



**POMPE A PISTONI ASSIALI PER CIRCUITO
CHIUSO A CILINDRATA VARIABILE**

***VARIABLE DISPLACEMENT
CLOSED CIRCUIT AXIAL PISTON PUMPS***

**AXIALKOLBENVERSTELLPUMPEN
FÜR DEN GESCHLOSSENEN KREISLAUF**

**HP P4
34.46.50.58.65**

398SCP0103A00

HP P4

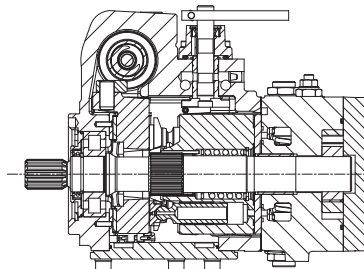
POMPE A PISTONI ASSIALI A CILINDRATA VARIABILE VARIABLE DISPLACEMENT AXIAL PISTON PUMPS AXIALKOLBENVERSTELLPUMPEN

Le pompe a pistoni assiali serie HP P4 sono state concepite per operare in circuito chiuso per impieghi a media pressione. 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. Per una migliore risposta al comando le pompe HP P4 vengono normalmente fornite con oscillante su cuscinetti a rulli. A richiesta sono fornibili su bronzine a sostentamento idrostatico. 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 300 bar in continuo (400 bar di picco). Le pompe possono essere composte in versione tandem, utilizzando le opportune predisposizioni disponibili a richiesta.

The HP P4 series axial piston pumps have been designed to work in a closed circuit both for application at medium pressure. Control systems actually available are making easy to use these pumps in any application for industrial and mobile field. Typically the pumps HP P4 are equipped with roller bearings for the swash plate suspension. Alternatively there are bronze bearings for hydrostatic suspension of the swash plate available on request. 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 continuous pressure until 400 bar. It is possible to couple tandem versions, by means of coupling flanges optionally available.

Die Axialkolbenpumpen der Serie HP P4 sind sowohl im offenen als auch im geschlossenen Kreislauf einsetzbar. Durch die lieferbaren unterschiedlichen Steuerungssysteme eignen sie sich sowohl für stationäre als auch für mobile Anwendungen. Für eine bessere Verstellodynamik wird die Pumpe HP P4 normalerweise mit einer Rollenlagerung für die Schwingscheibenverstellung ausgestattet. Auf Anfrage kann die Pumpe aber auch mit hydrostatischen Bronze-Gleitlagern ausgestattet werden. Speziell entwickelte Zylinderblöcke mit optimalen Saugverhältnissen erlauben den Einsatz bei hohen Pumpendrehzahlen, wie von modernen Antriebsaggregaten gefordert. Dabei ist ein kontinuierlicher Betriebsdruck von bis zu 400 Bar und ein Spitzenwert von 450 Bar für die Serie HP P4 gewährleistet. Die Pumpen können in der Tandemversion mit auf Wunsch erhältlichen Flanschanschlüssen geliefert werden.

HP P4 34.46.50.58.65



DATI TECNICI TECHNICAL DATA TECHNISCHE MERKMALE

GRUPPO GROUP BAUREIHE	CILINDRATA TEORICA NOMINAL DISPLACEMENT FORDERVOLUMEN (TM)		OSCILLANTE SWASHPLATE SCHWENKWINKEL °	CONTINUA CONTINUOUS DAUER		PRESSIONE PRESSURE DRUCK		PICCO PEAK SPITZEN	VELOCITÀ DI ROTAZIONE SPEED DREHZAHL MAX MIN		MASSA WEIGHT GEWICHT		
	cm ³	in ³		bar	psi	bar	psi		bar	psi	min ⁻¹	min ⁻¹	kg
HP P4	34	2,08	18	300	4350	380	5075	400	5800	3800	500	28,8	63,37
	46	2,81	19	300	4350	380	5075	400	5800	3800	500	28,8	63,37
	50	3,05	18	300	4350	380	5075	400	5800	3800	500	31,0	68,21
	58	3,54	18	250	3625	320	4640	400	5800	3600	500	33,2	73,05
	65	3,97	18	250	3625	320	4640	400	5800	3600	500	33,2	73,05

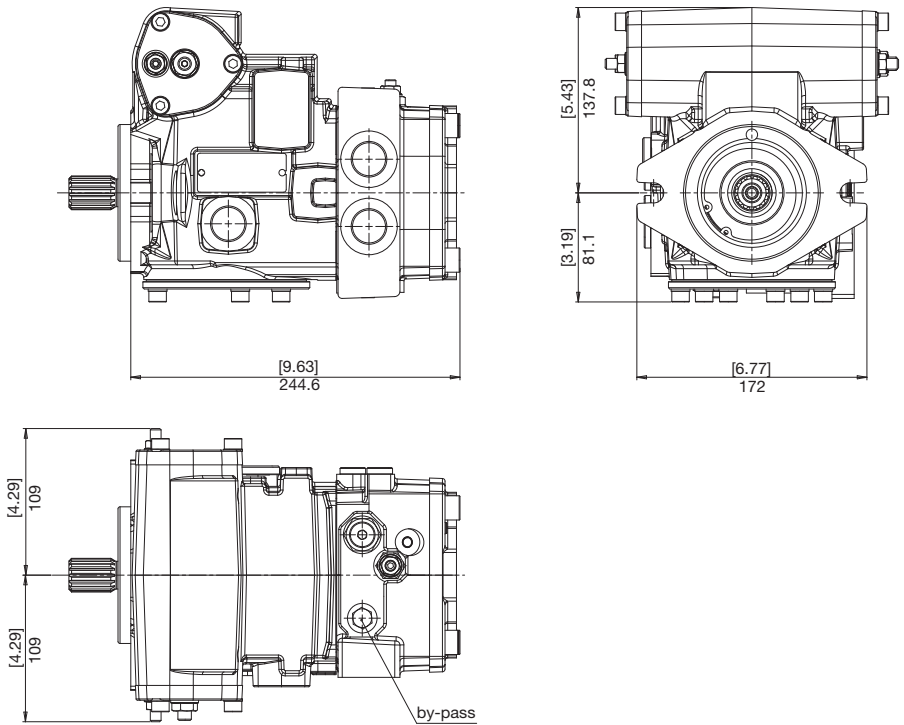
POMPA DI ALIMENTAZIONE BOOST PUMP SPEISEPUMPE

TIPO TYPE TYP	CILINDRATA STANDARD POMPA DI ALIMENTAZIONE BOOST PUMP STANDARD DISPLACEMENT FORDERVOLUMEN STANDARD SPEISEPUMPE		PRESSIONE PRESSURE DRUCK	
	cm ³	in ³		bar
HPP4 034	14	0,86	22	319
HPP4 046	14	0,86	22	319
HPP4 050	14	0,86	22	319
HPP4 058	16	0,98	22	319
HPP4 065	16	0,98	22	319

