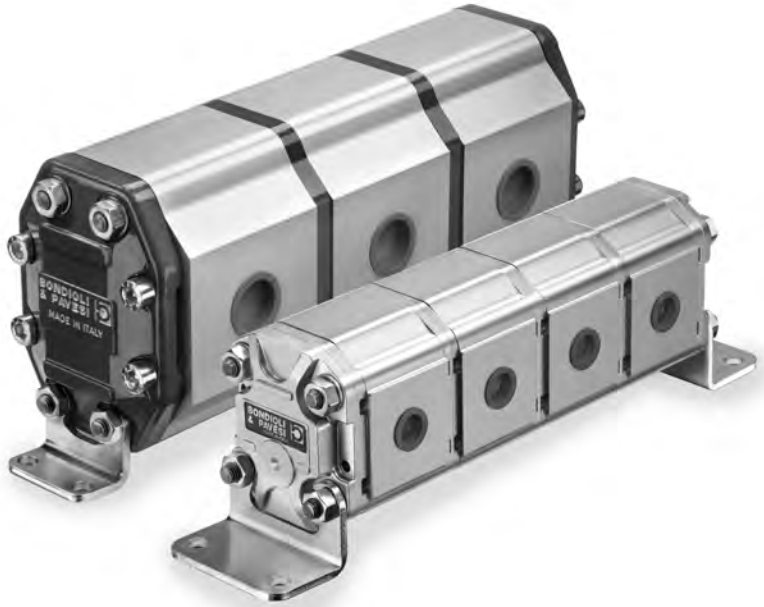
POMPE-MOTORI-DIVISORI DI FLUSSO AD INGRANAGGI SERIE L

GEAR PUMPS-MOTORS AND FLOW DIVIDERS SERIES L

ZAHNRADPUMPEN, -MOTOREN UND MENGENTEILER BAUREIHE L

GL012



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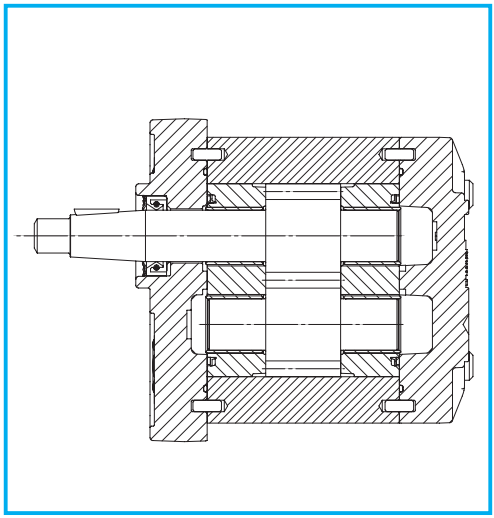
INHALTSVERZEICHNIS

Tra le unità idrostatiche le pompe e motori ad ingranaggi sono tra le più prodotte ed utilizzate. La robustezza della concezione, il favorevole rapporto prezzo/prestazioni, la semplicità di installazione, la possibilità di soluzioni personalizzate, l'integrazione con componenti di controllo (valvole) sono alcuni dei punti caratterizzanti questi prodotti.
L'offerta HP Hydraulic si innesta su una pluridecennale e consolidata tradizione di sviluppo e produzione di unità ad ingranaggi con spirito innovativo nel design e nei processi produttivi.
Questo permette di offrire una gamma di pompe ad ingranaggi con corpo in alluminio suddivisa in modo ottimale in gruppi e cilindrate (da 0,19 a 90 cc/giro) con la possibilità di varianti ad hoc e con prestazioni che permettono ogni tipo d'impiego.
Le pompe HP Hydraulic della serie L sono prodotte in cinque differenti gruppi dimensionali 0,1,2, 3, 4, all'interno dei quali vengono ottenute le differenti cilindrate.
Una gamma completa di flange, estremità d'albero e la possibilità di ottenere pompe multiple e /o con valvole integrate nel coperchio posteriore completano la gamma di produzione.

Gear pumps and motors are among the most popularly produced and utilized hydrostatic units. Some of their many characteristics are: robust design, profitable price/performance ratio, easy installation, suitability for customized solutions, possible integration with control devices (valves).
HP Hydraulic offers decades of well consolidated experience in the development and production of gear units with a constant approach towards innovation of design and of manufacturing process.
This same experience enables us today to offer a gear pumps range with aluminium body, grouped according to their capacity (from 0,19 to 90 cc/rev.), whose main features can be devised and varied to best respond to customer's requirements and whose performance permits use in any kind of application.
HP Hydraulic series L pumps are supplied in five groups, different in size (0,1,2,3,4,). Various capacities will be determined within each group.
The series of products is even further completed with a full range of flanges, shaft ends, and available multiple pumps with or without valves integrated into the back cover.

Zahnradpumpen und -motoren gehören zu den meistgebauten und gängigsten hydrostatischen Maschinen: Die robuste Bauweise, das günstige Preis-/Leistungsverhältnis, der einfache Einbau, die Möglichkeit individueller Lösungen, die Kombination mit Steuerungskomponenten (Ventile) sind nur einige der Vorzüge, durch die sich diese Produkte auszeichnen.
Das Angebot von HP Hydraulic beruht auf einer jahrzehntelangen und bewährten Tradition in Entwicklung und Produktion von Zahnradeinheiten mit stark innovativem Gehalt in Design und Produktionsprozessen.
Dadurch sind wir in der Lage, ein Programm von Zahnradpumpen mit Aluminiumgehäuse für jede Anwendung anzubieten, das optimal in Baugruppen und Hubvolumen (von 0,19 bis 90 ccm/U) sowie speziell entwickelte, kundenspezifische Varianten gegliedert ist.
Die Pumpen HP Hydraulic Baureihe L sind in fünf verschiedenen Baugrößen erhältlich – nämlich 0, 1, 2 3, 4 – innerhalb derer die verschiedenen Hubvolumen lieferbar sind.
Das Produktionsprogramm wird ergänzt durch ein komplettes Angebot von Flanschen und Wellen, und durch die Möglichkeit, Mehrfachpumpen und/oder Pumpen mit Zusatzventilen im Enddeckel auszustatten.



ISTRUZIONI GENERALI DI IMPIEGO
OPERATING INSTRUCTIONS
ALLGEMEINE GEBRAUCHSANWEISUNGEN

FLUIDO IDRAULICO
Le pompe sono in grado di funzionare con svariati tipi di oli idraulici tra essi:
Fluidi idraulici HLP (DIN 51224 parte2)
Fluidi idraulici HLPV(DIN 51224 parte3)
Oli lubrificanti per motori API CD (SAE J183).
Per fluidi diversi da quelli citati si prega di consultare il ns servizio tecnico.

FLUID
Pumps can operate with many types of hydraulic oil some of them are:
HLP Hydraulic fluids (DIN 51224 part 2)
HLPV Hydraulic fluids (DIN 51224 part 3)
API CD Engine Lubricating oils (SAE J183)
Please contact our Engineering Department if different fluids from those above listed are requested.

HYDRAULIKMEDIUM
Die Pumpen können mit verschiedenen Hydraulikölen betrieben werden.
Unter anderem können folgende Öle verwendet werden:
Hydrauliköl HLP (DIN 51224 Teil 2)
Hydrauliköl HLPV(DIN 51224 Teil 3)
Motoröle API CD (SAE J183)
Für andere Öle als oben angegeben ist eine Rücksprache mit unserem technischen Kundendienst unerläßlich.

TEMPERATURA DI FUNZIONAMENTO
- Minima -20°C
- Massima continua 85°C (NBR) - 100° (VITON)
- Di picco (intermittente) 100°C (NBR) - 125° (VITON)

OPERATING
The Temperature range limits of a pump (standard version) are tabulated and summarized below.
- *Temperature Minimum -20°C*
- *Maximum continuous 85°C (NBR) - 100° (VITON)*
- *Peak (intermitting) 100°C (NBR) - 125° (VITON)*

TEMPERATUR
- Mindestwert -20°C
- Dauerhöchsttemperatur 85°C (NBR) - 100° (VITON)
- Spitzentemperatur (intermittierend) 100°C (NBR) - 125° (VITON)

VISCOSITÀ
- Minima 10 mm^2/s
- Massima (partenza a freddo) 1400 mm^2/s
- Campo di viscosità raccomandato 12-90 mm^2/s

VISCOSITY
- *Minimum 10 mm^2/s*
- *Maximum (cold-starting up) 1400 mm^2/s*
- *Recommended viscosity range 12-90 mm^2/s*

VISKOSITÄT
- Mindestwert 10 mm^2/s
- Höchstwert (Kaltstart) 1400 mm^2/s
- Empfohlener Viskositätsbereich 12-90 mm^2/s

GRADO DI FILTRAZIONE
Le classi di contaminazione consigliate in funzione della pressione di esercizio sono riportate nella tabella seguente.

FILTERING RATIO
The suggested contamination classes based on continuous pressure are listed below.

FILTRATIONSGRAD
Die je nach Betriebsdruck empfohlenen Reinheitsklassen sind in der nachstehenden Tabelle aufgeführt.

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.
HP Hydraulic si solleva 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.

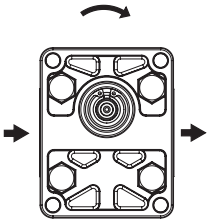
When operating pay always your best attention to moving machine parts; do not use loose or fluttering clothes.
Do not approach to wheels, tracks, chain drives or shaftings if they are moving and not properly protected, or if they could start moving suddenly and without any warning.
Do not screw out or link off connectors and pipes if engine is working.
Avoid oil leak in order to prevent environment pollution.
HP Hydraulic relieves from all and any responsibilities concerning not compliance with these instructions and observance of safety rules in force, also if not provided for in this manual.

Während der Arbeit sollten Sie den sich bewegenden Teilen größte Aufmerksamkeit widmen. Ziehen Sie keine weite oder flatternde Kleidung an. Nähern Sie sich nicht unzureichend geshützten Rädern, Riemen, Ketten oder Wellen für die Kraftübertragung, die sich bewegen oder jeden Moment in Bewegung gesetzt werden könnten. Lösen Sie weder Schläuche noch Winkelverbindungen während der Motor sich bewegt. Lassen Sie kein Öl auslaufen, damit die Umwelt nicht verschmutzt wird.
Die Firma HP Hydraulic weist jede Verantwortung für eventuelle Schäden von sich, wenn diese Unfallverhütungs-vorschriften nicht eingehalten werden und die allgemein gültigen Unfallschutz-maßnahmen nicht befolgt werden, auch wenn Sie in diesem Text nicht ausdrücklich erwähnt werden.

Pressione di esercizio *Continuous pressure* Betriebsdruck	**>150 bar**	**<150 bar**
Classe di contaminazione ISO4406 *Contamination class ISO4406* Reinheitsklasse ISO4406	**18/15**	**19/16**
Classe di contaminazione NAS 1638 *Contamination class NAS 1638* Reinheitsklasse NAS 1638	**9**	**10**

DEFINIZIONE DEL VERSO DI ROTAZIONE GUARDANDO L'ALBERO DI TRASCINAMENTO
DEFINITION OF ROTATION LOOKING AT THE DRIVE SHAFT
BESTIMMUNG DER DREHRICHTUNG MIT BLICK AUF DIE ANTRIEBSWELLE

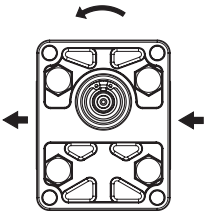
ROTAZIONE
DIRECTION
DREHRICHTUNG



D

DESTRA
RIGHT
RECHTS

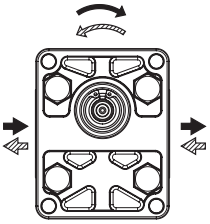
ROTAZIONE
DIRECTION
DREHRICHTUNG



S

SINISTRA
LEFT
LINKS

ROTAZIONE
DIRECTION
DREHRICHTUNG



B/H

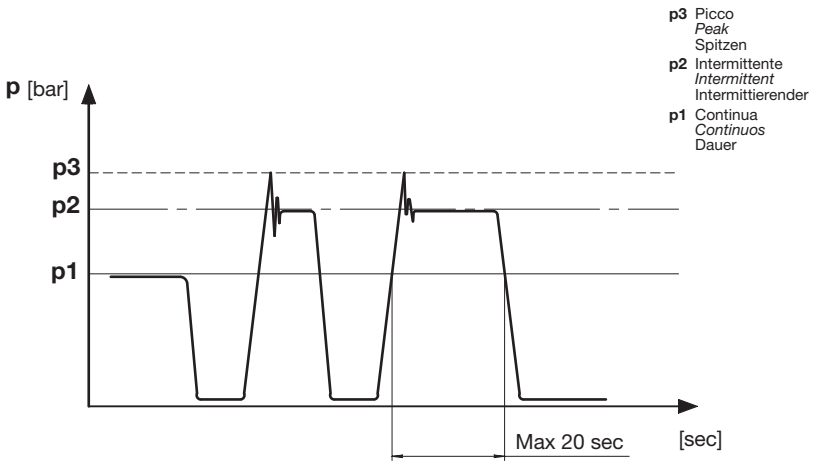
REVERSIBILE
BIDIRECTIONAL
BIDIREKTIONAL

FORMULE INERENTI A POMPE E MOTORI
FORMULAS FOR PUMPS AND MOTORS
FORMELN FÜR PUMPEN UND MOTOREN

POMPA *PUMP* PUMPE	MOTORE *MOTOR* MOTOR
$Q = c \cdot \eta_V \cdot n \cdot 10^{-3}$ *[l/min]*	$Q = \frac{c \cdot n \cdot 10^{-3}}{\eta_v}$ *[l/min]*
$M = \frac{\Delta p \cdot c}{62{,}83 \cdot \eta_m}$ *[Nm]*	$M = \frac{\Delta p \cdot c \cdot \eta_m}{62{,}83}$ *[Nm]*
$P = \frac{\Delta p \cdot c \cdot n}{600 \cdot 1000 \cdot \eta_t}$ *[kW]*	$P = \frac{\Delta p \cdot c \cdot n \cdot \eta_t}{600 \cdot 1000}$ *[kW]*

Q	[l/min]	Portata *Flow rate* Durchfluß	**c**	[cm³/giro]	Cilindrata *Displacement* Fördervolumen	η_v	Rendimento volumetrico *Volumetric efficiency* Volumetrisch Leistungsfähigkeit
M	[Nm]	Coppia *Torque* Drehmoment	**n**	[min-1]	nr. giri *Speed* Drehzahl	η_m	Rendimento meccanico *Mechanical efficiency* Mechanisch Leistungsfähigkeit
P	[kW]	Potenza *Power* Leistung	**Δp**	[bar]	Pressione *Pressure* Druck	$\eta_t=\eta_v \cdot \eta_m$	Rendimento totale Overall efficiency Gesamt Leistungsfähigkeit

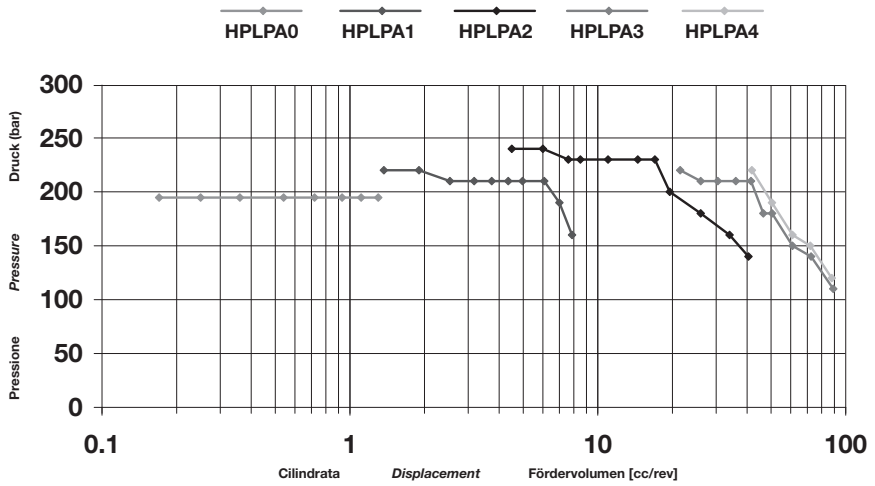
DEFINIZIONE DELLE PRESSIONI
PRESSURE DEFINITION
DRUCKBESTIMMUNGEN



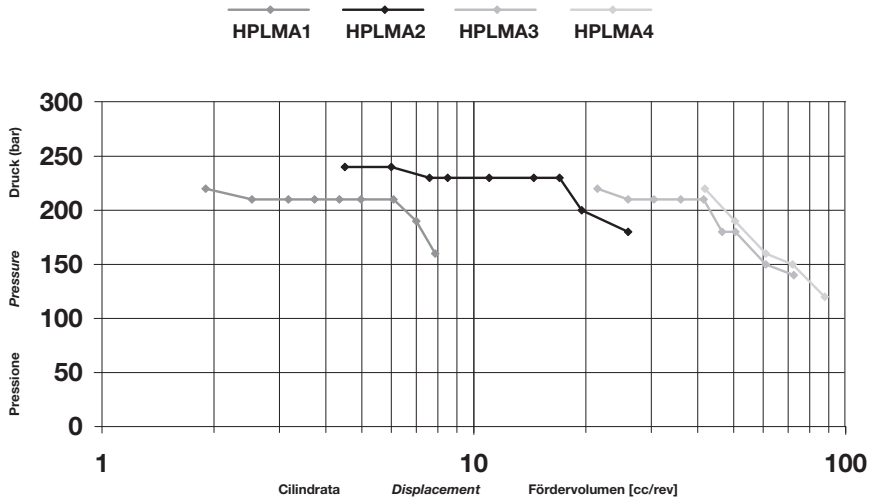
COPPIE DI SERRAGGIO VITI
SCREW TIGHTENING TORQUE
SCHRAUBENANZUGSMOMENT

Codice *Code* Code	Tipo vite *Screw type* Schraube Typ	Coppia min *Min Torque* Min Drehmomen [Nm]	Coppia max *Max Torque* Max Drehmoment [Nm]
HPL..0	M5	5	5.5
HPL..1	M8	20	25
HPL..2	M10	43	45
HPL..2 Versione SG *SG Version* SG Version	M10	60	65
HPL..3	M10	48	50
HPL..3 Versione SG *SG Version* SG Version	M10	48	50
HPL..4 Versione SG *SG Version* SG Version	M10	48	50

POMPE
PUMPS
PUMPEN



MOTORI
MOTORS
MOTOREN



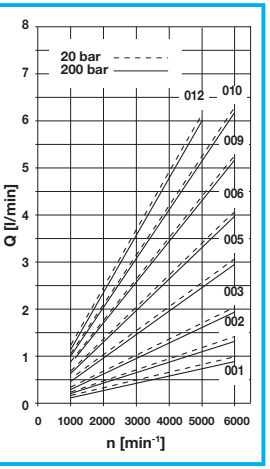
HPL PA0

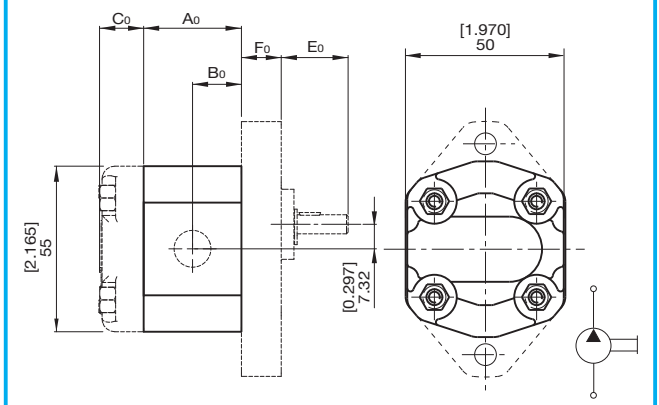
POMPE AD INGRANAGGI
GEAR PUMPS
ZAHNRADPUMPEN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MAX	VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MIN	MASSA *WEIGHT* GEWICHT	
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
0	01	0,19	0,01	190	2756	210	3046	230	3336	6000	1000	0,39	0,86
	02	0,26	0,02	190	2756	210	3046	230	3336			0,39	0,86
	03	0,38	0,02	190	2756	210	3046	230	3336			0,40	0,88
	05	0,51	0,03	190	2756	210	3046	230	3336			0,40	0,88
	06	0,64	0,04	190	2756	210	3046	230	3336			0,41	0,90
	09	0,88	0,06	190	2756	210	3046	230	3336			0,42	0,93
	10	1,00	0,07	190	2756	210	3046	230	3336			0,43	0,95
	12	1,25	0,08	190	2756	210	3046	230	3336	5000		0,44	0,97

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN





C_0= Vedi sezione coperchi — C_0= *See cover section* — C_0= siehe Abschnitt Deckel
F_0= Vedi sezione flange — F_0= *See flange section* — F_0= siehe Abschnitt Flansche
E_0= Vedi sezione profilo alberi — E_0= *See splined shafts section* — E_0= siehe Abschnitt Wellenprofile

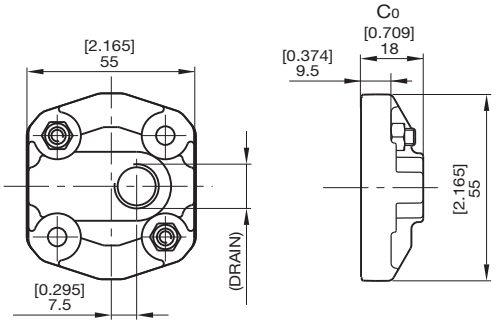
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A_0		B_0	
		mm	in	mm	in
0	01	24,0	0,945	12,0	0,472
	02	25,0	0,984	12,5	0,492
	03	27,0	1,063	13,0	0,512
	05	29,0	1,142	14,5	0,571
	06	31,0	1,220	15,5	0,610
	09	36,0	1,417	18,0	0,709
	10	37,0	1,457	18,5	0,728
	12	39,0	1,535	19,5	0,768

COPERCHI
COVERS
DECKEL

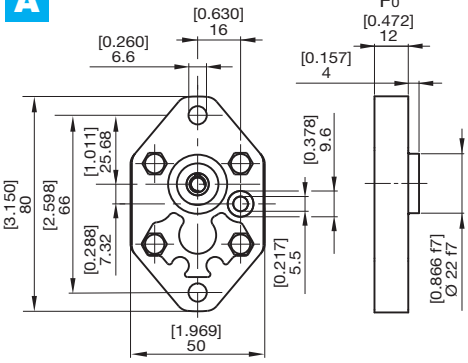
HPL..0

ST

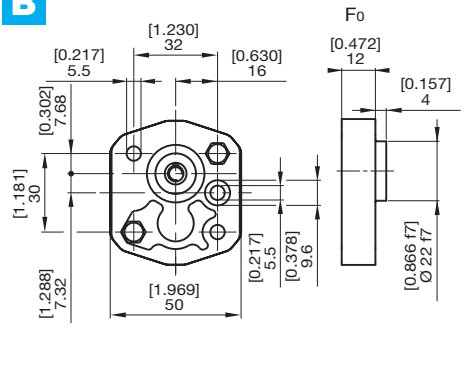


FLANGE
FLANGES
FLANSCHE

A



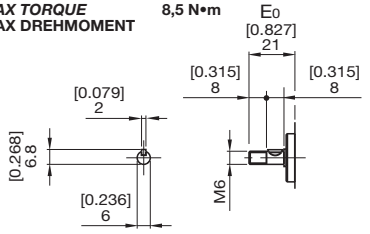
B



PROFILO ALBERI
SPLINE SHAFTS
WELLENPROFILE

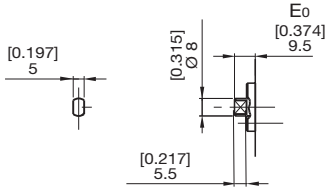
A

COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
8,5 N•m



B

COPPIA MAX
MAX TORQUE
MAX DREHMOMENT
10 N•m

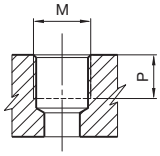


BOCCHE
PORTS
ANSCHLÜSSE

HPL..0

G LATERALE *LATERAL* SEITLICH

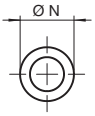
T POSTERIORE *REAR* HINTEN



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
* **G1**	1/8" GAS BSPP	8	8	0,31
G2	1/4" GAS BSPP	17	9	0,35
T2	1/4" GAS BSPP	17	12	0,47

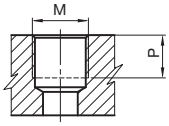
* Drenaggio * *Drain Port* * Lecköl

H ANTERIORE *FRONT* VORNE



TIPO *TYPE* TYP	FRONTALE *SEAL FRONTAL*	N	
		mm	in
H0	OR 8,73 x 1,78	9,6	0,38

M LATERALE *LATERAL* SEITLICH



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
M0	M10x1	10	9	0,35

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

ESTREMITÀ ALBERO *SHAFT PROFIL* WELLENENDE	FLANGE *FLANGE* FLANSCHE A	FLANGE *FLANGE* FLANSCHE B
A	■	■
B	■	■
BOCCHE *PORTS* ANSCHLÜSSE		
M	■	■
G	■	■
T	■	■
H	■	■

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPL..0

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

PA - Pompa singola
PA - *Single Pump*
PA - Einfachpumpe

GRUPPO
GROUP
BAUGRÖSSE

0

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

01 - 0,19
02 - 0,26
03 - 0,38
05 - 0,51
06 - 0,64
09 - 0,88
10 - 1,00
12 - 1,25

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
D - Oraria/destra
B - Bidirezionale drenaggio esterno posteriore

S - *Counterclockwise*
D - *Clockwise*
B - *Reversible rear. drain. pont.*

S - Linkslauf
D - Rechtslauf
B - reversibel, Lecköl extern, Anschluß hinten

COPERCHI
COVERS
DECKEL

ST - Standard
Standard
Standard

GUARNIZIONI
SEALS
DICHTUNGEN

B - NBR

V - Viton

BOCCHE STANDARD
STANDARD PORT
STANDARD ANSCHLÜSSE

01...03	*05...06*	*09...12*	*DRAIN*
M0M0	M0M0	-	G1
-	G2G2	G2G2	G1
T2H0	T2H0	T2H0	-
M0H0	M0H0	-	-
-	G2H0	G2H0	-

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

A - Cilindrico Ø6
Parallel Shaft Ø6
zylindrisch Ø6

B - Dente frontale
Tang drive
Profil

FLANGIA
FLANGE
FLANSCHE

A - Standard
Standard
Standard

B - Quadrata
Square
quadratisch

HPL ..1

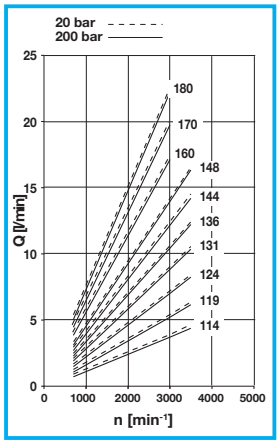
POMPE E MOTORI AD INGRANAGGI
GEAR PUMPS AND MOTORS
ZAHNRADPUMPEN UND -MOTOREN

HPL PA1

POMPE AD INGRANAGGI
GEAR PUMPS
ZAHNRADPUMPEN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



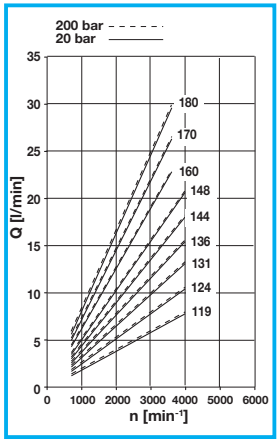
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK						VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		MAX	MIN		
		cm^3	in^3	bar	psi	bar	psi	bar	psi	min^{-1}	min^{-1}	kg	lbs
1	14	1,37	0,08	220	3191	260	3771	280	4061	3500	700	0,90	1,98
	19	1,90	0,12	220	3191	260	3771	280	4061			0,95	2,09
	24	2,53	0,15	210	3046	250	3626	260	3771			0,95	2,09
	31	3,17	0,19	210	3046	250	3626	260	3771			0,95	2,09
	36	3,73	0,23	210	3046	250	3626	260	3771			1,05	2,31
	44	4,35	0,27	210	3046	250	3626	260	3771			1,05	2,31
	48	4,97	0,30	210	3046	250	3626	260	3771			1,05	2,31
	60	6,08	0,37	210	3046	250	3626	260	3771	3000		1,20	2,65
	70	7,00	0,43	190	2756	210	3046	230	3336			1,20	2,65
	80	7,87	0,48	160	2321	180	2611	200	2901			1,20	2,65

HPL MA1

MOTORI AD INGRANAGGI
GEAR MOTORS
ZAHNRADMOTOREN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

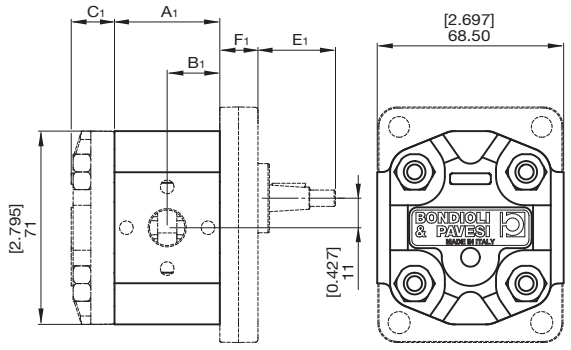
DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	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		
		cm^3	in^3	bar	psi	bar	psi	bar	psi	min^{-1}	min^{-1}	kg	lbs
1	19	1,90	0,12	220	3191	260	3771	280	4061	4000	700	0,95	2,09
	24	2,53	0,15	210	3046	250	3626	260	3771			0,95	2,09
	31	3,17	0,19	210	3046	250	3626	260	3771			0,95	2,09
	36	3,73	0,23	210	3046	250	3626	260	3771			1,05	2,31
	44	4,35	0,27	210	3046	250	3626	260	3771			1,05	2,31
	48	4,97	0,30	210	3046	250	3626	260	3771			1,05	2,31
	60	6,08	0,37	210	3046	250	3626	260	3771	3500		1,20	2,65
	70	7,00	0,43	190	2756	210	3046	230	3336			1,20	2,65
	80	7,87	0,48	160	2321	180	2611	200	2901			1,20	2,65

