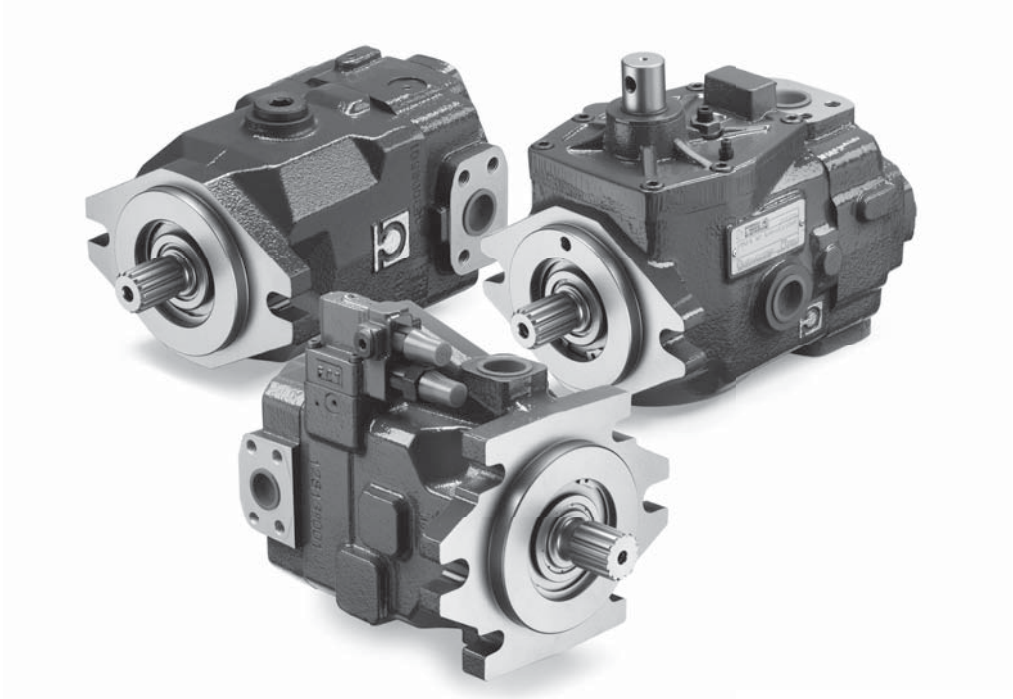
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO

OPEN CIRCUIT AXIAL PISTON PUMPS

AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF

OP013



INDICE
INDEX
INHALTSVERZEICHNIS

ISTRUZIONI GENERALI DI IMPIEGO
OPERATING INSTRUCTIONS
ALLGEMEINE GEBRAUCHSANWEISUNGEN

BONDIOLI & PAVESI
HP Hydraulic

CARATTERISTICHE FUNZIONALI
Le curve caratteristiche rappresentate nel presente catalogo sono tipiche di prodotti di produzione calcolati e testati in laboratorio e non necessariamente rappresentative di ogni unità.

CONSERVAZIONE A MAGAZZINO
I componenti idraulici vanno conservati nel loro imballaggio in luogo asciutto, lontano dall'irraggiamento solare o da sorgenti di calore o di ozono, in un ambiente con temperatura compresa tra -20°C e +50°C.

FLUIDO IDRAULICO
Si raccomanda di utilizzare fluidi idraulici definiti dalla norma ISO 6743-4.

TEMPERATURE LIMITE DI FUNZIONAMENTO
Temperatura minima -20°C.
Temperatura massima continua +85°C.
Temperatura massima di picco +100°C.
L'esercizio con fluido a temperatura superiore a +85°C comporta un precoce decadimento delle caratteristiche funzionali delle guarnizioni impiegate. (NBR).

VISCOSITÀ
Deve essere verificata la rispondenza alla viscosità del fluido, richiesta per il corretto funzionamento: minima 10 mm^2/s (per brevi periodi), massima 1000 mm^2/s (per brevi periodi alla partenza), viscosità raccomandata 15-90 mm^2/s.

PRESSIONE DI FUNZIONAMENTO IN ASPIRAZIONE
Pressione massima assoluta:
P min 0,8 bar - P max 2 bar.

PRESSIONE DI DRENAGGIO
Pressione massima assoluta: 2 bar.

GRADO DI FILTRAZIONE
La classe di contaminazione consigliata per pompe e servocomandi è la seguente:
Classe ISO4406 20/18/15 (NAS1638 - 9)

INSTALLAZIONE
Prima di far funzionare i componenti idraulici, assicurarsi che tutto il circuito idraulico sia accuratamente riempito d'olio e disareato.
Filtrare l'olio di riempimento in modo da garantire la classe ISO o NAS richiesta.
Prevedere nel circuito un sistema di filtraggio che garantisca la classe ISO o NAS richiesta.
Avviare l'impianto lentamente a vuoto, facendolo spurgare bene dell'aria residua prima di applicare il carico.
Sostituire i filtri dopo le prime 50 ore di lavoro.
Sostituire il filtro del circuito idraulico ogni 500 ore di funzionamento. Sostituire il fluido idraulico come da specifiche del fornitore.
In caso di mancato funzionamento dei componenti idraulici non insistere inutilmente; ricontrollare la corretta esecuzione dell'impianto ed eventualmente contattare il servizio tecnico.

⚠ Operare sempre prestando la massima attenzione agli organi in movimento; non utilizzare indumenti larghi o svolazzanti.
Non approssimarsi a ruote, cingoli, trasmissioni a catena o ad albero non adeguatamente protette ed in movimento, o che potrebbero iniziare a muoversi in qualsiasi istante senza preavviso.
Non svitare e scollegare raccordi e tubi con il motore in moto.
Evitare le fughe di olio, per prevenire l'inquinamento ambientale.
Non dirigere getti d'acqua direttamente sui componenti idraulici.
SM Oleodinamica e HP Hydraulic si sollevano da ogni responsabilità riguardante la non osservanza di queste indicazioni e del rispetto delle normative di sicurezza vigenti, anche se non contemplate nel presente manuale.

FUNCTIONAL FEATURES
The characteristic curves represented in this catalogue are typical of laboratory calculated and tested production products and do not necessarily represent each unit.

WAREHOUSE STORAGE
The hydraulic components must be kept in their packaging in a dry place, away from sunlight or sources of heat or ozone, at a temperature between -20°C e +50°C

HYDRAULIC FLUID
We recommend using hydraulic fluids defined by the standard ISO 6743-4

OPERATING LIMIT TEMPERATURES
Minimum temperature -20°C
Maximum continuous temperature +85°C
Maximum peak temperature +100°C
Operating with fluid at temperatures higher than +85°C entails early wear of the functional features of the gaskets used. (NBR)

VISCOSITY
The correspondence of the fluid to the viscosity required for correct operation must be checked:
minimum 10 mm^2/s (for short periods),
maximum 1000 mm^2/s (for short periods when starting), recommended viscosity 15-90 mm^2/s.

INTAKE OPERATING PRESSURE
Maximum absolute value:
P min 0.8 bar - P max 2 bar

DRAIN PRESSURE
Maximum absolute pressure: 2 bar

FILTERING DEGREE
The recommended contamination class for pumps and servocontrols is the following:
Class ISO4406 20/18/15 (NAS1638 - 9)

INSTALLATION
Before operating the hydraulic components, make sure that the entire hydraulic circuit is completely filled with oil and deaerated.
Filter the filling oil in order to guarantee the required ISO or NAS class.
Provide a filtering system in the circuit which guarantees the required ISO or NAS class.
Start the system slowly unloaded, properly purging residual air before applying the load.
Replace the filters after the first 50 hours of work.
Replace the filter of the hydraulic circuit every 500 hours of work.
Replace the hydraulic filter according to the supplier's specifications.
If the hydraulic components do not work, do not insist in trying them to no avail; recheck the correct execution of the system and contact the technical service if needed.

⚠ *Always pay the utmost attention to moving parts when operating; do not wear wide or loose clothing.*
Do not approach wheels, belts, chain or shaft transmissions which are inadequately protected or in movement or which could start moving suddenly without forewarning.
Do not unscrew or disconnect fittings and pipes with the motor running.
Avoid oil leakage to prevent environmental pollution.
Do not spray water directly on hydraulic components.
SM Oleodinamica and HP Hydraulic will not be held liable for failure to comply with these indications and with safety standards in force even if not considered in this manual.

FUNKTIONSEIGENSCHAFTEN
Die in dem vorliegenden Katalog dargestellten Kennlinien sind typisch für Produkte, die im Labor berechnet und getestet wurden und sind nicht unbedingt für jede Einheit charakteristisch.

LAGERUNG
Die hydraulischen Komponenten sind in ihrer Verpackung in einem trockenen Raum, fern von Sonneneinstrahlung und Wärme- oder Ozonquellen, bei einer Umgebungstemperatur zwischen -20°C und +50°C aufzubewahren.

HYDRAULIKFLUID
Es wird empfohlen, Hydraulikfluide zu verwenden, die der Norm ISO 6743-4 entsprechen.

GRENZWERTE BETRIEBSTEMPERATUREN
Mindesttemperatur -20°C
Höchsttemperatur (durchgehend) +85°C
Höchsttemperatur (Spitzenwert) +100°C
Der Betrieb mit dem Fluid bei einer Temperatur über + 85°C führt zu einem vorzeitigen Verfall der Funktionseigenschaften der verwendeten Dichtungen. (NBR)

VISKOSITÄT
Es ist zu überprüfen, dass die Viskosität des Fluids für den einwandfreien Betrieb geeignet ist: mindestens 10 mm^2/s (über kurze Zeiträume), höchstens 1000 mm^2/s (über kurze Zeiträume beim Starten), empfohlene Viskosität 15-90 mm^2/s.

BETRIEBSDRUCK EINGANGSSEITIG
Absoluter Höchstdruck:
P min 0,8 bar - P max 2 bar

ABLASSDRUCK
Absoluter Höchstdruck: 2 bar

FILTRATIONSGRAD
Für Pumpen und Servosteuerungen wird folgende Reinheitsklasse empfohlen:
Klasse ISO4406 20/18/15 (NAS1638 - 9)

INSTALLATION
Vor Inbetriebnahme der hydraulischen Komponenten, ist sicherzustellen, dass der gesamte Hydraulikkreis entsprechend mit Öl befüllt und entlüftet wurde. Das Öl für die Befüllung ist so zu filtern, dass die Einhaltung der geforderten ISO- oder NAS-Klassen gewährleistet werden kann. Im Kreislauf ist ein Filtrationssystem vorzusehen, das die Einhaltung der geforderten ISO- oder NAS-Klasse gewährleistet. Die Anlage langsam leer in Betrieb nehmen und vor Lastaufbringung die vorhandene Restluft vollständig entweichen lassen. Die Filter nach den ersten 50 Betriebsstunden auswechseln. Den Filter des Hydraulikkreises jeweils nach 500 Betriebsstunden auswechseln. Für den Austausch des Hydraulikfilters sind die Spezifikationen des Herstellers zu berücksichtigen. Bei einer Funktionsstörung der hydraulischen Komponenten den Betrieb unterbrechen, die korrekte Ausführung der Anlage überprüfen und gegebenenfalls den Technischen Kundendienst kontaktieren.

⚠ Bei Durchführung der Tätigkeiten immer besonders auf in Bewegung befindliche Elemente achten; keine weite oder flatternde Kleidung tragen. Sich niemals Rädern, Raupenketten, Ketten- oder Wellenantrieben nähern, die nicht ausreichend geschützt und in Bewegung sind bzw. sich jederzeit ohne Vorankündigung in Bewegung setzen könnten.
Niemals Verbindungsstücke und Rohre bei laufendem Motor lösen und entfernen.
Zur Vorbeugung von Umweltverschmutzungen sind Ölleckagen zu vermeiden. Niemals Wasserstrahlen direkt auf die Hydraulikkomponenten richten.
Im Fall der Nichtbeachtung dieser Anweisungen und der gültigen Sicherheitsnormen, auch wenn diese im vorliegenden Handbuch nicht angeführt, lehnt SM Oleodinamica und HP Hydraulic jegliche Verantwortung ab.

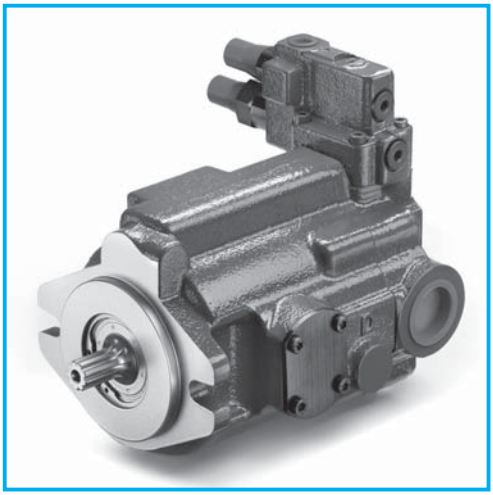
SM A1

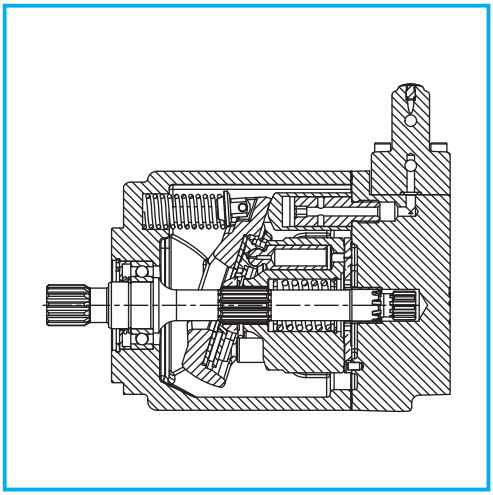
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO CON REGOLAZIONE LOAD SENSING O A PRESSIONE COSTANTE
OPEN CIRCUIT AXIAL PISTON PUMPS WITH LOAD-SENSING OR CONSTANT PRESSURE CONTROL
AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF MIT LOAD-SENSING-REGELUNG ODER KONSTANTDRUCKREGELUNG

Le pompe a pistoni assiali serie SM A1 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile. Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio consentono a queste pompe di raggiungere elevate velocita di rotazione, come quelle consentite dai moderni motori diesel, garantendo una elevata affidabilità per pressioni di funzionamento fino a 250 bar continui (315 bar di picco).
I controlli permettono un funzionamento con regolazione load sensing o a pressione costante.
Le pompe possono essere composte in versione tandem.

Axial piston pumps series SM A1 have been designed to operate in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 250 bar and until 315 bar for peak pressure. Control types allow a Load-sensing or a constant pressure control over the pump.
It is possible to couple tandem versions.

Die Axialkolbenpumpen der Serie SM A1 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren untershiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen. Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von moderneren Antriebsaggregaten gefordert.
Die in diesem Abschnitt dargestellten Steuerungen sind mit Load-Sensing-Regelung oder Konstantdruckregelung liferbar.
Für beide Punpenfamilien können unter Anwendung von Anbauflansche Tandemversion zusammengebaut werden.





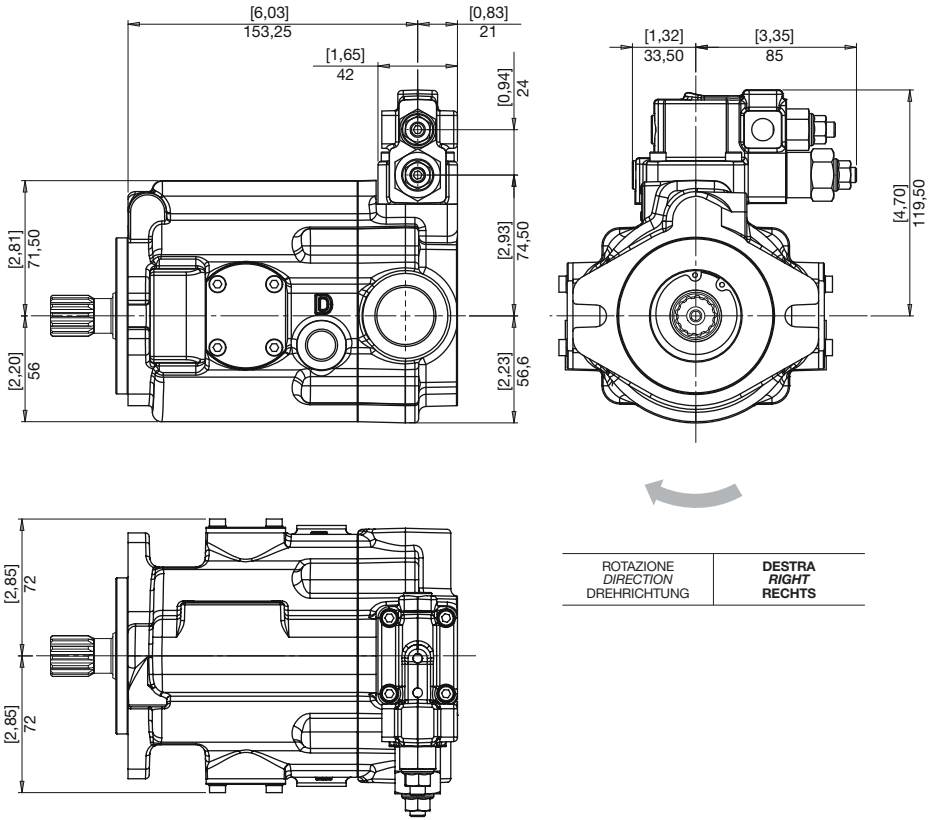
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
			CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
SM A1	10	0,61	250	3625	280	4060	315	4568	3300	500	10	22
	12	0,73										
	14	0,85										
	16	0,98										
	18	1,00										