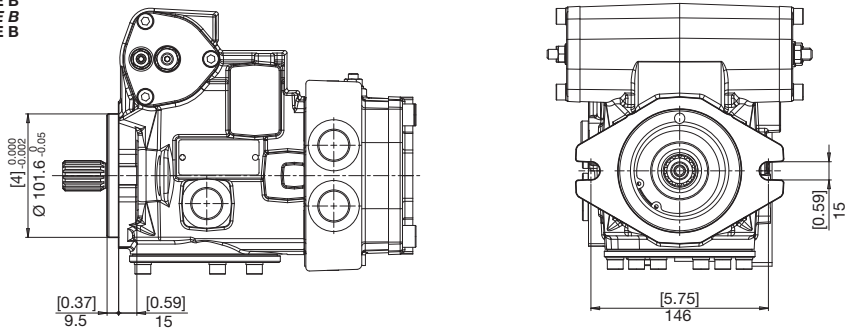


**DIMENSIONI
SIZE
ABMESSUNGEN**

HP P4

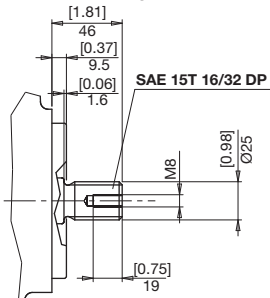


B SAE B
SAE B
SAE B

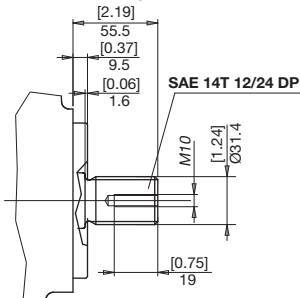


ESTREMITÀ ALBERI
SPLINE SHAFTS
WELLENPROFILE

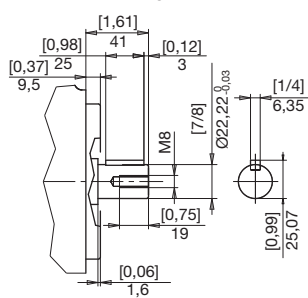
1 COPPIA MAX
MAX TORQUE
MAX DREHMOMENT 460 N•m



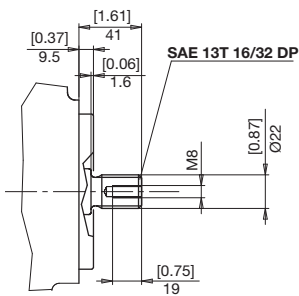
3 COPPIA MAX
MAX TORQUE
MAX DREHMOMENT 850 N•m



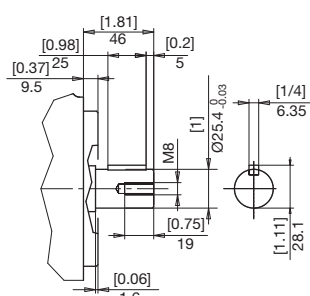
6 COPPIA MAX
MAX TORQUE
MAX DREHMOMENT 210 N•m



9 COPPIA MAX
MAX TORQUE
MAX DREHMOMENT 310 N•m



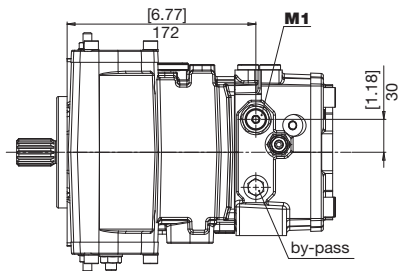
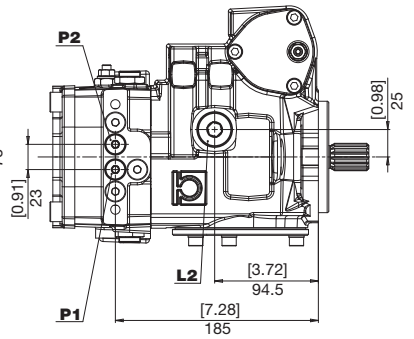
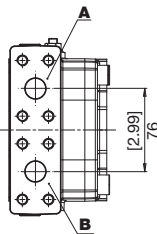
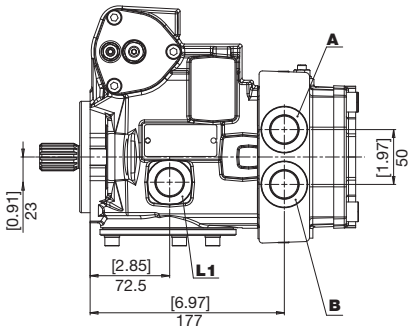
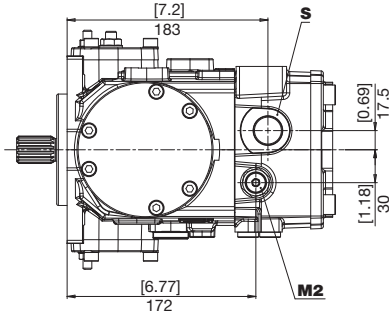
B COPPIA MAX
MAX TORQUE
MAX DREHMOMENT 285 N•m





**BOCCHIE
PORTS
ANSCHLÜSSE**

HP P4



A Utilizzo
B Use
Verbraucher

P1 Presa pressione
P2 Pressure intake
Druckanschluss

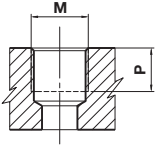
L1 Drenaggio
L2 Drain
Leckölanschluss

M1 Presa manometro
M2 Manometer intake
Manometersanschluss

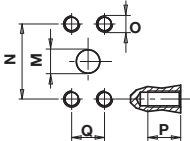
S Aspirazione
Feeding pump inlet
Ansaugöffnung

**BOCCE
PORTS
ANSCHLÜSSE**

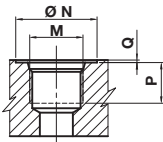
HP P4



TIPO TYPE TYP		M		P	
		Nm	mm	in	
G2	Port ISO 1179-1 - G 1/4	17	12		0,47
G6	Port ISO 1179-1 - G 3/4	90	15		0,59



TIPO TYPE TYP	M		N		Q		P		O	
	mm	in	mm	in	mm	in	mm	in	M10	Nm
N6	19	0,75	50,8	2	23,8	0,94	20	0,79	M10	38