DIMENSIONI
SIZE
ABMESSUNGEN

HPL..1



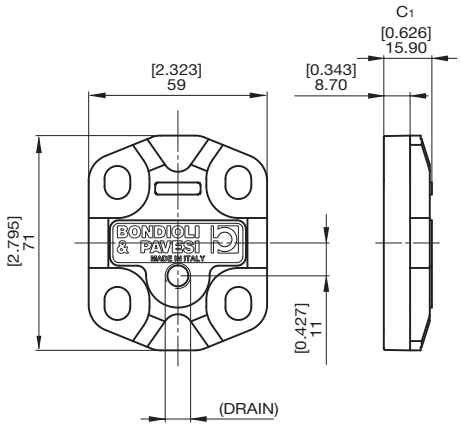
C_1= Vedi sezione coperchi — *C_1= See cover section* — C_1= siehe Abschnitt Deckel
F_1= Vedi sezione flange — *F_1= See flange section* — F_1= siehe Abschnitt Flansche
E_1= Vedi sezione profilo alberi — *E_1= See splined shafts section* — E_1= siehe Abschnitt Wellenprofile

DIMENSIONI
SIZE
ABMESSUNGEN

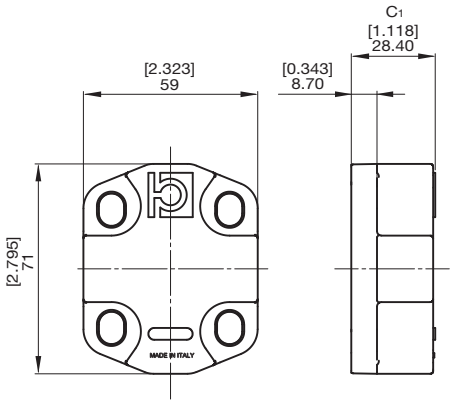
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A_1		B_1	
		mm	in	mm	in
1	14	38,70	1,524	19,4	0,762
	19	38,70	1,524	19,4	0,762
	24	38,70	1,524	19,4	0,762
	31	38,70	1,524	19,4	0,762
	36	45,35	1,785	22,7	0,893
	44	45,35	1,785	22,7	0,893
	48	45,35	1,785	22,7	0,893
	60	56,05	2,207	28,0	1,103
	70	56,05	2,207	28,0	1,103
	80	56,05	2,207	28,0	1,103

COPERCHI
COVERS
DECKEL

ST



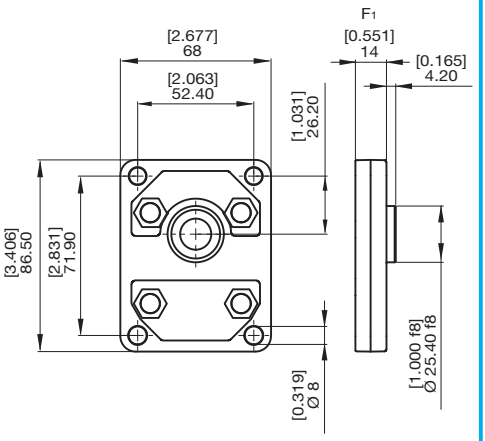
V.. **PER BOCCHE POSTERIORI E VALVOLE INTEGRATE**
FOR REAR PORTS AND INTEGRATED VALVES
FÜR HINTERE ANSCHLÜSSE UND INTEGRIERTE VENTILE



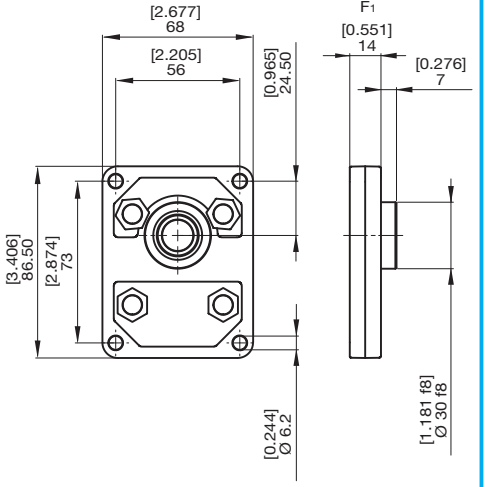
FLANGE
FLANGES
FLANSCHE

HPL..1

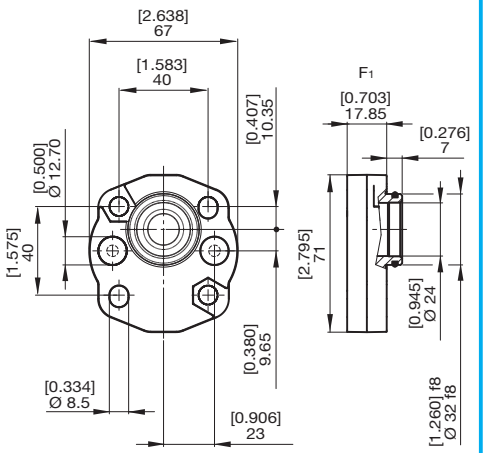
D



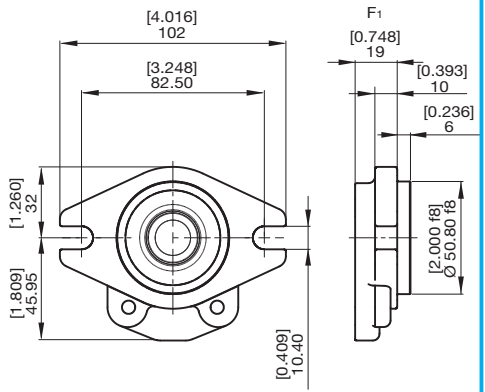
E



G



J

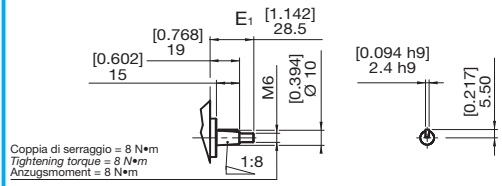


PROFILO ALBERI
SPLINE SHAFTS
WELLENPROFIL

HPL..1

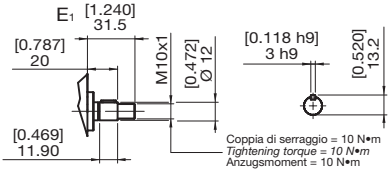
D

COPPIA MAX **25 N•m**
MAX TORQUE
MAX DREHMOMENT



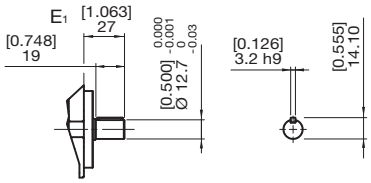
E

COPPIA MAX **15 N•m**
MAX TORQUE
MAX DREHMOMENT



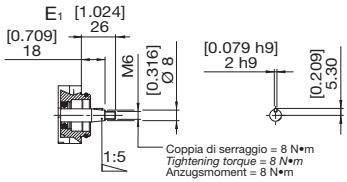
F

COPPIA MAX **35 N•m**
MAX TORQUE
MAX DREHMOMENT



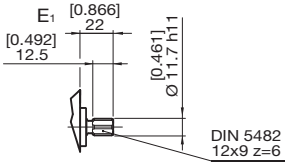
G

COPPIA MAX **25 N•m**
MAX TORQUE
MAX DREHMOMENT



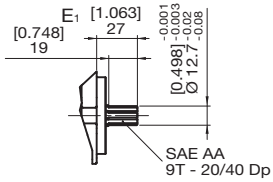
H

COPPIA MAX **30 N•m**
MAX TORQUE
MAX DREHMOMENT



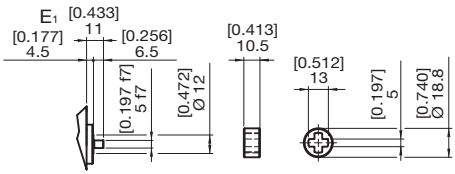
I

COPPIA MAX **45 N•m**
MAX TORQUE
MAX DREHMOMENT



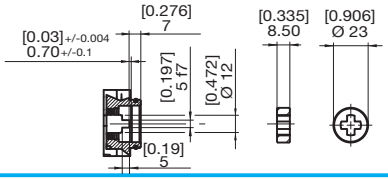
J

COPPIA MAX **20 N•m**
MAX TORQUE
MAX DREHMOMENT



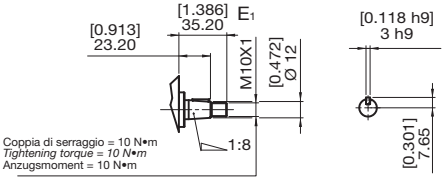
K

COPPIA MAX **20 N•m**
MAX TORQUE
MAX DREHMOMENT



T

COPPIA MAX **60 N•m**
MAX TORQUE
MAX DREHMOMENT



BOCCHE
PORTS
ANSCHLÜSSE

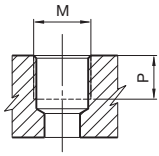
HPL..1

E **LATERALE** ***LATERAL*** **SEITLICH**

TIPO *TYPE* TYP	M		N		O	
	mm	in	mm	in		Nm
E2	13	0,51	26	1,02	M5	6
E3	13	0,51	30	1,18	M6	10

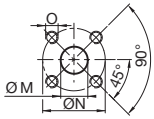
G **LATERALE** ***LATERAL*** **SEITLICH**

T **POSTERIORE** ***REAR*** **HINTEN**



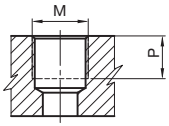
TIPO *TYPE* TYP	M		P	
		Nm	mm	in
* **G2**	1/4" GAS BSPP	17	12	0,47
G3	3/8" GAS BSPP	38	12	0,47
G4	1/2" GAS BSPP	50	14,5	0,57
T3	3/8" GAS BSPP	38	12	0,47
T4	1/2" GAS BSPP	40	14,5	0,57

X **LATERALE** ***LATERAL*** **SEITLICH**



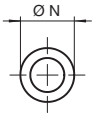
TIPO *TYPE* TYP	M		N		O	
	mm	in	mm	in		Nm
X3	13	0,51	30	1,18	M6	10

M **LATERALE** ***LATERAL*** **SEITLICH**



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
* **M1**	M12x1,5	15	12	0,47
M2	M14x1,5	17	12	0,47
M4	M18x1,5	40	16	0,63

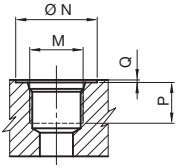
H **ANTERIORE** ***FRONT*** **VORNE**



TIPO *TYPE* TYP	FRONTALE *SEAL* FRONTAL	N	
		mm	in
H1	OR 9,25 x 1,78	12,7	0,50

U **LATERALE** ***LATERAL*** **SEITLICH**

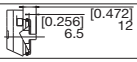
C **POSTERIORE** ***REAR*** **HINTEN**



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
U3	3/8"	25	0,98	13	0,51	0,3	0,01	9/16-18 UNF	25
U4	1/2"	30	1,18	15	0,59	0,3	0,01	3/4-16 UNF	47
C3	3/8"	25	0,98	13	0,51	0,3	0,01	9/16-18 UNF	25
C4	1/2"	30	1,18	15	0,59	0,3	0,01	3/4-16 UNF	47

* Drenaggio * *Drain Port* * Lecköl

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

ESTREMITÀ ALBERO *SHAFT PROFIL* WELLENENDE		FLANGE *FLANGE* FLANSCHE D	E	G	J
D		■	■		
E		■	■		
F					■
G				■	
H		■			
I					■
J		■			
K				■	
T		■	■		
BOCCHE *PORTS* ANSCHLÜSSE					
E		■	■		
G		■	■	■	■
X		■	■	■	
M				■	
T				■	
H				■	
U					■
C					■

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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPL..1

HPL	PA	1	36	D	D	E	E3	E3	B	ST	--

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

MA - Motore
PA - Pompa singola
PT - Pompa predisposta

MA *- Motor*
PA *- Pump*
PT *- Adapted Pump*

MA - Motor
PA - Pumpe
PT - Vorbereitete Pumpe

GRUPPO
GROUP
BAUGRÖSSE

1

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

14 - 1,37
19 - 1,90
24 - 2,53
31 - 3,17
36 - 3,73
44 - 4,35
48 - 4,97
60 - 6,08
70 - 7,00
80 - 7,87

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
D - Oraria/destra
H - Bidirezionale drenaggio interno
B - Bidirezionale drenaggio esterno posteriore

S *- Counterclockwise*
D *- Clockwise*
H *- Reversible ind drain.*
B *- Reversible rear. drain. pont.*

S - Linkslauf
D - Rechtslauf
H - reversibel, Lecköl intern, Anschluß seitlich
B - reversibel, Lecköl extern, Anschluß hinten

FLANGIA ANTERIORE
FRONT FLANGE
VORDERER FLANSCH

D - Europea D 25,4
E - Europea D 30
G - Tedesca con OR
J - SAE AA

D *- European standard*
E *- European Ø 30*
G *- German wih OR*
J *- SAE AA*

D - EU-Norm.D 25,4
E - EU-Norm.D 30
G - DIN-Norm.(mit O.R. Dichtung)
J - SAE AA

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

COPERCHI - *COVERS* - DECKEL

ST - Standard
V.. - Con valvole
(Vedi sez. valvole)
With valves
(See valves section)
Mit Ventilen
(siehe Abschnitt Ventile)

GUARNIZIONI - *SEALS* - DICHTUNGEN

B - NBR
R - NBR alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)
V - Viton
W - Viton alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

BOCCHE STD - *STANDARD PORT* - STANDARD ANSCHLÜSSE
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

1,4.....4,8 Pompe - Pumps Pumpen IN/OUT	*6.....8* Pompe - Pumps Pumpen IN/OUT	DRAIN	*1,4.....4,8* Pompe - Pumps Pumpen IN/OUT	*6.....8* Pompe - Pumps Pumpen IN/OUT	DRAIN
E3 E3	E3 E3	M1	U3 U3	U4 U4	U2
G3 G3	G4 G4	G2	T3 H1	T3 H1	-
X3 X3	X3 X3	M1	T3 T3	T4 T3	G2
M4 M2	M4 M2	M1	C3 C3	C4 C3	U2

MOTORI - *MOTORS* - MOTOREN OUT/IN
MOTORI BIDIR. IN=OUT - *REVERS. MOTORS IN=OUT* - BIDIREK.MOTOREN IN=OUT

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

D - Conico (1:8)
E - Cilindrico europeo
F - Cilindrico SAE "AA"
G - Conico (1:5)
H - Scanalato 12x9
I - Scanalato SAE "AA"
J - Dente frontale sporgente
K - Dente frontale
T - Conico high torque (1:8)

D *- Tapered (1:8)*
E *- European parallel shaft*
F *- SAE "AA" parallel shaft*
G *- Tapered (1:5)*
H *- Splined 12x9*
I *- SAE "AA" splined*
J *- Front tooth*
K *- Tang drive*
T *- Tapered high torque (1:8)*

D - Kegel (1:8)
E - zylindrisch (E-norm)
F - zylindrisch SAE "AA"
G - Kegel (1:5)
H - Keilwelle 12x9
I - Keilwelle SAE "AA"
J - Vorstehendes Kreuzprofil
K - Kreuzprofil
T - verstärkter Kegel (1:8)

HPL ..2

POMPE E MOTORI AD INGRANAGGI
GEAR PUMPS AND MOTORS
ZAHNRADPUMPEN UND -MOTOREN

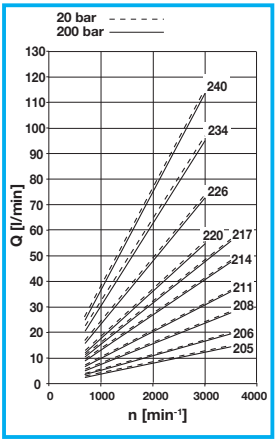
HPL PA2

POMPE AD INGRANAGGI
GEAR PUMPS
ZAHNRADPUMPEN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MAX	MIN	MASSA *WEIGHT* GEWICHT	
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
2	05	4,50	0,27	240	3481	260	3771	300	4351	3500	700	2,30	5,07
	06	6,00	0,37	240	3481	260	3771	300	4351			2,40	5,29
	08	8,50	0,52	230	3336	250	3626	280	4061			2,40	5,29
	11	11,00	0,67	230	3336	250	3626	280	4061			2,40	5,29
	14	14,50	0,88	230	3336	250	3626	280	4061			2,80	6,17
	17	17,00	1,04	230	3336	250	3626	280	4061			2,80	6,17
	20	19,50	1,19	200	2901	220	3191	250	3626			2,80	6,17
	26	26,00	1,59	180	2611	190	2756	210	3046	3000		3,10	6,83
	34	34,00	2,07	160	2321	170	2466	190	2756			3,40	7,50
	40	40,50	2,47	140	2031	160	2321	180	2611			3,60	7,94

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



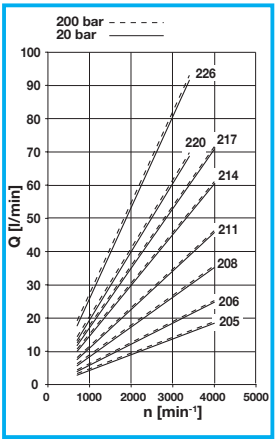
HPL MA2

MOTORI AD INGRANAGGI
GEAR MOTORS
ZAHNRADMOTOREN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

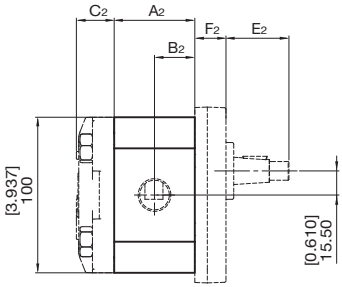
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MAX	MIN	MASSA *WEIGHT* GEWICHT	
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
2	05	4,50	0,27	240	3481	260	3771	300	4351	4000	700	2,30	5,07
	06	6,00	0,37	240	3481	260	3771	300	4351			2,40	5,29
	08	8,50	0,52	230	3336	250	3626	280	4061			2,40	5,29
	11	11,00	0,67	230	3336	250	3626	280	4061			2,40	5,29
	14	14,50	0,88	230	3336	250	3626	280	4061			2,80	6,17
	17	17,00	1,04	230	3336	250	3626	280	4061			2,80	6,17
	20	19,50	1,19	200	2901	220	3191	250	3626			2,80	6,17
	26	26,00	1,59	180	2611	190	2756	210	3046	3400		3,10	6,83

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



DIMENSIONI
SIZE
ABMESSUNGEN

HPL..2



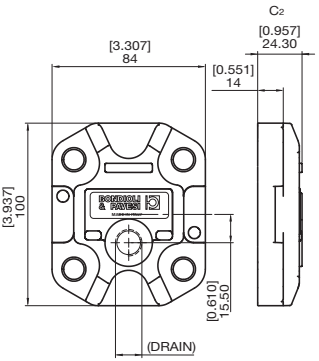
C_2= Vedi sezione coperchi — C_2= *See cover section* — C_2= siehe Abschnitt Deckel
F_2= Vedi sezione flange — F_2= *See flange section* — F_2= siehe Abschnitt Flansche
E_2= Vedi sezione profilo alberi — E_2= *See splined shafts section* — E_2= siehe Abschnitt Wellenprofile

DIMENSIONI *SIZE* ABMESSUNGEN

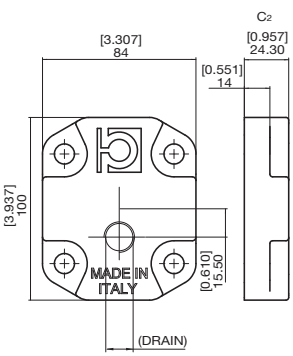
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A_2		B_2	
		mm	in	mm	in
2	05	49,15	1,935	24,6	0,968
	06	51,85	2,041	25,9	1,021
	08	56,35	2,219	28,2	1,109
	11	60,85	2,396	30,4	1,198
	14	67,25	2,648	33,6	1,324
	17	71,75	2,825	35,9	1,412
	20	76,25	3,002	38,1	1,501
	26	88,55	3,486	44,3	1,743
	34	102,55	4,037	51,3	2,019
	40	115,07	4,530	57,5	2,265

COPERCHI
COVERS
DECKEL

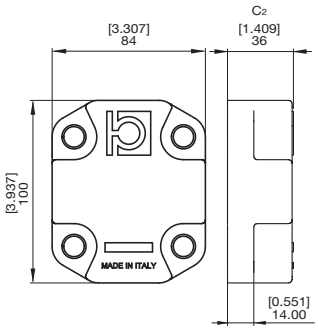
ST VERSIONE IN ALLUMINIO
ALUMINUM VERSION
ALUMINIUMVERSION



SG VERSIONE IN GHISA
CAST IRON VERSION
GUSSVERSION



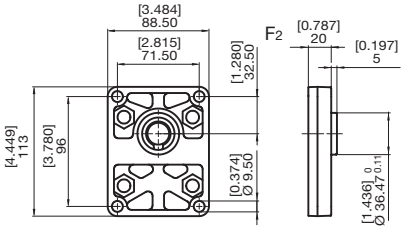
V.. PER BOCCHE POSTERIORI E VALVOLE INTEGRATE
FOR REAR PORTS AND INTEGRATED VALVES
FÜR HINTERE ANSCHLÜSSE UND INTEGRIERTE VENTILE



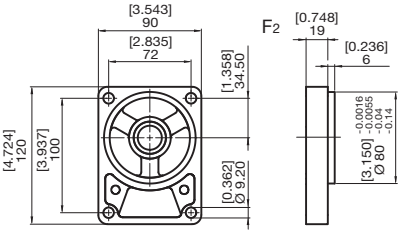
FLANGE **VERSIONE IN ALLUMINIO**
FLANGES ***ALUMINUM VERSION***
FLANSCHE **ALUMINIUMVERSION**

HPL..2

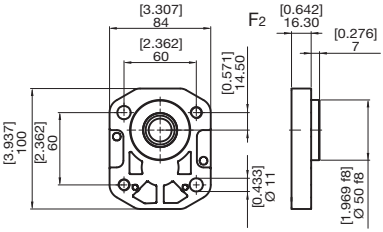
M



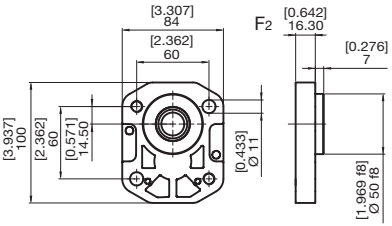
N



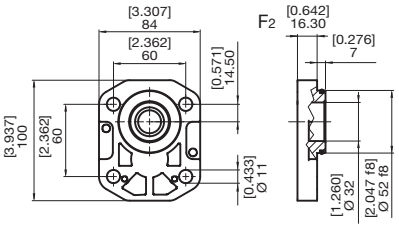
O



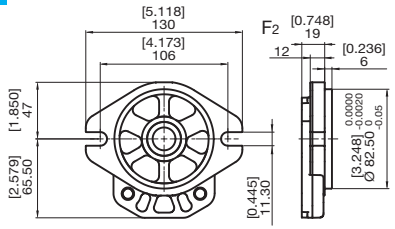
P



R



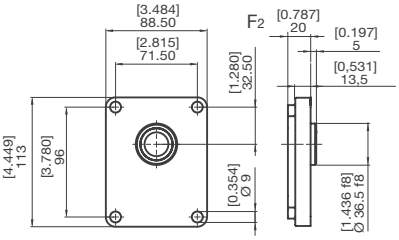
S



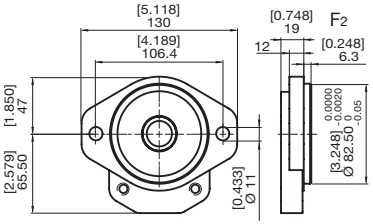
FLANGE **VERSIONE IN GHISA**
FLANGES ***CAST IRON VERSION***
FLANSCHE **GUSSVERSION**

HPL..2

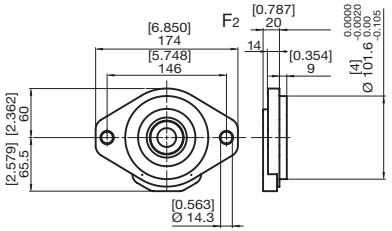
L



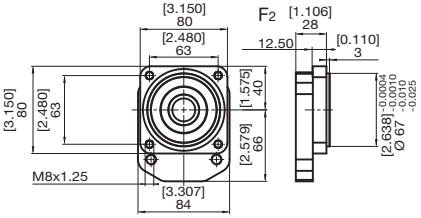
Q



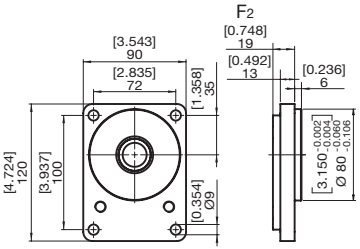
T



U



V



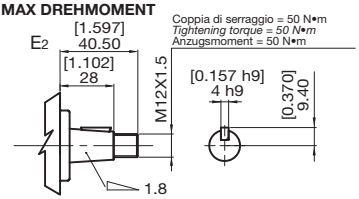
PROFILO ALBERI
SPLINE SHAFTS
WELLENPROFILE

HPL..2

L

COPPIA MAX **140 N•m**
MAX TORQUE
MAX DREHMOMENT

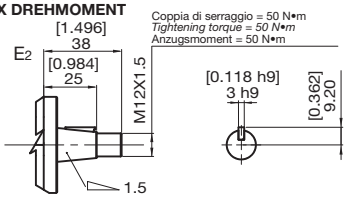
Coppia di serraggio = 50 N•m
Tightening torque = 50 N•m
Anzugsmoment = 50 N•m



M

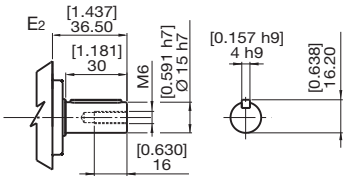
COPPIA MAX **120 N•m**
MAX TORQUE
MAX DREHMOMENT

Coppia di serraggio = 50 N•m
Tightening torque = 50 N•m
Anzugsmoment = 50 N•m



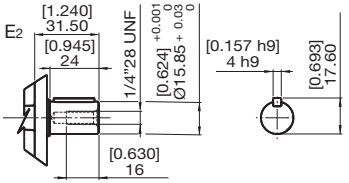
N

COPPIA MAX **65 N•m**
MAX TORQUE
MAX DREHMOMENT



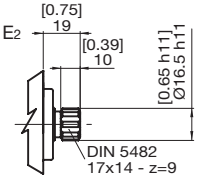
P

COPPIA MAX **70 N•m**
MAX TORQUE
MAX DREHMOMENT



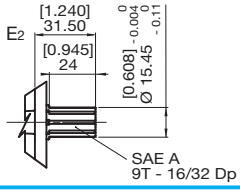
U

COPPIA MAX **110 N•m**
MAX TORQUE
MAX DREHMOMENT



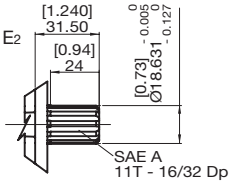
V

COPPIA MAX **120 N•m**
MAX TORQUE
MAX DREHMOMENT



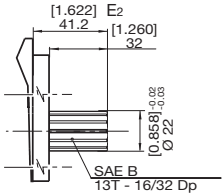
X

COPPIA MAX **160 N•m**
MAX TORQUE
MAX DREHMOMENT



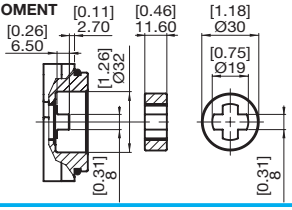
Y

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



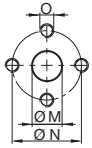
Z

COPPIA MAX **70 N•m**
MAX TORQUE
MAX DREHMOMENT



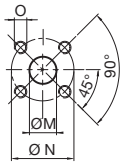
BOCCHE
PORTS
ANSCHLÜSSE

E — LATERALE / *LATERAL* / SEITLICH



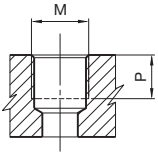
TIPO *TYPE* TYP	M mm	M in	N mm	N in	O	O Nm
E3	13	0,51	30	1,18	M6	10
E5	20	0,79	40	1,57	M8	15

X — LATERALE / *LATERAL* / SEITLICH



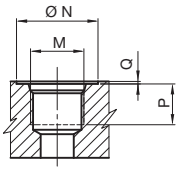
TIPO *TYPE* TYP	M mm	M in	N mm	N in	O	O Nm
X4	15	0,59	35	1,38	M6	10
X5	15	0,59	40	1,57	M6	10
X6	20	0,79	40	1,57	M6	10

G — LATERALE / *LATERAL* / SEITLICH
T — POSTERIORE / *REAR* / HINTEN



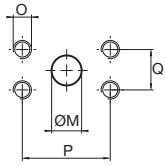
TIPO *TYPE* TYP	M Nm	P mm	P in
*G3	3/8" GAS BSPP	38	12	0,47
G4	1/2" GAS BSPP	50	16	0,63
G6	3/4" GAS BSPP	90	19	0,75
T4	1/2" GAS BSPP	50	16	0,63
T6	3/4" GAS BSPP	40	19	0,75

U — LATERALE / *LATERAL* / SEITLICH
C — POSTERIORE / *REAR* / HINTEN



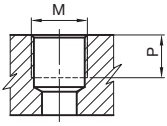
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N mm	N in	P mm	P in	Q mm	Q in	M	M Nm
*U3	3/8"	25	0,98	13	0,51	0,3	0,01	9/16-18 UNF	25
U5	5/8"	34	1,34	17	0,67	0,3	0,01	7/8-14 UNF	70
U6	3/4"	41	1,61	19	0,75	0,3	0,01	1-1/16-12 UNF	90
C5	5/8"	34	1,34	17	0,67	0,3	0,01	7/8-14 UNF	70
C6	3/4"	41	1,61	19	0,75	0,3	0,01	1-1/16-12 UNF	40

N — LATERALE / *LATERAL* / SEITLICH



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	M mm	M in	P mm	P in	Q mm	Q in	O	O Nm
N4	1/2"	13	0,51	38,1	1,49	17,5	0,68	5/16-18UNC-2B	15
N6	3/4"	20	0,79	47,6	1,87	22,2	0,87	3/8"-16UNC-2B	25
N7	1"	27	1,06	52,4	2,60	26,2	1,03	3/8"-16UNC-2B	30

