PER FAR RUOTARE L'ALBERO ALLA VELOCITÀ n dove:
Q è la portata espressa in l/min
n è il numero di giri espresso in rpm
c è la cilindrata del motore espresso in cc/rev
ηv è il rendimento volumetrico del motore

$$Q = \frac{n \cdot c}{1000 \cdot \eta v}$$

INPUT FLOW FOR ROTATING THE SHAFT AT SPEED n where:
***Q** is the flow in l/min*
***n** is the rpm*
***c** is the displacement of the motor in cc/rev*
***ηv** is the volumetric efficiency of the motor*

VELOCITÀ DEL MOTORE QUANDO IN INGRESSO VIENE IMMESSA LA PORTATA Q dove:
n è il numero di giri espresso in rpm
Q è la portata espressa in l/min
c è la cilindrata del motore espresso in cc/rev
ηv è il rendimento volumetrico del motore

MOTOR SPEED WHEN IN INPUT YOU HAVE FLOW Q where:
***n** is the rpm*
***Q** is the flow in l/min*
***c** is the displacement of the motor in cc/rev*
***ηv** is the volumetric efficiency of the motor*

$$n = 1000 \cdot \frac{Q}{c} \cdot \eta v$$

COPPIA RESA ALL'ALBERO CON UNA DIFFERENZA DI PRESSIONE p FRA LE BOCCHE dove:
T è la coppia (Torque) espressa in Nm
c è la cilindrata del motore espressa in cc/rev
Δp è la differenza di pressione fra le bocche espressa in bar
ηm è il rendimento meccanico del motore

TORQUE TO THE SHAFT WITH A PRESSURE DIFFERENCE p BETWEEN THE PORTS where:
***T** is the torque in Nm*
***c** is the displacement of the motor in cc/rev*
***Δp** is the pressure difference in bar between the ports*
***ηm** is the mechanical efficiency of the motor*

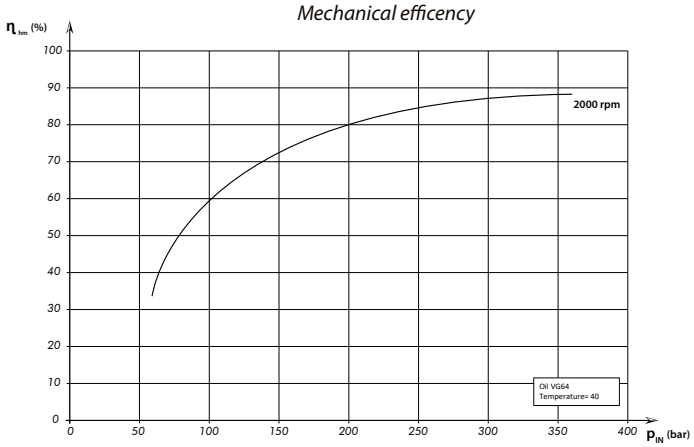
$$T = \frac{c \cdot \Delta p}{62{,}8} \cdot \eta m$$

DIFFERENZA DI PRESSIONE NECESSARIA FRA LE BOCCHE DI INGRESSO PER OTTENERE ALL'ALBERO LA COPPIA T dove:
Δp è la differenza di pressione fra le bocche espressa in bar
T è la coppia (Torque) espressa in Nm
c è la cilindrata del motore espressa in cc/rev
ηm è il rendimento meccanico del motore

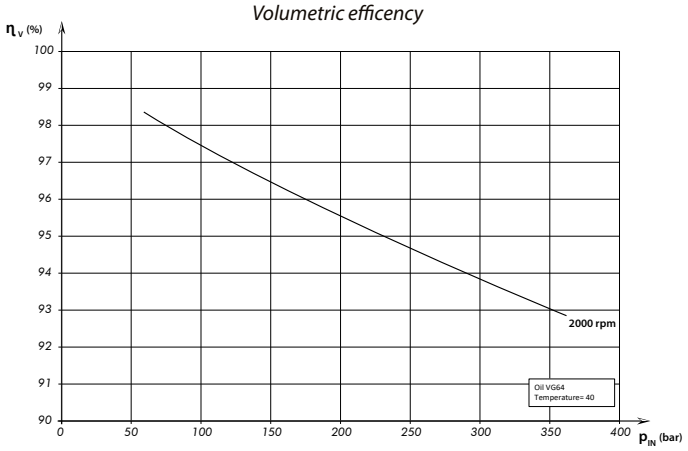
PRESSURE DIFFERENCE REQUIRED BETWEEN INPUT PORTS TO OBTAIN TORQUE T AT THE SHAFT *where:*
***Δp** is the pressure difference in bar between the ports*
***T** is the torque in Nm*
***c** is the displacement of the motor in cc/rev*
***ηm** is the mechanical efficiency of the motor*

$$\Delta p = 62{,}8 \cdot \frac{T}{c \cdot \eta m}$$

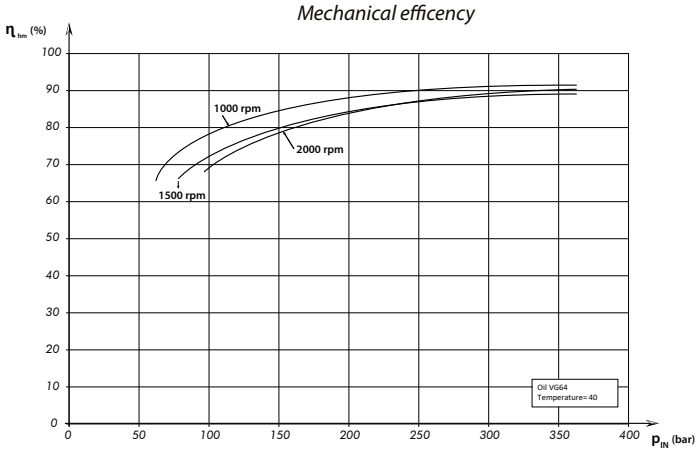
HPM 12cc - Rendimento meccanico
Mechanical efficency



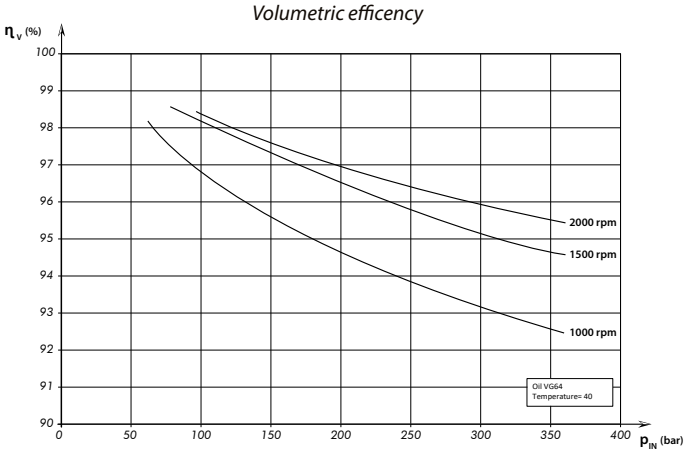
HPM 12cc - Rendimento volumetrico
Volumetric efficency



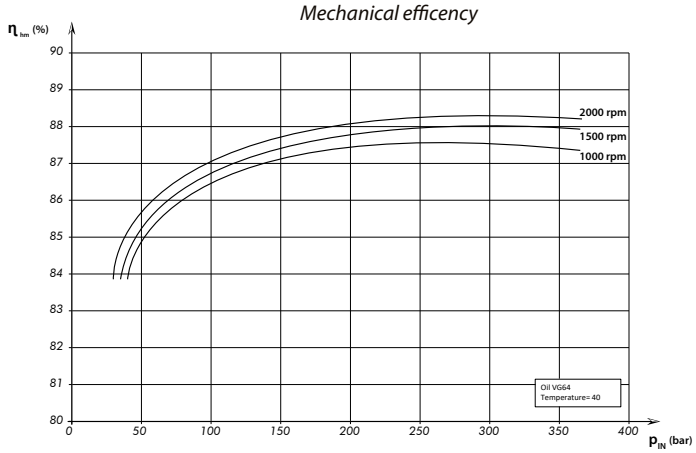
HPM 17cc - Rendimento meccanico
Mechanical efficency



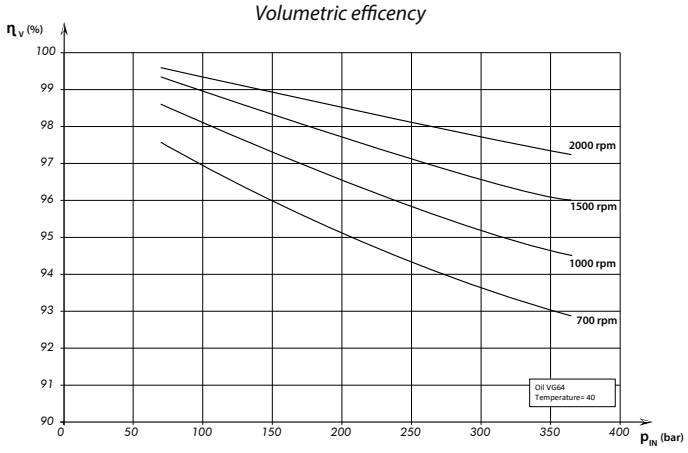
HPM 17cc - Rendimento volumetrico
Volumetric efficency



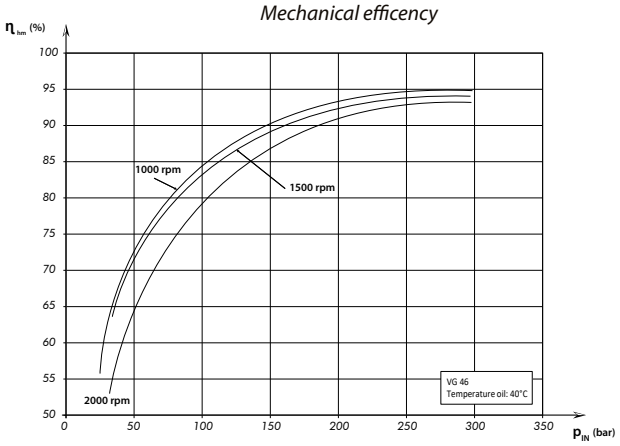
HPM 34cc - Rendimento meccanico
Mechanical efficency



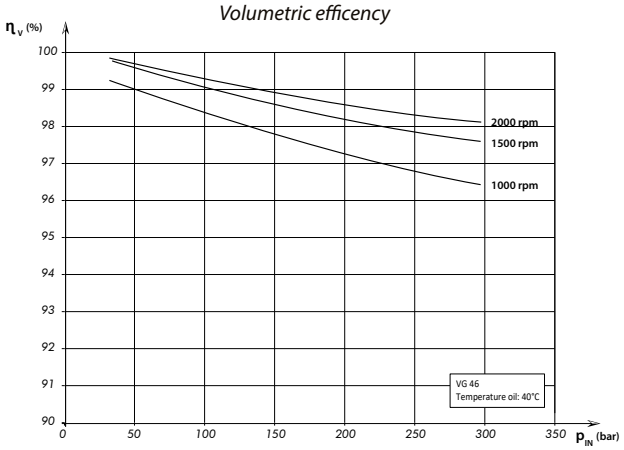
HPM 34cc - Rendimento volumetrico
Volumetric efficency



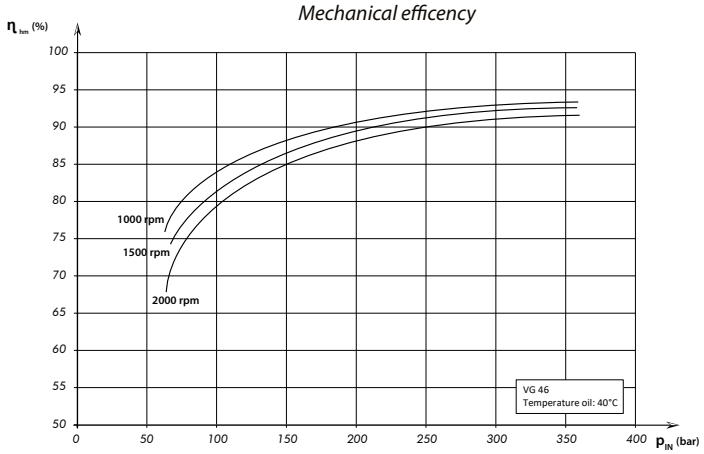
HPM 40cc - Rendimento meccanico
Mechanical efficency



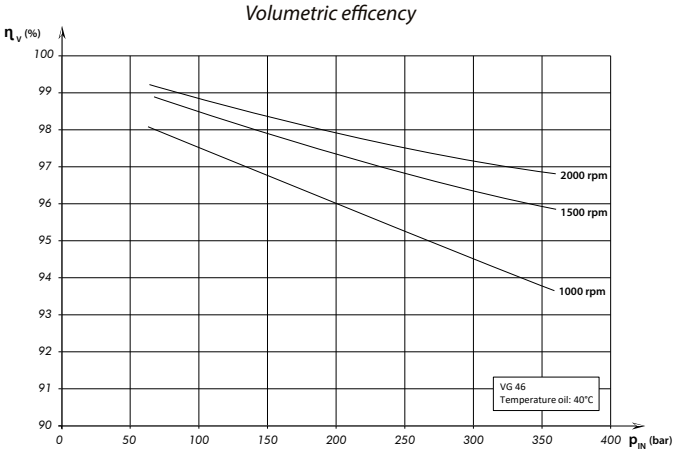
HPM 40cc - Rendimento volumetrico
Volumetric efficency



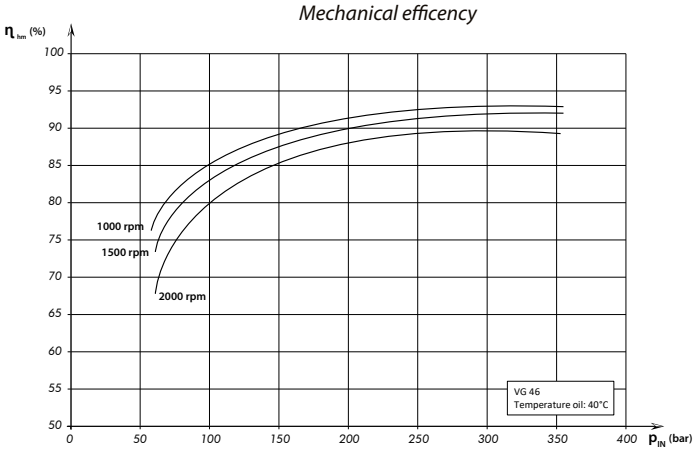
HPM 47cc - Rendimento meccanico
Mechanical efficency



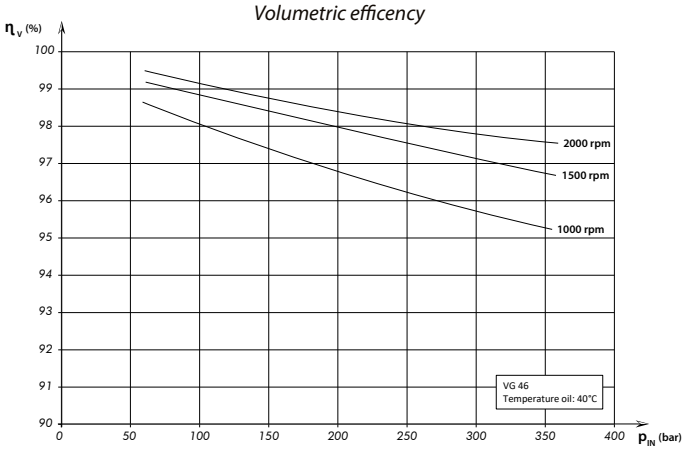
HPM 47cc - Rendimento volumetrico
Volumetric efficency



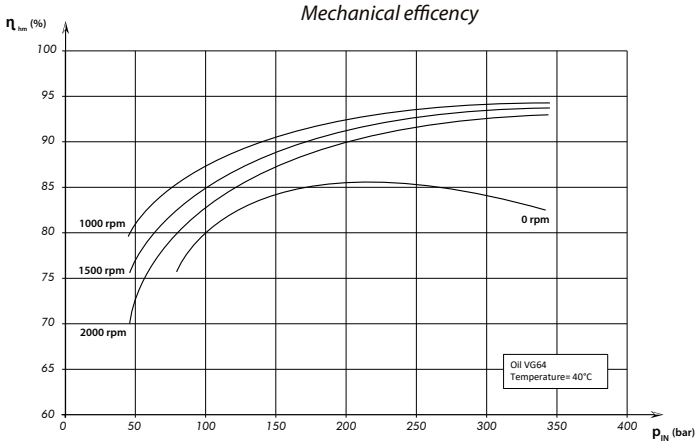
HPM 55cc - Rendimento meccanico
Mechanical efficency



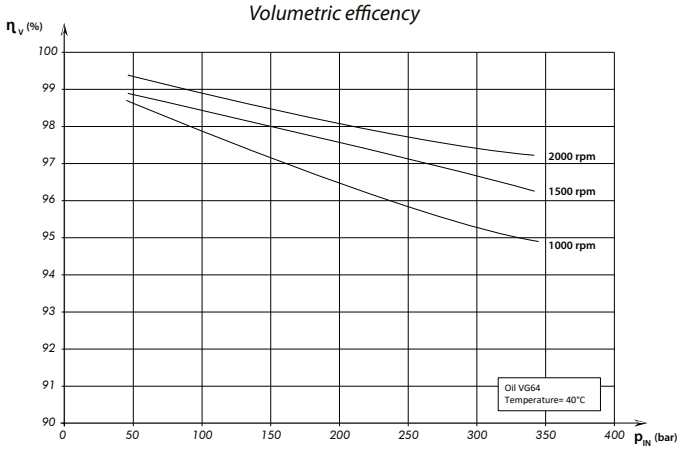
HPM 55cc - Rendimento volumetrico
Volumetric efficency



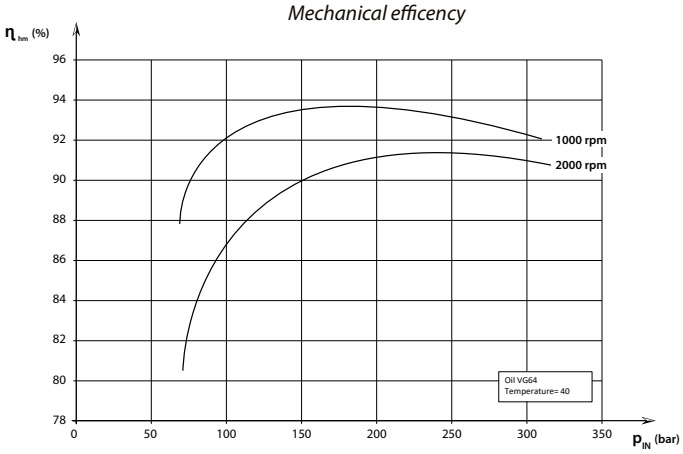
HPM 64cc - Rendimento meccanico
Mechanical efficency



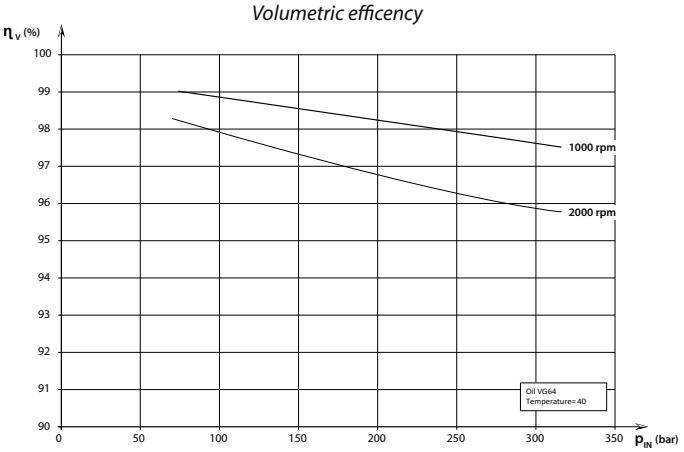
HPM 64cc - Rendimento volumetrico
Volumetric efficency



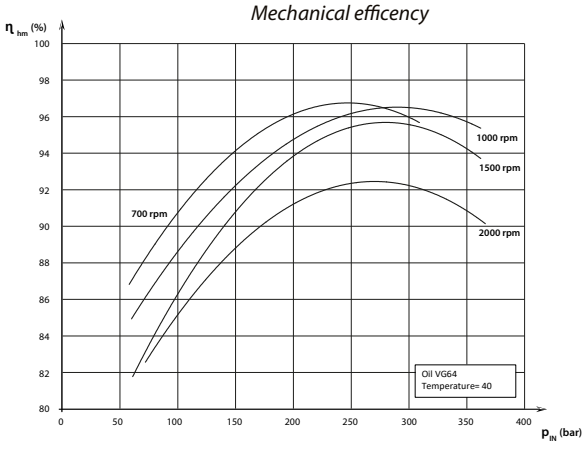
HPM 80cc - Rendimento meccanico
Mechanical efficency



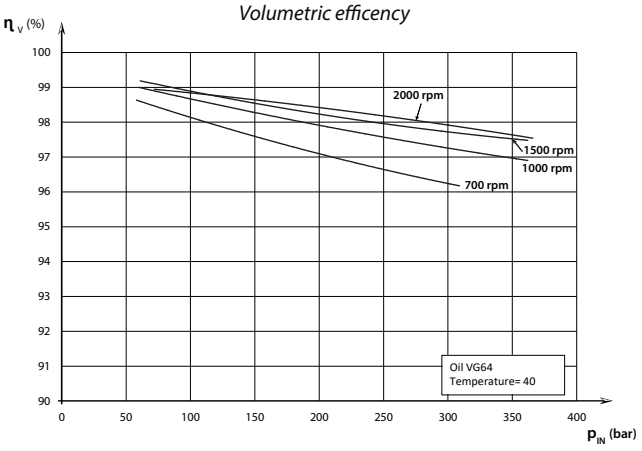
HPM 80cc - Rendimento volumetrico
Volumetric efficency



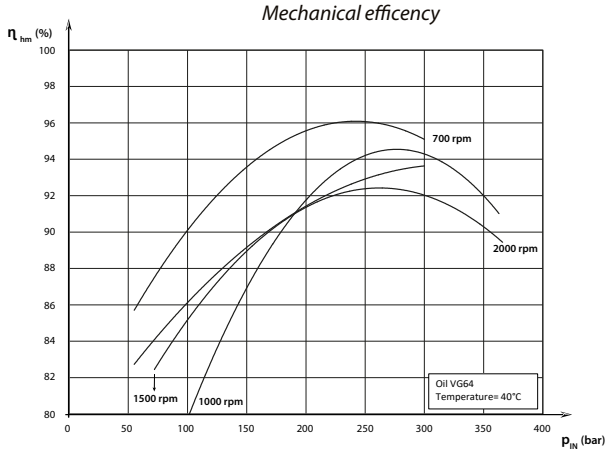
HPM 108cc - Rendimento meccanico
Mechanical efficency



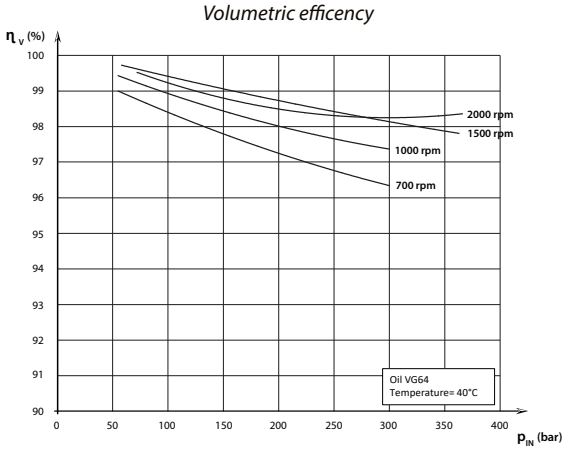
HPM 108cc - Rendimento volumetrico
Volumetric efficency



HPM 130cc - Rendimento meccanico
Mechanical efficency



HPM 130cc - Rendimento volumetrico
Volumetric efficency



MOTORI HPM3 FLANGIA ISO
BENT AXIS PISTON MOTORS HPM3 FLANGE ISO

SPECIFICHE TECNICHE / *TECHNICAL FEATURES*													
Cilindrata/ *Displacement*	cm^3/rev		12	17	25	34	40	47	55	64	84	108	130
Pressione di esercizio *Working pressure*	bar	Massima intermittente *Max. intermittent*	400										270
		Massima continua *Max. continuous*	350										250
Velocità di rotazione *Rotation speed*	rpm	Massima intermittente *Max. intermittent*	3000				2500				2000		
		Massima continua *Max. continuous*	2300				1900				1500		
		Minima continua *Min. continuous*	100										
Potenza teorica *Theoretical power*	kW	Massima intermittente *Max. intermittent*	24	34	50	68	67	78	92	107	112	144	117
		Massima continua *Max. continuous*	8	11	17	23	22	26	31	36	38	48	39
Coppia teorica/ *Theoretical Torque*	Nm/bar		0,20	0,27	0,40	0,54	0,66	0,76	0,91	1,02	1,34	1,72	2,09
Momento inerzia di massa (x 10^{-4}) *Mass inertial moment (x 10^{-4})*	$kg\ m^2$		11,5		12,5		35,5				61		
Peso approssimatico / Approx *weight*	kg		8,8				13,2				18,2		

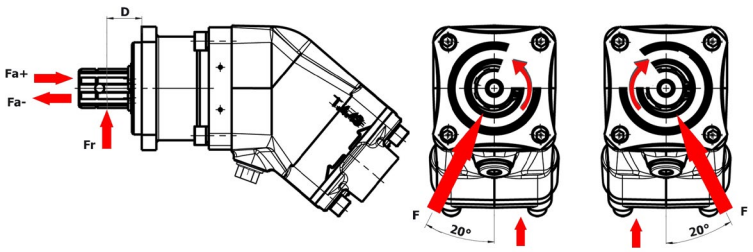
ATTENZIONE: in alcuni casi, la Pressione di esercizio è limitata dalla coppia trasmissibile dall'albero. Verificare se sono presenti indicazioni di limitazione ed eventualmente contattare OMFB per informazioni.
ATTENTION: *in some cases Working Pressure is limited by shaft's torque trasmissible. Check if there are restrictions and if it is necessary contact OMFB for information.*

CARICHI SULL'ALBERO / *SHAFT LOADS*

La durata del motore dipende molto da come vengono utilizzati i cuscinetti al suo interno. Condizioni di esercizio quali regime, pressione, viscosità dell'olio usato e grado di pulizia, se correttamente scelti ed applicati, consentono al motore una maggiorne durata, elevate prestazioni e bassa rumorosità. Anche fattori esterni quali valore, direzione e posizionamento del carico esterno sull'albero, influenzano la vita dei cuscinetti. Per condizioni diverse e/o verifica delle vostre condizioni di lavoro, contattare il nostro servizio tecnico-commerciale.

The lifetime of the motor depends on how the bearings are working. Operational parameters such as speed, pressure, oil viscosity and grade of cleanness when are dimensioned and applied correctly can guarantee a longer lifetime to the motor along with higher performances and reduced noise level. Also external factors such as value, weight and position of the external load on the shaft can influence the lifetime of the bearings. For different conditions and/or check of your working conditions please contact our technical/sales department.

Direzione ottimale del carico radiale
Optimal force direction of radial load



Pressione rotazione ANTIORARIA
Pressure ANTICLOCKWISE rotation

Pressione rotazione ORARIA
Pressure CLOCKWISE rotation

CARICHI MASSIMI SU ALBERO CONSIGLIATI *MAX RECOMMENDED SHAFT LOADS*		**CILINDRATA** / *DISPLACEMENT*										
		12	17	25	34	40	47	55	64	84	108	130
Fr=Massimo carico radiale *Fr (radial) max*	kN	7,5			4,2	9	8	3,5	2	10,75		12,5
D=Distanza punto di carico *Distance D (to point of force)*	mm	32				32				32		
Fa=Massimo carico assiale+ (a 0 bar pressione) *Fa (axial) + (at standstill/ 0 bar pressure) max*	kN	3				4				4	5	
Fa=Massimo carico assiale- (a 0 bar pressione) *Fa (axial) - (at standstill/ 0 bar pressure) max*	kN	4	5	7		7		10	11	13	16	19
Fa=Massimo carico assiale+ (a 350 bar pressione)* *Fa (axial) + (at 350 bar pressure) max **	kN	6	8	10,8	12	16		20		13	16	19
Fa=Massimo carico assiale- (a 350 bar pressione)* *Fa (axial) - (at 350 bar pressure) max **	kN	1,2		2,08		2,8		3,5	1,8	4,16	5,16	

* Fa = Carico assiale + incremento vita dei cuscinetti / *(axial) + Will increase bearing life.*
* Fa = Carico assiale - decremento vita dei cuscinetti / *(axial) - Will decrease bearing life.*

DIMENSIONAMENTO DEI TUBI / *HOSE SIZING*

La portata raccomandata nel tubo di alimentazione non deve generare una velocità del fluido superiore a 5m/s.
The recommended flow of the delivery hose should not exceed a fluid maximum speed of 5m/s.

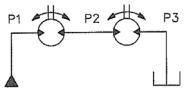
FILTRAGGIO / *FILTRATION*

Si raccomanda un grado di pulizia a norma ISO 4406-2021
- codice 19/17/14 fino a 140 bar.
- codice 18/16/13 da 140 bar a 200 bar.
- codice 17/15/12 superiore a 200 bar.

We recommend a cleanness grade according to ISO 4406-2021
- code 19/17/14 up to 140 bar.
- code 18/16/13 from 140 bar to 200 bar.
- code 17/15/12 over 200 bar.

Filettatura *Thread*	Coppia di serraggio max. raccordi su attacchi filettati *Max. fittings tightening torque*
M10 x 1	50 Nm
M12 x 1,5	80 Nm
G 1/2	80 Nm
G 3/4	100-120 Nm
G 1	180-200 Nm
G 1-1/4	310-330 Nm

MONTAGGIO IN SERIE MOTORI HPM / *SERIES CONNECTION OF HPM MOTORS*



La pressione massima ammissibile sulle bocche è di 350bar continua e 400bar intermittente. Nel caso di motori collegati in serie, limitare la pressione di esercizio totale P1 + P2 a 350bar continua e 400bar intermittente.

The maximum allowed pressure on the ports is 350 bar continuous and 400 bar intermittent. In case of series connection we recommend to limit the total working pressure P1+P2 always to 350 bar continuous and 400 bar intermittent.

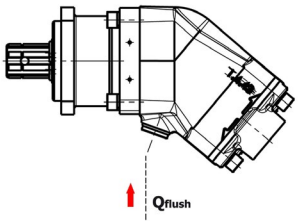
TEMPERATURE - RAFFREDDAMENTO DEL CORPO MOTORE
TEMPERATURE - COOLING OF MOTOR CASING

Una temperatura elevata dell'olio riduce la durata della guarnizione dell'albero e può far scendere la viscosità dell'olio al di sotto del livello raccomandato. La temperatura dell'impianto non deve superare 60°C e quella di scarico i 90°C. Può rendersi necessario il raffreddamento/lavaggio del corpo motore al fine di mantenere la temperatura di scarico alla temperatura raccomandata. Il lavaggio del corpo motore può avvenire mediante una valvola di lavaggio, oppure direttamente dal tubo di ritorno. Una pressione di ritorno troppo bassa deve essere compensata da una valvola di contropressione. Il tubo del serbatoio deve essere collegato nel punto più alto del motorecome indicato in figura.

High oil temperature reduces the lifetime of shaft oil seal and can lower the oil viscosity below the recommended level- The temperature of the system shall not exceed 60°C while temperature of return line shall not exceed 90°C. Cooling/flushing of motor casing might be necessary to keep return temperature within the recommended level. The motor casing flushing can be achieved by means of a flushing valve or directly from the return hose. Too low return pressure must be compensated by a back-pressure valve. The tank hose must be connected into the highest point of the motor as shown in the picture.

Valori di riferimento per il lavaggio del corpo motore.
Reference value for motor casing flushing.

	MOTORE *MOTOR*	LAVAGGIO *FLUSHING*	≥ CONT.
Q	12-34	2-8 l/min.	≥ 2800 giri/min.
	40-64	4-10 l/min.	2500 giri/min.
	84-130	6-12 l/min.	2200 giri/min.



TIPI DI FLUIDO / *TYPES OF FLUID*
La tabella a fianco riporta le principali categorie di fluidi idraulici. Classificazione ISO 6743-4.
The table below shows the main types of hydraulic fluid as set out in ISO 6743-4 standard.

HL RACCOMANDATO / *HL RECOMMENDED*
(Per altri tipi di fluido, rivolgersi al nostro ufficio tecnico/commerciale)
(For other type of fluid please contact our sales/technical dept).

Fluidi a base minerale	
HH	Privo di additivi
HL	Anticorrosivi e antiossidanti **(RACCOMANDATO)**
HM	Additivi HL + antiusura
HV	Additivi HM e correttori di viscosit
Fluidi resistenti alla fiamma	
HFA	Emulsione di olio in acqua (acqua > 90%)
HFB	Emulsione acqua in olio (acqua > 40%)
HFC	Acqua in soluzione di glicoli (alcoli polidrati)
HFD	Fluidi sintetici privi di acqua (esteri fosforici)
Fluidi ecologici	
HETG	Fluidi a base vegetale
HEPG	Fluidi sintetici a base di poliglicoli
HEE	Fluidi sintetici a base di esteri

Mineral oil-based fluids	
HH	Additive-free
HL	Anticorrosive, antioxidant (RECOMMENDED)
HM	HL and anti-wear additives
HV	HM additives and viscosity controls
Flame-resitant fluids	
HFA	Oil-based emulsion in water (water > 90%)
HFB	Water-based emulsion in oil (water > 40%)
HFC	Water in glycol solution (polyhydrate alcohols)
HFD	Water-free synthetic fluids (phosphoric esters)
Organic fluids	
HETG	Vegetable-based fluids
HEPG	Synthetic polyglycol-based fluids
HEE	Synthetic ester-based fluids

CAMPO DI VISCOSITA' DEL FLUIDO / *VISCOSITY INDEX*

La viscosità ottimale Vopt del fluido alla temperatura di funzionamento (temperatura serbatoio per i circuiti aperti o temperatura del circuito per i quelli chiusi) deve essere compresa tra i valori indicati in tabella. In condizioni estreme e per brevi periodi di tempo è ammessa una viscosità minima Vmin riportata nella tabella. Tale viscosità minima è riferita ad una temperatura massima del fluido di 90°C (temperatura del fluido di drenaggio). La massima viscosità ammessa Vmax per brevi periodi e durante l'avviamento a freddo è riportata nella tabella. In ogni caso la temperatura del fluido non deve mai essere superiore ai +90°C ed inferiore ai -25°C.

The optimum viscosity of the fluid Vopt at the operating temperature (temperature of the tank for open circuits or temperature of the circuit for closed circuits) must fall between the minimum and maximum values shown in the table below. The minimum viscosity Vmin shown in the table is permitted in extreme conditions and for short periods. This value refers to a maximum fluid temperature of 90°C (temperature of drainage fluid). The maximum viscosity Vmax for short intervals and during cold starts is shown in the table below. The temperature of the fluid must never exceed a maximum of +90°C and a minimum of -25°C.

	Vopt (cSt)	**V**min (cSt)	**V**max (cSt)
HPM	15÷40	10	800

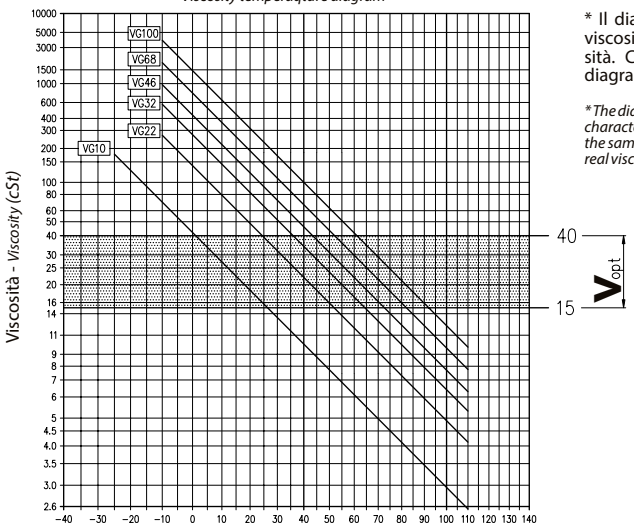
CLASSI DI VISCOSITA' / *VISCOSITY GRADES*

La norma ISO divide i fluidi idraulici in 6 classi di viscosità (tabella sotto). La classe di viscosità è indicata dalle lettere VG seguite dal valore espresso in cSt, alla temperatura di 40 °C.
Under the ISO standard, hydraulic fluids are divided into 6 grades of viscosity (see table below). Viscosity grades are shown by the letters VG followed by the viscosity of the fluid in cSt at a temperature of 40 °C.

Classe di viscosità Viscosity grades ISO	**V** (*40°*) (cSt)
VG 10	9÷11
VG 22	19.8÷24.2
VG 32	28.8÷35.2
VG 46	41.4÷50.6
VG 68	61.2÷71.5
VG 188	100

Per una corretta scelta del tipo di fluido da impiegare, è necessario sapere la temperatura di lavoro del fluido (temperatura serbatoio per icircuiti aperti o temperatura del circuito per quelli chiusi) ed il suo indice di viscosità. Il fluido dovrebbe essere scelto in modo che la sua viscosità, alla temperatura di lavoro, sia compresa all'interno dei valori di viscosità ottimale (Vopt). Il diagramma sotto, illustra l'andamento della viscosità in funzione della temperatura per una classe di fluidi con lo stesso indice di viscosità.
In order to choose the correct type of fluid, it is essential to know the operating temperature of the fluid (temperature of the tank for open circuits or temperature of the circuit for closed circuits) and its viscosity index. At the operating temperature, the viscosity of the fluid must fall within the optimum viscosity values (Vopt). The diagram below shows the variations of viscosity at various temperatures of a class of fluids sharing the same viscosity index.

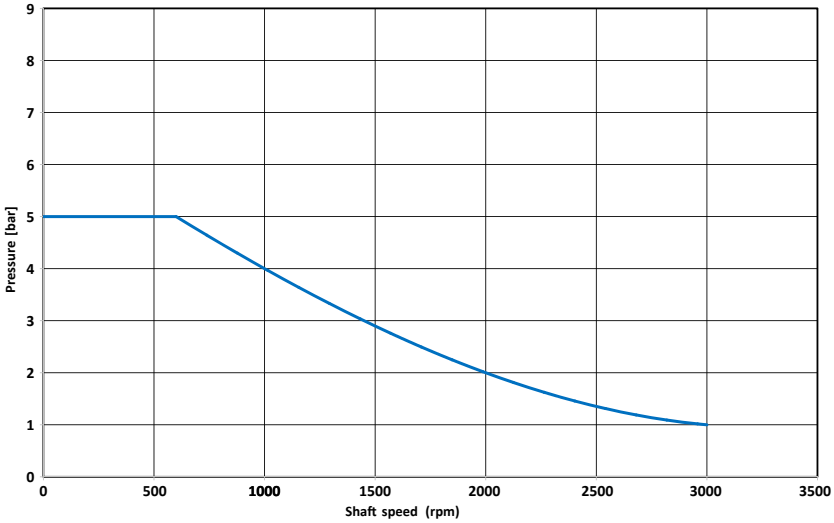
Grafico viscosità - temperatura *
*Viscosity temperaqture diagram **



* Il diagramma è indicativo e si riferisce a fluidi con viscosità diversa ma con lo stesso indice di viscosità. Consultare il fornitore del fluido per avere il diagramma reale relativo al fluido che si sta usando.

** The diagram is only an example. It shows the viscosity temperature characterisics of typical fluids with different viscosities but sharing the same viscosity index. Ask to your hydraulic fluid supplier for the real viscosity-temperature diagram of the fluid used in your system.*

PRESSIONE MASSIMA IN CARCASSA / *MAX. PRESSURE IN THE CASING*

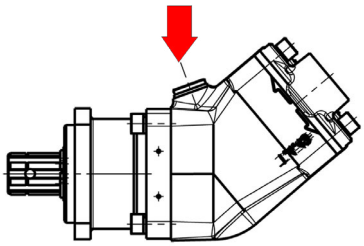


La durata del paraolio dipende dalla velocità del motore e dalla pressione della carcassa e diminuisce all'aumentare della frequenza dei picchi.
La durata può essere ridotta anche a causa di altri fattori sfavorevoli come ad esempio alta temperatura, bassa viscosità dell'olio o olio contaminato.
I dati indicati sono riferiti a condizioni ottimali di esercizio.
La pressione della carcassa deve essere comunque uguale o superiore alla pressione esterna.
Per assicurare la corretta pressione sul paraolio è necessario collegare le bocche di drenaggio a serbatoio utilizzando se necessario una valvola di non ritorno.

The life of the oil seal depends on the speed of the motor and the pressure of the casing and decreases as the frequency of the peaks increases.
The service life can also be reduced due to other unfavorable factors such as high temperature, low oil viscosity or contaminated oil.
The data shown refer to optimal operating conditions.
The case pressure shall in any case be equal to or greater than the external pressure.
To ensure the correct pressure on the oil seal, it is necessary to connect the drain line to the tank using a check valve if it is necessary.

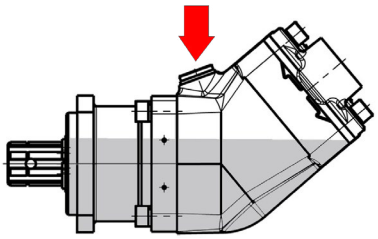
Prima della messa in funzione del motore **RIEMPIRE** di olio la carcassa.
Si raccomanda la massima pulizia nelle fasi sia di rabbocco che successivamente del cambio olio.
Coppia serraggio tappi: 20-25 Nm.