DIMENSIONI
SIZE
ABMESSUNGEN

SM A1

R

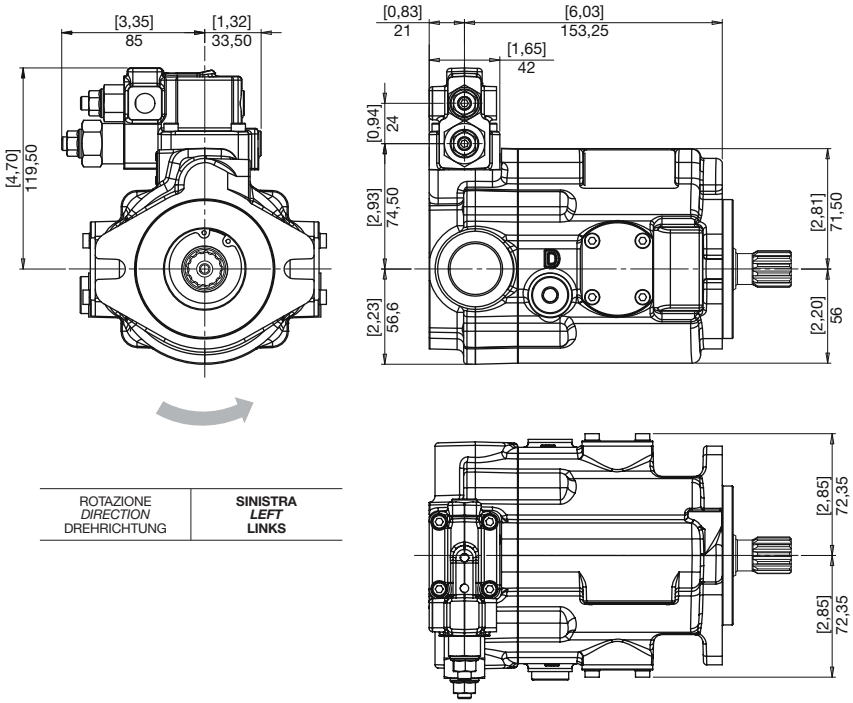


ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

DIMENSIONI
SIZE
ABMESSUNGEN

SM A1

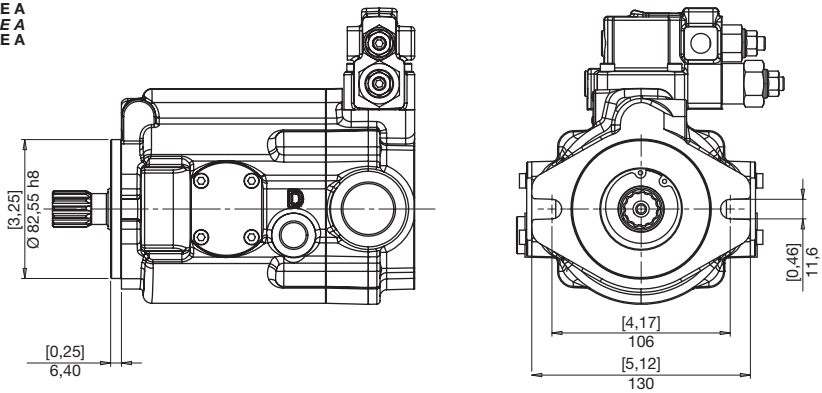
L



ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

FLANGE
FLANGES
FLANSCHE

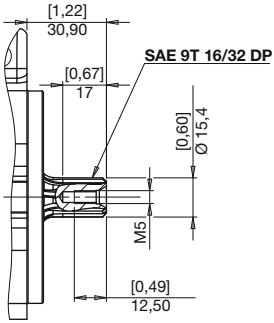
A **SAE A**
SAE A
SAE A



ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

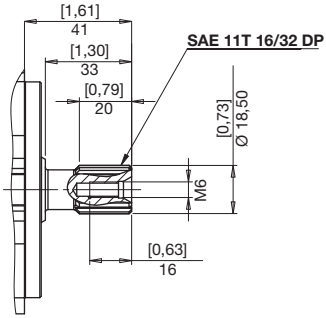
V

COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
120 N•m



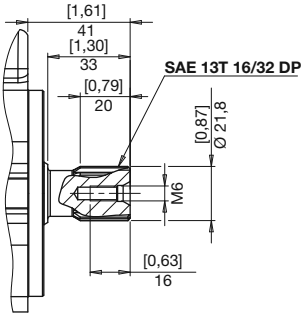
X

COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
160 N•m



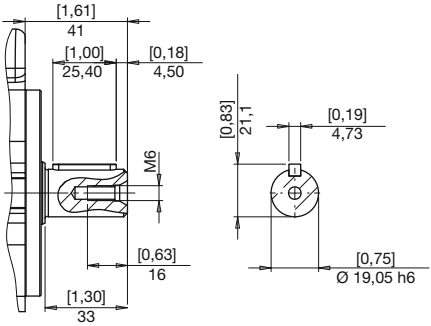
9

COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
310 N•m



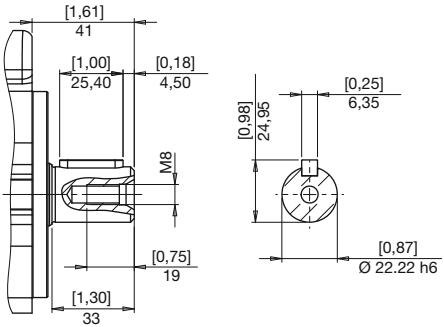
E

COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
113 N•m



J

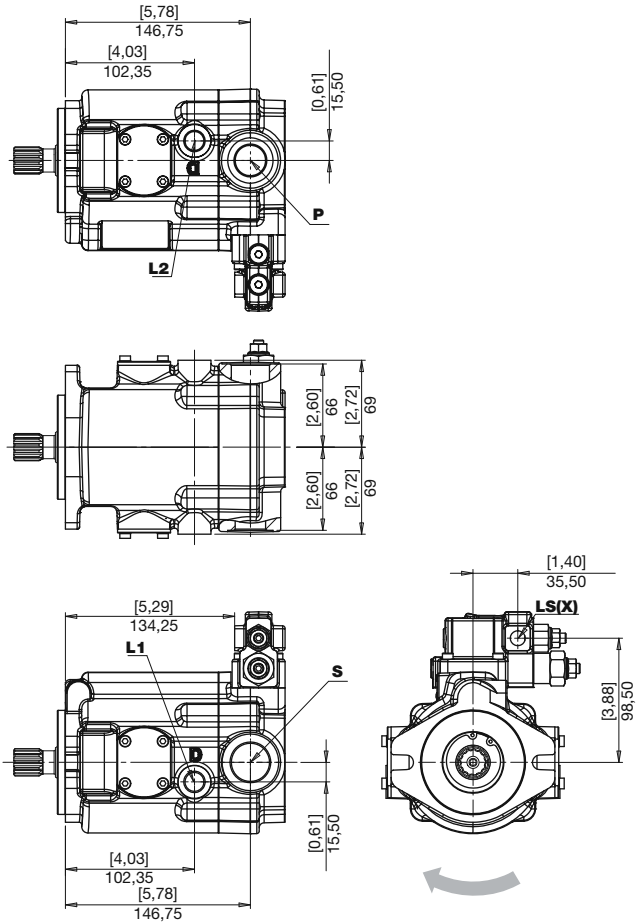
COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
210 N•m



BOCCHE VERSIONE DESTRA
RIGHT VERSION PORTS
ANSCHLÜSSE RECHTS VERSION

SM A1

G U

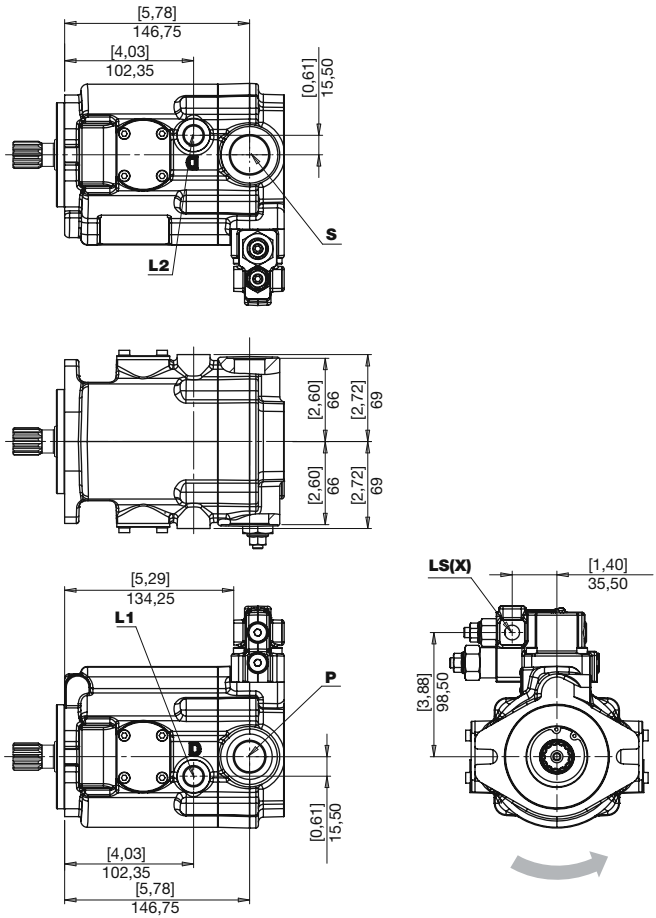


ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE VERSIONE SINISTRA
LEFT VERSION PORTS
ANSCHLÜSSE LINKE VERSION

G U

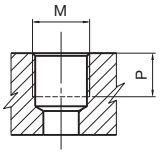


ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

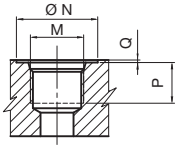
S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE
PORTS
ANSCHLÜSSE

SM A1



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G1	1/8” GAS BSPP	8	8	0,31
G3	3/8” GAS BSPP	40	12	0,47
G6	3/4” GAS BSPP	90	19	0,75
G7	1” GAS BSPP	160	21	0,83



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U2	1/4”	20	0,79	12	0,47	0,3	0,01	7/16-20 UNF	17
U3	3/8”	25	0,98	13	0,51	0,3	0,01	9/16-18 UNF	40
U6	3/4”	41	1,61	20	0,79	0,3	0,01	1-1/16-12 UNF	90
U7	1”	49	1,93	20	0,79	0,3	0,01	1-5/16-12 UNF	160

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

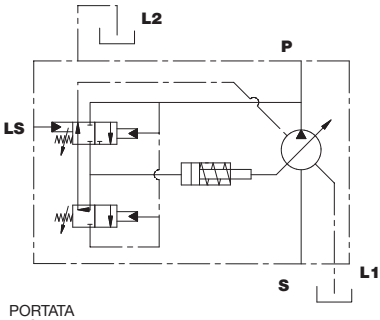
TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS	LS(X) PILOTAGGIO *PILOT* STEUERDRUCK
G	G7	G6	G3	G1
U	U7	U6	U3	U2

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

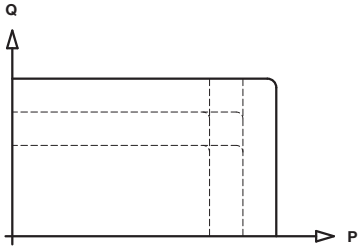
L REGOLATORE DI PRESSIONE/PORTATA
PRESSURE/FLOW RATE REGULATOR
DRUCK-UND FORDERSTROM STROMPEGLER

REGOLATORE DI PORTATA
FLOW RATE REGULATOR
FORDERSTROM STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER



PORTATA
FLOWRATE
FORDERSTROM



PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

SETTAGGIO REGOLATORI
CONTROL SYSTEM SET
VORSCHRIFTEN EINSTELLUNG

PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK		DIFFERENZIALE DI PRESSIONE Δp *PRESSURE DIFFERENTIAL Δp* DIFFERENZDRUCKANZEIGER Δp		
bar	**psi**	**14** bar - **203** psi	**21** bar - **305** psi	**25** bar - **363** psi
180	2610	**A**	**B**	**C**
210	3045	**E**	**F**	**G**
250	3625	**I**	**L**	**M**
280	4060	**O**	**P**	**Q**

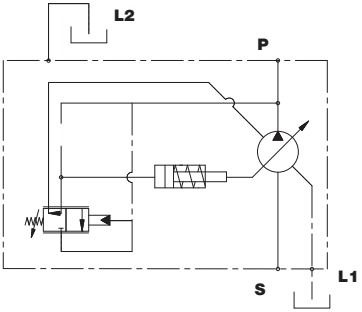
É necessario prevedere una valvola di massima pressione esterna tarata ad un valore superiore del 10% della taratura del regolatore di pressione della pompa.

An external relief valve set at 10% above the pump pressure regulator must always be provided.

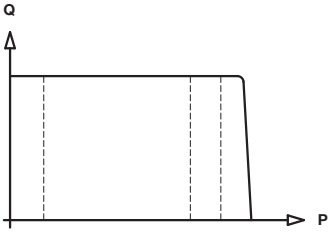
Es muss ein externes Druckbegrenzungsventil vorgesehen werden, dessen Einstellungswert mehr als 10% über dem des Druckreglers der Pumpe liegen muss.

P REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER



PORTATA
FLOWRATE
FORDERSTROM



PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

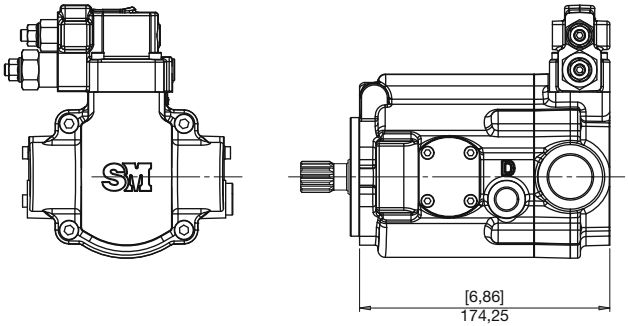
SETTAGGIO REGOLATORI
CONTROL SYSTEM SET
VORSCHRIFTEN EINSTELLUNG

CODICE ***CODE*** **BEST.- NR.**	**PRESSIONE DI ESERCIZIO** ***WORKING PRESSURE*** **BETRIEBSDRUCK**	
	bar	**psi**
D	180	2610
H	210	3045
N	250	3625
R	280	4060

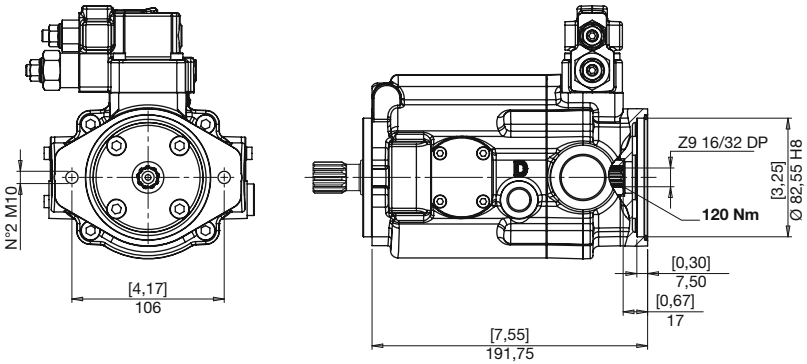
PREDISPOSIZIONI
VERSION
BAUART

SM A1

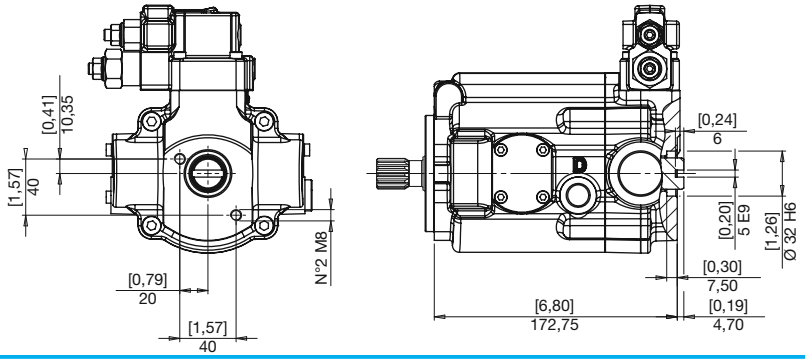
0 NESSUNA PREDISPOSIZIONE
NO SPECIAL FITTINGS
OHNE ANSCHLUßFLANSCH



5 SAE A
SAE A
SAE A



9 GR.1
GR.1
GR.1



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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

SM A1 18 R V G L A 0 ...

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PRODOTTO
PRODUCT
PRODUKT

A1 - Pompa a pistoni assiali per circuito aperto

A1 - *Open circuit axial piston pump*

A1 - Axialkolbenpumpen für den offenen kreislauf

PREDISPOSIZIONI
VERSION
BAUART

0 - nessuna predisposizione
5 - SAE A
9 - Gruppo 1

0 *- no special fittings*
5 *- SAE A*
9 *- Group 1*

0 - ohne Anschlußflansch
5 - SAE A
9 - Baugrösse 1

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

10 - 12 - 14 - 16 - 18

SETTAGGIO REGOLATORI
CONTROL SYSTEMS SETTING
VORSCHRIFTEN EINSTELLUNG

Vedi tabella pag. OP013_11-12
See chart pag. OP013_11-12
Siehe Tabelle pag. OP013_11-12

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

R - Destra / *Right* / Rechts
L - Sinistra / *Left* / Links

REGOLATORI
CONTROL SYSTEMS
REGLEREINSTELLUNG

L - Regolatore di pressione e portata
Pressure/flow rate regulator
Druck-und forderstrom strompegler

P - Regolatore di pressione
Pressure rate regulator
Druck strompegler

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

V - Z9 16/32" DP
X - Z11 16/32" DP
9 - Z13 16/32" DP
E - cilindrico Ø 19,05
round shaft Ø 19,05
zylindrisch Ø 19,05
J - cilindrico Ø 22,22
round shaft Ø 22,22
zylindrisch Ø 22,22

BOCCHE
PORT
ANSCHLÜSSE

G - GAS
U - UNF

SM A1

POMPE MULTIPLE
MULTIPLE PUMPS
MEHRFACHPUMPEN

Il codice di ordinazione di una pompa multipla si ottiene sommando, come mostrato in esempio, i codici delle singole pompe (stadi) ricavati seguendo le regole di ordinazione delle pompe singole.

You build the ordering code of a multiple pump by summing the order code of the individual pumps, see our example.

Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

1° STADIO *STAGE* STUFE

2° STADIO *STAGE* STUFE

SM	A1	18	R	V	G	L	A	5	SM	A1	18	R	V	G	L	A	0

POMPA CON PREDISPOSIZIONE SAE A

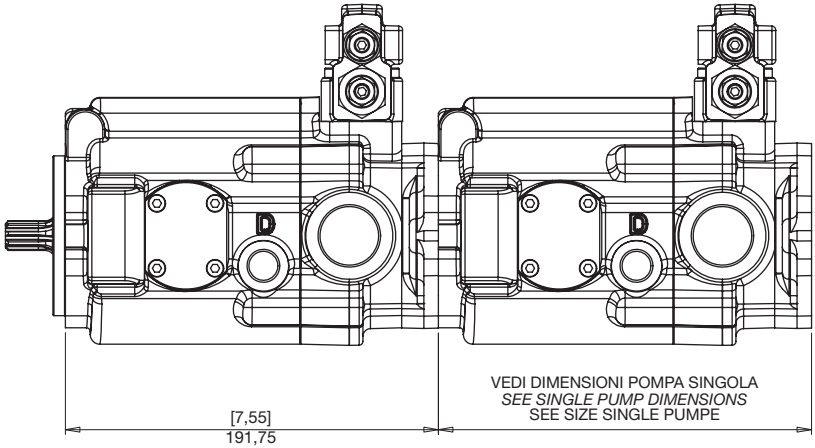
PUMP PREPARED FOR SAE A CONNECTION

VORDERE PUMPE VORBEREITET MIT DURCHTRIEB FÜR HINTERE PUMPE (SAE A)

POMPA CON ALBERO Z9

PUMP WITH SPLINED SHAFT Z9 16/32" DP

HINTERE PUMPE MIT WELLENENDE Z9 16/32" DP



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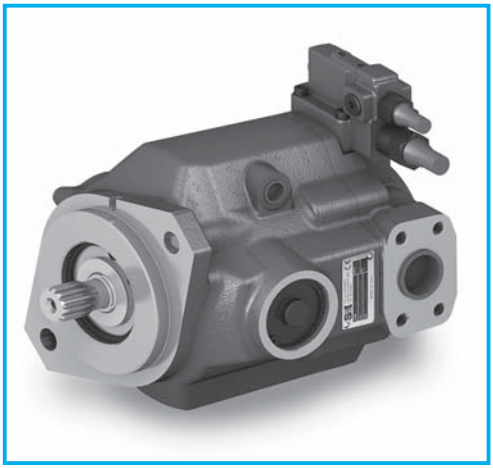
SM A2

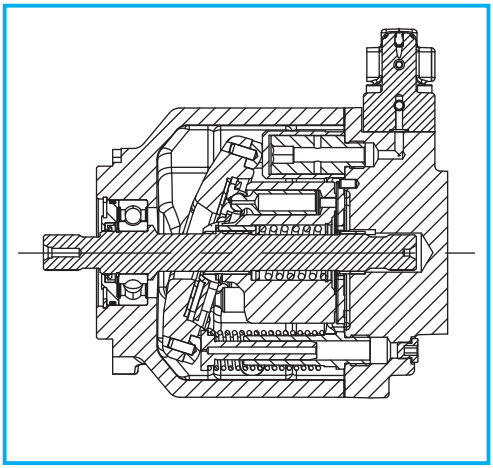
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO CON REGOLAZIONE LOAD SENSING O A PRESSIONE COSTANTE
OPEN CIRCUIT AXIAL PISTON PUMPS WITH LOAD-SENSING OR CONSTANT PRESSURE CONTROL
AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF MIT LOAD-SENSING-REGELUNG ODER KONSTANTDRUCKREGELUNG

Le pompe a pistoni assiali serie SM A2 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile. Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio consentono a queste pompe di raggiungere elevate velocita di rotazione, come quelle consentite dai moderni motori diesel, garantendo una elevata affidabilità per pressioni di funzionamento fino a 280 bar continui (350 bar di picco).
I controlli permettono un funzionamento con regolazione load sensing o a pressione costante.
Le pompe possono essere composte in versione tandem.

Axial piston pumps series SM A1 have been designed to operate in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 280 bar and until 350 bar for peak pressure. Control types allow a Load-sensing or a constant pressure control over the pump.
It is possible to couple tandem versions.

Die Axialkolbenpumpen der Serie SM A1 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren untershiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen. Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von moderneren Antriebsaggregaten gefordert.
Die in diesem Abschnitt dargestellten Steuerungen sind mit Load-Sensing-Regelung oder Konstantdruckregelung liferbar.
Für beide Punpenfamilien können unter Anwendung von Anbauflansche Tandemversion zusammengebaut werden.