M



TIPO *TYPE* TYP	M Nm	P mm	P in
*M2	M14x1,5	17	12	0,47

* Drenaggio * *Drain Port* * Lecköl

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

HPL..2

ESTREMITÀ ALBERO *SHAFT PROFIL* WELLENENDE	FLANGE *FLANGE* FLANSCHE							
	M L	**N V**	**O P**	**R**	**S Q**	**T**	**U**	
L	■							
M		■	[1.602] 40.70					
N	■							
P					■			
U	■	[0.925] 23.50	[1.031] 26.20					
V					■			
X					■			
Y						■		
Z				■			[0.394] 10 [0.126] 3.2	
BOCCHE *PORTS* **ANSCHLÜSSE**								
E	■							
G	■				■	■	■	
X		■	■	■				
U					■	■		
N					■	■		
C					■	■		
T	■	■	■	■	■	■	■	

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPL..2

HPL	PA	2	11	D	M	L	G4	G4	B	ST	--

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

MA - Motore
PA - Pompa singola
PT - Pompa predisposta

MA *- Motor*
PA *- Pump*
PT *- Adapted Pump*

MA - Motor
PA - Pumpe
PT - Vorbereitete Pumpe

GRUPPO
GROUP
BAUGRÖSSE

2

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

05 - 4,50
06 - 6,00
08 - 8,50
11 - 11,00
14 - 14,50
17 - 17,00
20 - 19,50
26 - 26,00
34 - 34,00
40 - 40,50

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
D - Oraria/destra
H - Bidirezionale drenaggio interno
B - Bidirezionale drenaggio esterno posteriore

S *- Counterclockwise*
D *- Clockwise*
H *- Reversible ind drain.*
B *- Reversible rear. drain. pont.*

S - Linkslauf
D - Rechtslauf
H - reversibel, Lecköl intern, Anschluß seitlich
B - reversibel, Lecköl extern, Anschluß hinten

FLANGIA ANTERIORE
FRONT FLANGE
VORDERER FLANSCH

L - Europea in ghisa
M - Europea
N - Tedesca
O - Tedesca D 50 2 fori DX
P - Tedesca D 50 2 fori SX
Q - SAE A 2 fori in ghisa
R - Tedesca D 52
S - SAE A 2 fori
T - SAE B 2 fori in ghisa
U - Perkins
V - Tedesca in ghisa

L *- European cast iron*
M *- European*
N *- German*
O *- German D 50 2 holes right*
P *- German D 50 2 holes left*
Q *- SAE A 2 holes cast iron*
R *- German D 52*
S *- SAE A 2 holes*
T *- SAE B 2 holes cast iron*
U *- Perkins*
V *- German cast iron*

L - EU-Norm Guß
M - EU-Norm
N - DIN-Norm
O - DIN-Norm D 50 Bohrungen rechts
P - DIN-Norm D 50 Bohrungen links
Q - SAE A 2 Bohrungen Guß
R - DIN-Norm D 52
S - SAE A 2 Bohrungen
T - SAE B 2 Bohrungen Guß
U - Perkins
V - Din gussversion

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

COPERCHI - ***COVERS*** **- DECKEL**
ST - Standard
SG - Versione in ghisa
Cast iron version
Gussversion
V.. - Con valvole (Vedi sez. valvole)
With valves (See valves section)
Mit Ventilen
(siehe Abschnitt Ventile)

GUARNIZIONI - ***SEALS*** **- DICHTUNGEN**
B - NBR
R - NBR alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)
V - Viton
W - Viton alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

BOCCHE STD - ***STANDARD PORT*** **- STANDARD ANSCHLÜSSE**
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

5.....8	*11*	*14.....20*	*26.....40*	
Pompe - *Pumps* -Pumpen IN/OUT		Pompe - *Pumps* -Pumpen IN/OUT	Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E3 E3		E5 E3	E5 E5	M2
G4 G4		G6 G4	G6 G6	G3
X5 X4	X6 X4	X6 X4	X6 X5	M2
U6 U5		U6 U5	U6 U5	U3
N4 N4		N6 N4	N7 N6	U3
C6 C5		C6 C5	C6 C5	U3
T6 T4		T6 T4	T6 T4	G3

MOTORI - ***MOTORS*** **- MOTOREN OUT/IN**
MOTORI BIDIR. IN=OUT - ***REVERS. MOTORS IN=OUT*** **-**
BIDIREK.MOTOREN IN=OUT

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

L - Conico (1:8)
M - Conico (1:5)
N - Cilindrico D15 europeo
P - Cilindrico SAE "A"
U - Scanalato DIN 5482
V - Scanalato SAE "A" 9T
X - Scanalato SAE "A" 11T
Y - Scanalato SAE "B" 13T
Z - Dente frontale

L *- Tapered (1:8)*
M *- Tapered (1:5)*
N *- D15 European parallel shaft*
P *- SAE "A" parallel shaft*
U *- DIN 5482 splined*
V *- SAE "A" 9T splined*
X *- SAE "A" 11T splined*
Y *- SAE "B" 13T splined*
Z *- Tang drive*

L - Kegel (1:8)
M - Kegel (1:5)
N - zylindrisch D15 (E-norm)
P - zylindrisch SAE "A"
U - Keilwelle DIN 5482
V - Keilwelle SAE "A" 9T
X - Keilwelle SAE "A" 11T
Y - Keilwelle SAE "B" 13T
Z - Kreuzprofil

HPL ..3

POMPE E MOTORI AD INGRANAGGI
GEAR PUMPS AND MOTORS
ZAHNRADPUMPEN UND -MOTOREN

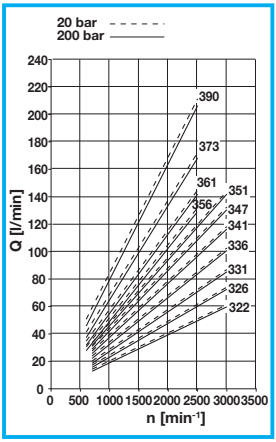
HPL PA3

POMPE AD INGRANAGGI
GEAR PUMPS
ZAHNRADPUMPEN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK CONTINUA *CONTINUOUS* DAUER		PRESSIONE *PRESSURE* DRUCK INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PRESSIONE *PRESSURE* DRUCK PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MAX	VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MIN	MASSA *WEIGHT* GEWICHT	
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
3	22	21,50	1,31	220	3191	250	3626	310	4496	3000	700	6,20	13,67
	26	26,00	1,59	210	3046	250	3626	300	4351			6,20	13,67
	31	30,50	1,86	210	3046	250	3626	280	4061			6,20	13,67
	36	36,00	2,20	210	3046	250	3626	280	4061			6,50	14,33
	41	41,50	2,53	210	3046	250	3626	280	4061			7,20	15,87
	47	46,50	2,84	180	2611	210	3046	270	3916			7,20	15,87
	51	50,50	3,08	180	2611	210	3046	270	3916			7,20	15,87
	56	56,00	3,42	170	2466	200	2901	230	3336	2500	600	7,40	16,31
	61	61,00	3,72	150	2176	180	2611	200	2901			7,60	16,76
	73	72,50	4,42	140	2031	150	2176	180	2611			8,00	17,64
	90	89,00	5,43	110	1595	120	1740	170	2466			8,60	18,96

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



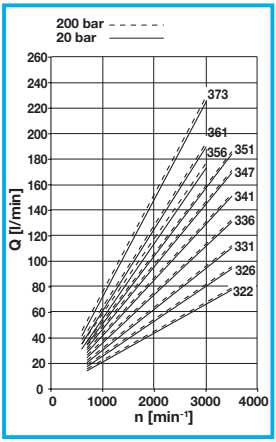
HPL MA3

MOTORI AD INGRANAGGI
GEAR MOTORS
ZAHNRADMOTOREN

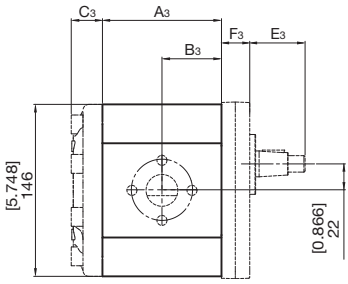
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK CONTINUA *CONTINUOUS* DAUER		PRESSIONE *PRESSURE* DRUCK INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PRESSIONE *PRESSURE* DRUCK PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MAX	VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL MIN	MASSA *WEIGHT* GEWICHT	
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
3	22	21,50	1,31	220	3191	250	3626	310	4496	3500	700	6,20	13,67
	26	26,00	1,59	210	3046	250	3626	300	4351			6,20	13,67
	31	30,50	1,86	210	3046	250	3626	280	4061			6,20	13,67
	36	36,00	2,20	210	3046	250	3626	280	4061			6,50	14,33
	41	41,50	2,53	210	3046	250	3626	280	4061			7,20	15,87
	47	46,50	2,84	180	2611	210	3046	270	3916			7,20	15,87
	51	50,50	3,08	180	2611	210	3046	270	3916			7,20	15,87
	56	56,00	3,42	170	2466	200	2901	230	3336	3000	600	7,40	16,31
	61	61,00	3,72	150	2176	180	2611	200	2901			7,60	16,76
	73	72,50	4,42	140	2031	150	2176	180	2611			8,00	17,64

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



DIMENSIONI
SIZE
ABMESSUNGEN



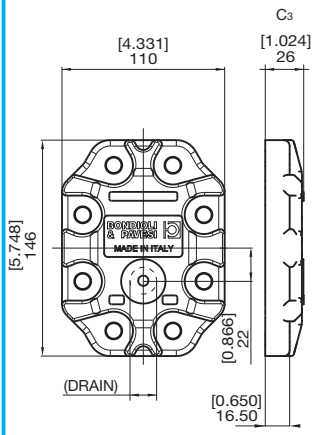
C_3= Vedi sezione coperchi — *C_3= See cover section* — C_3= siehe Abschnitt Deckel
F_3= Vedi sezione flange — *F_3= See flange section* — F_3= siehe Abschnitt Flansche
E_3= Vedi sezione profilo alberi — *E_3= See splined shafts section* — E_3= siehe Abschnitt Wellenprofile

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN

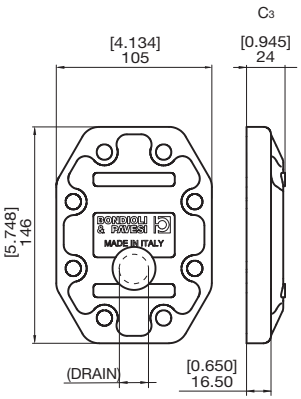
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A_3		B_3	
		mm	in	mm	in
3	22	81,07	3,192	40,5	1,594
	26	84,07	3,310	42,0	1,654
	31	87,07	3,428	43,5	1,714
	36	91,07	3,585	45,5	1,793
	41	95,07	3,743	47,5	1,870
	47	98,07	3,861	49,0	1,929
	51	101,07	3,979	50,5	1,990
	56	104,57	4,117	52,3	2,059
	61	108,57	4,274	54,3	2,137
	73	116,07	4,570	58,0	2,285
	90	127,07	5,003	63,5	2,501

COPERCHI
COVERS
DECKEL

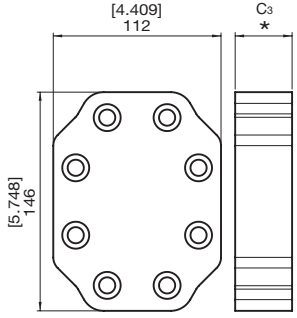
ST VERSIONE IN ALLUMINIO
ALUMINUM VERSION
ALUMINIUMVERSION



SG VERSIONE IN GHISA
CAST IRON VERSION
GUSSVERSION



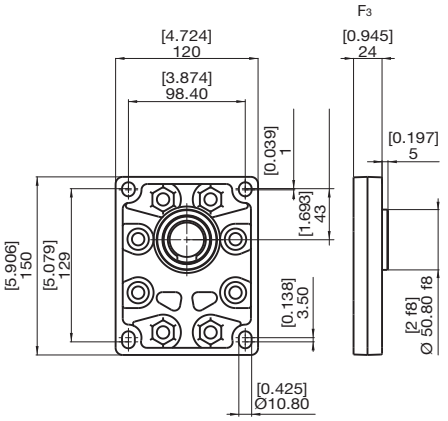
V.. PER BOCCHE POSTERIORI
E VALVOLE INTEGRATE
FOR REAR PORTS
AND INTEGRATED VALVES
FÜR HINTERE ANSCHLÜSSE
UND INTEGRIERTE VENTILE



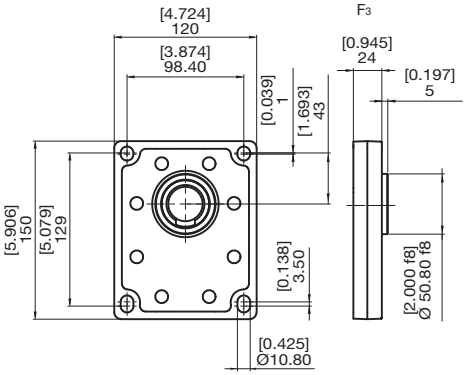
FLANGE **VERSIONE IN ALLUMINIO** **VERSIONE IN GHISA**
FLANGES ***ALUMINUM VERSION*** ***CAST IRON VERSION***
FLANSCHE **ALUMINIUMVERSION** **GUSSVERSION**

HPL..3

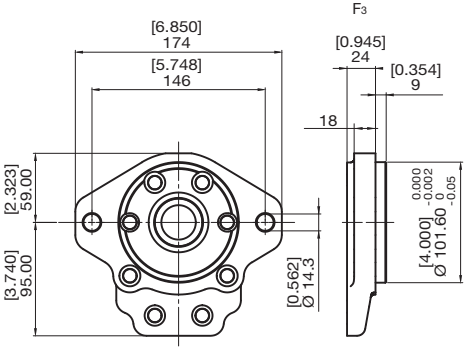
W



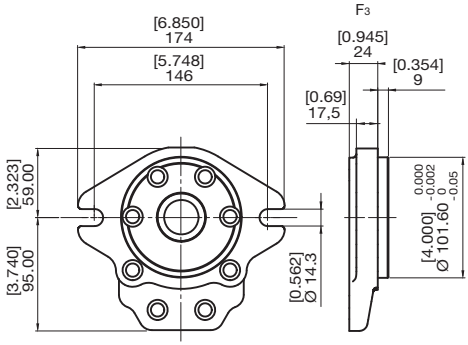
Y



Z



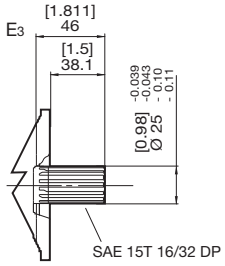
K



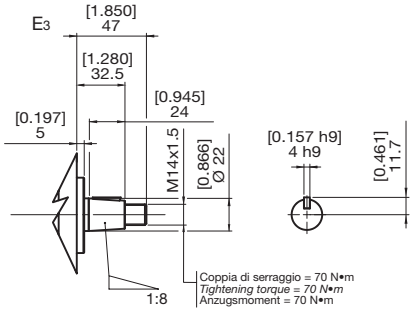
PROFILO ALBERI
SPLINE SHAFTS
WELLENPROFIL

HPL..3

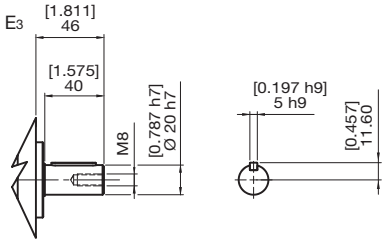
1
COPPIA MAX **460 N•m**
MAX TORQUE
MAX DREHMOMENT



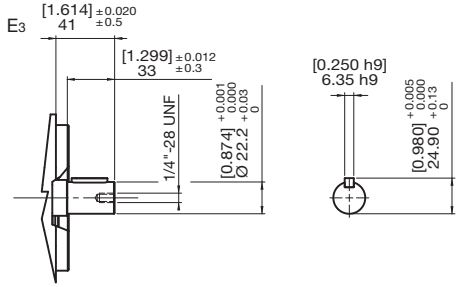
2
COPPIA MAX **240 N•m**
MAX TORQUE
MAX DREHMOMENT



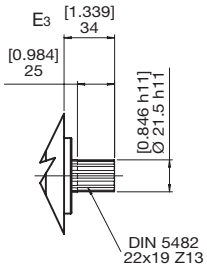
4
COPPIA MAX **190 N•m**
MAX TORQUE
MAX DREHMOMENT



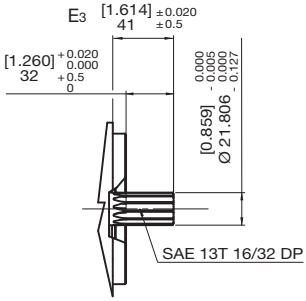
6
COPPIA MAX **210 N•m**
MAX TORQUE
MAX DREHMOMENT



7
COPPIA MAX **250 N•m**
MAX TORQUE
MAX DREHMOMENT



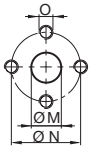
9
COPPIA MAX **310 N•m**
MAX TORQUE
MAX DREHMOMENT



BOCCHE
PORTS
ANSCHLÜSSE

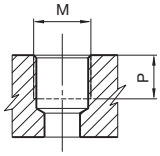
HPL..3

E — LATERALE *LATERAL* SEITLICH



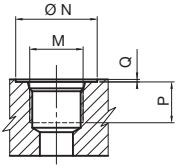
TIPO *TYPE* TYP	M		N		O	
	mm	in	mm	in		Nm
E5	20	0,79	40	1,57	M8	15
E7	27	1,06	51	2,01	M10	30
E8	34	1,34	62	2,44	M10	30

G — LATERALE *LATERAL* SEITLICH



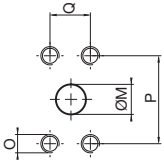
TIPO *TYPE* TYP	M		P	
		Nm	mm	in
*G3	3/8" GAS BSPP	38	12	0,47
G6	3/4" GAS BSPP	90	19	0,75
G7	1" GAS BSPP	130	21	0,83
G8	1 1/4" GAS BSPP	70	21	0,83

U — LATERALE *LATERAL* SEITLICH



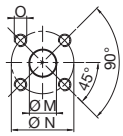
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U6	3/4"	41	1,61	20	0,79	0,3	0,01	1-1/16"-12 UNF	90
U7	1"	49	1,93	20	0,79	0,3	0,01	1-5/16"-12UNF	130
U8	1 1/4"	58	2,28	20	0,79	0,3	0,01	1-5/8"-12 UNF	70

N — LATERALE *LATERAL* SEITLICH



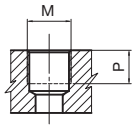
TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	M		P		Q		O	
		mm	in	mm	in	mm	in		Nm
N6	3/4"	20	0,79	47,6	1,87	22,2	0,87	3/8"-16UNC-2B	25
N7	1"	27	1,06	52,4	2,60	26,2	1,03	3/8"-16UNC-2B	30
N8	1 1/4"	34	1,34	58,7	2,31	30,2	1,19	7/16"-14UNC-2B	45

X — LATERALE *LATERAL* SEITLICH



TIPO *TYPE* TYP	M		N		O	
	mm	in	mm	in		Nm
X7	19	0,75	55	2,17	M8	15
X8	27	1,06	55	2,17	M8	15

M



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
*M3	M16x1,5	35	12	0,47

* Drenaggio * *Drain Port* * Lecköl

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

HPL..3

ESTREMITÀ ALBERO *SHAFT PROFIL* WELLENENDE	FLANGE *FLANGE* FLANSCHE W Y	 Z K
1		■
2	■	
4	■	
6		■
7	■	
9		■
BOCCHE *PORTS* **ANSCHLÜSSE**		
E	■	
G	■	■
U		■
N		■
X	■	

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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPL..3

HPL	PA	3	36	D	W	2	E7 E5	B	ST	--

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

MA - Motore
PA - Pompa singola
PT - Pompa predisposta

MA *- Motor*
PA *- Pump*
PT *- Adapted Pump*

MA - Motor
PA - Pumpe
PT - Vorbereitete Pumpe

GRUPPO
GROUP
BAUGRÖSSE

3

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

22 - 21,50
26 - 26,00
31 - 30,50
36 - 36,00
41 - 41,50
47 - 46,50
51 - 50,50
56 - 56,00
61 - 61,00
73 - 72,50
90 - 89,00

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
D - Oraria/destra
H - Bidirezionale drenaggio interno
B - Bidirezionale drenaggio esterno posteriore

S *- Counterclockwise*
D *- Clockwise*
H *- Reversible ind drain.*
B *- Reversible rear. drain. pont.*

S - Linkslauf
D - Rechtslauf
H - reversibel, Lecköl intern, Anschluß seitlich
B - reversibel, Lecköl extern, Anschluß hinten

FLANGIA ANTERIORE
FRONT FLANGE
VORDERER FLANSCH

W - Europea D 50,8
Z - SAE B 2 fori
Y - Europea D 50,8 ghisa
K - SAE B 2 fori ghisa

W *- European D 50,8*
Z *- SAE B 2 holes*
Y *- European D 50,8 cast iron*
K *- SAE B 2 holes cast iron*

W - EU-Norm D 50,8
Z - SAE B 2 Bohrungen
Y - EU-Norm D 50,8 Guß
K - SAE B 2 Bohrungen Guß

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

COPERCHI - ***COVERS*** **- DECKEL**

ST - Standard
SG - Versione in ghisa
cast iron version
Gussversion
V.. - Con valvole
(Vedi sez. valvole)
With valves
(See valves section)
Mit Ventilen
(siehe Abschnitt Ventile)

GUARNIZIONI
SEALS
DICHTUNGEN

B - NBR
R - NBR alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)
V - Viton
W - Viton alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

BOCCHE STD - ***STANDARD PORT*** **- STANDARD ANSCHLÜSSE**
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

22.....31	*36.....61*	*73.....90*	
Pompe - *Pumps* -Pumpen IN/OUT	Pompe - *Pumps* -Pumpen IN/OUT	Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E5 E5	E7 E5	E8 E7	M3
G6 G6	G7 G6	G8 G7	G3
U7 U6	U8 U7	U8 U7	M3
N7 N6	N7 N6	N8 N7	M3
X8 X7	X8 X7	X8 X7	M3

MOTORI - ***MOTORS*** **- MOTOREN OUT/IN**
MOTORI BIDIR. IN=OUT - ***REVERS. MOTORS IN=OUT*** **-**
BIDIREK.MOTOREN IN=OUT

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

1 - Scanalato SAE "BB" 15T
2 - Conico (1:8)
4 - Cilindrico europeo
6 - Cilindrico SAE "B"
7 - Scanalato DIN 5482
9 - Scanalato SAE "B" 13T

1 *- SAE "BB" 15T splined*
2 *- Tapered (1:8)*
4 *- European parallel shaft*
6 *- SAE "B" parallel shaft*
7 *- DIN 5482 splined*
9 *- SAE "B" 13T splined*

1 - Keiwelle SAE "BB" 15T
2 - Kegel (1:8)
4 - Kegel EU-Norm
6 - zylindrisch SAE "B"
7 - Keilwelle DIN 5482
9 - Keilwelle SAE "B" 13T

HPL ..4

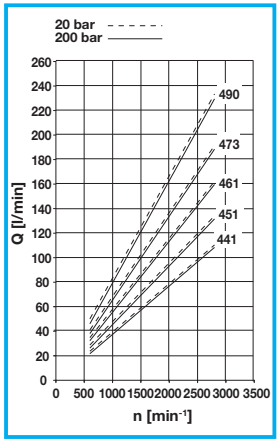
POMPE E MOTORI AD INGRANAGGI
GEAR PUMPS AND MOTORS
ZAHNRADPUMPEN UND -MOTOREN

HPL PA4

POMPE AD INGRANAGGI
GEAR PUMPS
ZAHNRADPUMPEN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



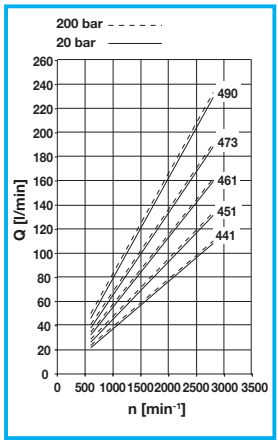
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK – CONTINUA *CONTINUOS* DAUER		PRESSIONE *PRESSURE* DRUCK – INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PRESSIONE *PRESSURE* DRUCK – PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
										MAX	MIN		
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
4	41	41,80	2,55	220	3191	250	3626	300	4351	2800	600	9,20	20,28
	51	50,40	3,08	190	2756	210	3046	280	4061			9,20	20,28
	61	61,00	3,72	160	2321	180	2611	200	2901			9,60	21,16
	73	72,00	4,39	150	2176	160	2321	180	2611			9,60	21,16
	90	87,80	5,36	120	1740	130	1885	170	2466			9,60	21,16

HPL MA4

MOTORI AD INGRANAGGI
GEAR MOTORS
ZAHNRADMOTOREN

DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

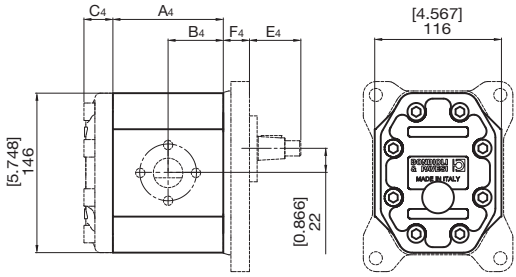
DIAGRAMMA PORTATE
DIAGRAMS
KENNLINIEN



GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK – CONTINUA *CONTINUOS* DAUER		PRESSIONE *PRESSURE* DRUCK – INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER		PRESSIONE *PRESSURE* DRUCK – PICCO *PEAK* SPITZEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL		MASSA *WEIGHT* GEWICHT	
										MAX	MIN		
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹	kg	lbs
4	41	41,80	2,55	220	3191	250	3626	300	4351	2800	600	9,20	20,28
	51	50,40	3,08	190	2756	210	3046	280	4061			9,20	20,28
	61	61,00	3,72	160	2321	180	2611	200	2901			9,60	21,16
	73	72,00	4,39	150	2176	160	2321	180	2611			9,60	21,16
	90	87,80	5,36	120	1740	130	1885	170	2466			9,60	21,16

DIMENSIONI
SIZE
ABMESSUNGEN

HPL..4



C_4= Vedi sezione coperchi
F_4= Vedi sezione flange
E_4= Vedi sezione profilo alberi

C_4= See cover section
F_4= See flange section
E_4= See splined shafts section

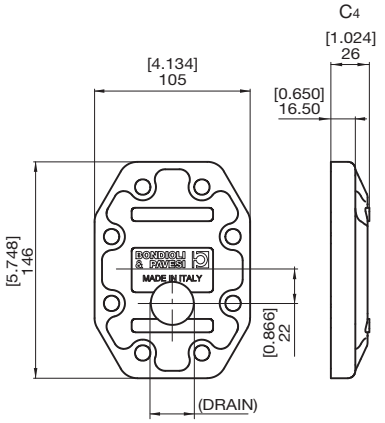
C_4= siehe Abschnitt Deckel
F_4= siehe Abschnitt Flansche
E_4= siehe Abschnitt Wellenprofile

DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A_4		B_4	
		mm	in	mm	in
4	41	101,07	3,979	50,5	1,990
	51	101,07	3,979	50,5	1,990
	61	108,57	4,274	54,3	2,137
	73	116,07	4,570	58,0	2,285
	90	127,07	5,003	63,5	2,501

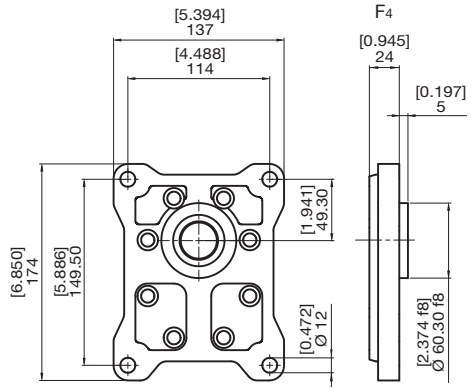
COPERCHI
COVERS
DECKEL

SG VERSIONE IN GHISA
CAST IRON VERSION
GUSSVERSION



FLANGE
FLANGES
FLANSCHE

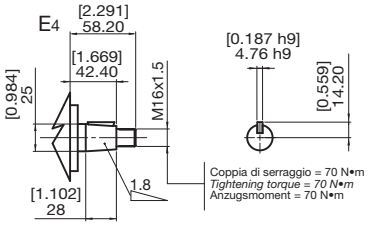
X VERSIONE IN GHISA
CAST IRON VERSION
GUSSVERSION



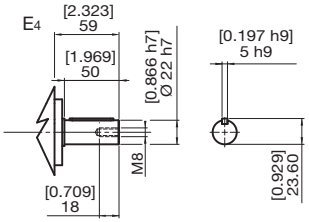
PROFILO ALBERI
SPLINE SHAFTS
WELLENPROFILE

HPL..4

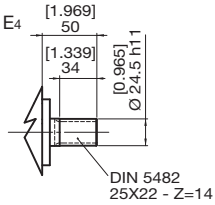
3 COPPIA MAX *MAX TORQUE* MAX DREHMOMENT 350 N•m



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

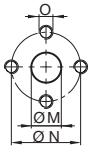


8 COPPIA MAX *MAX TORQUE* MAX DREHMOMENT 350 N•m



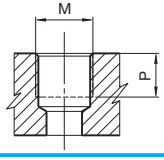
BOCCHE
PORTS
ANSCHLÜSSE

E LATERALE *LATERAL* SEITLICH



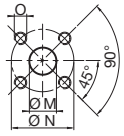
TIPO TYPE TYP	M		N		O	
	mm	in	mm	in		Nm
E7	27	1,06	51	2,01	M10	30
E8	34	1,34	62	2,44	M10	30

G LATERALE *LATERAL* SEITLICH



TIPO TYPE TYP	M		P	
		Nm	mm	in
***G3**	3/8" GAS BSPP	38	12	0,47
G7	1" GAS BSPP	130	21	0,83
G8	1 1/4" GAS BSPP	170	21	0,83

X LATERALE *LATERAL* SEITLICH

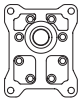


TIPO TYPE TYP	M		N		O	
	mm	in	mm	in		Nm
X7	19	0,75	55	2,17	M8	15
X8	27	1,06	55	2,17	M8	15

* Drenaggio * *Drain Port* * Lecköl

COMBINAZIONI
COMBINATIONS
KOMBINATIONEN

HPL..4

ESTREMITÀ ALBERO *SHAFT PROFIL* WELLENENDE	FLANGE *FLANGE* FLANSCHE X 
3 	■
5 	■
8 	■
BOCCHE *PORTS* ANSCHLÜSSE	
E 	■
G 	■
X 	■

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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPL..4

HPL	PA	4	61	D	X	3	E7 E7	B	SG

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

MA - Motore
PA - Pompa singola
PT - Pompa predisposta

MA *- Motor*
PA *- Pump*
PT *- Adapted Pump*

MA - Motor
PA - Pumpe
PT - Vorbereitete Pumpe

GRUPPO
GROUP
BAUGRÖSSE

4

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

41 - 41,80
51 - 50,40
61 - 61,00
73 - 72,00
90 - 87,80

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
D - Oraria/destra
H - Bidirezionale drenaggio interno
B - Bidirezionale drenaggio esterno posteriore

S *- Counterclockwise*
D *- Clockwise*
H *- Reversible ind drain.*
B *- Reversible rear. drain. pont.*

S - Linkslauf
D - Rechtslauf
H - reversibel, Lecköl intern, Anschluß seitlich
B - reversibel, Lecköl extern, Anschluß hinten

FLANGIA ANTERIORE
FRONT FLANGE
VORDERER FLANSCH

X - Europea D 60,3

X *- European D 60,3*

X - EU-Norm D 60,3

BOCCHE STD
STANDARD PORT
STANDARD ANSCHLÜSSE

CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

41.....61	***73.....90***	
Pompe - *Pumps* -Pumpen IN/OUT	Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E7 E7 **G7 G7** **X8 X7**	**E8 E7** **G8 G8** **X8 X7**	**G3** **G3** **G3**

MOTORI - *MOTORS* - MOTOREN OUT/IN
MOTORI BIDIR. IN=OUT - *REVERS. MOTORS IN=OUT* - BIDIREK.MOTOREN IN=OUT

COPERCHI
COVERS
DECKEL

SG - Versione in ghisa
Cast iron version
Gussversion

GUARNIZIONI
SEALS
DICHTUNGEN

B - NBR
R - NBR alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

V - Viton
W - Viton alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

3 - Conico (1:8)
5 - Cilindrico europeo
8 - Scanalato DIN 5482

3 *- Tapered (1:8)*
5 *- European parallel shaft*
8 *- DIN 5482 splined*

3 - Kegel (1:8)
5 - Kegel EU-Norm
8 - Keilwelle DIN 5482

HPL..