Before to start up the motor please fill-up the the casing with oil.
We recommend the highest level of cleanness during the operations of oil filling-up and change.
Plugs tightening torque: 20-25 Nm



Prima di utilizzare il motore, collegare il drenaggio. Usare sempre il drenaggio più ALTO in conformità con il posizionamento del motore e comunque il drenaggio che garantisca **SEMPRE** il pieno carcassa.

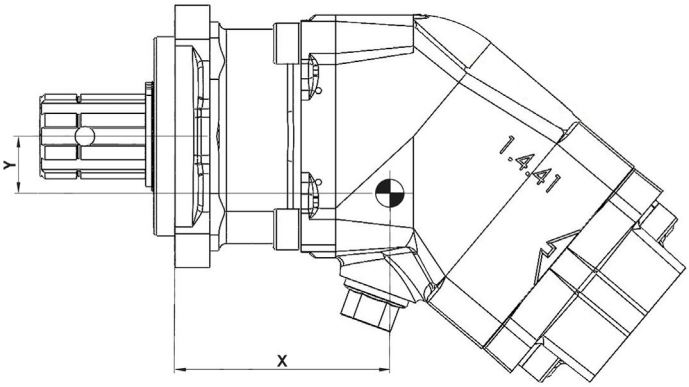
Connect the drain line before using the motor.
*Use always the upper drain port according to the motor position and in any case **ALWAYS** use the drain port that can ensure the casing being filled-up.*



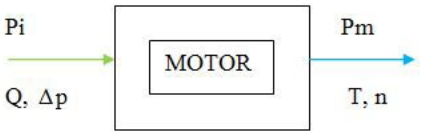
BARICENTRO / *CENTER OF MASS*

Tipo flangia *Flange type*	Cilindrata *Displacement*	X	Y
201 : ISO 7653-D	012-017-025-034cc	90	18
201 : ISO 7653-D **213** : SAE J744 SAE B 2H-4H **214** : SAE J744 SAE C - 4H	040-047-055-064cc	106	19
	084-108-130	162	24

Quote approssimative / *Approx dimensions*



FORMULE MOTORI / FORMULAS FOR MOTORS



POTENZA IDRAULICA ENTRANTE
In un motore la potenza idraulica entrante è proporzionale alla differenza di pressione fra le bocche e alla portata secondo la relazione dove:
Pi è la potenza idraulica espressa in kW
Q è la portata espressa in l/min
Δp è la differenza di pressione fra le bocche espressa in bar

$$Pi = \frac{Q \cdot \Delta p}{600}$$

INPUT HYDRAULIC POWER
In a motor the input hydraulic power is proportional to the pressure difference between the ports and to the flow according to the ratio where:
***Pi** is the hydraulic power in kW*
***Q** is the flow in l/min*
***Δp** is the pressure difference in bar between the ports*

POTENZA MECCANICA RESA ALL'ALBERO
In un motore la potenza meccanica disponibile all'albero è proporzionale alla coppia all'albero e alla velocità angolare dell'albero secondo la relazione dove:
Pm è la potenza meccanica espressa in kW
T è la coppia (Torque) espressa in Nm
n è il numero di giri espresso in rpm

$$Pm = \frac{T \cdot n}{9550}$$

MECHANICAL POWER TO THE SHAFT
In a motor the mechanical power available is proportional to the torque at the shaft and to the angular speed of the shaft according to the ratio where:
***Pm** is the mechanical power in kW*
***T** is the torque in Nm*
***n** is the rpm*

PORTATA IN INGRESSO PER FAR RUOTARE L'ALBERO ALLA VELOCITÀ n dove:
Q è la portata espressa in l/min
n è il numero di giri espresso in rpm
c è la cilindrata del motore espresso in cc/rev
ηv è il rendimento volumetrico del motore

$$Q = \frac{n \cdot c}{1000 \cdot \eta v}$$

INPUT FLOW FOR ROTATING THE SHAFT AT SPEED n where:
***Q** is the flow in l/min*
***n** is the rpm*
***c** is the displacement of the motor in cc/rev*
***ηv** is the volumetric efficiency of the motor*

VELOCITÀ DEL MOTORE QUANDO IN INGRESSO VIENE IMMESSA LA PORTATA Q dove:
n è il numero di giri espresso in rpm
Q è la portata espressa in l/min
c è la cilindrata del motore espresso in cc/rev
ηv è il rendimento volumetrico del motore

MOTOR SPEED WHEN IN INPUT YOU HAVE FLOW Q where:
***n** is the rpm*
***Q** is the flow in l/min*
***c** is the displacement of the motor in cc/rev*
***ηv** is the volumetric efficiency of the motor*

$$n = 1000 \cdot \frac{Q}{c} \cdot \eta v$$

COPPIA RESA ALL'ALBERO CON UNA DIFFERENZA DI PRESSIONE p FRA LE BOCCHE dove:
T è la coppia (Torque) espressa in Nm
c è la cilindrata del motore espressa in cc/rev
Δp è la differenza di pressione fra le bocche espressa in bar
ηm è il rendimento meccanico del motore

TORQUE TO THE SHAFT WITH A PRESSURE DIFFERENCE p BETWEEN THE PORTS where:
***T** is the torque in Nm*
***c** is the displacement of the motor in cc/rev*
***Δp** is the pressure difference in bar between the ports*
***ηm** is the mechanical efficiency of the motor*

$$T = \frac{c \cdot \Delta p}{62{,}8} \cdot \eta m$$

DIFFERENZA DI PRESSIONE NECESSARIA FRA LE BOCCHE DI INGRESSO PER OTTENERE ALL'ALBERO LA COPPIA T dove:
Δp è la differenza di pressione fra le bocche espressa in bar
T è la coppia (Torque) espressa in Nm
c è la cilindrata del motore espressa in cc/rev
ηm è il rendimento meccanico del motore

PRESSURE DIFFERENCE REQUIRED BETWEEN INPUT PORTS TO OBTAIN TORQUE T AT THE SHAFT *where:*
***Δp** is the pressure difference in bar between the ports*
***T** is the torque in Nm*
***c** is the displacement of the motor in cc/rev*
***ηm** is the mechanical efficiency of the motor*

$$\Delta p = 62{,}8 \cdot \frac{T}{c \cdot \eta m}$$

MOTORI HPM3 FLANGIA SAE
BENT AXIS PISTON MOTORS HPM3 FLANGE SAE

SPECIFICHE TECNICHE / *TECHNICAL FEATURES*									
Cilindrata/ *Displacement*	cm³/rev		40	47	55	64	84	108	130
Pressione di esercizio *Working pressure*	bar	Massima intermittente *Max. intermittent*	400	340	280	250	400		270
		Massima continua *Max. continuous*	350				350		250
Velocità di rotazione *Rotation speed*	rpm	Massima intermittente *Max. intermittent*	2500				2000		
		Massima continua *Max. continuous*	1900				1500		
		Minima continua *Min. continuous*	100						
Potenza teorica *Theoretical power*	kW	Massima intermittente *Max. intermittent*	67	67	64	67	112	144	117
		Massima continua *Max. continuous*	22	22	21	22	38	48	39
Coppia teorica/ *Theoretical Torque*	Nm/bar		0,63	0,7	0,83	0,97	1,3	1,6	2
Momento inerzia di massa (x 10^{-4}) *Mass inertial moment (x 10^{-4})*	kg m²		35,5				61		
Peso approssimativo / Approx *weight*	kg		14,2				21		

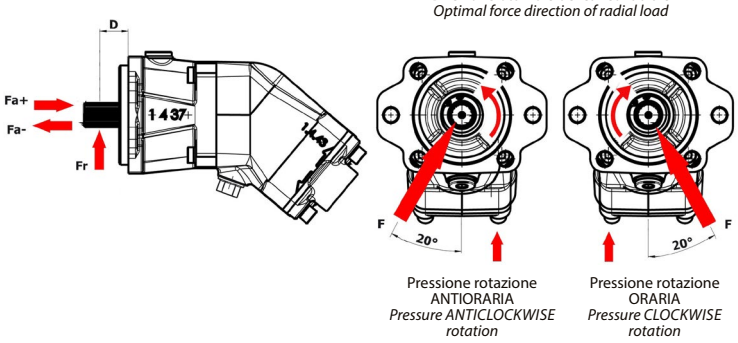
ATTENZIONE: in alcuni casi, la Pressione di esercizio è limitata dalla coppia trasmissibile dall'albero. Verificare se sono presenti indicazioni di limitazione ed eventualmente contattare OMFB per informazioni.
ATTENTION: *in some cases Working Pressure is limited by shaft's torque trasmissible. Check if there are restrictions and if it is necessary contact OMFB for information.*

CARICHI SULL'ALBERO / *SHAFT LOADS*

La durata del motore dipende molto da come vengono utilizzati i cuscinetti al suo interno. Condizioni di esercizio quali regime, pressione, viscosità dell'olio usato e grado di pulizia, se correttamente scelti ed applicati, consentono al motore una maggiorne durata, elevate prestazioni e bassa rumorosità. Anche fattori esterni quali valore, direzione e posizionamento del carico esterno sull'albero, influenzano la vita dei cuscinetti. Per condizioni diverse e/o verifica delle vostre condizioni di lavoro, contattare il nostro servizio tecnico-commerciale.

The lifetime of the motor depends on how the bearings are working. Operational parameters such as speed, pressure, oil viscosity and grade of cleanness when are dimensioned and applied correctly can guarantee a longer lifetime to the motor along with higher performances and reduced noise level. Also external factors such as value, weight and position of the external load on the shaft can influence the lifetime of the bearings. For different conditions and/or check of your working conditions please contact our technical/sales department.

Direzione ottimale del carico radiale
Optimal force direction of radial load



Pressione rotazione ANTIORARIA
Pressure ANTICLOCKWISE rotation

Pressione rotazione ORARIA
Pressure CLOCKWISE rotation

CARICHI MASSIMI SU ALBERO CONSIGLIATI *MAX RECOMMENDED SHAFT LOADS*		**CILINDRATA** / *DISPLACEMENT*						
		40	47	55	64	84	108	130
Fr=Massimo carico radiale / *Fr (radial) max*	kN	9	8	3,5	2	10,75		12,5
D=Distanza punto di carico HPM 213 *Distance D (to point of force)*	mm	24				32		
D=Distanza punto di carico HPM 214 *Distance D (to point of force)*	mm	34						
Fa=Massimo carico assiale+ (a 0 bar pressione) *Fa (axial) + (at standstill/ 0 bar pressure) max*	kN	4				4	5	
Fa=Massimo carico assiale- (a 0 bar pressione) *Fa (axial) - (at standstill/ 0 bar pressure) max*	kN	7		10	11	13	16	19
Fa=Massimo carico assiale+ (a 350 bar pressione)* *Fa (axial) + (at 350 bar pressure) max **	kN	16		20		13	16	19
Fa=Massimo carico assiale- (a 350 bar pressione)* *Fa (axial) - (at 350 bar pressure) max **	kN	2,8		3,5	1,8	4,16	5,16	

* Fa = Carico assiale + incremento vita dei cuscinetti / *(axial) + Will increase bearing life.*
* Fa = Carico assiale - decremento vita dei cuscinetti / *(axial) - Will decrease bearing life.*

DIMENSIONAMENTO DEI TUBI / *HOSE SIZING*

La portata raccomandata nel tubo di alimentazione non deve generare una velocità del fluido superiore a 5m/s.
The recommended flow of the delivery hose should not exceed a fluid maximum speed of 5m/s.

FILTRAGGIO / *FILTRATION*

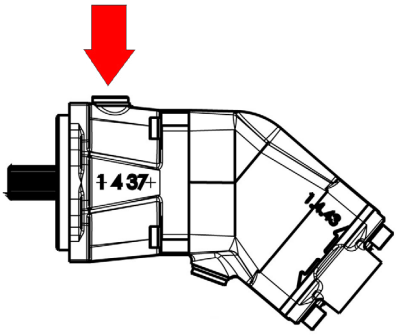
Si raccomanda un grado di pulizia a norma ISO 4406-2021
- codice 19/17/14 fino a 140 bar.
- codice 18/16/13 da 140 bar a 200 bar.
- codice 17/15/12 superiore a 200 bar.

We recommend a cleanness grade according to ISO 4406-2021
- code 19/17/14 up to 140 bar.
- code 18/16/13 from 140 bar to 200 bar.
- code 17/15/12 over 200 bar.

Filettatura *Thread*	Coppia di serraggio max. raccordi su attacchi filettati *Max. fittings tightening torque*
M10 x 1	50 Nm
M12 x 1,5	80 Nm
G 1/2	80 Nm
G 3/4	100-120 Nm
G 1	180-200 Nm
G 1-1/4	310-330 Nm

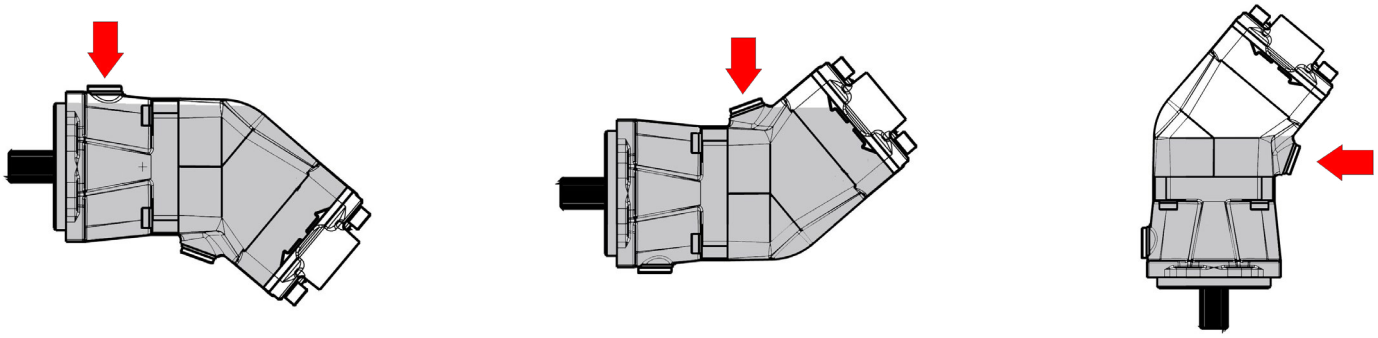
Prima della messa in funzione del motore **RIEMPIRE** di olio la carcassa. Si raccomanda la massima pulizia nelle fasi sia di rabbocco che successivamente del cambio olio.
Coppia serraggio tappi: 20-25 Nm.

Before to start up the motor please fill-up the the casing with oil.
We recommend the highest level of cleanness during the operations of oil filling-up and change.
Plugs tightening torque: 20-25 Nm



Prima di utilizzare il motore, collegare il drenaggio. Usare sempre il drenaggio più ALTO in conformità con il posizionamento del motore e comunque il drenaggio che garantisca **SEMPRE** il pieno carcassa.

Connect the drain line before using the motor.
*Use always the upper drain port according to the motor position and in any case **ALWAYS** use the drain port that can ensure the casing being filled-up.*

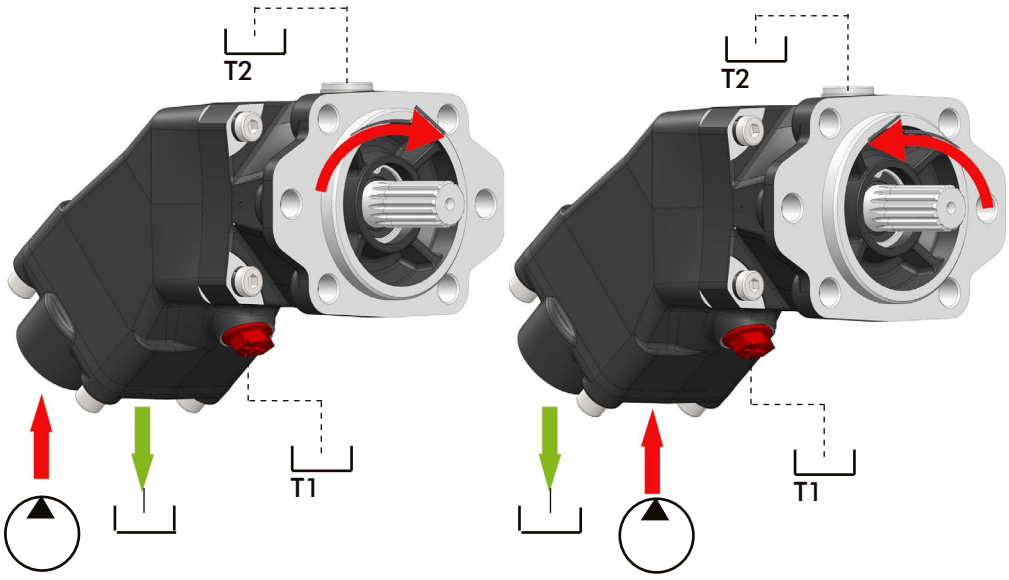


Il senso di rotazione del motore è in funzione della direzione di mandata olio come indicato nella figura sotto. Porre attenzione al corretto dimensionamento e posizionamento delle tubazioni dell'olio. Infatti diametri insufficienti e/o curve troppo strette, possono creare cavitazione e, di conseguenza, ulteriori danni ed una rumorosità accentuata.

The direction of rotation of the motor depends from direction of delivery oil as shown in the picture below. Make sure about the correct sizing and positioning of the oil hoses. Insufficient diameter, kinks and/or tight elbows may lead to cavitation and consequently further damages and high noise level.

Rotazione ORARIA
CLOCKWISE rotation

Rotazione ANTIORARIA
ANTICLOCKWISE rotation



1	2	3	4		
2 4 4	0 2 0	1 4	0 6 4	M 0 4	

Tipo flangia / *Flange type*

240 : Ø 80mm ISO 3019-2
242 : Ø 100mm ISO 3019-2
244 : Ø 125mm ISO 3019-2
246 : Ø 140mm ISO 3019-2
248 : Ø 160mm ISO 3019-2

Albero / *Shaft*

008 : W20x1,25x14x9g DIN 5480
011 : W25x1,25x18x9g DIN 5480
014 : W30x2x14x9g DIN 5480
017 : W32x2x14x9g DIN 5480
020 : W35x2x16x9g DIN 5480
023 : W40x2x18x9g DIN 5480
026 : W45x2x21x9g DIN 5480

041 : K20 - ø20 DIN 6885
044 : K25 - ø25 DIN 6885
047 : K30 - ø30 DIN 6885
050 : K35 - ø35 DIN 6885
053 : K40 - ø40 DIN 6885
056 : K45 - ø45 DIN 6885

Connessioni / *Portings*

01 : BSPP REAR 40°
03 : BSPP SIDE
04 : BSPP REAR 40° + SIDE
05 : UN REAR 40°
11 : SAE 6000 REAR 40° - M
13 : SAE 6000 REAR 90° - M
14 : SAE 6000 SIDE - M
15 : SAE 6000 SIDE - M + FLUSHING VALVE (MOUNTED)
17 : SAE 6000 REAR 10° - M
21 : SAE 6000 REAR 40° - U
25 : SAE 6000 SIDE - UNC + FLUSHING VALVE (MOUNTED)
32 : METRIC SIDE

Varianti / *Variants*

P: Motore con predisposizione sensore
Motor with speed sensor option

M--: Motore con sensore montato
Motor with selected speed sensor already mounted

- **M01**: speed sensor 2CH PWM L=18,4mm
- **M02**: speed sensor 1CH L=18,4mm
- **M03**: speed sensor 2CH (2 FREQ.) L=18,4mm
- **M04**: speed sensor 2CH (2 FREQ.) L=32mm
- **M05**: speed sensor 2CH (1F + 1D) L=18,4mm
- **M06**: speed sensor 2CH (1F + 1D) L=32mm

(vedere sezione sensori / *see speed sensor section)*

L: Motore drenaggio interno sinistro
Left drainless motor

R: Motore drenaggio interno destro
Right drainless motor

Cilindrata / *Displacement (cc)*

012
017
020
025
034
040
047
055
064
080
091
108
130

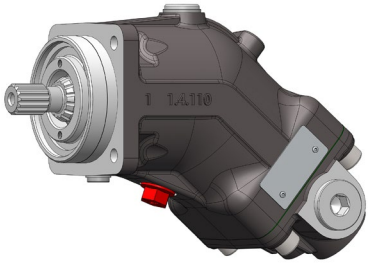
Flangia *Flange*	Diametro / *Diameter*		Ø80			Ø100		Ø125				Ø140			Ø160	
	Codice / *Code* 1		240			242		244				246			248	
	Cilindrata / *Displacement* 4		012	017	020	025	034	040	047	055	064	080	091	108	108	130
Albero *Shaft*	Codice *Code* 2															
	008	W20x1,25x14x9g DIN 5480	X	X												
	011	W25x1,25x18x9g DIN 5480	X	X		X	X									
	014	W30x2x14x9g DIN 5480				X	X	X	X	X	X					
	020	W35x2x16x9g DIN 5480						X	X	X	X	X	X			
	023	W40x2x18x9g DIN 5480										X	X		X	X
	026	W45x2x21x9g DIN 5480													X	X
	041	K20 - ø20 DIN 6885	X	X	X											
	044	K25 - ø25 DIN 6885	X	X	X	X	X									
	047	K30 - ø30 DIN 6885				X	X	X	X	X	X					
	050	K35 - ø35 DIN 6885						X	X	X	X	X	X			
	053	K40 - ø40 DIN 6885										X	X	X	X	X
	056	K45 - ø45 DIN 6885													X	X
Connessioni *Portings*	Codice *Code* 3															
	01	BSPP REAR 40°				X	X	X	X	X	X					
	03	BSPP SIDE				X	X									
	04	BSPP REAR 40° + SIDE	X	X	X											
	05	UN REAR 40°				X	X	X	X	X	X					
	11	SAE 6000 REAR 40° - M				X	X	X	X	X	X	X	X		X	X
	13	SAE 6000 REAR 90° - M				X	X	X	X	X	X	X	X		X	X
	14	SAE 6000 SIDE - M				X	X	X	X	X	X	X	X		X	X
	15	SAE 6000 SIDE - M + FLUSHING VALVE (MOUNTED)						X	X	X	X	X	X	X	X	X
	17	SAE 6000 REAR 10° - M				X	X					X				
	21	SAE 6000 REAR 40° - U						X	X	X	X					
	25	SAE 6000 SIDE - UNC + FLUSHING VALVE (MOUNTED)						X	X	X	X	X	X			
	32	METRIC SIDE								X						

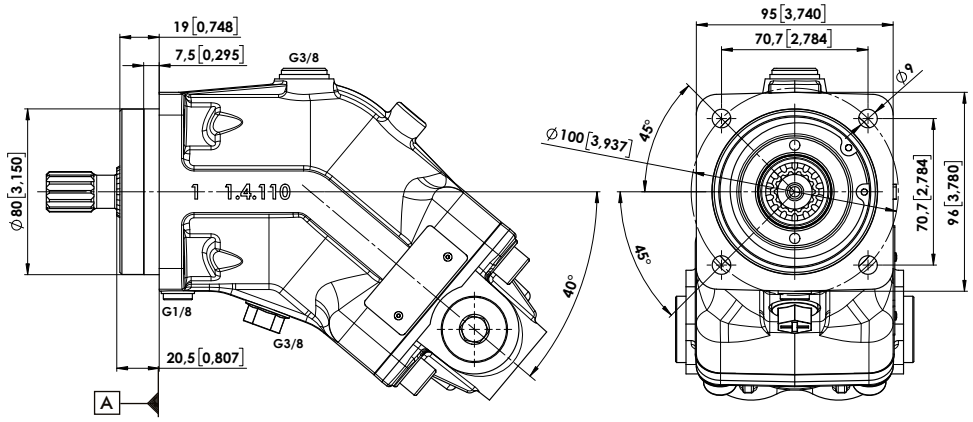
X = Disponibili / *Available*

X Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

Ingombro / *Dimensions*

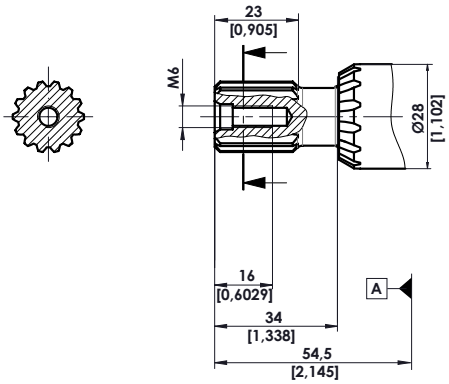
Flange code **240**



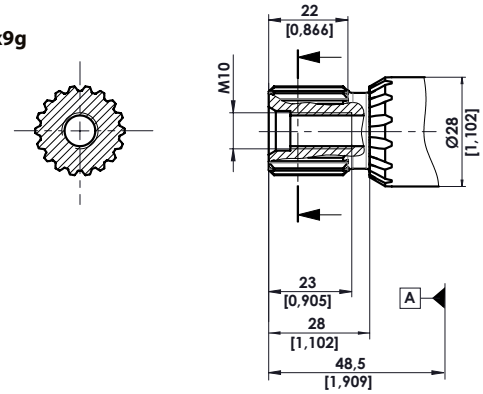


Alberi/ *Shafts*

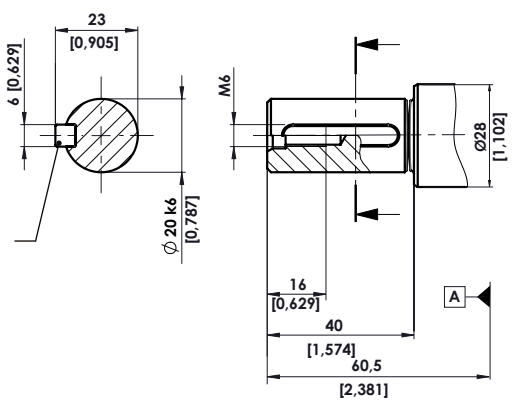
008
W20x1.25x14x9g
Splined shaft
DIN 5480



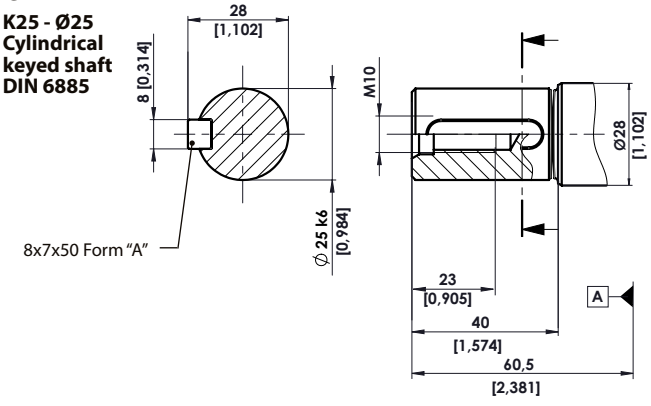
011
W25x1.25x18x9g
Splined shaft
DIN 5480



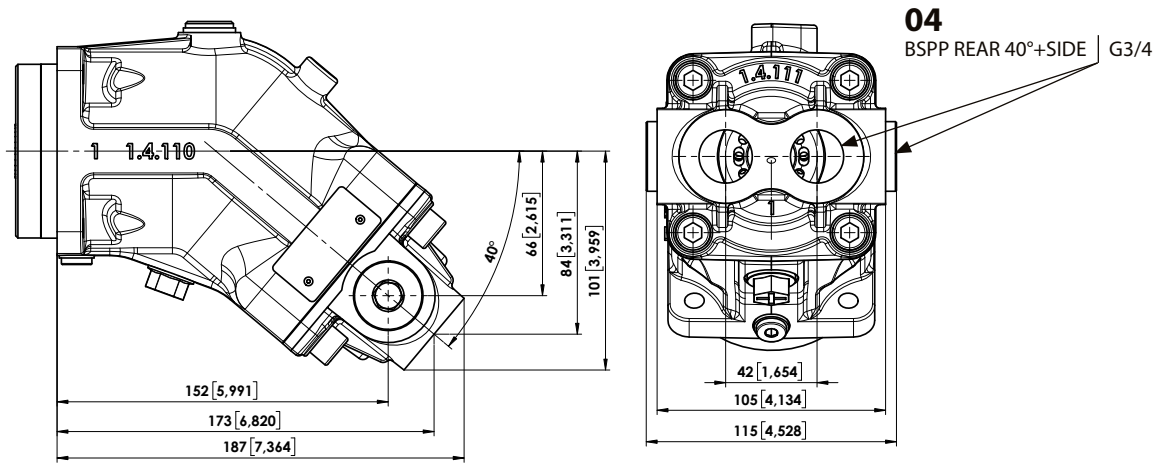
041
K20 - Ø20
Cylindrical
keyed shaft
DIN 6885



044
K25 - Ø25
Cylindrical
keyed shaft
DIN 6885



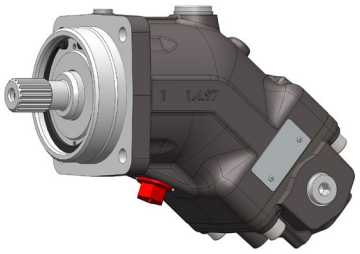
Connessioni/ *Portings*

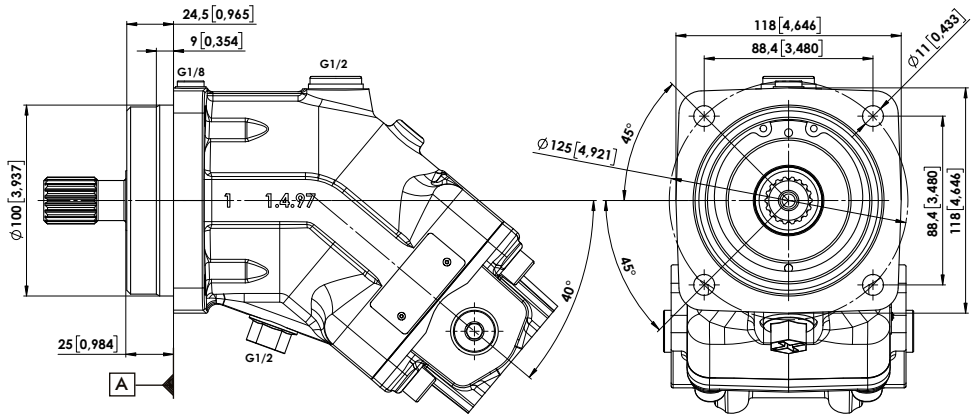


04
BSPP REAR 40°+SIDE | G3/4

Ingombro / *Dimensions*

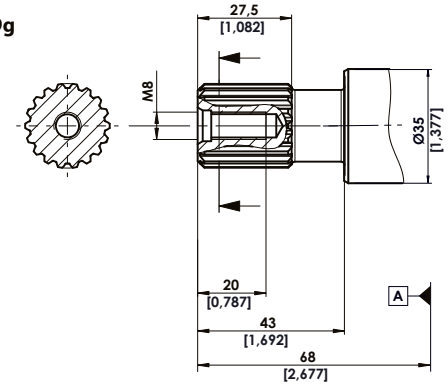
Flange code **242**



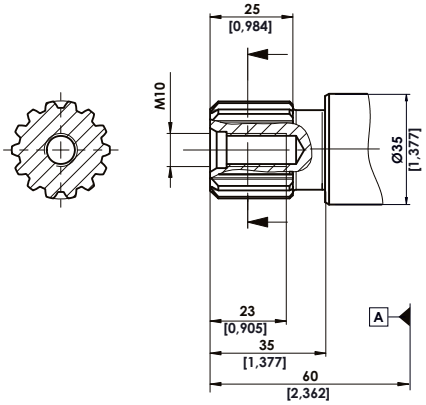


Alberi/ *Shafts*

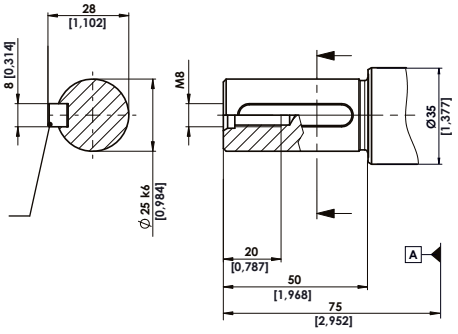
011
W25x1.25x18x9g
Splined shaft
DIN 5480



014
W30x2x14x9g
Splined shaft
DIN 5480



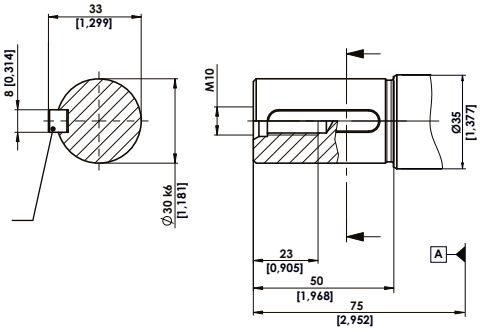
044
K25 - Ø25
Cylindrical keyed shaft
DIN 6885



8x7x40 Form "A"

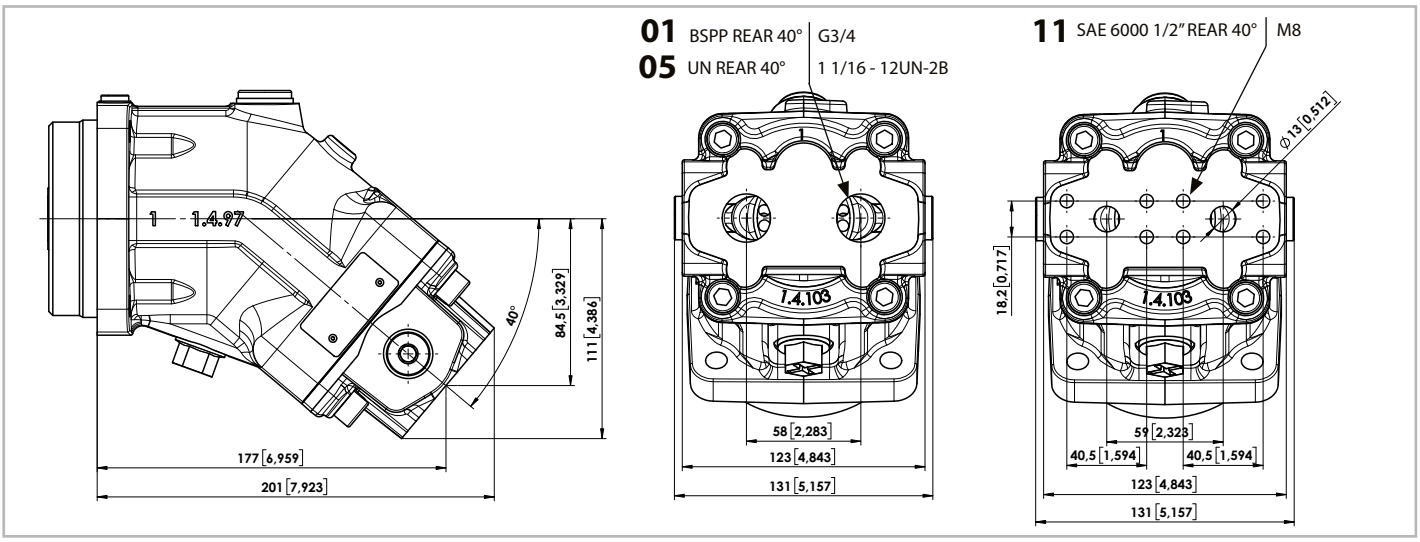
Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

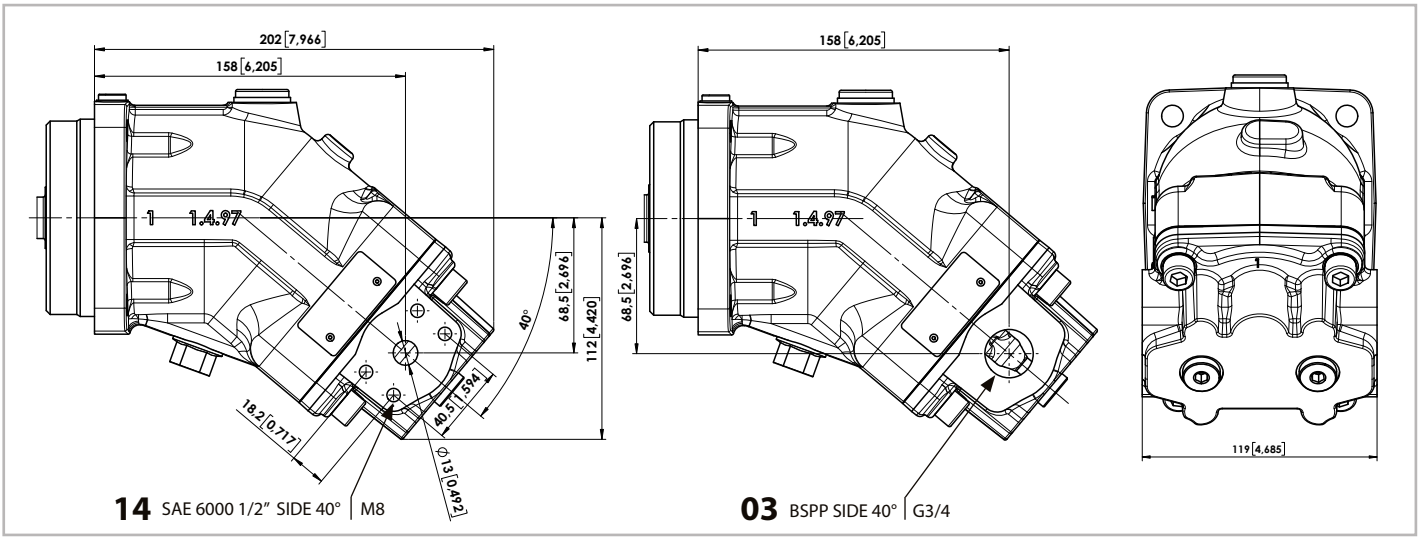
047
K30 - Ø30
Cylindrical keyed shaft
DIN 6885

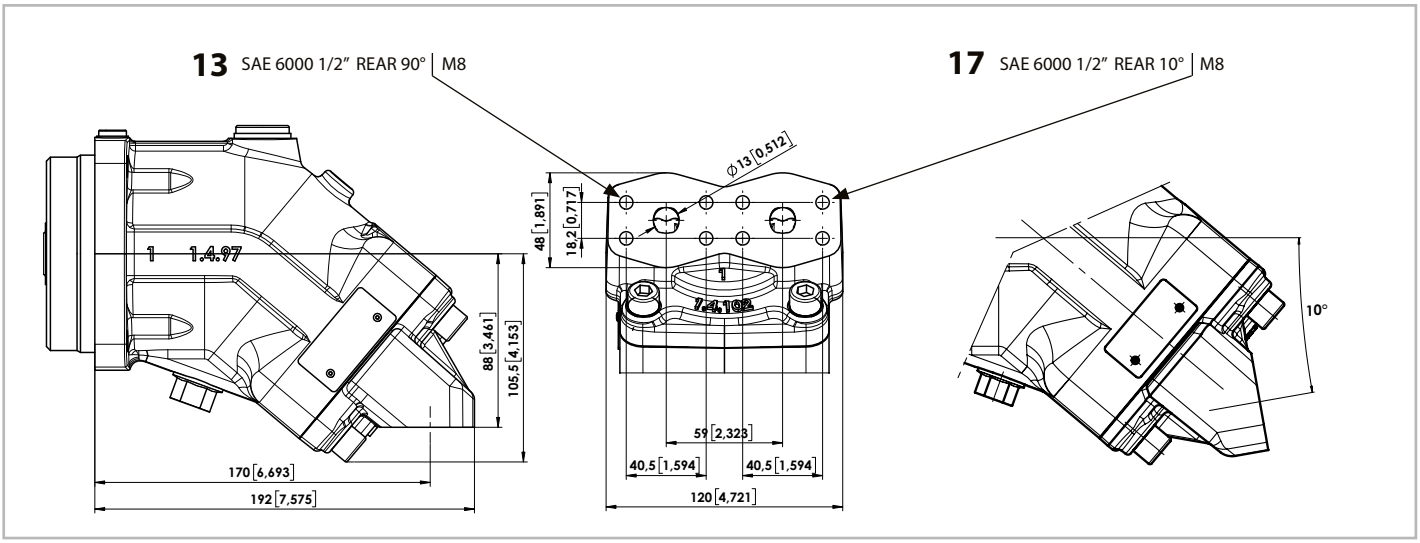


8x7x40 Form "A"