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	Port ISO 1196-1-7/16-20	17
U6	3/4"	42	1,65	18	0,70	0,3	0,01	Port ISO 1196-1-1/16-12	90

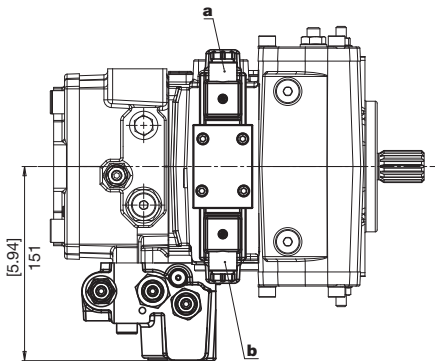
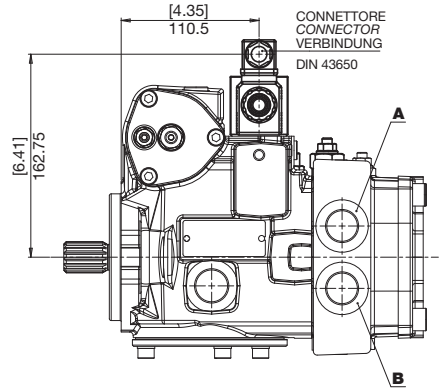
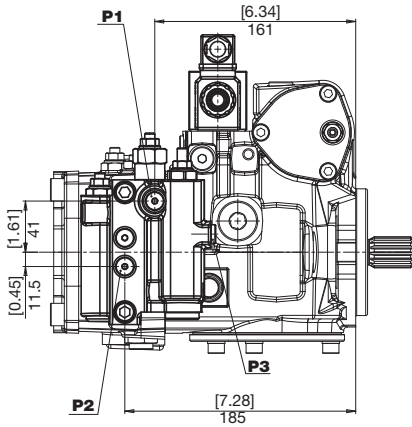
**COMBINAZIONI
COMBINATIONS
KOMBINATIONEN**

TIPO TYPE TYP	S ASPIRAZIONE INLET SAUGSEITE	A - B MANDATA OUTLET AUSGANG	L1 - L2 DRENAGGIO DRAIN LECKÖLANSCHLUSS	a - b PILOTAGGIO PILOT STEUERDRUCK	P1 - P2 PRESE PRESSIONE PRESSURE INTAKE DRUCKANSCHLUSS	M1 - M2 PRESE MANOMETRO MANOMETER INTAKE MANOMETER- ANSCHLUSS
G	G6	G6	G6	G2	G2	G2
U	U6	U6	U6	U2	G2	U2
N	G6	N6	G6	G2	G2	G2
M	U6	N6	U6	U2	G2	U2

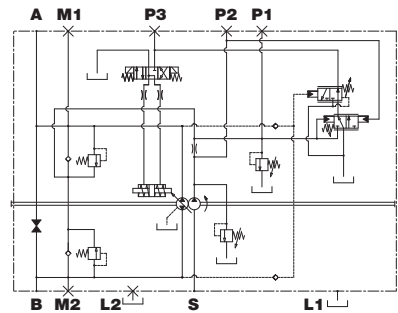
**COMANDI
CONTROLS
STEUERUNGEN**

HP P4

A AUTOMOTIVE
AUTOMOTIVE
AUTOMOTIVE
12 V



ROTAZIONE DIRECTION DREHRICHTUNG	SOLENOIDE IN TENSIONE EXCITED SOLENOID SOLENOID UNTER SPANNUNG	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	A
SINISTRA LEFT LINKS	b	B
	a	B
	b	A

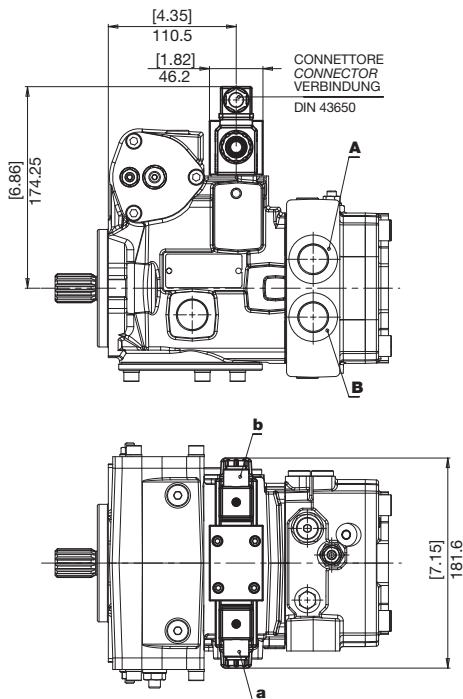


POMPA DI ALIMENTAZIONE 14cc PER TUTTE LE CILINDRATE
14cc BOOST PUMP FOR THE WHOLE DISPLACEMENT RANGE
SPEISEPUMPE 14cc FÜR ALLE FORDERVOLUMEN

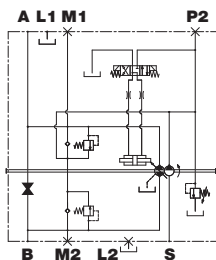
E F

ELETRICO ON/OFF CENTRO CHIUSO
ELECTRICAL ON/OFF, CLOSED CENTER
ELEKTRISCH ON/OFF, GESCHLOSSENES VENTIL

12 V 24 V



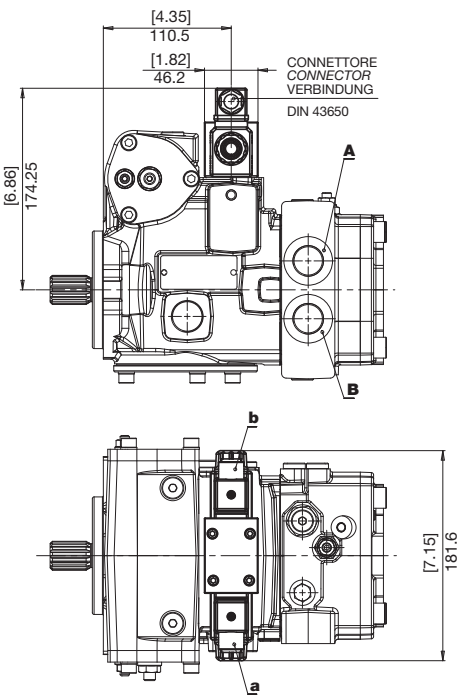
ROTAZIONE DIRECTION DREHRICHTUNG	SOLENOIDE IN TENSIONE EXCITED SOLENOID SOLENOID UNTER SPANNUNG	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	A
	b	B
SINISTRA LEFT LINKS	a	B
	b	A