POMPE MULTIPLE
MULTIPLE GEAR PUMPS
MEHRFACHPUMPEN

Le pompe multiple sono combinazioni di due o più sezioni trascinate da un unico albero. Il trascinamento delle sezioni che compongono la pompa multipla avviene per mezzo di giunti scanalati.
La pompa multipla così composta può avere aspirazione e mandata per ogni stadio oppure, laddove possibile, aspirazione unica e più mandate.
Per le singole sezioni valgono i valori riportati a catalogo con alcune limitazioni di pressione derivanti dalla coppia massima del giunto di trascinamento e dell'estremità di albero.
La velocità massima di una pompa multipla è limitata al valore minimo delle velocità massime delle singole sezioni.
A seguire un utile esempio per dimensionare correttamente la coppia trasmissibile all'estremità di albero e per ogni singolo stadio di una pompa tripla gruppo 3 + gruppo 3 + gruppo 2 a determinate pressioni di esercizio su ogni stadio.

Multiple pumps are combinations of two or more stages driven by one shaft. The rear pumps are driven by splined couplings.
The multiple pumps can have individual inlet and outlet ports for each stage or wherever possible a common inlet and separate outlet ports.
The technical features acc. data sheet of the present catalogue are valid for each stage, taking into consideration the limitations of transmissible torque of each coupling and the drive shaft.
The max. speed of the multiple pump is limited by the lowest max. speed of the individual stages.
Please follow the example of calculation for the correct projecting of the torque to be transmitted by the shaft and each coupling, here we calculate the admissible pressure for each stage of a triple pump consisting of group 3 + group 3 + group2.

Mehrfachpumpen sind Pumpenkombinationen von mindestens zwei Stufen, die von einer Welle angetrieben werden. Die hinteren Pumpen werden von verzahnten Kupplungen angetrieben.
Mehrfachpumpen können je Stufe einen separaten Saug- und Druckanschluss haben oder, wo möglich, einen gemeinsamen Sauganschluss und getrennte Druckanschlüsse.
Die technischen Daten für die einzelnen Stufen sind entsprechend dem Datenblatt dieses Katalogs, wobei das übertragbare Drehmoment der Antriebswelle und der Zwischenkupplungen beachtet werden muß.
Die Höchstdrehzahl der Mehrfachpumpe wird bestimmt von der niedrigsten Höchstdrehzahl der einzelnen Stufen.
Um das zulässige höchste Drehmoment nicht zu überschreiten, berechnen Sie den zulässigen Betriebsdruck der einzelnen Stufen; folgen Sie dem nachfolgenden Beispiel, hier eine 3-fach Pumpe, bestehend aus einer Kombination von Gr.3 + Gr.3 + Gr.2

ESEMPIO POMPA TRIPLA:

HPLPC336DW2E7E5B326E5E5208E3E3ST

La formula del calcolo della coppia da impiegare è:

$$M = \frac{\Delta p \cdot c}{62{,}83 \cdot \eta_m} \qquad [Nm]$$

dove:

M = Coppia (Nm)
ΔP = Pressione (bar)
c = Cilindrata pompa (cm³)
62,83 = Fattore di conversione
η_m= Rendimento meccanico = 0,9

Il calcolo si svolge partendo dall'ultimo stadio della pompa risalendo fino all'albero primario. In tutti gli stadi il risultato della coppia calcolata deve essere minore o uguale alla coppia massima ammissibile di ciascun giunto di trascinamento, compreso l'estremità d'albero della pompa.

Stadio 3:
Gruppo 2, cilindrata 8,5 cm³ Pressione di funzionamento 180 bar: M_3 = 27.06 Nm.
La condizione del giunto 2 è soddisfatta. (limite massimo 100 Nm).

Stadio 2:
Gruppo 3, cilindrata 26 cm³ Pressione di funzionamento 200 bar: M_2 = 91.96 Nm.
M_3+M_2 =119.02 Nm.
La condizione del giunto 1 è soddisfatta. (limite massimo 200 Nm).

Stadio 1:
Gruppo 3, cilindrata 36 cm³ Pressione di funzionamento 200 bar: M_1 = 127.32 Nm
$M_3+M_2+M_1$ = 246.34 Nm.

EXAMPLE OF TRIPLE PUMP:

HPLPC336DW2E7E5B326E5E5208E3E3ST

The calculation formula of the torque to use is:

$$M = \frac{\Delta p \cdot c}{62{,}83 \cdot \eta_m} \qquad [Nm]$$

where:

M = Torque (Nm)
ΔP = Pressure (bar)
c = Pump displacement (cm³)
62,83 = Conversion factor
η_m= *Mechanical efficiency = 0,9*

The calculation is made from the last stage of the pump and going back as far as the main shaft. At all stages the result of the calculated torque must be less than or equal to the maximum permissible torque of each drive joint, including the pump shaft profile.

Stage 3:
Group 2, displacement 8,5 cm³ Operating pressure 180 bar: M_3 = 27.06 Nm
The joint 2 condition is satisfied. (maximum limit 100 Nm).

Stage 2:
Group 3, displacement 26 cm³ Operating pressure 200 bar: M_2 = 91.96 Nm
M_3+M_2 =119.02 Nm
The joint 1 condition is satisfied. (maximum limit 200 Nm).

Stage 1:
Group 3, displacement 36 cm³ Operating pressure 200 bar: M_1 = 127.32 Nm
$M_3+M_2+M_1$ = 246.34 Nm .

BEISPIEL EINER DREIFACHPUMPE:

HPLPC336DW2E7E5B326E5E5208E3E3ST

Formel zur Berechnung des erforderlichen Drehmoments:

$$M = \frac{\Delta p \cdot c}{62{,}83 \cdot \eta_m} \qquad [Nm]$$

wobei:

M = Drehmoment (Nm)
ΔP = Druck (bar)
c = Fördervolumen der Pumpe (cm³)
62,83 = Umrechnungsfaktor
η_m= mechanischer Wirkungsgrad = 0,9

Die Berechnung erfolgt ausgehend von der letzten Stufe der Pumpe bis hin zur Hauptwelle. In allen Stufen muss das Ergebnis des berechneten Drehmoments kleiner oder gleich dem Wert des zulässigen Höchstdrehmoments jeder Mitnehmerwelle, einschließlich Wellenende der Pumpe, sein.

Stufe 3:
Baugröße 2, Fördervolumen 8,5 cm³, Betriebsdruck 180 bar: M_3 = 27,06 Nm.
Die Bedingung der Mitnehmerwelle 2 ist erfüllt (Höchstgrenze 100 Nm).

Stufe 2:
Baugröße 3, Fördervolumen 26 cm³, Betriebsdruck 200 bar: M_2 = 91,96 Nm.
$M_3 + M_2$ = 119,02 Nm.
Die Bedingung der Mitnehmerwelle 1 ist erfüllt (Höchstgrenze 200 Nm).

Stufe 1:
Baugröße 3, Fördervolumen 36 cm³, Betriebsdruck 200 bar: M_1 = 127,32 Nm
$M_3 + M_2 + M_1$ = 246,34 Nm.

PER LE DIMENSIONI DELLE SINGOLE SEZIONI VEDERE IL GRUPPO DI RIFERIMENTO

FOR DIMENSION OF EACH SECTION REFER TO THE GROUP DIMENSION TABLE

DIE ABMESSUNGEN DER EINZELNEN PUMPEN ENTNEHMEN SIE BITTE DER ENTSPRECHENDEN TABELLE.

La condizione dell'albero conduttore NON è soddisfatta (limite massimo 240 Nm).
Occorre abbassare la pressione di funzionamento oppure la cilindrata, supponendo la pressione di funzionamento 180 bar M_1 = 114.59 Nm.
$M_3+M_2+M_1$ = 233.61 Nm.

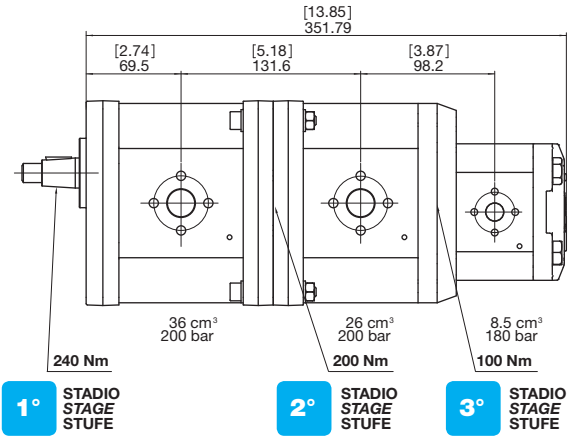
La condizione dell'albero conduttore è soddisfatta (limite massimo 240 Nm).

The condition of the driving shaft is NOT met (max limit 240 Nm).
The operating pressure or the capacity must be lowered, taking into consideration an operating pressure equal to 180 Bar M_1 = 114.59 Nm.
$M_3+M_2+M_1$ = 233.61 Nm.

The condition of the driving shaft is met (max limit 240 Nm).

Die Bedingung der Antriebswelle ist NICHT erfüllt (Höchstgrenze 240 Nm).
Der Betriebsdruck oder das Fördervolumen muss verringert werden, z.B. Betriebsdruck von 180 bar:
M_1 = 114,59 Nm.
$M_3 + M_2 + M_1$ = 233,61 Nm.

Die Bedingung der Antriebswelle ist erfüllt (Höchstgrenze 240 Nm).



1° STADIO - *STAGE* - STUFE

HPL	PC	3	36	D	W	2	E7E5	B

2° STADIO - *STAGE* - STUFE

3	26	E5E5

3° STADIO - *STAGE* - STUFE

2	08	E3E3	ST

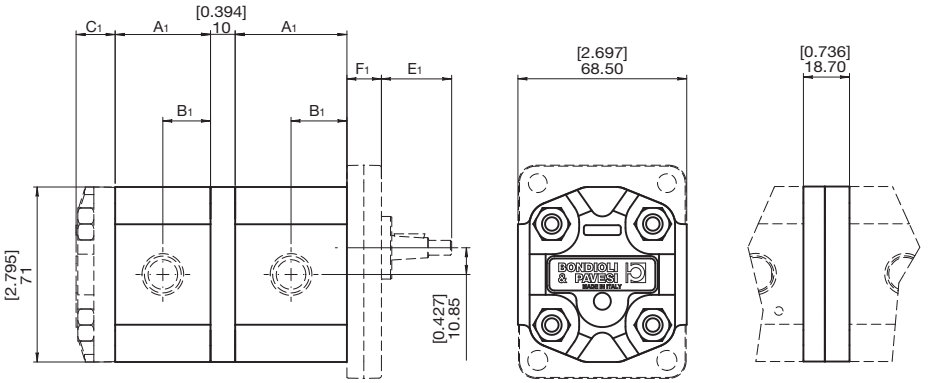
GIUNTO DI ACCOPPIAMENTO
COUPLING JOINT
WELLENKUPPLUNG

GIUNTO DI ACCOPPIAMENTO *COUPLING JOINT* WELLENKUPPLUNG	COPPIA MASSIMA TRASMISSIBILE *MAXIMUM TRASMITTED TORQUE* MAX. ÜBERTRAGBARES DREHMOMENT
HPLP•3 + HPLP•3	200 N•m
HPLP•3 + HPLP•2 HPLP•2 + HPLP•2	100 N•m
HPLP•3 + HPLP•1 HPLP•2 + HPLP•1 HPLP•1 + HPLP•1	30 N•m

DIMENSIONI
SIZE
ABMESSUNGEN

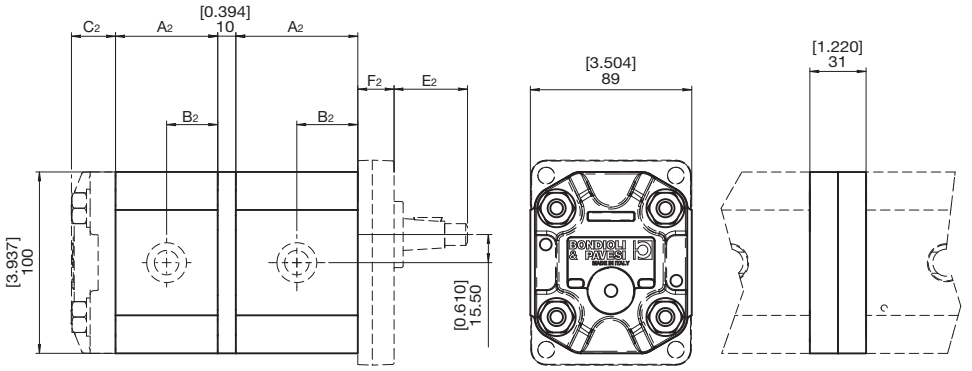
HPLP..

HPLP•1+HPLP•1



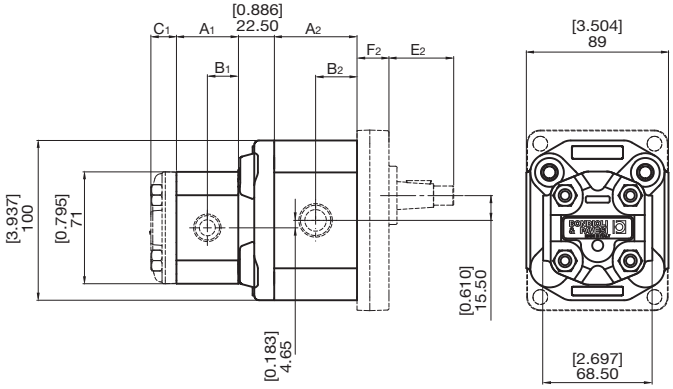
POMPA A STADI SEPARATI
SEPARATE TANKS PUMP
UNTERSCHIEDLICHEPUMPE BEHÄLTER

HPLP•2+HPLP•2



POMPA A STADI SEPARATI
SEPARATE TANKS PUMP
UNTERSCHIEDLICHEPUMPE BEHÄLTER

HPLP•2+HPLP•1

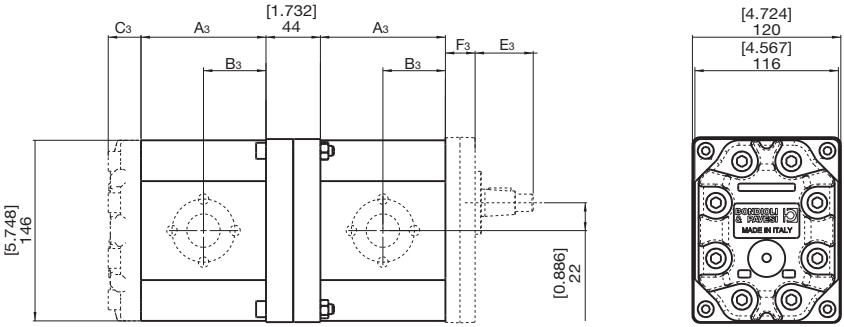


Per pompa a stadi separati le dimensioni di ingombro non variano

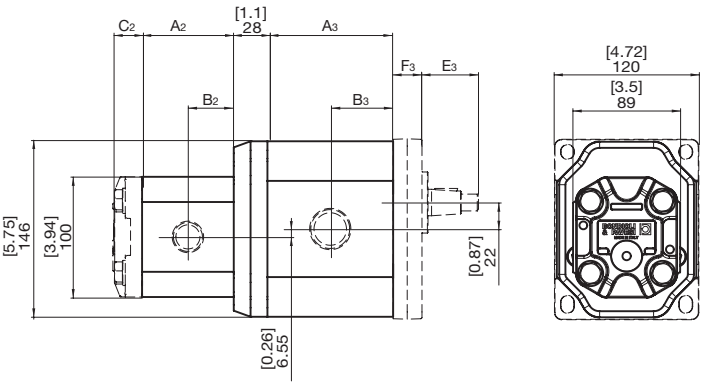
Separate tanks pump use same dimensions

Unterschiedlichepumpe Behälter verwenden die gleichen Masse

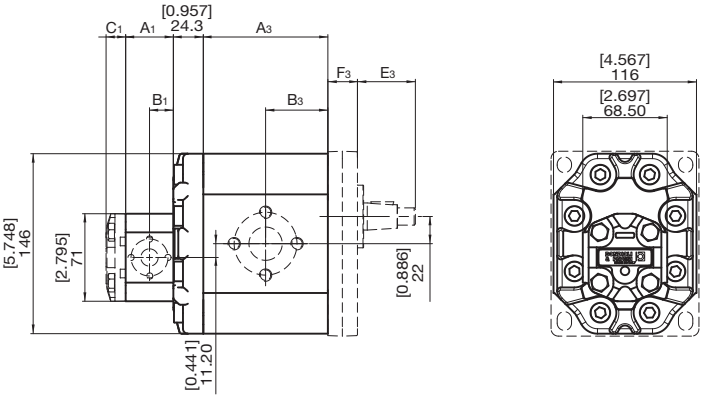
HPLP•3+HPLP•3



HPLP•3+HPLP•2



HPLP•3+HPLP•1



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ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPLP..

1° STADIO (Descrizione dello Stadio - *Stage Description* - Stufe-Benennung)

HPL | **PB** | **2** | **14** | **D** | **M** | **L**

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

PB - Pompa doppia
PC - Pompa tripla
PD - Pompa quadrupla

PB *- Double Pump*
PC *- Triple Pump*
PD *- Quadruple Pump*

PB - Doppelpumpe
PC - Dreifachpumpe
PD - Vierfachpumpe

GRUPPO
GROUP
BAUGRÖSSE

1 - 2 - 3 - 4

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

HPL..1	HPL..2	HPL..3	HPL..4
14 - 1,37	**05** -4,50	**22** -21,50	**41** -41,80
19 - 1,9	**06** -6,00	**26** -26,00	**51** -50,40
24 - 2,53	**08** -8,50	**31** -30,50	**61** -61,00
31 - 3,17	**11** -11,00	**36** -36,00	**73** -72,00
36 - 3,73	**14** -14,50	**41** -41,50	**90** -87,80
44 - 4,35	**17** -17,00	**47** -46,50	
48 - 4,97	**20** -19,50	**51** -50,50	
60 - 6,08	**26** -26,00	**56** -56,00	
70 - 7,00	**34** -34,00	**61** -61,50	
80 - 7,87	**40** -40,50	**73** -72,50	
		90 -89,00	

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
Counterclockwise
Linkslauf

D - Oraria/destra
Clockwise
Rechtslauf

FLANGIA ANTERIORE
FRONT FLANGE
VORDERER FLANSCH

HPL..1

D - Europea D 25,4
E - Europea D 30
G - Tedesca con OR
J - SAE AA

D *- European standard*
E *- European Ø 30*
G *- German with OR*
J *- SAE AA*

D - EU-Norm.D 25,4
E - EU-Norm.D 30
G - DIN-Norm.(mit O.R. Dichtung)
J - SAE AA

HPL..2

L - Europea in ghisa
M - Europea
N - Tedesca
O - Tedesca D 50 2 fori DX
P - Tedesca D 50 2 fori SX
Q - SAE A 2 fori in ghisa
R - Tedesca D 52
S - SAE A 2 fori
T - SAE B 2 fori in ghisa
U - Perkins
V - Tedesca in ghisa

L *- European cast iron*
M *- European*
N *- German*
O *- German D 50 2 holes right*
P *- German D 50 2 holes left*
Q *- SAE A 2 holes cast iron*
R *- German D 52*
S *- SAE A 2 holes*
T *- SAE B 2 holes cast iron*
U *- Perkins*
V *- German cast iron*

L - EU-Norm Guß
M - EU-Norm
N - DIN-Norm
O - DIN-Norm D 50 Bohrungen rechts
P - DIN-Norm D 50 Bohrungen links
Q - SAE A 2 Bohrungen Guß
R - DIN-Norm D 52
S - SAE A 2 Bohrungen
T - SAE B 2 Bohrungen Guß
U - Perkins
V - Din gussversion

HPL..3

W - Europea D 50,8
Z - SAE B 2 fori
Y - Europea D 50,8 ghisa
K - SAE B 2 fori ghisa

W *- European D 50,8*
Z *- SAE B 2 holes*
Y *- European D 50,8 cast iron*
K *- SAE B 2 holes cast iron*

W - EU-Norm D 50,8
Z - SAE B 2 Bohrungen
Y - EU-Norm D 50,8 Guß
K - SAE B 2 Bohrungen Guß

HPL..4

X - Europea D 60,3

X *- European D 60,3*

X - EU-Norm D 60,3

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

HPL..1

D - Conico (1:8)
E - Cilindrico europeo
F - Cilindrico SAE "AA"
G - Conico (1:5)
H - Scanalato 12x9
I - Scanalato SAE "AA"
J - Dente frontale sporgente
K - Dente frontale
T - Conico high torque (1:8)
D *- Tapered (1:8)*
E *- European parallel shaft*
F *- SAE "AA" parallel shaft*
G *- Tapered (1:5)*
H *- Splined 12x9*
I *- SAE "AA" splined*
J *- Front tooth*
K *- Tang drive*
T *- Tapered high torque (1:8)*
D - Kegel (1:8)
E - zylindrisch (E-norm)
F - zylindrisch SAE "AA"
G - Kegel (1:5)
H - Keilwelle 12x9
I - Keilwelle SAE "AA"
J - Vorstehendes Kreuzprofil
K - Kreuzprofil
T - verstärkter Kegel (1:8)

HPL..2

L - Conico (1:8)
M - Conico (1:5)
N - Cilindrico D15 europeo
P - Cilindrico SAE "A"
U - Scanalato DIN 5482
V - Scanalato SAE "A" 9T
X - Scanalato SAE "A" 11T
Y - Scanalato SAE "B" 13T
Z - Dente frontale
L *- Tapered (1:8)*
M *- Tapered (1:5)*
N *- D15 European parallel shaft*
P *- SAE "A" parallel shaft*
U *- DIN 5482 splined*
V *- SAE "A" 9T splined*
X *- SAE "A" 11T splined*
Y *- SAE "B" 13T splined*
Z *- Tang drive*
L - Kegel (1:8)
M - Kegel (1:5)
N - zylindrisch (E-norm)
P - zylindrisch SAE "A"
U - Keilwelle DIN 5482
V - Keilwelle SAE "A" 9T
X - Keilwelle SAE "A" 11T
Y - Keilwelle SAE "B" 13T
Z - Kreuzprofil

HPL..3

1 - Scanalato SAE "BB" 15T
2 - Conico (1:8)
4 - Cilindrico europeo
6 - Cilindrico SAE "B"
7 - Scanalato DIN 5482
9 - Scanalato SAE "B" 13T
1 *- SAE "BB" 15T Splined*
2 *- Tapered (1:8)*
4 *- European parallel shaft*
6 *- SAE "B" parallel shaft*
7 *- DIN 5482 splined*
9 *- SAE "B" 13T splined*
1 - Keiwelle SAE "BB" 15T
2 - Kegel (1:8)
4 - Kegel EU-Norm
6 - zylindrisch SAE "B"
7 - Keilwelle DIN 5482
9 - Keilwelle SAE "B" 13T

HPL..4

3 - Conico (1:8)
5 - Cilindrico europeo
8 - Scanalato DIN 5482
3 *- Tapered (1:8)*
5 *- European parallel shaft*
8 *- DIN 5482 splined*
3 - Kegel (1:8)
5 - zylindrisch EU-Norm
8 - Keilwelle DIN 5482

STADI SUCCESSIVI - FOLLOWING STAGES - FOLGESTUFEN
(Descrizione dello Stadio - *Stage Description* - Stufe Benennung)

G6 G4	B	1	36	G3 G3	ST	--

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

COPERCHI
COVERS
DECKEL
ST - Standard
V.. - Con valvole
(Vedi sez. valvole)
With valves
(See valves section)
Mit Ventilen
(siehe Abschnitt Ventile)
SG - Versione in ghisa.
Non disponibile per il Gruppo 1
Cast iron version
Not available for Group 1
Gussversion
Nicht vorhanden für Gruppe 1
EU* - Entrata unica
Common inlet
Geläufiger Eingang

BOCCHE STD - *STANDARD PORT* - STANDARD ANSCHLÜSSE
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

HPL..1
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

1,4.....4,8 Pompe - *Pumps* Pumpen IN/OUT	6.....8 Pompe - *Pumps* Pumpen IN/OUT
E3 E3	E3 E3
G3 G3	G4 G4
X3 X3	X3 X3
M4 M2	M4 M2

1,4.....4,8 Pompe - *Pumps* Pumpen IN/OUT	6.....8 Pompe - *Pumps* Pumpen IN/OUT
U3 U3	U4 U4

HPL..2
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

5.....8 Pompe - *Pumps* Pumpen IN/OUT	11 Pompe - *Pumps* Pumpen IN/OUT	14.....20 Pompe - *Pumps* Pumpen IN/OUT	26.....40 Pompe - *Pumps* Pumpen IN/OUT
E3 E3		E5 E3	E5 E5
G4 G4		G6 G4	G6 G6
X5 X4	X6 X4	X6 X4	X6 X5
U6 U5		U6 U5	U6 U5
N4 N4		N6 N4	N7 N6

HPL..3
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

22.....31 Pompe - *Pumps* Pumpen IN/OUT	36.....61 Pompe - *Pumps* Pumpen IN/OUT	73.....90 Pompe - *Pumps* Pumpen IN/OUT
E5 E5	E7 E5	E8 E7
G6 G6	G7 G6	G8 G7
U7 U6	U8 U7	U8 U7
N7 N6	N7 N6	N8 N7
X8 X7	X8 X7	X8 X7

HPL..4
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

41.....61 Pompe - *Pumps* Pumpen IN/OUT	73.....90 Pompe - *Pumps* Pumpen IN/OUT
E7 E7	E8 E7
G7 G7	G8 G8
X8 X7	X8 X7

*** Versione EU stadio successivo al primo IN = SF**
**** EU version following stage IN = SF***
*** EU Version Folgestufen IN = SF**

BOCCHE
PORT
ANSCHLÜSSE

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

GRUPPO
GROUP
BAUGRÖSSE

GUARNIZIONI
SEALS
DICHTUNGEN

B - NBR
R - NBR alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)
S - NBR stadi separati. Non disponibile per il Gruppo 3
separate tanks. Not available for Group 3
unterschiedliche Behälter. Nicht vorhanden für Gruppe 3
V - Viton
W - Viton alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

PER OGNI STADIO AGGIUNTO RIPETERE LA DESCRIZIONE

DESCRIPTION TO BE REPEATED FOR EVERY ADDED SECTION

FÜR JEDE STUFE BITTE DIE BESCHREIBUNG WIEDERHOLEN.