Connessioni/ *Portings*

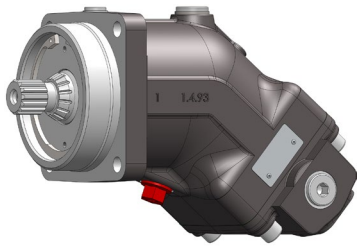


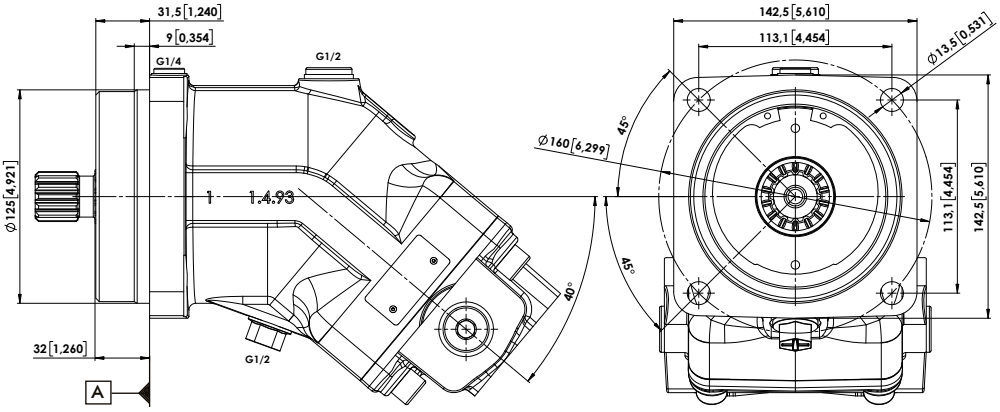




Ingombro / *Dimensions*

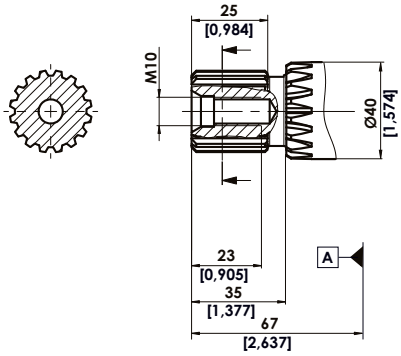
Flange code **244**



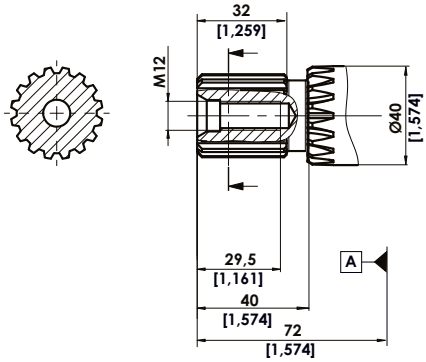


Alberi/ *Shafts*

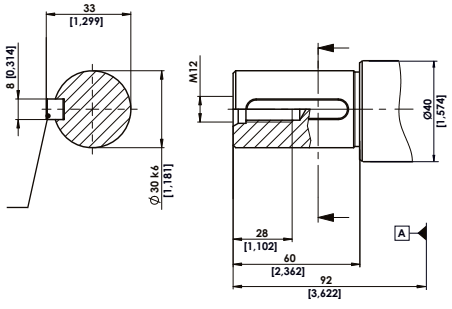
014
W30x2x14x9g
Splined shaft
DIN 5480



020
W35x2x16x9g
Splined shaft
DIN 5480

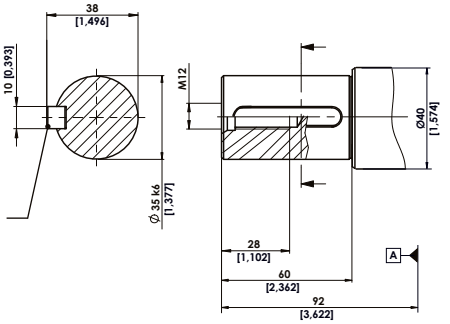


047
K30 - Ø30
Cylindrical
keyed shaft
DIN 6885



Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

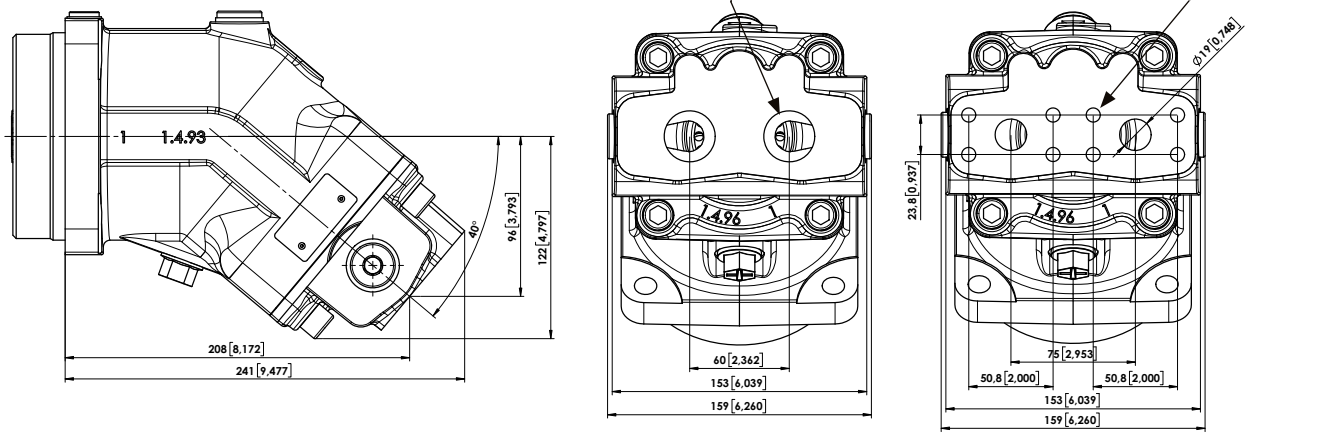
050
K35 - Ø35
Cylindrical
keyed shaft
DIN 6885

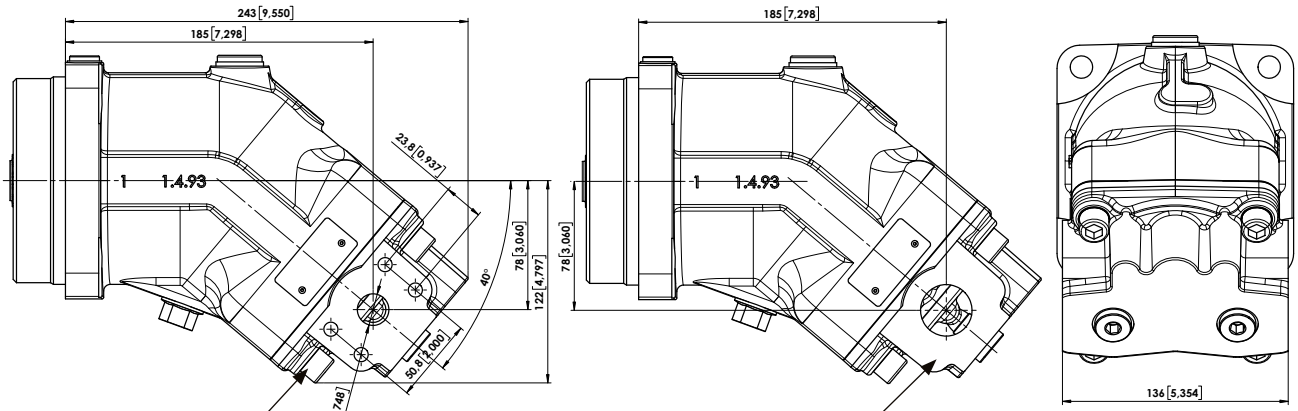


Connessioni/ *Portings*

01 BSPP REAR 40° | G1
05 UN REAR 40° | 1 5/16 - 12UN-2B

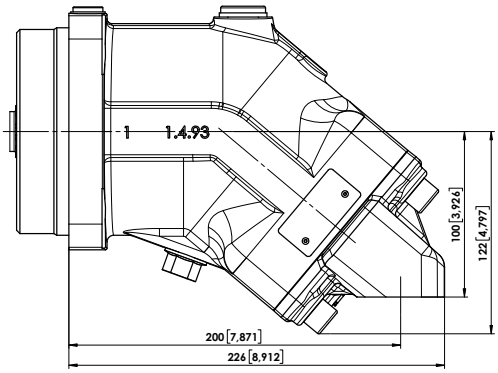
11 SAE 6000 3/4" REAR 40° | M10
21 SAE 6000 3/4" REAR 40° | 3/8-16 UNC-2B



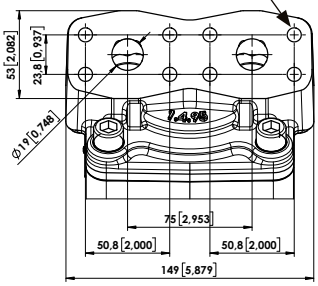


14 SAE 6000 3/4" SIDE 40° | M10

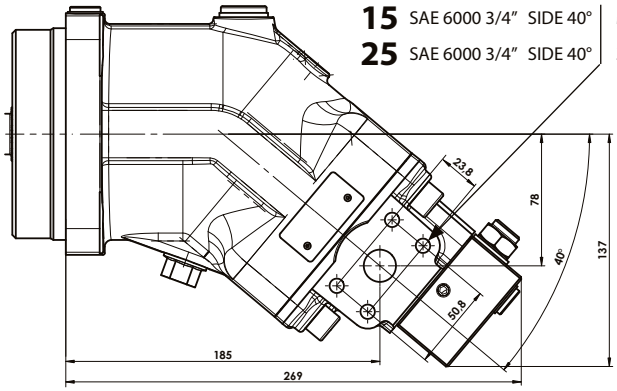
32 METRIC SIDE 40° | M33x2

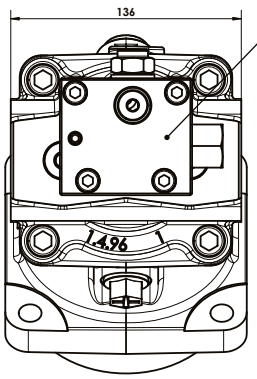


13 SAE 6000 3/4" REAR 90° | M10



15 SAE 6000 3/4" SIDE 40° | M10
25 SAE 6000 3/4" SIDE 40° | 3/8" UNC

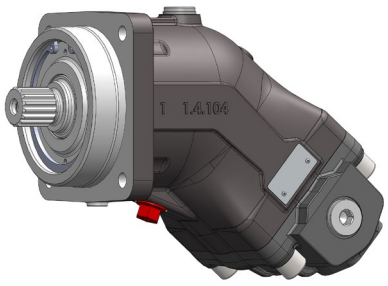


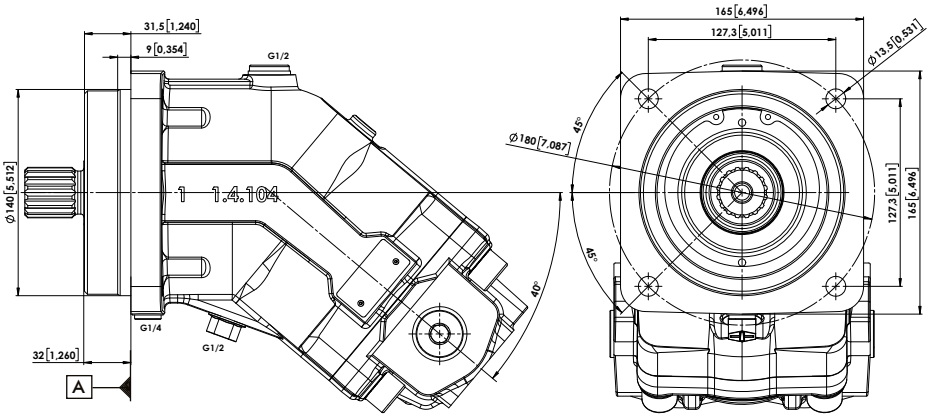


FLUSHING VALVE
(ALREADY MOUNTED)
see accessories section

Ingombro / *Dimensions*

Flange code **246**

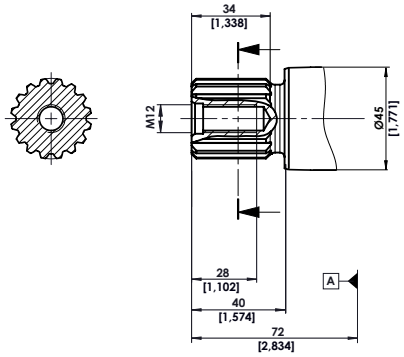




Alberi/ *Shafts*

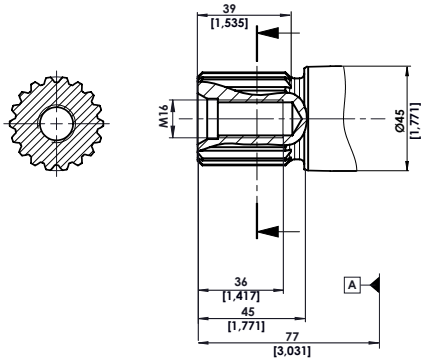
020

W35x2x16x9g
Splined shaft
DIN 5480



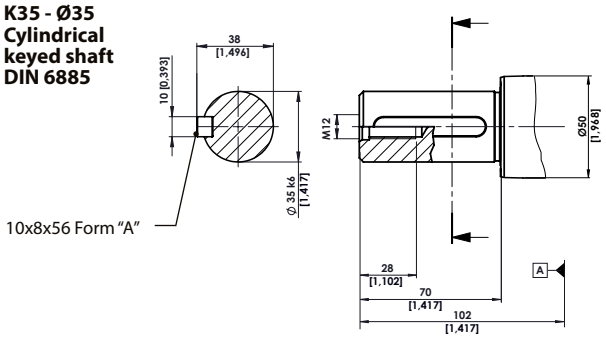
023

W40x2x18x9g
Splined shaft
DIN 5480



050

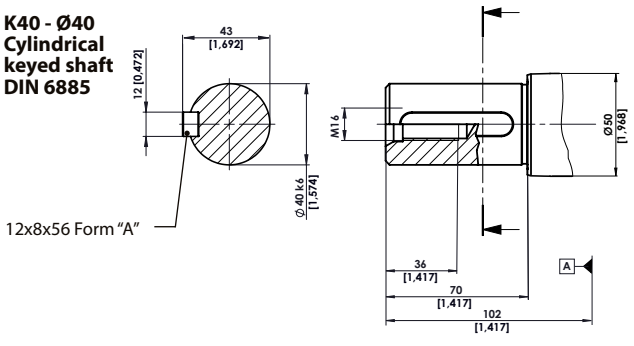
K35 - Ø35
Cylindrical
keyed shaft
DIN 6885



Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

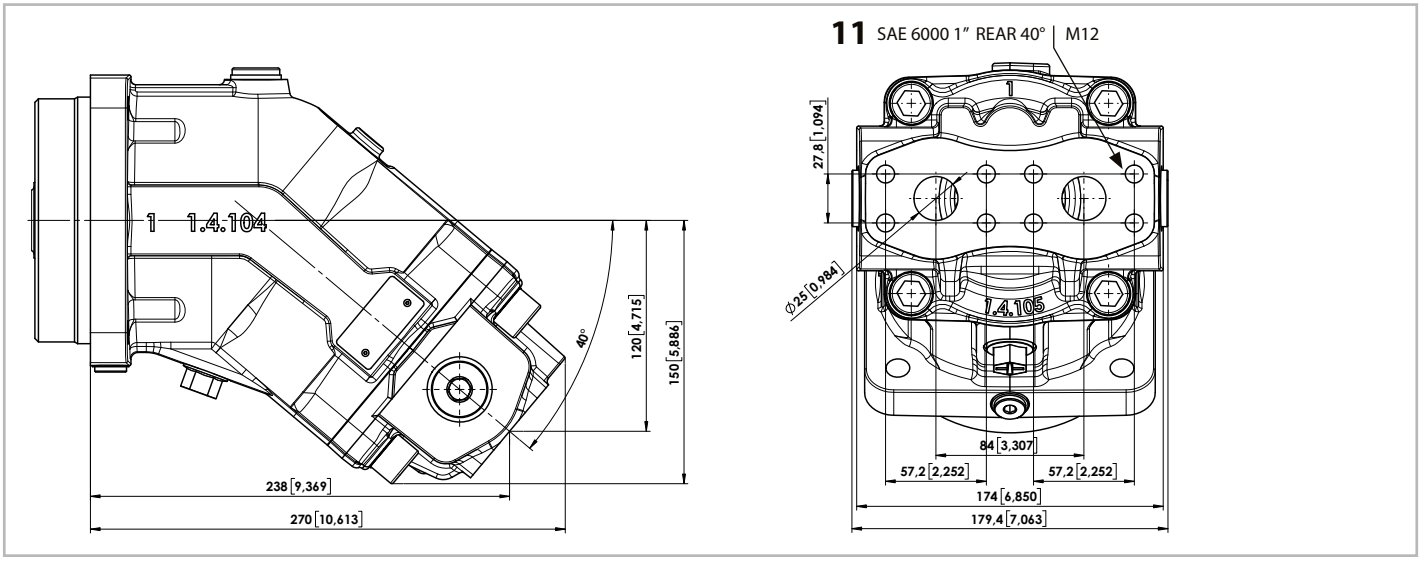
053

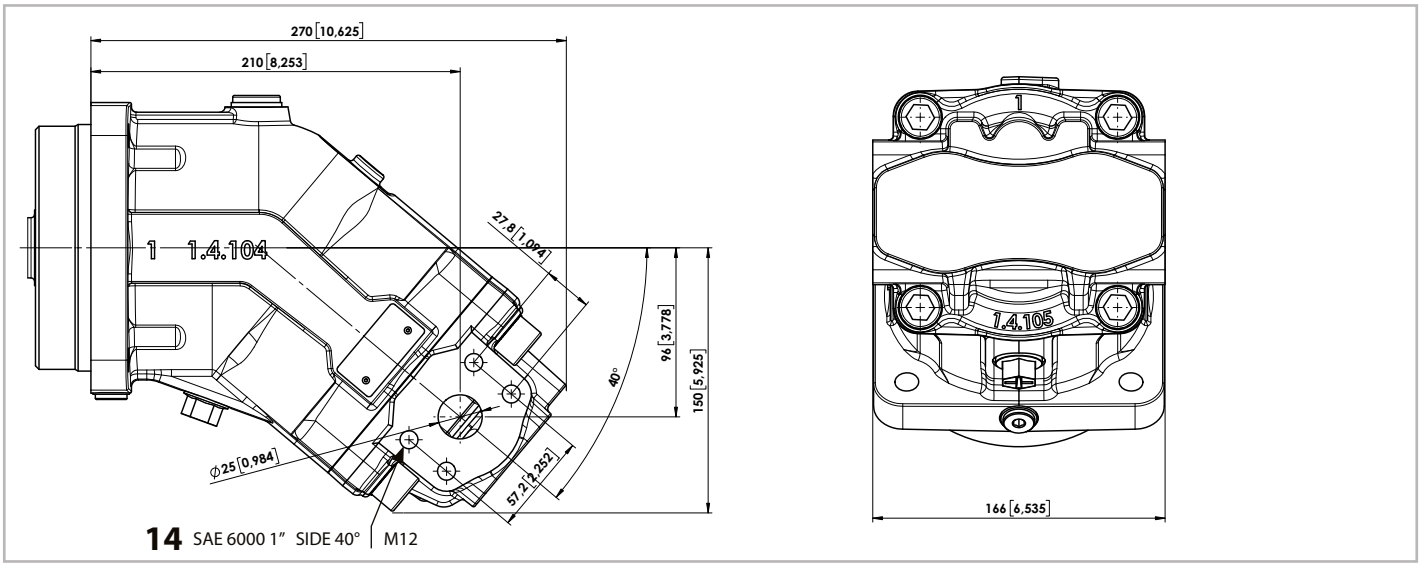
K40 - Ø40
Cylindrical
keyed shaft
DIN 6885

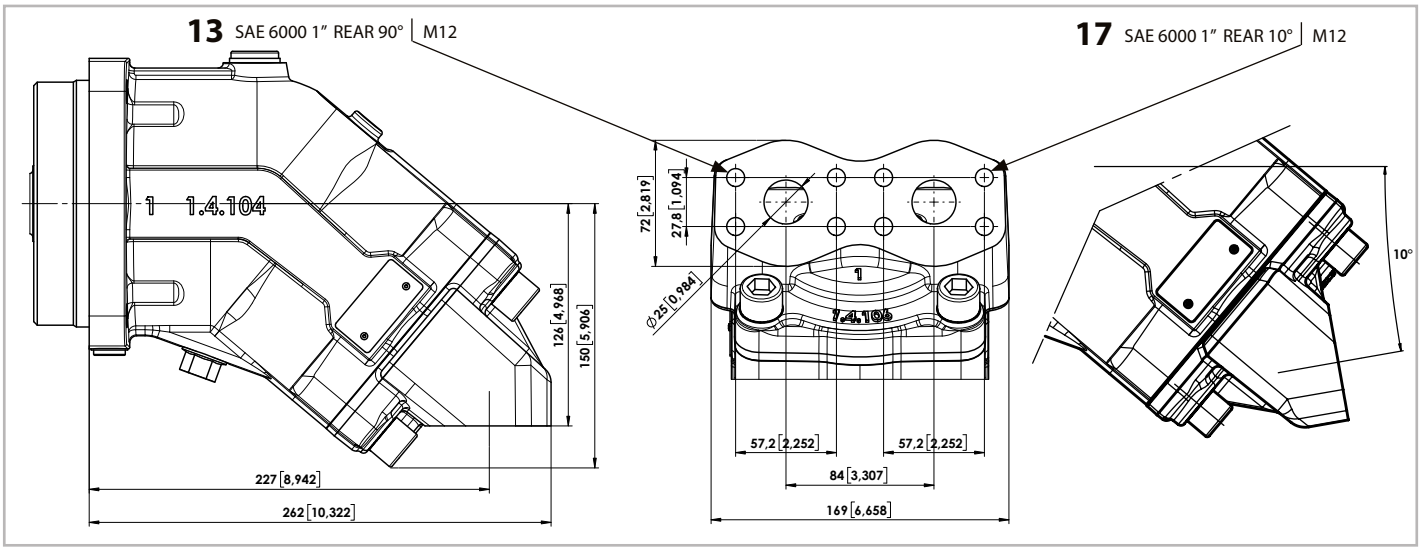


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

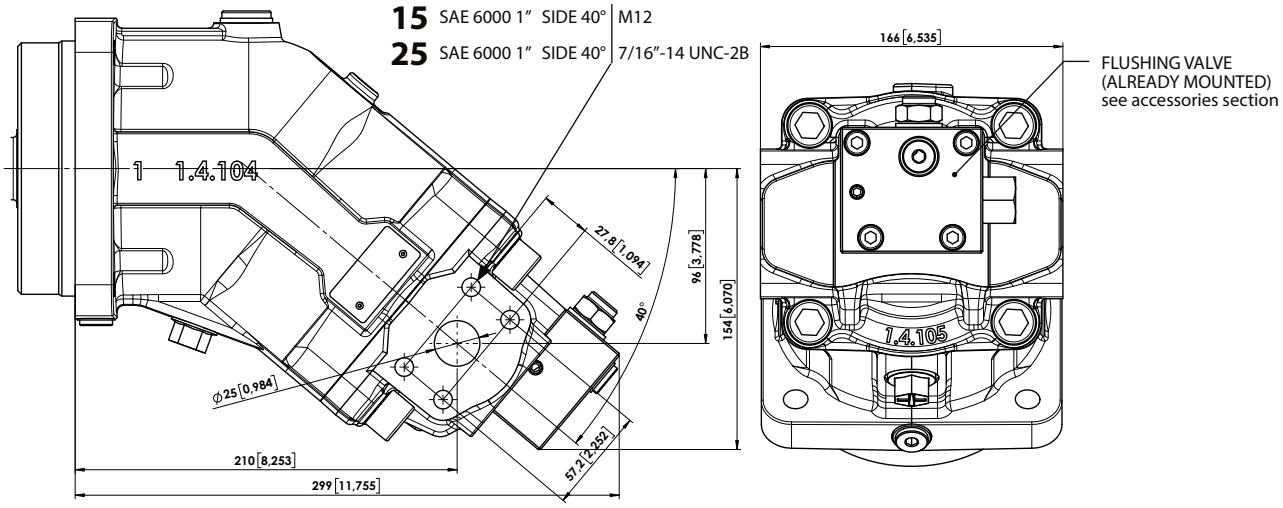
Connessioni/ *Portings*





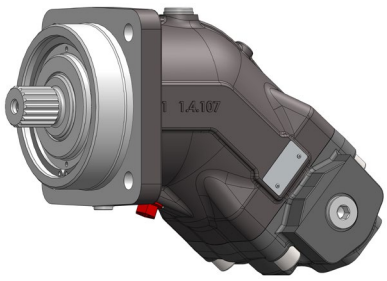


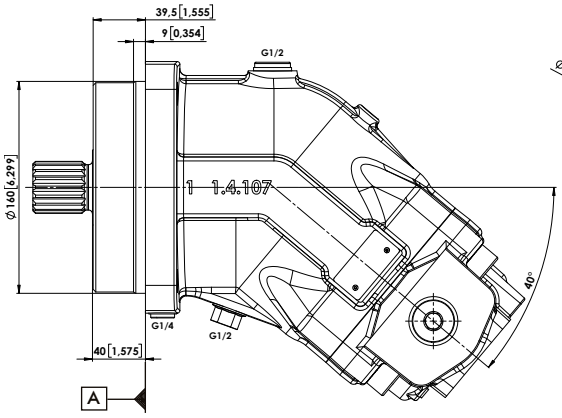
Connessioni/ *Portings*

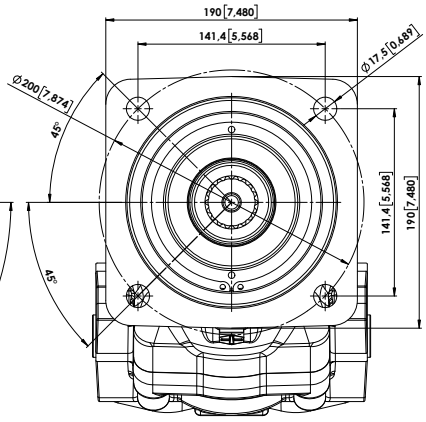


Ingombro / *Dimensions*

Flange code **248**



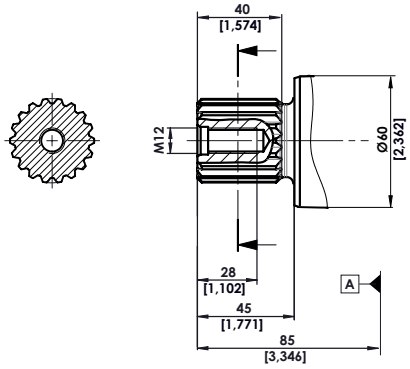




Alberi/ *Shafts*

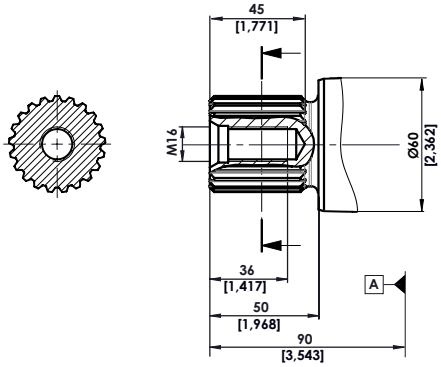
023

W40x2x18x9g
Splined shaft
DIN 5480



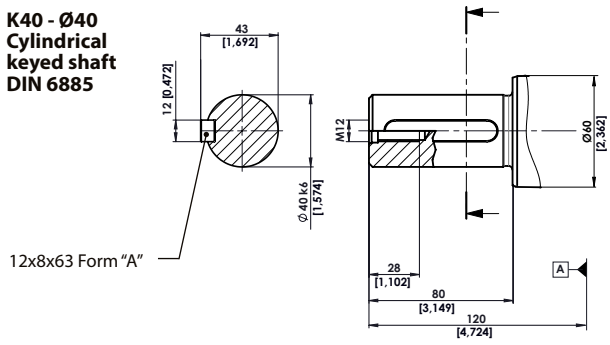
026

W45x2x21x9g
Splined shaft
DIN 5480



053

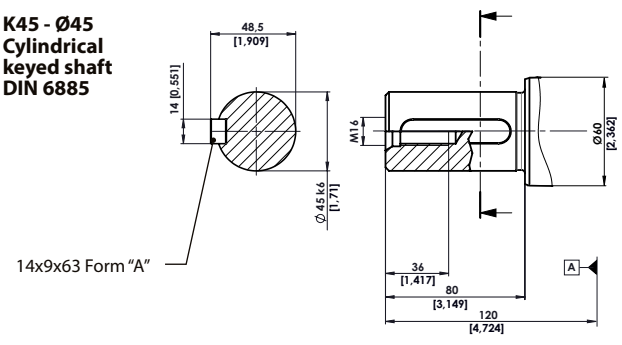
K40 - Ø40
Cylindrical
keyed shaft
DIN 6885



Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

056

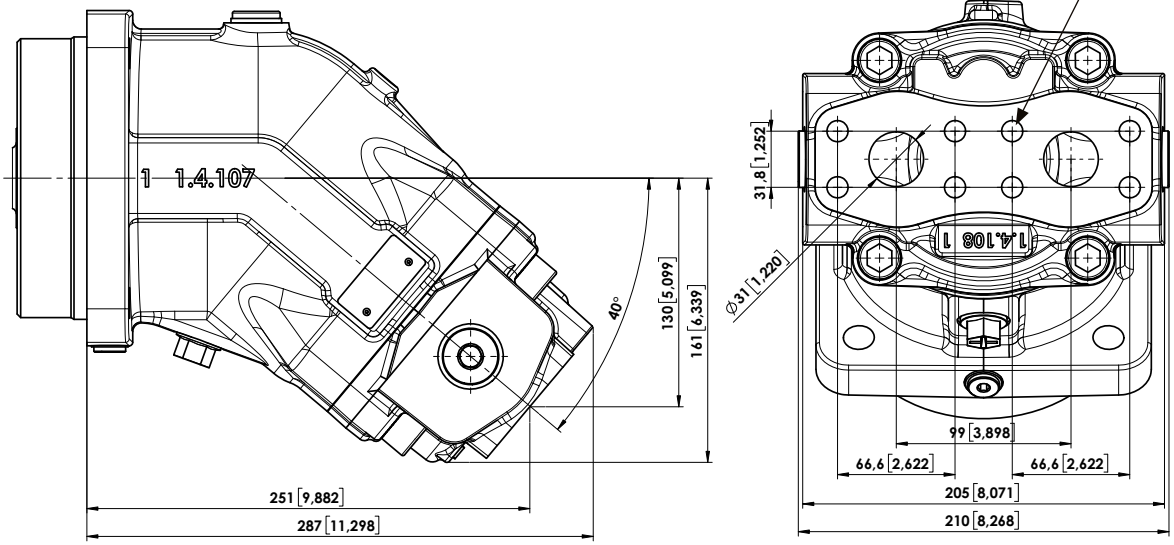
K45 - Ø45
Cylindrical
keyed shaft
DIN 6885

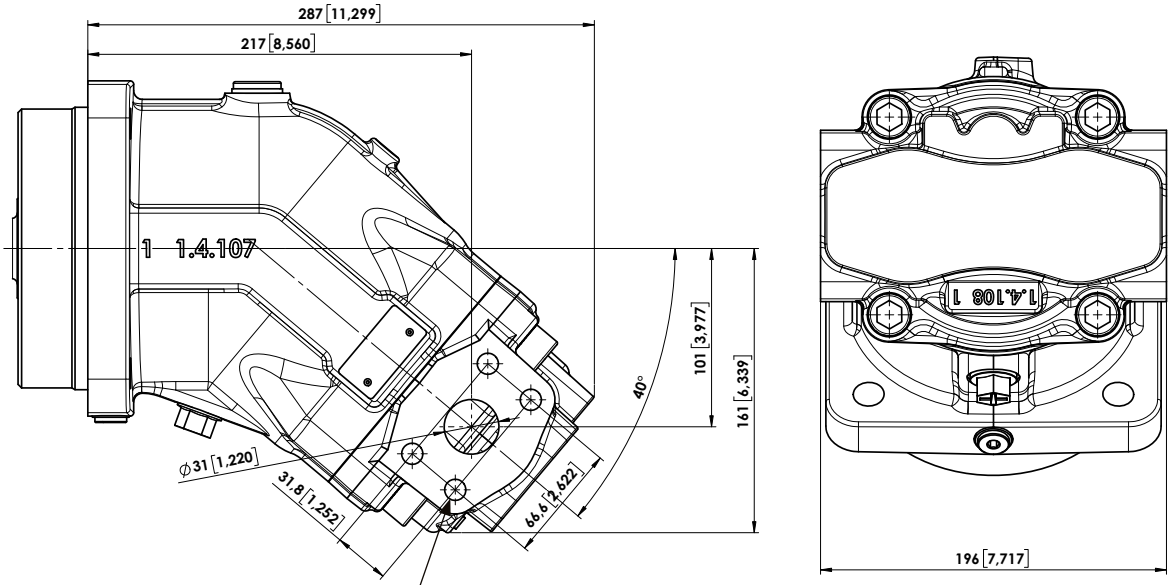


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

Connessioni/ *Portings*

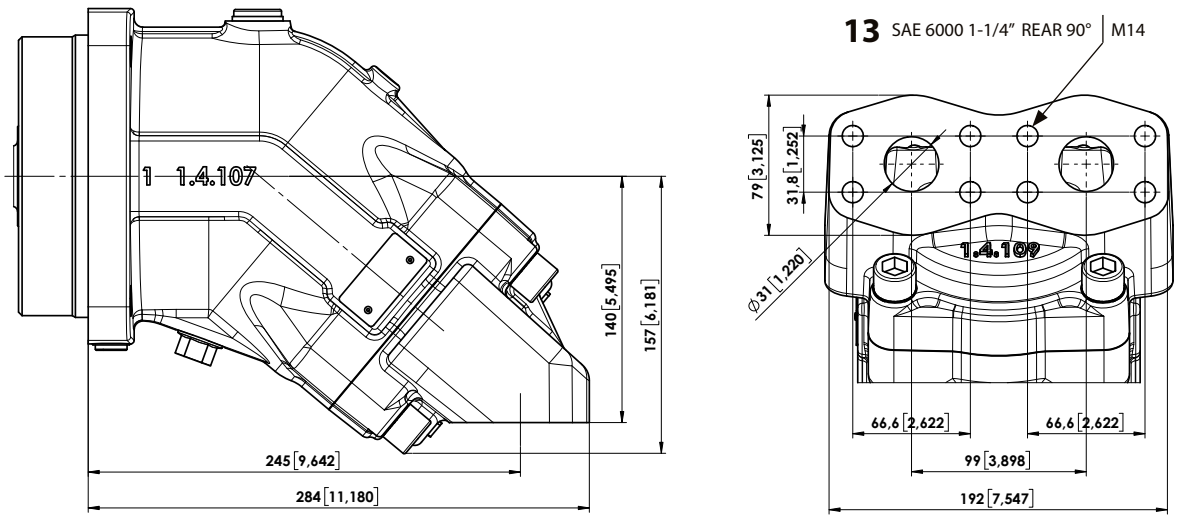
11 SAE 6000 1-1/4" REAR 40° | M14



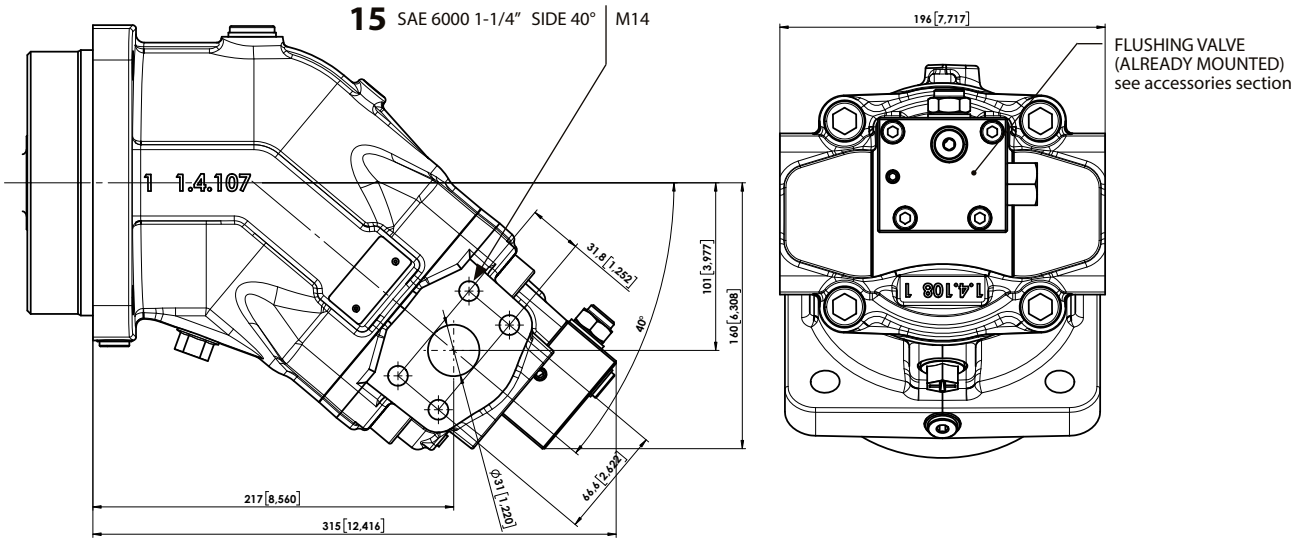


14 SAE 6000 1-1/4" SIDE 40° | M14

13 SAE 6000 1-1/4" REAR 90° | M14



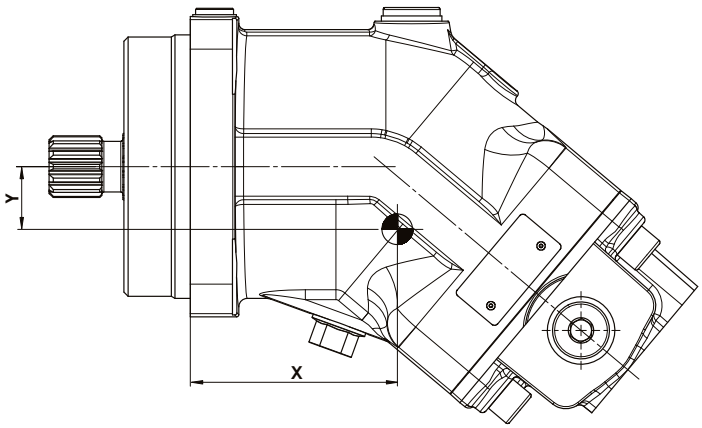
Connessioni/ *Portings*



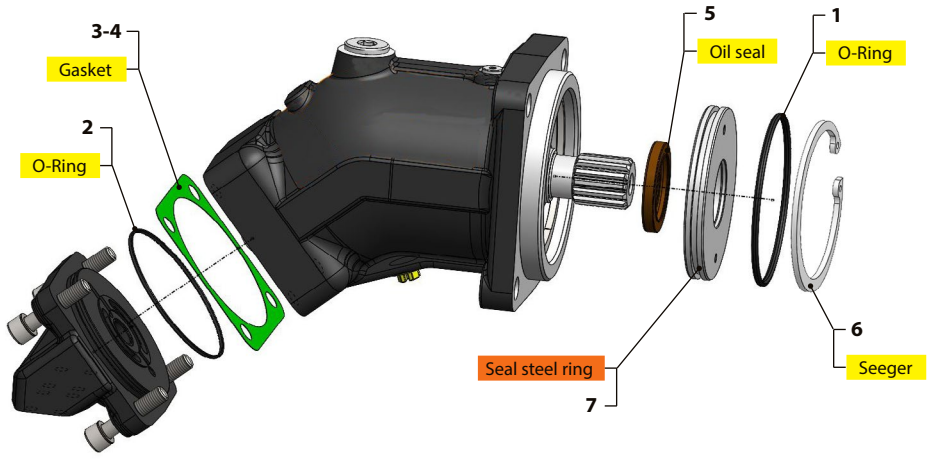
BARICENTRO / ***CENTER OF MASS***

Tipo flangia *Flange type*	Cilindrata *Displacement*	X	Y
240 : Ø 80mm ISO 3019-2	012-017cc	80	22
242 : Ø 100mm ISO 3019-2	025-034cc	81	23
244 : Ø 125mm ISO 3019-2	040-047 055-064cc	96	26
246 : Ø 140mm ISO 3019-2	080-091cc	106	34
248 : Ø 160mm ISO 3019-2	108130cc	108	35

Quote approssimative / *Approx dimensions*



Componenti kit
Kit components



Kit ricambi / *Spare parts kit* **24090000020**					
Flangia *Flange* ISO 3019-2	Diametro flangia *Flange diameter*	80 mm			
	Codice tipo flangia *Flange code type*	240			
	Cilindrata motore *Motor displacement* (cc)	012	017	020	

Componenti kit / *Kit components*				
1	50600003262	O-R 3262 (2.62 x 66.35) HNBR	*O-R 3262 (2.62 x 66.35) HNBR*
2	50600013300	O-R 3300 (2.62 x 75.88) HNBR	*O-R 3300 (2.62 x 75.88) HNBR*
3	50700000596	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
4	50700000603	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
5	50600033552	Paraolio 35x52x6 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 35x52x6 High pressure (PPS) + Dust seal FKM*
6	50100100677	Seeger 72 I	
7	52800300464	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **24290000026**					
Flangia *Flange* ISO 3019-2	Diametro flangia *Flange diameter*	100 mm			
	Codice tipo flangia *Flange code type*	242			
	Cilindrata motore *Motor displacement* (cc)	025	034		

Componenti kit / *Kit components*				
1	50600010735	ORM 0780-35 (3.5x78) HNBR	*ORM 0780-35 (3.5x78) HNBR*
2	50600018820	ORM 0880-20 (2x88) HNBR	*ORM 0880-20 (2x88) HNBR*
3	50700000498	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
4	50700000514	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
5	50600033552	Paraolio 35x52x6 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 35x52x6 High pressure (PPS) + Dust seal FKM*
6	50100100748	Seeger 85 I	
7	52800300473	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **24490000022**						
Flangia *Flange* ISO 3019-2	Diametro flangia *Flange diameter*	125 mm				
	Codice tipo flangia *Flange code type*	244				
	Cilindrata motore *Motor displacement* (cc)	040	047	055	064	