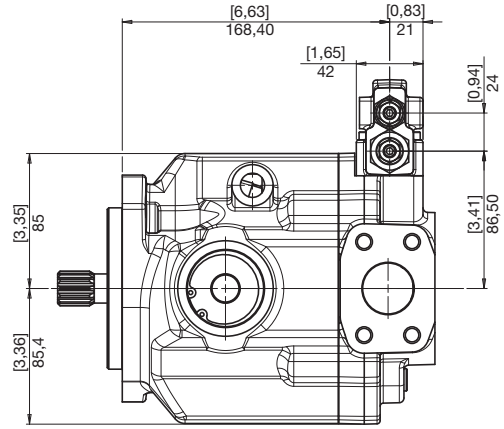
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

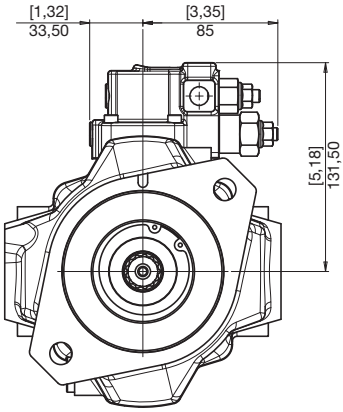
GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
			CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
SM A2	20	1,22	280	4060	320	4640	350	5075	3300	500	18	39,7
	23	1,40										
	25	1,52										
	28	1,71										
	32	1,95										
	34	2,07										
	36	2,20										
	38	2,32										

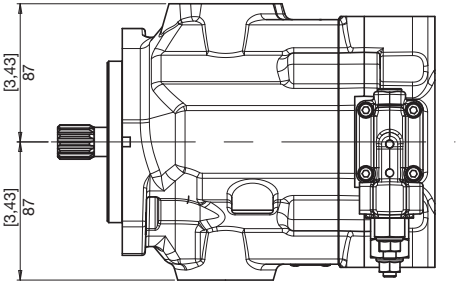
DIMENSIONI
SIZE
ABMESSUNGEN

SM A2

R





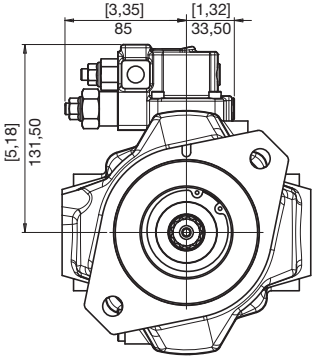


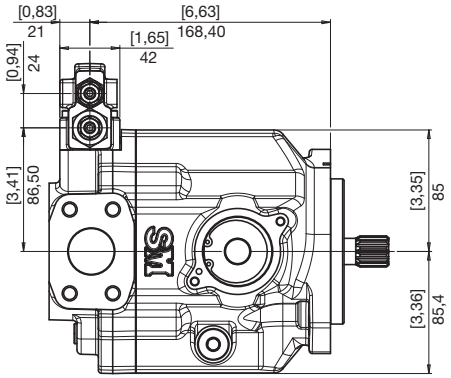
ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

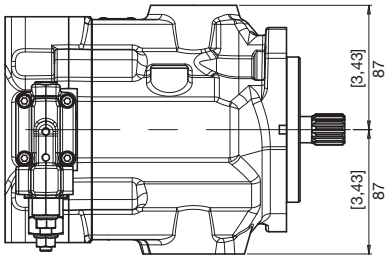
DIMENSIONI
SIZE
ABMESSUNGEN

SM A2

L





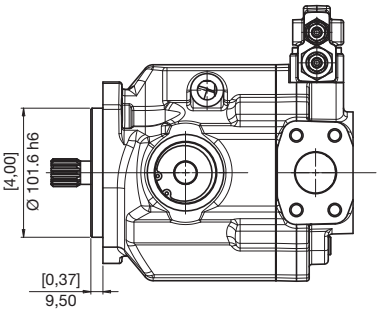


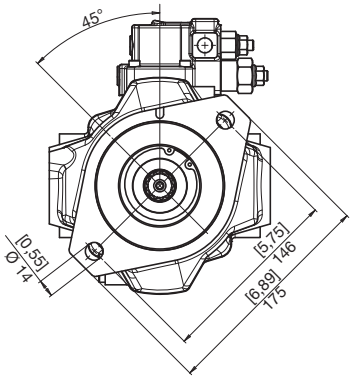
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

FLANGE
FLANGES
FLANSCHE

A

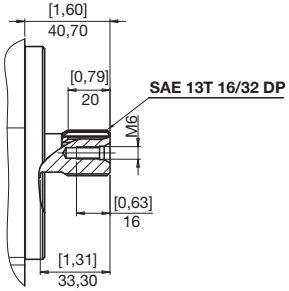
SAE B
SAE B
SAE B



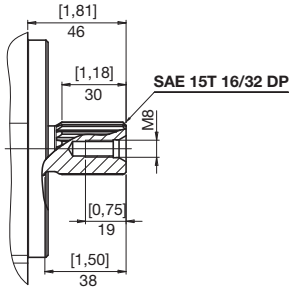


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

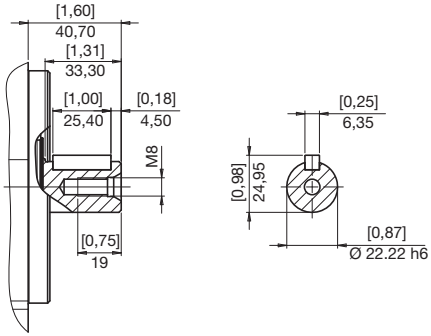
9 COPPIA MAX
MAX TORQUE 310 N•m
MAX DREHMOMENT



1 COPPIA MAX
MAX TORQUE 460 N•m
MAX DREHMOMENT



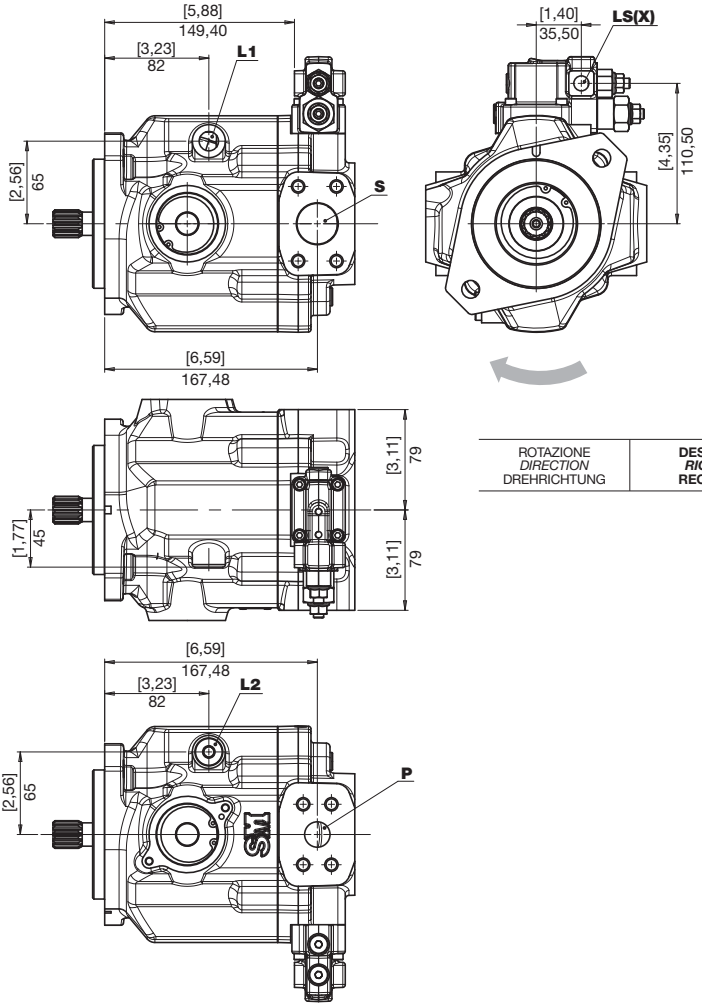
J COPPIA MAX
MAX TORQUE 210 N•m
MAX DREHMOMENT



BOCCHE VERSIONE DESTRA
RIGHT VERSION PORTS
ANSCHLÜSSE RECHTS VERSION

SM A2

G U

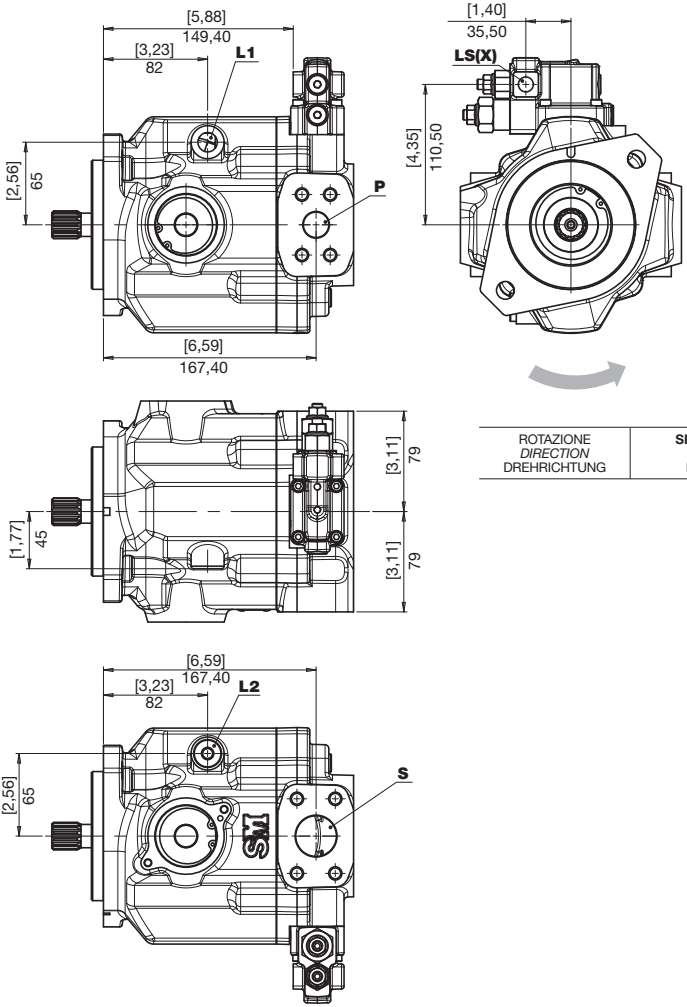


ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE VERSIONE SINISTRA
LEFT VERSION PORTS
ANSCHLÜSSE LINKE VERSION

G U



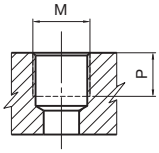
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE
PORTS
ANSCHLÜSSE

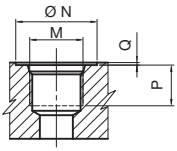
SM A2

G LATERALE *LATERAL* SEITLICH



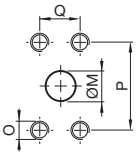
TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G1	1/8” GAS BSPP	8	8	0,31
G3	3/8” GAS BSPP	40	12	0,47

U LATERALE *LATERAL* SEITLICH



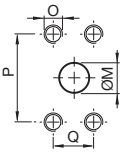
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U2	1/4”	20	0,79	12	0,47	0,3	0,01	7/16-20 UNF	17
U3	3/8”	25	0,98	13	0,51	0,3	0,01	9/16-18 UNF	40

F LATERALE *LATERAL* SEITLICH



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	M		P		Q		O	
		mm	in	mm	in	mm	in		Nm
F6	3/4”	19,0	0,79	47,6	1,87	22,2	0,87	M10	38
F8	1 1/4”	30,5	1,34	58,7	2,31	30,2	1,19	M10	38

N LATERALE *LATERAL* SEITLICH



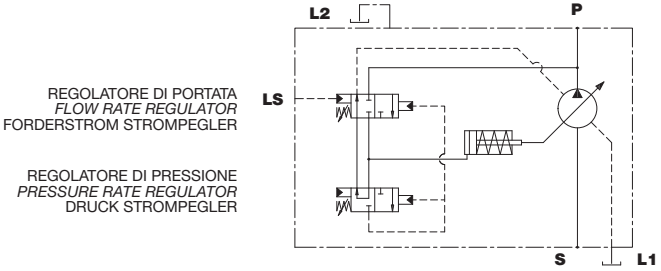
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	M		P		Q		O	
		mm	in	mm	in	mm	in		Nm
N6	3/4”	20,0	0,79	47,6	1,87	22,2	0,87	3/8”-16UNC-2B	38
N8	1 1/4”	34,0	1,34	58,7	2,31	30,2	1,19	7/16”-14UNC-2B	38

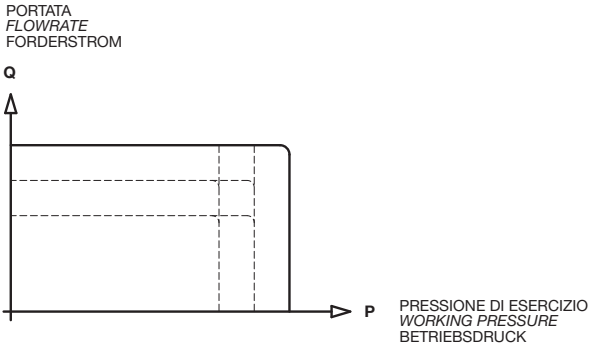
COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS	LS(X) PILOTAGGIO *PILOT* STEUERDRUCK
G	F8	F6	G3	G1
U	N8	N6	U3	U2

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

L REGOLATORE DI PRESSIONE/PORTATA
PRESSURE/FLOW RATE REGULATOR
DRUCK-UND FORDERSTROM STROMPEGLER





SETTAGGIO REGOLATORI
CONTROL SYSTEM SET
VORSCHRIFTEN EINSTELLUNG

PRESSIONE DI ESERCIZIO ***WORKING PRESSURE*** **BETRIEBSDRUCK**		**DIFFERENZIALE DI PRESSIONE Δp** ***PRESSURE DIFFERENTIAL Δp*** **DIFFERENZDRUCKANZEIGER Δp**		
bar	**psi**	**14** bar - **203** psi	**21** bar - **305** psi	**25** bar - **363** psi
180	2610	**A**	**B**	**C**
210	3045	**E**	**F**	**G**
250	3625	**I**	**L**	**M**
280	4060	**O**	**P**	**Q**
315	4568	**S**	**T**	**U**

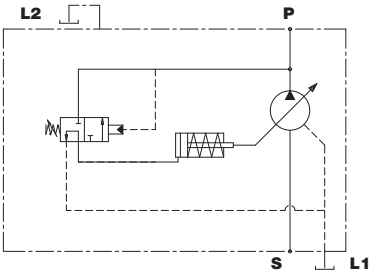
É necessario prevedere una valvola di massima pressione esterna tarata ad un valore superiore del 10% della taratura del regolatore di pressione della pompa.

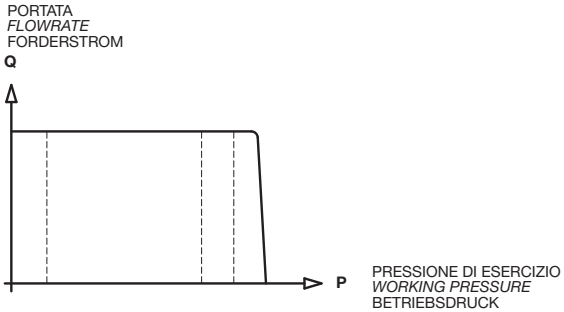
An external relief valve set at 10% above the pump pressure regulator must always be provided.

Es muss ein externes Druckbegrenzungsventil vorgesehen werden, dessen Einstellungswert mehr als 10% über dem des Druckreglers der Pumpe liegen muss.

P REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER





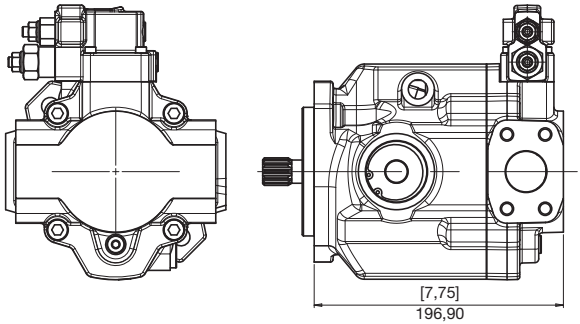
SETTAGGIO REGOLATORI
CONTROL SYSTEM SET
VORSCHRIFTEN EINSTELLUNG

CODICE *CODE* BEST.- NR.	PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK	
	bar	psi
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	315	4568

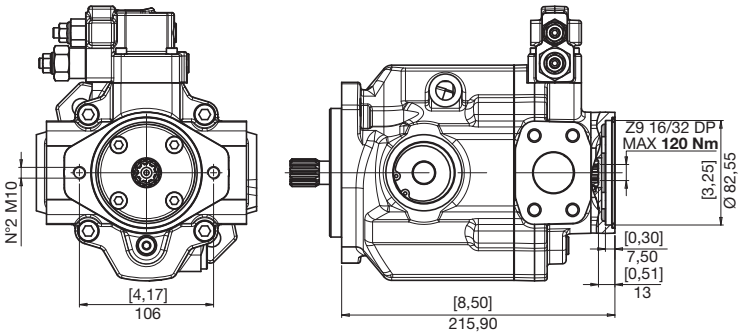
PREDISPOSIZIONI
VERSION
BAUART

SM A2

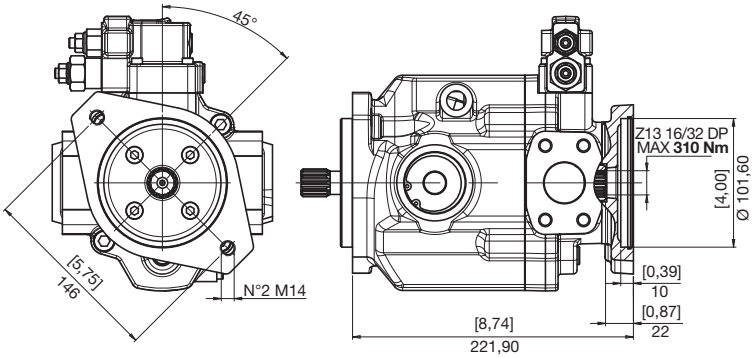
0 NESSUNA PREDISPOSIZIONE
NO SPECIAL FITTINGS
OHNE ANSCHLUßFLANSCH



5 SAE A
SAE A
SAE A



6 SAE B
SAE B
SAE B



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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

SM A2 20 R 9 G L A 0 ...

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PRODOTTO
PRODUCT
PRODUKT

A2 - Pompa a pistoni assiali per circuito aperto

A2 - *Open circuit axial piston pump*

A2 - Axialkolbenpumpen für den offenen kreislauf

PREDISPOSIZIONI
VERSION
BAUART

0 - nessuna predisposizione
5 - SAE A
6 - SAE B

0 *- no special fittings*
5 *- SAE A*
6 *- SAE B*

0 - ohne Anschlußflansch
5 - SAE A
6 - SAE B

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

20 - 23 - 25 - 28 - 32 - 34 - 36

SETTAGGIO REGOLATORI
CONTROL SYSTEMS SETTING
VORSCHRIFTEN EINSTELLUNG

Vedi tabella pag. OP013_25-26
See chart pag. OP013_25-26
Siehe Tabelle pag. OP013_25-26

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

R - Destra
Right
Rechts

L - Sinistra
Left
Links

REGOLATORI
CONTROL SYSTEMS
REGLEREINSTELLUNG

L - Regolatore di pressione e portata
Pressure/flow rate regulator
Druck-und forderstrom strompegler

P - Regolatore di pressione
Pressure rate regulator
Druck strompegler

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

9 - Z13 16/32" DP
1 - Z15 16/32" DP

J - cilindrico Ø 22,22
round shaft Ø 22,22
zylindrisch Ø 22,22

BOCCHE
PORT
ANSCHLÜSSE

G - GAS
U - UNF

SM A2

POMPE MULTIPLE
MULTIPLE PUMPS
MEHRFACHPUMPEN

Il codice di ordinazione di una pompa multipla si ottiene sommando, come mostrato in esempio, i codici delle singole pompe (stadi) ricavati seguendo le regole di ordinazione delle pompe singole.

You build the ordering code of a multiple pump by summing the order code of the individual pumps, see our example.

Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

1° STADIO *STAGE* STUFE — **2° STADIO *STAGE* STUFE**

SM	A2	20	R	V	G	L	A	6	SM	A2	20	R	9	G	L	A	0

POMPA CON PREDISPOSIZIONE SAE B

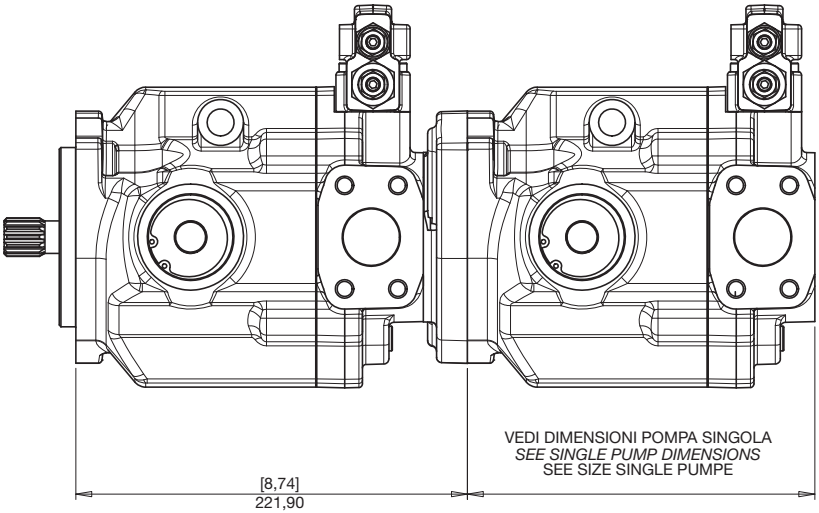
PUMP PREPARED FOR SAE B CONNECTION

VORDERE PUMPE VORBEREITET MIT DURCHTRIEB FÜR HINTERE PUMPE (SAE B)

POMPA CON ALBERO Z13

PUMP WITH SPLINED SHAFT Z13 16/32" DP

HINTERE PUMPE MIT WELLENENDE Z13 16/32" DP



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HP A3

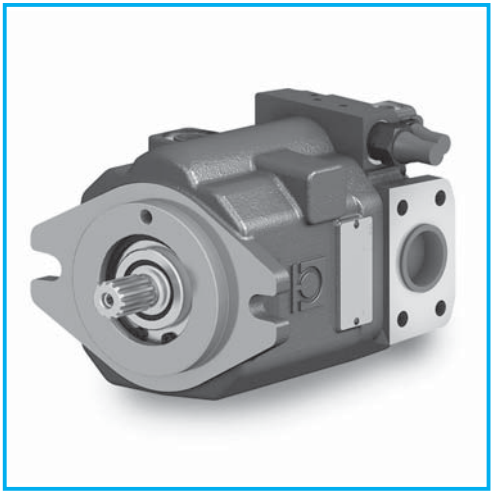
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO CON REGOLAZIONE LOAD SENSING O A PRESSIONE COSTANTE
OPEN CIRCUIT AXIAL PISTON PUMPS WITH LOAD-SENSING OR CONSTANT PRESSURE CONTROL
AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF MIT LOAD-SENSING-REGELUNG ODER KONSTANTDRUCKREGELUNG

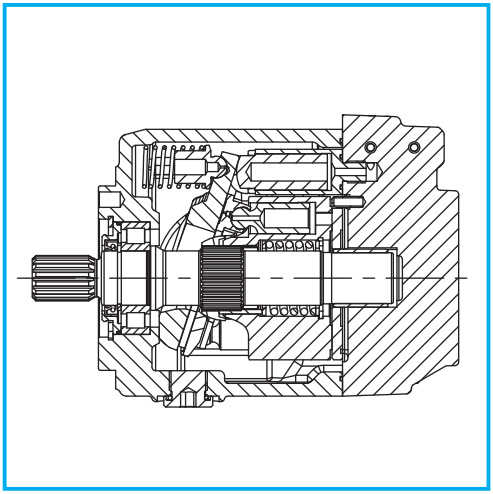
Le pompe a pistoni assiali serie HP A3 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile.
Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio, consentono a queste pompe di raggiungere elevate velocità di rotazione, come quelle richieste dai moderni motori diesel, garantendo una buona affidabilità per pressioni di funzionamento fino a 280 bar continui (350 bar di picco).
I controlli, esposti nella presente sezione, permettono un funzionamento con regolazione load sensing o a pressione costante.
Utilizzando le opportune predisposizioni, è possibile comporre versioni tandem.

The HP A3 series axial piston pumps have been designed to work in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 280 bar and until 350 bar for peak pressure.
Control types shown in this section allow a load sensing or constant pressure control over the pump.
It is possible to couple Tandem versions for both pump types, by means of coupling proper flanges.

Die Axialkolbenpumpen der Serie HP A3 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren unterschiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen.
Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von modernen Antriebsaggregaten gefordert.
Die in diesem Abschnitt dargestellten Steuerungen sind mit Load-Sensing-Regelung oder Konstantdruck-Regelung lieferbar.
Für beide Pumpenfamilien können unter Anwendung von Anbauflanschen Tandemversionen zusammengebaut werden.

HP A3 28•37•44

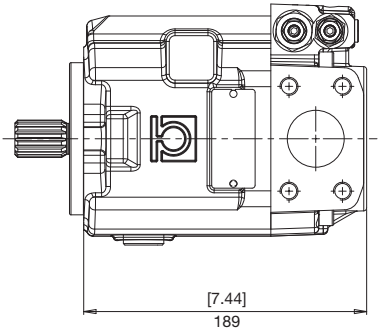


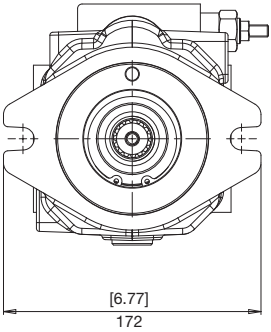


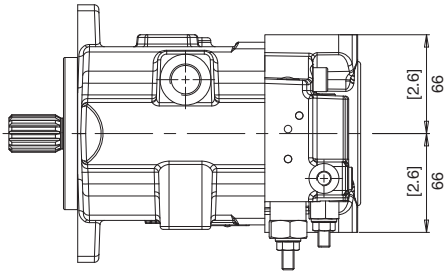
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

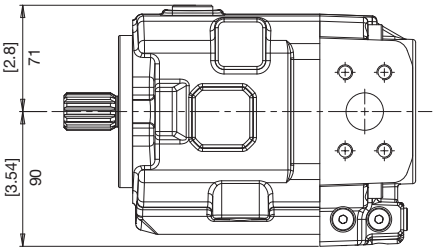
GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		OSCILLANTE *SWASHPLATE* SCHWENKWINKEL	PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	°	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
HP A3	28	1,71	18	280	4060	320	4640	350	5075	3400	500	15	33
	37	2,26	15	250	3625	280	4060	320	4640	3200	500	15,5	34,2
	44	2,68	18	250	3625	280	4060	320	4640	3000	500	16	35,3

DIMENSIONI
SIZE
ABMESSUNGEN





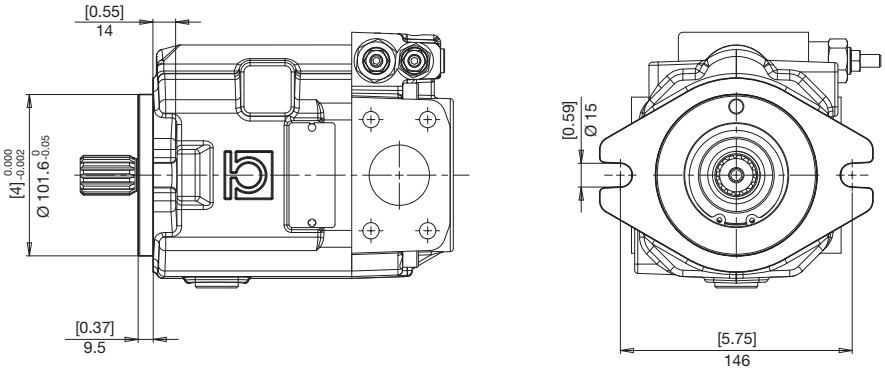




FLANGE
FLANGES
FLANSCHE

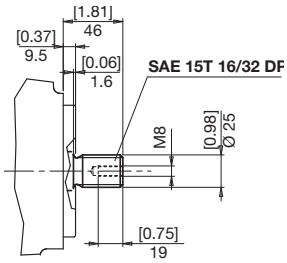
HP A3

B SAE B
SAE B
SAE B

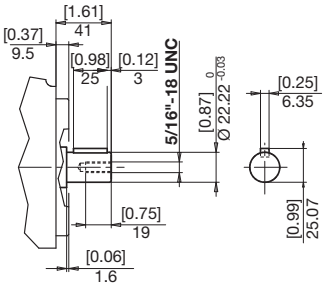


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

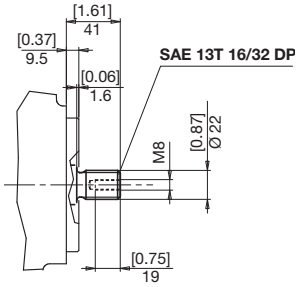
1 *COPPIA MAX*
MAX TORQUE 460 N•m
MAX DREHMOMENT



6 *COPPIA MAX*
MAX TORQUE 210 N•m
MAX DREHMOMENT

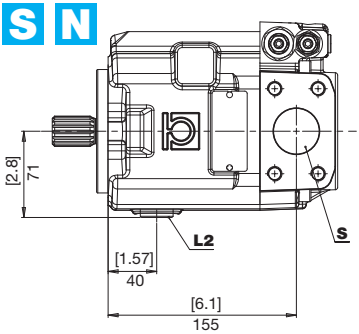


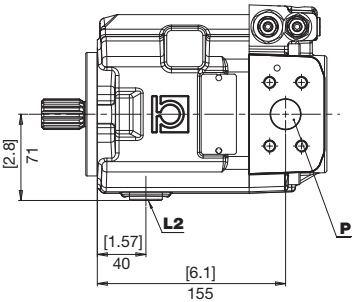
9 *COPPIA MAX*
MAX TORQUE 310 N•m
MAX DREHMOMENT

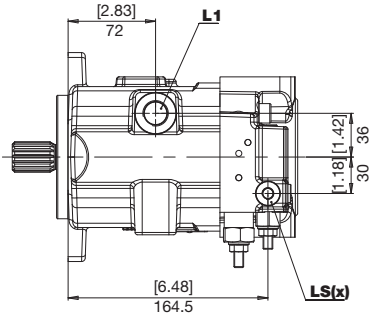


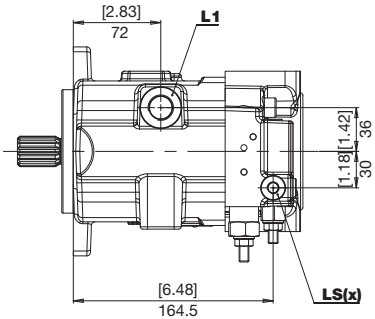
BOCCHE LATERALI
LATERAL PORTS
SEITLICHANSCHLÜSSE

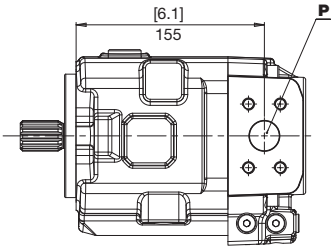
S N

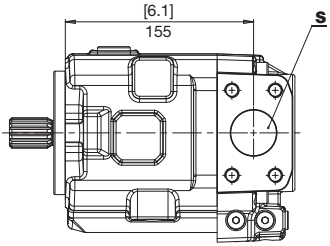












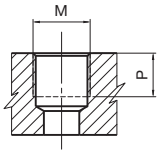
ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

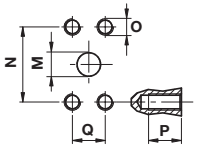
S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**L1** **L2**	Drenaggi *Drain* Leckölanschluss	**P**	Mandata *Output* Ausgang	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE
PORTS
ANSCHLÜSSE

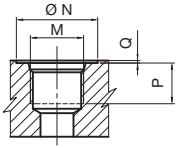
HP A3



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G1	1/8" GAS BSPP	8	8	0,31
G4	1/2" GAS BSPP	50	16	0,63



TIPO *TYPE* TYP	M		N		P		Q		O	
	mm	in	mm	in	mm	in	mm	in		Nm
N7	25	1	52,4	2,06	18	0,71	26,2	1,03	M10	38
N9	38	1,5	69,9	2,75	20	0,79	35,7	1,41	M12	70



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U2	1/4"	20	0,79	12	0,47	0,3	0,01	7/16-20 UNF	17
U3	3/8"	25	0,98	13	0,51	0,3	0,01	9/16-18 UNF	40

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

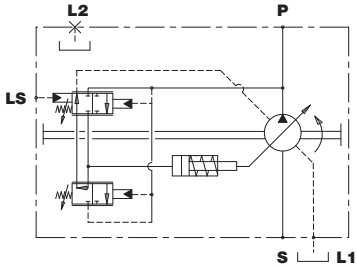
TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS	LS(X) PILOTAGGIO *PILOT* STEUERDRUCK
S	N9	N7	G4	G1
N	N9	N7	U3	U2

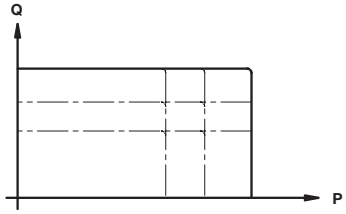
REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

L REGOLATORE DI PRESSIONE/PORTATA
PRESSURE/FLOW RATE REGULATOR
DRUCK-UND FORDERSTROM STROMPEGLER

REGOLATORE DI PORTATA
FLOW RATE REGULATOR
FORDERSTROM STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER





PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK		DIFFERENZIALE DI PRESSIONE Δp *PRESSURE DIFFERENTIAL Δp* DIFFERENZDRUCKANZEIGER Δp		
bar	**psi**	**14** bar - **203** psi	**21** bar - **305** psi	**25** bar - **363** psi
180	2610	A	B	C
210	3045	E	F	G
250	3625	I	L	M
280	4060	O	P	Q
320	4640	S	T	U
350	5075	Z	X	Y

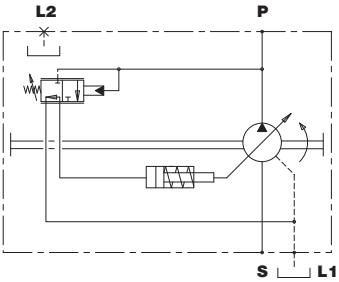
É necessario prevedere una valvola di massima pressione esterna tarata ad un valore superiore del 10% della taratura del regolatore di pressione della pompa.

An external relief valve set at 10% above the pump pressure regulator must always be provided.

Es muss ein externes Druckbegrenzungsventil vorgesehen werden, dessen Einstellungswert mehr als 10% über dem des Druckreglers der Pumpe liegen muss.

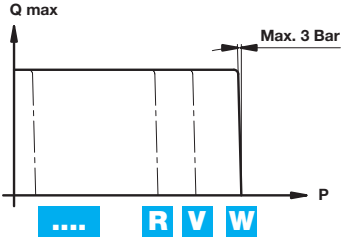
P REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER



CURVA CARATTERISTICA DELLA POMPA CON REGOLATORE DI PRESSIONE
CHARACTERISTIC CURVE OF THE PUMP WITH PRESSURE REGULATOR
KENNLINIE DER PUMPE MIT DRUCKREGLER

PORTATA
FLOWRATE
FORDERSTROM

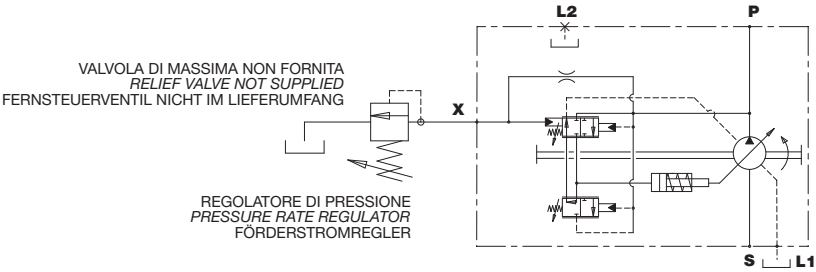


PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

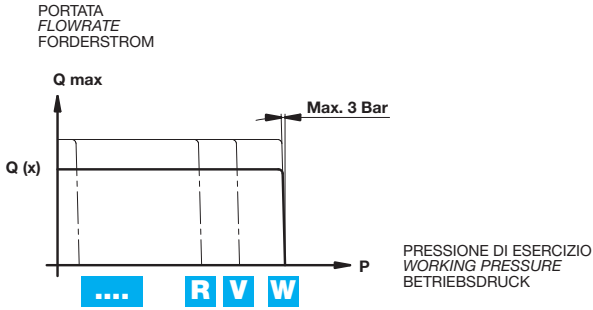
CODICE *CODE* BEST.- NR.	PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK	
	bar	psi
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	320	4640
W	350	5075

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

R REGOLATORE DI PRESSIONE A CONTROLLO REMOTO
PRESSURE/FLOW RATE REGULATOR REMOTE CONTROLLED
DRUCK-UND FORDERSTROM STROMPEGLER FERNBEDIENUNG



CURVA CARATTERISTICA DELLA POMPA CON REGOLATORE DI PRESSIONE
CHARACTERISTIC CURVE OF THE PUMP WITH PRESSURE REGULATOR
KENNLINIE DER PUMPE MIT DRUCKREGLER

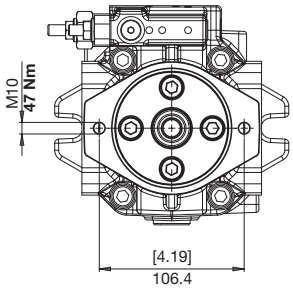


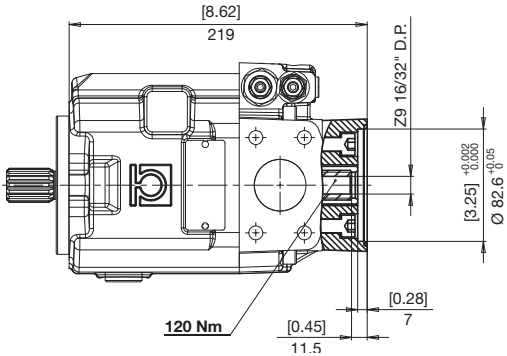
DIFFERENZIALE DI PRESSIONE 21 bar ***PRESSURE DIFFERENTIAL 21 bar*** **DIFFERENZDRUCK 21 bar**

CODICE *CODE* BEST.- NR.	PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK	
	bar	psi
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	320	4640
W	350	5075

5

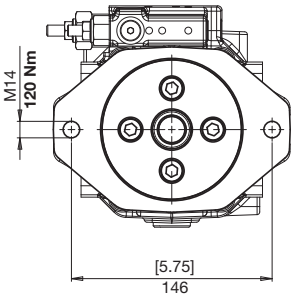
SAE A
SAE A
SAE A

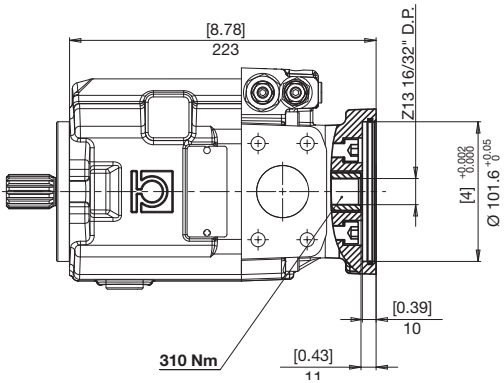




6

SAE B
SAE B
SAE B





ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HP A3 044 R B 1 S L A 5 ...

PRODOTTO
PRODUCT
PRODUKT
A3 - Pompa a pistoni assiali per circuito aperto

A3 - *Open circuit axial piston pump*

A3 - Axialkolbenpumpen für den offenen kreislauf

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN
028 - 037 - 044

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG
R - Destra / *Right* / Rechts
L - Sinistra / *Left* / Links

FLANGIA
FLANGE
FLANSCHE
B - SAE B

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE
1 - Z15 16/32" DP
6 - cilindrico d. 22,22 / *round shaft d. 22,22* / zylindrisch D. 22,22
9 - Z13 16/32" DP

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PREDISPOSIZIONI
VERSION
BAUART

0 - nessuna predisposizione
5 - SAE A
6 - SAE B

0 - *no special fittings*
5 - *SAE A*
6 - *SAE B*

0 - ohne Anschlußflansch
5 - SAE A
6 - SAE B

SET REGOLATORI
CONTROL SYSTEM SET
REGLERSET
Vedi tabella
See chart
Siehe Tabelle

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG
L - Regolatore di pressione/portata / *Pressure/flow rate regulator* / Druck-und forderstrom strompegler
P - Regolatore di pressione / *Pressure rate regulator* / Druck strompegler
R - Regolatore di pressione a controllo remoto / *Pressure rate regulator remote controlled* / Druck strompegler fernbedienung

BOCCHE
PORT
ANSCHLÜSSE
Vedi tabella
See chart
Siehe Tabelle

HP A4

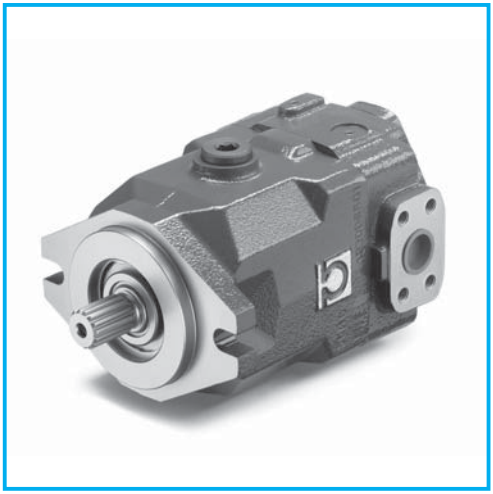
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO A CILINDRATA FISSA
OPEN CIRCUIT AXIAL FIXED-DISPLACEMENT PISTON PUMPS
KONSTANT AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF

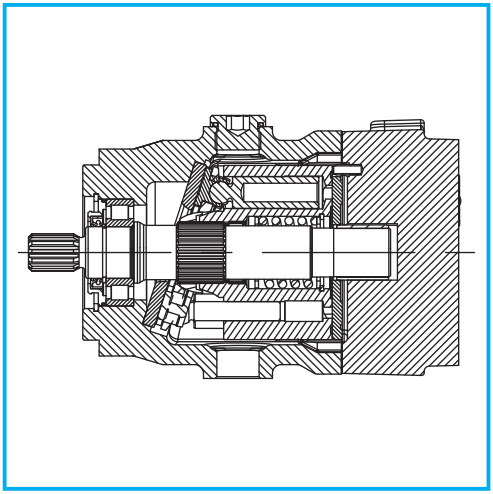
Le pompe a pistoni assiali serie HP A4 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile.
Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio, consentono a queste pompe di raggiungere elevate velocità di rotazione, come quelle richieste dai moderni motori diesel, garantendo una buona affidabilità per pressioni di funzionamento fino a 280 bar continui (350 bar di picco).
Utilizzando le opportune predisposizioni, è possibile comporre versioni tandem.

