POMPE A PISTONI ASSIALI PER CIRCUITO CHIUSO A CILINDRATA VARIABILE

VARIABLE DISPLACEMENT CLOSED CIRCUIT AXIAL PISTON PUMPS

AXIALKOLBENVERSTELLPUMPEN FÜR DEN GESCHLOSSENEN KREISLAUF

HM P1A

398SCP0053A01

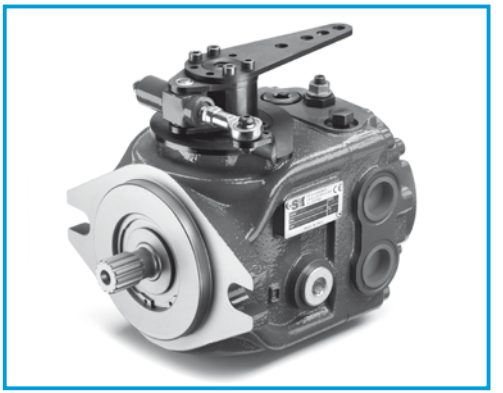
HM P1A

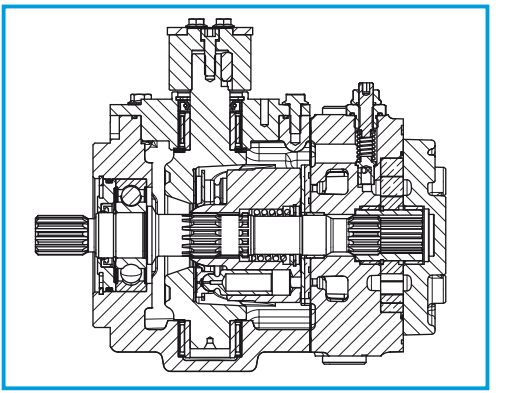
POMPE A PISTONI ASSIALI A CILINDRATA VARIABILE
VARIABLE DISPLACEMENT AXIAL PISTON PUMPS
AXIALKOLBENVERSTELLPUMPEN

Le pompe a pistoni assiali serie HM P1A sono state concepite per operare in circuito chiuso.
I vari sistemi di comando disponibili le rendono facilmente adattabili alle esigenze applicative sia per il settore industriale che per quello del mobile in generale.
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 consentite dai moderni motori diesel, garantendo una elevata affidabilità per pressioni di funzionamento fino a 350 bar di picco.
Le pompe possono essere composte in versione tandem, utilizzando le opportune predisposizioni disponibili a richiesta.

Axial piston pumps series HM P1A have been designed to operate in a closed circuit.
The available control systems make it easy to use these pumps in any application for industrial and mobile fields.
Development of rotating groups, especially designed, united to an accurate study of oil passage sections, allow high speed rotation, like required by modern diesel engines, giving extreme reliability for working peak pressure up to 350 bar.
It is possible to couple tandem versions, by means of coupling flanges optionally available.

Die Axialkolbenpumpen der Serie HM P1A wurden für den Betrieb im geschlossenen Kreislauf konzipiert.
Die verschiedenen lieferbaren Steuerungssysteme eignen sich sowohl für stationäre als auch für mobile Anwendungen im Allgemeinen.
Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen ermöglichen, wie von modernen Antriebsaggregaten gefordert, den Einsatz bei hohen Pumpendrehzahlen, wobei ein kontinuierlicher Arbeitsdruck mit einem Spitzenwert von 350 Bar gewährleistet ist.
Unter Anwendung der auf Anfrage erhältlichen Anbauflansche können die Pumpen in der Tandemversion geliefert werden.





DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN		PRESSIONE *PRESSURE* DRUCK						VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
			CONTINUA *CONTINUOUS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
	cm^3	in^3	bar	psi	bar	psi	bar	psi	min^{-1}	min^{-1}	kg	lbs
HM P1A	17	1,04	280	4060	300	4350	350	4568	3600	500	15,70	34,50
	19	1,16	280	4060	300	4350	350	4568	3600	500	15,70	34,50
	21	1,28	280	4060	300	4350	350	4568	3600	500	15,70	34,50
	22	1,34	280	4060	300	4350	350	4568	3600	500	15,90	35
	23	1,40	280	4060	300	4350	350	4568	3600	500	15,90	35
	25	1,53	280	4060	300	4350	350	4568	3600	500	15,90	35
	28	1,71	280	4060	300	4350	320	4640	3600	500	15,90	35

PRESSIONE CONTINUA: pressione media del normale range di pressioni di funzionamento
PRESSIONE INTERMITTENTE: pressione che può essere mantenuta per periodi brevi (circa il 10% del ciclo di lavoro)
PRESSIONE DI PICCO: pressione massima permessa regolata dalle valvole di max.(max. 1-2% del ciclo di lavoro)

CONTINUOUS PRESSURE: average pressure of the normal operating pressure range
INTERMITTENT PRESSURE: pressure that can be maintained for short periods (for about 10% of the work cycle)
PEAK PRESSURE: maximum allowable pressure regulated by maximum relief valves (max 1-2% of the work cycle)

KONTINUIERLICHER DRUCK: durchschnittlicher Druck der normalen Betriebsdruckreihe
INTERMITTIERENDER DRUCK: Druck, der für kurze Zeitabschnitte beibehalten werden kann (etwa 10% des Betriebszyklus)
SPITZENDRUCK: zugelassener Höchstdruck, von den Höchstdruckventilen geregelt (max. 1-2% des Betriebszyklus)