Componenti kit / *Kit components*				
1	50600014387	O-R 4387 (3.53 x 98.02)HNBR	*O-R 4387 (3.53 x 98.02)HNBR*
2	50600010325	ORM 1030-25 (2.5 x 103) HNBR	*ORM 1030-25 (2.5 x 103) HNBR*
3	50700000470	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
4	50700000505	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
5	50600034562	Paraolio 45x62x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 45x62x7 High pressure (PPS) + Dust seal FKM*
6	50100100855	Seeger 105 I	
7	52800300482	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **24690000028**					
Flangia *Flange* ISO 3019-2	Diametro flangia *Flange diameter*	140 mm			
	Codice tipo flangia *Flange code type*	246			
	Cilindrata motore *Motor displacement* (cc)	080	091		

Componenti kit / *Kit components*				
1	50600014425	O-R 4425 (3.53 x 107.5)HNBR	*O-R 4425 (3.53 x 107.5)HNBR*
2	50600014475	O-R 4475 (3.53x120.2)HNBR	*O-R 4475 (3.53 x 120.2)HNBR*
3	50700000550	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
4	50700000569	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
5	50600035572	Paraolio 55x72x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 55x72x7 High pressure (PPS) + Dust seal FKM*
6	50100101050	Seeger 115 I	
7	52800300384	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **24890000024**					
Flangia *Flange* ISO 3019-2	Diametro flangia *Flange diameter*	160 mm			
	Codice tipo flangia *Flange code type*	248			
	Cilindrata motore *Motor displacement* (cc)	108	130		

Componenti kit / *Kit components*				
1-2	50600014500	O-R 4500 (3.53 x 126.6)HNBR	*O-R 4500 (3.53 x 126.6)HNBR*
3	50700000578	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
4	50700000587	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
5	50600036590	Paraolio 65x90x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 65x90x7 High pressure (PPS) + Dust seal FKM*
6	50100101247	Seeger 135 I	
7	52800300393	Anello porta paraolio	*Seal steel ring*

Da ordinare solo se il paraolio è di colore nero (vecchia versione)
To be ordered only if the oil seal is black (old version)

1	2	3	4
221	047	14	064 M04

Tipo flangia / *Flange type*

221 : SAE B 2H ISO 3019-1
222 : SAE B 4H ISO 3019-1
224 : SAE C 4H ISO 3019-1

Albero / *Shaft*

047 : K30 - ø30 DIN 6885
050 : K35 - ø35 DIN 6885
074 : SAE B - 13T 16/32 - SAE J744
077 : SAE BB - 15T 16/32 - SAE J744
080 : SAE C - 14T 12/24 - SAE J744
081 : SAE CC - 17T 12/24 - SAE J744
083 : SAE CS - 21T 16/32 - SAE J744
091 : ø 25,4 (1") - SAE J744
094 : ø 31,7 (1,25") - SAE J744
095 : ø 38,1 (1,5") - SAE J744

Connessioni / *Portings*

01 : BSPP REAR 40°
03 : BSPP SIDE
04 : BSPP REAR 40° + SIDE
05 : UN REAR 40°
06 : UN 40° + SIDE
07 : UN SIDE
11 : SAE 6000 REAR 40° - M
13 : SAE 6000 REAR 90° - M
14 : SAE 6000 SIDE - M
15 : SAE 6000 - SIDE M + FLUSHING VALVE (MOUNTED)
17 : SAE 6000 REAR 10° - M
21 : SAE 6000 REAR 40° - U
23 : SAE 6000 REAR 90° - U
24 : SAE 6000 - SIDE U
25 : SAE 6000 - SIDE U + FLUSHING VALVE (MOUNTED)
32 : METRIC SIDE
41 : UNF 40° + SIDE

Varianti / *Variants*

P: Motore con predisposizione sensore
Motor with speed sensor option

M--: Motore con sensore montato
Motor with selected speed sensor already mounted

- **M01**: speed sensor 2CH PWM L=18,4mm
- **M02**: speed sensor 1CH L=18,4mm
- **M03**: speed sensor 2CH (2 FREQ.) L=18,4mm
- **M04**: speed sensor 2CH (2 FREQ.) L=32mm
- **M05**: speed sensor 2CH (1F + 1D) L=18,4mm
- **M06**: speed sensor 2CH (1F + 1D) L=32mm

(vedere sezione sensori / *see speed sensor section*)

L: Motore drenaggio interno sinistro
Left drainless motor

R: Motore drenaggio interno destro
Right drainless motor

Cilindrata / *Displacement (cc)*

012
017
020
025
034
040
047
055
064
080
091
108
130

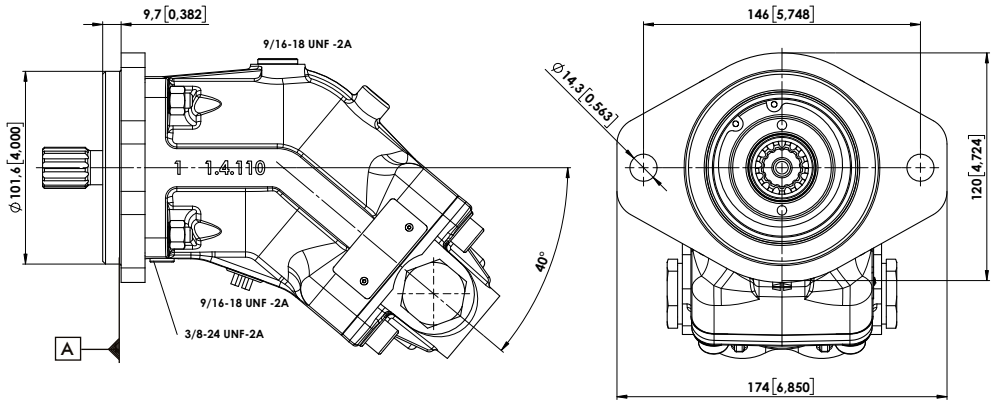
Flangia *Flange*	Tipo / *Type*		SAE B 2H					SAE C 4H							
	Codice / *Code* 1		221												
	Tipo / *Type*		SAE B 4H					SAE C 4H							
	Codice / *Code* 1		222					224							
	Cilindrata *Displacement* 4		012	017	020	025	034	025	034	040	047	055	064	080	091	108
Albero *Shaft*	Codice *Code* 2															
	047	K30 - ø30 DIN 6885								X	X	X	X			
	050	K35 - ø35 DIN 6885								X	X	X	X			
	074	SAE B - 13T 16/32-SAE J744	X	X		X	X									
	077	SAE BB - 15T 16/32-SAE J744				X	X									
	080	SAE C - 14T 12/24-SAE J744						X	X	X	X	X	X	X	X	X
	081	SAE CC - 17T 12/24-SAE J744												X	X	X
	083	SAE CS - 21T 16/32-SAE J744								X	X	X	X	X	X	X
	091	ø 25,4 (1")-SAE J744	X	X	X	X	X									
	094	ø 31,7 (1,25")-SAE J744						X	X	X	X	X	X			
	095	ø 38,1 (1,5")-SAE J744												X	X	X
Connessioni *Portings*	Codice *Code* 3															
	01	BSPP REAR 40°				X	X	X	X	X	X	X	X			
	03	BSPP SIDE				X	X	X	X	X	X	X	X			
	04	BSPP REAR 40° + SIDE	X	X	X											
	05	UN REAR 40°				X	X	X	X	X	X	X	X			
	06	UN 40° + SIDE	X	X	X											
	07	UN SIDE				X	X	X	X	X	X	X	X			
	11	SAE 6000 REAR 40° - M				X	X	X	X	X	X	X	X	X	X	X
	13	SAE 6000 REAR 90° - M				X	X	X	X	X	X	X	X	X	X	X
	14	SAE 6000 SIDE - M				X	X	X	X	X	X	X	X	X	X	X
	15	SAE 6000 - SIDE M + FLUSHING VALVE (MOUNTED)								X	X	X	X	X	X	X
	17	SAE 6000 REAR 10° - M				X	X	X	X	X	X	X	X	X	X	X
	21	SAE 6000 REAR 40° - U				X	X	X	X	X	X	X	X	X	X	X
	23	SAE 6000 REAR 90° - U				X	X	X	X	X	X	X	X	X	X	X
	24	SAE 6000 - SIDE U				X	X	X	X	X	X	X	X	X	X	X
	25	SAE 6000 - SIDE U + FLUSHING VALVE (MOUNTED)								X	X	X	X	X	X	
	32	METRIC SIDE								X	X	X	X			
	41	UNF 40° + SIDE	X	X	X											

X = Disponibili / *Available*

X Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application. For more information please contact OMFB

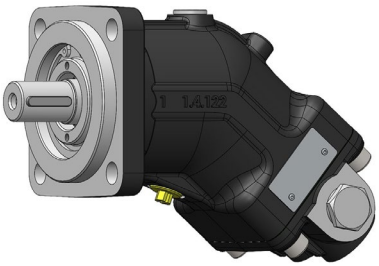
Ingombro / *Dimensions*

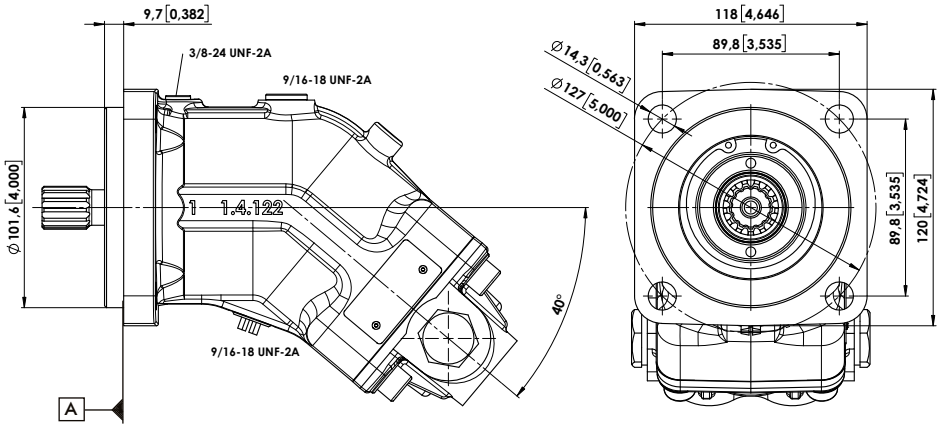
Flange **SAE B 2H** code **221**



Ingombro / *Dimensions*

Flange **SAE B 4H** code **222**

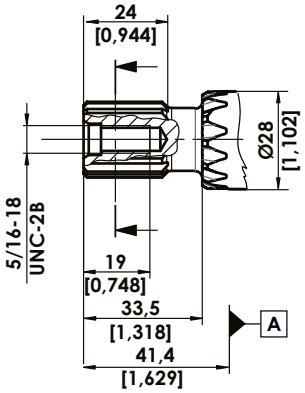




Alberi/ *Shafts*

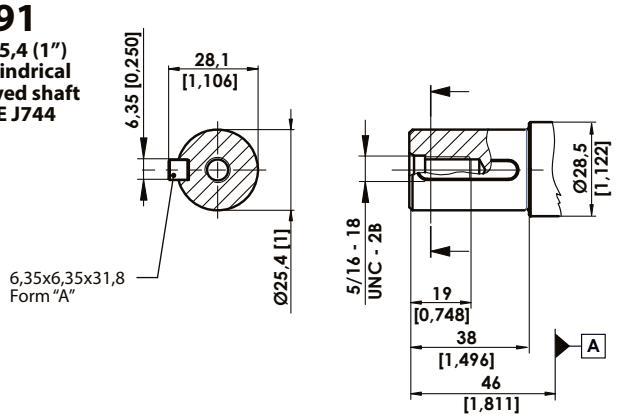
074

SAE B - 13T 16/32
Splined shaft
SAE J744

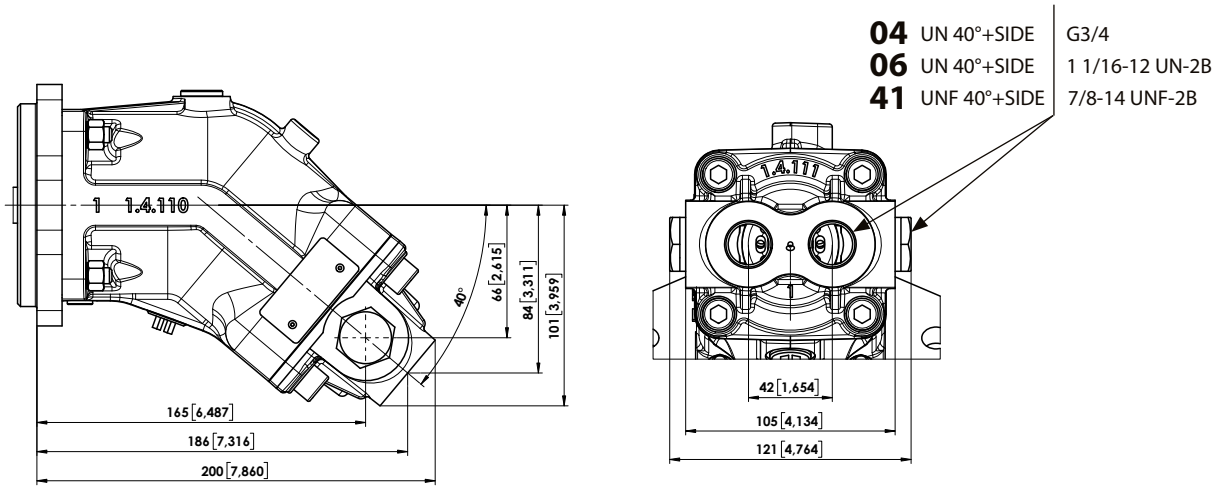


091

ø 25,4 (1")
Cylindrical
keyed shaft
SAE J744



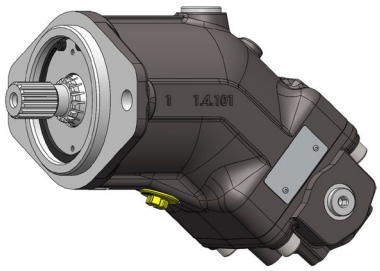
Connessioni/ *Portings*

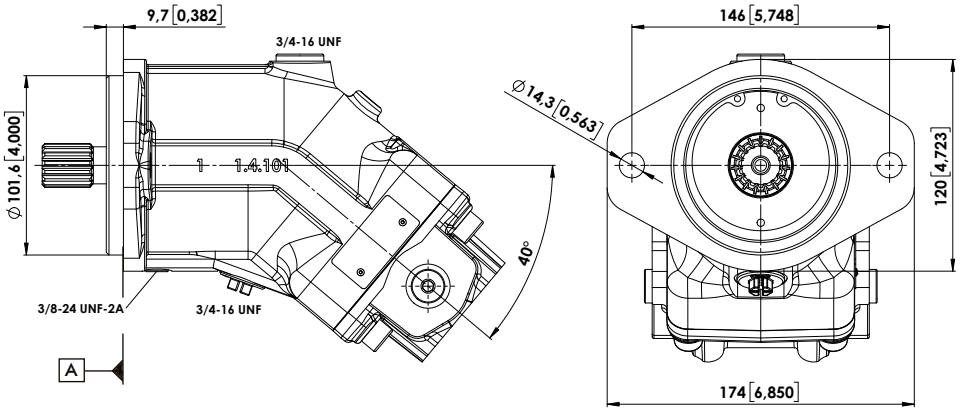


04	UN 40°+SIDE	G3/4
06	UN 40°+SIDE	1 1/16-12 UN-2B
41	UNF 40°+SIDE	7/8-14 UNF-2B

Ingombro / *Dimensions*

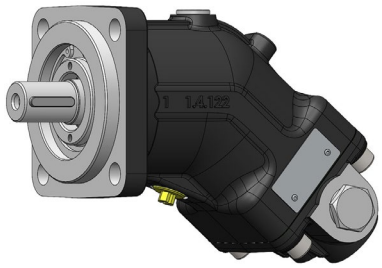
Flange **SAE B 2H** code **221**

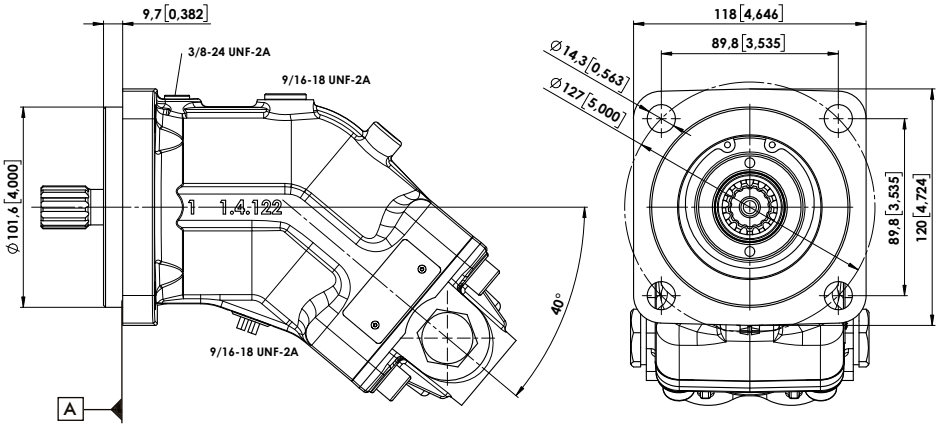




Ingombro / *Dimensions*

Flange **SAE B 4H** code **222**

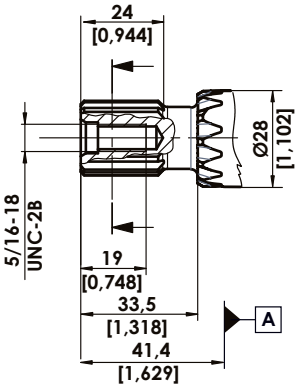




Alberi/ *Shafts*

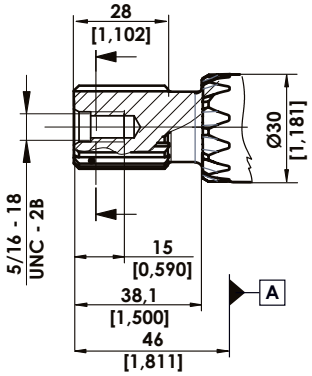
074

SAE B - 13T 16/32
Splined shaft
SAE J744



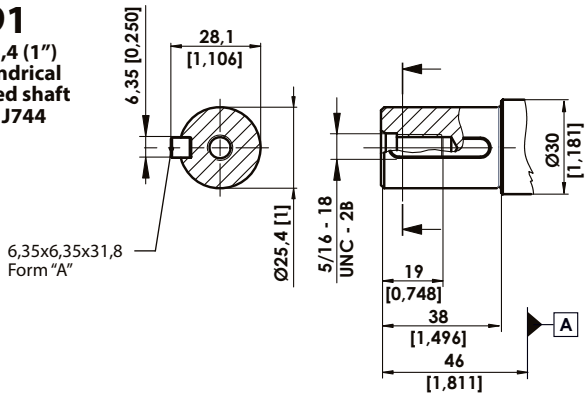
077

SAE BB - 15T 16/32
Splined shaft
SAE J744



091

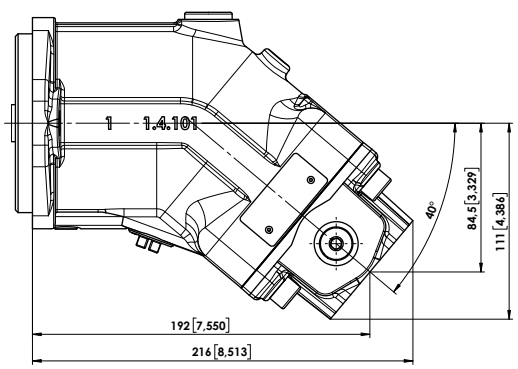
ø 25,4 (1")
Cylindrical
keyed shaft
SAE J744

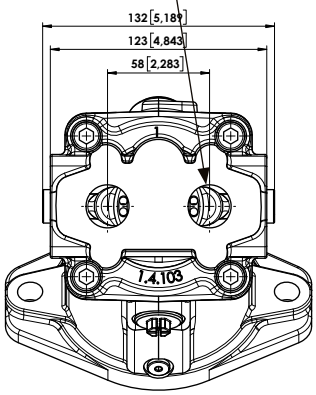


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

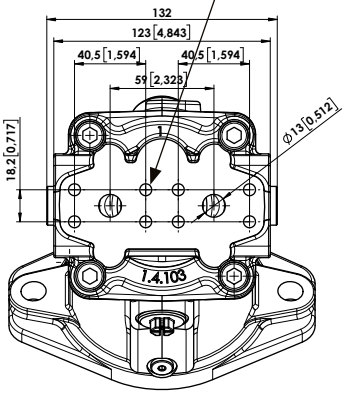
Connessioni/ *Portings*

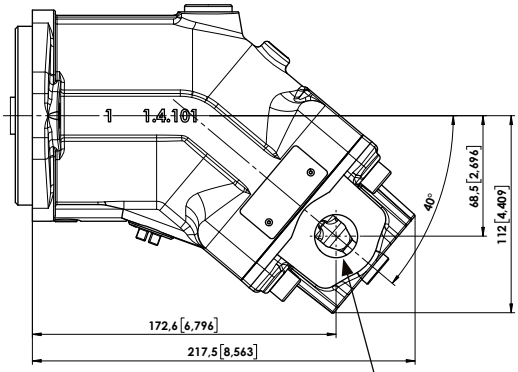
01 BSPP REAR 40° | G3/4
05 UN REAR 40° | 1 1/16 - 12UN-2B

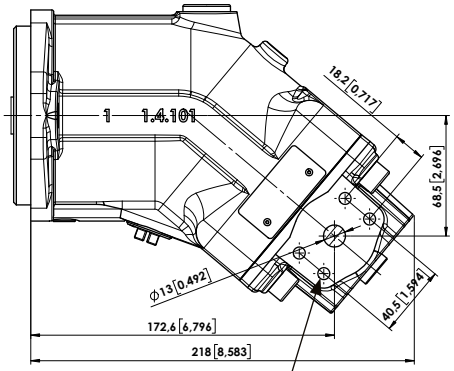


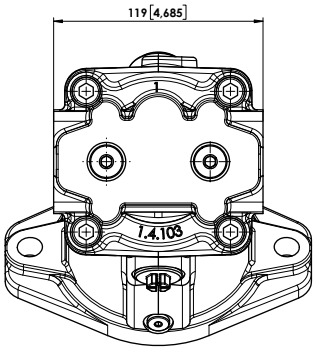


11 SAE 6000 1/2" REAR 40° | M8
21 SAE 6000 1/2" REAR 40° | 5/16"UNC





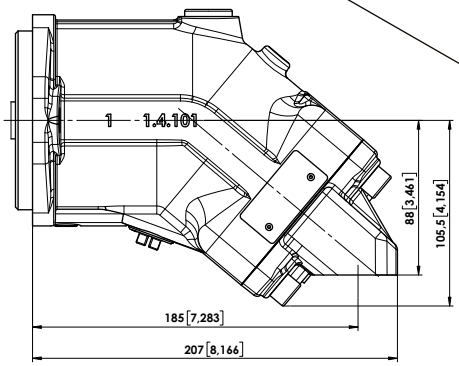


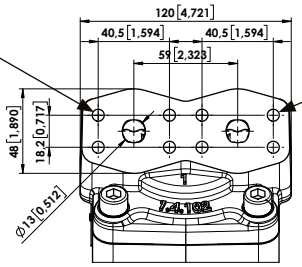


03 BSPP SIDE | G3/4
07 UN SIDE | 1 1/16 -12 UN - 2B

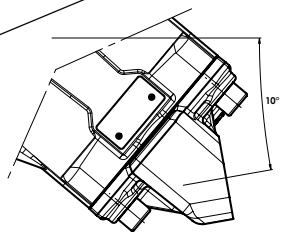
14 SAE 6000 1/2" SIDE M | M8
24 SAE 6000 1/2" SIDE U | 5/16"UNC

13 SAE 6000 1/2" REAR 90° | M8
23 SAE 6000 1/2" REAR 90° | 5/16"UNC



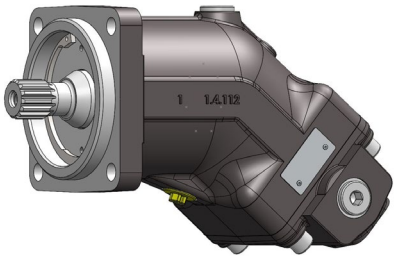


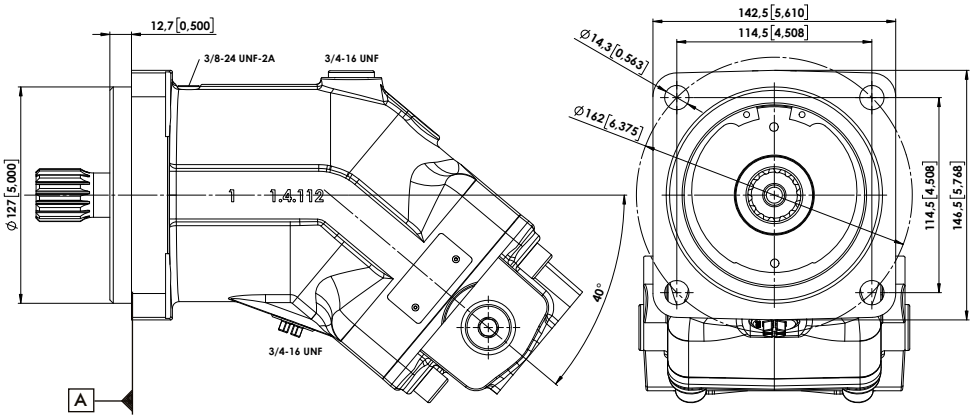
17 SAE 6000 1/2" REAR 10° | M8



Ingombro / *Dimensions*

Flange code **224**

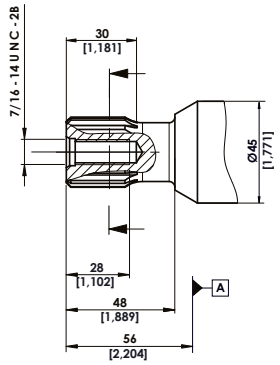




Alberi/ *Shafts*

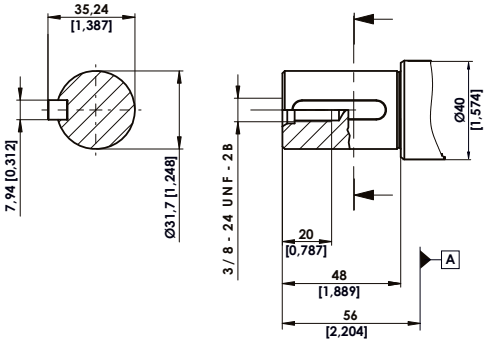
080

SAE C - 14T 12/24
Splined shaft
SAE J744



094

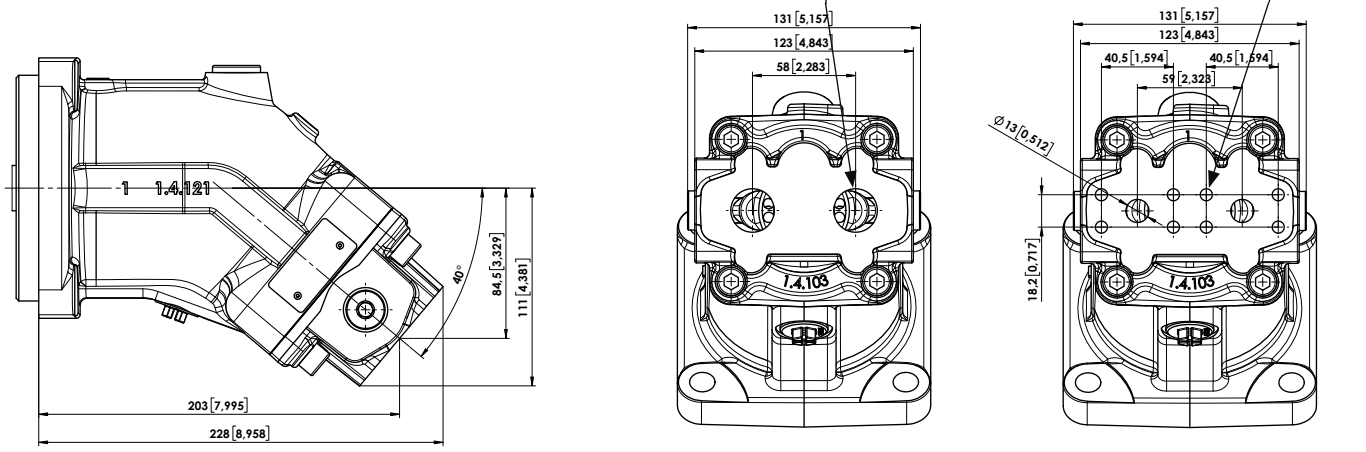
Ø31,7 (1,25")
Cylindrical
keyed shaft
SAE J744

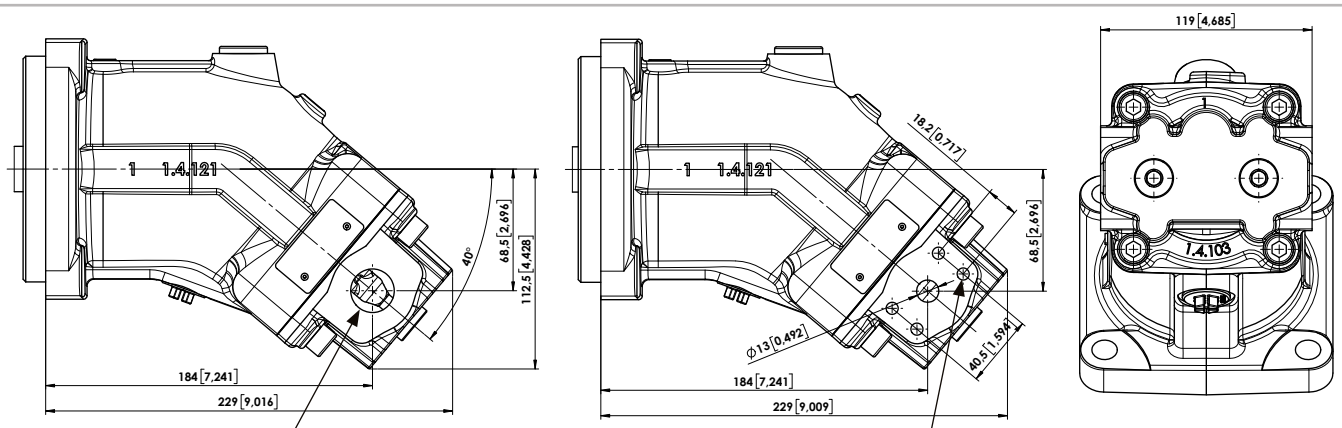


Connessioni/ *Portings*

01 BSPP REAR 40° | G3/4
05 UN REAR 40° | 1 1/16 - 12UN-2B

11 SAE 6000 1/2" REAR 40° | M8
21 SAE 6000 1/2" REAR 40° | 5/16"UNC



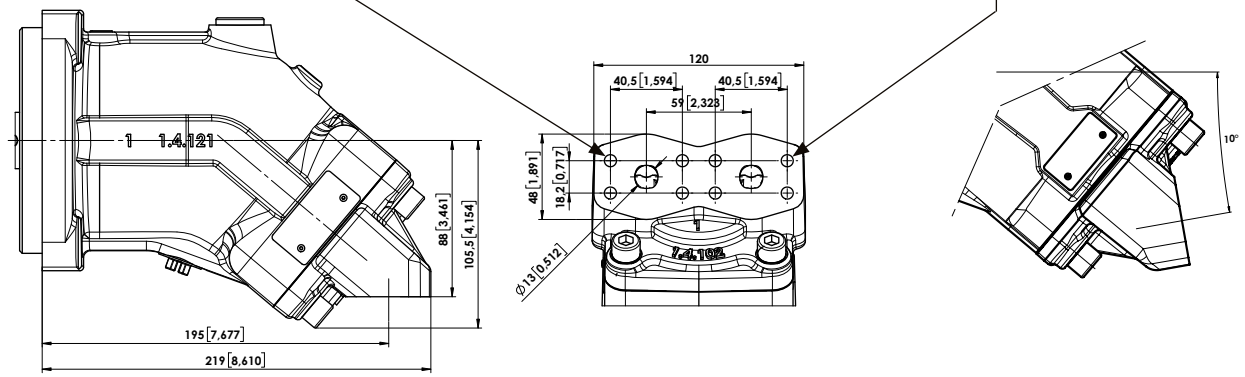


03 BSPP SIDE | G3/4
07 UN SIDE | 1 1/16 -12 UN - 2B

14 SAE 6000 1/2" SIDE M | M8
24 SAE 6000 1/2" SIDE U | 5/16"UNC

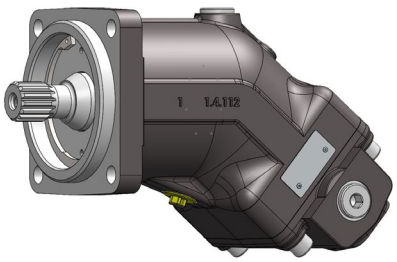
13 SAE 6000 1/2" REAR 90° | M8
23 SAE 6000 1/2" REAR 90° | 5/16"UNC

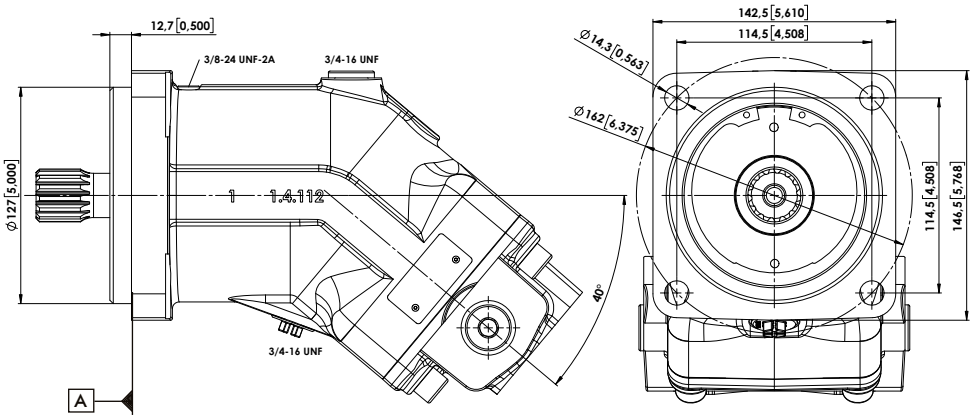
M8 | SAE 6000 1/2" REAR 10° **17**



Ingombro / *Dimensions*

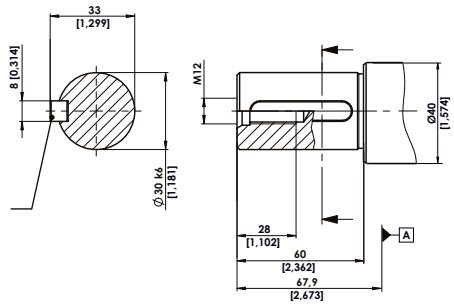
Flange code **224**





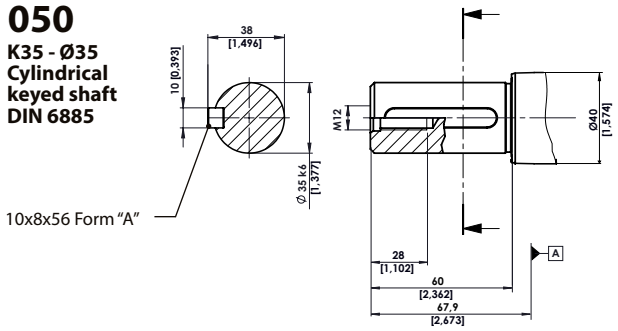
Alberi/ *Shafts*

047
K30 - Ø30
Cylindrical keyed shaft
DIN 6885

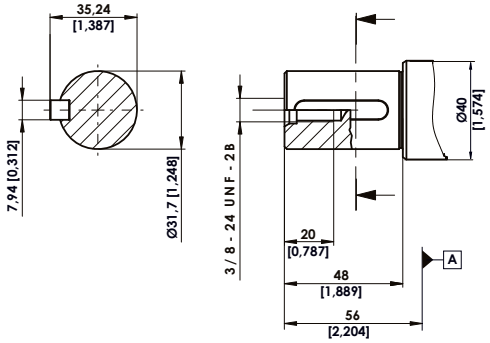


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application. For more information please contact OMFB

050
K35 - Ø35
Cylindrical keyed shaft
DIN 6885

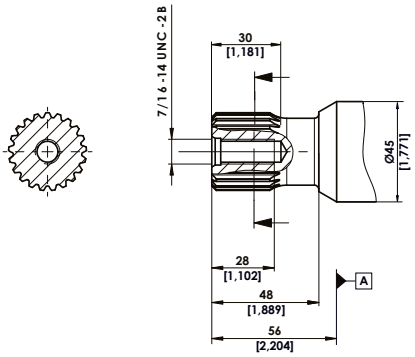


094
Ø31,7 (1,25")
Cylindrical keyed shaft
SAE J744

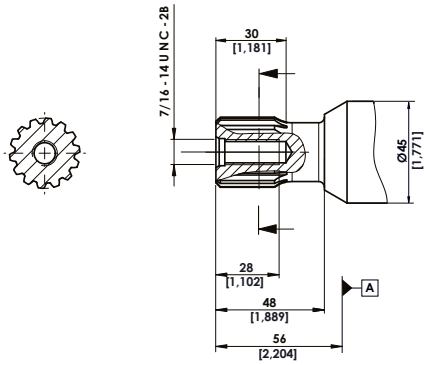


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application. For more information please contact OMFB

083
SAE CS - 21T 16/32
Splined shaft
SAE J744



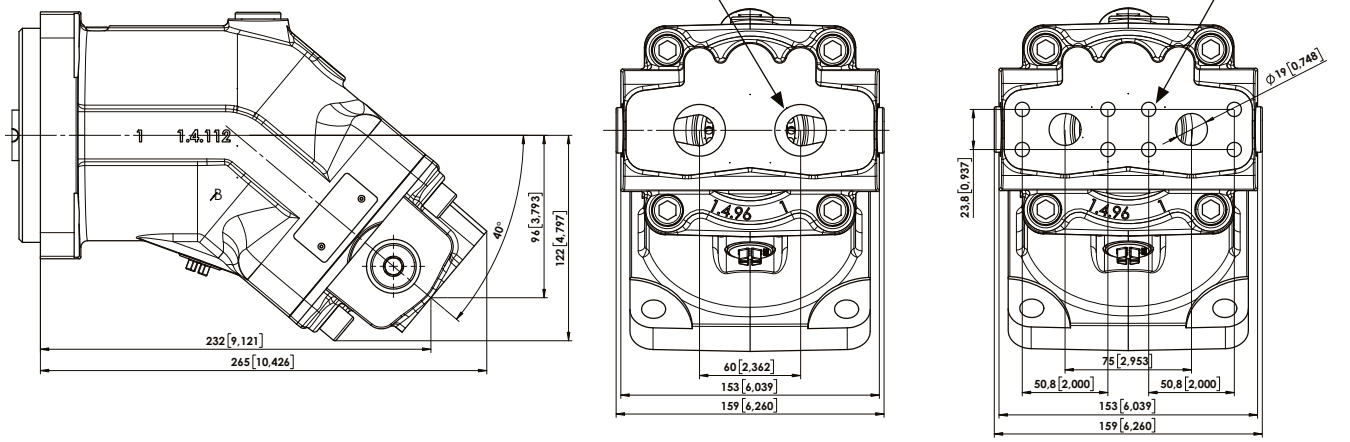
080
SAE C - 14T 12/24
Splined shaft
SAE J744