HPLPT

POMPE PREDISPOSTE E RELATIVI KIT
PUMPS PREPARED FOR ASSEMBLY OF MULTIPLE PUMPS
PUMPEN MIT DURCHTRIEB

KIT ASSEMBLAGGIO POMPE PT
ASSEMBLY KIT (PT PUMPS ONLY)
TANDEM-SATZ (NUR PT-PUMPEN)

Le pompe PT sono pompe singole, che possono essere assemblate rapidamente e facilmente con l'impiego DEGLI APPOSITI KIT.
- HPLKA11STR
per l'assemblaggio di pompe Gruppo 1.
- HPLKA21STR
per l'assemblaggio di pompe Gruppo 2 e 1.
- HPLKA21AMR
per l'assemblaggio di pompe Gruppo 2 e 1 SAE.
- HPLKA21DER
per l'assemblaggio di pompe Gruppo 2 e 1 versione tedesca.
- HPLKA22STR
per l'assemblaggio di pompe Gruppo 2.
- HPLKA33S1R
per l'assemblaggio di pompe Gruppo 3.
- HPLKA32S1R
per l'assemblaggio di pompe Gruppo 3 e 2
- HPLKA31S1R
per l'assemblaggio di pompe Gruppo 3 e 1

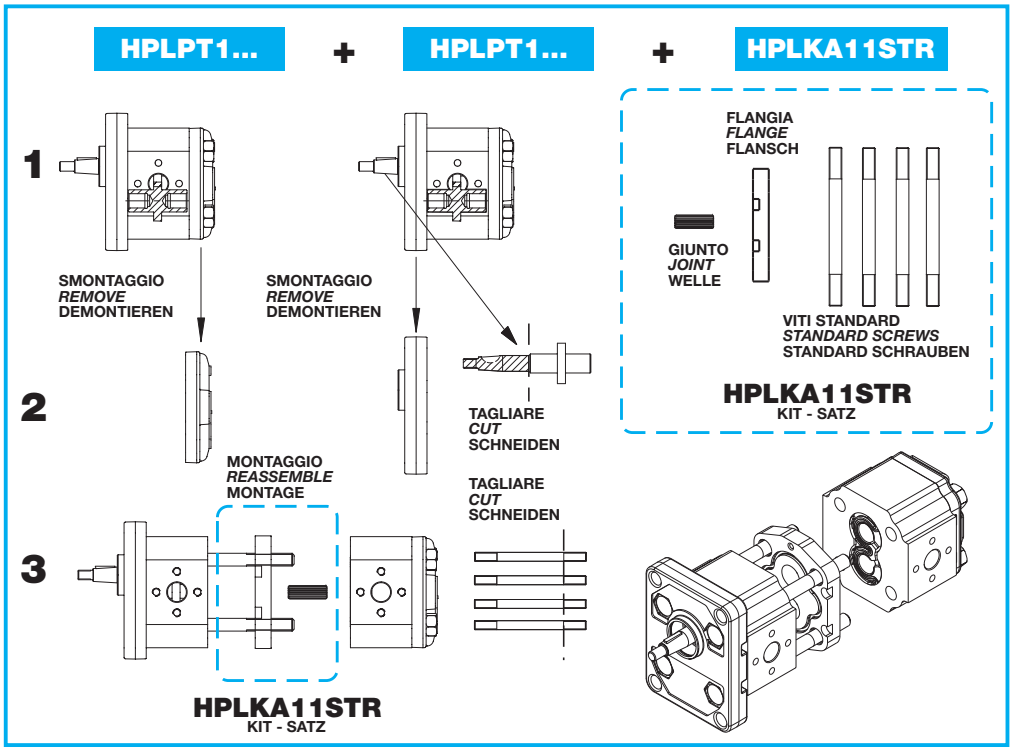
Le fasi schematiche delle operazioni sono riportate di seguito.

PT pumps are single pumps that can be quickly and easily assembled using THE DEDICATED ASSEMBLY KIT.
- HPLKA11STR
Group 1 assembly
- HPLKA21STR
Group 2 and 1 assembly
- HPLKA21AMR
Group 2 and 1 SAE assembly
- HPLKA21DER
Group 2 and 1 German version
- HPLKA22STR
Group 2 assembly
- HPLKA33S1R
Group 3 assembly.
- HPLKA32S1R
Group 3 and 2 assembly
- HPLKA31S1R
Group 3 and 1 assembly

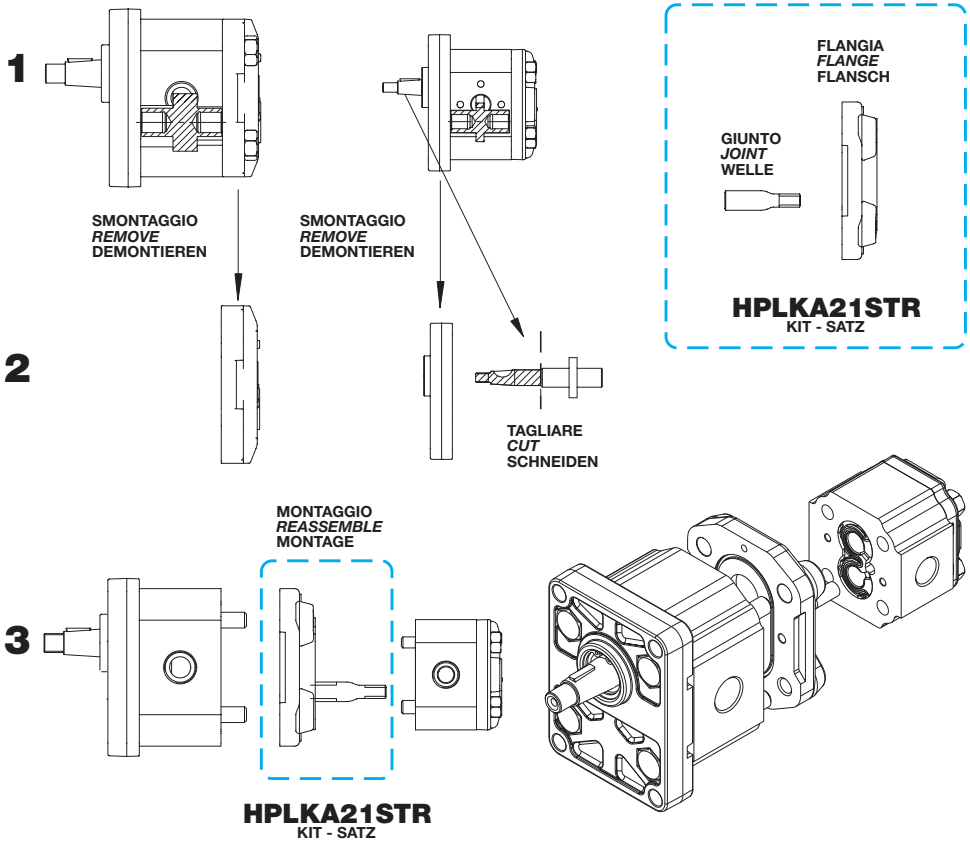
Assembly steps are following described.

Die PT-Pumpen sind Einfachpumpen, die schnell zu Mehrfachpumpen umgebaut werden können, unter Verwendung der dazugehörigen Tandem-Sätze.
- **HPLKA11STR** Für den Zusammenbau der Pumpen Gruppe 1.
- **HPLKA21STR** Für den Zusammenbau der Pumpen Gruppe 2 und 1.
- **HPLKA21AMR** Für den Zusammenbau der SAE-Pumpen Gruppe 2 und 1.
- **HPLKA21DER** Für den Zusammenbau der Gruppe 2 und 1 Din-Version.
- **HPLKA22STR** Für den Zusammenbau der Pumpen Gruppe 2.
- **HPLKA33S1R**
Fur den Zusammenbau der Pompen Gruppe 3
- HPLKA32S1R
Fur den Zusammenbau der Pompen Gruppe 3 und 2
- **HPLKA31S1R**
Fur den Zusammenbau der Pompen Gruppe 3 und 1

Untenstehend die schematisch dargestellten Montagevorgänge.



HPLPT2... + **HPLPT1...** + **HPLKA21STR**



VERSIONE SAE
SAE VERSION
SAE-VERSION

HPLPT2...
+
HPLPT1...
+
HPLKA21AMR

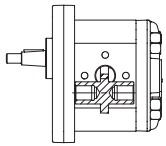
VERSIONE TEDESCA
GERMAN VERSION
DIN-VERSION

HPLPT2...
+
HPLPT1...
+
HPLKA21DER

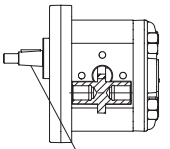
KIT ASSEMBLAGGIO POMPE PT
ASSEMBLY KIT (PT PUMPS ONLY)
TANDEM-SATZ (NUR PT-PUMPEN)

HPLPT2... + **HPLPT2...** + **HPLKA22STR**

1



SMONTAGGIO
REMOVE
DEMONTIEREN



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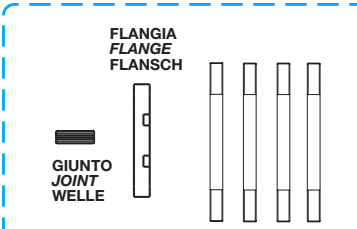
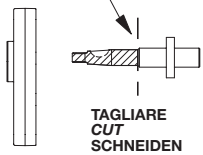
REMOVE
DEMONTIEREN



HPLKA22STR
KIT - SATZ

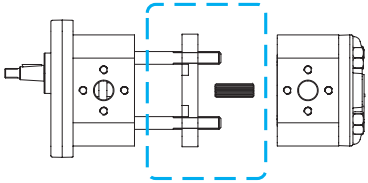
2



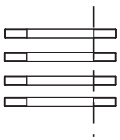
TAGLIARE
CUT
SCHNEIDEN

3

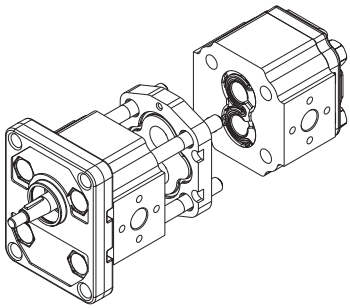
MONTAGGIO
REASSEMBLE
MONTAGE



TAGLIARE
CUT
SCHNEIDEN



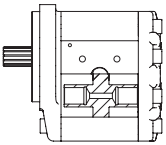
HPLKA22STR
KIT - SATZ



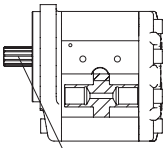
KIT ASSEMBLAGGIO POMPE PT
ASSEMBLY KIT (PT PUMPS ONLY)
TANDEM-SATZ (NUR PT-PUMPEN)

HPLPT3... + **HPLPT3...** + **HPLKA33S1R**

1



SMONTAGGIO
REMOVE
DEMONTIEREN



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REMOVE
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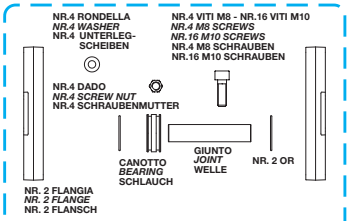
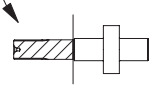


HPLKA33S1R
KIT - SATZ

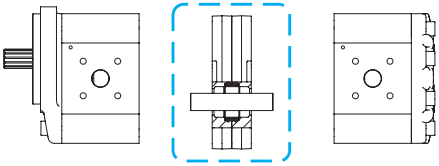
2



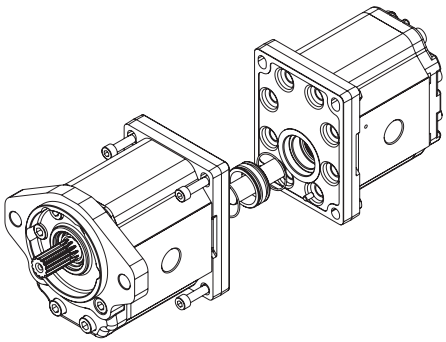
TAGLIARE
CUT
SCHNEIDEN

3

MONTAGGIO
REASSEMBLE
MONTAGE

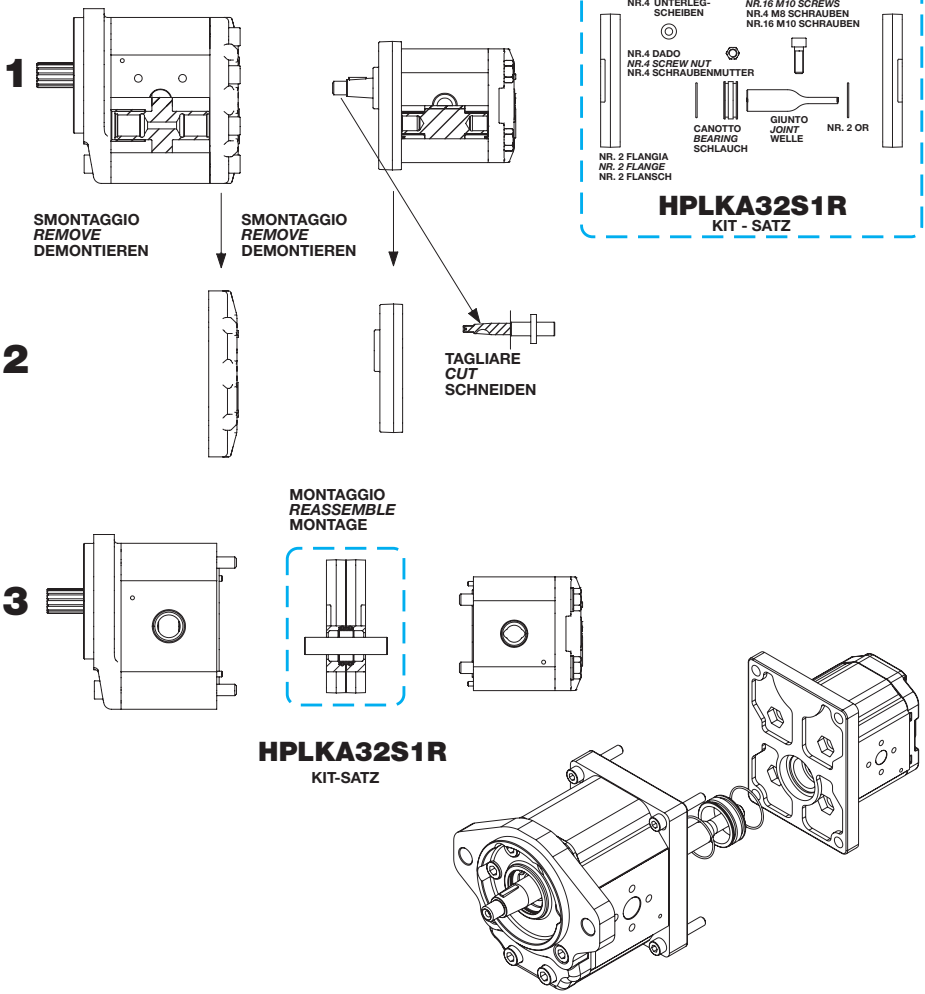


HPLKA33S1R
KIT - SATZ



KIT ASSEMBLAGGIO POMPE PT
ASSEMBLY KIT (PT PUMPS ONLY)
TANDEM-SATZ (NUR PT-PUMPEN)

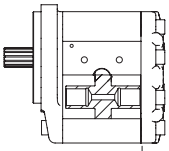
HPLPT3... + **HPLPT2...** + **HPLKA32SLR**



KIT ASSEMBLAGGIO POMPE PT
ASSEMBLY KIT (PT PUMPS ONLY)
TANDEM-SATZ (NUR PT-PUMPEN)

HPLPT3... + **HPLPT1...** + **HPLKA31SLR**

1



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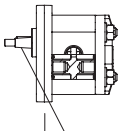
REMOVE
DEMONTIEREN



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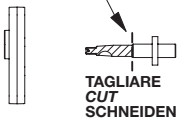
REMOVE
DEMONTIEREN

2



TAGLIARE
CUT
SCHNEIDEN

NR.2 VITI M10
NR.2 M10 SCREWS
NR.2 M10 SCHRAUBEN

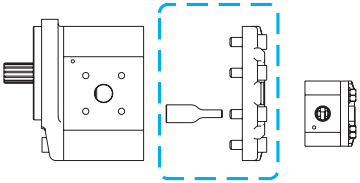
GIUNTO
JOINT
WELLE

FLANGIA
FLANGE
FLANSCH

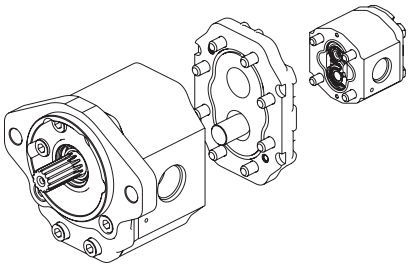
HPLKA31S1R
KIT - SATZ

3

MONTAGGIO
REASSEMBLE
MONTAGE



HPLKA31S1R
KIT - SATZ



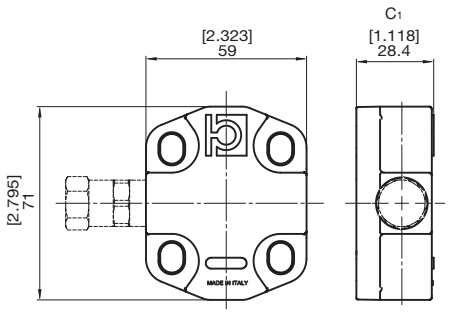
POMPE E MOTORI CON VALVOLE INTEGRATE
INTEGRATED VALVES FOR PUMP AND MOTORS
PUMPEN UND MOTOREN MIT INTEGRIERTEN VENTILEN

Con lo scopo di integrare più funzioni in un unico componente il circuito idraulico e quindi per ridurre anche la circuitistica d'impianto è possibile incorporare nel coperchio della pompa e/o del motore alcuni tipi di valvole di controllo della portata (valvole prioritarie) e della pressione oltre a valvole di non ritorno.
Per ottenere informazioni più accurate della gamma di personalizzazioni si prega di contattare il nostro servizio tecnico-commerciale.

To integrate many functions into a single component of the hydraulic circuit and to limit the installation circuitry, it is possible to have some types of flow control valves (priority valves), pressure control valves, and check valves incorporated into the pump/motor cover.
For further information about the series of customized solutions, please contact our Technical and Commercial Department.

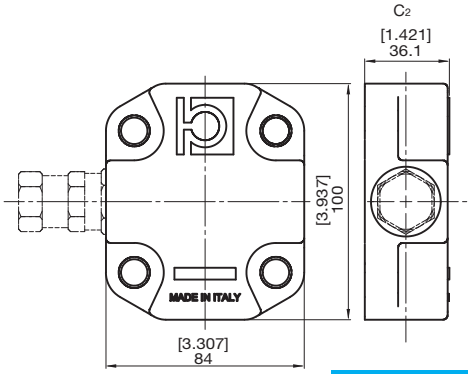
Um mehrere Funktionen in einem einzigen Bauteil des Hydraulikkreislaufs zusammenzufassen und, um die Anzahl der Bauteile zu reduzieren, können in den Deckel der Pumpe und/oder des Motors einige Ventiltypen zur Regelung von Durchfluss (Prioriätsventile) und Druck sowie Rückschlagventile integriert werden.
Für nähere Informationen über die Möglichkeiten der Anpassung an Ihre Bedürfnisse wenden Sie sich bitte an unseren technischen Kundendienst und Vertrieb.

V..



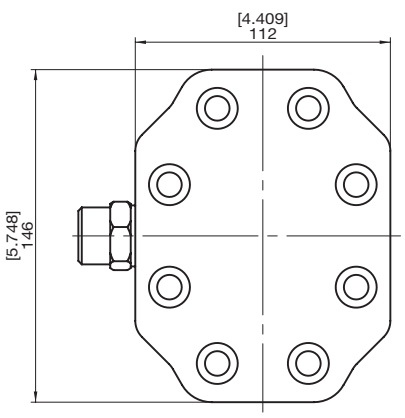
HPL..1

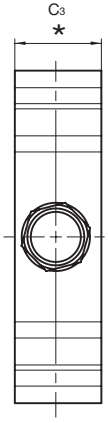
V..



HPL..2

V..





*** In funzione del tipo di valvola scelta**
*** *Function of the type of valve***
*** Je nach Typ des gewählten Ventils**

HPL..3

VALVOLE
VALVES
VENTILE

VA

VALVOLA UNIDIREZIONALE
ANTI-CAVITATION CHECK VALVE
RÜCKSCHLAGVENTIL

VB

VALVOLA DI MASSIMA PRESSIONE A TARATURA FISSA DRENAGGIO INTERNO
ANTI-CAVITATION CHECK VALVE AND RELIEF VALVE WITH INTERNAL DRAIN
FESTEINGESTELLTES DRUCKBEGRENZUNGSVENTIL MIT INTERNEM LECKÖL

VC

VALVOLA DI MASSIMA PRESSIONE A TARATURA FISSA DRENAGGIO ESTERNO
ANTI-CAVITATION CHECK VALVE AND RELIEF VALVE WITH EXTERNAL DRAIN
FESTEINGESTELLTES DRUCKBEGRENZUNGSVENTIL MIT EXTERNEM LECKÖL

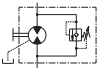
VD

VALVOLA DI MASSIMA PRESSIONE DIRETTA REGOLABILE A DRENAGGIO INTERNO
PRESSURE RELIEF VALVE WITH INTERNAL DRAIN
EINSTELLBARES DRUCKBEGRENZUNGSVENTIL MIT INTERNEM LECKÖL

VE

VALVOLA DI MASSIMA PRESSIONE DIRETTA REGOLABILE A DRENAGGIO ESTERNO
PRESSURE RELIEF VALVE WITH EXTERNAL DRAIN
EINSTELLBARES DRUCKBEGRENZUNGSVENTIL MIT EXTERNEM LECKÖL

VT



VALVOLA DI MASSIMA PRESSIONE DIRETTA REGOLABILE A DRENAGGIO INTERNO CON VALVOLA ANTICAVITAZIONE
PRESSURE RELIEF VALVE WITH INTERNAL DRAIN WITH ANTI-CAVITATION CHECK VALVE
EINSTELLBARES DRUCKBEGRENZUNGSVENTIL MIT INTERNEM LECKÖL MIT RÜCKSCHLAGVENTIL

POMPE CON VALVOLA PRIORITARIA
PRIORITY VALVE PUMPS
PUMPE MIT PRIORITÄTSVENTIL

Pompe ad ingranaggi HPLPA2 con valvola prioritaria integrata nel coperchio.

PRINCIPIO DI FUNZIONAMENTO:
La pompa con valvola prioritaria permette di avere a disposizione una portata di olio costante PF indipendentemente dalla variazione di pressione e di velocità della pompa. La portata in eccesso EF, funzione della velocità di rotazione, può essere scaricata internamente alla pompa in aspirazione, oppure diretta agli ausiliari. Il circuito a cui è indirizzata la portata prioritaria PF ha la priorità rispetto al secondario che riceve solamente la portata eccedente EF.
Tutte le porte possono essere pressurizzate. Esistono diverse possibilità di configurazione della valvola prioritaria, tutte integrate nel coperchio (vedi "Istruzione per l'ordinazione").

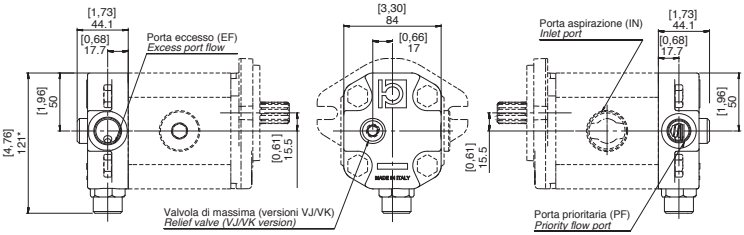
Gear pumps HPLPA2 with priority valve integrated in the cover.

OPERATING PRINCIPLE:
The pump with priority valve allows a constant oil flow PF irrespective of the variation in pressure and speed of the pump. The excess flow EF, depending on the rotation speed, may be discharged into the suction pump or sent to the auxiliaries.
The circuit to which the priority flow PF is sent has priority over the secondary circuit which receives only the excess flow EF.
All ports may be pressurised.
There are various possibilities of configuration of the priority valve, all integrated in the cover (see "Ordering instructions").

Zahnradpumpen HPLPA2 mit im Deckel integriertem Prioritätsventil.

FUNKTIONSPRINZIP:
Die Pumpe mit Prioritätsventil ermöglicht die Bereitstellung eines konstanten Ölvolumens PF unabhängig von der Änderung des Drucks und der Drehzahl der Pumpe. Das von der Drehzahl abhängige überschüssige Volumen EF kann intern zur Saugpumpe abgelassen oder zu den Hilfsvorrichtungen geleitet werden. Der Kreislauf, dem das Prioritätsvolumen PF vorbehalten ist, hat Priorität gegenüber dem sekundären Kreislauf, der nur das überschüssige Volumen EF aufnimmt.
Alle Anschlüsse können unter Druck gesetzt werden. Es gibt verschiedene Möglichkeiten der Konfiguration des Prioritätsventils, die alle im Deckel integriert sind (siehe "Bestellanleitung").

V..



*** per versioni con valvola prioritaria tarabile quota massima = 178,5 mm**
**** for versions with settable priority valve maximum size = 178.5 mm***
*** für Versionen mit einstellbarem Prioritätsventil - Höchstwert = 178,5 mm**

HPL..2

VALVOLA PRIORITARIA
PRIORITY VALVE
PRIORITÄTSVENTIL

VF

VALVOLA REGOLATRICE DI FLUSSO COMPENSATA A TARATURA FISSA CON RICIRCOLO PORTATA RESIDUA
FIXED PRIORITY FLOW DIVIDER, 2-WAY
FESTEINGESTELLTES DRUCKKOMPENSIERTES STROMREGELVENTIL MIT RESTÖLUMLAUF

VG

VALVOLA REGOLATRICE DI FLUSSO COMPENSATA CON RICIRCOLO PORTATA RESIDUA
ADJUSTABLE PRIORITY FLOW DIVIDER, 2-WAY
EINSTELLBARES DRUCKKOMPENSIERTES STROMREGELVENTIL MIT RESTÖLUMLAUF

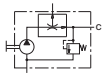
VH

VALVOLA REGOLATRICE DI FLUSSO COMPENSATA A TARUTURA FISSA
FIXED PRIORITY FLOW DIVIDER, 3-WAY
FESTEINGESTELLTES 3-WEGE-STROM-REGELVENTIL MIT DRUCKKOMPENSATION

VI

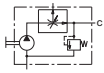
VALVOLA REGOLATRICE DI FLUSSO COMPENSATA
ADJUSTABLE PRIORITY FLOW DIVIDER, 3-WAY
FESTEINGESTELLTES 3-WEGE-STROM-REGELVENTIL MIT DRUCKKOMPENSATION

VJ



VALVOLA REGOLATRICE DI FLUSSO COMPENSATA A TARATURA FISSA CON CONTROLLO DI PRESSIONE SU PORTATA COSTANTE
FIXED PRIORITY FLOW DIVIDER, 3-WAY WITH RELIEF ON PRIORITY FLOW
FESTEINGESTELLTES KOMPENSIERTES STROMREGELVENTIL MIT DRUCKBEGRENZUNGSVENTIL

VK



VALVOLA REGOLATRICE DI FLUSSO COMPENSATA CON CONTROLLO DI PRESSIONE SU PORTATA COSTANTE
ADJUSTABLE PRIORITY FLOW DIVIDER, 3-WAY WITH RELIEF ON PRIORITY FLOW
FESTEINGESTELLTES KOMPENSIERTES STROMREGELVENTIL MIT DRUCKBEGRENZUNGSVENTIL

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPL	PA	2	11	D M L U6 U5 B	VK	12	130	U

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

PA - Pompa singola
PA - *Pump*
PA - Pumpe

GRUPPO
GROUP
BAUGRÖSSE

2

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

05 - 4,50
06 - 6,00
08 - 8,50
11 - 11,00
14 - 14,50
17 - 17,00
20 - 19,50
26 - 26,00

DESCRIZIONE
DESCRIPTION
BENENNUNG

HPLPA2

Vedere pagina GL012_27
See page GL012_27
Siehe Seite GL012_27

BOCCHE
PORT
ANSCHLÜSSE

	5.....11		*14.....26*	
	EF	***PF***	***EF***	***PF***
G	G3	G3	G4	G4
U	U4	U5	U4	U5

OPZIONI
OPTIONS
OPTIONEN

Per versioni VJ e VK indicare valore della taratura (bar) della valvola di massima

For versions VJ and VK, indicate the relief valve setting value (bar)

Für die Versionen VJ und VK den Einstellwert (bar) des Druckbegrenzungsventils angeben

PORTATA PRIORITARIA
PRIORITY FLOW
PRIORITÄT VOLUMEN

-- Indicare il valore della portata prioritaria (l/min)
-- *Indicate priority flow rate (l/(min)*
-- Wert des Prioritätsvolumens angeben (l/min)

VALVOLA PRIORITARIA
PRIORITY VALVE
PRIORITÄTSVENTIL

VF- Valvola regolatrice di flusso compensata a taratura fissa con ricircolo portata residua
VG - Valvola regolatrice di flusso compensata con ricircolo portata residua
VH - Valvola regolatrice di flusso compensata a tarutura fissa
VI - Valvola regolatrice di flusso compensata
VJ - Valvola regolatrice di flusso compensata a taratura fissa con controllo di pressione su portata costante
VK - Valvola regolatrice di flusso compensata con controllo di pressione su portata costante

VF- *Fixed priority flow divider, 2-way*
VG - *Adjustable priority flow divider, 2-way*
VH - *Fixed priority flow divider, 3-way*
VI - *Adjustable priority flow divider, 3-way*
VJ - *Fixed priority flow divider, 3-way with relief on priority flow*
VK - *Adjustable priority flow divider, 3-way with relief on priority flow*

VF- Festeingestelltes druckkompensiertes stromregelventil mit restölumlauf
VG - Einstellbares druckkompensiertes stromregelventil mit restölumlauf
VH - Festeingestelltes 3-wege-strom-regelventil mit druckkompensation
VI - Festeingestelltes 3-wege-strom-regelventil mit druckkompensation
VJ - Festeingestelltes kompensiertes stromregelventil mit druckbegrenzungsventil
VK - Festeingestelltes kompensiertes stromregelventil mit druckbegrenzungsventil

POMPE LOAD SENSING
LOAD SENSING PUMP
LOAD SENSING PUMPE

Pompe ad ingranaggi serie HPLPA2 e HPLPA3 con load sensing integrato nel coperchio posteriore. Il sistema è utilizzato principalmente per comandare unità idroguida load sensing oppure distributori load sensing.

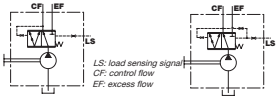
PRINCIPIO DI FUNZIONAMENTO:
Il sistema, prelevando il segnale dall'idroguida LS o dal distributore LS, fornisce la portata (CF) necessaria all'idroguida nella situazione di carico in cui essa si trova indipendentemente dal numero di giri, garantendone sempre il corretto funzionamento e lavorando alla pressione richiesta dal carico. La portata eccedente (EF) è indirizzata ai servizi. Quando l'idroguida è in condizioni di riposo tutta la portata (EF) è fornita ai servizi.
Load sensing statico: deve essere utilizzata con unità idroguida o distributori load sensing statici.
Load sensing dinamica: deve essere utilizzata con unità idroguida o distributori load sensing dinamici.

Gear pumps series HPLPA2 and HPLPA3 with load sensing integrated in the rear cover. The system is used mainly to control load sensing power steering units or load sensing distributors.