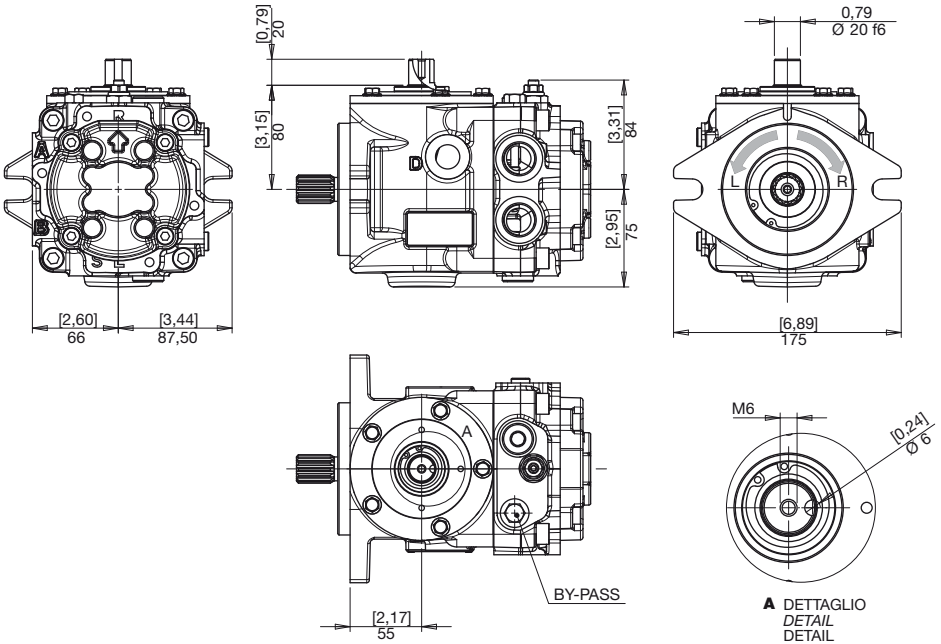
POMPA DI ALIMENTAZIONE
BOOST PUMP
SPEISEPUMPE

HM P1A	CILINDRATA *DISPLACEMENT* FORDERVOLUMEN		PRESSIONE *PRESSURE* DRUCK	
	cm³	in³	bar	psi
	10	0.61	20	290

MOMENTO POLARE DI INERZIA
INERTIAL MASS
TRÄGHEITSMOMENT

approx. 8,5 x 10^{-4} Kg·m²

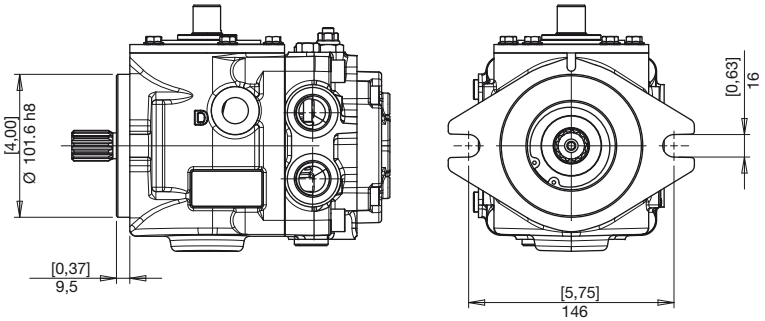
DIMENSIONI
SIZE
ABMESSUNGEN



FLANGE
FLANGES
FLANSCHE

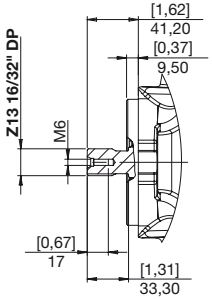
HM P1A

B SAE B
SAE B
SAE B

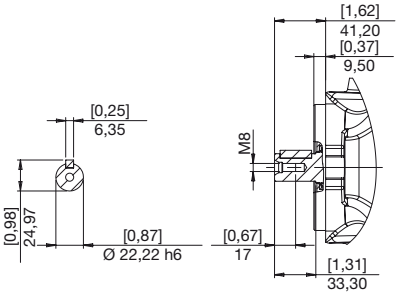


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

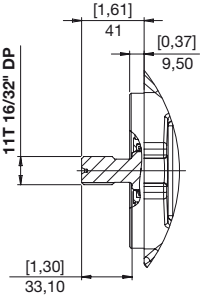
9 COPPIA MAX
MAX TORQUE 290 N•m
MAX DREHMOMENT



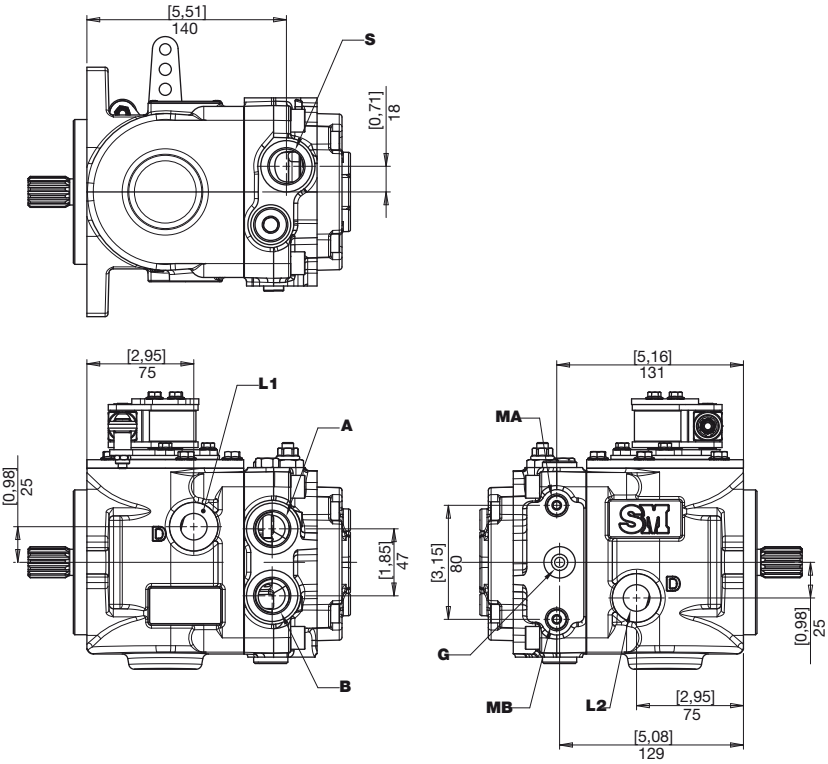
J COPPIA MAX
MAX TORQUE 220 N•m
MAX DREHMOMENT