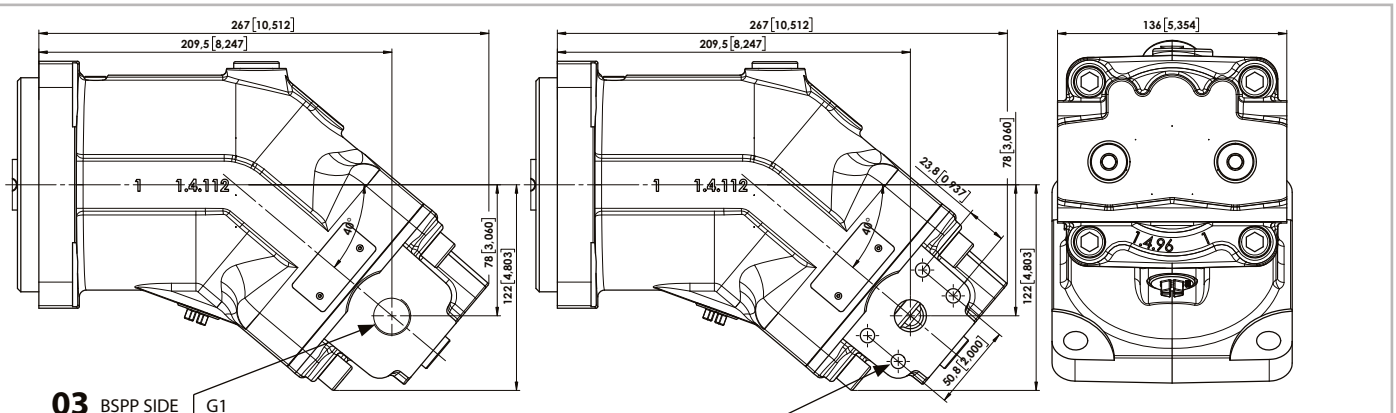


Connessioni/ *Portings*

01 BSPP REAR 40° | G1
05 UN REAR 40° | 1 5/16 - 12UN-2B

11 SAE 6000 3/4" REAR 40° | M10
21 SAE 6000 3/4" REAR 40° | 3/8-16 UNC-2B



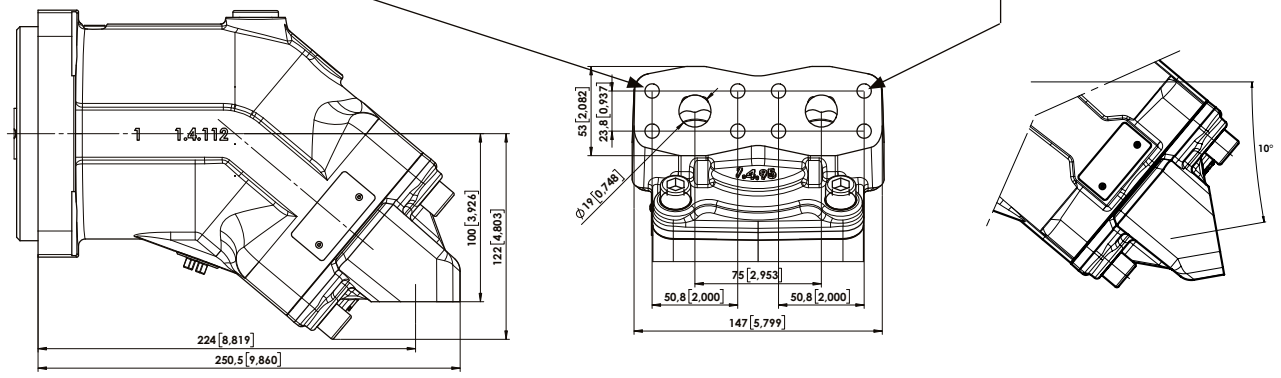


03 BSPP SIDE | G1
07 UN SIDE | 1 5/16 -12UN - 2B
32 M SIDE | M33x2

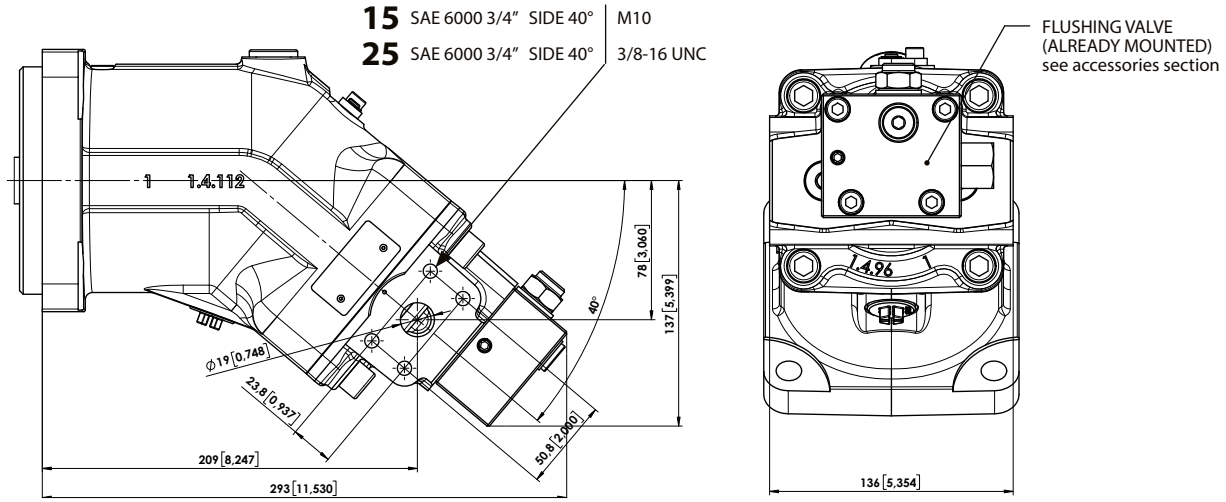
M10 | SAE 6000 3/4" SIDE M **14**
3/8-16 UNC | SAE 6000 3/4" SIDE U **24**

13 SAE 6000 3/4" REAR 90° | M10
23 SAE 6000 3/4" REAR 90° | 3/8-16 UNC

M10 | SAE 6000 3/4" REAR 10° **17**

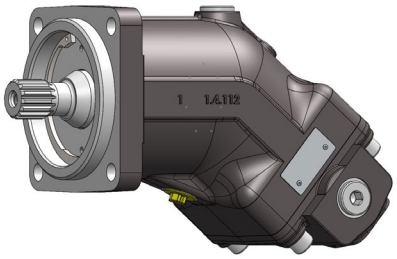


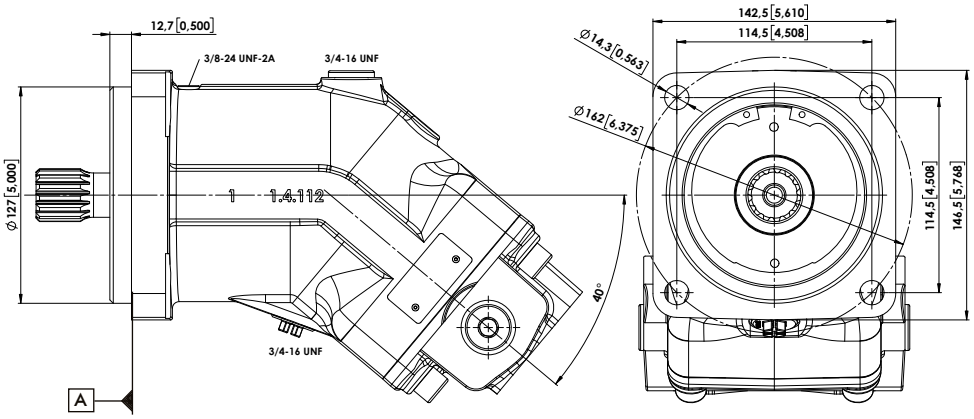
Connessioni/ *Portings*



Ingombro / *Dimensions*

Flange code **224**

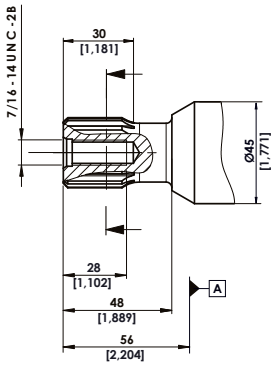




Alberi/ *Shafts*

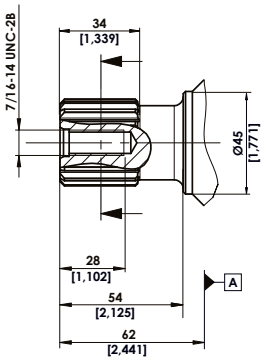
080

SAE C - 14T 12/24
Splined shaft
SAE J744



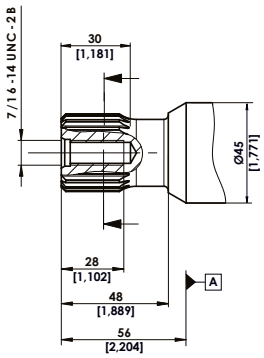
081

SAE CC - 17T 12/24
Splined shaft
SAE J744



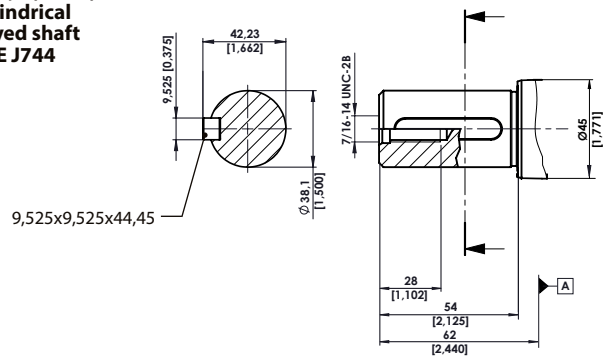
083

SAE CS - 21T 16/32
Splined shaft
SAE J744



095

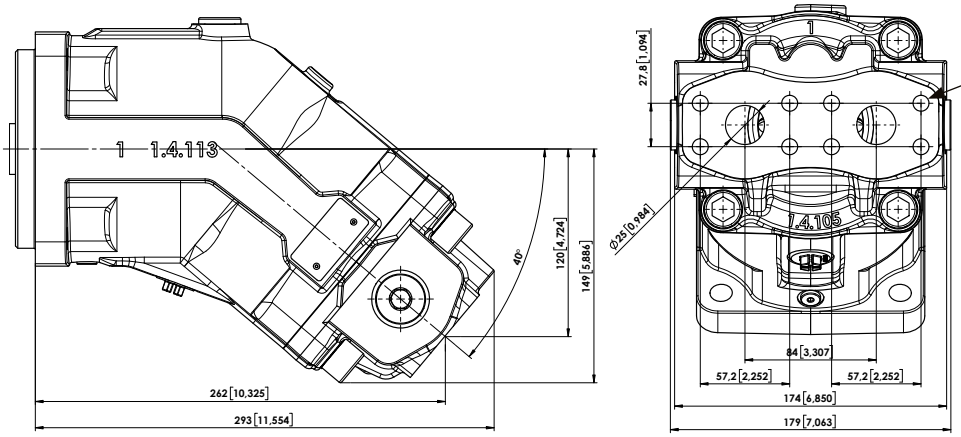
Ø38,1 (1"1/2)
Cylindrical
keyed shaft
SAE J744

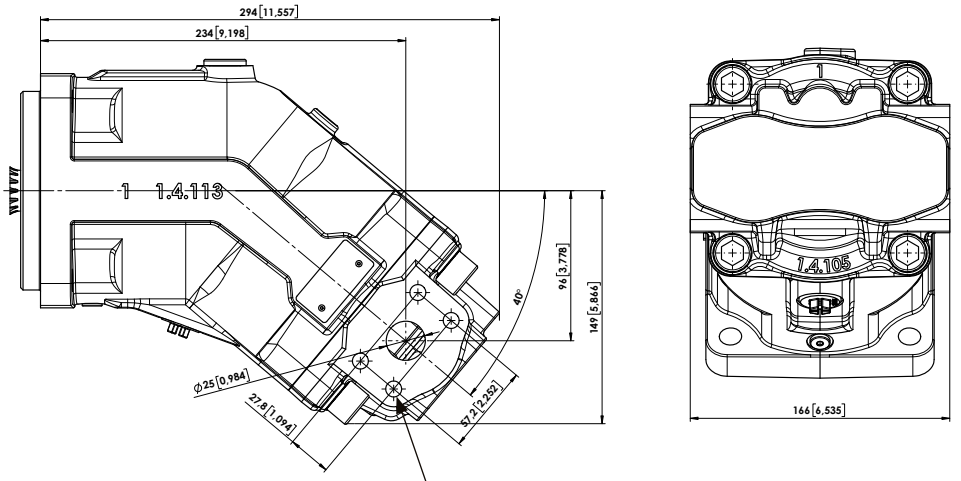


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application. For more information please contact OMFB

Connessioni/ *Portings*

11 SAE 6000 1" REAR 40° | M12
21 SAE 6000 1" REAR 40° | 7/16-14 UNC-2B

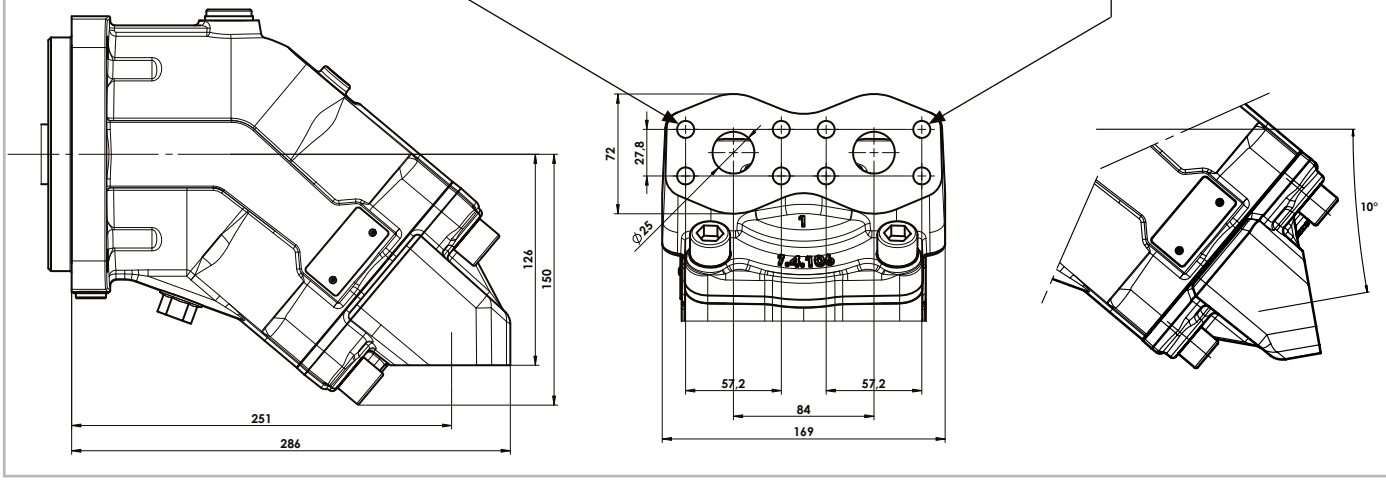




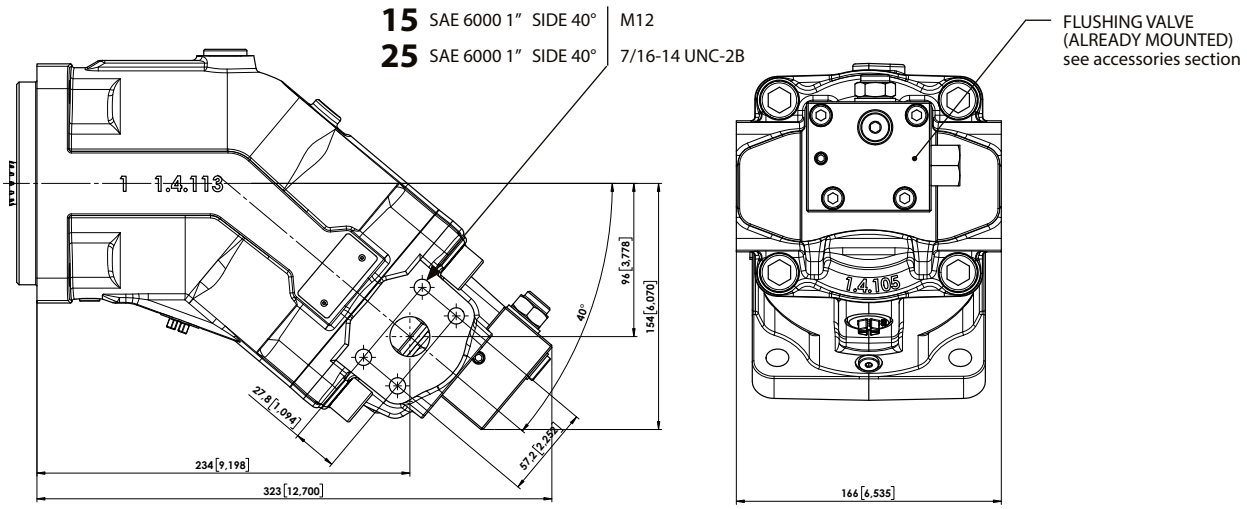
14 SAE 6000 1" SIDE 40° | M12
24 SAE 6000 1" SIDE 40° | 7/16-14 UNC-2B

13 SAE 6000 1" REAR 90° | M12
23 SAE 6000 1" REAR 90° | 7/16-14 UNC-2B

M12 | SAE 6000 1/2" REAR 10° **17**



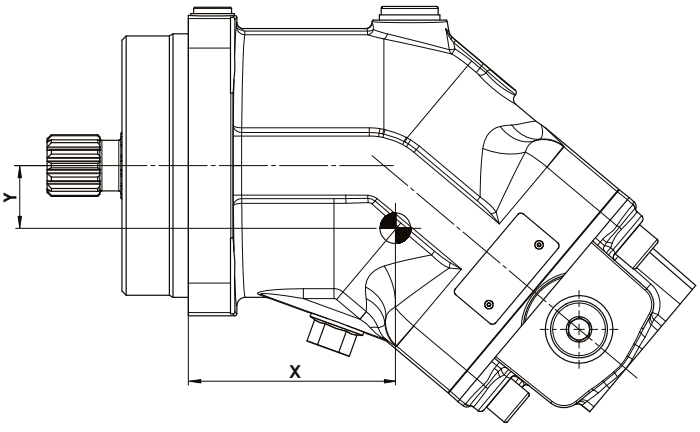
Connessioni/ *Portings*



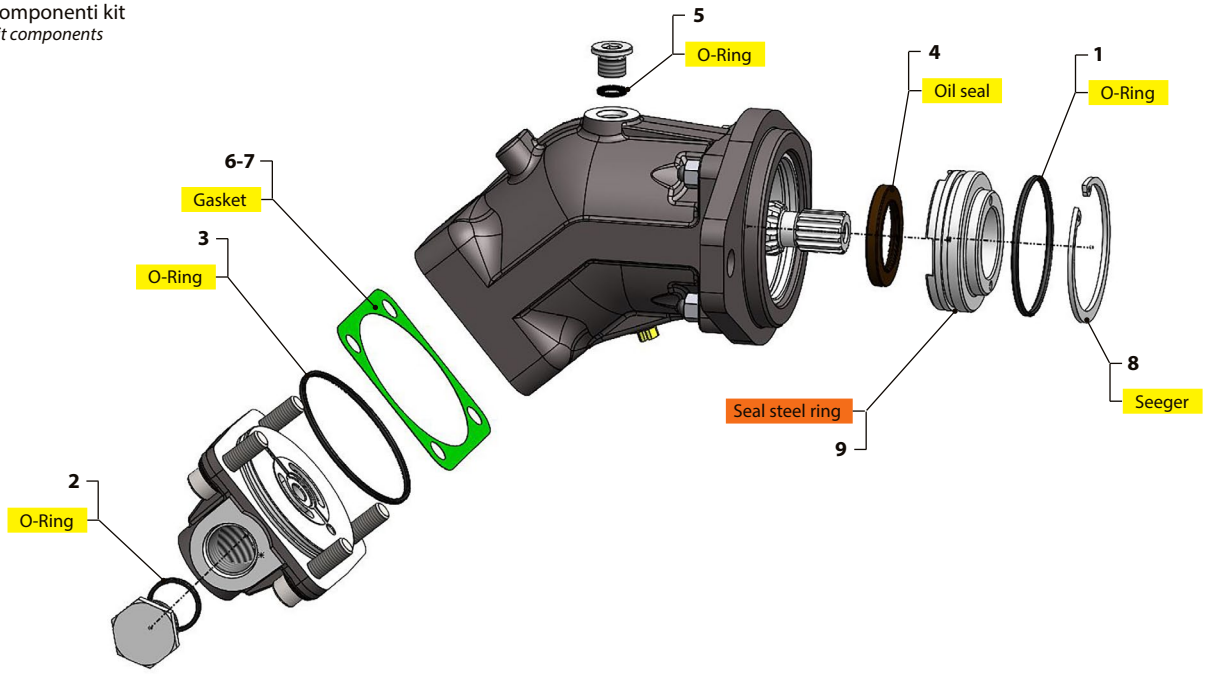
BARICENTRO / ***CENTER OF MASS***

Tipo flangia *Flange type*	Cilindrata *Displacement*	X	Y
221-222 : SAE B 2H ISO 3019-1	012-017-020cc	80	19
221-222 : SAE B 2H ISO 3019-1	025-034cc	94	24
224 : SAE C 4H ISO 3019-1	025-034	90	20
224 : SAE C 4H ISO 3019-1	040-047-055-064cc	116	25
224 : SAE C 4H ISO 3019-1	080-091-108	130	35

Quote approssimative / *Approx dimensions*



Componenti kit
Kit components



Kit ricambi / *Spare parts kit* **22190000020**
per alberi / *for shafts:*
SAE B - 13T 16/32 (rif.074) - Ø 25,4 (1") - SAE J744 (rif.091)

Flangia *Flange* ISO 3019-1 SAE B				
	Diametro flangia *Flange diameter*	101,6mm (4 inch)		
	Codice tipo flangia *Flange code type*	221 and 222		
	Cilindrata motore *Motor displacement (cc)*	012	017	020

Componenti kit / *Kit components*				
	1	50600003262	O-R 3262 (2.62 x 66.35) HNBR	*O-R 3262 (2.62 x 66.35) HNBR*
	2	50600013093	O-R 3093 (2.62x23.47) HNBR	*O-R 3093 (2.62x23.47) HNBR*
	3	50600013300	O-R 3300 (2.62 x 75.88) HNBR	*O-R 3300 (2.62 x 75.88) HNBR*
	4	50600033552	Paraolio 35x52x6 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 35x52x6 High pressure (PPS) + Dust seal FKM*
	5	50600613020	ORM 0130-20 (2x13) FKM/FPM	*ORM 0130-20 (2x13) FKM/FPM*
	6	50700000596	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	7	50700000603	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	8	50100100677	Seeger 72 I	
	9	52800300464	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **22190000048**
per alberi / *for shafts:*
SAE BB - 15T 16/32 (rif.077) - Ø 25,4 (1") - SAE J744 (rif.091)

Flangia *Flange* ISO 3019-1 SAE B				
	Diametro flangia *Flange diameter*	101,6mm (4 inch)		
	Codice tipo flangia *Flange code type*	221 and 222		
	Cilindrata motore *Motor displacement (cc)*	025	034	

Componenti kit / *Kit components*				
	1	50600010735	ORM 0780-35 (3.5x78) HNBR	*ORM 0780-35 (3.5x78) HNBR*
	2	50600013908	O-R 3-908 (2.21x16.36) HNBR	*O-R 3-908 (2.21x16.36) HNBR*
	3	50600018820	ORM 0880-20 (2x88) HNBR	*ORM 0880-20 (2x88) HNBR*
	4	50600033552	Paraolio 35x52x6 Alta pressione (PPS) + Parapolvere FKM	Paraolio 35x52x6 Alta pressione (PPS) + Parapolvere FKM
	6	50700000498	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	8	50100100748	Seeger 85 I	
	9	52800300491	Anello porta paraolio	Seal steel ring

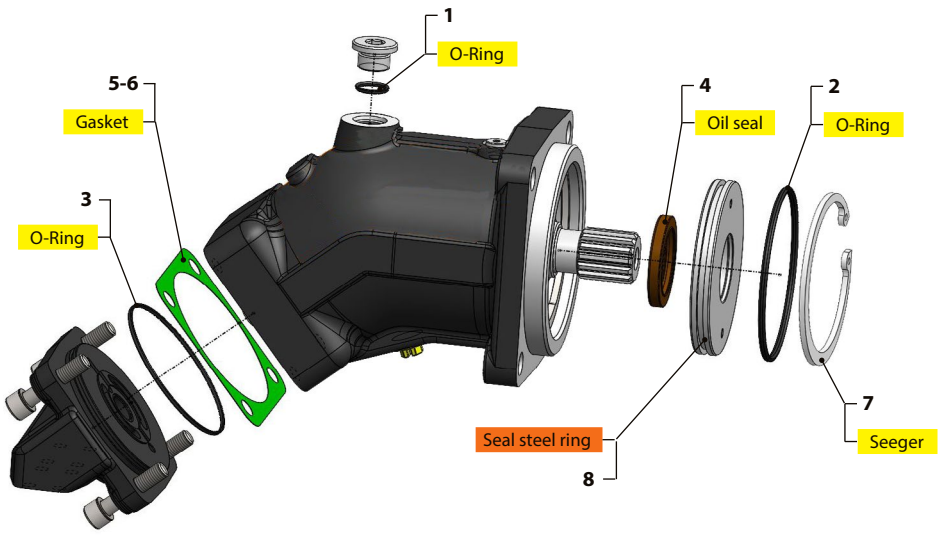
Kit ricambi / *Spare parts kit* **22190000039**
per alberi / *for shafts:*
SAE B - 13T 16/32 (rif.074)

Flangia *Flange* ISO 3019-1 SAE B			
	Diametro flangia *Flange diameter*	101,6mm (4 inch)	
	Codice tipo flangia *Flange code type*	221 and 222	
	Cilindrata motore *Motor displacement (cc)*	025	034

Componenti kit / *Kit components*				
	1	50600010735	ORM 0780-35 (3.5x78) HNBR	*ORM 0780-35 (3.5x78) HNBR*
	2	50600013908	O-R 3-908 (2.21x16.36) HNBR	*O-R 3-908 (2.21x16.36) HNBR*
	3	50600018820	ORM 0880-20 (2x88) HNBR	*ORM 0880-20 (2x88) HNBR*
	4	50600033042	Paraolio 30x42x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 30x42x7 High pressure (PPS) + Dust seal FKM*
	6	50700000498	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	8	50100100677	Seeger 72 I	
	9	52800300508	Anello porta paraolio	Seal steel ring

Da ordinare solo se il paraolio è di colore nero (vecchia versione)
To be ordered only if the oil seal is black (old version)

Componenti kit
Kit components



Kit ricambi / *Spare parts kit* **22490000051**			
Flangia *Flange* ISO 3019-1 SAE C	Diametro flangia *Flange diameter*	127mm (5 inch)	
	Codice tipo flangia *Flange code type*	224	
	Cilindrata motore *Motor displacement (cc)*	025	034

Componenti kit / *Kit components*				
	1	50600013908	O-R 3-908 (2.21x16.36) HNBR	*O-R 3-908 (2.21x16.36) HNBR*
	2	50600014387	O-R 4387 (3.53 x 98.02)HNBR	*O-R 4387 (3.53 x 98.02)HNBR*
	3	50600018820	ORM 0880-20 (2x88) HNBR	*ORM 0880-20 (2x88) HNBR*
	4	50600034052	Paraolio 40x55x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 40x55x7 High pressure (PPS) + Dust seal FKM*
	5	50700000498	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	7	50100100855	Seeger 105 I	
	8	52800300535	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **22490000042**				
Flangia *Flange* ISO 3019-1 SAE C	Diametro flangia *Flange diameter*	127mm (5 inch)		
	Codice tipo flangia *Flange code type*	224		
	Cilindrata motore *Motor displacement (cc)*	080	091	108

Componenti kit / *Kit components*				
	1	50600013908	O-R 3-908 (2.21x16.36) HNBR	*O-R 3-908 (2.21x16.36) HNBR*
	2	50600014400	O-R 4400 (3.53x101.2) HNBR	*O-R 4400 (3.53x101.2) HNBR*
	3	50600014475	O-R 4475 (3.53x120.2)HNBR	*O-R 4475 (3.53 x 120.2)HNBR*
	4	50600035572	Paraolio 55x72x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 55x72x7 High pressure (PPS) + Dust seal FKM*
	5	50700000550	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	7	50100100882	Seeger 108 I	
	8	52800300419	Anello porta paraolio	*Seal steel ring*

Kit ricambi / *Spare parts kit* **22490000033**					
Flangia *Flange* ISO 3019-1 SAE C	Diametro flangia *Flange diameter*	127mm (5 inch)			
	Codice tipo flangia *Flange code type*	224			
	Cilindrata motore *Motor displacement (cc)*	040	047	055	064

Componenti kit / *Kit components*				
	1	50600013908	O-R 3-908 (2.21x16.36) HNBR	*O-R 3-908 (2.21x16.36) HNBR*
	2	50600014387	O-R 4387 (3.53 x 98.02)HNBR	*O-R 4387 (3.53 x 98.02)HNBR*
	3	50600010325	ORM 1030-25 (2.5 x 103) HNBR	*ORM 1030-25 (2.5 x 103) HNBR*
	4	50600034562	Paraolio 45x62x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 45x62x7 High pressure (PPS) + Dust seal FKM*
	5	50700000470	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	6	50700000505	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	7	50100100855	Seeger 105 I	
	8	52800300482	Anello porta paraolio	*Seal steel ring*

Da ordinare solo se il paraolio è di colore nero (vecchia versione)
To be ordered only if the oil seal is black (old version)

2 0 1 | 0 0 1 | 0 1 | 0 6 4

Tipo flangia / *Flange type*

201 : ISO 7653-D

Albero / *Shaft*

001 : 8x32x36 (ISO 14) - DIN 5462

Cilindrata / *Displacement (cc)*

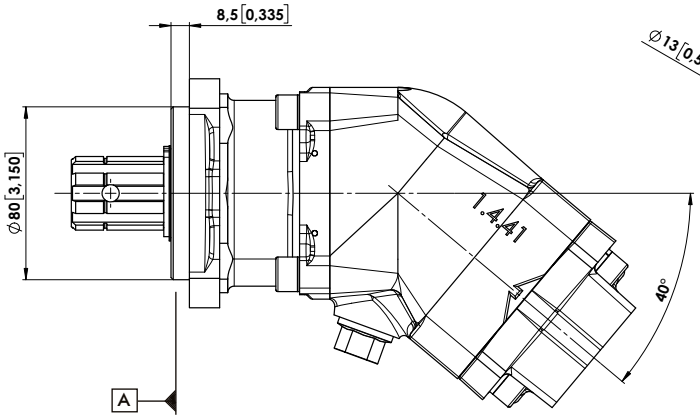
012
017
025
034
040
047
055
064
084
108
130

Connessioni / *Portings*

01 : BSPP REAR 40°

Ingombro / *Dimensions*

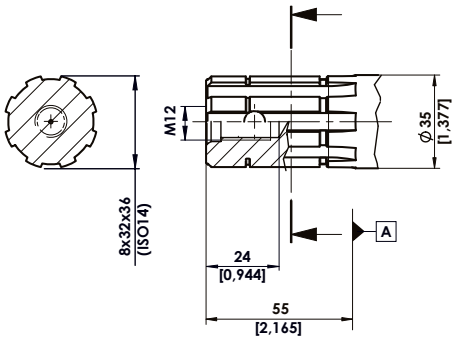
Flange code **201**



Alberi/ *Shafts*

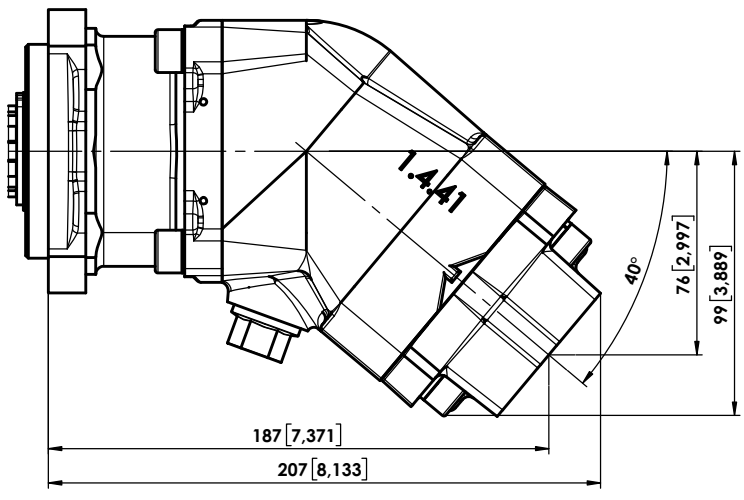
001

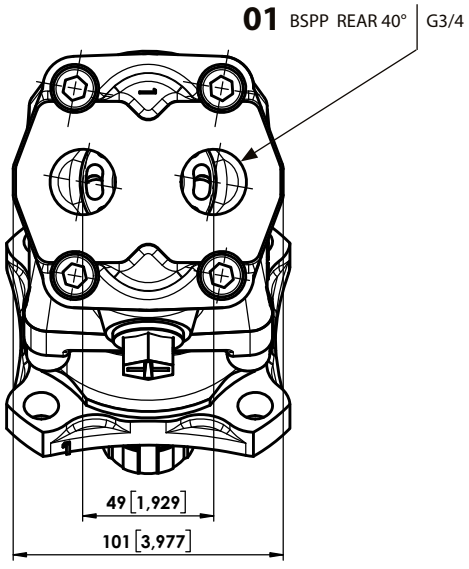
8x32x36 (ISO14)
DIN 5462



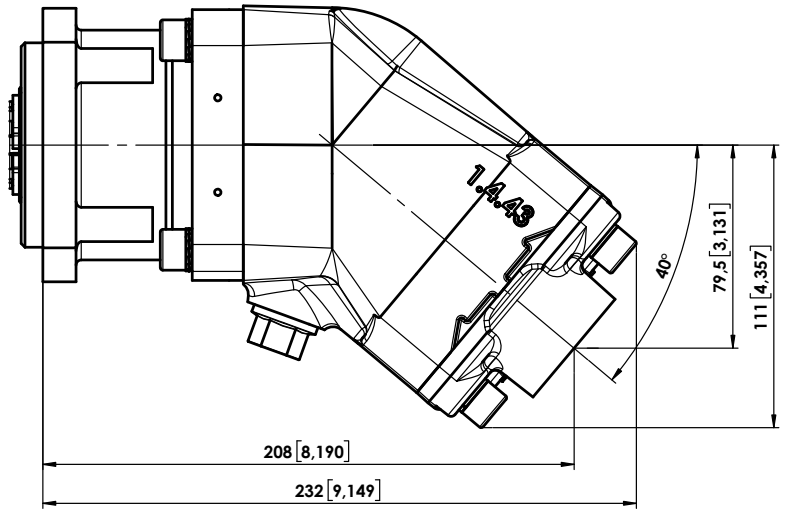
Connessioni/ *Portings*

Cilindrata/*Displacement* **012-017-025-034**

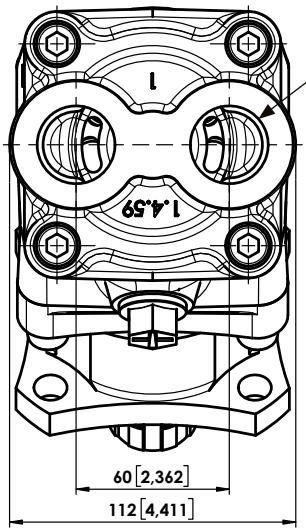




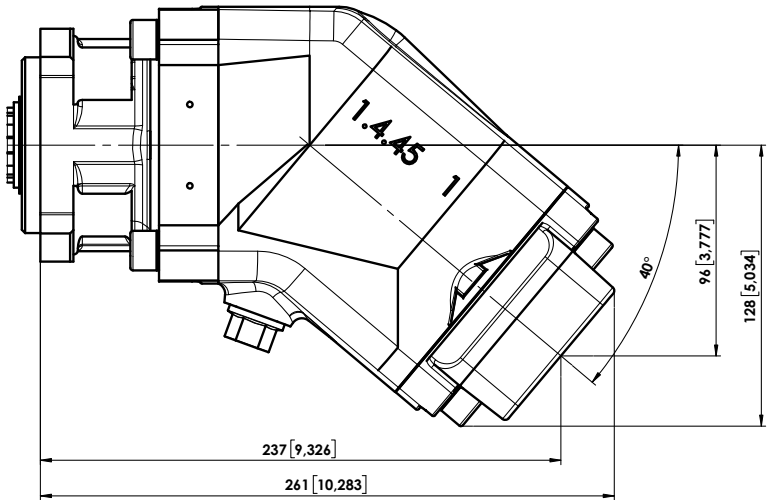
Cilindrata/*Displacement* 040-047-055-064



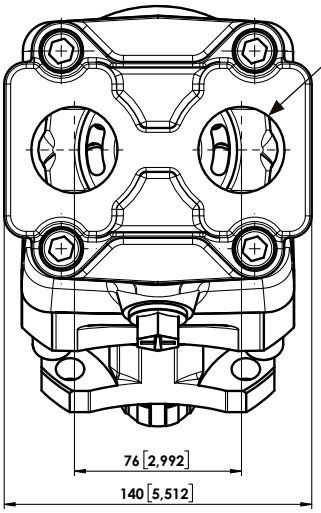
01 BSPP REAR 40° | G1



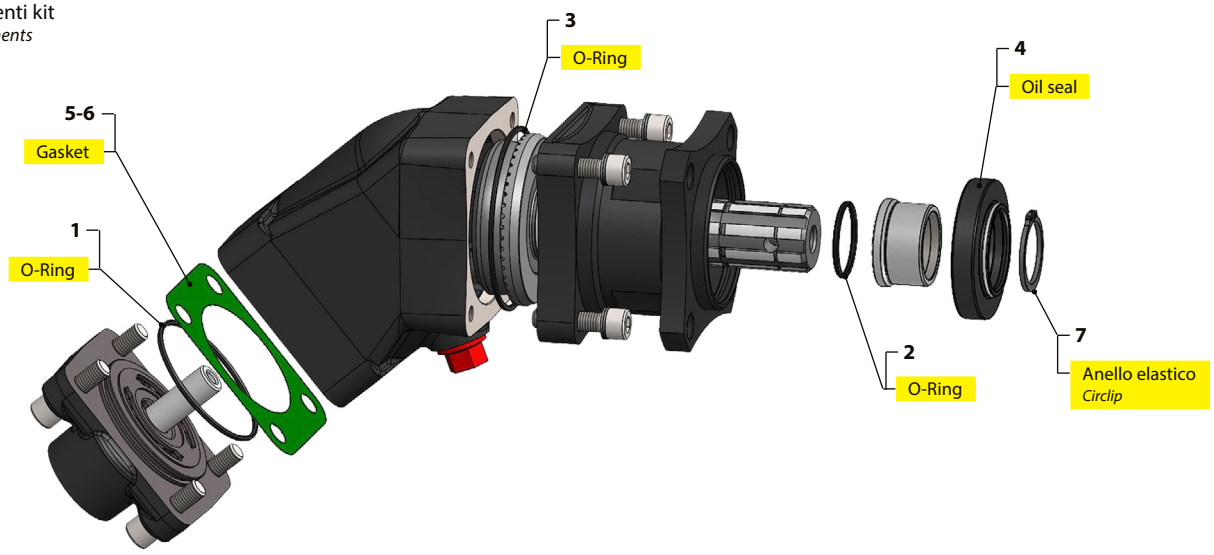
Cilindrata/*Displacement* 084-108-130



01 BSPP REAR 40° | G1-1/4



Componenti kit
Kit components



Kit ricambi / *Spare parts kit* **20190000013**					
Flangia *Flange* ISO 7653-D	Diametro flangia *Flange diameter*	80mm (3,150 inch)			
	Codice tipo flangia *Flange code type*	201			
	Cilindrata motore *Motor displacement (cc)*	012	017	025	034

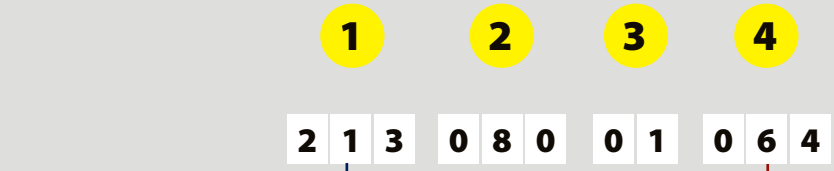
Componenti kit / *Kit components*				
	1	50600012224	O-R 2225 (1.78x56.87) HNBR	*O-R 2225 (1.78x56.87) HNBR*
	2	50600013137	O-R 3137 (2.62x34.60) HNBR	*O-R 3137 (2.62x34.60) HNBR*
	3	50600018020	ORM 0800-20 (2x80) HNBR	*ORM 0800-20 (2x80) HNBR*
	4	50600024272	Paraolio doppio labbro 42x72x16 HNBR	*Oil seal 42x72x16 HNBR*
	5	50700000256	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	6	50700000523	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	7	50100002729	Anello elastico Ø72	*Circlip Ø72*

Kit ricambi / *Spare parts kit* **20190000022**					
Flangia *Flange* ISO 7653-D	Diametro flangia *Flange diameter*	80mm (3,150 inch)			
	Codice tipo flangia *Flange code type*	201			
	Cilindrata motore *Motor displacement (cc)*	040	047	055	064

Componenti kit / *Kit components*				
	1	50600013275	O-R 3275 (2.62 x 69.52) HNBR	*O-R 3275 (2.62 x 69.52) HNBR*
	2	50600013137	O-R 3137 (2.62x34.60) HNBR	*O-R 3137 (2.62x34.60) HNBR*
	3	50600013350	O-R 3350 (2.62 x 88.58) HNBR	*O-R 3350 (2.62 x 88.58) HNBR*
	4	50600024272	Paraolio doppio labbro 42x72x16 HNBR	*Oil seal 42x72x16 HNBR*
	5	50700000229	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	6	50700000532	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	7	50100002729	Anello elastico Ø72	*Circlip Ø72*

Kit ricambi / *Spare parts kit* **20190000031**				
Flangia *Flange* ISO 7653-D	Diametro flangia *Flange diameter*	80mm (3,150 inch)		
	Codice tipo flangia *Flange code type*	201		
	Cilindrata motore *Motor displacement (cc)*	084	108	130

Componenti kit / *Kit components*				
	1	50600018520	ORM 0850-20 (2x85) HNBR	*ORM 0850-20 (2x85) HNBR*
	2	50600013137	O-R 3137 (2.62x34.60) HNBR	*O-R 3137 (2.62x34.60) HNBR*
	3	50600012412	O-R 2412 (1.78x104.40) HNBR	*O-R 2412 (1.78x104.40) HNBR*
	4	50600024272	Paraolio doppio labbro 42x72x16 HNBR	*Oil seal 42x72x16 HNBR*
	5	50700000247	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	6	50700000541	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	7	50100002729	Anello elastico Ø72	*Circlip Ø72*