OPERATING PRINCIPLE:
Receiving the signal from the LS power steering or from the LS distributor, the system supplies the necessary flow (CF) to the power steering in the current load situation, irrespective of the number of revs, always ensuring correct operation and working at the required load pressure. The excess flow (EF) is sent to the utilities. When the power steering is in rest conditions, the whole flow (EF) is sent to the utilities.
Static load sensing: must be used with static power steering units or load sensing distributors.
Dynamic load sensing: must be used with dynamic power steering units or load sensing distributors.

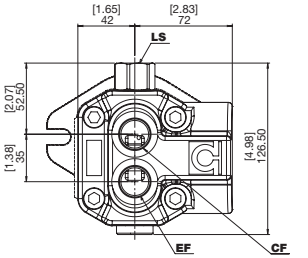
FUNKTIONSPRINZIP:
Beim Eingang des Signals von der LS Hydrolenkung oder vom LS Steuergerät liefert das System das erforderliche Volumen (CF) an die Hydrolenkung im Lastzustand, in der sich diese unabhängig von der Drehzahl befindet, und gewährleistet somit stets deren korrekte Funktionsweise mit dem von der Last geforderten Druck. Das überschüssige Volumen (EF) geht hierbei an die Verbraucher. Ist die Hydrolenkung im Ruhestatus, wird das gesamte Volumen (EF) an die Verbraucher geleitet.
Statisches Load Sensing: Nutzung nur mit statischen Load Sensing Hydrolenkungseinheiten oder Steuergeräten.
Dynamisches Load Sensing: Nutzung nur mit dynamischen Load Sensing Hydrolenkungseinheiten oder Steuergeräten.

S **LOAD SENSING STATICO**
LOAD SENSING STATIC
STATIC LOAD SENSING

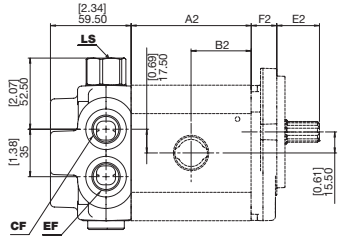


LOAD SENSING DINAMICO
LOAD SENSING DYNAMIC
DYNAMIC LOAD SENSING **D**

HPLP.2

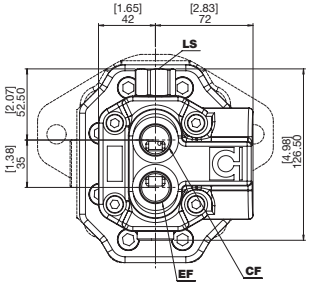


P BOCCHE POSTERIORI
REAR PORTS
HINTEN ANSCHLÜSSE

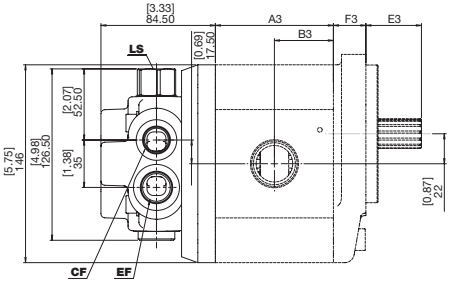


L BOCCHE LATERALI
LATERAL PORTS
SEITLICH ANSCHLÜSSE

HPLP.3



P BOCCHE POSTERIORI
REAR PORTS
HINTEN ANSCHLÜSSE



L BOCCHE LATERALI
LATERAL PORTS
SEITLICH ANSCHLÜSSE

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

PA - Pompa singola
PA *- Pump*
PA - Pumpe

GRUPPO
GROUP
BAUGRÖSSE

2 - 3

SEGNALE
SIGNAL
SIGNAL

S - Statico
D - Dinamico
S *- Static*
D *- Dynamic*
S - Statisch
D - Dynamisch

DESCRIZIONE
DESCRIPTION
BENENNUNG

HPLPA2/HPLPA3

Vedere pagine GL012_27 e GL012_35
See pages GL012_27 and GL012_35
Siehe Seiten GL012_27 und GL012_35

VERSIONE
VERSION
BAUART

LS - Load Sensing

OPZIONI
OPTIONS
OPTIONEN

000 - Senza valvola di massima
000 *- Without relief valve*
000 - Ohne Druckbegrenzungsventil

DIFFERENZIALE DI PRESSIONE Δp
PRESSURE DIFFERENTIAL Δp
DIFFERENZDRUCK Δp

06 - 6 bar
10 - 10 bar

BOCCHE
PORT
ANSCHLÜSSE

U	CF	3/4" - 16 UNF
	EF	7/8" -14 UNF
	LS	7/16" - 20 UNF
G	CF	1/2 GAS
	EF	3/4 GAS
	LS	1/8 GAS
M	CF	M18 x 1,5
	EF	M22 x 1,5
	LS	M10 x 1

VERSIONE
VERSION
BAUART

P - Coperchio con bocche posteriori
L - Coperchio con bocche laterali

P *- Cover with rear ports*
L *- Cover with side ports*

P - Deckel mit hinteren Anschlüssen
L - Deckel mit seitlichen Anschlüssen

POMPE HIGH-LOW
HIGH-LOW PUMPS
ZAHNRADPUMPE HIGH-LOW

La pompa ad ingranaggi con logica HIGH-LOW è una pompa tandem con stadi a cilindrate uguali o diverse ed un blocchetto valvolato per permettere l'esclusione della pompa posteriore.
Questa pompa viene utilizzata quando il motore elettrico o termico ha potenza limitata.

PRINCIPIO DI FUNZIONAMENTO: quando è richiesta elevata portata e bassa pressione le due pompe funzionano contemporaneamente, quando è richiesta elevata pressione e bassa portata la pompa posteriore viene esclusa rimandando la propria portata in aspirazione con dissipazione di potenza pressoché nulla.
Questo permette di sfruttare tutta la potenza erogata del motore sulla prima pompa.
La taratura della valvola nella configurazione standard è di 40 bar.

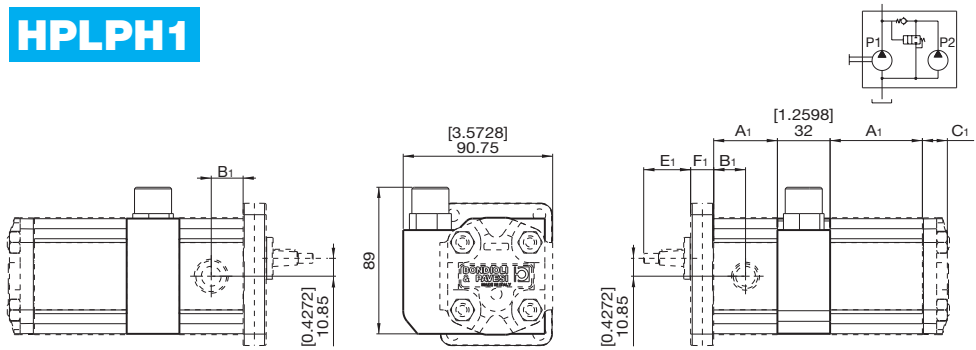
The HIGH-LOW pump is a tandem pump with equal or dissimilar displacements and a section with valves to allow the unloading of the rear pump.
This pump is applied when the main electric or engine motor has limited power.

***WORKING:** when high flow and low pressure is required the flow of both sections is combined at the outlet port, but when high pressure and low flow is required the rear pump is unloaded into the inlet port with negligible adsorbed power.*
This enables the use of all the power supplied by the motor to the first pump. The valve setting in the standard version is 40 bar.

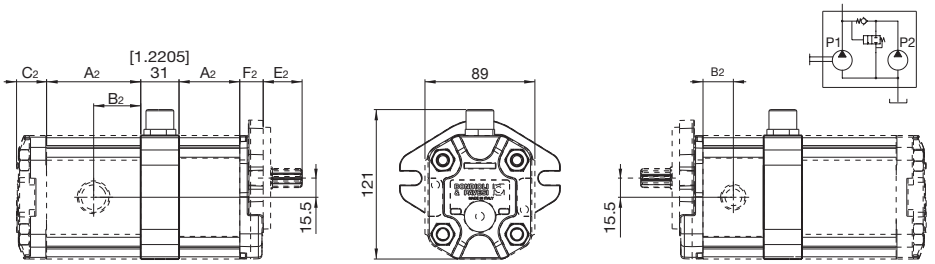
Die Zahnradpumpe mit HIGH-LOW-Logik ist eine Tandempumpe mit 2 gleichen oder unterschiedlichen Fördervolumina und einem integrierten Ventilblock, um die hintere Pumpe abzuschalten.
Diese Lösung wird verwendet, wenn der antreibende Elektro- oder Verbrennungsmotor eine begrenzte Leistung hat.

FUNKTIONSPRINZIP: Wenn besonders große Fördermengen bei niedrigem Druck benötigt werden, arbeiten beide Pumpen gleichzeitig. Bei hohem Druckbedarf und niedriger Fördermenge wird die hintere Pumpe abgeschaltet, indem deren Fördermenge in die Ansaugung der ersten Pumpe geleitet wird. Der Leistungsverlust ist dabei vernachlässigbar.
Auf diese Weise kommt die gesamte verfügbare Motorleistung der ersten Pumpe zugute.
Standardmäßig ist das Ventil auf 40 bar eingestellt.

HPLPH1



HPLPH2



BONDIOLI & PAVESI
HP Hydraulic

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

1° STADIO - *STAGE* - STUFE
(Descrizione - *Description* - Benennung)

2° STADIO - *STAGE* - STUFE
(Descrizione - *Description* - Benennung)

HPL	PH	1	19	D	D	D	G4 G3	B	1	60	40

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT
PH - Pompa HIGH-LOW

GRUPPO
GROUP
BAUGRÖSSE **1 - 2**

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

HPL..1	HPL..2
19 - 1,90	**05 -** 4,50
24 - 2,53	**06 -** 6,00
31 - 3,17	**08 -** 8,50
36 - 3,73	**11 -** 11,00
44 - 4,35	**14 -** 14,50
48 - 4,97	**17 -** 17,00
60 - 6,08	**20 -** 19,50
70 - 7,00	
80 - 7,87	

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG
D - Oraria/destra
Clockwise
Rechtslauf

FLANGIA ANTERIORE
FRONT FLANGE
VORDERER FLANSCH

HPL..1
D - Europea D 25,4 - *European standard* - EU-Norm.D 25,4
E - Europea D 30 - *European Ø 30* - EU-Norm.D 30
G - Tedesca con OR - *German with OR* - DIN-Norm. (mit O.R. Dichtung)
J - SAE AA - *SAE AA* - SAE AA

HPL..2
L - Europea in ghisa - *European cast iron* - EU-Norm Guß
M - Europea - *European* - EU-Norm
N - Tedesca - *German* - DIN-Norm
O - Tedesca D 50 2 fori DX - *German D 50 2 holes right* DIN-Norm D 50 2 Bohrungen rechts
P - Tedesca D 50 2 fori SX - *German D 50 2 holes left* DIN-Norm D 50 2 Bohrungen links
Q - SAE A 2 fori in ghisa - *SAE A 2 holes cast iron* SAE A 2 Bohrungen Guß
R - Tedesca D 52 - *German D 52* - DIN-Norm D 52
S - SAE A 2 fori - *SAE A 2 holes* - SAE A 2 Bohrungen
T - SAE B 2 fori in ghisa - *SAE B 2 holes cast iron* - SAE B 2 Bohrungen Guß
U - Perkins - *Perkins* - Perkins
V - Tedesca in ghisa - *German cast iron* - Din gussversion

ESTREMITÀ D'ALBERO
SHAFT PROFIL
WELLENENDE

HPL..1

D - Conico (1:8)
E - Cilindrico europeo
F - Cilindrico SAE "AA"
G - Conico (1:5)
H - Scanalato 12x9
I - Scanalato SAE "AA"
J - Dente frontale sporgente
K - Dente frontale
T - Conico high torque (1:8)

D *- Tapered (1:8)*
E *- European parallel shaft*
F *- SAE "AA" parallel shaft*
G *- Tapered (1:5)*
H *- Splined 12x9*
I *- SAE "AA" splined*
J *- Front tooth*
K *- Tang drive*
T *- Tapered high torque (1:8)*

D - Kegel (1:8)
E - zylindrisch (E-norm)
F - zylindrisch SAE "AA"
G - Kegel (1:5)
H - Keilwelle 12x9
I - Keilwelle SAE "AA"
J - Vorstehendes Kreuzprofil
K - Kreuzprofil
T - verstärkter Kegel (1:8)

HPL..2

L - Conico (1:8)
M - Conico (1:5)
N - Cilindrico D15 europeo
P - Cilindrico SAE "A"
U - Scanalato DIN 5482
V - Scanalato SAE "A" 9T
X - Scanalato SAE "A" 11T
Y - Scanalato SAE "B" 13T
Z - Dente frontale

L *- Tapered (1:8)*
M *- Tapered (1:5)*
N *- D15 European parallel shaft*
P *- SAE "A" parallel shaft*
U *- DIN 5482 splined*
V *- SAE "A" 9T splined*
X *- SAE "A" 11T splined*
Y *- SAE "B" 13T splined*
Z *- Tang drive*

L - Kegel (1:8)
M - Kegel (1:5)
N - zylindrisch (E-norm)
P - zylindrisch SAE "A"
U - Keilwelle DIN 5482
V - Keilwelle SAE "A" 9T
X - Keilwelle SAE "A" 11T
Y - Keilwelle SAE "B" 13T
Z - Kreuzprofil

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

GRUPPO
GROUP
BAUGRÖSSE

GUARNIZIONI
SEALS
DICHTUNGEN
B - NBR
V - Viton

BOCCHE STD
STANDARD PORT **- STANDARD ANSCHLÜSSE**

HPL..1
CILINDRATA
DISPLACEMENT - FÖRDERVOLUMEN

1,9.....4,8	*6.....8*
Pompe - *Pumps* -Pumpen IN/OUT	Pompe - *Pumps* -Pumpen IN/OUT
E3 E3	E3 E3
G4 G3	G4 G4
X3 X3	X3 X3
M4 M2	M4 M2
U4 U3	U4 U4
G4 H1	G4 H1

HPL..2
CILINDRATA
DISPLACEMENT - FÖRDERVOLUMEN

5.....8	*11*	*14.....20*
Pompe - *Pumps* -Pumpen IN/OUT		Pompe - *Pumps* -Pumpen IN/OUT
E3 E3		E5 E3
G4 G4		G6 G4
X5 X4	X6 X4	X6 X4
U6 U5		U6 U5

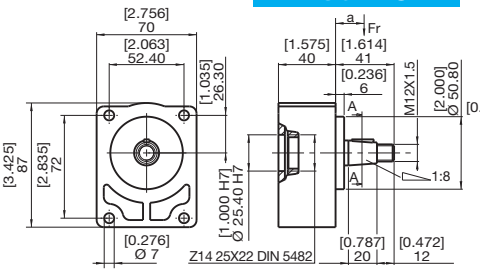
SUPPORTI
SPINDLES
VORSATZLAGER

Per l'utilizzo delle pompe e dei motori in presenza di carichi assiali e/o radiali (trascinamento per mezzo di cinghie o catene e ruote dentate a ingranaggi diritti o elicoidali).
In funzione dell'entità dei carichi esterni sono disponibili diversi tipi di supporti.
I diagrammi sottoriportati guidano nella appropriata scelta del supporto.
Fornibile separatamente (Cod. HPL5...) o montati sulla Pompa/Motore.

Bearings are suited for using pumps and motors in event of axial and/or radial loads (driving is carried out by means of belts or chains and sprocket wheels with straight-tooth/spiral gear).
Different types of supports are available based on the different types of external load. Refer to the following diagrams to select the proper type of support.
Available separately (Cod. HPL5...) or mounted on the units.

Vorsatzlager werden verwendet, wenn auf die Pumpen/Motoren Axial- und/oder Radiallasten einwirken. Dabei erfolgt die Kraftübertragung über Riemen- oder Kettenantriebe mit geraden oder schräggestellen Zahnrädern.
Je nach Ausmaß der externen Lasten sind verschiedene Lagertypen verfügbar.
Die untenstehenden Diagramme dienen als Leitfaden für die richtige Auswahl des Lagers.

HPL5921C1R



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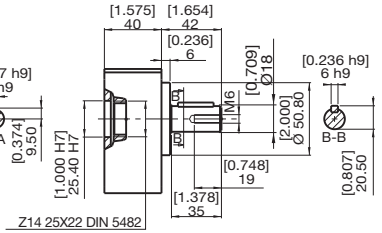
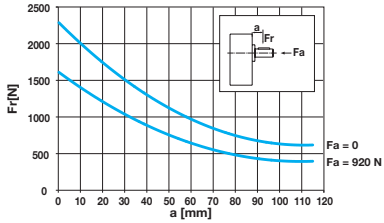
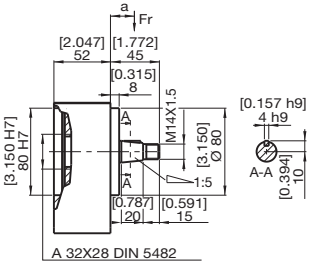




HPL...1 FLANGIA STANDARD EUROPEA CENTRAGGIO Ø 50,8
EUROPEAN FRONT FLANGE Ø 50,8
VORSATZLAGER EU-NORM Ø 50,8

HPL5922B1R



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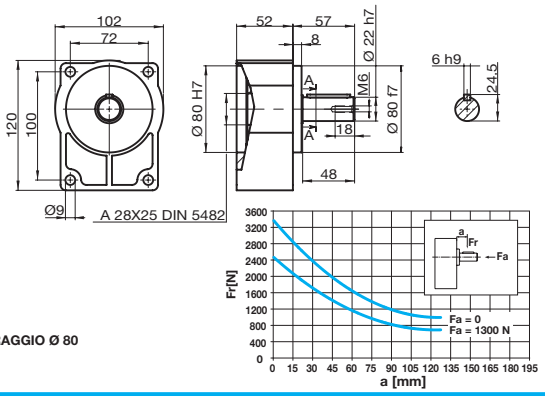
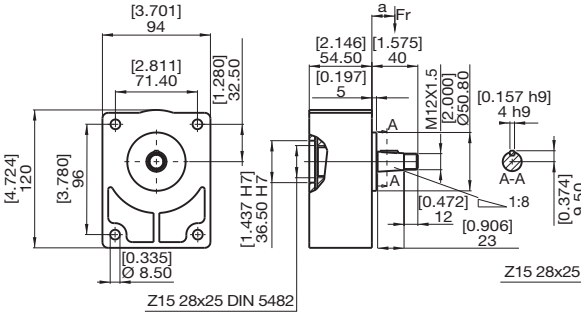


HPL...2 FLANGIA STANDARD TEDESCA CENTRAGGIO Ø 80
GERMAN FRONT FLANGE Ø 80
VORSATZLAGER EU-NORM Ø 80

HPL5922C3R



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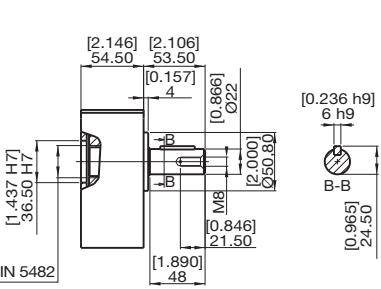
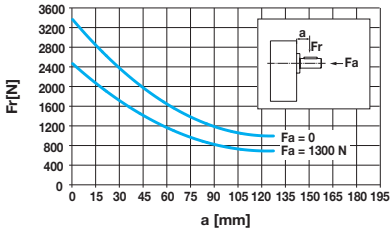
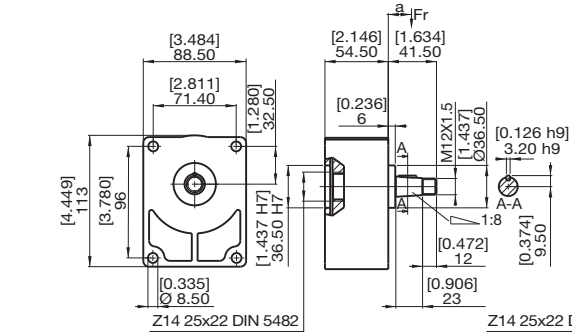




HPL...2

FLANGIA STANDARD EUROPEA CENTRAGGIO Ø 50,8
EUROPEAN FRONT FLANGE Ø 50,8
VORSATZLAGER EU-NORM Ø 50,8

HPL5922C5R



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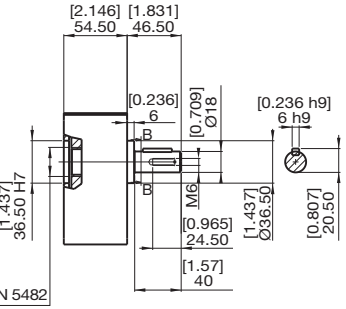
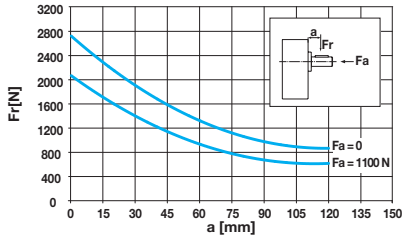


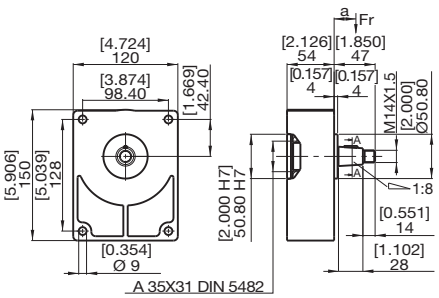


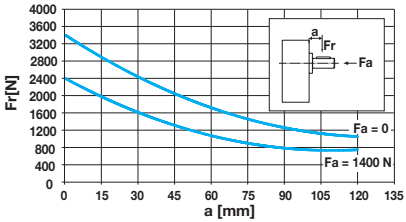
HPL...2

FLANGIA STANDARD EUROPEA CENTRAGGIO Ø 36,5
EUROPEAN FRONT FLANGE Ø 36,5
VORSATZLAGER EU-NORM Ø 36,5

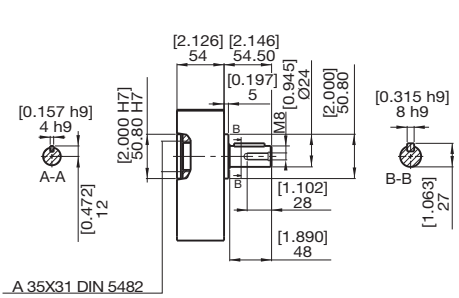
SUPPORTI
SPINDLES
VORSATZLAGER

HPL5923C7R



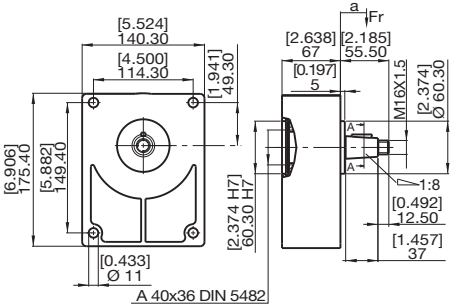


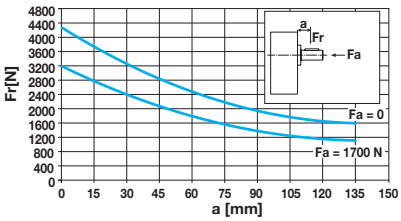
HPL5923C8R



HPL...3 **FLANGIA STANDARD EUROPEA CENTRAGGIO Ø 50,8**
EUROPEAN FRONT FLANGE Ø 50,8
VORSATZLAGER EU-NORM Ø 50,8

HPL5924C9R





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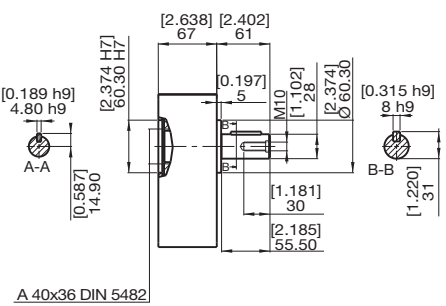
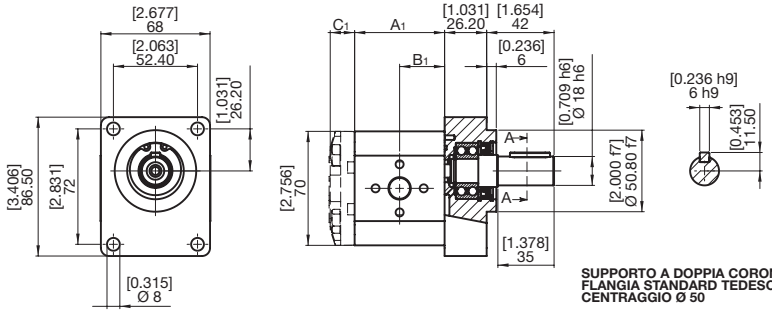


HPL...4 **FLANGIA STANDARD EUROPEA CENTRAGGIO Ø 60,3**
EUROPEAN FRONT FLANGE Ø 60,3
VORSATZLAGER EU-NORM Ø 60,3

I4



HPL...1

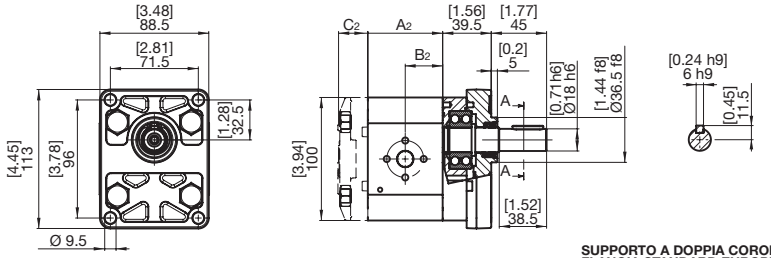
SUPPORTO A DOPPIA CORONA DI SFERE
FLANGIA STANDARD TEDESCA
CENTRAGGIO Ø 50

BEARING SUPPORT
GERMAN FRONT FLANGE Ø 50

VORSATZLAGER MIT KUGELLAGER
DIN-NORM Ø 50

ESTREMITA' D'ALBERO: CILINDRICO
SHAFT AVAILABLE: PARALLEL VERSION
LIEFERBARE WELLENENDEN: ZYLINDRISCH

I1



HPL...2

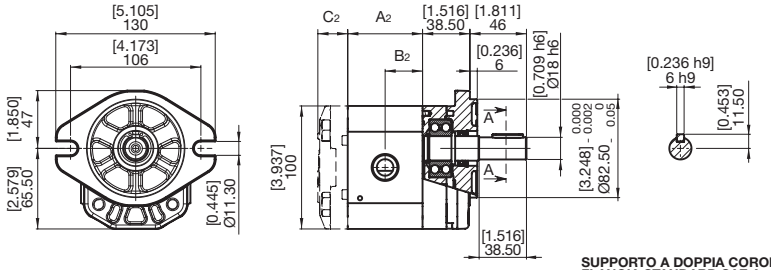
SUPPORTO A DOPPIA CORONA DI SFERE
FLANGIA STANDARD EUROPEA
CENTRAGGIO Ø 36,50

BEARING SUPPORT
EUROPEAN FRONT FLANGE Ø 36,50

VORSATZLAGER MIT KUGELLAGER
EU-NORM Ø 36,50

ESTREMITA' D'ALBERO: CILINDRICO
SHAFT AVAILABLE: PARALLEL VERSION
LIEFERBARE WELLENENDEN: ZYLINDRISCH

I3



HPL...2

SUPPORTO A DOPPIA CORONA DI SFERE
FLANGIA STANDARD SAE A
CENTRAGGIO Ø 82,50

BEARING SUPPORT
SAE A FRONT FLANGE Ø 82,50

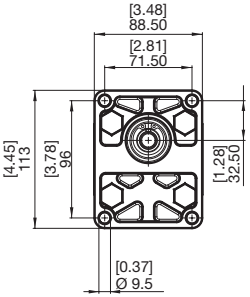
VORSATZLAGER MIT KUGELLAGER
SAE A Ø 82,50

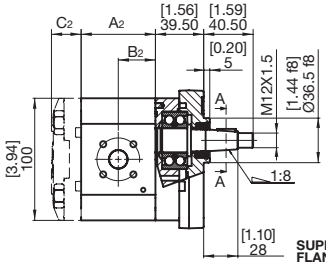
ESTREMITA' D'ALBERO: CILINDRICO
SHAFT AVAILABLE: PARALLEL VERSION
LIEFERBARE WELLENENDEN: ZYLINDRISCH

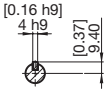
* NON FORNIBILI SEPARATAMENTE - *NOT SUPPLY SEPARATELY* - SEPARAT NICHT LIEFERBAR

SUPPORTI INTEGRATI *
INTEGRATED SUPPORT *
INTEGRIERTES LAGER *

I7







ESTREMITA' D'ALBERO: CONICO (1:8)
SHAFT AVAILABLE: TAPERED VERSION (1:8)
LIEFERBARE WELLENENDEN:KEGEL (1:8)

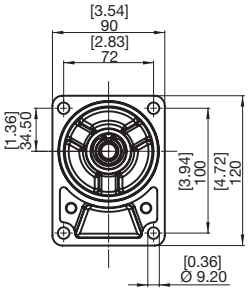
HPL...2

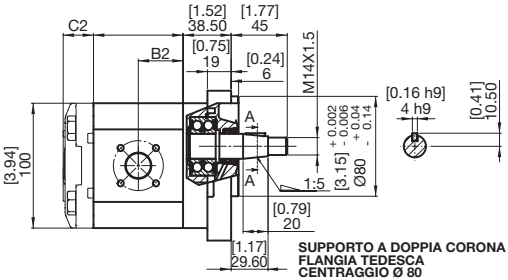
SUPPORTO A DOPPIA CORONA DI SFERE
FLANGIA STANDARD EUROPEA
CENTRAGGIO Ø 36,50

BEARING SUPPORT
EUROPEAN FRONT FLANGE Ø 36,-50

VORSATZLAGER MIT KUGELLAGER
EU-NORM Ø 36,50

I2





ESTREMITA' D'ALBERO: CONICO (1:5)
SHAFT AVAILABLE: TAPERED VERSION (1:5)
LIEFERBARE WELLENENDEN: KEGEL (1:5)