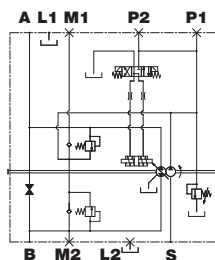
N Q

ELETRICO ON/OFF CENTRO APERTO
ELECTRICAL ON/OFF, OPEN CENTER
ELEKTRISCH ON/OFF, VENTIL GEÖFFNET

12 V 24 V



ROTAZIONE DIRECTION DREHRICHTUNG	SOLENOIDE IN TENSIONE EXCITED SOLENOID SOLENOID UNTER SPANNUNG	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	A
	b	B
SINISTRA LEFT LINKS	a	B
	b	A



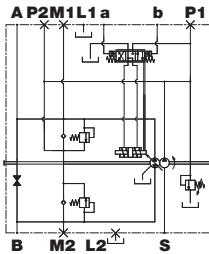
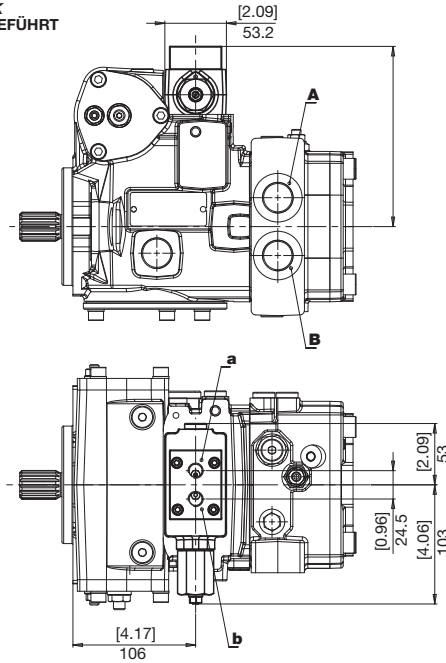


**COMANDI
CONTROLS
STEUERUNGEN**

HP P4

G

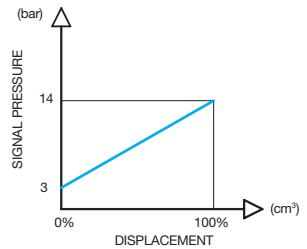
**IDRAULICO RETROAZIONATO
HYDRAULIC, FEEDBACK
HYDRAULISCH, RÜCKGEFÜHRT**



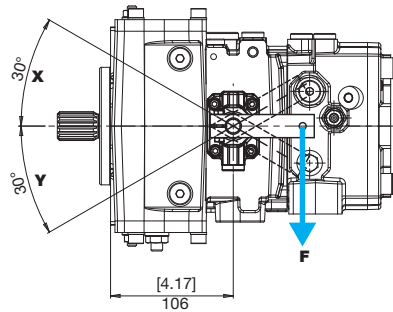
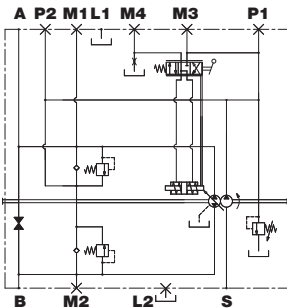
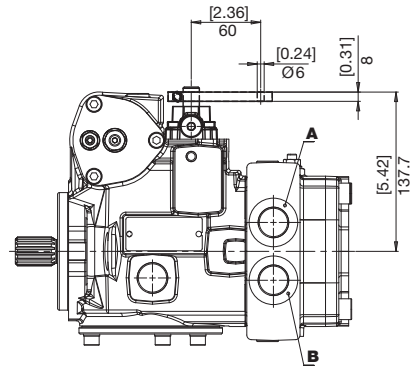
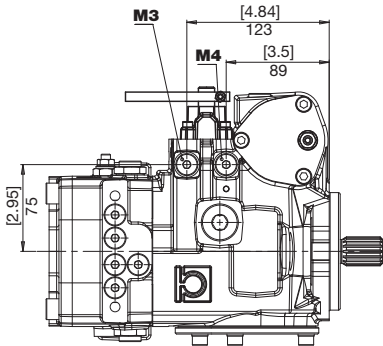
ROTAZIONE DIRECTION DREHRICHTUNG	PILOTAGGIO PILOT PRESSURE STEUERDRUCK	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	B
	b	A
SINISTRA LEFT LINKS	a	B
	b	A

a Pressione di pilotaggio
Pilot Pressure

b Steuerdruck



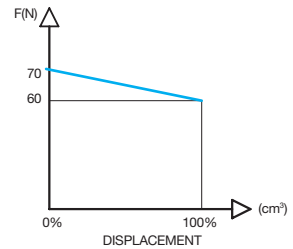
I SERVOCOMANDO A LEVA
LEVER-OPERATED SERVO-CONTROL
HYDRAULISCHE HEBEL-SERVOSTEUERUNG



ROTAZIONE DIRECTION DREHRICHTUNG	LEVA COMANDO CONTROL LEVER STEUERHEBEL	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	Y	B
SINISTRA LEFT LINKS	X	A
	Y	A
	X	B

M3 Strozzatore in alimentazione
Intake restrictor
Eingangsdrossel

M4 Strozzatore in scarico
Outlet restrictor
Ausgangsdrossel

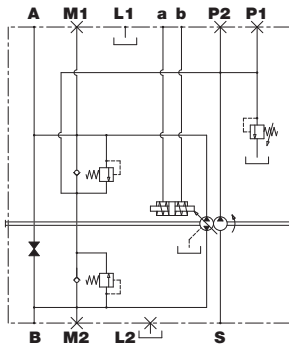
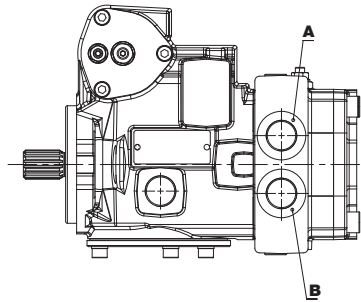
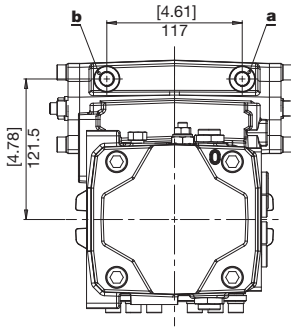