X COPPIA MAX
MAX TORQUE 150 N•m
MAX DREHMOMENT



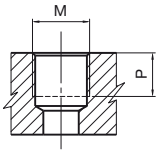
BOCCHE
PORTS
ANSCHLÜSSE



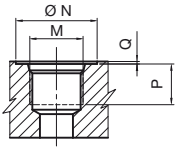
A **B**	Utilizzi *Use* Verbraucher	**G**	Presa bassa pressione *Test port boost pressure* Messanschluß Speisedruck
L1 **L2**	Drenaggi *Drain* Leckölanschluss	**MA** **MB**	Presa alta pressione *Test port high pressure* Messanschluß Hochdruck
S	Aspirazione *Feeding pump inlet* Ansaugöffnung		

BOCCHE
PORTS
ANSCHLÜSSE

HM P1A



TIPO *TYPE* TYP	M		P mm	P in
G1	1/8” GAS BSPP	8	8	0,31
G2	1/4” GAS BSPP	17	9	0,35
G4	1/2” GAS BSPP	70	14,5	0,57
G6	3/4” GAS BSPP	90	19	0,75



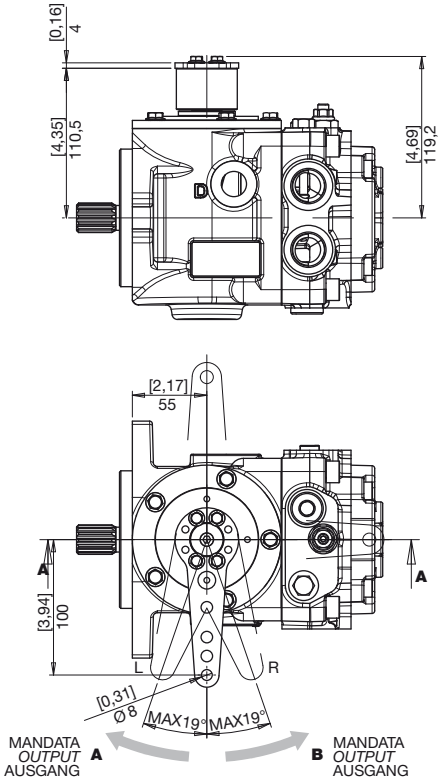
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GROSSE	N mm	N in	P mm	P in	Q mm	Q in	M	M
U2	1/4”	20	0,79	12	0,47	0,3	0,01	7/16-20 UNF	17
U5	5/8”	34	1,34	18	0,71	0,3	0,01	3/4-16 UNF	70
U6	3/4”	41	1,61	20	0,79	0,3	0,01	1-1/16”-12 UNF	90

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

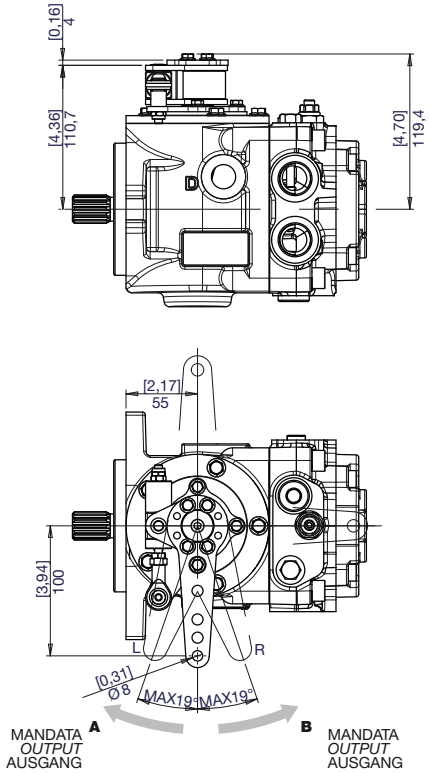
TIPO *TYPE* TYP	S ASPIRAZIONE *INLET* SAUGSEITE	A - B MANDATA *OUTLET* AUSGANG	L1 - L2 DRENAGGI *DRAIN* LECKÖLANSCHLUSS	PRESE PRESSIONE *PRESSURE INTAKE* DRUCKANSCHLÜSSE MA-MB	G
G	G6	G6	G4	G1	G2
U	U6	U6	U5	G1	U2