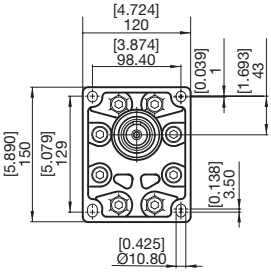
HPL...2

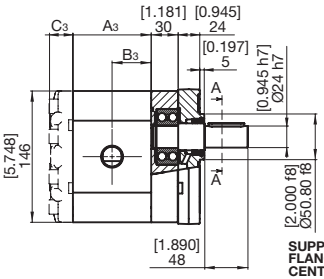
SUPPORTO A DOPPIA CORONA DI SFERE
FLANGIA TEDESCA
CENTRAGGIO Ø 80

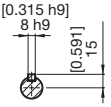
BEARING SUPPORT
GERMAN FRONT FLANGE Ø 80

VORSATZLAGER MIT KUGELLAGER
DIN-NORM Ø 80

I6







ESTREMITA' D'ALBERO: CILINDRICO
SHAFT AVAILABLE: PARALLEL VERSION
LIEFERBARE WELLENENDEN: ZYLINDRISCH

HPL...3

SUPPORTO A DOPPIA CORONA DI SFERE
FLANGIA STANDARD EUROPEA
CENTRAGGIO Ø 50,80

BEARING SUPPORT
EUROPEAN FRONT FLANGE Ø 50,80

VORSATZLAGER MIT KUGELLAGER
EU-NORM Ø 50,80

* NON FORNIBILI SEPARATAMENTE - *NOT SUPPLY SEPARATELY* - SEPARAT NICHT LIEFERBAR

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POMPE E MOTORI COMPLETI DI SUPPORTO
PUMP OR MOTOR WITH BEARING SUPPORT
PUMPEN UND MOTOREN MIT VORSATZLAGER

HPL | **PA** | **2** | **11** | **D** | **C5**

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

MA - Motore
PA - Pompa singola
PB - Pompa doppia
PC - Pompa tripla

MA *- Motor*
PA *- Pump*
PB *- Double Pump*
PC *- Triple Pump*

MA - Motor
PA - Pump
PB - Doppelpumpe
PC - Dreifachpumpe

GRUPPO
GROUP
BAUGRÖSSE

1 - 2 - 3 - 4

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

HPL..1	HPL..2	HPL..3	HPL..4
14 - 1,37	**05** -4,50	**22** -21,50	**41** -41,80
19 - 1,90	**06** -6,00	**26** -26,00	**51** -50,40
24 - 2,53	**08** -8,50	**31** -30,50	**61** -61,00
31 - 3,17	**11** -11,00	**36** -36,00	**73** -72,00
36 - 3,73	**14** -14,50	**41** -41,50	**90** -87,80
44 - 4,35	**17** -17,00	**47** -46,50	
48 - 4,97	**20** -19,50	**51** -50,50	
60 - 6,08	**26** -26,00	**56** -56,00	
70 - 7,00	**34** -34,00	**61** -61,50	
80 - 7,87	**40** -40,50	**73** -72,50	
		90 -89,00	

SENSO DI ROTAZIONE
ROTATION
DREHRICHTUNG

S - Antioraria/sinistra
D - Oraria/destra
H - Bidirezionale drenaggio interno
B - Bidirezionale drenaggio esterno posteriore

S *- Counterclockwise*
D *- Clockwise*
H *- Reversible ind drain.*
B *- Reversible rear. drain. pont.*

S - Linkslauf
D - Rechtslauf
H - reversibel, Lecköl intern, Anschluß seitlich
B - reversibel, Lecköl extern, Anschluß hinten

TIPO DI SUPPORTO
SPINDLE TYPE
VORSATZLAGER

HPL..1

C1 - Conico (1:8) Ø 50,8
C2 - Cilindrico Ø 50,8
I4 - Integrato Cilindrico Ø 50,8

C1 *- Tapered (1:8) Ø 50,8*
C2 *- Parallel shaft Ø 50,8*
I4 *- Integrated Parallel shaft Ø 50,8*

C1 - Kegel (1:8) Ø 50,8
C2 - Zylindrisch Ø 50,8
I4 - integriertes Lager Zylindrisch Ø 50,8

HPL..2

C3 - Conico (1:8) Ø 50,8
C4 - Cilindrico Ø 50,8
C5 - Conico (1:8) Ø 36,5
C6 - Cilindrico Ø 36,5
I1 - Integrato cilindrico Ø 36,5
I2 - Integrato conico (1:5) Ø 80
I3 - Integrato cilindrico Ø 82,5 SAE
I7 - Integrato conico (1:8) Ø 36,5
B1 - Conico (1:5) Ø 80
B3 - Cilindrico Ø 80

C3 *- Tapered (1:8) Ø 50,8*
C4 *- Parallel shaft Ø 50,8*
C5 *- Tapered (1:8) Ø 36,5*
C6 *- Parallel shaft Ø 36,5*
I1 *- Integrated Parallel shaft Ø 36,5*
I2 *- Integrated Tapered (1:5) Ø 80*
I3 *- Integrated Parallel shaft Ø 82,5 SAE*
I7 *- Integrated Tapered (1:8) Ø 36,5*
B1 *- Tapered (1:5) Ø 80*
B3 *- Parallel shaft Ø 80*

C3 - Kegel (1:8) Ø 50,8
C4 - Zylindrisch Ø 50,8
C5 - Kegel (1:8) Ø 36,5
C6 - Zylindrisch Ø 36,5
I1 - integriertes Lager Zylindrisch Ø 36,5
I2 - Kegel Zylindrisch (1:5) Ø 80
I3 - integriertes Lager Zylindrisch Ø 82,5 SAE
I7 - Kegel Zylindrisch (1:8) Ø 36,5
B1 - Kegel (1:5) Ø 80
B3 - Zylindrisch Ø 80

HPL..3

C7 - Conico (1:8) Ø 50,8
C8 - Cilindrico Ø 50,8
I6 - Integrato cilindrico Ø 50,8

C7 *- Tapered (1:8) Ø 50,8*
C8 *- Parallel shaft Ø 50,8*
I6 *- Integrated Parallel shaft Ø 50,8*

C7 - Kegel (1:8) Ø 50,8
C8 - zylindrisch Ø 50,8
I6 - integriertes Lager Zylindrisch Ø 50,8

HPL..4

C9 - Conico (1:8) Ø 60,3
C0 - Cilindrico Ø 60,3

C9 *- Tapered (1:8) Ø 60,3*
C0 *- Parallel shaft Ø 60,3*

C9 - Kegel (1:8) Ø 60,3
C0 - zylindrisch Ø 60,3

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

G4 G4 | **B** | **ST** | **--**

BOCCHE STD *STANDARD PORT* STANDARD ANSCHLÜSSE
CILINDRATA *DISPLACEMENT* FÖRDER/SCHLUCKVOLUMEN

HPL..1

CILINDRATA *DISPLACEMENT* FÖRDER-/SCHLUCKVOLUMEN

1,4.....4,8 Pompe - *Pumps* -Pumpen IN/OUT	*6.....8* Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E3 E3	E3 E3	M1
G3 G3	G4 G4	G2
X3 X3	X3 X3	M1
M4 M2	M4 M2	M1

1,4.....4,8 Pompe - *Pumps* -Pumpen IN/OUT	*6.....8* Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
U3 U3	U4 U4	U2
T3 T3	T4 T3	G2
C3 C3	C4 C3	U2

MOTORI - *MOTORS* - MOTOREN OUT/IN
MOTORI BIDIR. IN=OUT - *REVERS. MOTORS IN=OUT* - BIDIREK.MOTOREN IN=OUT

HPL..2

CILINDRATA *DISPLACEMENT* FÖRDER-/SCHLUCKVOLUMEN

5.....8 Pompe - *Pumps* -Pumpen IN/OUT	*11* Pompe - *Pumps* -Pumpen IN/OUT	*14.....20* Pompe - *Pumps* -Pumpen IN/OUT	*26.....40* Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E3 E3		E5 E3	E5 E5	M2
G4 G4		G6 G4	G6 G6	G3
X5 X4	X6 X4	X6 X4	X6 X5	M2
U6 U5		U6 U5	U6 U5	U3
N4 N4		N6 N4	N7 N6	M2
C6 C5		C6 C5	C6 C5	U3
T6 T4		T6 T4	T6 T4	G3

MOTORI - *MOTORS* - MOTOREN OUT/IN
MOTORI BIDIR. IN=OUT - *REVERS. MOTORS IN=OUT* - BIDIREK.MOTOREN IN=OUT

HPL..3

CILINDRATA *DISPLACEMENT* FÖRDER-/SCHLUCKVOLUMEN

22.....31 Pompe - *Pumps* -Pumpen IN/OUT	*36.....61* Pompe - *Pumps* -Pumpen IN/OUT	*73.....90* Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E5 E5	E7 E5	E8 E7	M3
G6 G6	G7 G6	G8 G7	G3
U7 U6	U8 U7	U8 U7	M3
N7 N6	N7 N6	N8 N7	M3
X8 X7	X8 X7	X8 X7	M3

MOTORI - *MOTORS* - MOTOREN OUT/IN
MOTORI BIDIR. IN=OUT - *REVERS. MOTORS IN=OUT* - BIDIREK.MOTOREN IN=OUT

HPL..4

CILINDRATA *DISPLACEMENT* FÖRDER-/SCHLUCKVOLUMEN

41.....61 Pompe - *Pumps* -Pumpen IN/OUT	*73.....90* Pompe - *Pumps* -Pumpen IN/OUT	DRAIN
E7 E7	E8 E7	G3
G7 G7	G8 G8	G3
X8 X7	X8 X7	G3

MOTORI - *MOTORS* - MOTOREN OUT/IN
MOTORI BIDIR. IN=OUT - *REVERS. MOTORS IN=OUT* - BIDIREK.MOTOREN IN=OUT

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

COPERCHI
COVERS
DECKEL

ST - Standard
V.. - Con valvole
(Vedi sez. valvole)
With valves
(See valves section)
Mit Ventilen
(siehe Abschnitt Ventile)

SG - Versione in ghisa.
Non disponibile per il Gruppo 1
Cast iron version
Not available for Group 1
Gussversion
Nicht vorhanden für Gruppe 1

GUARNIZIONI
SEALS
DICHTUNGEN

B - NBR
R - NBR alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

V - Viton
W - Viton alte pres. (25 bar)
For high pres. (25 bar)
Hochdruck (25 bar)

HPLDF..

DIVISORI DI FLUSSO
FLOW DIVIDERS
MENGENTEILER

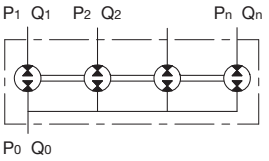
I divisori di flusso ad ingranaggi sono componenti idraulici non dissipativi, composti da più sezioni collegate tra loro, che suddividono la portata entrante Q_0 in parti uguali o proporzionali tra loro Q_n, permettendo di ottenere movimenti sincroni di più attuatori indipendentemente dal carico.

Gear flow dividers are non-dissipative hydraulic components consisting of multiple interconnected sections, which divide the inflow Q_0 into equal or mutually proportional parts Q_n, allowing for synchronised movement of multiple actuators independently of the load.

Die Mengenteiler mit Zahnradbetrieb sind hydraulische Durchgangskomponenten, die aus mehreren miteinander verbundenen Stufen bestehen, die die eintretende Fördermenge Q_0 in gleiche oder untereinander proportionale Teile Q_n aufteilen und somit synchrone Bewegungen mehrerer Stellglieder unabhängig von der Last ermöglichen.

$$Q_0 = Q_1 + Q_2 + ... Q_n$$

$$p_0Q_0 = p_1Q_1 + p_2Q_2 + ... p_nQ_n$$



Dove: Q = portata [l/min]
p = pressione [bar]

I divisori di flusso possono essere utilizzati anche come intensificatori di pressione per aumentare la pressione di lavoro di un impianto.

ISTRUZIONI GENERALI D'IMPIEGO E VERSIONI

I divisori di flusso della serie L sono prodotti nei gruppi 1, 2 e 3 in diverse configurazioni.
Per un dimensionamento di massima del divisore, occorre conoscere la portata in ingresso Q_0 [l/min] ed il numero delle sezioni *n*. Si determina così la cilindrata teorica V_t [cm^3] con la formula:

$$V_t = \frac{0{,}5 \cdot Q_0}{n}$$

Si selezionerà poi la cilindrata più prossima dalla tabella dati tecnici.
La configurazione standard (Fig.1) prevede le porte d'ingresso e di uscita su ciascuna sezione del divisore, le bocche di ingresso ed uscita sono della stessa dimensione.
La configurazione ad entrata unica è suddivisa nella versione con ingresso laterale sul coperchio (Fig.2) o con ingresso sul corpo (Fig.3). Il numero delle porte di ingresso è funzione del numero degli stadi secondo la seguente relazione:

per n<4 Numero ingressi I = 1
per n>4 Numero ingressi $I = INT(\frac{n}{4}+1)$

Es. Divisore a n = 5 stadi →
numero ingressi I = INT(2.25) = 2

Le porte di ingresso per n>4 sono della stessa dimensione.

Where: Q = flow rate [l/min]
p = pressure [bar]

Flow dividers can also be used as pressure intensifiers to increase the working pressure of a plant.

GENERAL INSTRUCTIONS FOR USE AND VERSIONS

L series flow dividers are produced in groups 1, 2 and 3 and in different configurations.
For maximum dimensioning of the divider, it is necessary to know the inlet flow rate Q_0 [l/min] and the number of sections n. In this way it is possible to determine the theoretical displacement V_t [cm^3] using the formula:

$$V_t = \frac{0{,}5 \cdot Q_0}{n}$$

Then select the closest displacement from the technical data table.
The standard configuration (Fig.1) envisages inlet and outlet ports on each section of the divider; the inlet and outlet ports are the same size.
The single inlet configuration is divided into the version with lateral inlet on the cover (Fig.2) or with inlet on the body (Fig.3). The number of inlet ports depends on the number of stages according to the following relationship:

for n<4 Number of inlets I = 1
for n>4 Number of inlets $I = INT(\frac{n}{4}+1)$

E.g. Divider with n = 5 stages →
number of inlets I = INT(2.25) = 2

The inlet ports for n>4 are the same size.

Wobei: Q = Fördermenge [l/min]
p = Druck [bar]

Die Mengenteiler können auch als Druckverstärker eingesetzt werden, um den Arbeitsdruck einer Anlage zu erhöhen.

ALLGEMEINE ANLEITUNGEN ZUR NUTZUNG UND VERSIONEN

Die Mengenteiler der Serie L werden in den Baugrößen 1, 2 und 3 in verschiedenen Konfigurationen hergestellt.
Zur Bestimmung der grundsätzlichen Abmessungen des Mengenteilers müssen die eintretende Fördermenge Q_0 [l/min] und die Anzahl der Stufen n bekannt sein. Auf diese Weise wird das theoretische Fördervolumen V_t [cm^3] mit folgender Formel bestimmt:

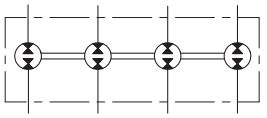
$$V_t = \frac{0{,}5 \cdot Q_0}{n}$$

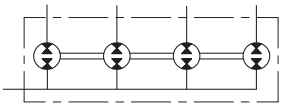
Anschließend wählt man den nächstliegenden Fördervolumenwert aus der Tabelle der technischen Daten aus.
Die Standardkonfiguration (Abb. 1) sieht die Ein- und Ausgangsöffnungen an jeder Stufe des Mengenteilers vor. Ein- und Ausgangsöffnungen weisen die gleichen Maße auf.
Die Konfiguration mit einzigem Eingang ist unterteilt in die Version mit seitlichem Eingang am Deckel (Abb. 2) oder mit Eingang am Gehäuse (Abb. 3). Die Anzahl der Eingangsanschlüsse hängt von der Anzahl der Stufen gemäß folgender Verhältnisgleichung ab:

für n<4 Anzahl Eingangsanschlüsse I = 1
für n>4 Anzahl Eingangsanschlüsse
$I = INT(\frac{n}{4}+1)$

Beispiel: Mengenteiler mit n = 5 Stufen→
Anzahl Eingangsanschlüsse I = INT(2.25) = 2

Die Eingangsanschlüsse für n>4 weisen alle das gleiche Maß auf.


1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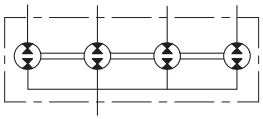
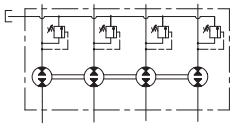

3

I divisori di flusso del gruppo 1 e 2 possono essere forniti con valvole di massima pressione per consentire il rifasamento degli attuatori al termine della corsa. Le valvole sono tarabili e posizionate su ciascuna sezione del divisore, mentre il drenaggio è esterno e comune per tutte le valvole.
La versione valvolata è disponibile nella configurazione standard (Fig.4) e con ingresso unico su coperchio (Fig.5) e corpo (Fig.6).

Group 1 and 2 flow dividers can be supplied with relief valves to enable the rephasing of the actuators at the end of the stroke. The valves can be calibrated and positioned on each section of the divider, whereas the drain is external and common to all valves.
The valved version is available in the standard confifiguration (Fig.4) and with single inlet on the cover (Fig.5) and body (Fig.6).

Die Mengenteiler der Baugrößen 1 und 2 können mit Druckbegrenzungsventilen geliefert werden, um die Phasenregelung der Stellglieder am Ende des Hubs zu ermöglichen. Die Ventile sind einstellbar und in jeder Stufe des Mengenteilers positioniert, während der Leckölanschluss extern und gemeinsam für alle Ventile gelegt ist. Die mit Ventilen versehene Version ist in der Standardkonfiguration (Abb. 4) und mit einzigem Eingang am Deckel (Abb. 5) und Gehäuse (Abb. 6) verfügbar.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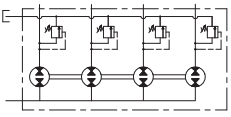
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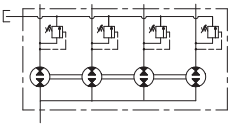
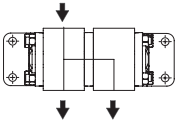
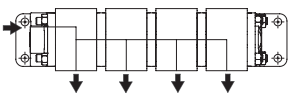

6

HPLDF.1 **HPLDF.2**

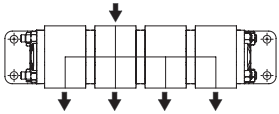
DIVISORE A DUE STADI ENTRATA UNICA CORPO
TWO-STAGE DIVIDER SINGLE INLET BODY
2-STUFIGER MENGENTEILER GEHÄUSE MIT GEMEINSAMEM EINLASS



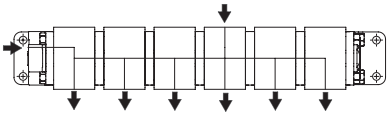
DIVISORE DA DUE A QUATTRO STADI ENTRATA UNICA COPERCHIO
TWO TO FOUR-STAGE DIVIDER SINGLE INLET COVER
2- BIS 4-STUFIGER MENGENTEILER GEHÄUSE MIT GEMEINSAMEM EINLASS



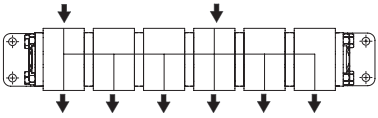
DIVISORE A TRE E A QUATTRO STADI ENTRATA UNICA CORPO
THREE AND FOUR-STAGE DIVIDER SINGLE INLET BODY
3- UND 4-STUFIGER MENGENTEILER GEHÄUSE MIT GEMEINSAMEM EINLASS



DIVISORE DA CINQUE A SEI STADI ENTRATA UNICA COPERCHIO
FIVE TO SIX-STAGE DIVIDER SINGLE INLET COVER
5- BIS 6-STUFIGER MENGENTEILER GEHÄUSE MIT GEMEINSAMEM EINLASS



DIVISORE A CINQUE E A SEI STADI ENTRATA UNICA CORPO
FIVE AND SIX-STAGE DIVIDER SINGLE INLET BODY
5- BIS 6-STUFIGER MENGENTEILER GEHÄUSE MIT GEMEINSAMEM EINLASS



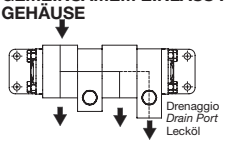
DIVISORI DI FLUSSO
FLOW DIVIDERS
MENGENTEILER

HPLDF.1

DIVISORE VALVOLATO A DUE STADI E.U. CORPO

TWO-STAGE VALVED DIVIDER S.I. BODY

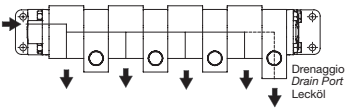
2-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM GEHÄUSE



DIVISORE VALVOLATO DA DUE A QUATTRO STADI E.U COPERCHIO

TWO TO FOUR-STAGE VALVED DIVIDER S.I. COVER

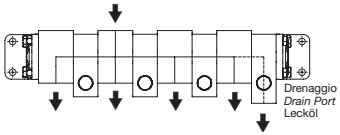
2- BIS 4-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM DECKEL



DIVISORE VALVOLATO A TRE E A QUATTRO STADI E.U. CORPO

THREE AND FOUR-STAGE VALVED DIVIDER S.I. BODY

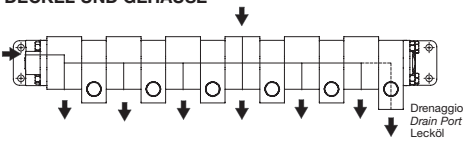
2- BIS 4-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM GEHÄUSE



DIVISORE VALVOLATO A CINQUE E A SEI STADI E.U. COPERCHIO

FIVE AND SIX-STAGE VALVED DIVIDER S.I. COVER

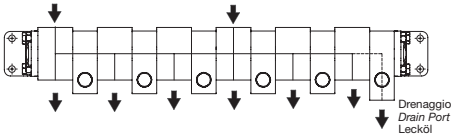
5- UND 6-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM DECKEL UND GEHÄUSE



DIVISORE VALVOLATO A CINQUE E A SEI STADI E.U. CORPO

FIVE AND SIX-STAGE VALVED DIVIDER S.I. BODY

5- UND 6-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM GEHÄUSE

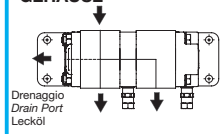


HPLDF.2

DIVISORE VALVOLATO A DUE STADI E.U CORPO

TWO-STAGE VALVED DIVIDER S.I. BODY

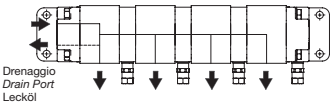
2-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM GEHÄUSE



DIVISORE VALVOLATO DA DUE A QUATTRO STADI E.U COPERCHIO

TWO TO FOUR-STAGE VALVED DIVIDER S.I. COVER

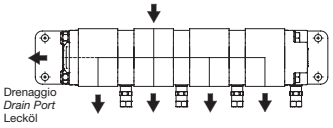
2- BIS 4-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM DECKEL



DIVISORE VALVOLATO A TRE E A QUATTRO STADI E.U. CORPO

THREE AND FOUR-STAGE VALVED DIVIDER S.I. BODY

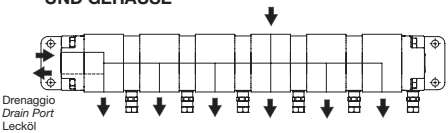
3- UND 4-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM GEHÄUSE



DIVISORE VALVOLATO DA CINQUE A SEI STADI E.U COPERCHIO

FIVE AND SIX-STAGE VALVED DIVIDER S.I. COVER

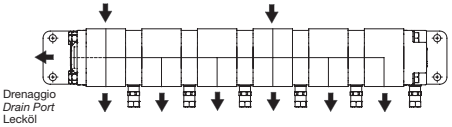
6-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM DECKEL UND GEHÄUSE



DIVISORE VALVOLATO A CINQUE E A SEI STADI E.U. CORPO

FIVE AND SIX-STAGE VALVED DIVIDER S.I. BODY

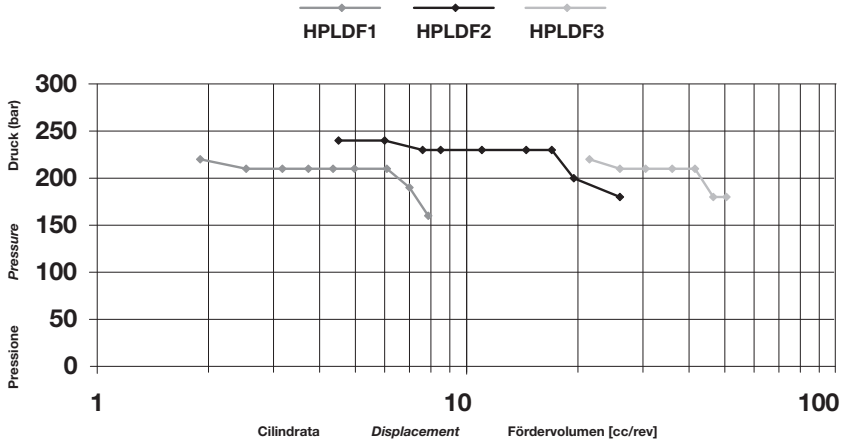
6-STUFIGER STROMTEILER MIT VENTILEN UND GEMEINSAMEM EINLASS IM GEHÄUSE



DIVISORI DI FLUSSO
FLOW DIVIDERS
MENGENTEILER

HPLDF..

PROGRAMMA DI PRODUZIONE
PRODUCTION RANGE
MENGENTEILER

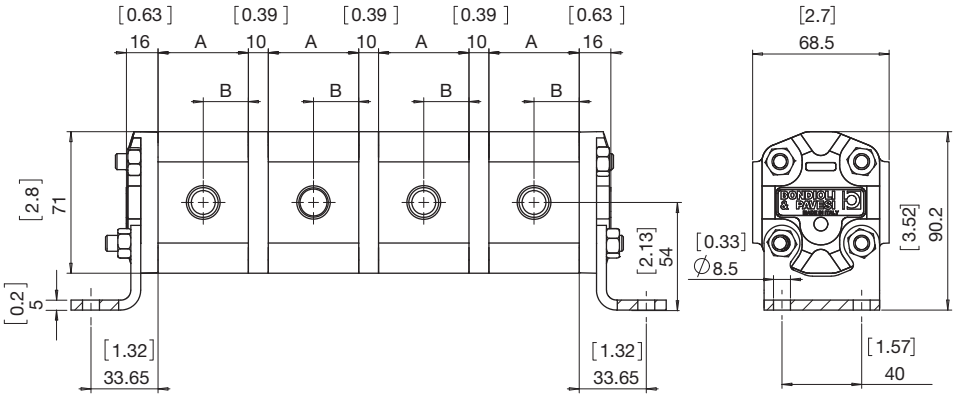


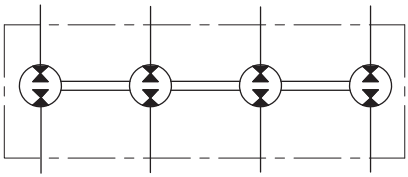
DATI TECNICI
TECHNICAL DATA
TECHNISCHE MERKMALE

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	CILINDRATA TEORICA *NOMINAL DISPLACEMENT* FÖRDERVOLUMEN (TM)		PRESSIONE *PRESSURE* DRUCK				ΔP MAX TRA LE SEZIONI *ΔP MAX OUTLET BETWEEN SECTIONS* ΔP ZWISCHEN DEN STUFEN		VELOCITÀ *DI ROTAZIONE SPEED* DREHZAHL	
				CONTINUA *CONTINUOS* DAUER		INTERMITTENTE *INTERMITTENT* INTERMITTIERENDER				MIN	MAX
		cm³	in³	bar	psi	bar	psi	bar	psi	min⁻¹	min⁻¹
1	**19**	1,90	0,12	220	3191	260	3771	190	2756	700	4800
	24	2,53	0,15	210	3046	250	3626	180	2611		
	31	3,17	0,19	210	3046	250	3626	180	2611		
	36	3,73	0,23	210	3046	250	3626	180	2611		
	44	4,35	0,27	210	3046	250	3626	180	2611		
	48	4,97	0,30	210	3046	250	3626	180	2611		
	60	6,08	0,37	210	3046	250	3626	180	2611		3600
	70	7,00	0,43	190	2756	210	3046	160	2321		
	80	7,87	0,48	160	2321	180	2611	130	1885		
2	**05**	4,50	0,27	240	3481	260	3771	210	3046	700	4000
	06	6,00	0,37	240	3481	260	3771	210	3046		
	08	8,50	0,52	230	3336	250	3626	200	2901		
	11	11,00	0,67	230	3336	250	3626	200	2901		
	14	14,50	0,88	230	3336	250	3626	200	2901		
	17	17,00	1,04	230	3336	250	3626	200	2901		
	20	19,50	1,19	200	2901	220	3191	170	2466		3400
	26	26,00	1,59	180	2611	190	2756	150	2176		
3	**22**	21,50	1,31	220	3191	250	3626	190	2756	700	3500
	26	26,00	1,59	210	3046	250	3626	180	2611		
	31	30,50	1,86	210	3046	250	3626	180	2611		
	36	36,00	2,20	210	3046	250	3626	180	2611		
	41	41,50	2,53	210	3046	250	3626	180	2611		
	47	46,50	2,84	180	2611	210	3046	150	2176		
	51	50,50	3,08	180	2611	210	3076	150	2176		

HPLDF.1

CONFIGURAZIONE STANDARD
STANDARD CONFIGURATION
STANDARDKONFIGURATION



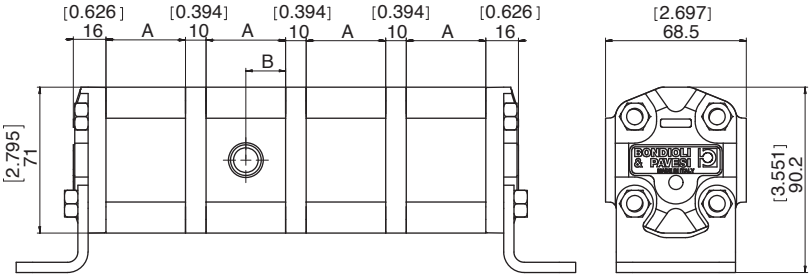


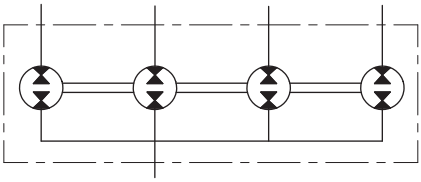
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
1	19	38,7	1,524	19,4	0,762
	24	38,7	1,524	19,4	0,762
	31	38,7	1,524	19,4	0,762
	36	45,35	1,785	22,7	0,893
	44	45,35	1,785	22,7	0,893
	48	45,35	1,785	22,7	0,893
	60	56,05	2,207	28,0	1,103
	70	56,05	2,207	28,0	1,103
	80	56,05	2,207	28,0	1,103