Tipo flangia / *Flange type*

213 : SAE J744 SAE B 2H-4H

214 : SAE J744 SAE C - 4H

Cilindrata / *Displacement (cc)*

040
047
055
064
084
108
130

Albero / *Shaft*

074 : SAE B - 13T 16/32
077 : SAE BB - 15T 16/32
080 : SAE C - 14T 12/24
091 : ø 25,4 (1") - SAE J744
094 : ø 31,7 (1,25") - SAE J744

Connessioni / *Portings*

01 : BSPP REAR 40°
05 : UN REAR 40°
13 : SAE 6000 REAR 90° - M

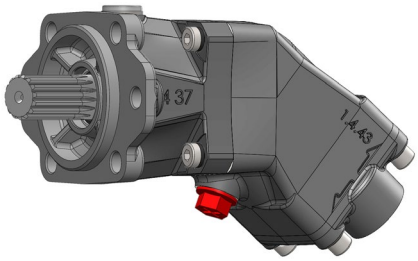
Flangia *Flange*	Tipo / *Type*		SAE B 2H - 4H				SAE C 4H						
	Codice / *Code* 1		213				214						
	Cilindrata *Displacement* 4		040	047	055	064	040	047	055	064	084	108	130
Albero *Shaft*	Codice *Code* 2												
	047	K30 - ø30 DIN 6885											
	050	K35 - ø35 DIN 6885											
	074	SAE B - 13T 16/32	X	X	X	X							
	077	SAE BB - 15T 16/32	X	X	X	X							
	080	SAE C - 14T 12/24					X	X	X	X	X	X	
	081	SAE CC - 17T 12/24											
	083	SAE C - 21T 16/32											
	091	ø 25,4 (1") - SAE J744	X	X									
	094	ø 31,7 (1,25") - SAE J744					X	X	X	X	X	X	X
	095	ø 38,1 (1,5") - SAE J744											
Connessioni *Portings*	Codice *Code* 3												
	01	BSPP REAR 40°	X	X	X	X	X	X	X	X	X	X	X
	03	BSPP SIDE											
	05	UN REAR 40°	X	X	X	X	X	X	X	X	X	X	X
	06	UN 40° + sSIDE											
	07	UN SIDE											
	11	SAE 6000 REAR 40° - M											
	13	SAE 6000 REAR 90° - M	X	X	X	X							
	14	SAE 6000 SIDE - M											
	21	SAE 6000 REAR 40° - U											
	24	SAE 6000 - SIDE U											
	25	SAE 6000 - SIDE U + FLUSHING VALVE											
	41	UNF 40° + SIDE											

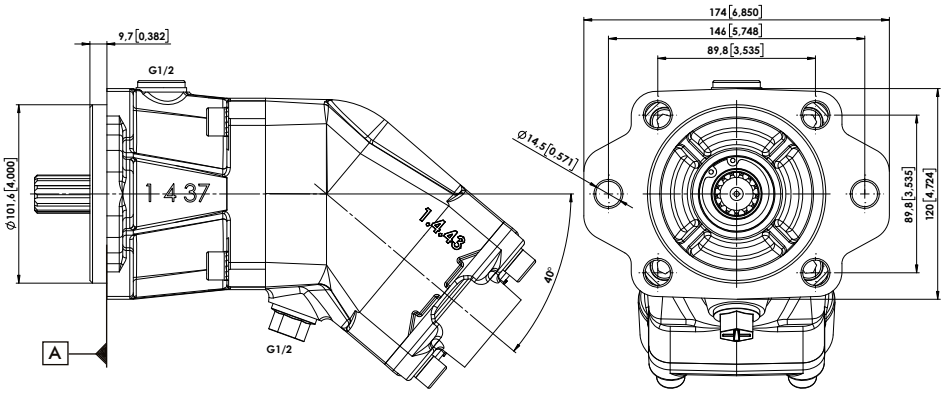
X = Disponibili / *Available*

X Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

Ingombro / *Dimensions*

Flange code **213**

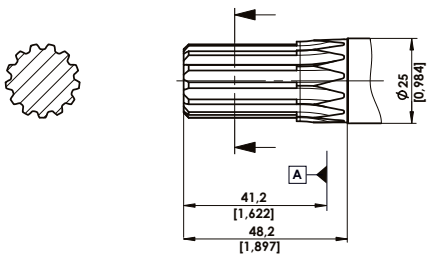




Alberi/ *Shafts*

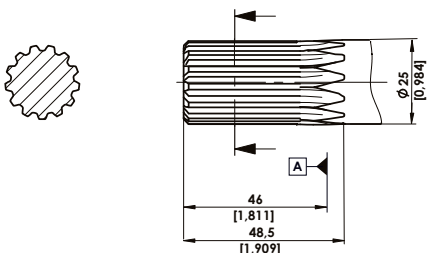
074

SAE B - 13T 16/32
Splined shaft



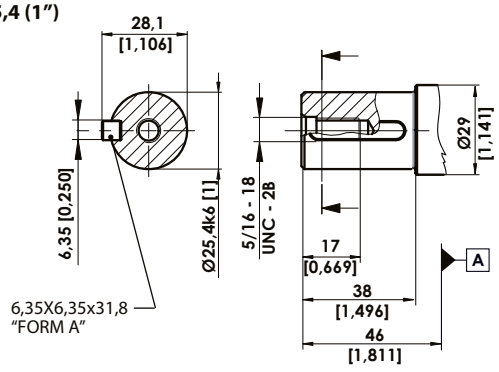
077

SAE BB - 15T 16/32
Splined shaft



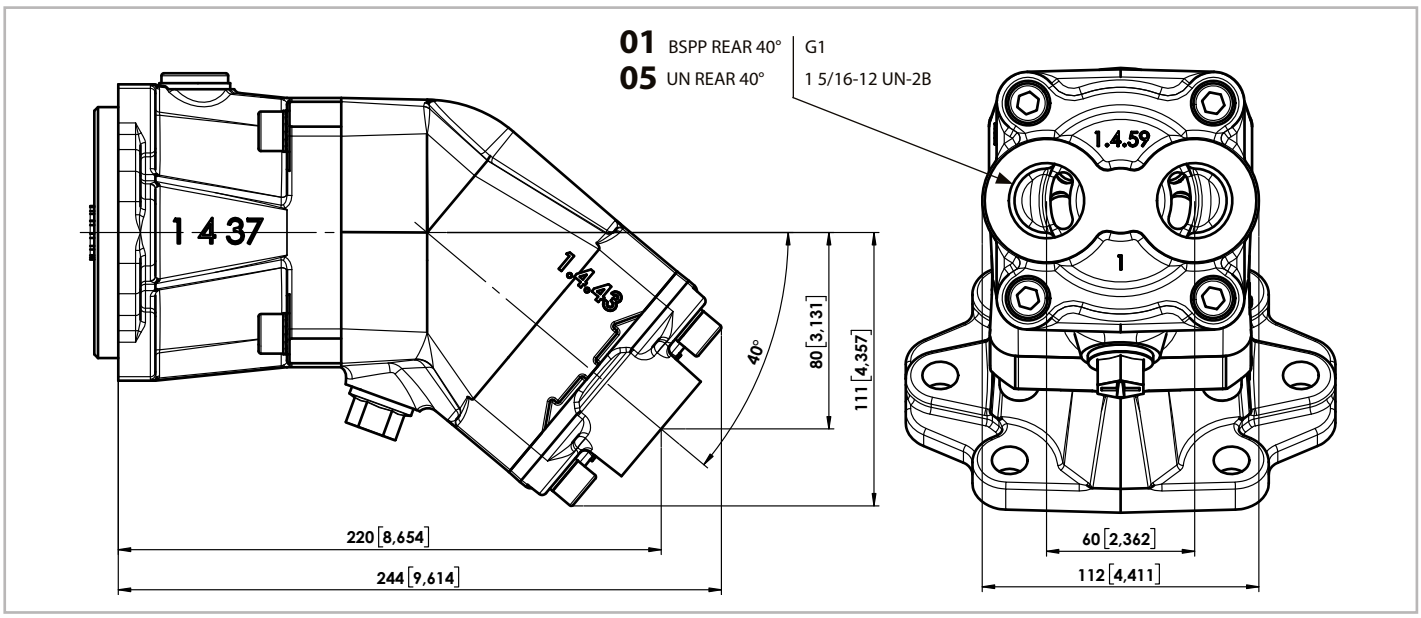
091

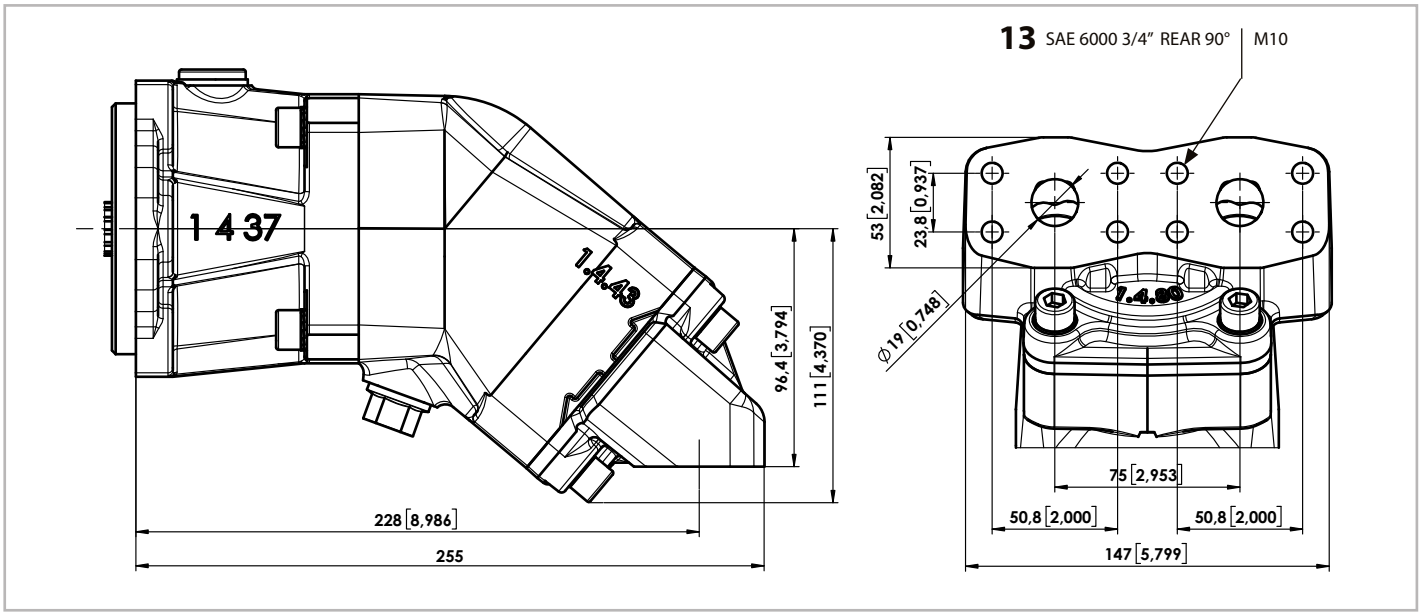
SAE J744 Ø25,4 (1")
Cylindrical
keyed shaft
SAE J744



Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

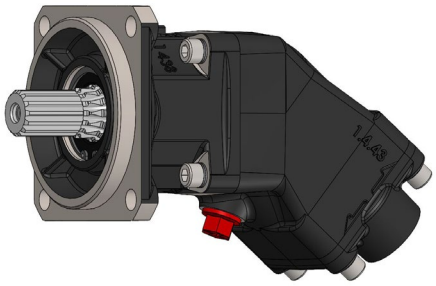
Connessioni/ *Portings*

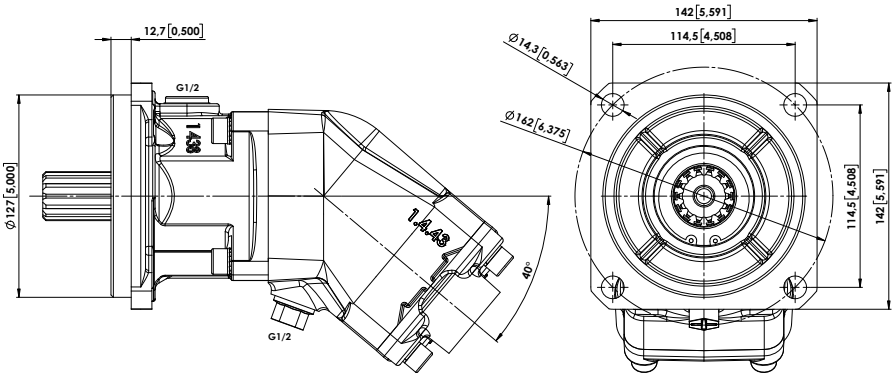




Ingombro / *Dimensions*

Flange code **214**

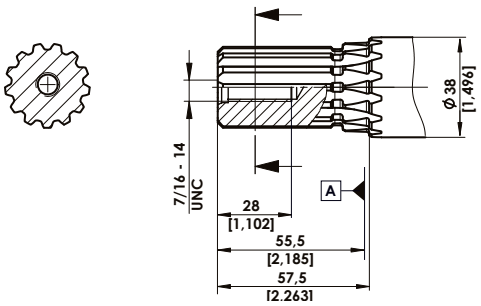




Alberi/ *Shafts*

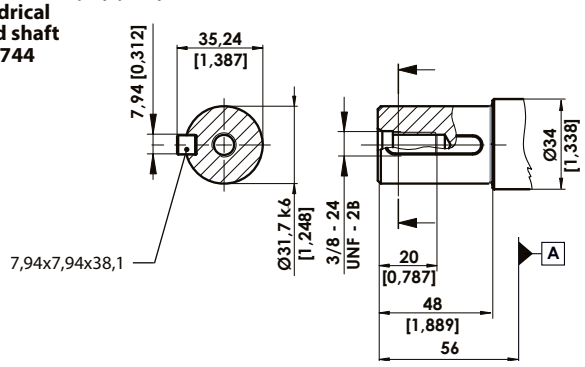
080

SAE C - 14T 12/24
Splined shaft



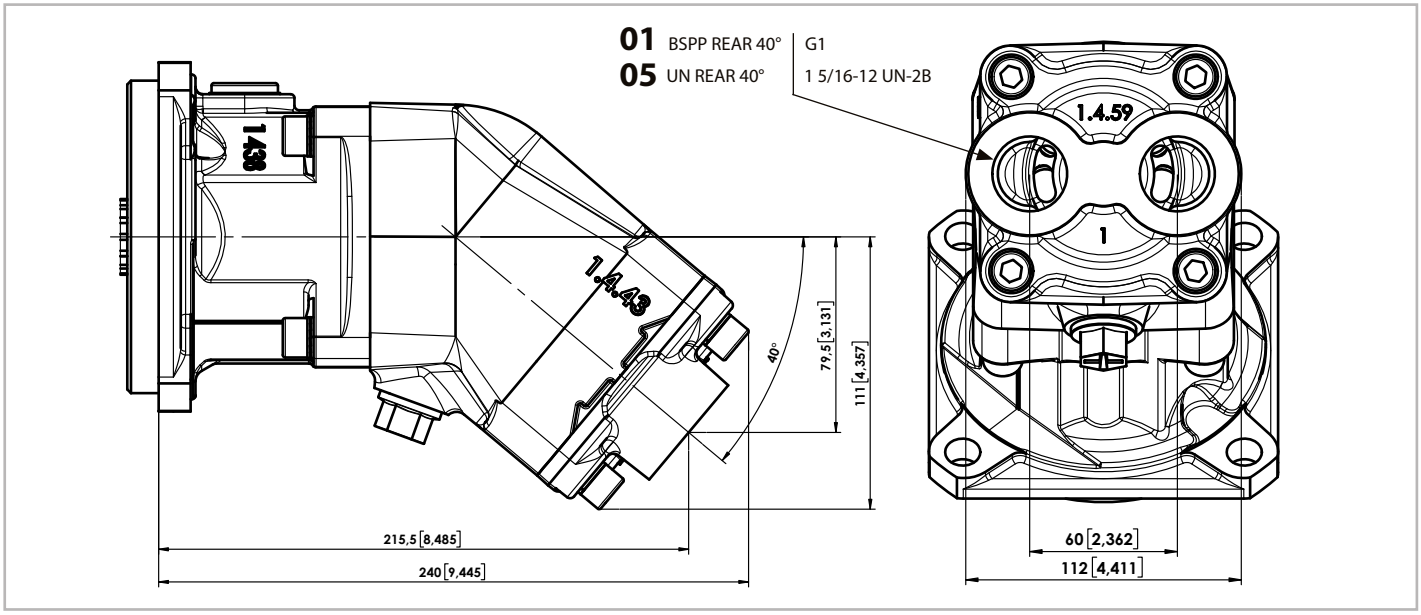
094

SAE J744 Ø31,7 (1,25")
Cylindrical
keyed shaft
SAE J744



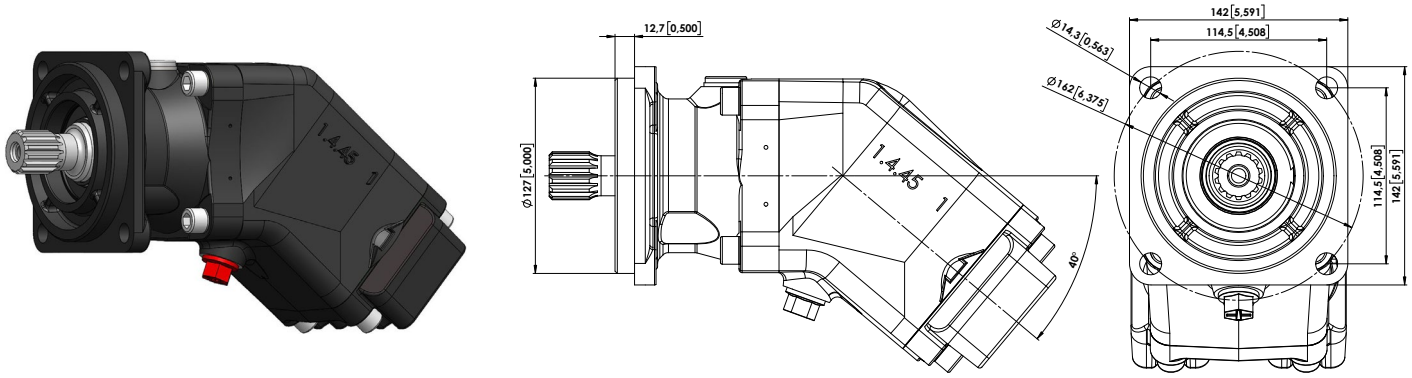
Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

Connessioni/ *Portings*



Ingombro / *Dimensions*

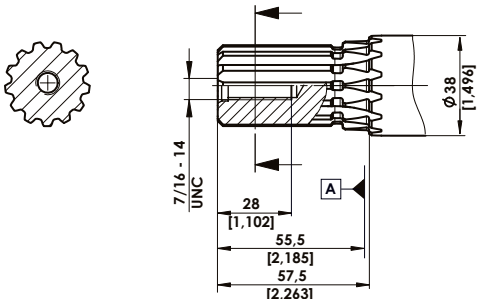
Flange code **214**



Alberi/ *Shafts*

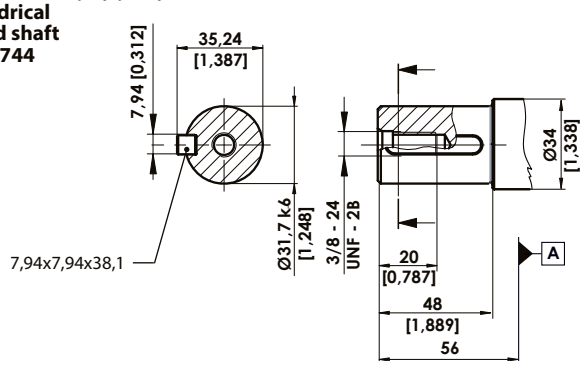
080

SAE C - 14T 12/24
Splined shaft



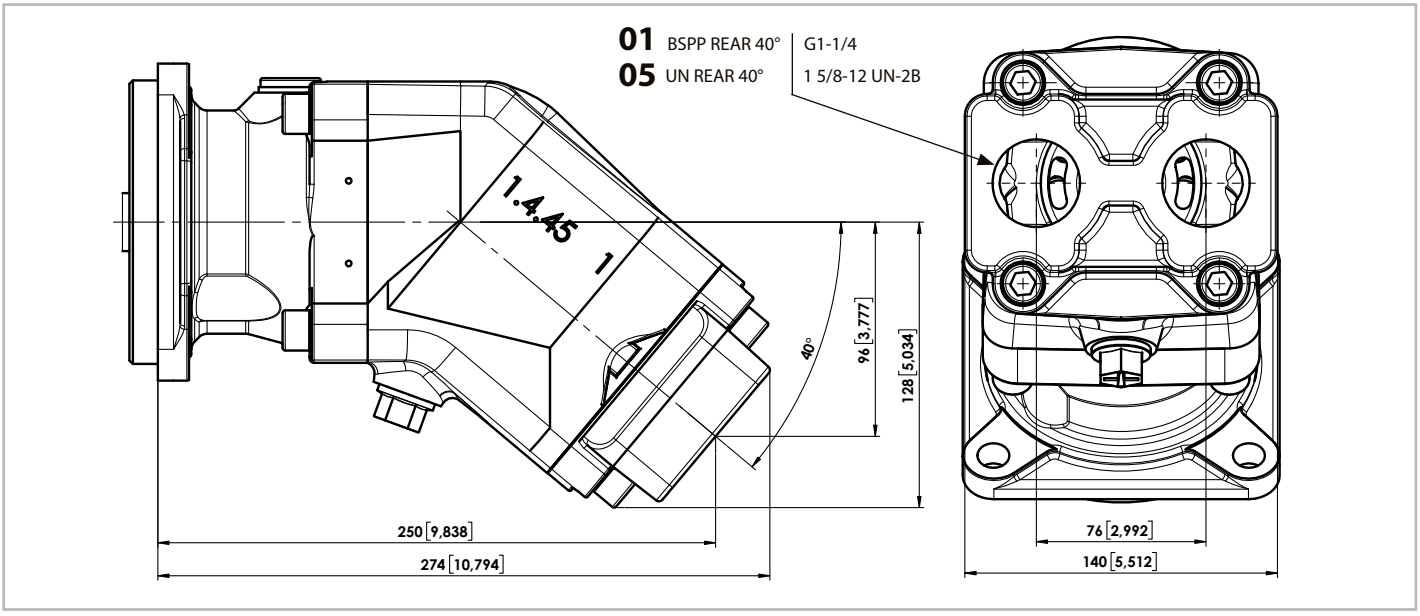
094

SAE J744 Ø31,7 (1,25")
Cylindrical
keyed shaft
SAE J744

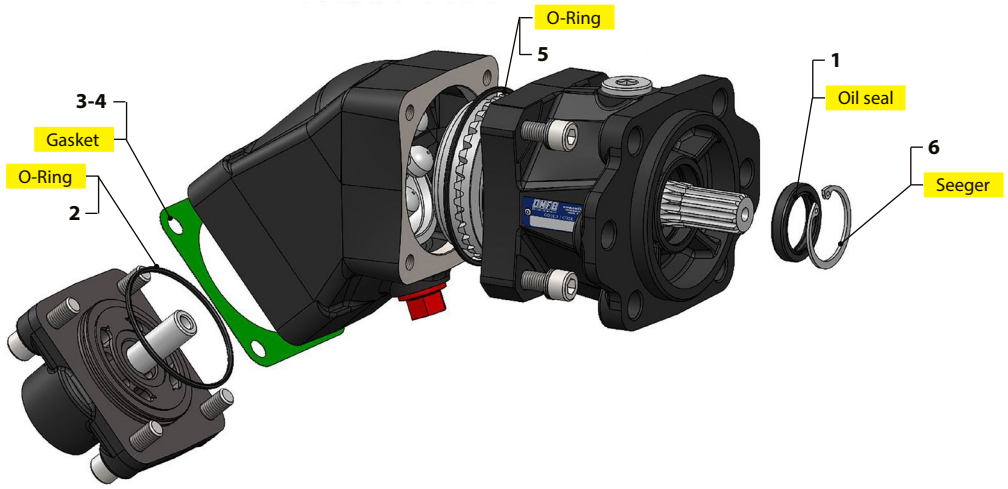


Questo albero può avere delle limitazioni di coppia a seconda dell'applicazione. Per maggiori informazioni contattare OMFB
This shaft may have torque limitations depending on the application.
For more information please contact OMFB

Connessioni/ *Portings*



Componenti kit
Kit components



Kit ricambi / *Spare parts kit* **21390000027**
per alberi / *kit for shafts:*
SAE B - 13T 16/32 (rif.074) - SAE BB - 15T 16/32 (rif.077)

Flange *Flange* SAE B 2H - 4H			
Diametro flangia *Flange diameter*	101,6mm (4 inch)		
Codice tipo flangia *Flange code type*	213		
Cilindrata motore *Motor displacement (cc)*	012	017	020

Componenti kit / *Kit components*				
	1	50600022542	Paraolio 30x42x7 Alta pressione (GAP) + Parapolvere HNBR	*Oil seal 30x42x7* *High pressure (GAP)* *+ Dust seal HNBR*
	2	50600013275	O-R 3275 (2.62 x 69.52) HNBR	*O-R 3275* *(2.62 x 69.52) HNBR*
	3	50700000229	Guarnizione corpo-fondello sp.0,3	*Gasket* *body-rear cover sp.0,3*
	4	50700000532	Guarnizione corpo-fondello sp.0,5	*Gasket* *body-rear cover sp.0,5*
	5	50600013350	O-R 3350 (2.62 x 88.58) HNBR	*O-R 3350* *(2.62 x 88.58) HNBR*
	6	50100100391	Seeger 42 I	

Kit ricambi / *Spare parts kit* **21390000036**
per albero / *for shaft:*
Ø 25,4 (1") - SAE J744 (rif.091) - **(Parapolvere / *Dust seal* HNBR)**

Flange *Flange* SAE B 2H - 4H			
Diametro flangia *Flange diameter*	101,6mm (4 inch)		
Codice tipo flangia *Flange code type*	213		
Cilindrata motore *Motor displacement (cc)*	012	017	020

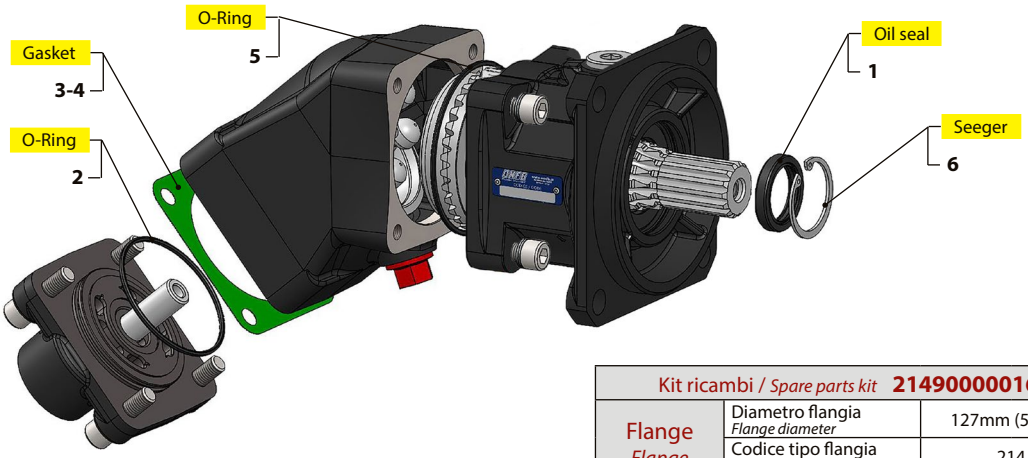
Componenti kit / *Kit components*				
	1	50600023042	Paraolio 30x42x7 Alta pressione + Parapolvere HNBR	*Oil seal 30x42x7* *High pressure* *+ Dust seal HNBR*
	2	50600013275	O-R 3275 (2.62 x 69.52) HNBR	*O-R 3275* *(2.62 x 69.52) HNBR*
	3	50700000229	Guarnizione corpo-fondello sp.0,3	*Gasket* *body-rear cover sp.0,3*
	4	50700000532	Guarnizione corpo-fondello sp.0,5	*Gasket* *body-rear cover sp.0,5*
	5	50600013350	O-R 3350 (2.62 x 88.58) HNBR	*O-R 3350* *(2.62 x 88.58) HNBR*
	6	50100100391	Seeger 42 I	

Kit ricambi / *Spare parts kit* **21390000045**
per albero / *for shaft:*
Ø 25,4 (1") - SAE J744 (rif.091) - **(Parapolvere / *Dust seal* FKM)**

Flange *Flange* SAE B 2H - 4H			
Diametro flangia *Flange diameter*	101,6mm (4 inch)		
Codice tipo flangia *Flange code type*	213		
Cilindrata motore *Motor displacement (cc)*	012	017	020

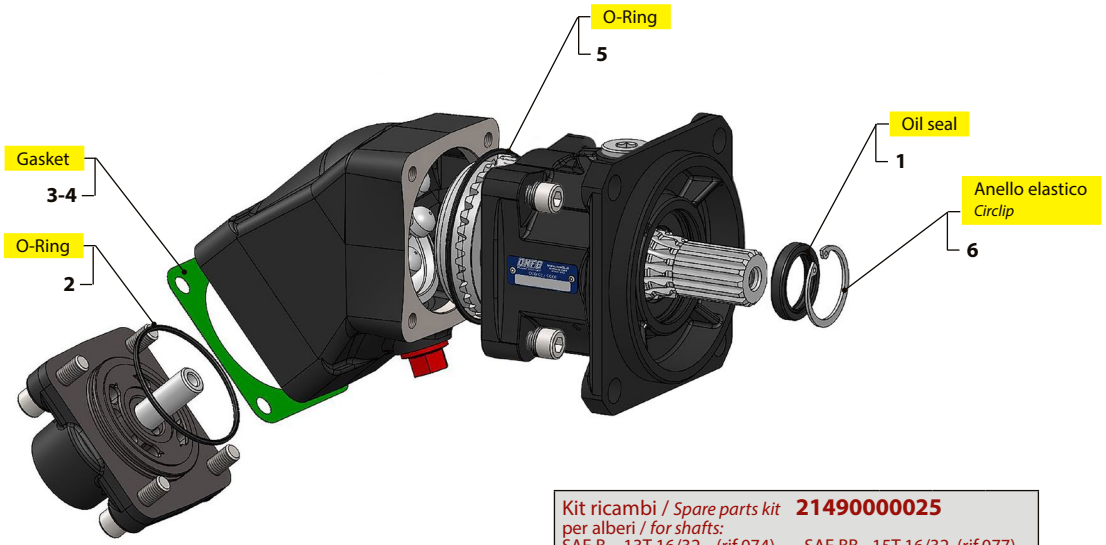
Componenti kit / *Kit components*				
	1	50600033042	Paraolio 30x42x7 Alta pressione (PPS) + Parapolvere FKM	*Oil seal 30x42x7* *High pressure (PPS)* *+ Dust seal FKM*
	2	50600013275	O-R 3275 (2.62 x 69.52) HNBR	*O-R 3275* *(2.62 x 69.52) HNBR*
	3	50700000229	Guarnizione corpo-fondello sp.0,3	*Gasket* *body-rear cover sp.0,3*
	4	50700000532	Guarnizione corpo-fondello sp.0,5	*Gasket* *body-rear cover sp.0,5*
	5	50600013350	O-R 3350 (2.62 x 88.58) HNBR	*O-R 3350* *(2.62 x 88.58) HNBR*
	6	50100100391	Seeger 42 I	

Componenti kit
Kit components



Kit ricambi / *Spare parts kit* **21490000016**					
Flange *Flange* SAE C 4H	Diametro flangia *Flange diameter*	127mm (5 inch)			
	Codice tipo flangia *Flange code type*	214			
	Cilindrata motore *Motor displacement (cc)*	040	047	055	064

Componenti kit / *Kit components*				
	1	50600023863	Paraolio 38x62x9 Alta pressione HNBR	*Oil seal 38x62x9 High pressure HNBR*
	2	50600013275	O-R 3275 (2.62 x 69.52) HNBR	*O-R 3275 (2.62 x 69.52) HNBR*
	3	50700000229	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	4	50700000532	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	5	50600013350	O-R 3350 (2.62 x 88.58) HNBR	*O-R 3350 (2.62 x 88.58) HNBR*
	6	50100100588	Seeger 62 I	



Kit ricambi / *Spare parts kit* **21490000025** per alberi / *for shafts:* SAE B - 13T 16/32 (rif.074) - SAE BB - 15T 16/32 (rif.077)					
Flange *Flange* SAE C 4H	Diametro flangia *Flange diameter*	127mm (5 inch)			
	Codice tipo flangia *Flange code type*	214			
	Cilindrata motore *Motor displacement (cc)*	084	108	130	

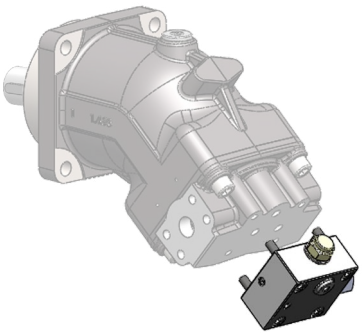
Componenti kit / *Kit components*				
	1	50600024272	Paraolio doppio labbro 42x72x16 HNBR	*Oil seal 42x72x16 HNBR*
	2	50600018520	ORM 0850-20 (2x85) HNBR	*ORM 0850-20 (2x85) HNBR*
	3	50700000247	Guarnizione corpo-fondello sp.0,3	*Gasket body-rear cover sp.0,3*
	4	50700000541	Guarnizione corpo-fondello sp.0,5	*Gasket body-rear cover sp.0,5*
	5	50600602450	OR 2450 (1.78x114.00) FKM/FPM	*OR 2450 (1.78x114.00) FKM/FPM*
	6	50100002729	Anello elastico Ø72	*Circlip Ø72*

ACCESSORIES ..... pag. 79

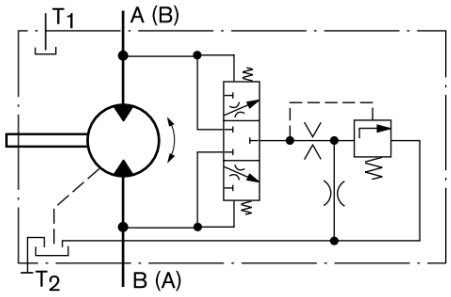
- **HPM VALVES**
  - Blocco valvola di flussaggio ..... pag. 81
    Flushing valve panel
  - Blocco unico flussaggio+valvole di massima pressione ..... pag. 83
    Combined flushing and relief valve manifold
  - Valvole anticavitazione ..... pag. 85
    Single anticavitation valve
  - Pannello con valvola anticavitazione unidirezionale G3/4 ..... pag. 86
    Plate complete with unidirectional anticavitation valve G3/4
  - Valvole antishock + anticavitazione ..... pag. 87
    Antishock + anticavitation valve
  - Valvole overcenter ..... pag. 90
  - Valvola anticavitazione - regolatore portata + V.Max ..... pag. 94
    Valve for mulchers
  - Pannello con valvola anticavitazione e V.Max. 200lt ..... pag. 97
    Plate complete with anticavitation valve and relief valve 200 lt

- **HPM3 VALVES**
  - Pannello con valvola anticavitazione unidirezionale ..... pag. 99
    Plate complete with unidirectional anticavitation valve

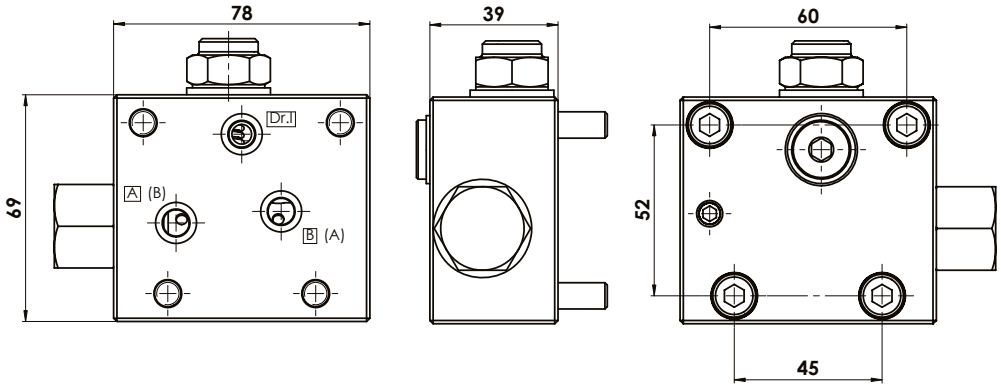
- **SPEED SENSOR** ..... pag. 103



Schema di funzionamento
Functional diagram



Ingombro / *Dimensions*



Codice di ordinazione / *Order code*

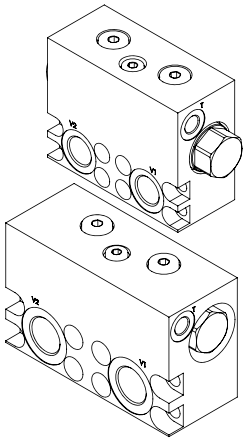
Codice *Code*	**Descrizione** *Description*	**Cilindrata** *Displacement* *(cc)*	**Volume di flussaggio Δp standard=25 bar** *Flushing flow* *(l/min)*	**Ø orifizio** *orifice* *(mm)*
12403000109	Blocco valvola di flussaggio *Flushing valve panel*	40-64	3,5	0,6
12403000118		80-91	5	1,3
12403000127		108-130	8	2

Taratura valvola: 11,5 bar
Valve setting

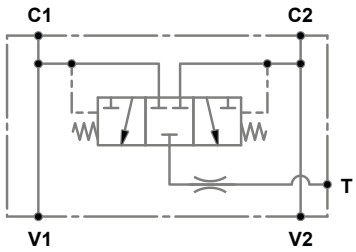
- Sui motori connessioni 15 e 25, il blocco valvola di flussaggio è già montato.
On motors with portings 15 and 25, the flushing valve panel is already mounted.
- NON usare su motori unidirezionali.
DO NOT use on unidirectional motors.

Valvola di flussaggio
Flushing valve
HPM 025-130cc

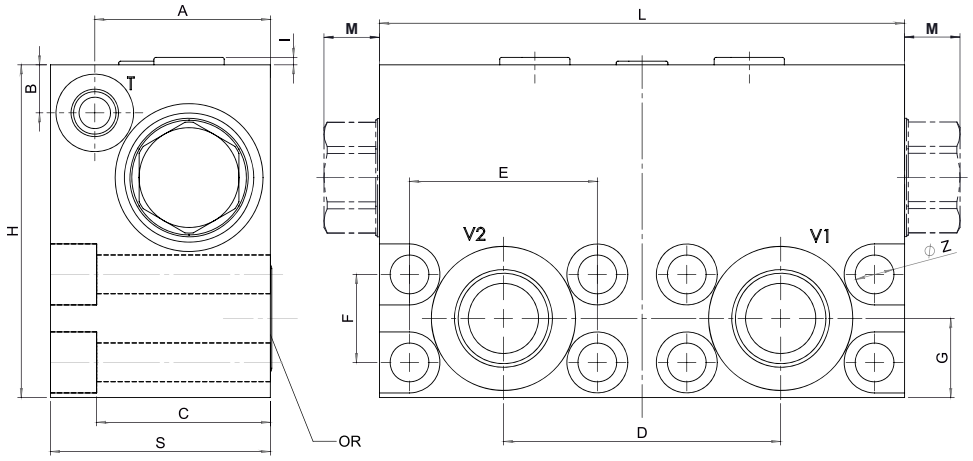
1240300



Schema di funzionamento
Functional diagram



Ingombro / *Dimensions*



Codice di ordinazione / *Order code*

Codice *Code*	Taglia *Size*	Motori *Motors*	Portata flussaggio *Flushing flow*	Con Δp 20 bar
12403000136	03	25-34 cc	06 - 08 lpm	
12403000163	04	40-47-55-64 cc	08 - 10 lpm	
12403000207	05	80-91 cc	10 - 12 lpm	
12403000305	06	108-130 cc	13 - 15 lpm	

Materiale:
acciaio zincato
Material:
zinc plated steel body

Caratteristiche funzionali / *Functional data*

Taglia/ *Size*	A	B	C	D	E	F	G	H	I	L	M	S	ØZ	OR
03	36,5	15,5	39	59	40,5	18,2	17,6	90	-	113,5	15	49,5	8,5	18,64x3,53
04	47,5	13	47	75	50,8	23,8	21,4	90	2	142	-	59,5	10,5	23,40x3,53
05	47,5	17	45	84	57,5	27,8	25	100	-	160	-	59,5	12,5	32,93x3,53
06	48	12	44,5	99	66,7	31,8	28,5	100	4,5	195	-	59,5	15	36,09x3,53

	03	04	05	06
Pressione max. / *Max. pressure* (bar)	420	420	420	420
Portata massima / *Max. flow rate* (lpm)	150	300	500	600
Portata di flussaggio / *Flushing flow* (lpm)	6-8	8-10	10-12	13-15
Diametro foro calibrato / *Orefice Diameter* (mm)	1,7	1,9	2,1	2,4

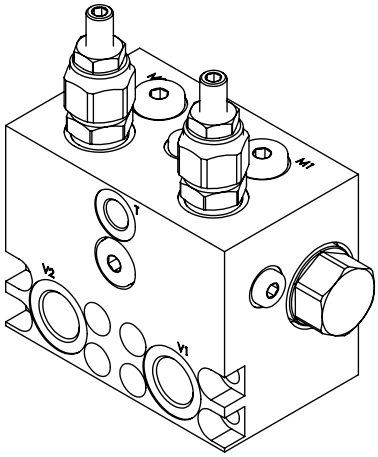
Porte / *Ports*	03	04	05	06
	V1-V2 G1/2	V1-V2 G3/4	V1-V2 G1	V1-V2 G1
	C1-C2: 1/2 SAE6000	C1-C2: 3/4 SAE6000	C1-C2:1 SAE6000	C1-C2: 1-1/4 SAE6000
	T: G1/4	T: G1/4	T: G1/4	T: G1/4

Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

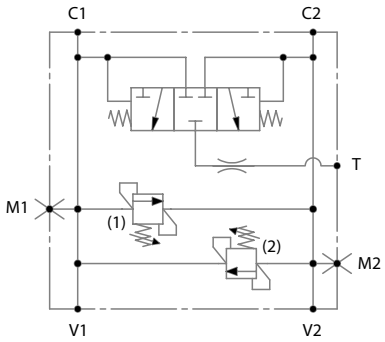
NON usare su motori unidirezionali.
DO NOT use on unidirectional motors.