COMANDI
CONTROLS
STEUERUNGEN

L MANUALE SENZA AZZERATORE
MANUAL WITHOUT ZEROING
MANUELL OHNE NULLSTELLUNG

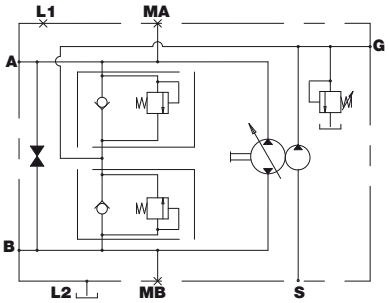


M MANUALE CON AZZERATORE
MANUAL WITH ZEROING
MANUELL MIT NULLSTELLUNG



L M

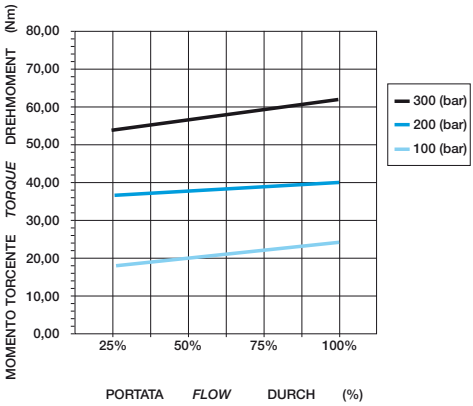
ROTAZIONE *DIRECTION* DREHRICHTUNG	POSIZIONE LEVA *LEVER POSITION* HEBELSTELLUNG	MANDATA *OUTPUT* AUSGANG	ASPIRAZIONE *SUCTION* SAUGSEITE
DESTRA *RIGHT* RECHTS	R	A	B
	L	B	A
SINISTRA *LEFT* LINKS	R	B	A
	L	A	B



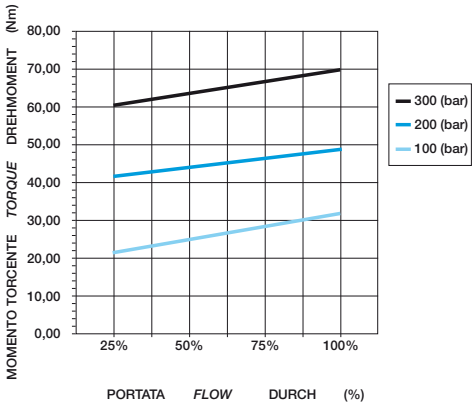
MOMENTI TORCENTI LEVA DI COMANDO
TORQUE FOR CONTROL PIN ACTUATION
DREHMOMENT FÜR SCHWENKWINKELVERSTELLUNG

HM P1A

L MANUALE SENZA AZZERATORE
MANUAL WITHOUT ZEROING
MANUELL OHNE NULLSTELLUNG



M MANUALE CON AZZERATORE
MANUAL WITH ZEROING
MANUELL MIT NULLSTELLUNG

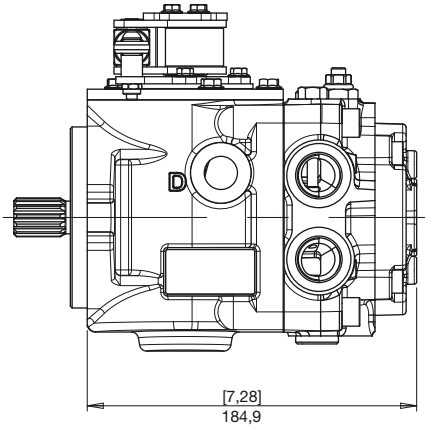


PREDISPOSIZIONI
VERSION
BAUART

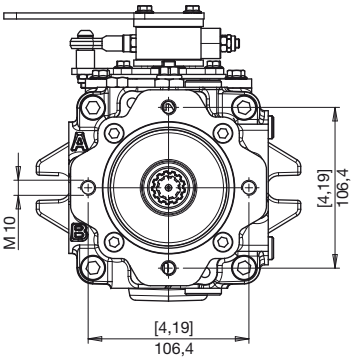
HM P1A

0 NESSUNA PREDISPOSIZIONE SENZA POMPA DI ALIMENTAZIONE
NO AUXILIARY MOUNT WITHOUT CHARGE PUMP
OHNE ANSCHLUSSFLANSCH OHNE SPEISEPUMPE

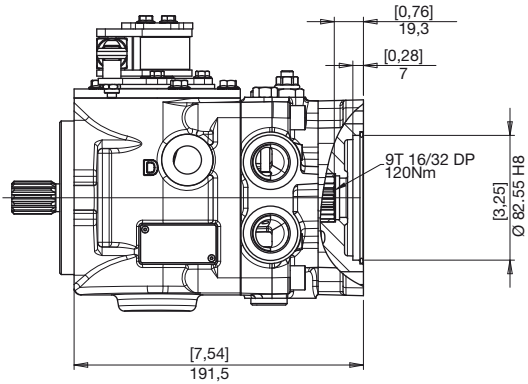
1 NESSUNA PREDISPOSIZIONE CON POMPA DI ALIMENTAZIONE
NO AUXILIARY MOUNT WITH CHARGE PUMP
OHNE ANSCHLUSSFLANSCH MIT SPEISEPUMPE



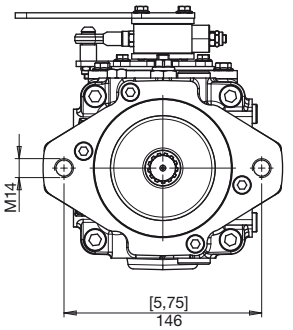
2 SAE A CON POMPA SOVRALIMENTAZIONE
SAE A WITH CHARGE PUMP
SAE A MIT SPEISEPUMPE



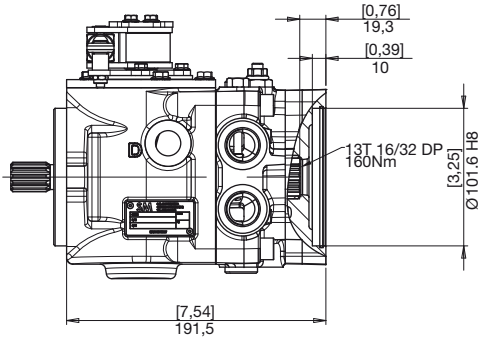
5 SAE A SENZA POMPA SOVRALIMENTAZIONE
SAE A WITHOUT CHARGE PUMP
SAE A OHNE SPEISEPUMPE