The HP A4 series axial piston pumps have been designed to work in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 280 bar and until 350 bar for peak pressure.
It is possible to couple Tandem versions for both pump types, by means of coupling proper flanges.

Die Axialkolbenpumpen der Serie HP A4 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren unterschiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen.
Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von modernen Antriebsaggregaten gefordert.
Für beide Pumpenfamilien können unter Anwendung von Anbauflanschen Tandemversionen zusammengebaut werden.

HP A4 34•46•58•65

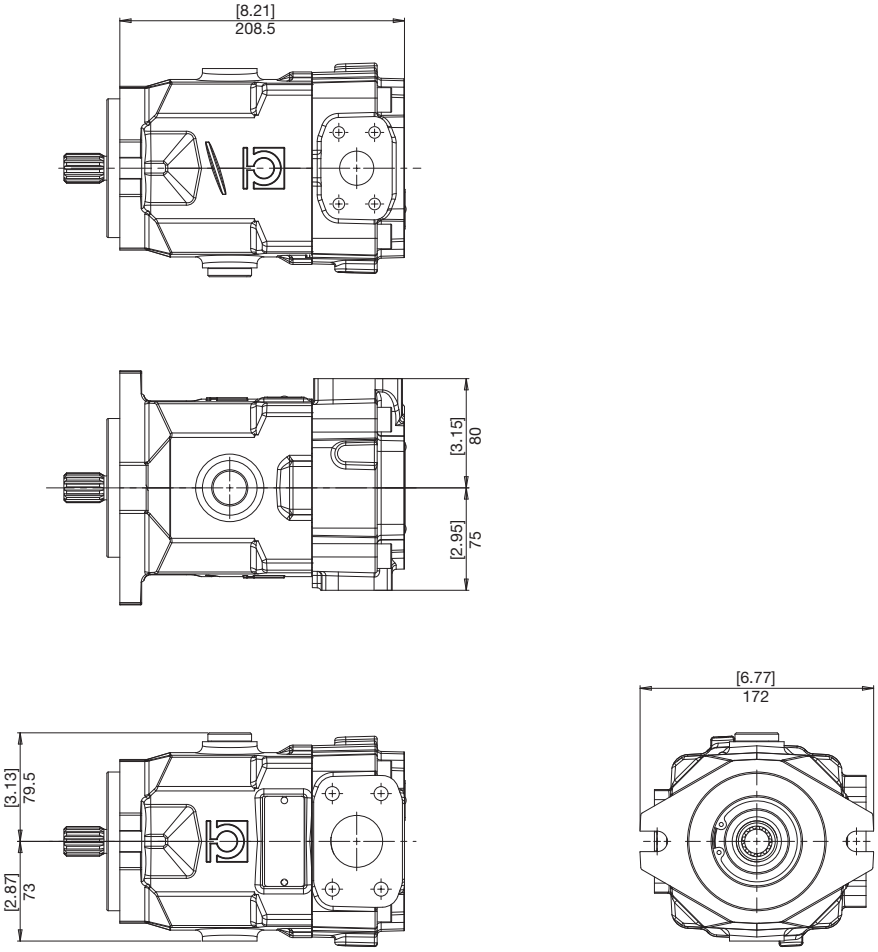




DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		OSCILLANTE *SWASHPLATE* SCHWENKWINKEL	PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	°	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
HP A4	34	2,08	14	280	4060	320	4640	350	5075	2800	500	23	52,8
	46	2,51	19	280	4060	320	4640	350	5075	2800	500	23	52,8
	58	3,54	17	250	3625	300	4350	320	4640	2650	500	24	57,2
	65	3,97	18	250	3625	300	4350	320	4640	2500	500	24	57,2

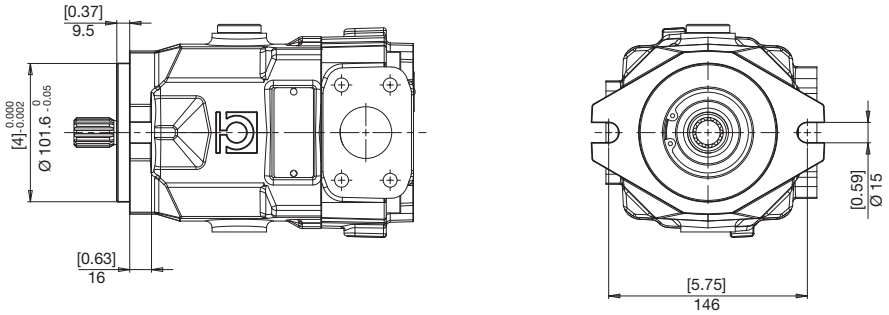
DIMENSIONI
SIZE
ABMESSUNGEN



FLANGE
FLANGES
FLANSCHE

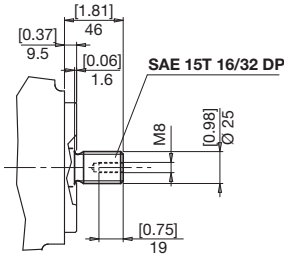
HP A4

B SAE B
SAE B
SAE B

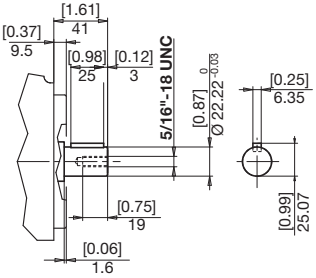


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

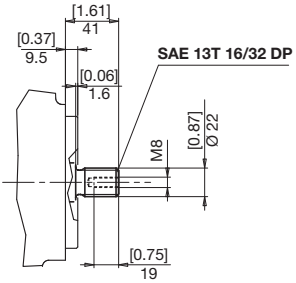
1 *COPPIA MAX*
MAX TORQUE **460 N•m**
MAX DREHMOMENT



6 *COPPIA MAX*
MAX TORQUE **210 N•m**
MAX DREHMOMENT

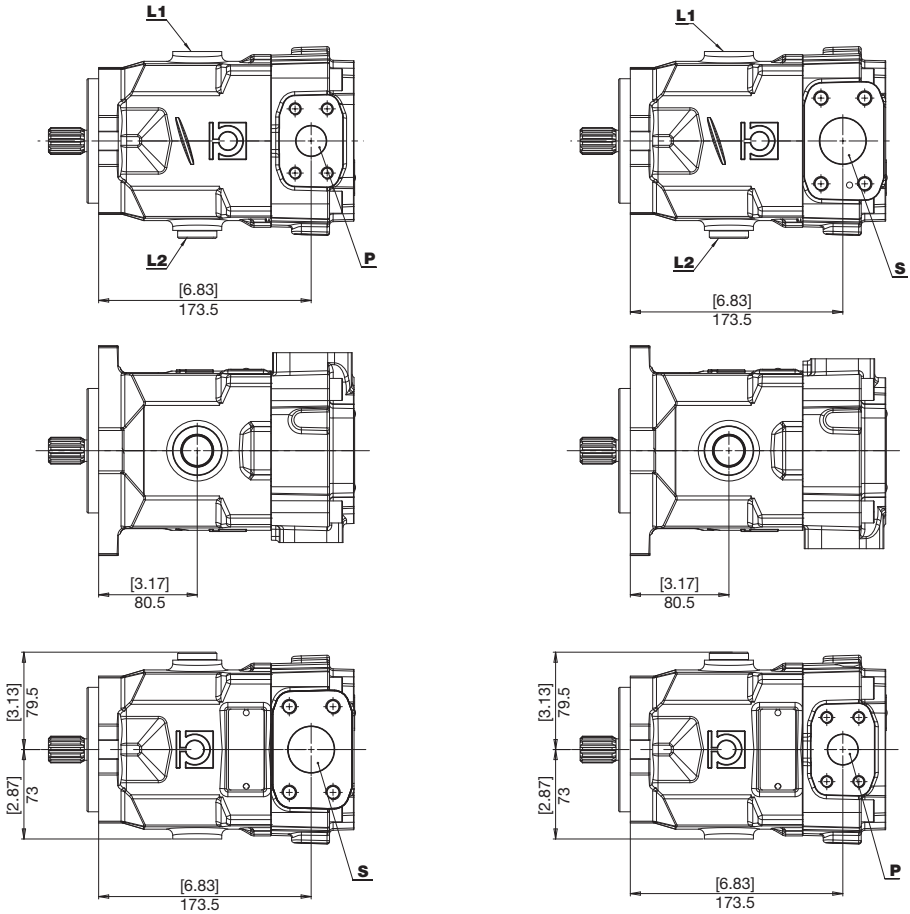


9 *COPPIA MAX*
MAX TORQUE **310 N•m**
MAX DREHMOMENT



BOCCHE LATERALI
LATERAL PORTS
SEITLICHANSCHLÜSSE

S N



ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

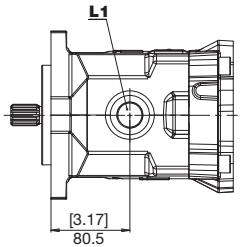
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

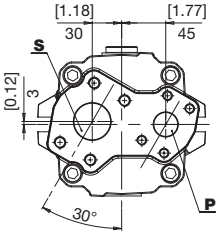
S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**L1** **L2**	Drenaggi *Drain* Leckölanschluss	**P**	Mandata *Output* Ausgang

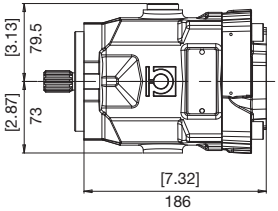
BOCCHE POSTERIORI
REAR PORTS
HINTENANSCHLÜSSE

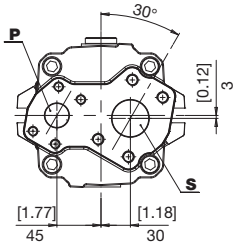
HP A4

R T



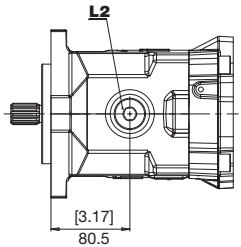






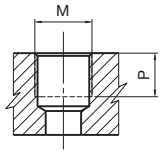
ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

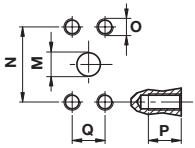


S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**L1** **L2**	Drenaggi *Drain* Leckölanschluss	**P**	Mandata *Output* Ausgang

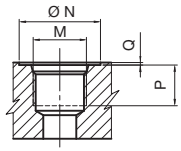
BOCCHE
PORTS
ANSCHLÜSSE



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G6	3/4" GAS BSPP	90	19	0,75



TIPO *TYPE* TYP	M		N		P		Q		O	
	mm	in	mm	in	mm	in	mm	in		Nm
N7	25	1	52,4	2,06	18	0,71	26,2	1,03	M10	38
N9	38	1,5	69,9	2,75	20	0,79	35,7	1,41	M12	70



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U6	3/4"	41	1,61	20	0,79	0,3	0,01	1-1/16-12 UNF	90

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

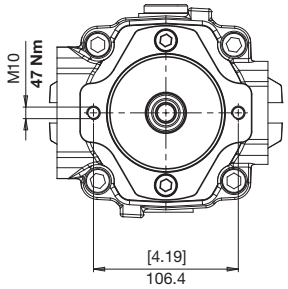
TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS
S	N9	N7	G6
N	N9	N7	U6
R	N9	N7	G6
T	N9	N7	U6

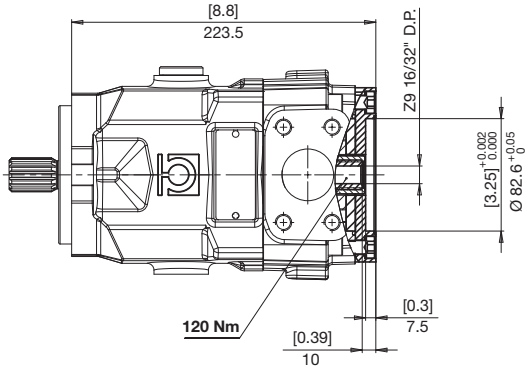
PREDISPOSIZIONI
VERSION
BAUART

HP A4

5

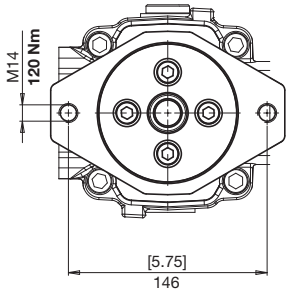
SAE A
SAE A
SAE A

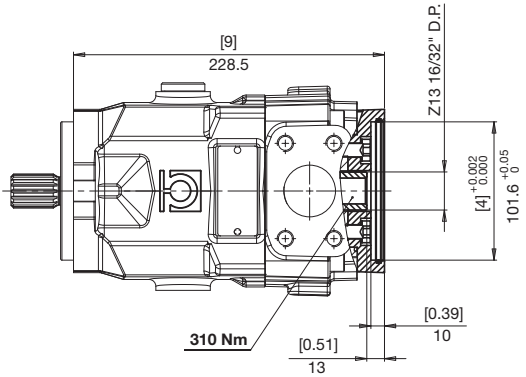




6

SAE B
SAE B
SAE B





ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HP	A4	034	R	B	1	S	F	5	...

PRODOTTO
PRODUCT
PRODUKT

A4 - Pompa a pistoni assiali per circuito aperto

A4 - *Open circuit axial piston pump*

A4 - Axialkolbenpumpen für den offenen kreislauf

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

034 - 046 - 058 - 065

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

R - Destra / *Right* / Rechts
L - Sinistra / *Left* / Links

FLANGIA
FLANGE
FLANSCHE

B - SAE B

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

1 - Z15 16/32" DP

6 - cilindrico d. 22,22
round shaft d. 22,22
zylindrisch D. 22,22

9 - Z13 16/32" DP

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PREDISPOSIZIONI
VERSION
BAUART

0 - nessuna predisposizione
5 - SAE A
6 - SAE B

0 - *no special fittings*
5 - *SAE A*
6 - *SAE B*

0 - ohne Anschlußflansch
5 - SAE A
6 - SAE B

COMANDI
CONTROLS
STEUERUNGEN

F - Senza comando, cilindrata fissa
No control, fixed displacement
Keine Steuerung, konstanten Fördervolumen

BOCCHE
PORT
ANSCHLÜSSE

Vedi tabella
See chart
Siehe Tabelle

HP A4

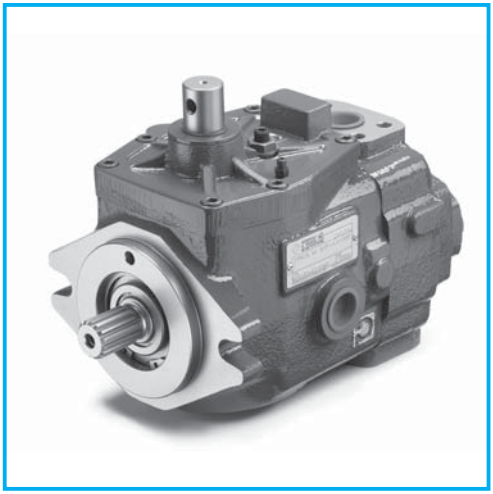
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO A COMANDO MANUALE
OPEN CIRCUIT AXIAL FIXED-DISPLACEMENT PISTON PUMPS WITH MANUAL CONTROL
AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF MIT HAND BETRIEBENER DIREKTSTEUERUNG

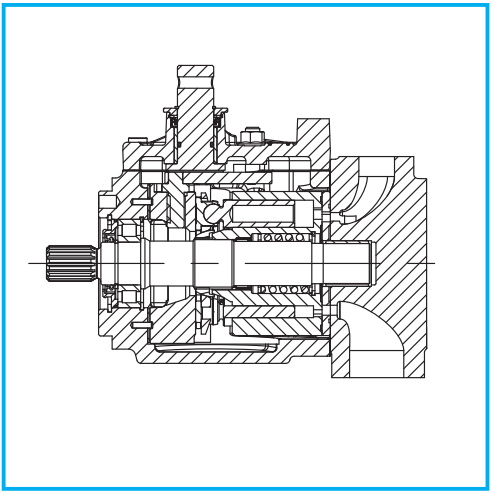
Le pompe a pistoni assiali serie HP A4 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile.
Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio, consentono a queste pompe di raggiungere elevate velocità di rotazione, come quelle richieste dai moderni motori diesel, garantendo una buona affidabilità per pressioni di funzionamento fino a 280 bar continui (350 bar di picco).
I controlli, esposti nella presente sezione, permettono un funzionamento con regolazione manuale.
Utilizzando le opportune predisposizioni, è possibile comporre versioni tandem.

The HP A4 series axial piston pumps have been designed to work in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 280 bar and until 350 bar for peak pressure.
This section shows the direct manual control.
It is possible to couple Tandem versions for both pump types, by means of coupling proper flanges.

Die Axialkolbenpumpen der Serie HP A4 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren unterschiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen.
Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von modernen Antriebsaggregaten gefordert.
Für beide Pumpenfamilien können unter Anwendung von Anbauflanschen Tandemversionen zusammengebaut werden.