Blocco unico flussaggio+valvole di massima pressione
Combined flushing and relief valve manifold

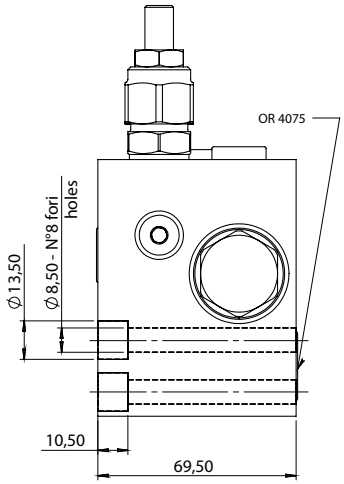
HPM 025-034cc **12403010134**

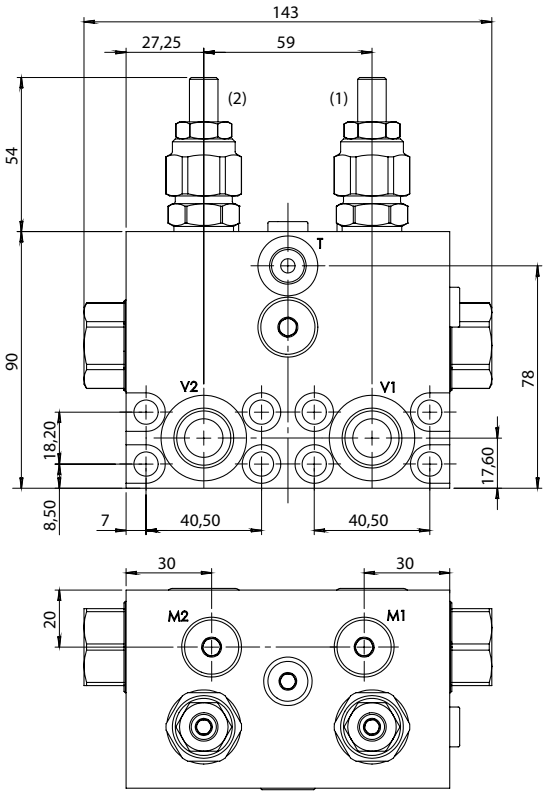


Schema di funzionamento
Functional diagram



Ingombro / *Dimensions*





Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	150
Portata di flussaggio / *Flushing flow* (lpm)	6 - 8
Range di limitazione pressione *Relief pressure range* (bar)	100-350
Massima portata di scarico / *Relif max. flow* (lpm)	35
Pressione max. / *Max. pressure* (bar)	420
Diametro foro calibrato / *Orefice Diameter* (mm)	1,7
Porte / *Ports*	V1-V2: G1/2 C1-C2: 1/2 SAE6000 M1-M2-T: G1/4

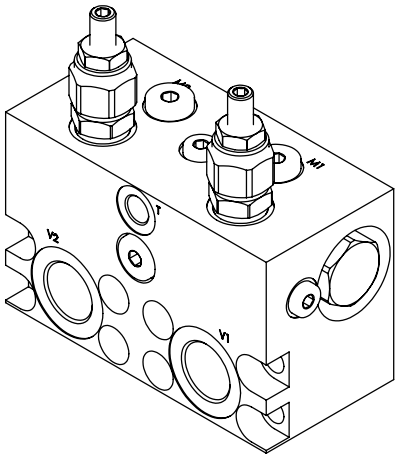
Materiale: acciaio zincato
Material: zinc plated steel body

Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

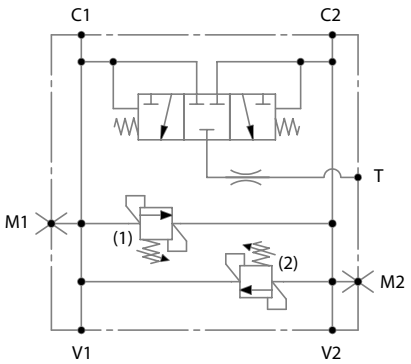
NON usare su motori unidirezionali.
DO NOT use on unidirectional motors.

Blocco unico flussaggio+valvole di massima pressione
Combined flushing and relief valve manifold

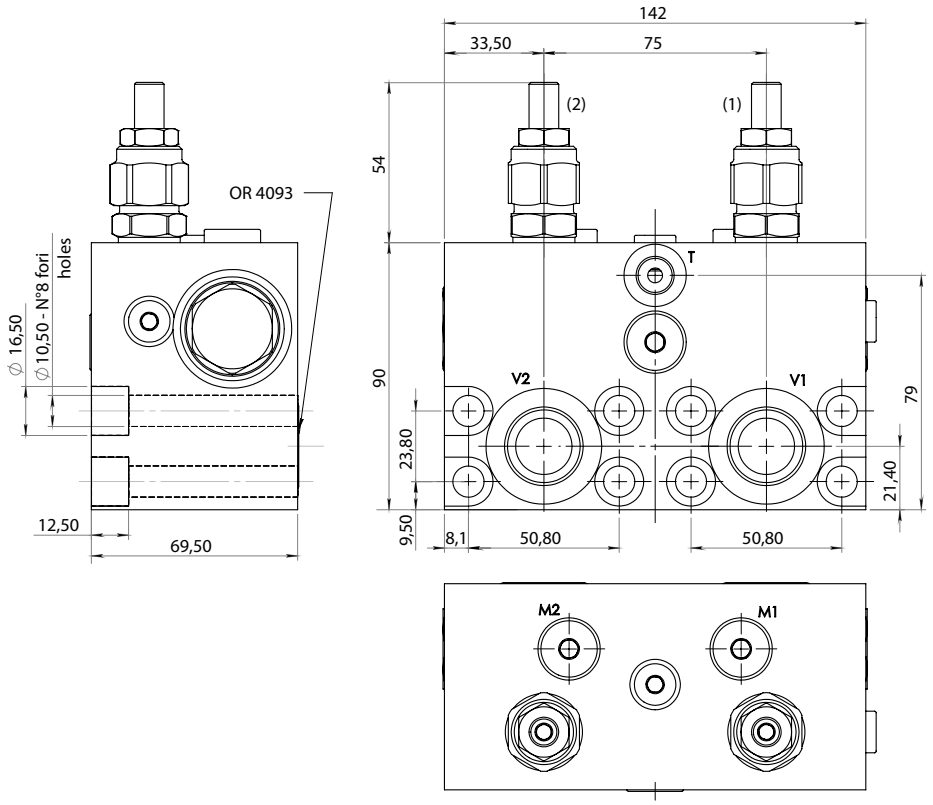
HPM 040-047-055-064cc **12403010161**



Schema di funzionamento
Functional diagram



Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	300
Portata di flussaggio / *Flushing flow* (lpm)	8 - 10
Range di limitazione pressione *Relief pressure range* (bar)	100-350
Massima portata di scarico / *Relif max. flow* (lpm)	35
Pressione max. / *Max. pressure* (bar)	420
Diametro foro calibrato / *Orefice Diameter* (mm)	1,9
Porte / *Ports*	V1-V2: G3/4 C1-C2: 3/4 SAE6000 M1-M2-T: G1/4

Materiale: acciaio zincato
Material: zinc plated steel body

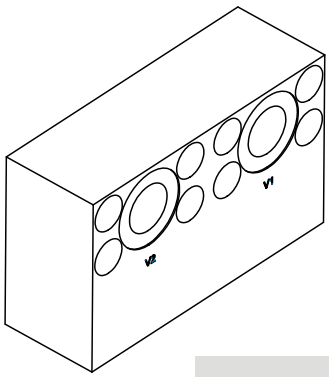
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

NON usare su motori unidirezionali.
DO NOT use on unidirectional motors.

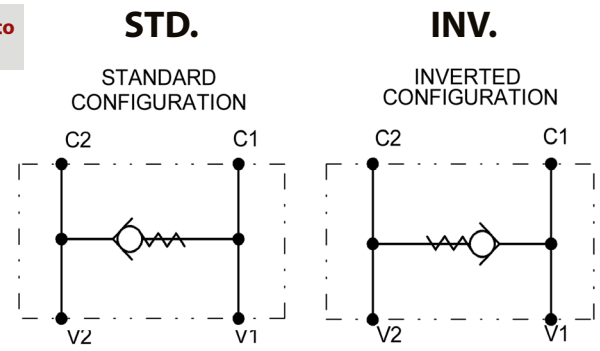
Valvole anticavitazione
Single anticavitation valve

HPM 025-034-040-047-055-064-080-091-108-130cc

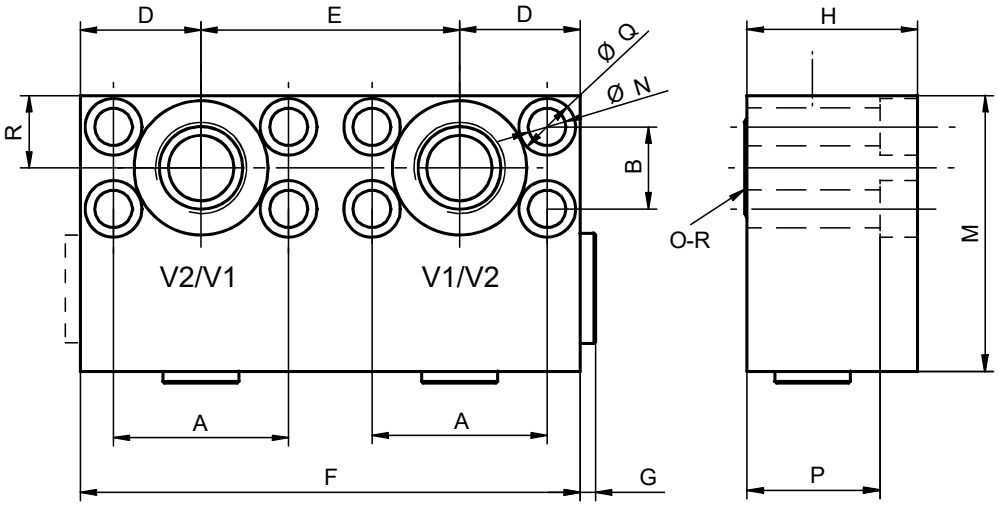
124031



Schema di funzionamento
Functional diagram



Ingombro / *Dimensions*



Codice di ordinazione / *Order code*

Codice *Code*	Taglia *Size*	V1-V2 BSP	A	B	C1-C2 ø	D	E	F	G	H	M	N ø	P	Q ø	R	Peso *Weight*
12403117556 STD. *	03	G1/2	40,5	18,2	13,5	28	59	115	4,5	39,5	70	13,5	29,5	8,5	17	2,05
12403117557 INV. **																
12403117565 STD. *	04	G3/4	50,8	23,8	19	35	75	145		49,5	80	16,5	38,5	11	21	3,55
12403117566 INV. **																
12403117574 STD. *	05	G1	57,2	27,8	25	39,5	84	163		49,5	90	18,5	36	12,5	25	4,38
12403117575 INV. **																
12403117583 STD. *	06	G1	66,7	31,8	30	47,5	99	194		59,5	100	22	45,5	15	28	7,95
12403117584 INV. **																

ATTENZIONE:
* **Valvola STANDARD per motore rotazione SINISTRA**
** **Valvola INVERSA per motore rotazione DESTRA**

Caratteristiche funzionali / *Functional data*

Taglia / *Size*	03	04	05	06
Motori / *Motors (cc)*	25-34	40-47-55-64	80-91	108-130
Pressione max. / *Max. pressure (bar)*	350			
Portata max. / *Max. flow (lpm)*	120	170	250	320
Porte V1-V2 / *V1-V2 ports (BSP)*	1/2	3/4	1	1
Porte C1-C2 / *C1-C2 ports (Ømm)*	13,5	19	25	30
Pressione di apertura/distacco / *Cracking pressure (bar)*	0,5			

Materiale: acciaio zincato
Material: zinc plated steel body

Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

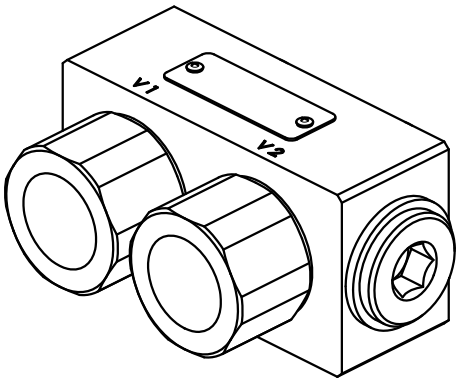
Pannello con valvola anticavitazione unidirezionale G3/4

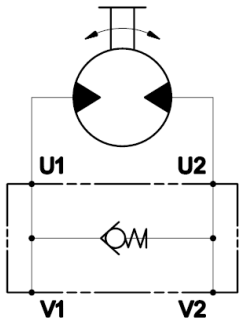
Plate complete with unidirectional anticavitation valve G3/4

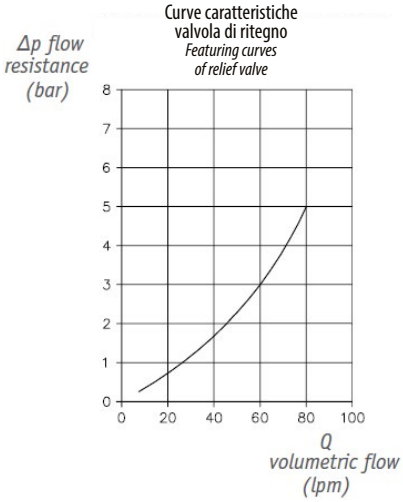
HPM 012-017cc

12403134233

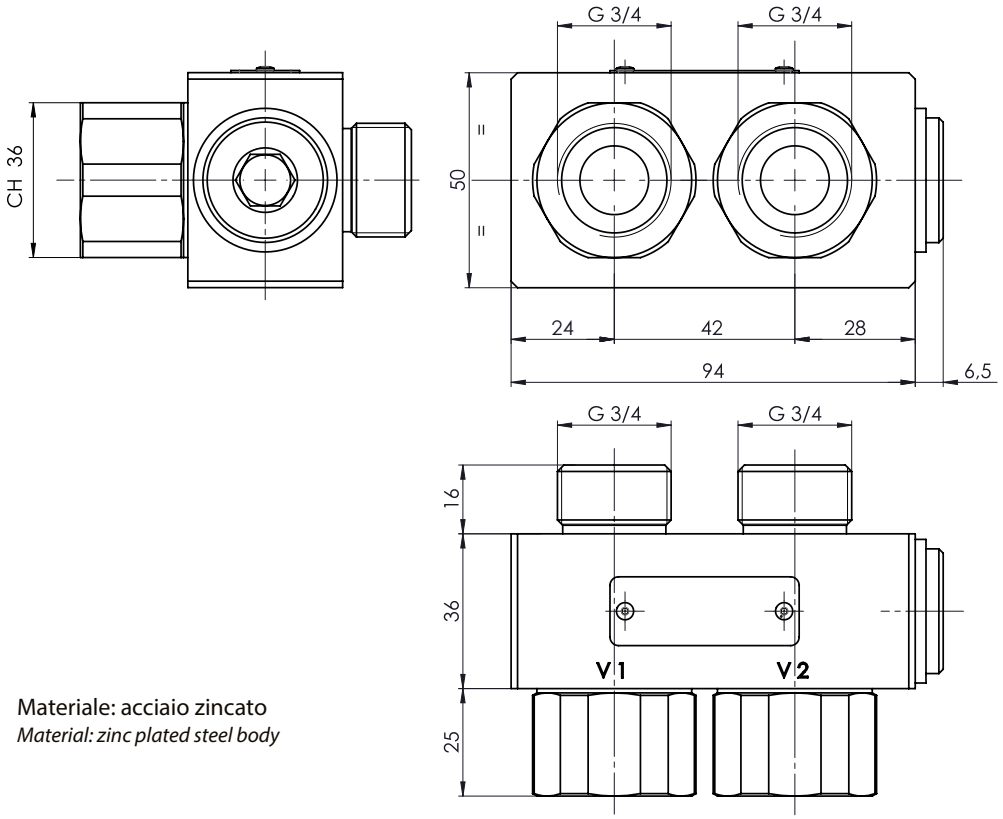
Schema di funzionamento
Functional diagram







Ingombro / *Dimensions*



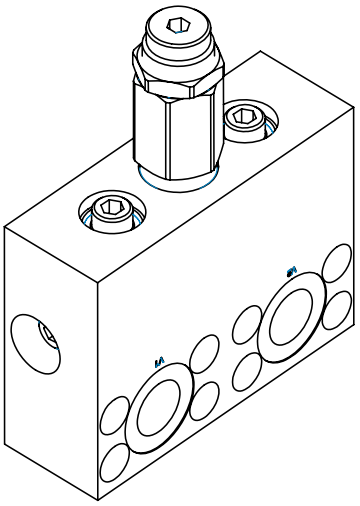
Materiale: acciaio zincato
Material: zinc plated steel body

Utilizzabile su motore HPM 12-17-20cc con connessione versione 04.
Can be used on HPM motor 12-17-20cc with porting 04 version.

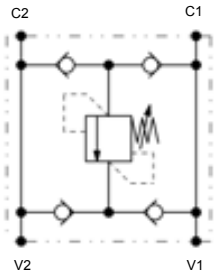
Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

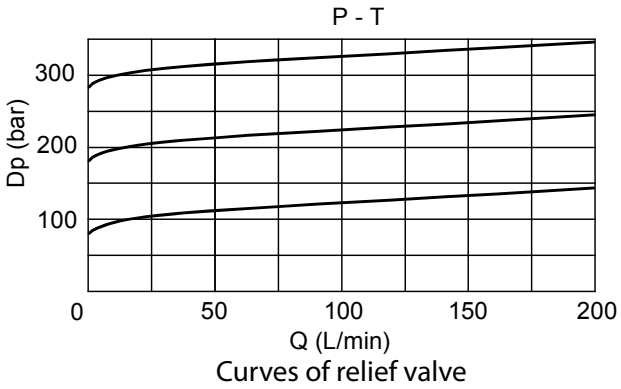
Valvole antishock + anticavitazione
Antishock + anticavitation valve

HPM 040-047-055-064cc **12403200107**



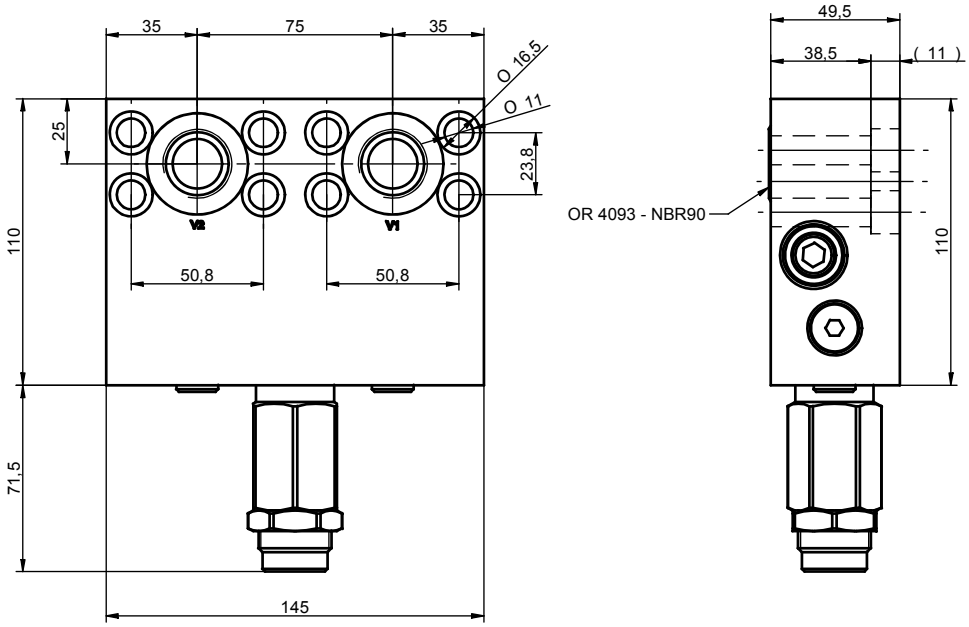
Schema di funzionamento
Functional diagram





Curves of relief valve

Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	170
Pressione max. / *Max. pressure* (bar)	420
Range di limitazione pressione *Relief pressure range* (bar)	100-350
Porte / *Ports*	V1-V2: G3/4 C1-C2: Ø19mm

Materiale: corpo in acciaio zincato, acciaio trattato componenti interni
Material: zinc plated steel manyfold, hardened steel inne parts

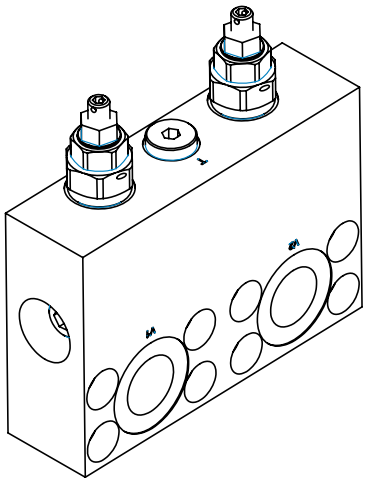
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

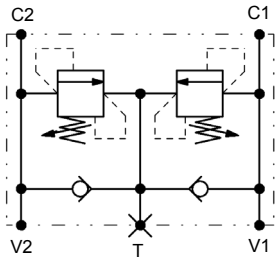
Valvole antishock + anticavitazione
Antishock + anticavitation valves

HPM 025-034cc

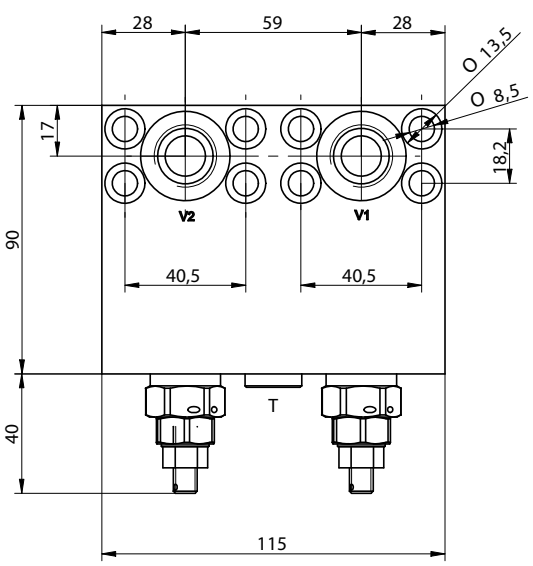
12403200054

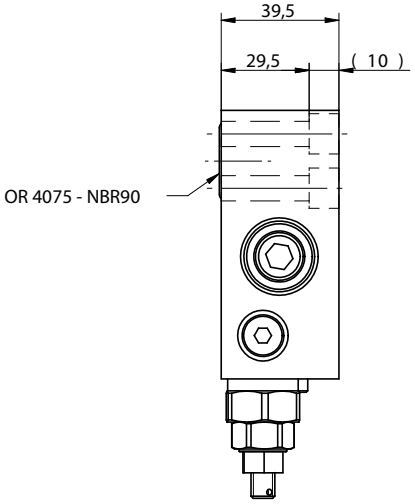


Schema di funzionamento
Functional diagram



Ingombro / *Dimensions*





Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	120
Pressione max. / *Max. pressure* (bar)	350
Range di limitazione pressione *Relief pressure range* (bar)	50-350
Portata max. in scarico della valvola antishock *Relif max. flow by antishock valve* (lpm)	20
Porte / *Ports*	V1-V2: G1/2 C1-C2: Ø13,5mm T: G1/4

Materiale: corpo in acciaio zincato
Material: zinc plated steel manyfold

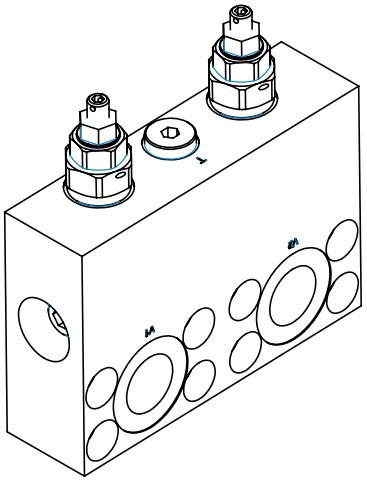
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

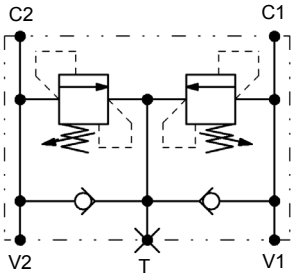
Valvole antishock + anticavitazione
Antishock + anticavitation valves

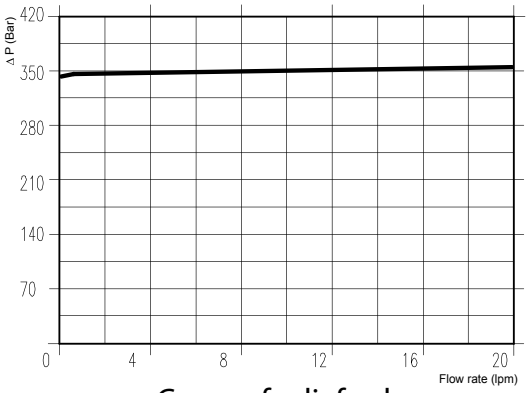
HPM 040-047-055-064cc

12403200205



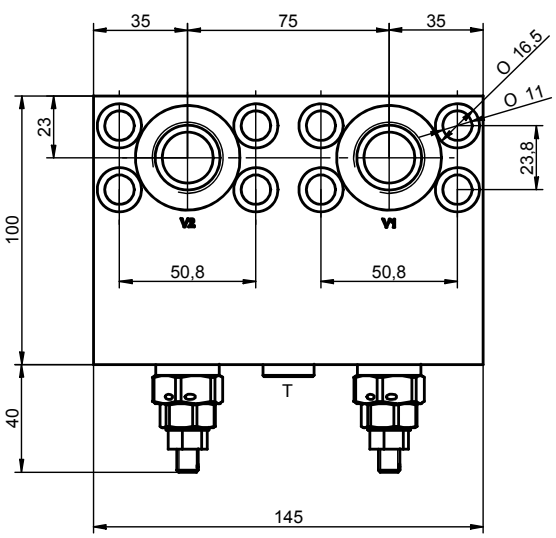
Schema di funzionamento
Functional diagram

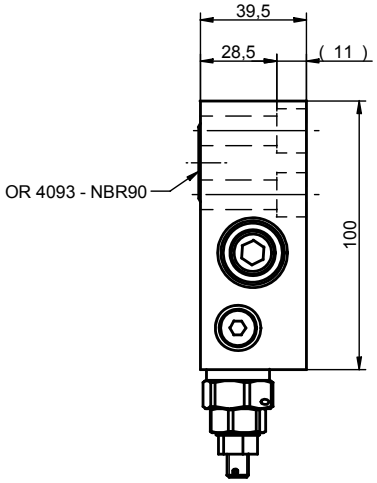




Curve of relief valve

Ingombro / *Dimensions*





Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	170
Pressione max. / *Max. pressure* (bar)	350
Range di limitazione pressione *Relief pressure range* (bar)	100-350
Portata max. in scarico della valvola antishock *Relif max. flow by antishock valve* (lpm)	20
Porte / *Ports*	V1-V2: G3/4 C1-C2: Ø19mm

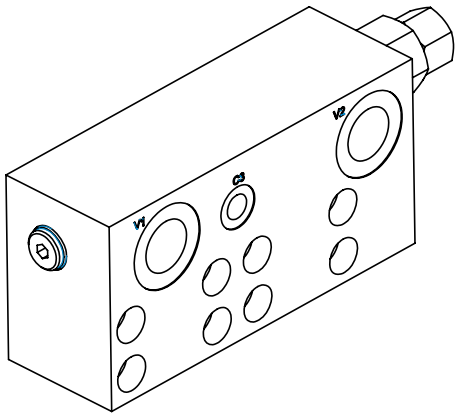
Materiale: corpo in acciaio zincato, acciaio trattato componenti interni
Material: zinc plated steel manyfold, hardened steel inne parts

Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

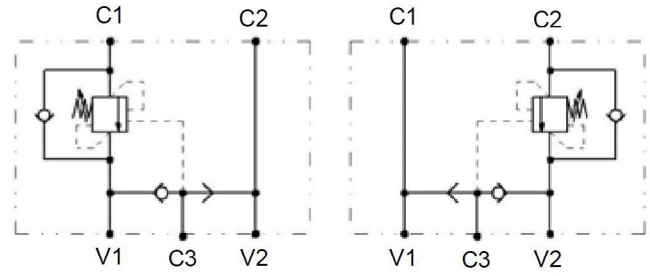
Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

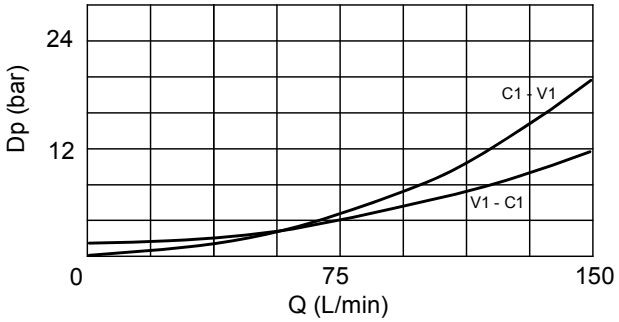
Valvola overcenter
Pilot assisted overcenter valve with brake unclapping

12403300106 destra/right
12403300151 sinistra/left
HPM 040-047-055-064cc

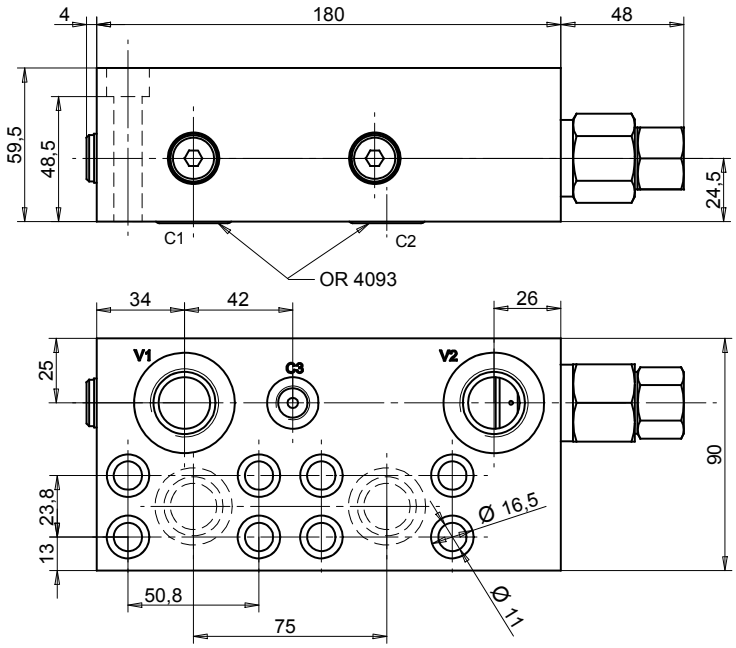


Schema di funzionamento
Functional diagram





Ingombro / *Dimensions*



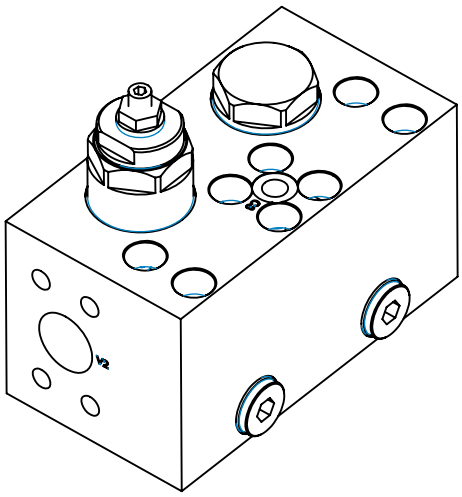
Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	120
Pressione max. / *Max. pressure* (bar)	350
Rapporto di pilotaggio / *Pilot ratio*	4:1 standard
Range di pressione standard *Standard pressure range* (bar)	100-350
Porte / *Ports*	V1-V2: G3/4 C1-C2: 3/4 SAE 6000 C3: G1/4

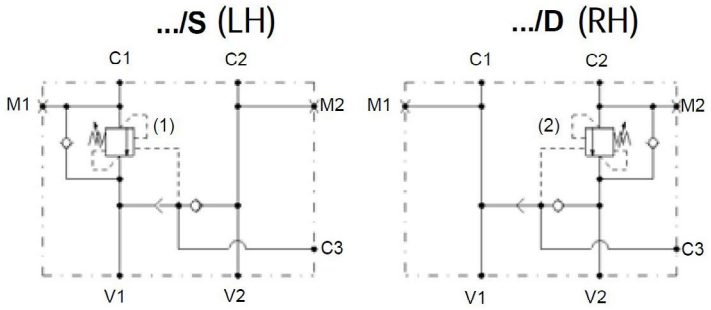
Materiale: cartuccia in acciaio zincato, componenti interni in acciaio trattato. Blocco alluminio (o corpo valvola)
Material: zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold

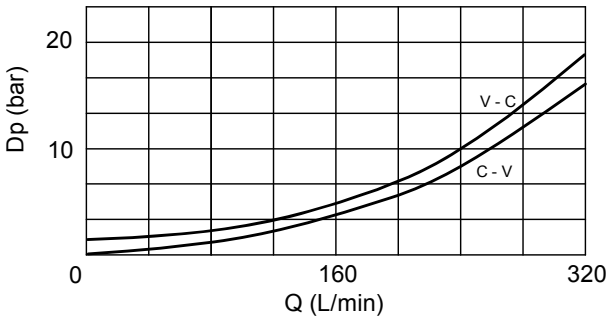
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

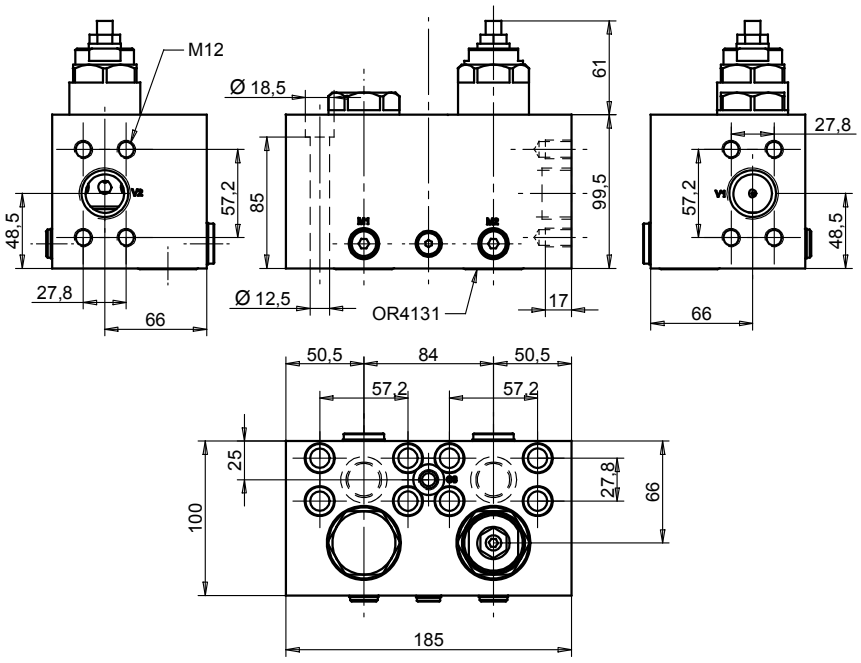


Schema di funzionamento
Functional diagram





Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	320
Pressione max. / *Max. pressure* (bar)	350
Rapporto di pilotaggio / *Pilot ratio*	4:1 standard
Range di pressione standard *Standard pressure range* (bar)	140-350
Porte / *Ports*	V1-V2: 1" SAE 6000 C1-C2: 1" SAE 6000 C3-M1-M2: G 1/4

Materiale: corpo in acciaio zincato
Material: zinc plated steel body

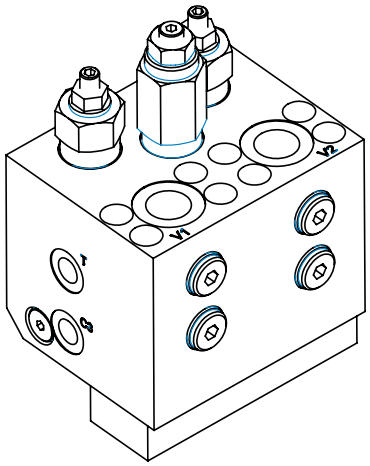
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

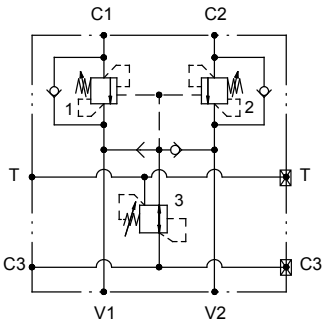
Valvola overcenter

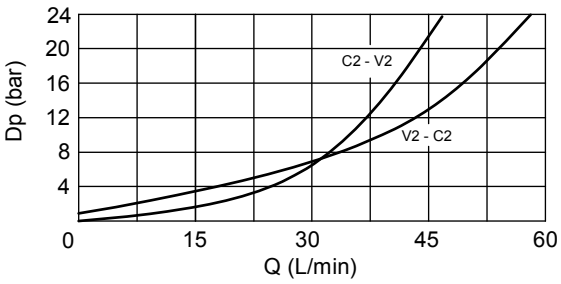
Dual pilot assisted overcenter valve - with pressure reducer for brake release

12403300302
HPM 025-034cc

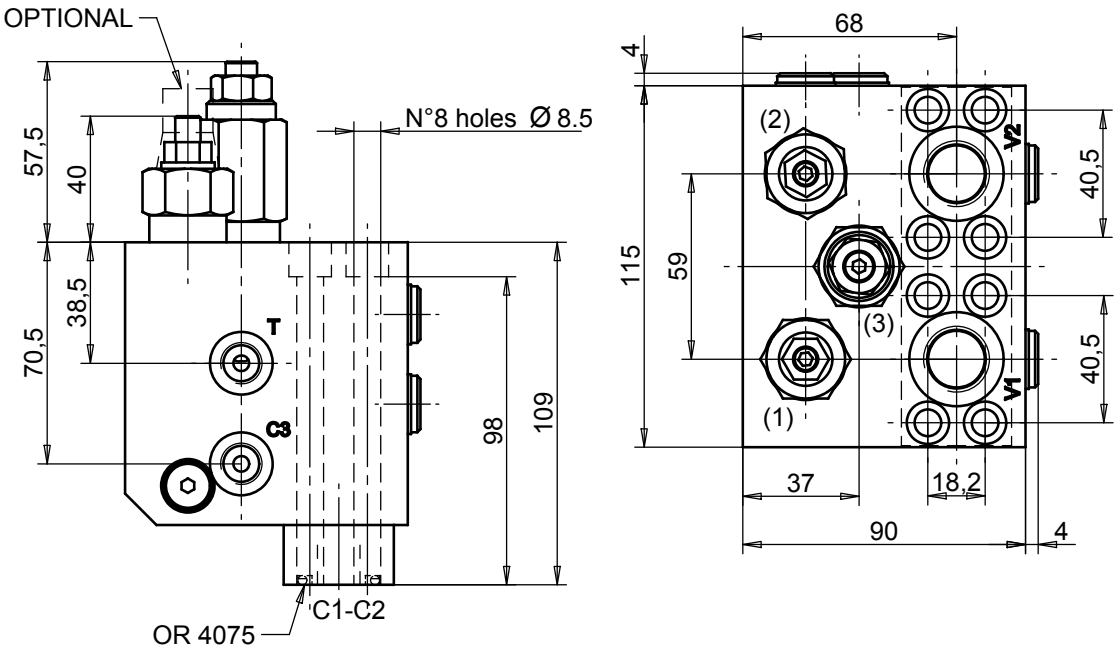


Schema di funzionamento
Functional diagram





Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	60
Pressione max. / *Max. pressure* (bar)	350
Rapporto di pilotaggio / *Pilot ratio*	4,2:1 standard
Range di pressione standard *Standard pressure range* (bar)	100-350 bar
Porte / *Ports*	V1-V2: G 1/2 C1-C2: 1/2 SAE 6000 C3-T: G 1/4

Materiale: corpo in alluminio
Material: aluminium body

Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

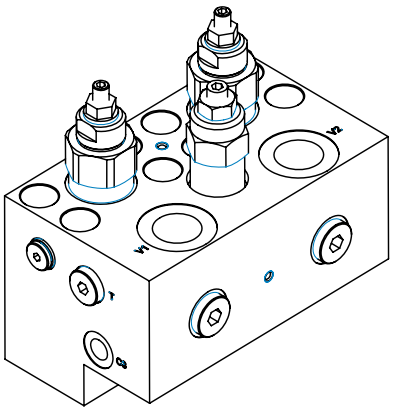
NON usare su motori unidirezionali.
DO NOT use on unidirectional motors.