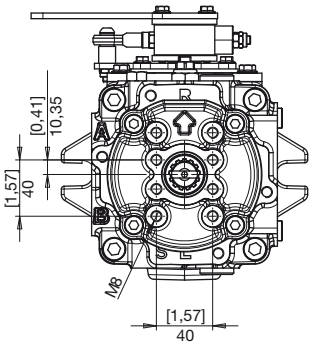
3 SAE B CON POMPA SOVRALIMENTAZIONE
SAE B WITH CHARGE PUMP
SAE B MIT SPEISEPUMPE



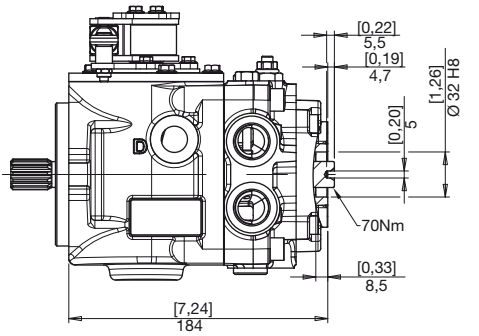
6 SAE B SENZA POMPA SOVRALIMENTAZIONE
SAE B WITHOUT CHARGE PUMP
SAE B OHNE SPEISEPUMPE



8 POMPA INGR. GR 1 CON POMPA SOVRALIMENTAZIONE
GEAR PUMP GR 1 WITH CHARGE PUMP
ZAHNRADPUMPE GR 1 MIT SPEISEPUMPE

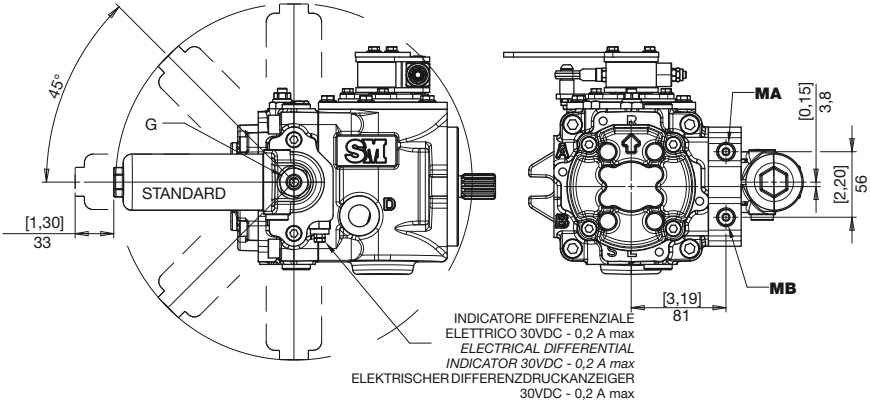


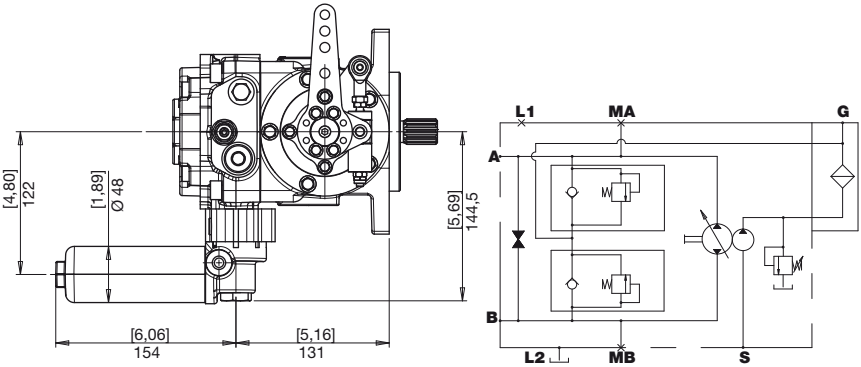
9 POMPA INGR. GR 1 SENZA POMPA SOVRALIMENTAZIONE
GEAR PUMP GR 1 WITHOUT CHARGE PUMP
ZAHNRADPUMPE GR 1 OHNE SPEISEPUMPE



ACCESSORI
ACCESSORIES
ZUBEHÖR

X **FILTRO CON INDICATORE DI INTASAMENTO ELETTRICO**
FILTER WITH ELECTRIC CLOGGING INDICATOR
FILTER MIT ELEKTRISCHEM VERSTOPFUNGSANZEIGER

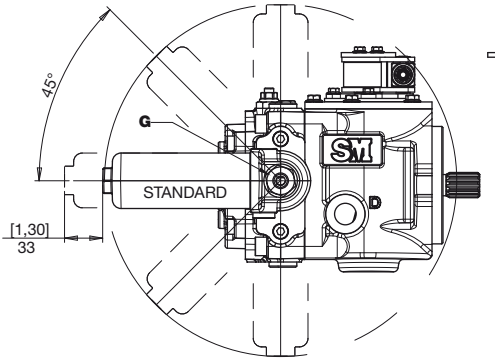


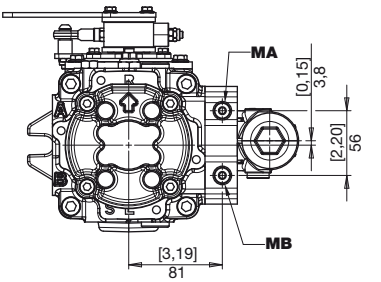


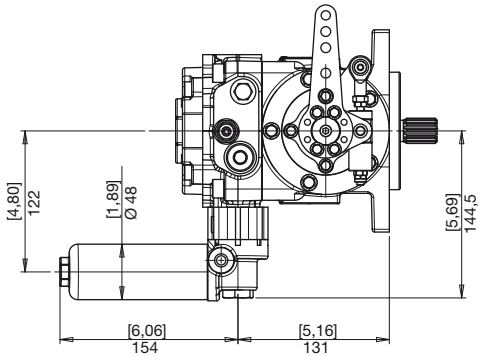
G	Presa olio filtrato *Filtered oil intake* Anschluss filtriertes Öl	G 1/4" BSPP 7/16-20 UNF
MA **MB**	Presa alta pressione *Test port high pressure* Messanschluß Hochdruck	G 1/8" BSPP