HP A4 34•46•58•65

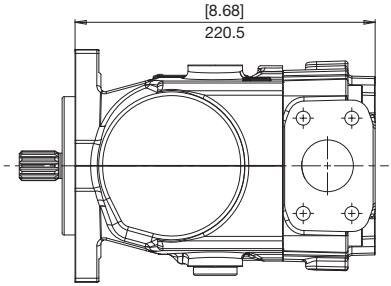


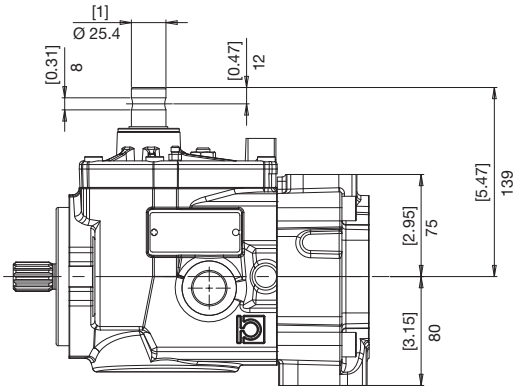


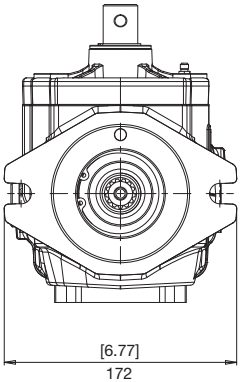
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

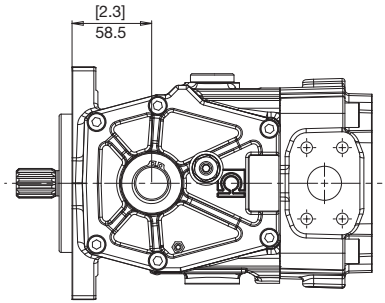
GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		OSCILLANTE *SWASHPLATE* SCHWENKWINKEL	PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	°	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
HP A4	34	2,08	14	280	4060	320	4640	350	5075	2800	500	23	52,8
	46	2,51	19	280	4060	320	4640	350	5075	2800	500	23	52,8
	58	3,54	17	250	3625	300	4350	320	4640	2650	500	24	57,2
	65	3,97	18	250	3625	300	4350	320	4640	2500	500	24	57,2

DIMENSIONI
SIZE
ABMESSUNGEN





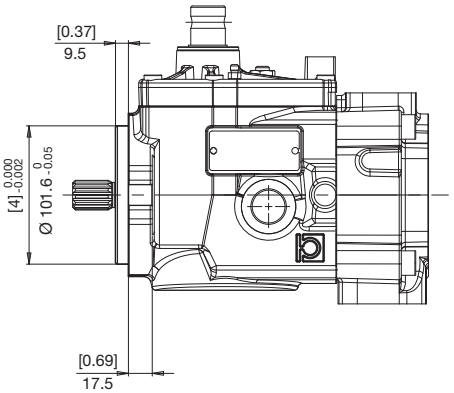


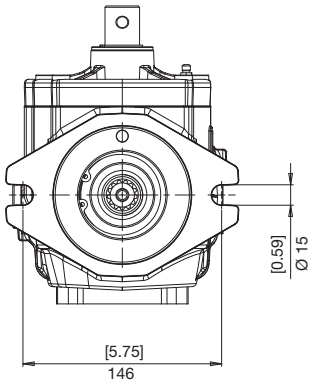


FLANGE
FLANGES
FLANSCHE

HP A4

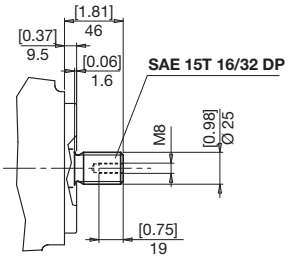
B SAE B
SAE B
SAE B



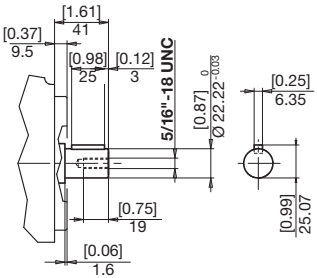


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

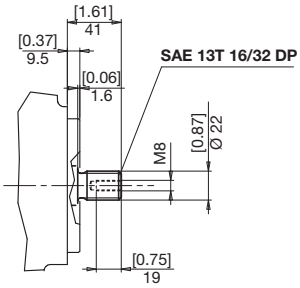
1 *COPPIA MAX*
MAX TORQUE 460 N•m
MAX DREHMOMENT



6 *COPPIA MAX*
MAX TORQUE 210 N•m
MAX DREHMOMENT

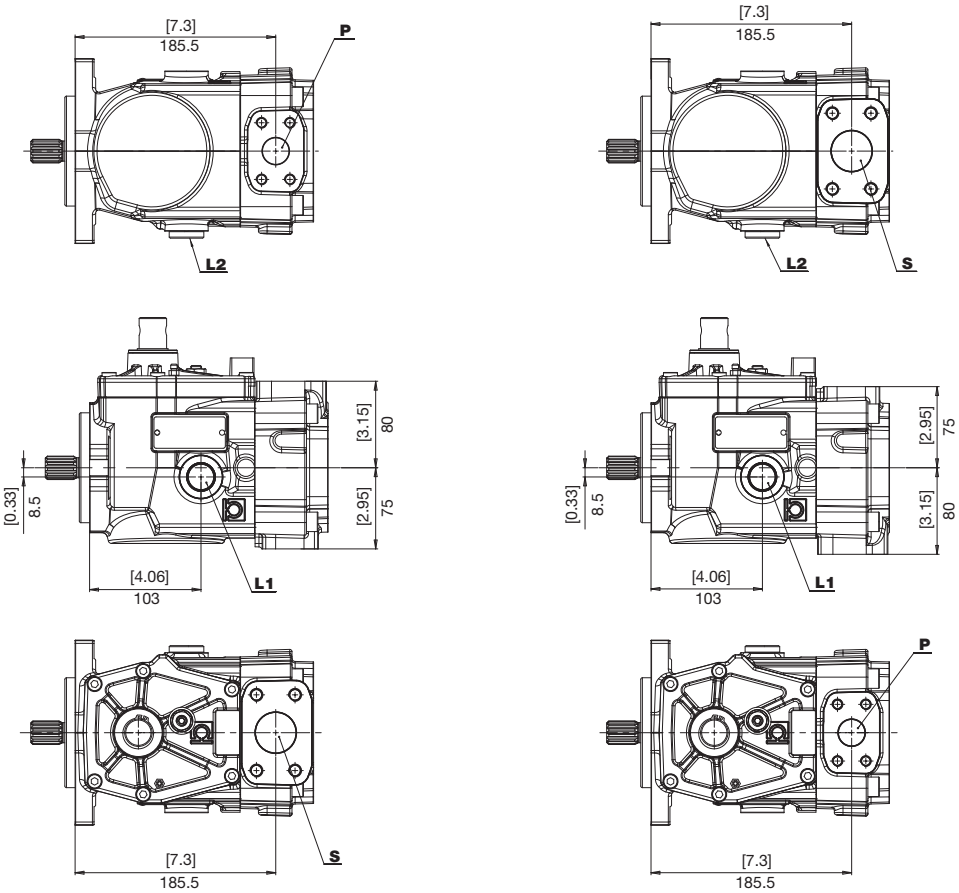


9 *COPPIA MAX*
MAX TORQUE 310 N•m
MAX DREHMOMENT



BOCCHE LATERALI
LATERAL PORTS
SEITLICHANSCHLÜSSE

S N



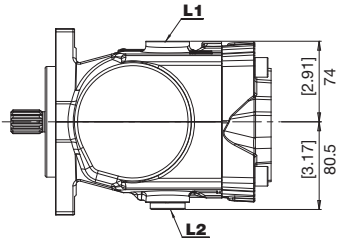
ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

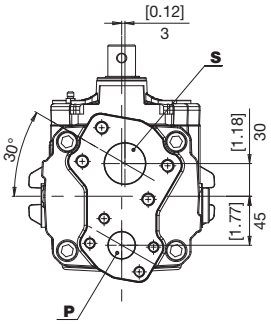
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

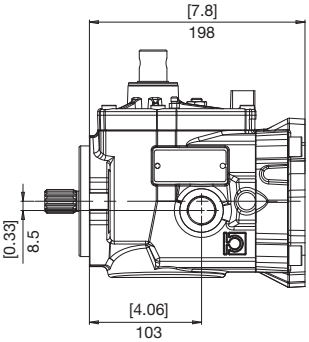
S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**L1** **L2**	Drenaggi *Drain* Leckölanschluss	**P**	Mandata *Output* Ausgang

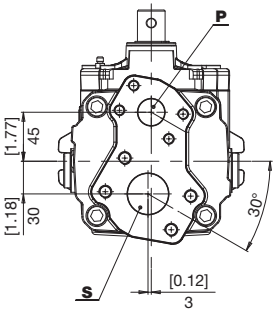
BOCCHE POSTERIORI
REAR PORTS
HINTENANSCHLÜSSE

R T







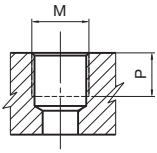


ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

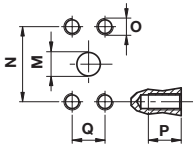
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**L1** **L2**	Drenaggi *Drain* Leckölanschluss	**P**	Mandata *Output* Ausgang

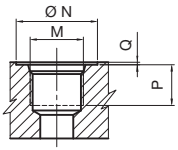
BOCCHE
PORTS
ANSCHLÜSSE



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G6	3/4" GAS BSPP	90	19	0,75



TIPO *TYPE* TYP	M		N		P		Q		O	
	mm	in	mm	in	mm	in	mm	in		Nm
N7	25	1	52,4	2,06	18	0,71	26,2	1,03	M10	38
N9	38	1,5	69,9	2,75	20	0,79	35,7	1,41	M12	70



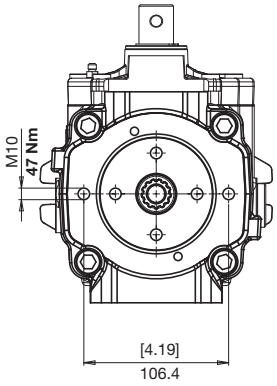
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U6	3/4"	41	1,61	20	0,79	0,3	0,01	1-1/16-12 UNF	90

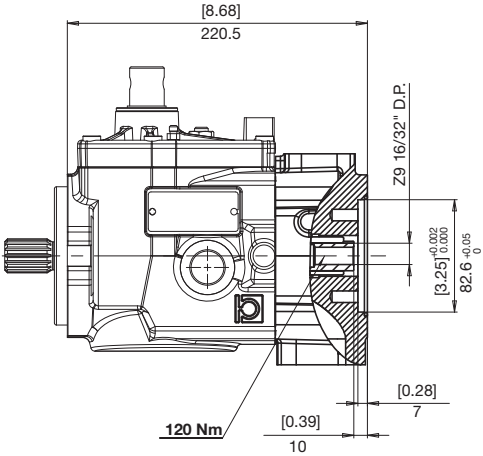
COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS
S	N9	N7	G6
N	N9	N7	U6
R	N9	N7	G6
T	N9	N7	U6

5

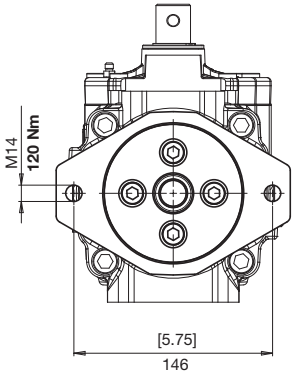
SAE A
SAE A
SAE A

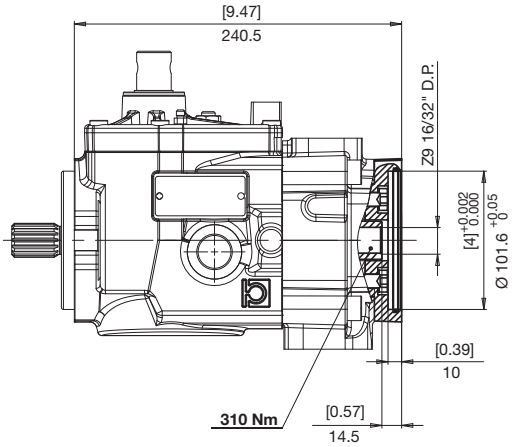




6

SAE B
SAE B
SAE B





ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HP A4 034 R B 1 S M 5 ...

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PRODOTTO
PRODUCT
PRODUKT
A4 - Pompa a pistoni assiali per circuito aperto

A4 - *Open circuit axial piston pump*

A4 - Axialkolbenpumpen für den offenen kreislauf

PREDISPOSIZIONI
VERSION
BAUART
0 - nessuna predisposizione
5 - SAE A
6 - SAE B

0 - *no special fittings*
5 - *SAE A*
6 - *SAE B*

0 - ohne Anschlußflansch
5 - SAE A
6 - SAE B

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN
034 - 046 - 058 - 065

COMANDI
CONTROLS
STEUERUNGEN
M - Manuale diretto
Manual direct control
handbetriebener Direktsteuerung

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG
R - Destra / *Right* / Rechts
L - Sinistra / *Left* / Links

FLANGIA
FLANGE
FLANSCHE
B - SAE B

BOCCHE
PORT
ANSCHLÜSSE
Vedi tabella
See chart
Siehe Tabelle

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE
1 - Z15 16/32" DP
6 - cilindrico d. 22,22
round shaft d. 22,22
zylindrisch D. 22,22
9 - Z13 16/32" DP

HP A4A

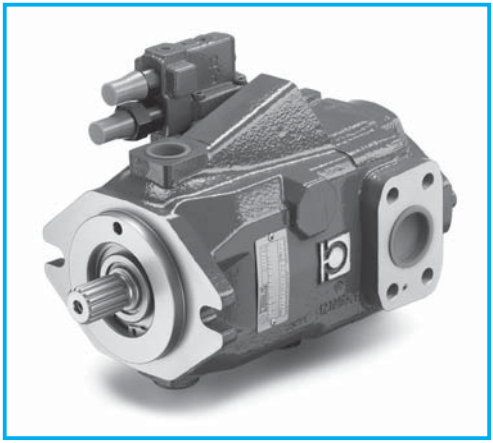
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO CON REGOLAZIONE LOAD SENSING O A PRESSIONE COSTANTE
OPEN CIRCUIT AXIAL PISTON PUMPS WITH LOAD-SENSING OR CONSTANT PRESSURE CONTROL
AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF MIT LOAD-SENSING-REGELUNG ODER KONSTANTDRUCKREGELUNG

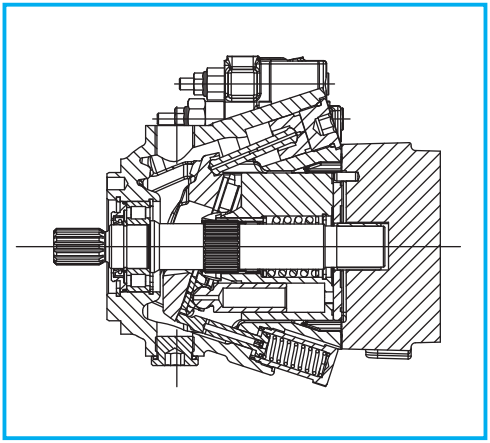
Le pompe a pistoni assiali serie HP A4 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile.
Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio, consentono a queste pompe di raggiungere elevate velocità di rotazione, come quelle richieste dai moderni motori diesel, garantendo una buona affidabilità per pressioni di funzionamento fino a 280 bar continui (350 bar di picco).
I controlli, esposti nella presente sezione, permettono un funzionamento con regolazione load sensing o a pressione costante.
Utilizzando le opportune predisposizioni, è possibile comporre versioni tandem.

The HP A4 series axial piston pumps have been designed to work in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 280 bar and until 350 bar for peak pressure.
Control types shown in this section allow a Load-sensing or a constant pressure control over the pump.
It is possible to couple Tandem versions for both pump types, by means of coupling proper flanges.

Die Axialkolbenpumpen der Serie HP A4 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren unterschiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen.
Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von modernen Antriebsaggregaten gefordert.
Die in diesem Abschnitt dargestellten Steuerungen sind mit Load-Sensing-Regelung oder Konstantdruckregelung lieferbar.
Für beide Pumpenfamilien können unter Anwendung von Anbauflanschen Tandemversionen zusammengebaut werden.

HP A4A 34•46•58•65



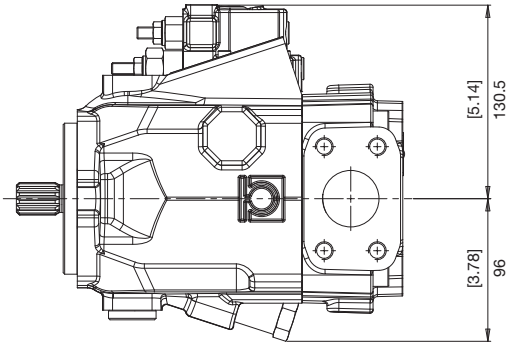


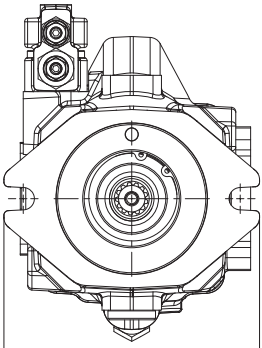
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

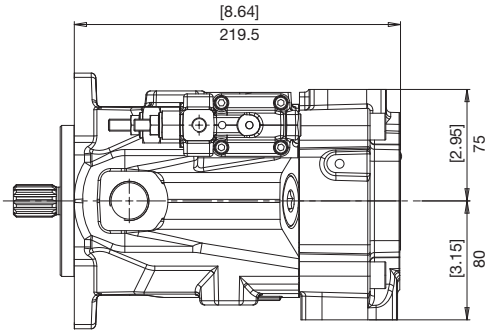
GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		OSCILLANTE *SWASHPLATE* SCHWENKWINKEL	PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	°	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
HP A4A	34	2,08	14	280	4060	320	4640	350	5075	2800	500	23	52,8
	46	2,51	19	280	4060	320	4640	350	5075	2800	500	23	52,8
	58	3,54	17	250	3625	300	4350	320	4640	2650	500	24	57,2
	65	3,97	18	250	3625	300	4350	320	4640	2500	500	24	57,2

DIMENSIONI
SIZE
ABMESSUNGEN

HP A4A



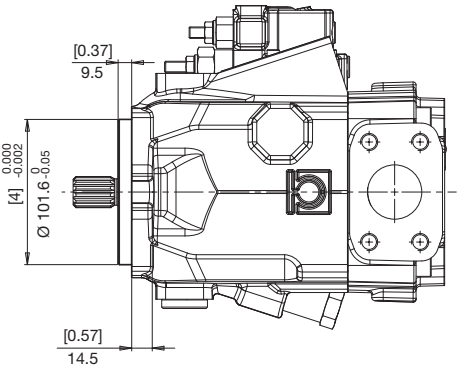


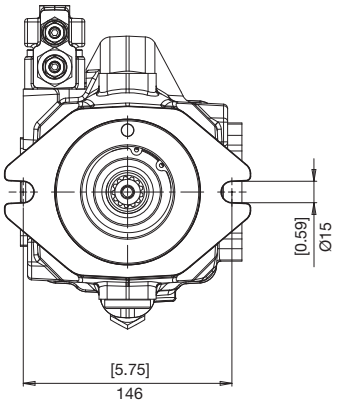


FLANGE
FLANGES
FLANSCHE

HP A4A

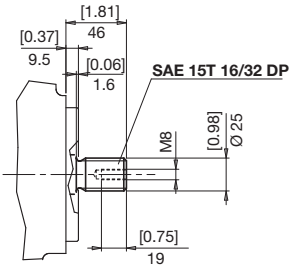
B SAE B
SAE B
SAE B



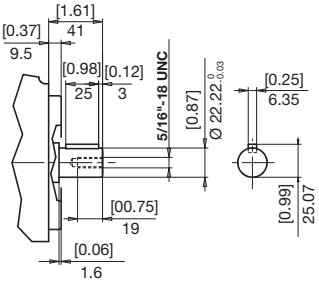


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

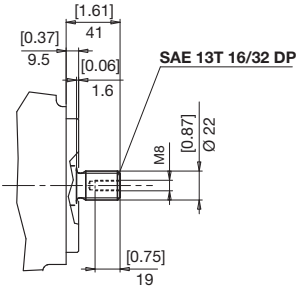
1 *COPPIA MAX*
MAX TORQUE **460 N•m**
MAX DREHMOMENT



6 *COPPIA MAX*
MAX TORQUE **210 N•m**
MAX DREHMOMENT

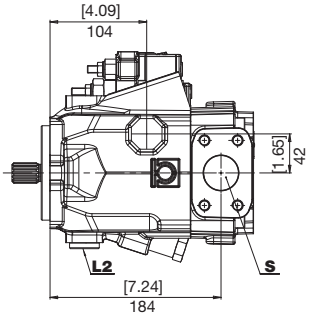


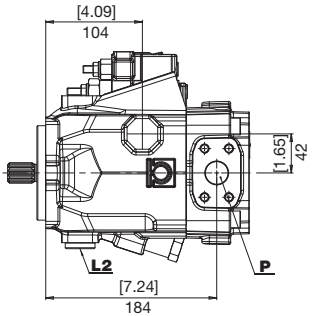
9 *COPPIA MAX*
MAX TORQUE **310 N•m**
MAX DREHMOMENT