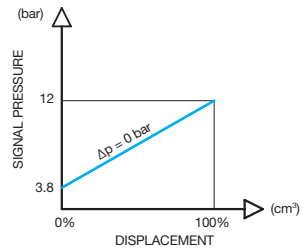
**COMANDI
CONTROLS
STEUERUNGEN**

HP P4

K IDRAULICO A DISTANZA
REMOTE HYDRAULIC
HYDRAULISCHE FERNSTEUERUNG



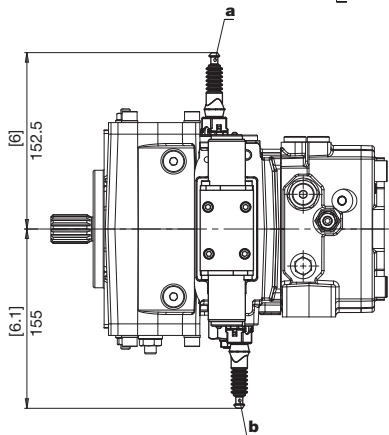
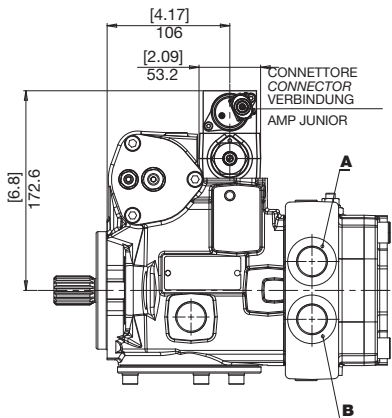
ROTAZIONE DIRECTION DREHRICHTUNG	PILOTAGGIO PILOT PRESSURE STEUERDRUCK	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	A
SINISTRA LEFT LINKS	b	B
	a	B
	b	A





ELETTRICO PROPORZIONALE RETROAZIONATO
ELECTRICAL PROPORTIONAL FEEDBACK CONTROL
ELEKTRISCH PROPORZIONALSTEUERUNG RÜCHGEFÜHRT

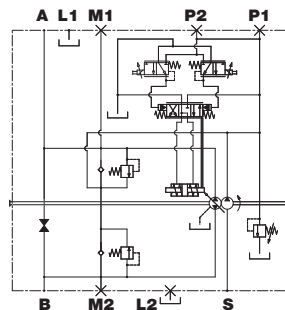
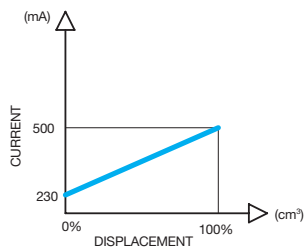
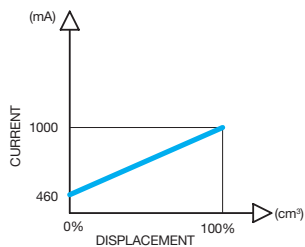
12 V 24 V



ROTAZIONE DIRECTION DREHRICHTUNG	SOLENOIDE IN TENSIONE EXCITED SOLENOID SOLENOID UNTER SPANNUNG	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	B
	b	A
SINISTRA LEFT LINKS	a	A
	b	B



Tensione nominale Rated voltage Nennspannung	12	24	V
Corrente min (I1) Min. current Mindeststrom	300	180	mA
Corrente max (I2) Max. current Maximaler Strom	1500	850	mA
Frequenza PWM PWM Frequency Frequenz PWM	100	100	Hz



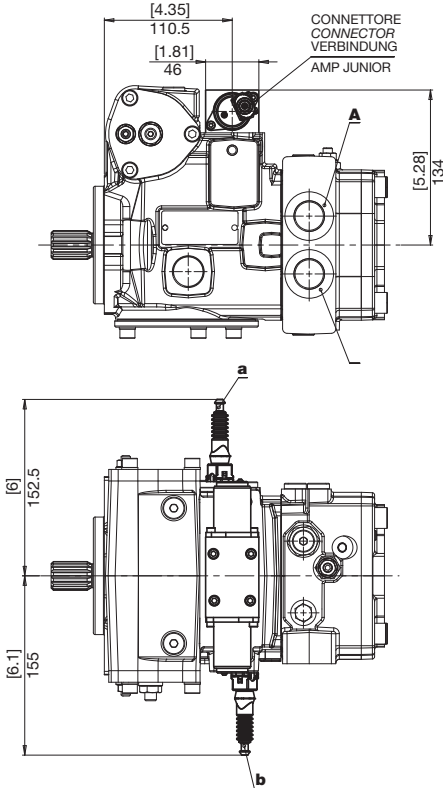


**COMANDI
CONTROLS
STEUERUNGEN**

HP P4

S W
12 V 24 V

**ELETTRICO PROPORZIONALE DIRETTO
ELECTRICAL PROPORTIONAL CONTROL
ELEKTRISCH PROPORZIONALSTEUERUNG**

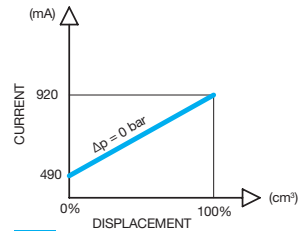


ROTAZIONE DIRECTION DREHRICHTUNG	SOLENOIDE IN TENSIONE EXCITED SOLENOID SOLENOID UNTER SPANNUNG	MANDATA OUTPUT AUSGANG
DESTRA RIGHT RECHTS	a	A
	b	B
SINISTRA LEFT LINKS	a	B
	b	A

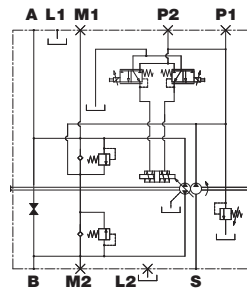
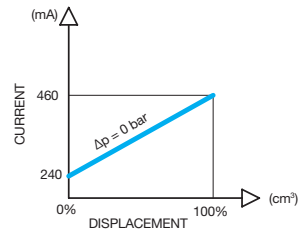
S W

Tensione nominale Rated voltage Nennspannung	12 24	V
Corrente min (I1) Min. current Mindeststrom	300 180	mA
Corrente max (I2) Max. current Maximaler Strom	1500 850	mA
Frequenza PWM PWM Frequency Frequenz PWM	100 100	Hz