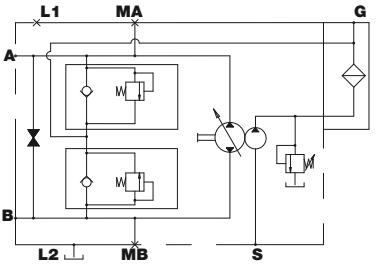
È possibile richiedere il filtro ruotato ad intervalli di 45°
You can ask the filter rotated at intervals of 45°
Sie können den Filter bei 45 ° -Schritten gedreht gelten

Y FILTRO SENZA INDICATORE DI INTASAMENTO
FILTER WITHOUT ELECTRIC CLOGGING INDICATOR
FILTER OHNE ELEKTRISCHEN VERSTOPFUNGSANZEIGER









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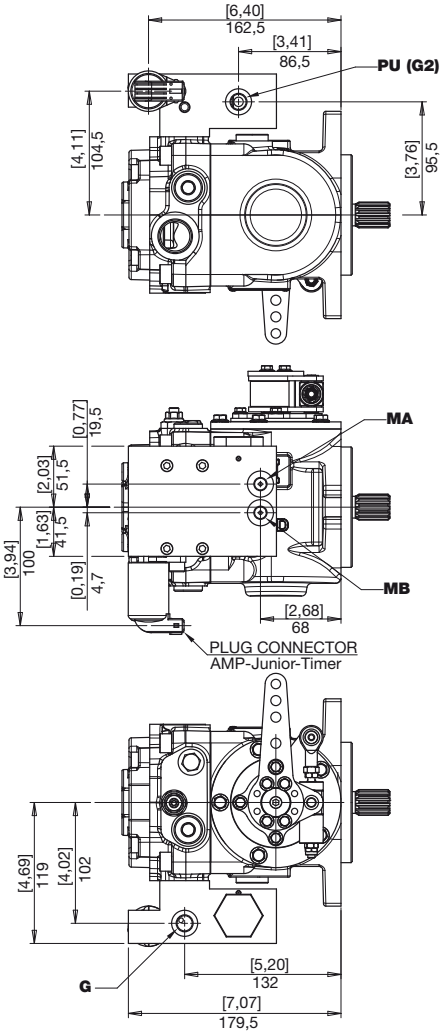
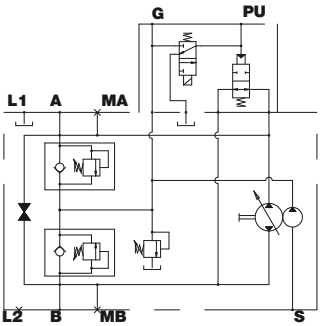
You can ask the filter rotated at intervals of 45°
Sie können den Filter bei 45 ° -Schritten gedreht gelten

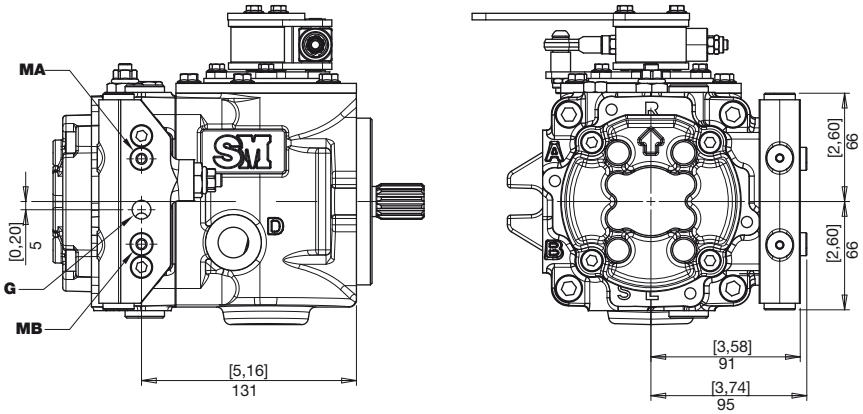
W VALVOLA BY-PASS + SBLOCCO FRENO
BY-PASS VALVE + BRAKE RELEASE
BY-PASS VENTIL + BREMSE LÖSEN

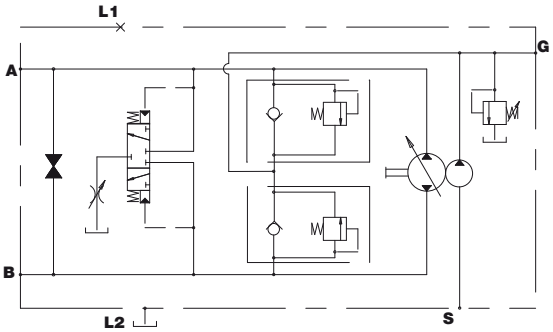




PU	Pilotaggio sblocco freno *Brake opening pressure* Bremse offnung druck

V VALVOLA DI FLUSSAGGIO
FLUSHING AND BOOST VALVE
SPUL- UND SPEISEDRUKVENTIL





ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HM P1A A 17 R S J G L B A 1 0 ...