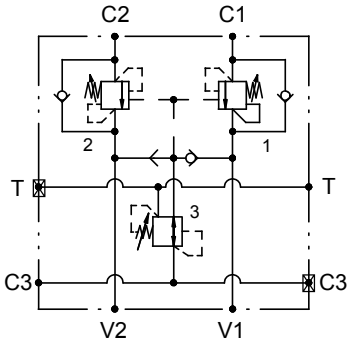
Valvola overcenter

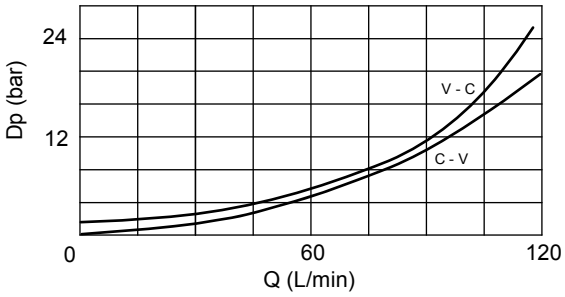
Dual pilot assisted overcenter - CE series - with pressure reducer for brake release

12403300400
HPM 080-091cc

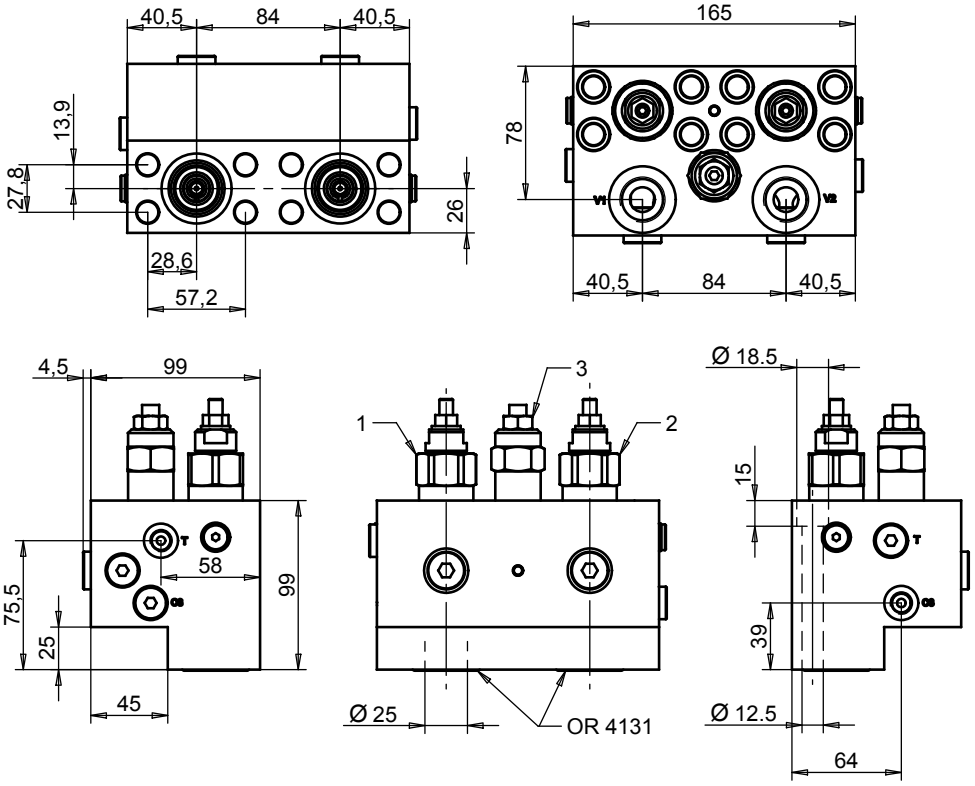
Schema di funzionamento
Functional diagram







Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	120
Pressione max. / *Max. pressure* (bar)	350
Rapporto di pilotaggio / *Pilot ratio*	4:1 standard
Range di pressione standard *Standard pressure range* (bar)	(1)-(2):140-350bar (3):10-100bar
Porte / *Ports*	V1-V2: G 3/4 C1-C2: 1" SAE 6000 C3-T: G 1/4

Materiale: corpo in acciaio zincato, acciaio trattato componenti interni
Material: zinc plated steel manyfold, hardened steel inne parts

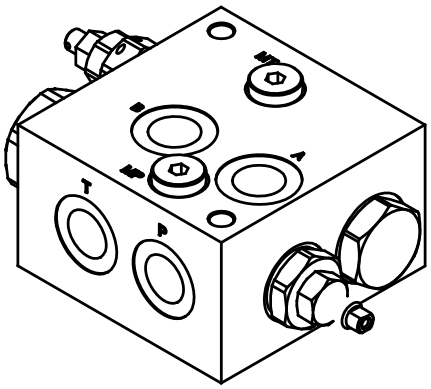
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

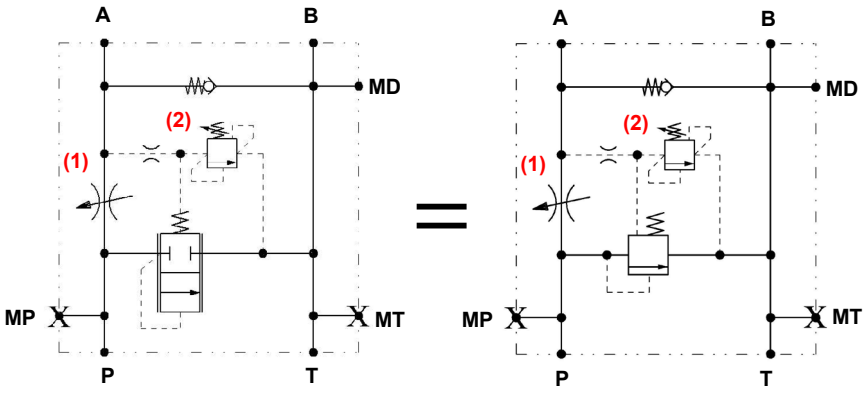
NON usare su motori unidirezionali.
DO NOT use on unidirectional motors.

Valvola anticavitazione + regolatore di portata +valvola di max. 60L
Valve for mulchers - 60L

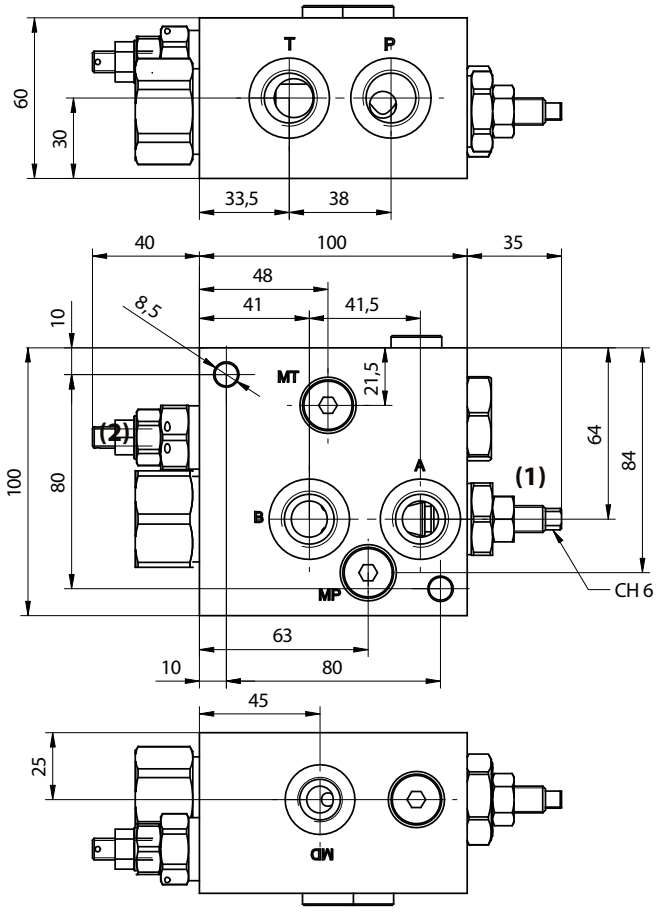
12403400105
HPM 012-017cc

Schema di funzionamento
Functional diagram





Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	60
Pressione max. / *Max. pressure* (bar)	250
Porte / *Ports*	A-B: G 1/2 P-T: G 1/2 MP-MT: G 1/4 MD: G 3/8

Materiale: alluminio
Material: aluminium

Montaggio in linea
In-line mounting

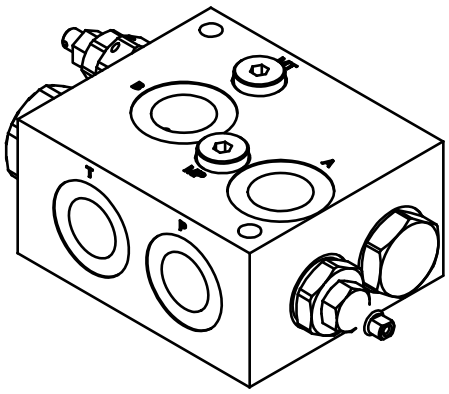
Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

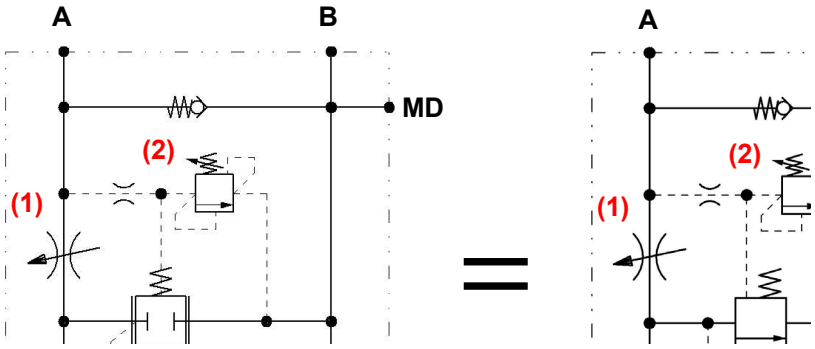
Valvola anticavitazione+regolatore di portata +valvola di max. 120L

Valve for mulchers - 120L

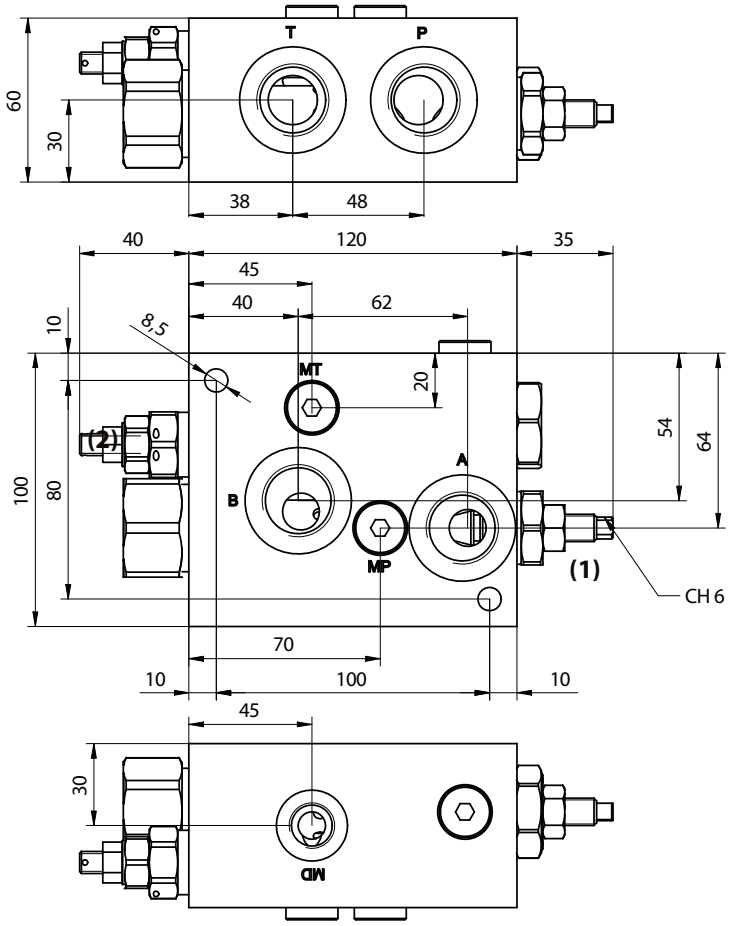
12403400150
HPM 025-034cc

Schema di funzionamento
Functional diagram





Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	120
Pressione max. / *Max. pressure* (bar)	210
Porte / *Ports*	A-B: G 3/4 P-T: G 3/4 MP-MT: G 1/4 MD: G 3/8

Materiale: alluminio
Material: aluminium

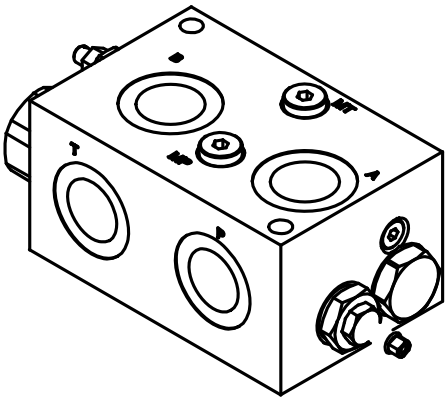
Montaggio in linea
In-line mounting

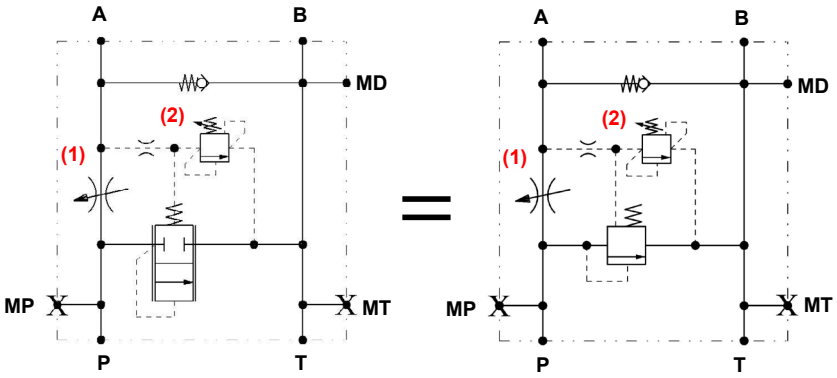
Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

Valvola anticavitazione + regolatore di portata +valvola di max. 280L
Valve for mulchers - 280L

12403400203
HPM 080-091cc

Schema di funzionamento
Functional diagram





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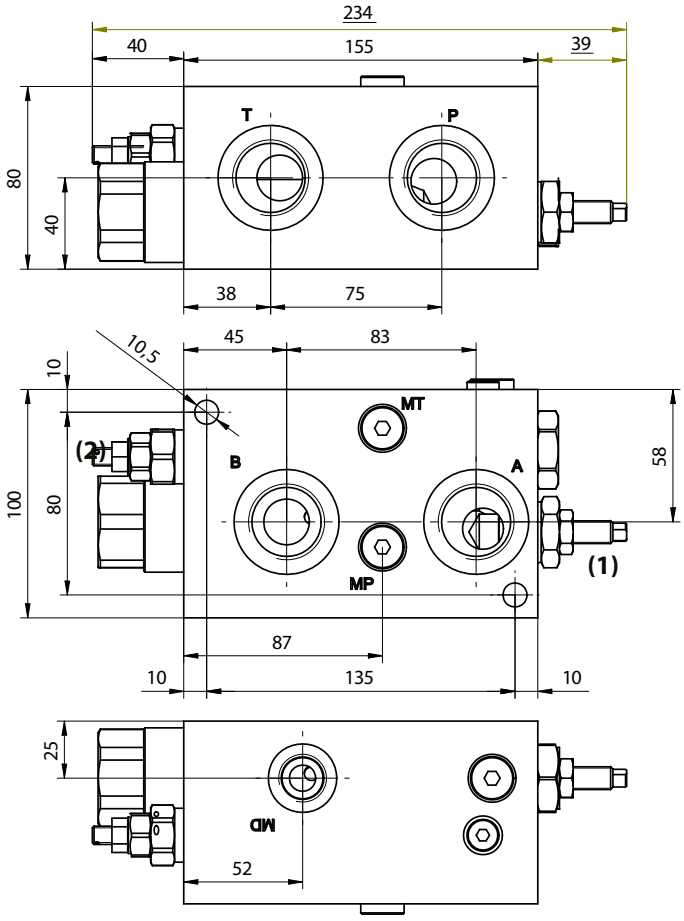


Caratteristiche funzionali / *Functional data*

Portata massima / *Max. flow rate* (lpm)	280
Pressione max. / *Max. pressure* (bar)	350
Porte / *Ports*	A-B: G 1 P-T: G 1 MP-MT: G 1/4 MD: G 1/2

Materiale: alluminio (std)
acciaio zincato (su richiesta)
Material: alluminium (std)
zinc. plated steel (on request)

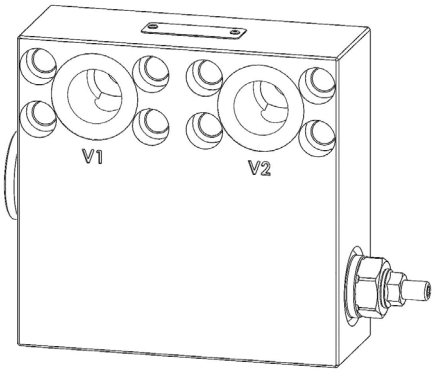
Montaggio in linea
In-line mounting

Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

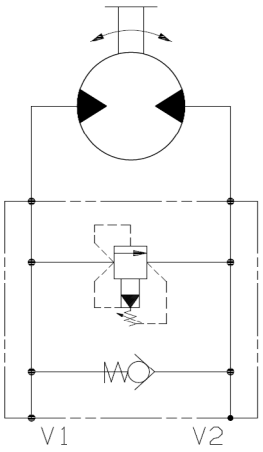
Pannello con valvola anticavitazione e v. max. 200L

Plate complete with anticavitation valve and relief valve - 200l

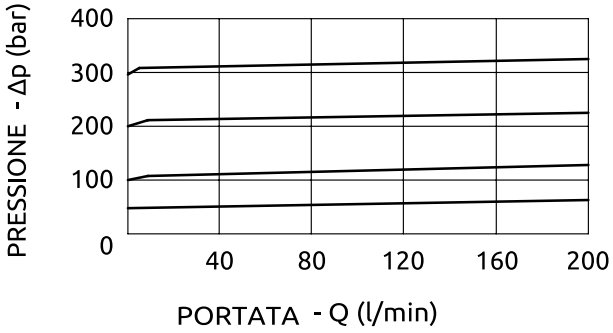
HPM 040-047-055-064cc **12403500104**



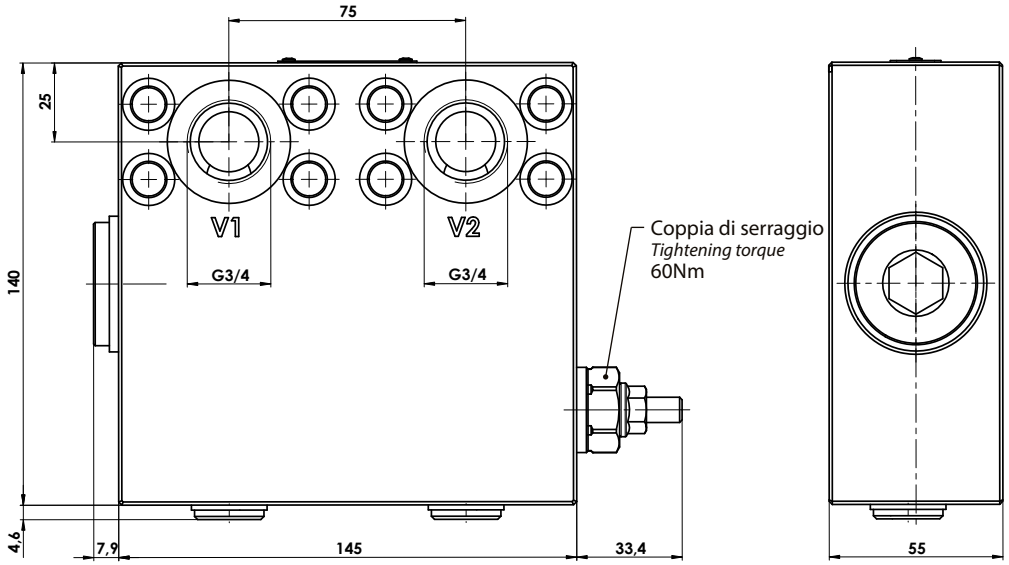
Schema di funzionamento
Functional diagram



Curve caratteristiche valvola di massima
Relief valve performance curves



Ingombro / *Dimensions*



Caratteristiche funzionali / *Functional data*

Pressione max. / *Max. pressure* (bar)	350
Portata massima / *Max. flow rate* (lpm)	200
Porte V1-V2 / *Ports V1-V2* (BSP)	3/4
Campo di taratura / *Pressure range* (bar)	100-350
Taratura standard / *Standard setting* (bar)	300
Incremento per giro / *Pressure increase (bar/turn)*	150

Materiale: acciaio zincato
Material: zinc plated steel

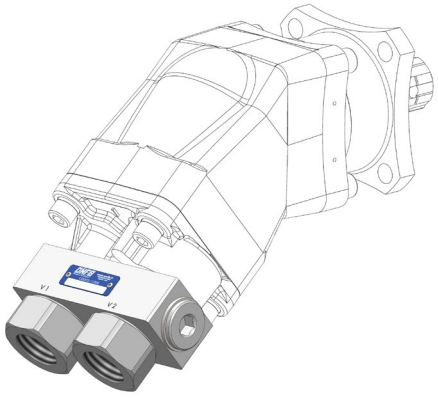
Utilizzabili su motori connessioni versioni 11/13/17/21/23.
Can be used on motors with portings 11/13/17/21/23 versions.

Utilizzabili su motori unidirezionali.
Can be used on unidirectional motors.

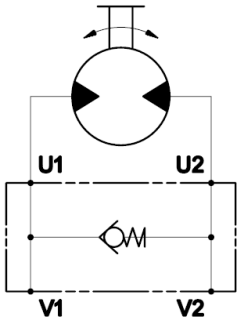
Pannello con valvola anticavitazione unidirezionale G3/4

Plate complete with unidirectional anticavitation valve G3/4

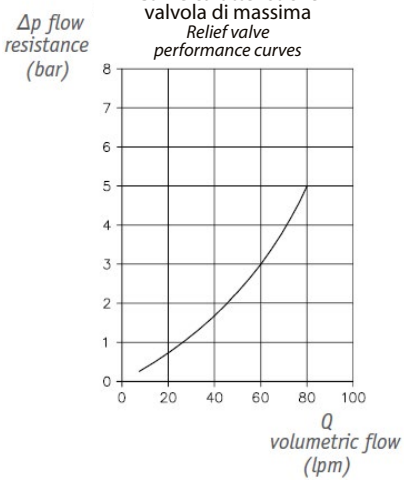
HPM3 012-017-025-034cc **12403134939**



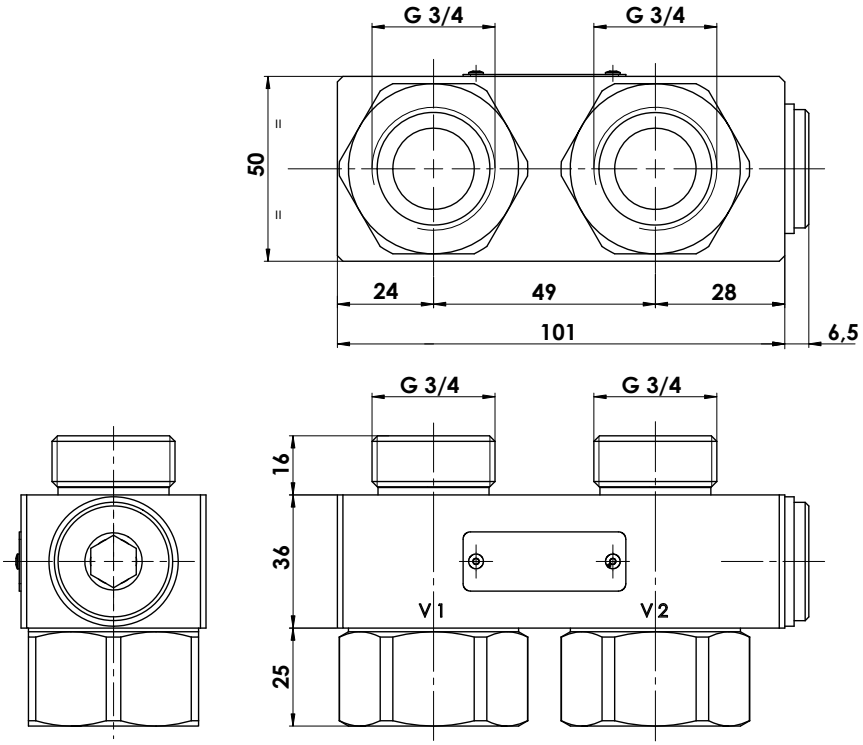
Schema di funzionamento
Functional diagram

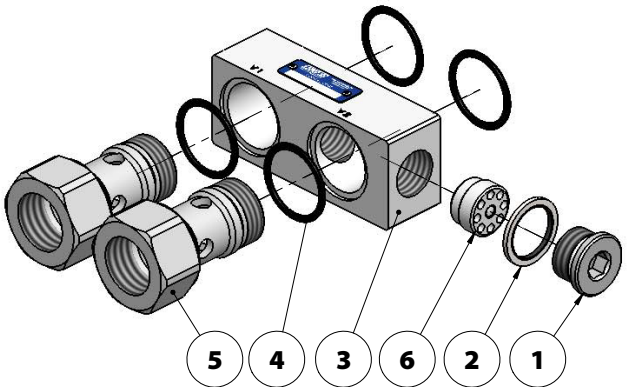


Curve caratteristiche valvola di massima
Relief valve performance curves



Ingombro / *Dimensions*



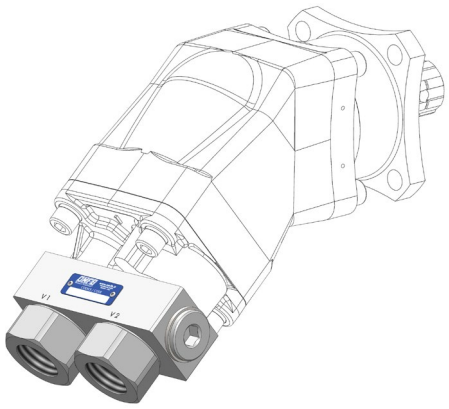


Pos.	Codice *Code*	Denominazione *Description*	Q.
1	11500600573	Tappo cieco M24x1.5 DIN908 *Plug M24x1.5 DIN908*	1
2	11600910245	Rondella acciaio/gomma x M24 *Steel/rubber washer M24*	1
3	52000000721	Pannello / *Panel*	1
4	50600603112	Guarnizione OR 3112 FKM/FPM *Gasket OR 3112 FKM/FPM*	4
5	54000500359	Tappo passante G3/4 - *Plug G 3/4*	2
6	12402910155	Valvola ritegno cartuccia G1/2 L=13.5 *Valve G 1/2 L=13.5*	1

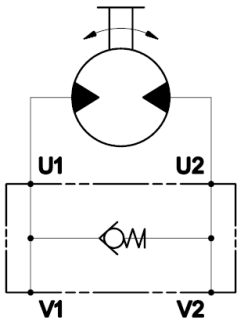
Pannello con valvola anticavitazione unidirezionale G1

Plate complete with unidirectional anticavitation valve G1

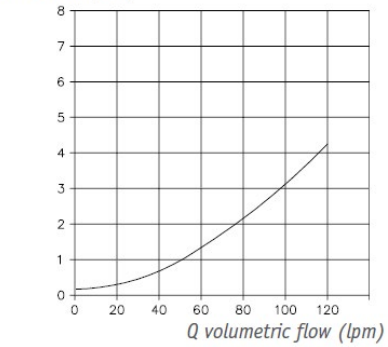
HPM3 040-047-055-064cc **12403136044**



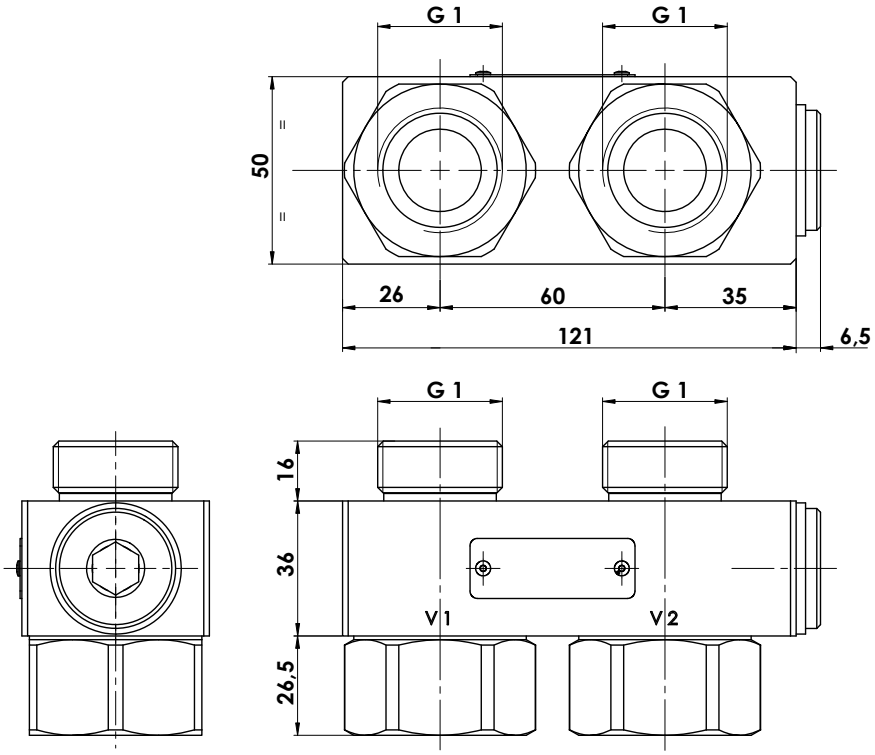
Schema di funzionamento
Functional diagram

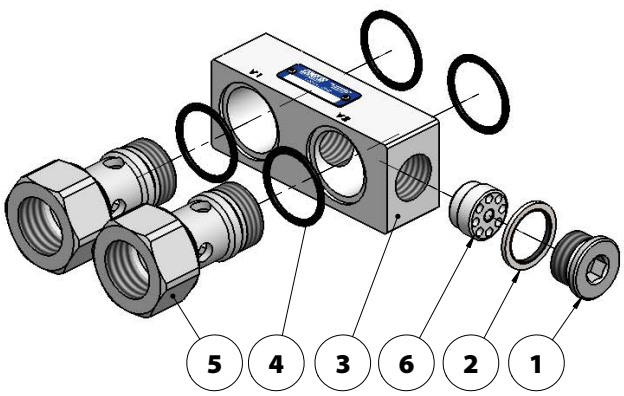


Curve caratteristiche valvola di massima
Relief valve performance curves



Ingombro / *Dimensions*



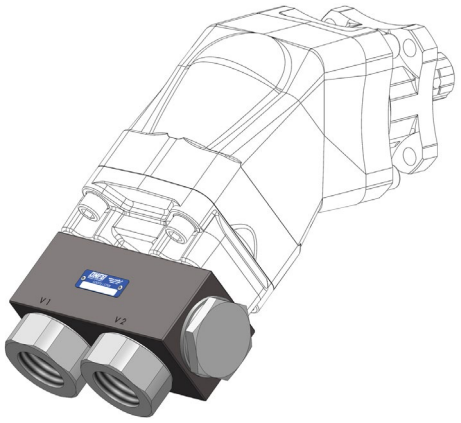


Pos.	Codice *Code*	Denominazione *Description*	Q.
1	11500600144	Tappo acciao TCE G3/4 DIN908 *Plug G 3/4 DIN908*	1
2	11600910343	Rondella acciaio/gomma G3/4 *Steel/rubber washer G 3/4*	1
3	52000000703	Pannello / *Panel*	1
4	50600603143	Guarnizione OR 3143 FKM/FPM *Gasket OR 3143 FKM/FPM*	4
5	54000500537	Tappo passante G1 / *Plug G 1*	2
6	12402910208	Valvola ritegno cartuccia G3/4 L=17.5 *Valve G 3/4 L=17.5*	1

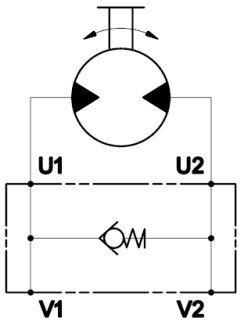
Pannello con valvola anticavitazione unidirezionale G1-1/4

Plate complete with unidirectional anticavitation valve G1-1/4

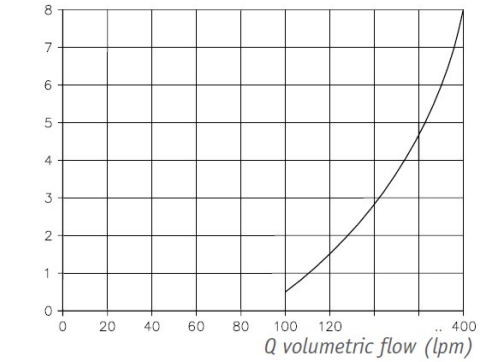
HPM3 080-108-130cc **12403137650**



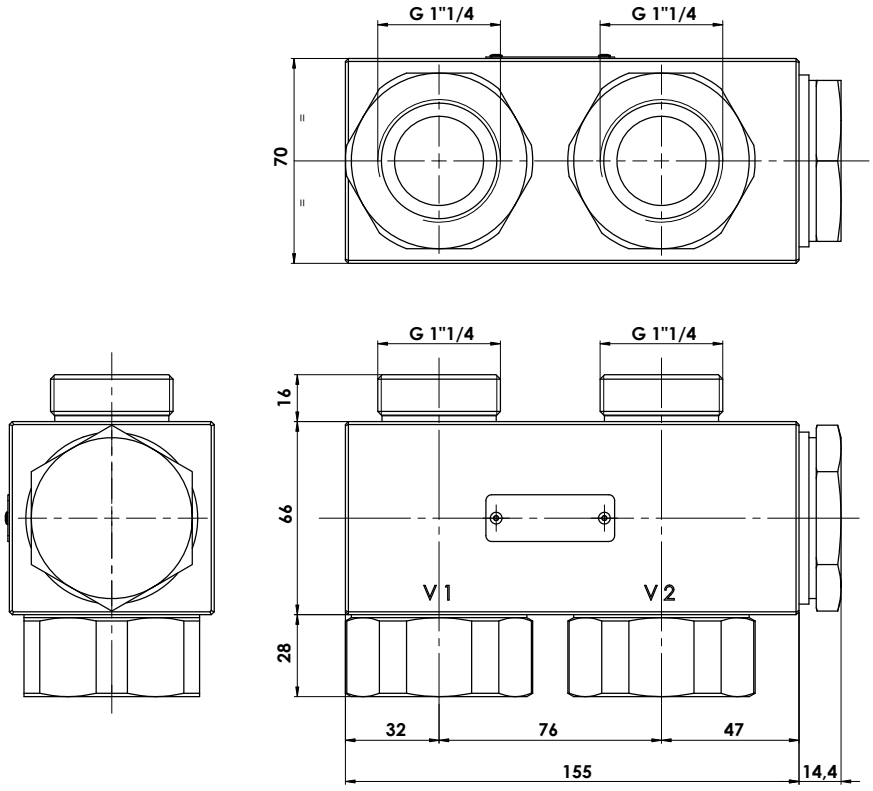
Schema di funzionamento
Functional diagram

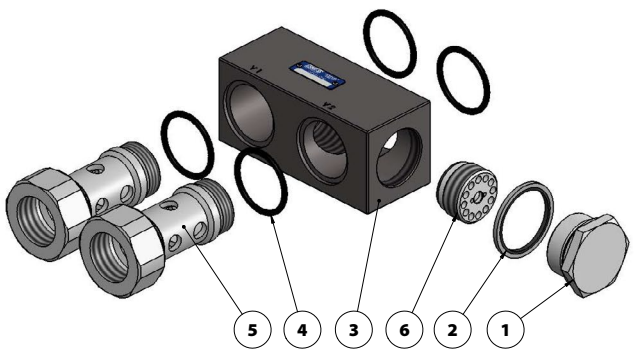


Curve caratteristiche valvola di massima
Relief valve performance curves

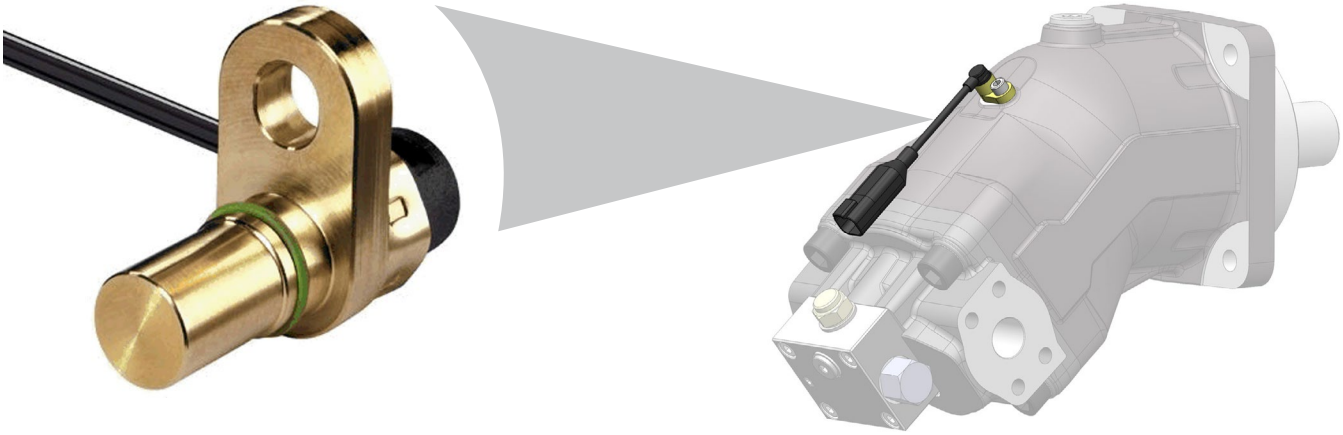


Ingombro / *Dimensions*





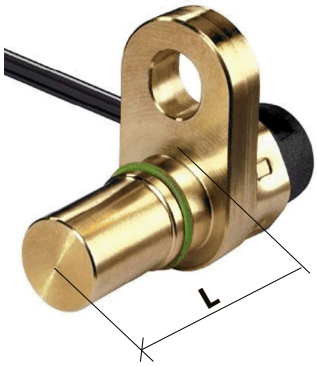
Pos.	Codice *Code*	Denominazione *Description*	Q.
1	54000200174	Tappo TE G 1-1/2 *Plug G 1-1/2*	1
2	11600911208	Rondella acciaio/gomma G 1-1/2 *Steel/rubber washer G 1-1/2*	1
3	52000000678	Pannello / *Panel*	1
4	50600600145	Guarnizione OR 150 FKM/FPM *Gasket OR 150 FKM/FPM*	4
5	54000500493	Tappo passante G1-1/4 - *Plug G 1-1/4*	2
6	12402910253	Valvola ritegno cartuccia G 1-1/4 L=27.5 *Valve G 1-1/4 L=27.5*	1



ATTENZIONE: solo per motori con opzione speed sensor
ATTENTION: only for motors with speed sensor option

VARIANTI
VARIANTS

TIPO FLANGIA *FLANGE TYPE*	ALBERO *SHAFT*	CONNESSIONI *PORTINGS*	CILINDRATA *DISPLACEMENT*	
2 4 4	0 2 0	0 1	0 6 4	



		Varianti / *Variants*			Cilindrata *Displacement*	**L** *(mm)*
	P	Motore con predisposizione sensore *Motor with speed sensor option*			da 012cc a 130cc	
Motore con sensore montato *Motor complete with selected speed sensor already mounted*	**M01**	**31800000186**	Speed sensor 2CH PWM 1mt. cable *Speed sensor 2CH PWM 1mt. cable*	Foglio di catalogo *Data sheet*	da 012cc a 091cc	18,4
	M02	**31800100185**	Speed sensor 1CH 1mt. cable *Speed sensor 1CH 1mt. cable*		da 012cc a 091cc	18,4
	M03	**31800201183**	Speed sensor 2CH (2FREQ)1mt. DEUT. *Speed sensor 2CH (2FREQ)1mt. DEUT.*		da 012cc a 091cc	18,4
	M04	**31800201325**	Speed sensor 2CH (2FREQ)1mt. DEUT. *Speed sensor 2CH (2FREQ)1mt. DEUT.*		108-130	32
	M05	**31800301182**	Speed sensor 2CH (1F+1D)1mt. DEUT. *Speed sensor 2CH (1F+1D)1mt. DEUT.*		da 012cc a 091cc	18,4
	M06	**31800301324**	Speed sensor 2CH (1F+1D)1mt. DEUT. *Speed sensor 2CH (1F+1D)1mt. DEUT.*		108-130	32