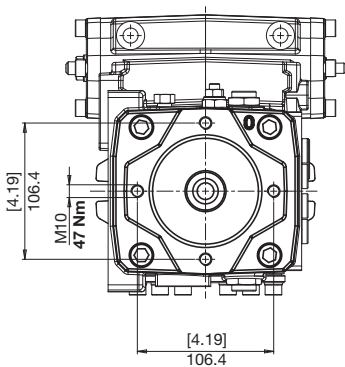
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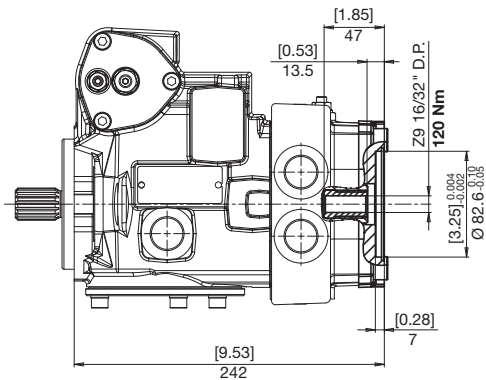
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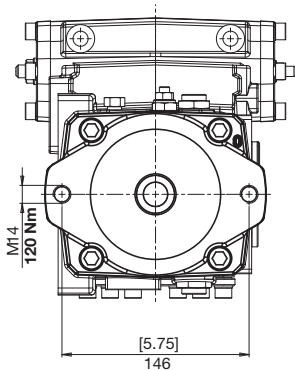
2 SAE A CON POMPA SOVRALIMENTAZIONE
SAE A WITH BOOST PUMP
SAE A MIT SPEISEPUMPE



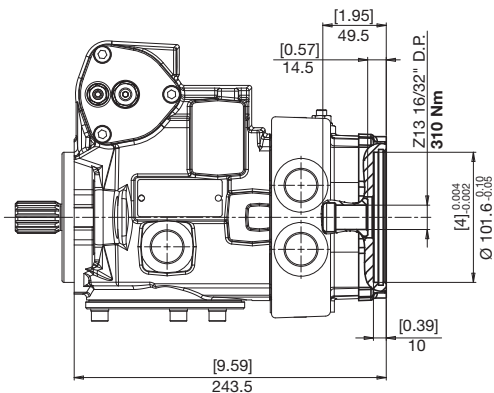
5 SAE A SENZA POMPA SOVRALIMENTAZIONE
SAE A WITHOUT BOOST PUMP
SAE A OHNE SPEISEPUMPE



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



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

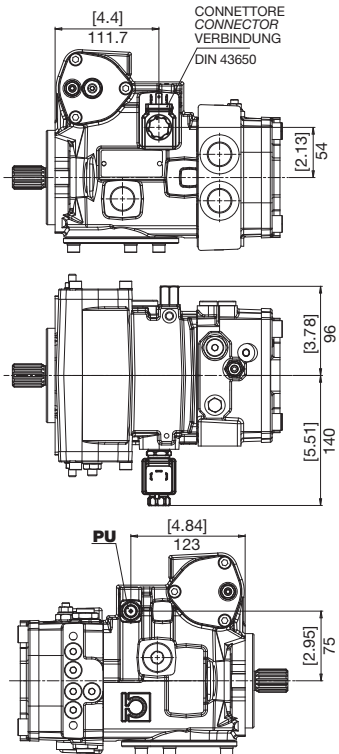


**ACCESSORI
ACCESSORIES
ZUBEHÖR**

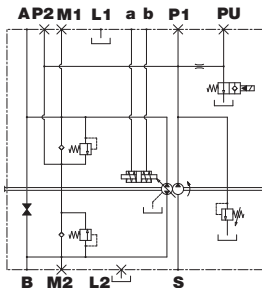
HP P4

E SICUREZZA OPERATORE ASSENTE
NO OPERATOR SAFETY
SICHERUNG KEIN ARBEITER

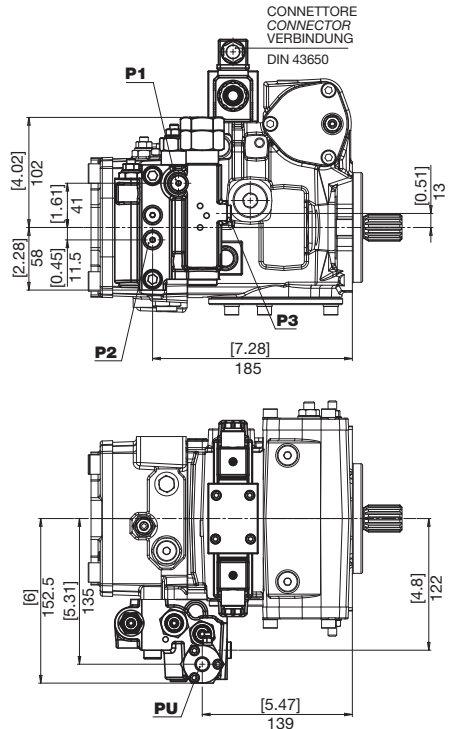
12 V



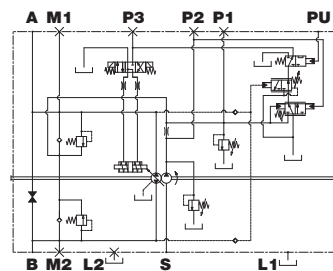
PU Pilotaggio sblocco freno (1/4" GAS)
Brake opening pressure (1/4" GAS)
Bremsen Öffnung Druck (1/4" GAS)



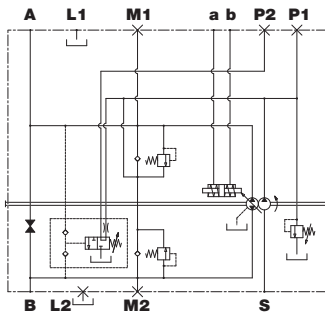
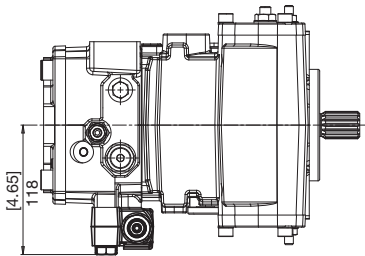
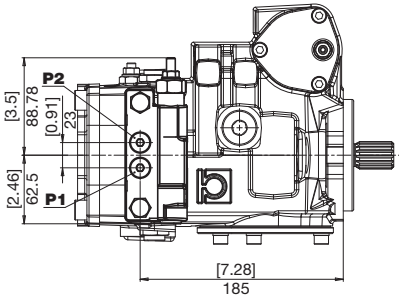
H INCHING IDRAULICO (SOLO COMANDO A)
HYDRAULIC INCHING ("A" CONTROL)
HYDRAULISCHE INCH-VENTIL (NUR STEUERUNG A)