PRODOTTO
PRODUCT
PRODUKT

SERIE
SERIES
SERIE

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

17 = 17 cc **23** = 23 cc
19 = 19 cc **25** = 25 cc
21 = 21 cc **28** = 28 cc
22 = 22 cc

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

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

S - Pompa singola / *Single pump* / Einzelne Pumpe
C - Pompa post. Tandem / *Tandem rear pump* / Hintere Tandem-Pumpe

ESTREMITÀ D'ALBERO
SHAFT PROFILE
WELLENENDE

J - Ø 22,22
9 - SAE 13T 16/32" DP
X - SAE 11T 16/32" DP

BOCCHE
PORTS
ANSCHLÜSSE

G - Gas
U - UNF

COMANDO ***CONTROL*** **STEUERUNG**

L - Manuale senza azzeratore
M - Manuale con azzeratore (Molla Standard)
B - Manuale con azzeratore (Molla Soft)
A - Manuale con azzeratore (Molla Hard)
C - Manuale con azzeratore (Molla Extra Hard)

L - *Manual without zeroing*
M - *Manual with zeroing (Standard spring)*
B - *Manual with zeroing (Soft spring)*
A - *Manual with zeroing (Hard spring)*
C - *Manual with zeroing (Extra Hard spring)*

L - Manuell ohne Nullstellung
M - Manuell mit Nullstellung (Feder Standard)
B - Manuell mit Nullstellung (Feder Soft)
A - Manuell mit Nullstellung (Feder Hard)
C - Manuell mit Nullstellung (Feder Extra Hard)

TARATURA VALVOLE
VALVE SETTING
VENTILE

B - 150 bar **I** - 280 bar
D - 180 bar **L** - 300 bar
E - 210 bar **M** - 320 bar
G - 250 bar **O** - 350 bar

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

ACCESSORI ***ACCESSORIES*** **ZUBEHÖR**

0 - nessuno
V - Valvola di flussaggio
U - Valvola di flussaggio taratura fissa
W - Valvola by-pass+ sblocco freno
X - filtro con indicatore di intasamento
Y - filtro senza indicatore di intasamento

0 - no accessories
V - Flushing and boost valve
U - Flushing and boost valve fixed setting
W - By-pass valve+ brake release
X - filter with electric clogging indicator
Y - filter without electric clogging indicator

0 - Ohne Zubehör
V - Spül- und speisedrunkventil
U - Spül- und speisedrunkventil
W - By-pass ventil + bremse lösen
X -Filter mit Verstopfungsanzeiger
Y - Filter ohne Verstopfungsanzeiger

PREDISPOSIZIONI ***VERSION*** **BAUART**

0 - nessuna, senza pompa di alimentazione
1 - nessuna, con pompa di alimentazione
5 - SAE A, senza pompa di alimentazione
2 - SAE A, con pompa di alimentazione
6 - SAE B, senza pompa di alimentazione
3 - SAE B, con pompa di alimentazione
9 - GR1, senza pompa di alimentazione
8 - GR1, con pompa di alimentazione

0 - *No auxiliary mount without charge pump*
1 - *No auxiliary mount with charge pump*
5 - *SAE A mounting without charge pump*
2 - *SAE A mount with charge pump*
6 - *SAE B mounting without charge pump*
3 - *SAE B mount with charge pump*
9 - *GR1 mount without charge pump*
8 - *GR1 mount with charge pump*

0 - Ohne Anschlussflansch, ohne Speisepumpe
1 - Ohne Anschlussflansch, mit Speisepumpe
5 - SAE A-Anschlussflansch, ohne Speisepumpe
2 - SAE A -Anschlussflansch, mit Speisepumpe
6 - SAE B-Anschlussflansch, ohne Speisepumpe
3 - SAE B -Anschlussflansch, mit Speisepumpe
9 - GR1 ohne Speisepumpe
8 - GR1 mit Speisepumpe

TIPO DI OSCILLANTE
SWASHPLATE TYPE
SCHWENKSCHEIBENLAGERUNG

A = oscillante su rullini
B = oscillante su bronzine

A = *mounted on needle bearing*
B = *mounted on bronze bearings*

A = Rollengelagert
B = Bronze-Gleitgelagert

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.

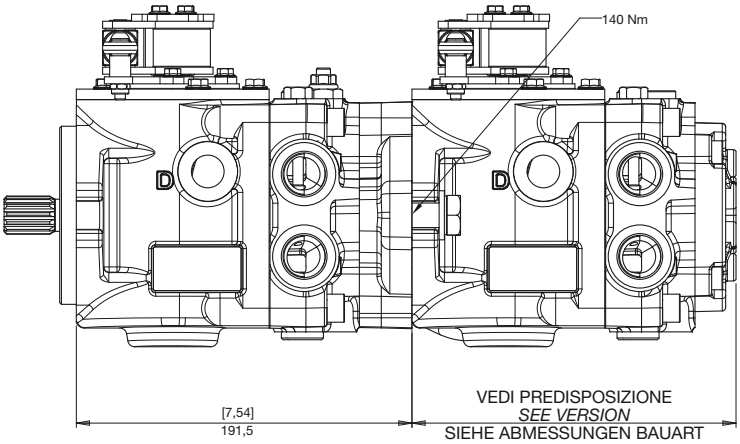
You build the ordering code of a multiple pump by summing the order code of the individual pumps, see our example.