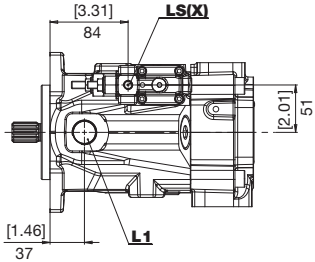


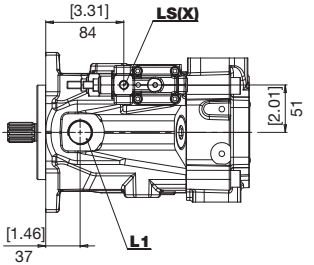
BOCCHE LATERALI
LATERAL PORTS
SEITLICHANSCHLÜSSE

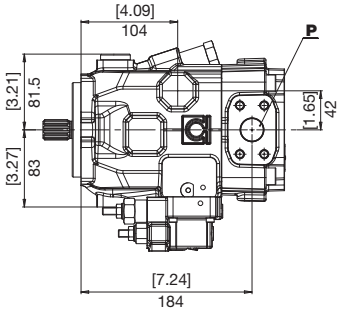
S **N**

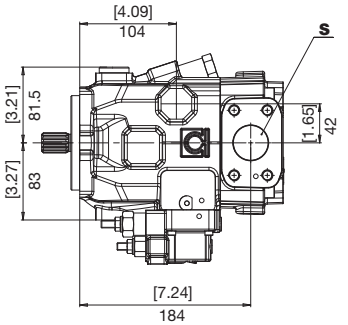












ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

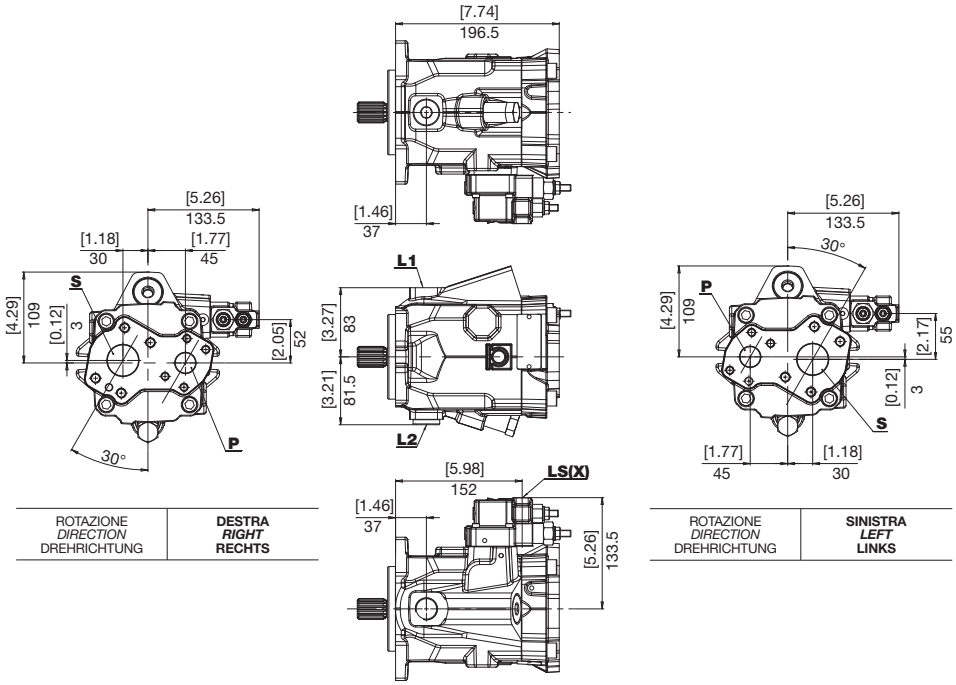
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE POSTERIORI
REAR PORTS
HINTENANSCHLÜSSE

HP A4A

R T

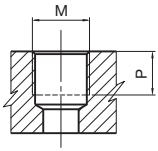


ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

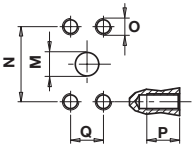
ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

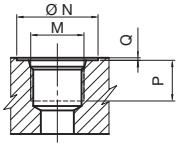
BOCCHE
PORTS
ANSCHLÜSSE



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G1	1/8" GAS BSPP	8	8	0,31
G6	3/4" GAS BSPP	90	19	0,75



TIPO *TYPE* TYP	M		N		P		Q		O	
	mm	in	mm	in	mm	in	mm	in		Nm
N7	25	1	52,4	2,06	18	0,71	26,2	1,03	M10	38
N9	38	1,5	69,9	2,75	20	0,79	35,7	1,41	M12	70



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U2	1/4"	20	0,79	12	0,47	0,3	0,01	7/16-20 UNF	17
U6	3/4"	41	1,61	20	0,79	0,3	0,01	1-1/16-12 UNF	90

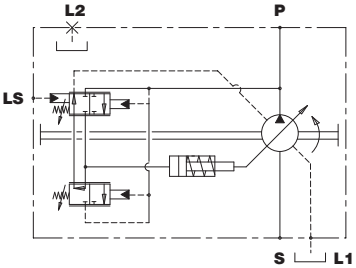
COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

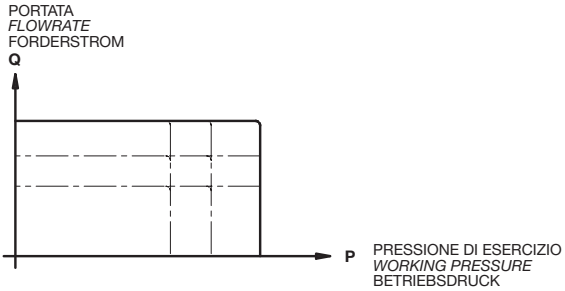
TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS	LS(X) PILOTAGGIO *PILOT* STEUERDRUCK
S	**N9**	**N7**	**G6**	**G1**
N	**N9**	**N7**	**U6**	**U2**
R	**N9**	**N7**	**G6**	**G1**
T	**N9**	**N7**	**U6**	**U2**

L REGOLATORE DI PRESSIONE/PORTATA
PRESSURE/FLOW RATE REGULATOR
DRUCK-UND FORDERSTROM STROMPEGLER

REGOLATORE DI PORTATA
FLOW RATE REGULATOR
FORDERSTROM STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER





PRESSIONE DI ESERCIZIO ***WORKING PRESSURE*** **BETRIEBSDRUCK**		**DIFFERENZIALE DI PRESSIONE Δp** ***PRESSURE DIFFERENTIAL Δp*** **DIFFERENZDRUCKANZEIGER Δp**		
bar	**psi**	**14** bar - **203** psi	**21** bar - **305** psi	**25** bar - **363** psi
180	2610	**A**	**B**	**C**
210	3045	**E**	**F**	**G**
250	3625	**I**	**L**	**M**
280	4060	**O**	**P**	**Q**
320	4640	**S**	**T**	**U**
350	5075	**Z**	**X**	**Y**

É necessario prevedere una valvola di massima pressione esterna tarata ad un valore superiore del 10% della taratura del regolatore di pressione della pompa.

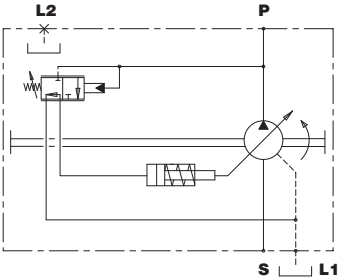
An external relief valve set at 10% above the pump pressure regulator must always be provided.

Es muss ein externes Druckbegrenzungsventil vorgesehen werden, dessen Einstellungswert mehr als 10% über dem des Druckreglers der Pumpe liegen muss.

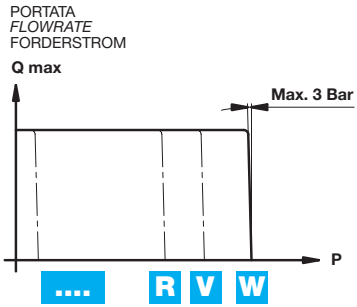
REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

P REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER



CURVA CARATTERISTICA DELLA POMPA CON REGOLATORE DI PRESSIONE
CHARACTERISTIC CURVE OF THE PUMP WITH PRESSURE REGULATOR
KENNLINIE DER PUMPE MIT DRUCKREGLER

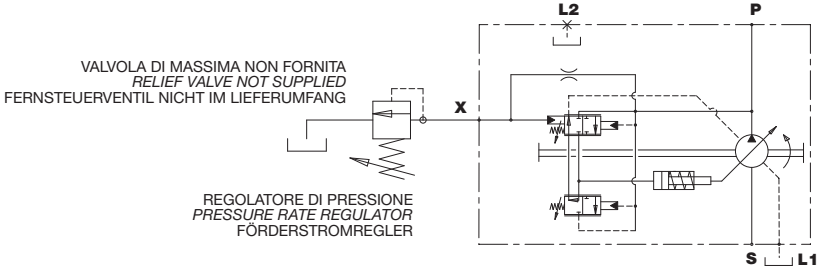


PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

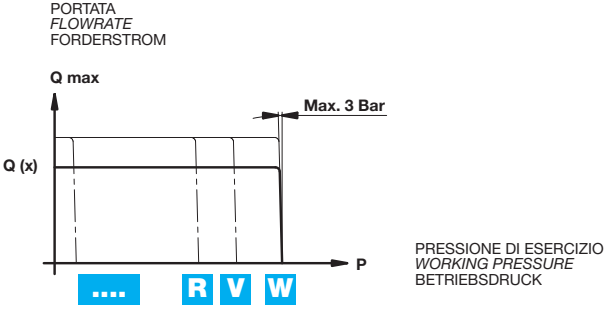
CODICE *CODE* BEST.- NR.	PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK	
	bar	psi
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	320	4640
W	350	5075

R

REGOLATORE DI PRESSIONE A CONTROLLO REMOTO
PRESSURE/FLOW RATE REGULATOR REMOTE CONTROLLED
DRUCK-UND FORDERSTROM STROMPEGLER FERNBEDIENUNG



CURVA CARATTERISTICA DELLA POMPA CON REGOLATORE DI PRESSIONE
CHARACTERISTIC CURVE OF THE PUMP WITH PRESSURE REGULATOR
KENNLINIE DER PUMPE MIT DRUCKREGLER



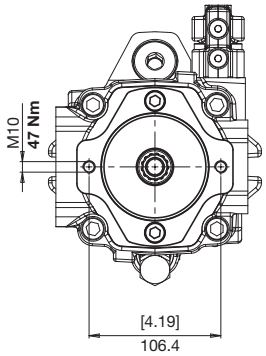
DIFFERENZIALE DI PRESSIONE 21 bar ***PRESSURE DIFFERENTIAL 21 bar*** **DIFFERENZDRUCK 21 bar**

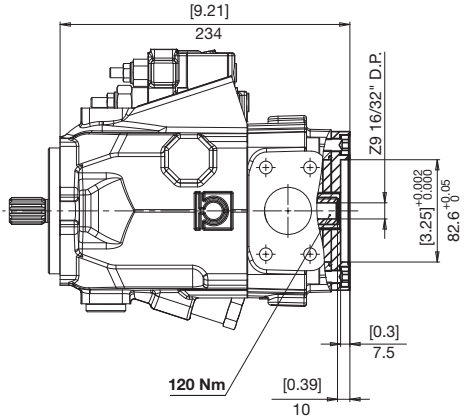
CODICE *CODE* **BEST.- NR.**	**PRESSIONE DI ESERCIZIO** *WORKING PRESSURE* **BETRIEBSDRUCK**	
	bar	**psi**
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	320	4640
W	350	5075

PREDISPOSIZIONI
VERSION
BAUART

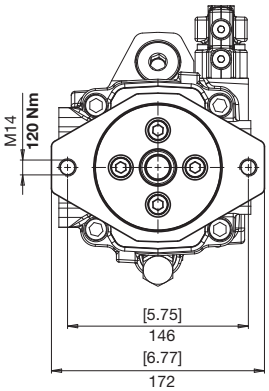
HP A4A

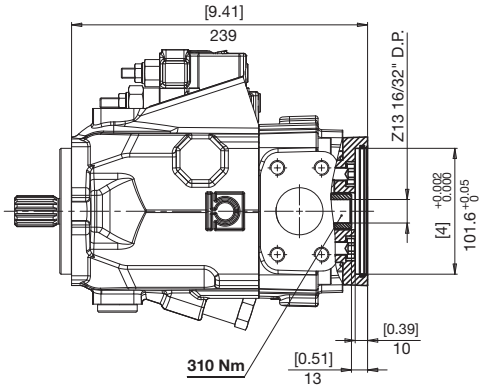
5 SAE A / *SAE A* / SAE A





6 SAE B / *SAE B* / SAE B





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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HP	A4A	034	R	B	1	S	L	A	5	...

PRODOTTO
PRODUCT
PRODUKT
A4A -Pompa a pistoni assiali per circuito aperto

A4A - *Open circuit axial piston pump*

A4A - Axialkolbenpumpen für den offenen kreislauf

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN
034 - 046 - 058 - 065

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG
R - Destra / *Right* / Rechts
L - Sinistra / *Left* / Links

FLANGIA
FLANGE
FLANSCHE
B - SAE B

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE
1 - Z15 16/32" DP
6 - cilindrico d. 22,22 / *round shaft d. 22,22* / zylindrisch D. 22,22
9 - Z13 16/32" DP

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PREDISPOSIZIONI
VERSION
BAUART
0 - nessuna predisposizione
5 - SAE A
6 - SAE B

0 - *no special fittings*
5 - *SAE A*
6 - *SAE B*

0 - ohne Anschlußflansch
5 - SAE A
6 - SAE B

SET REGOLATORI
CONTROL SYSTEM SET
REGLERSET
Vedi tabella
See chart
Siehe Tabelle

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG
L - Regolatore di pressione/portata / *Pressure/flow rate regulator* / Druck-und forderstrom strompegler

P - Regolatore di pressione / *Pressure rate regulator* / Druck strompegler

R - Regolatore di pressione a controllo remoto / *Pressure rate regulator remote controlled* / Druck strompegler fernbedienung

BOCCHE
PORT
ANSCHLÜSSE
Vedi tabella
See chart
Siehe Tabelle

HP A4A

POMPE MULTIPLE
MULTIPLE PUMPS
MEHRFACHPUMPEN

Il codice di ordinazione di una pompa multipla si ottiene sommando, come mostrato in esempio, i codici delle singole pompe (stadi) ricavati seguendo le regole di ordinazione delle pompe singole.

You build the ordering code of a multiple pump by summing the order code of the individual pumps, see our example.

Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

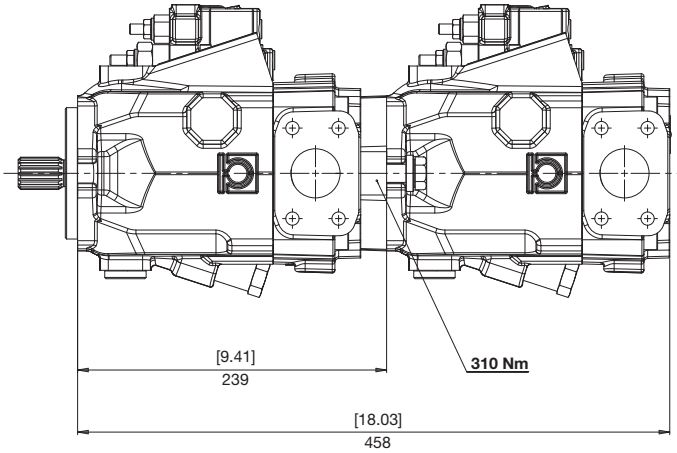
1° STADIO ***STAGE*** **STUFE**

2° STADIO ***STAGE*** **STUFE**

HP	A4	A	065	R	B	1	S	L	G	6	HP	A4	A	046	R	B	9	S	L	G	0

STADIO **ANTERIORE** POMPA HPA4
FRONT *PUMP HPA4*
VORDERE PUMPE HPA4

STADIO **POSTERIORE** POMPA HPA4
REAR *PUMP HPA4*
HINTERE PUMPE HPA4



HPA4A+HPG2

VERSIONE INTEGRATA
INTEGRATED VERSION
PUMPENKOMBINATION

BONDIOLI & PAVESI
HP Hydraulic

Il codice di ordinazione di una versione integrata si ottiene sommando, come mostrato in esempio, i codici delle singole pompe (stadi) ricavati seguendo le regole di ordinazione delle pompe relative.

You build the ordering code of an integrated version by summing the order code of the individual pumps, see our example.

Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

1° STADIO ***STAGE*** **STUFE** — **2° STADIO** ***STAGE*** **STUFE**

HP	A4	A	046	R	B	1	S	L	G	P	HPG	2	14	G6G4	B	ST

PREDISPOSIZIONE STADIO INGRANAGGI IN GHISA HPG2

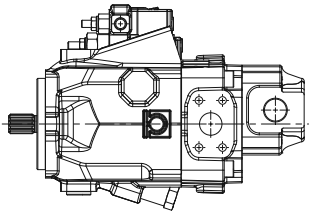
FITTING FOR CAST IRON GEAR PUMP HPG2

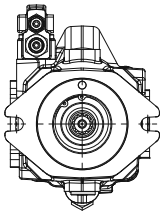
DURCHTRIEB FÜR GUSSZAHNRADPUMPE HPG2

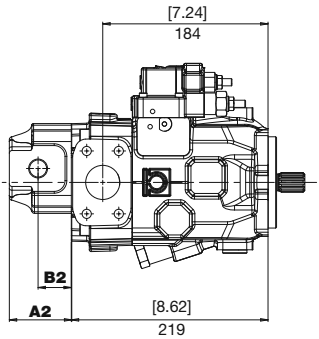
STADIO **POSTERIORE** POMPA HPG

REAR *PUMP HPG*

HINTERE PUMPE HPG







TIPO TYPE TYP	A2		B2	
	mm	in	mm	in
05	48,3	1,90	27,3	1,07
06	51,0	2,01	30,0	1,18
08	55,5	2,19	34,5	1,36
11	60,0	2,36	39,0	1,54
14	69,0	2,72	37,0	1,46
17	73,5	2,89	41,5	1,63
20	78,0	3,07	46,0	1,81
26	87,5	3,44	57,0	2,24
31	96,0	3,78	65,5	2,58

HP A6

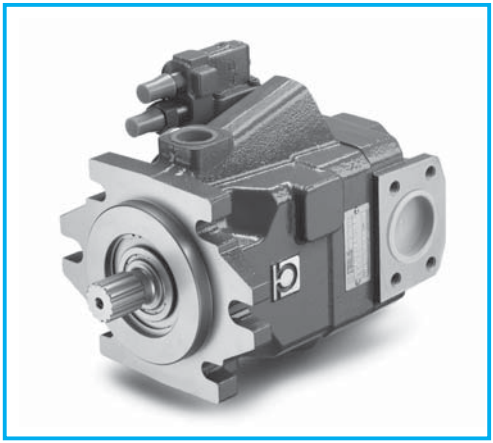
POMPE A PISTONI ASSIALI PER CIRCUITO APERTO CON REGOLAZIONE LOAD SENSING O A PRESSIONE COSTANTE
OPEN CIRCUIT AXIAL PISTON PUMPS WITH LOAD-SENSING OR CONSTANT PRESSURE CONTROL
AXIALKOLBENPUMPEN FÜR DEN OFFENEN KREISLAUF MIT LOAD-SENSING-REGELUNG ODER KONSTANTDRUCKREGELUNG

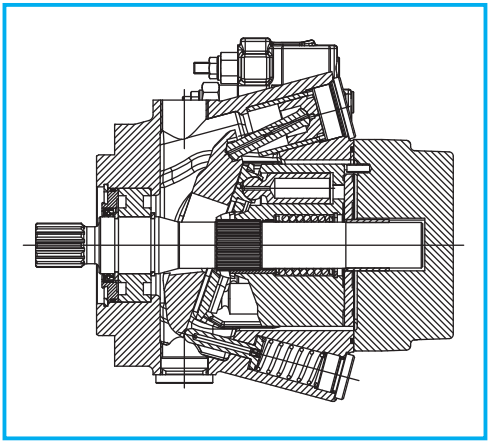
Le pompe a pistoni assiali serie HP A6 sono state concepite per operare in circuito aperto.
I vari sistemi di regolazione disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello mobile.
Lo sviluppo di gruppi rotanti appositamente concepiti, unito ad uno studio accurato delle sezioni di passaggio dell'olio, consentono a queste pompe di raggiungere elevate velocità di rotazione, come quelle richieste dai moderni motori diesel, garantendo una buona affidabilità per pressioni di funzionamento fino a 280 bar continui (350 bar di picco).
Utilizzando le opportune predisposizioni, è possibile comporre versioni tandem.

The HP A6 series axial piston pumps have been designed to work in an open circuit. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Development of rotating groups, especially designed, united to an accurate study of oil passage sections into the pumps, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working continuous pressure until 280 bar and until 350 bar for peak pressure.
It is possible to couple Tandem versions for both pump types, by means of coupling proper flanges.

Die Axialkolbenpumpen der Serie HP A6 wurden für den Betrieb im offenen Kreislauf konzipiert.
Die lieferbaren unterschiedlichen Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen.
Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von modernen Antriebsaggregaten gefordert.
Für beide Pumpenfamilien können unter Anwendung von Anbauflanschen Tandemversionen zusammengebaut werden.