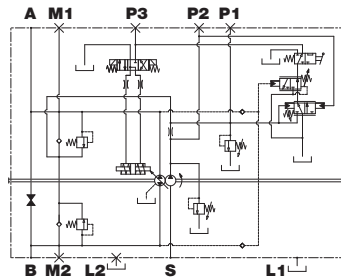
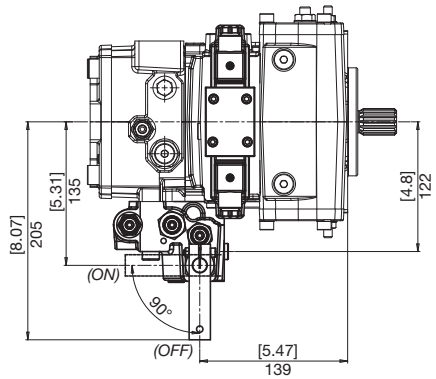
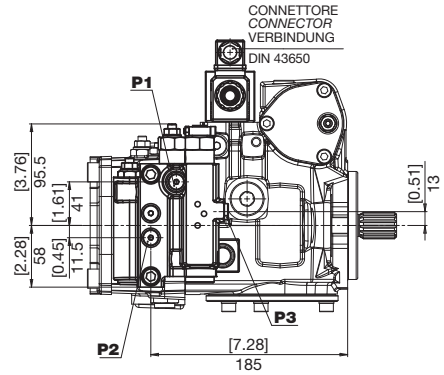
PU Pilotaggio (1/4" GAS)
Pilot pressure (1/4" GAS)
Steuerdruck (1/4" GAS)



J TAGLIO DI PRESSIONE
CUT-OFF
DRUCKABSCHNEIDUNG



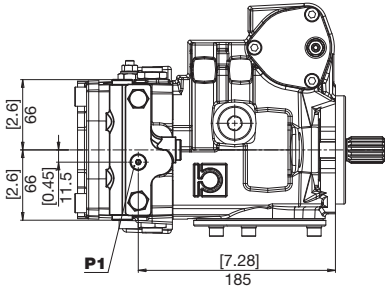
M INCHING MECCANICO (SOLO COMANDO A)
MECHANIC INCHING CONTROL ("A" CONTROL)
MECHANISCHES INCH-VENTIL (NUR STEUERUNG A)



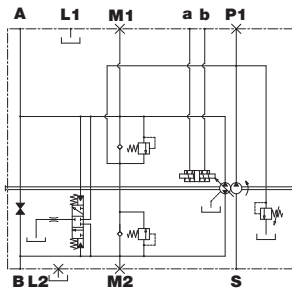


**ACCESSORI
ACCESSORIES
ZUBEHÖR**

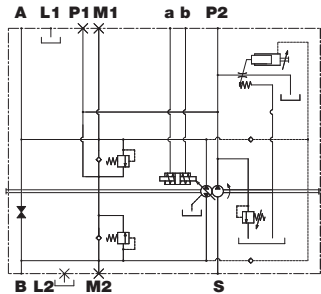
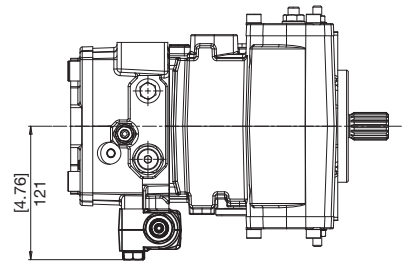
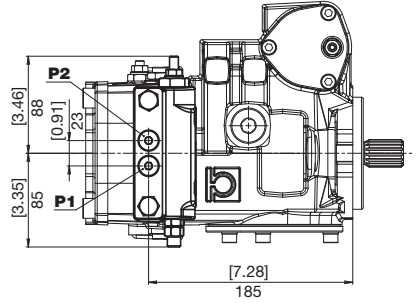
V VALVOLA DI FLUSSAGGIO (5-7 l/min)
FLUSHING AND BOOST VALVE (5-7 l/min)
SPUL-UND SPEISEDRUKVENTIL (5-7 l/min)



P1 Presa pressione (1/8" GAS)
Pressure intake (1/8" GAS)
Druckanschluss (1/8" GAS)

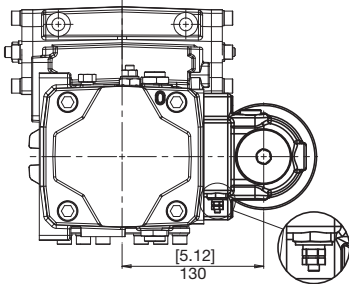


W LIMITATORE DI POTENZA
POWER LIMITER
LEISTUNGSBEGRENZER

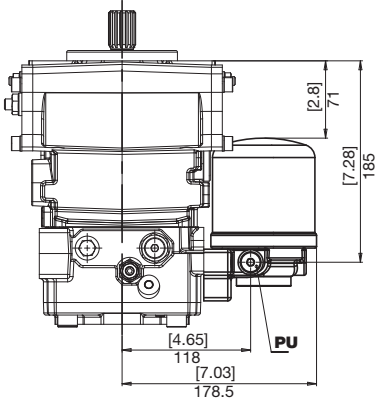


X

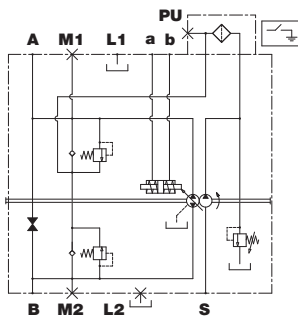
FILTRO CON INDICATORE DI INTASAMENTO ELETTRICO
FILTER WITH ELECTRIC CLOGGING INDICATOR
FILTER MIT ELEKTRISCHEM VERSTOPFUNGSANZEIGER



INDICATORE DIFFERENZIALE ELETTRICO 30VDC - 0,2 A max
ELECTRIC DIFFERENTIAL INDICATOR 30VDC - 0,2 A max
ELEKTRISCHER DIFFERENZDRUCKANZEIGER 30VDC - 0,2 A max

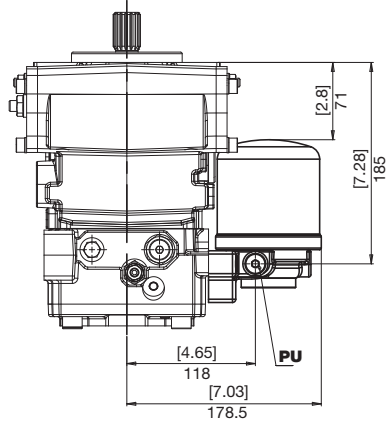
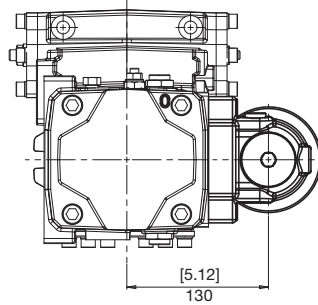


PU Presa olio filtrato (1/4" GAS)
Filtered oil intake (1/4" GAS)
Anschluss filtriertes Öl (1/4" GAS)