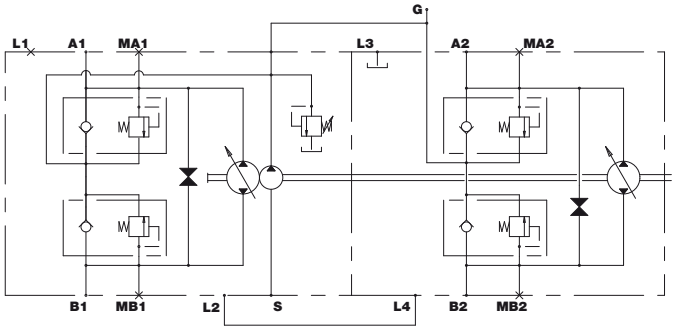
Der Bestellschlüssel einer Mehrfachpumpe ergibt sich durch Summieren der Einzel-Bestellschlüssel, siehe Beispiel.

1° STADIO ***STAGE*** **STUFE**

2° STADIO ***STAGE*** **STUFE**

HM	P1A	A	21	R	S	9	G	M	G	B	3	0	HM	P1A	A	21	R	C	9	G	M	G	B	0	0





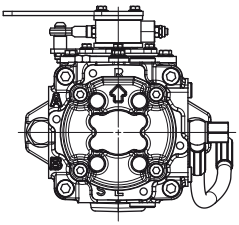
Nelle pompe tandem con una pompa di sovralimentazione è obbligatorio installare nell'impianto un tubo di collegamento (non fornito) tra un drenaggio del primo stadio ed un drenaggio del secondo stadio.

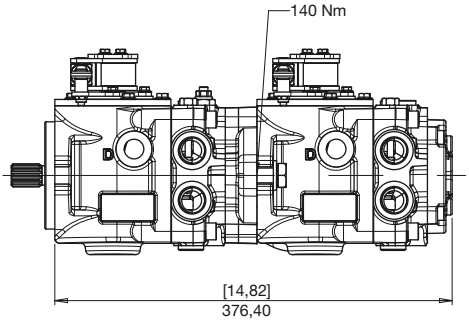
In the tandem pumps with one boost pump it is mandatory to assemble in the plant a connecting pipe (not supplied) between a drain of the first stage and a drain of the second one.

Bei den Tandempumpen mit einer Verstärkerpumpe muss in der Anlage ein Verbindungsrohr (nicht beigestellt) zwischen einer Drainage der ersten Stufe und einer Drainage der zweiten Stufe installiert werden.

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

HM	P1A	A	21	R	S	9	G	M	G	B	3	0	HM	P1A	A	21	R	C	9	G	M	G	B	0	0

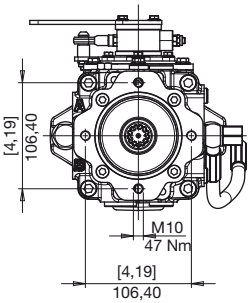


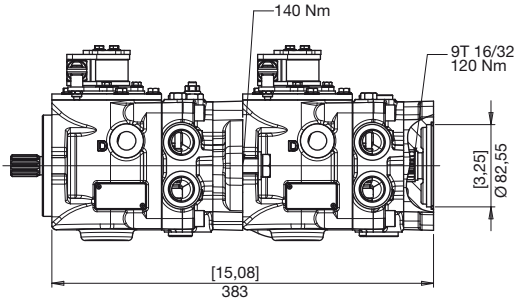


1° STADIO *STAGE* STUFE — 2° STADIO *STAGE* STUFE

HM	P1A	A	21	R	S	9	G	M	G	B	3	0	HM	P1A	A	21	R	C	9	G	M	G	B	5	0

SAE A





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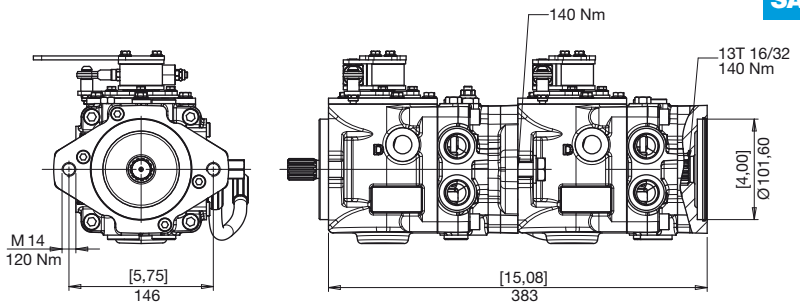
1° STADIO *STAGE* STUFE — 2° STADIO *STAGE* STUFE

HM	P1A	A	21	R	S	9	G	M	G	B	3	0	HM	P1A	A	21	R	C	9	G	M	G	B	0	0

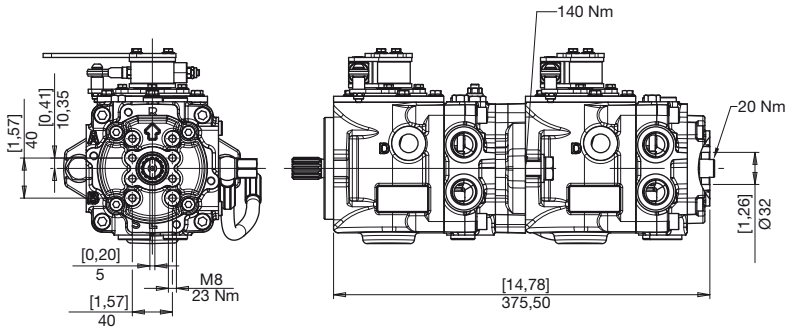
SAE B



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

HM	P1A	A	21	R	S	9	G	M	G	B	3	0	HM	P1A	A	21	R	C	9	G	M	G	B	9	0

GR1



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