HP A6 70•80•90



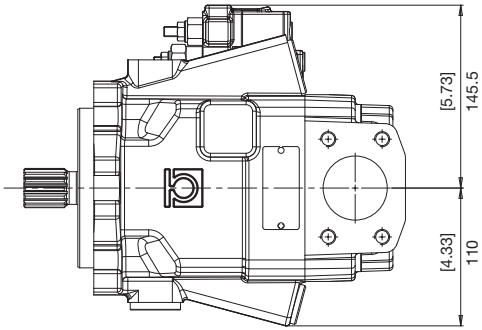


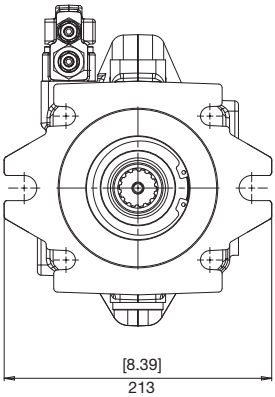
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

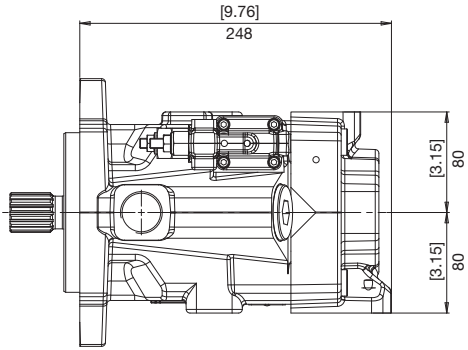
GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		OSCILLANTE *SWASHPLATE* SCHWENKWINKEL	PRESSIONE *PRESSURE* DRUCK						VELOCITÀ DI ROTAZIONE *SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm³	in³	°	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
HP A6	70	4,28	19	280	4060	320	4640	350	5075	2500	500	33	76
	80	4,89	15	250	3625	300	4350	320	4640	2400	500	33	76
	90	5,50	17	250	3625	280	4060	300	4350	2300	500	33	76

DIMENSIONI
SIZE
ABMESSUNGEN

HP A6



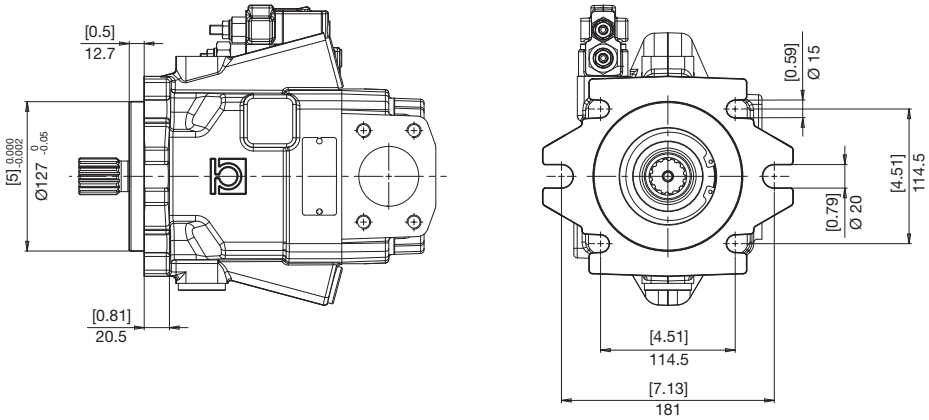




FLANGE
FLANGES
FLANSCHE

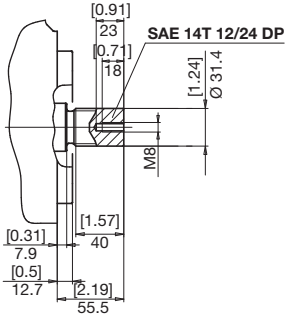
HP A6

E SAE C (2 FORI + 4 FORI)
SAE C (2 AND 4 HOLES)
SAE C (2 UND 4 BOHRUNGEN)



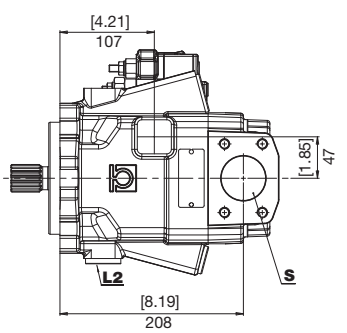
ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

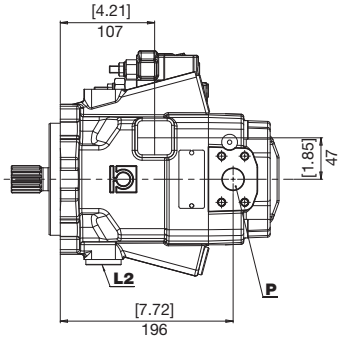
3 COPPIA MAX
MAX TORQUE 850 N•m
MAX DREHMOMENT

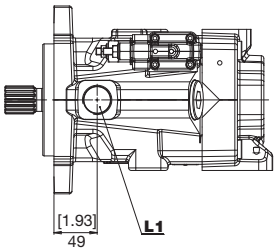


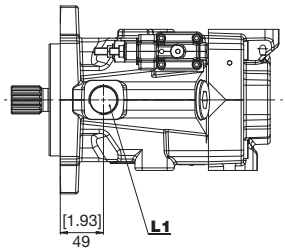
BOCCHE LATERALI
LATERAL PORTS
SEITLICHANSCHLÜSSE

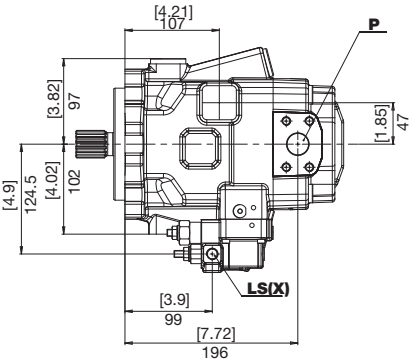
S **N**



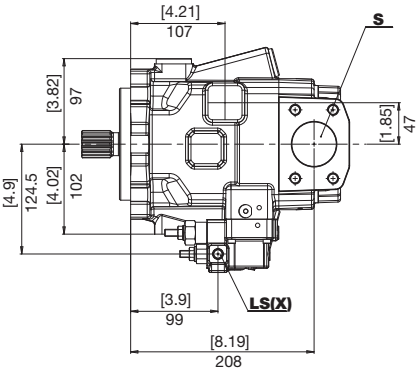








ROTAZIONE *DIRECTION* DREHRICHTUNG	**DESTRA** ***RIGHT*** **RECHTS**

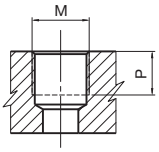


ROTAZIONE *DIRECTION* DREHRICHTUNG	**SINISTRA** ***LEFT*** **LINKS**

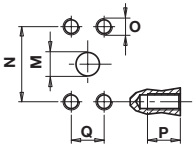
S	Aspirazione *Feeding pump inlet* Ansaugöffnung	**P**	Mandata *Output* Ausgang
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**LS(X)**	Pilotaggio *Pilot* Steuerdruck

BOCCHE
PORTS
ANSCHLÜSSE

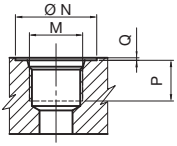
HP A6



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G2	1/4” GAS BSPP	17	12	0,47
G7	1” GAS BSPP	160	18	0,70



TIPO *TYPE* TYP	M		N		P		Q		O	
	mm	in	mm	in	mm	in	mm	in		Nm
N7	25	1	52,4	2,06	18	0,71	26,2	1,03	M10	38
N0	51	2	77,8	3,06	20	0,79	42,9	1,69	M12	70



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U2	1/4”	21	0,83	12	0,47	0,3	0,01	7/16-20 UNF	17
U7	1”	49	1,93	18	0,70	0,3	0,01	1-5/16-12 UNF	160

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

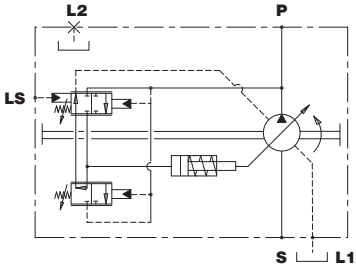
TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	P MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGIO *DRAIN* LECKÖLANSCHLUSS	LS(X) PILOTAGGIO *PILOT* STEUERDRUCK
S	**N0**	**N7**	**G7**	**G2**
N	**N0**	**N7**	**U7**	**U2**

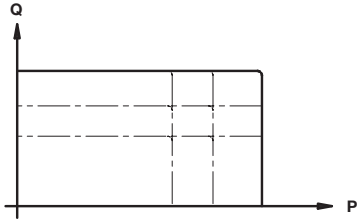
REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

L REGOLATORE DI PRESSIONE/PORTATA
PRESSURE/FLOW RATE REGULATOR
DRUCK-UND FORDERSTROM STROMPEGLER

REGOLATORE DI PORTATA
FLOW RATE REGULATOR
FORDERSTROM STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER





PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK		DIFFERENZIALE DI PRESSIONE Δp *PRESSURE DIFFERENTIAL Δp* DIFFERENZDRUCKANZEIGER Δp		
bar	**psi**	**14** bar - **203** psi	**21** bar - **305** psi	**25** bar - **363** psi
180	2610	A	B	C
210	3045	E	F	G
250	3625	I	L	M
280	4060	O	P	Q
320	4640	S	T	U
350	5075	Z	X	Y

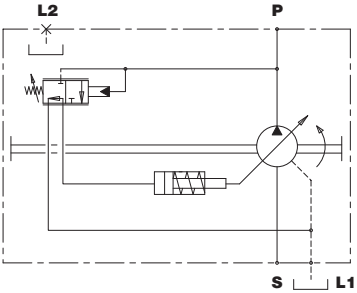
É necessario prevedere una valvola di massima pressione esterna tarata ad un valore superiore del 10% della taratura del regolatore di pressione della pompa.

An external relief valve set at 10% above the pump pressure regulator must always be provided.

Es muss ein externes Druckbegrenzungsventil vorgesehen werden, dessen Einstellungswert mehr als 10% über dem des Druckreglers der Pumpe liegen muss.

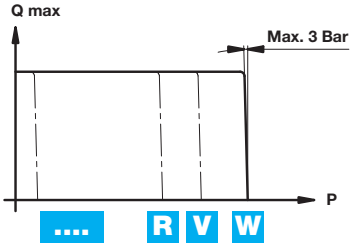
P REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER

REGOLATORE DI PRESSIONE
PRESSURE RATE REGULATOR
DRUCK STROMPEGLER



CURVA CARATTERISTICA DELLA POMPA CON REGOLATORE DI PRESSIONE
CHARACTERISTIC CURVE OF THE PUMP WITH PRESSURE REGULATOR
KENNLINIE DER PUMPE MIT DRUCKREGLER

PORTATA
FLOWRATE
FORDERSTROM

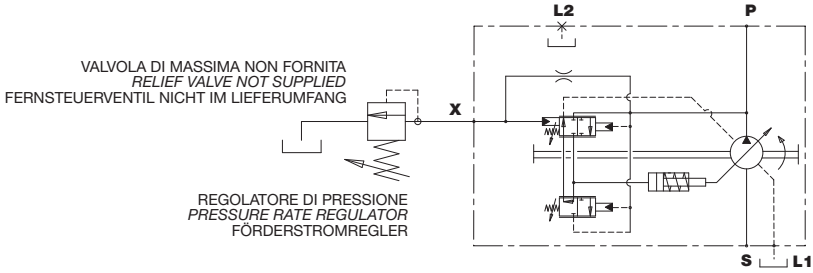


PRESSIONE DI ESERCIZIO
WORKING PRESSURE
BETRIEBSDRUCK

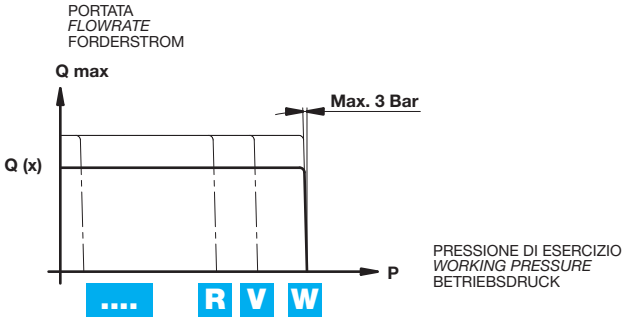
CODICE *CODE* BEST.- NR.	PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK	
	bar	psi
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	320	4640
W	350	5075

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG

R REGOLATORE DI PRESSIONE A CONTROLLO REMOTO
PRESSURE/FLOW RATE REGULATOR REMOTE CONTROLLED
DRUCK-UND FORDERSTROM STROMPEGLER FERNBEDIENUNG



CURVA CARATTERISTICA DELLA POMPA CON REGOLATORE DI PRESSIONE
CHARACTERISTIC CURVE OF THE PUMP WITH PRESSURE REGULATOR
KENNLINIE DER PUMPE MIT DRUCKREGLER



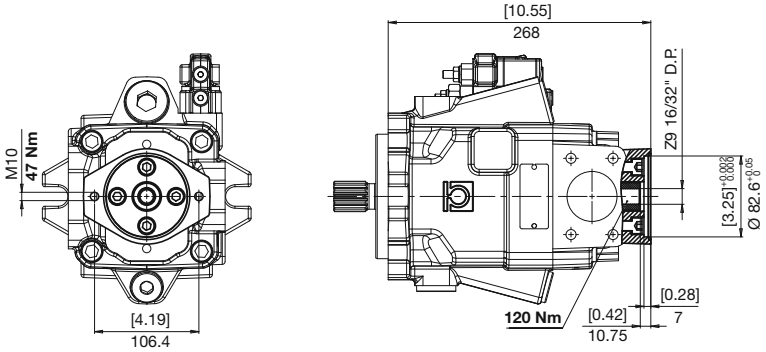
DIFFERENZIALE DI PRESSIONE 21 bar ***PRESSURE DIFFERENTIAL 21 bar*** **DIFFERENZDRUCK 21 bar**

CODICE *CODE* BEST.- NR.	PRESSIONE DI ESERCIZIO *WORKING PRESSURE* BETRIEBSDRUCK	
	bar	psi
D	180	2610
H	210	3045
N	250	3625
R	280	4060
V	320	4640
W	350	5075

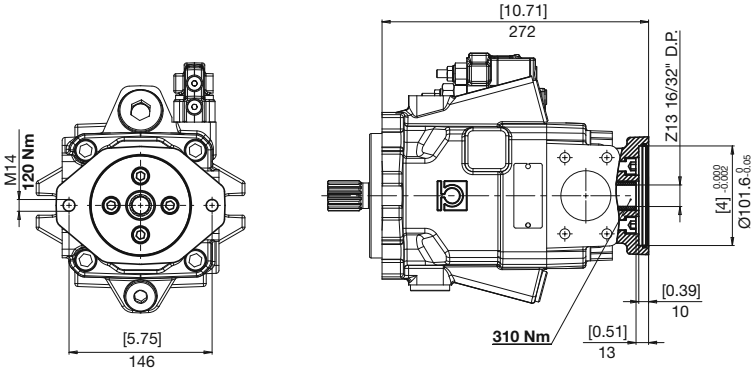
PREDISPOSIZIONI
VERSION
BAUART

HP A6

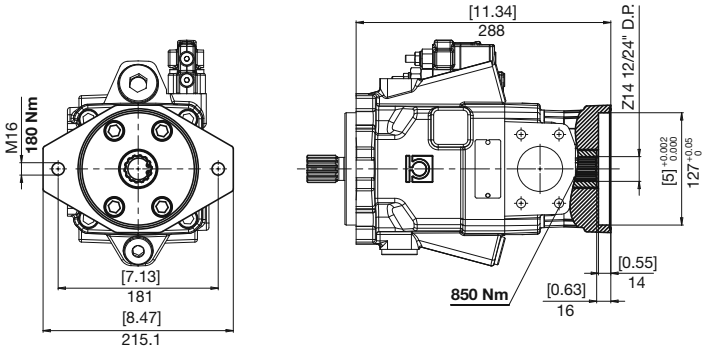
5 **SAE A**
SAE A
SAE A



6 **SAE B**
SAE B
SAE B



7 **SAE C**
SAE C
SAE C



ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HP	A6	090	R	E	3	S	L	A	0	...

PRODOTTO
PRODUCT
PRODUKT
A6 - Pompa a pistoni assiali per circuito aperto

A6 - *Open circuit axial piston pump*

A6 - Axialkolbenpumpen für den offenen kreislauf

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN
070 - 080 - 090

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG
R - Destra / *Right* / Rechts
L - Sinistra / *Left* / Links

FLANGIA
FLANGE
FLANSCHE
E - SAE C (2 Fori+4Fori)
SAE C (2 Holes+4 Holes)
SAE C (2 Boh.+4 Boh.)

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE
3 - Z14 12/24" DP

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

PREDISPOSIZIONI
VERSION
BAUART
0 - nessuna predisposizione
5 - SAE A
6 - SAE B
7 - SAE C

0 - *no special fittings*
5 - *SAE A*
6 - *SAE B*
7 - *SAE C*

0 - ohne Anschlußflansch
5 - SAE A
6 - SAE B
6 - SAE C

SET REGOLATORI
CONTROL SYSTEM SET
REGLERSET
Vedi tabella
See chart
Siehe Tabelle

REGOLAZIONI
CONTROL SYSTEMS
REGLEREINSTELLUNG
L - Regolatore di pressione/portata
Pressure/flow rate regulator
Druck-und forderstrom strompegler

P - Regolatore di pressione
Pressure rate regulator
Druck strompegler

R - Regolatore di pressione a controllo remoto
Pressure rate regulator remote controlled
Druck strompegler fernbedienung

BOCCHE
PORT
ANSCHLÜSSE
Vedi tabella
See chart
Siehe Tabelle

HP A6

POMPE MULTIPLE
MULTIPLE PUMPS
MEHRFACHPUMPEN

Il codice di ordinazione di una pompa multipla si ottiene sommando, come mostrato in esempio, i codici delle singole pompe (stadi) ricavati seguendo le regole di ordinazione delle pompe singole.

You build the ordering code of a multiple pump by summing the order code of the individual pumps, see our example.

Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

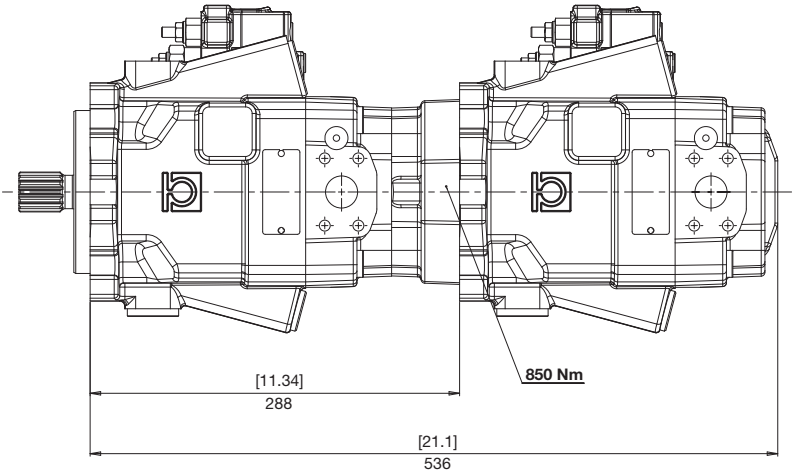
1° STADIO *STAGE* STUFE

2° STADIO *STAGE* STUFE

HP	A6	090	R	E	3	S	L	G	7	HP	A6	090	R	E	3	S	L	G	0

STADIO **ANTERIORE** POMPA HPA6
FRONT *PUMP HPA6*
VORDERE PUMPE HPA6

STADIO **POSTERIORE** POMPA HPA6
REAR *PUMP HPA6*
HINTERE PUMPE HPA6



HPA6+HPG2

VERSIONE INTEGRATA
INTEGRATED VERSION
PUMPENKOMBINATION

BONDIOLI & PAVESI
HP Hydraulic

Il codice di ordinazione di una versione integrata si ottiene sommando, come mostrato in esempio, i codici delle singole pompe (stadi) ricavati seguendo le regole di ordinazione delle pompe relative.

You build the ordering code of an integrated version by summing the order code of the individual pumps, see our example.

Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

1° STADIO *STAGE* STUFE — **2° STADIO *STAGE* STUFE**

HP	A6	090	R	E	3	S	L	G	P	HPG	2	14	G6G4	B	ST

PREDISPOSIZIONE STADIO INGRANAGGI IN GHISA HPG2

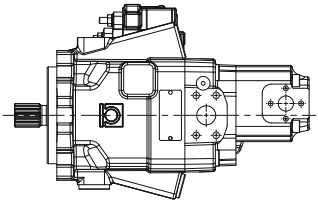
FITTING FOR CAST IRON GEAR PUMP HPG2

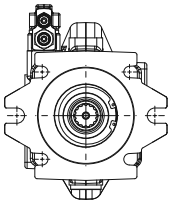
DURCHTRIEB FÜR GUSSZAHNRADPUMPE HPG2

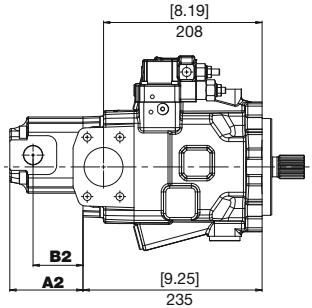
STADIO **POSTERIORE** POMPA HPG

***REAR** PUMP HPG*

HINTERE PUMPE HPG







TIPO *TYPE* TYP	A2		B2	
	mm	in	mm	in
05	48,3	1,90	27,3	1,07
06	51,0	2,01	30,0	1,18
08	55,5	2,19	34,5	1,36
11	60,0	2,36	39,0	1,54
14	69,0	2,72	37,0	1,46
17	73,5	2,89	41,5	1,63
20	78,0	3,07	46,0	1,81
26	87,5	3,44	57,0	2,24
31	96,0	3,78	65,5	2,58

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