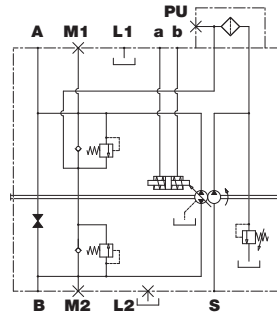


Y

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



PU Presa olio filtrato (1/4" GAS)
Filtered oil intake (1/4" GAS)
Anschluss filtriertes Öl (1/4" GAS)





ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLEANLEITUNG

HP P4



PRODOTTO
PRODUCT
PRODUKT

P4 - Pompe a pistoni assiali per circuito chiuso media pressione

P4 - Closed circuit axial piston pump, medium pressure

P4 - Axialkolbenpumpen für geschlossenen Kreislauf, Mitteldruck

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

034 - 046 - 050 - 058 - 065

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

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

FLANGIA FLANGE FLANSCH

B - SAE B

COMANDO CONTROL STEUERUNG

A = Automotiv
E = Elettrico (12 V)
F = Elettrico (24 V)
G = Servocomando idraulico retroazionato
I = Servocomando a leva
K = Servocomando idraulico a distanza
N = Elettrico on/off (12 V)
O = Elettrico on/off (24 V)
Q = Elettronico proporzionale retroazionato (12V)
V = Elettronico proporzionale retroazionato (24V)
S = Elettronico proporzionale (12V)
W = Elettronico proporzionale (24V)

A = Automotiv control
E = Electric (12 V)
F = Electric (24 V)
G = Hydraulic remote feedback
I = Lever-operated servo-control
K = Remote servo-control
N = Electric on/off (12 V)
O = Electric on/off (24 V)
Q = Electronic proportional feedback (12V)
V = Electronic proportional feedback (24V)
S = Electronic proportional (12V)
W = Electronic proportional (24V)

A = Automotiv
E = Elektrische (12V)
F = Elektrische (24V)
G = Hydraulik Fernsteuerung Rückgeführt
I = Hydraulische Hebel-Servosteuerung
K = Fern-Servosteuerung
N = Elektrische on/off (12V)
O = Elektrische on/off (24V)
Q = Elektronische Proportional Rückgeführt (12V)
V = Elektronische Proportional Rückgeführt (24V)
S = Elektronische Proportional (12V)
W = Elektronische Proportional (24V)

BOCCHE
PORTS
ANSCHLÜSSE

Vedi tabella
See chart
Siehe Tabelle

ESTREMITÀ ALBERO
SHAFT PROFIL
WELLENEUDE

1 - Z15 16/32" DP
3 - Z14 12/24" DP
6 - Cilindrico 22,22
Round shaft 22,22
Zylindrisch 22,22

9 - Z13 16/32" DP
B - Cilindrico 25,4
Round shaft 25,4
Zylindrisch 25,4

0 - Per stadio P4
Für pump P4

TARATURA VALVOLE
VALVE SETTING
VENTILE

B - 150 bar
D - 180 bar
E - 210 bar
G - 250 bar
I - 280 bar
O - 300 bar
P - 350 bar
0 - 400 bar

ESECUZIONI SPECIALI
SPECIAL VERSIONS
SONDERBAUARTEN

ACCESSORI ACCESSORIES ZUBEHÖR

O - nessuna opzione
E - sicurezza "operatore assente"
H - inching idraulico (solo comando A)
J - taglio di pressione
M - inching meccanico (solo comando A)
N - accessori multipli esecuzioni speciali
V - valvola di flussaggio
S - limitatore di potenza
X - filtro con indicatore di intasamento
Y - filtro senza indicatore di intasamento

O - no accessories
E - "no operator" safety
H - hydraulic inching ("A" control)
J - cut-off
M - mechanical inching ("A" control)
N - multiple accessories special versions
V - flushing and boost valve
S - power limiter
X - filter with clogging indicator
Y - filter without clogging indicator

O - kein Zubehör
E - Sicherung "kein Bediener"
H - Hydraulisches Inching-Ventil (nur Steuerung A)
J - Druckabschneidung
M - Mechanisches Inching-Ventil (nur Steuerung A)
N - Zubehörkombinationen Sonderbauarten
V - Spül- und speisedruckventil
S - Leistungsbegrenzer
X - Filter mit Verstopfungsanzeiger
Y - Filter ohne Verstopfungsanzeiger

Per la combinazione di più accessori consultare l'ufficio tecnico
For further details on accessories combinations, please contact our Technical Department
Für weitere Zubehörkombinationen wenden Sie sich bitte an die Technische Abteilung.

PREDISPOSIZIONI VERSION BAUART

0 - nessuna senza pompa sovrimentazione
1 - nessuna con pompa sovrimentazione
2 - SAE A con pompa sovrimentazione
3 - SAE B con pompa sovrimentazione
5 - SAE A senza pompa sovrimentazione
6 - SAE B senza pompa sovrimentazione
T - per pompa P4 senza pompa sovrimentazione
V - per pompa P4 con pompa sovrimentazione

0 - no special fittings without boost pump
1 - no special fittings with boost pump
2 - SAE A mounting boost pump
3 - SAE B mounting boost pump
5 - SAE A mounting without boost pump
6 - SAE B mounting without boost pump
T - fitting for P4 pump without boost pump
V - fitting for P4 pump with boost pump

0 - ohne Anschlussflansch, ohne Speisepumpe
1 - ohne Anschlussflansch mit Speisepumpe
2 - SAE A - Anschlussflansch mit Speisepumpe
3 - SAE B - Anschlussflansch mit Speisepumpe
5 - SAE A - Anschlussflansch ohne Speisepumpe
6 - SAE B - Anschlussflansch ohne Speisepumpe
T - Anschlussflansch für P4-Pumpe ohne Speisepumpe
V - Anschlussflansch für P4-Pumpe mit Speisepumpe

POMPE MULTIPLE
MULTIPLE PUMPS
MEHRFACHPUMPEN

POMPA DOPPIA CON 2 POMPE DI SOVRALIMENTAZIONE
DOUBLE PUMP WITH 2 BOOST PUMPS
TANDEMPUMPE MIT 2 SPEISEPUMPEN

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	P4	058	R	B	3	G	K	L	V	0	000	HP	P4	058	R	B	0	G	K	L	1	0	000
1° STADIO STAGE STUFE										2° STADIO STAGE STUFE													
HP	P4	058	R	B	3	G	K	L	V	0	000	HP	P4	058	R	B	0	G	K	L	2	0	000
1° STADIO STAGE STUFE										2° STADIO STAGE STUFE													
HP	P4	058	R	B	3	G	K	L	V	0	000	HP	P4	058	R	B	0	G	K	L	3	0	000

SAE A

SAE B