HPLDF.1

CONFIGURAZIONE ENTRATA UNICA
SINGLE INLET CONFIGURATION
KONFIGURATION MIT EINZIGEM EINGANG



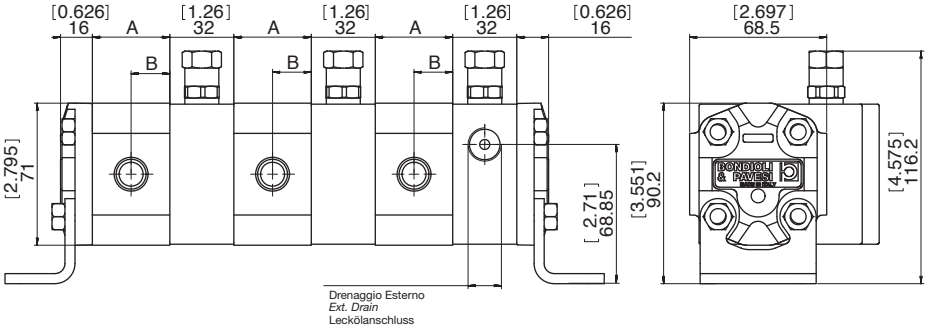


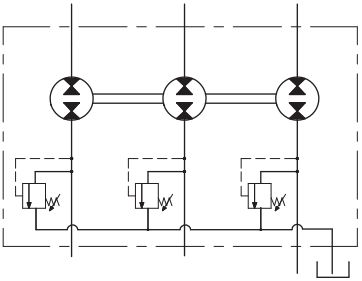
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
1	19	38,7	1,524	19,4	0,762
	24	38,7	1,524	19,4	0,762
	31	38,7	1,524	19,4	0,762
	36	45,35	1,785	22,7	0,893
	44	45,35	1,785	22,7	0,893
	48	45,35	1,785	22,7	0,893
	60	56,05	2,207	28,0	1,103
	70	56,05	2,207	28,0	1,103
	80	56,05	2,207	28,0	1,103

HPLDF.1

VERSIONE CON VALVOLE
VERSION WITH VALVES
VERSION MIT VENTILEN





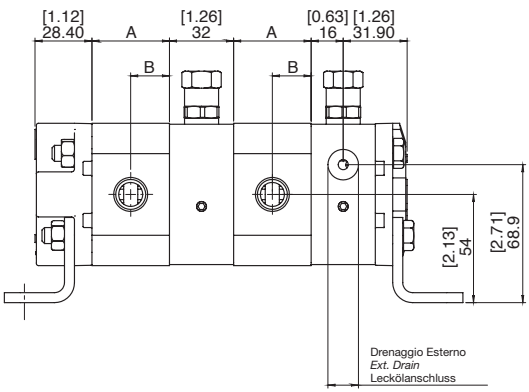
DIMENSIONI
SIZE
ABMESSUNGEN

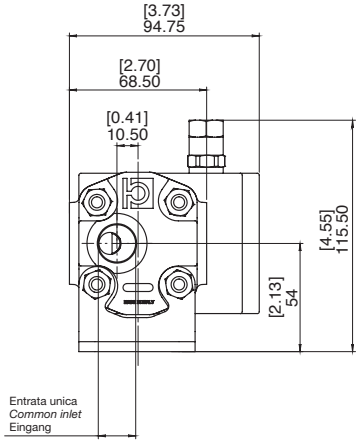
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
1	**19**	38,7	1,524	19,4	0,762
	24	38,7	1,524	19,4	0,762
	31	38,7	1,524	19,4	0,762
	36	45,35	1,785	22,7	0,893
	44	45,35	1,785	22,7	0,893
	48	45,35	1,785	22,7	0,893
	60	56,05	2,207	28,0	1,103
	70	56,05	2,207	28,0	1,103
	80	56,05	2,207	28,0	1,103

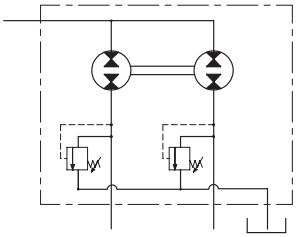
DIVISORI DI FLUSSO
FLOW DIVIDERS
MENGENTEILER

HPLDF..

HPLDF.1 VERSIONE CON VALVOLE ENTRATA UNICA
VERSION WITH VALVES, SINGLE INLET
VERSION MIT VENTILEN UND EINZIGEM EINGANG







DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
1	19	38,7	1,524	19,4	0,762
	24	38,7	1,524	19,4	0,762
	31	38,7	1,524	19,4	0,762
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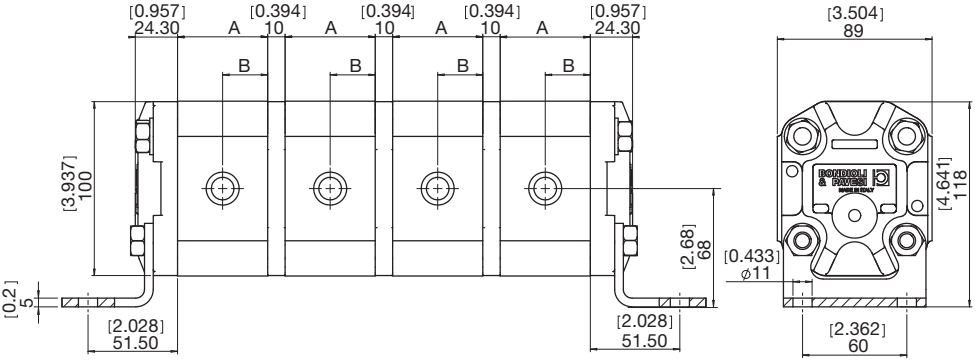
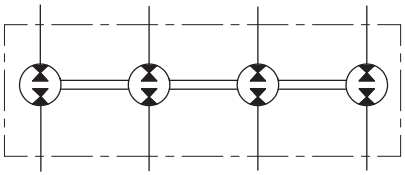
	48	45,35	1,785	22,7	0,893
	60	56,05	2,207	28,0	1,103
	70	56,05	2,207	28,0	1,103
	80	56,05	2,207	28,0	1,103

HPLDF.2

CONFIGURAZIONE STANDARD
STANDARD CONFIGURATION
STANDARDKONFIGURATION



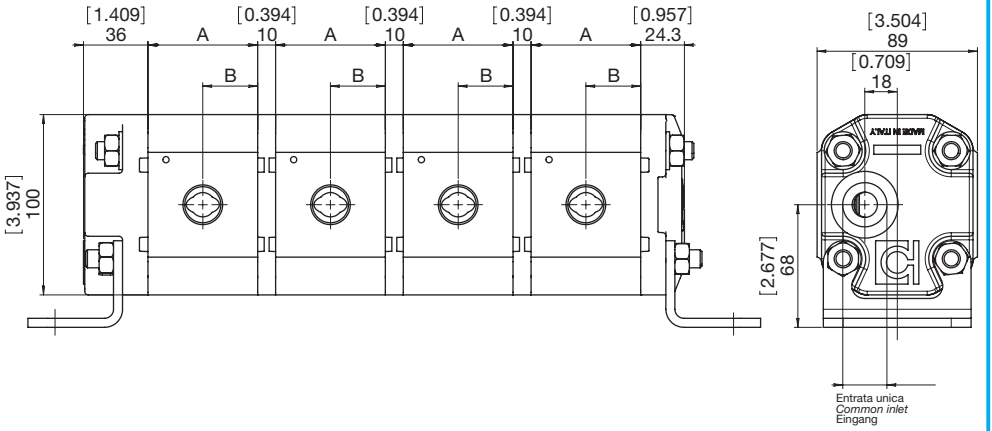


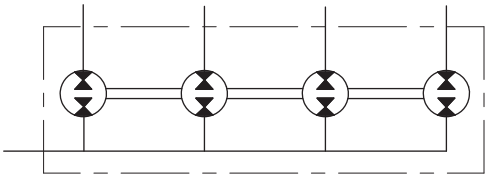
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
2	05	49,15	1,935	24,6	0,968
	06	51,85	2,041	25,9	1,021
	08	56,35	2,219	28,2	1,109
	11	60,85	2,396	30,4	1,198
	14	67,25	2,648	33,6	1,324
	17	71,75	2,825	35,9	1,412
	20	76,25	3,002	38,1	1,501
	26	88,55	3,486	44,3	1,743

HPLDF.2

CONFIGURAZIONE ENTRATA UNICA
SINGLE INLET CONFIGURATION
KONFIGURATION MIT EINZIGEM EINGANG



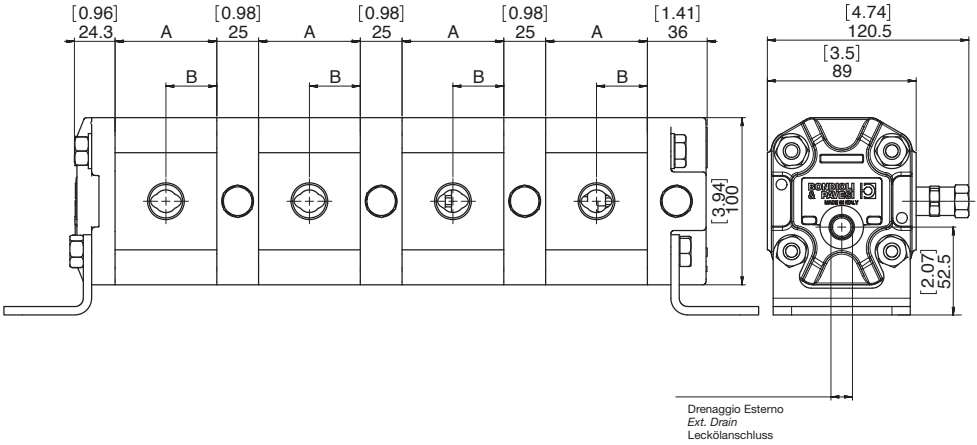


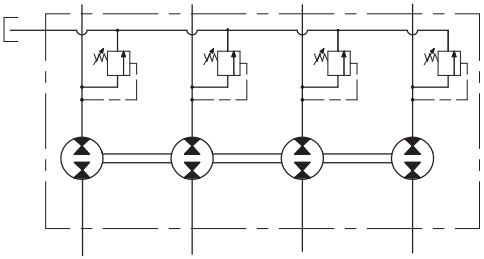
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
2	05	49,15	1,935	24,6	0,968
	06	51,85	2,041	25,9	1,021
	08	56,35	2,219	28,2	1,109
	11	60,85	2,396	30,4	1,198
	14	67,25	2,648	33,6	1,324
	17	71,75	2,825	35,9	1,412
	20	76,25	3,002	38,1	1,501
	26	88,55	3,486	44,3	1,743

HPLDF.2

VERSIONE CON VALVOLE
VERSION WITH VALVES
VERSION MIT VENTILEN



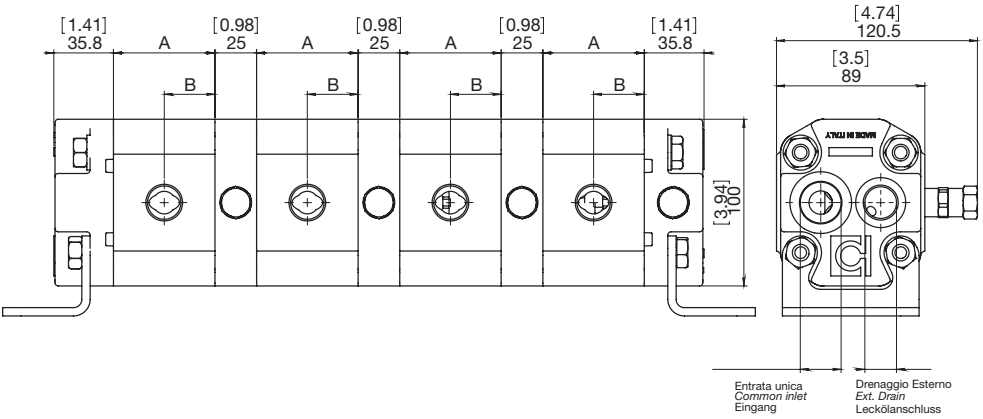


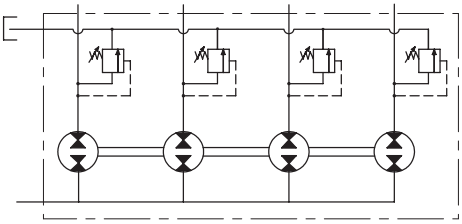
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
2	05	49,15	1,935	24,6	0,968
	06	51,85	2,041	25,9	1,021
	08	56,35	2,219	28,2	1,109
	11	60,85	2,396	30,4	1,198
	14	67,25	2,648	33,6	1,324
	17	71,75	2,825	35,9	1,412
	20	76,25	3,002	38,1	1,501
	26	88,55	3,486	44,3	1,743

HPLDF.2

VERSIONE CON VALVOLE ENTRATA UNICA
VERSION WITH VALVES, SINGLE INLET
VERSION MIT VENTILEN UND EINZIGEM EINGANG



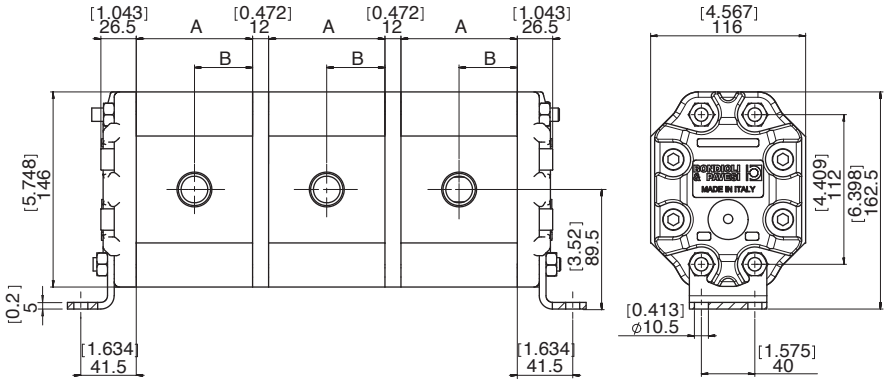


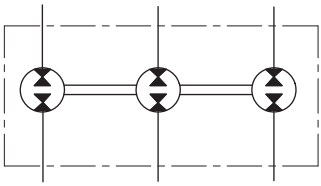
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
2	05	49,15	1,935	24,6	0,968
	06	51,85	2,041	25,9	1,021
	08	56,35	2,219	28,2	1,109
	11	60,85	2,396	30,4	1,198
	14	67,25	2,648	33,6	1,324
	17	71,75	2,825	35,9	1,412
	20	76,25	3,002	38,1	1,501
	26	88,55	3,486	44,3	1,743

HPLDF.3

CONFIGURAZIONE STANDARD
STANDARD CONFIGURATION
STANDARDKONFIGURATION



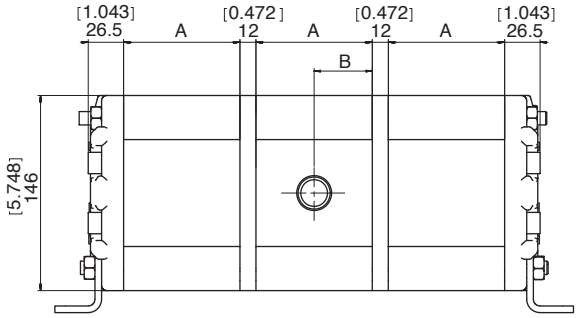


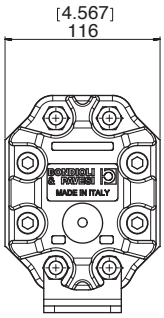
DIMENSIONI
SIZE
ABMESSUNGEN

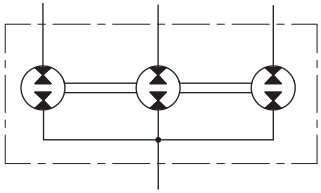
GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
3	22	81,07	3,192	40,5	1,594
	26	84,07	3,310	42,0	1,654
	31	87,07	3,428	43,5	1,714
	36	91,07	3,585	45,5	1,793
	41	95,07	3,743	47,5	1,870
	47	98,07	3,861	49,0	1.929
	51	101,07	3,979	50,5	1,990

HPLDF.3

CONFIGURAZIONE ENTRATA UNICA
SINGLE INLET CONFIGURATION
KONFIGURATION MIT EINZIGEM EINGANG







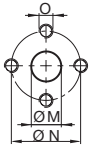
DIMENSIONI
SIZE
ABMESSUNGEN

GRUPPO *GROUP* BAUREIHE	TIPO *TYPE* TYP	A		B	
		mm	in	mm	in
3	22	81,07	3,192	40,5	1,594
	26	84,07	3,310	42,0	1,654
	31	87,07	3,428	43,5	1,714
	36	91,07	3,585	45,5	1,793
	41	95,07	3,743	47,5	1,870
	47	98,07	3,861	49,0	1.929
	51	101,07	3,979	50,5	1,990

BOCCHE
PORTS
ANSCHLÜSSE

HPLDF..

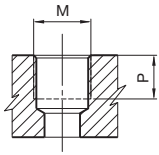
E **LATERALE** ***LATERAL*** **SEITLICH**



TIPO *TYPE* TYP	M		N		O	
	mm	in	mm	in		Nm
E3	13	0,51	30	1,18	M6	10
E5	20	0,79	40	1,57	M8	15
E7	27	1,34	51	2,01	M10	30

G **LATERALE** ***LATERAL*** **SEITLICH**

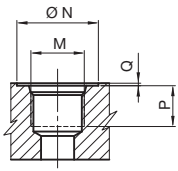
T **POSTERIORE** ***REAR*** **HINTEN**



TIPO *TYPE* TYP	M		P	
		Nm	mm	in
G3	3/8" GAS BSPP	38	12	0,47
G4	1/2" GAS BSPP	50	16	0,63
G6	3/4" GAS BSPP	90	19	0,75
G7	1" GAS BSPP	130	21	0,83
T4	1/2" GAS BSPP	50	16	0,63
T6	3/4" GAS BSPP	70	19	0,75

U **LATERALE** ***LATERAL*** **SEITLICH**

C **POSTERIORE** ***REAR*** **HINTEN**



TIPO *TYPE* TYP	DIMENSIONE *SIZE* GRÖSSE	N		P		Q		M	
		mm	in	mm	in	mm	in		Nm
U3	3/8"	25	0,98	13	0,3	0,3	0,01	9/16"-18 UNF	25
U4	1/2"	30	1,18	15	0,3	0,3	0,01	3/4"-16 UNF	47
U5	5/8"	34	1,34	17	0,67	0,3	0,01	7/8"-14 UNF	70
U6	3/4"	41	1,61	19	0,75	0,3	0,01	1-1/16"-12 UNF	90
U7	1"	49	1,93	19	0,75	0,3	0,01	1-5/16"-12 UNF	130
C5	5/8"	34	1,34	17	0,67	0,3	0,01	7/8"-14 UNF	70
C6	3/4"	41	1,61	19	0,75	0,3	0,01	1-1/16"-12 UNF	70

ISTRUZIONI PER L'ORDINAZIONE
ORDERING INSTRUCTIONS
BESTELLANLEITUNG

HPLDF..

HPL	DF	2	2	11	G4 G4	B	ST	--

SERIE
SERIES
SERIE

PRODOTTO
PRODUCT
PRODUKT

DF - Divisori di flusso
Flow dividers
Mengenteiler

2 - 3 - 4 - 5 - 6
N° degli Stadi
N° Stage
N° Stufen

GRUPPO
GROUP
BAUGRÖSSE

1 - 2 - 3

CILINDRATA
DISPLACEMENT
FÖRDERVOLUMEN

HPLDF.1	HPLDF.2	HPLDF.3
19 - 1,90	**05 -** 4,50	**22 -** 21,50
24 - 2,53	**06 -** 6,00	**26 -** 26,00
31 - 3,17	**08 -** 8,50	**31 -** 30,50
36 - 3,73	**11 -** 11,00	**36 -** 36,00
44 - 4,35	**14 -** 14,50	**41 -** 41,50
48 - 4,97	**17 -** 17,00	**47 -** 46,50
60 - 6,08	**20 -** 19,50	**51 -** 50,50
70 - 7,00	**26 -** 26,00	
80 - 7,87		

SET VALVOLE
VALVE SETTING
VENTILEINSTELLUNG
(bar)

COPERCHI - *COVERS* - DECKEL
ST - Standard
SG - Versione in ghisa (solo HPLDF.3)
Cast iron version (only HPLDF.3)
Gussversion (nur HPLDF.3)
VE - Con valvole (Vedi sez. valvole)
With valves (See valves section)
Mit Ventilen (siehe Ventile Abschnitt)

GUARNIZIONI
SEALS
DICHTUNGEN
B - NBR **V** - Viton

BOCCHE - *PORT* - ANSCHLÜSSE

HPLDF.1 - BOCCHE STD - *STANDARD PORT* - STANDARD ANSCHLÜSSE
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

1,9.....4,8		*6.....8*	
IN/OUT	DRAIN	IN/OUT	DRAIN
E3 E3	G3	E3 E3	G3
G3 G3	G3	G4 G4	G3
U3 U3	U3	U4 U4	U3
ASPIRAZIONE UNICA COPERCHIO - *COVER COMMON INLET* - EINGANG DECKEL			
T4 G3	G3	T4 G4	G3
C5 U3	U3	U5 U4	U3
ASPIRAZIONE UNICA CORPO - *BODY COMMON INLET* - EINGANG GEHÄUSE			
G4 G3	G3	G6 G4	G3
U4 U3	U3	U5 U4	U3

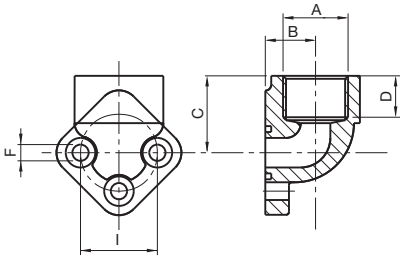
HPLDF.2 - BOCCHE STD - *STANDARD PORT* - STANDARD ANSCHLÜSSE
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

5.....11		*14.....20*		*26*	
IN/OUT	DRAIN	IN/OUT	DRAIN		
E3 E3	G4	E5 E5	G4	E5 E5	G4
G4 G4	G4	G6 G6	G4	G6 G6	G4
U5 U5	U4	U6 U6	U4	U6 U6	U4
ASPIRAZIONE UNICA COPERCHIO - *COVER COMMON INLET* - EINGANG DECKEL					
T6 G4	G4	T6 G4	G4	T6 G4	G4
C6 U5	U4	C6 U5	U4	C6 U5	U4
ASPIRAZIONE UNICA CORPO - *BODY COMMON INLET* - EINGANG GEHÄUSE					
G6 G4	G4	G6 G4	G4	G7 G6	G4
U6 U4	U4	U6 U5	U4	U7 U6	U4

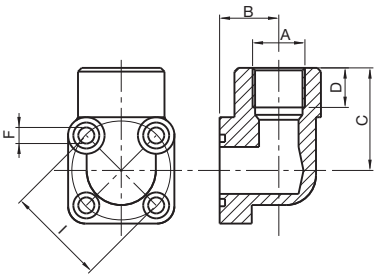
HPLDF.3 - BOCCHE STD - *STANDARD PORT* - STANDARD ANSCHLÜSSE
CILINDRATA - *DISPLACEMENT* - FÖRDER-/SCHLUCKVOLUMEN

22.....31	*36.....51*
IN/OUT	IN/OUT
E5 E5	E7 E7
G6 G6	G7 G7
U6 U6	U7 U7
ASPIRAZIONE UNICA CORPO - *BODY COMMON INLET* - EINGANG GEHÄUSE	
G7 G6	G8 G7
U7 U6	U8 U7

RACCORDI A GOMITO
UNION ELBOW
WINKELVERBINDUNGEN

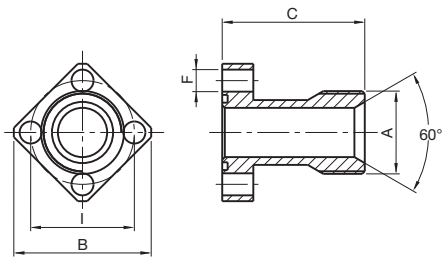


TIPO *TYPE* TYP	DESCRIZIONE *DESCRIPTION* BEZEICHNUNG	A	B		C		D		I		F	
			mm	in	mm	in	mm	in	mm	in	mm	in
HPL5767E0G31R	GR.RG 26x12 G3/8”	3/8”	16,0	0,63	26	1,02	14	0,56	26	1,02	5,50	0,22
HPL5767E0G41R	GR.RG 26x12 G1/2”	1/2”	16,0	0,63	26	1,02	14	0,56	26	1,02	5,50	0,22
HPL5767E3G31R	GR.RG 30x13.5 G3/8”	3/8”	17,5	0,69	26	1,02	14	0,56	30	1,18	6,50	0,26
HPL5767E3G41R	GR.RG 30x13.5 G1/2”	1/2”	17,5	0,69	26	1,02	14	0,56	30	1,18	6,50	0,26
HPL5767E4G61R	GR.RG 40x20 G3/4”	3/4”	21,0	0,82	36	1,42	16	0,60	40	1,58	8,50	0,33
HPL5767E7G71R	GR.RG 51x27 G1”	1”	27,0	1,06	43	1,70	21	0,80	51	2,00	10,5	4,13
HPL5767E8G81R	GR.RG 62x34 G1 1/4”	1 1/4”	34,5	1,36	55	2,17	27	1,06	62	2,45	10,5	4,13
HPL5767E4G41R	GR.RG 40x20 G1/2”	1/2”	21,0	0,83	36	1,42	16	0,63	40	1,58	8,50	0,33
HPL5767E0M41R	GR.RG 26x12 M18x1.5	18X1.5	17,5	0,69	26	1,02	14	0,56	26	1,02	5,50	0,22
HPL5767E3M41R	GR.RG 30x13.5 M18x1.5	18X1.5	17,5	0,69	26	1,02	14	0,56	30	1,18	6,50	0,26



TIPO *TYPE* TYP	DESCRIZIONE *DESCRIPTION* BEZEICHNUNG	A	B		C		D		I		F	
			mm	in	mm	in	mm	in	mm	in	mm	in
HPL5767X3G31R	GR.R.GB 30x13 3/8”	3/8”	18	0,70	40,0	1,58	16	0,63	30	1,18	6,5	0,22
HPL5767X3G41R	GR.R.GB 30x13 1/2”	1/2”	18	0,70	40,0	1,58	16	0,63	30	1,18	6,5	0,22
HPL5767X4G31R	GR.R.GB 35x13 3/8”	3/8”	18	0,70	40,0	1,58	16	0,63	35	1,38	6,5	0,22
HPL5767X4G41R	GR.R.GB 35x13 1/2”	1/2”	18	0,70	40,0	1,58	16	0,63	35	1,38	6,5	0,22
HPL5767X6G61R	GR.R.GB 40x19 3/4”	3/4”	24	0,95	41,5	1,63	16	0,63	40	1,58	6,5	0,22
HPL5767X6G41R	GR.R.GB 40x19 1/2”	1/2”	24	0,95	41,5	1,63	16	0,63	40	1,58	6,5	0,22
HPL5767X3M41R	GR.R.GB 30x13 M18x1.5	18X1.5	18	0,70	40,0	1,58	16	0,63	30	1,18	6,5	0,22

RACCORDI DIRITTI
STRAIGHT UNION
GERADE VERBINDUNGEN



TIPO *TYPE* TYP	DESCRIZIONE *DESCRIPTION* BEZEICHNUNG	A	B		C		I		F	
			mm	in	mm	in	mm	in	mm	in
HPL5767E3G42R	GR.RD 30x13.5 (1/2")	1/2"	46	1,81	55	2,16	30	1,18	6,5	0,26
HPL5767E5G42R	GR.RD 40x20 (3/4")	3/4"	53	2,09	40	1,58	40	1,58	8,5	0,33
HPL5767E7G42R	GR.RD 51x27 (1")	1"	73	2,88	55	2,17	51	2,00	10,5	4,13
HPL5767E8G42R	GR.RD 62x34 (1 1/4")	1 1/41"	86	3,39	70	2,76	62	2,45	10,5	4,13
HPL5767E0M42R	GR.RD 26x12 M18x1.5	18X1.5	46	1,81	35	1,38	26	1,81	6,5	0,26

NOTA: I raccordi vengono forniti completi di viti, rondelle e guarnizioni OR.

NOTE: *Connectors are supplied complete with bolts, washers and O-rings.*

BEMERKUNG: Die Verbindungen werden komplett mit Schrauben, U-Scheiben und O-Ringen geliefert.

KIT GUARNIZIONI
SEALS KIT
DICHTUNGSSÄTZE

TIPO *TYPE* TYP	DESCRIZIONE	*DESCRIPTION*	BEZEICHNUNG
HPL48670PAUNB00R05	GRUPPO 05 POMPA NBR	*GROUP 05 NBR PUMP/MOTOR*	BAUGRÖSSE 5 NBR PUMPE UND MOTOR
HPL48671PAUNB00R05	GRUPPO 1 POMPA NBR	*GROUP 1 PUMP NBR*	BAUGRÖSSE 1 NBR PUMPE
HPL48671PAUNV00R05	GRUPPO 1 POMPA VITON	*GROUP 1 PUMP VITON*	BAUGRÖSSE 1 VITON PUMPE
HPL48671PAUNB01R05	GRUPPO 1 BOSCH POMPA NBR	*GROUP 1 BOSCH NBR*	BAUGRÖSSE 1 BOSCH NBR PUMPE
HPL48671MARVB01R05	GRUPPO 1 BOSCH MOTORE BID.	*GROUP 1 BOSCH MOTOR NBR*	BAUGRÖSSE 1 BOSCH NBR MOTOR
HPL48671MARVB00R05	GRUPPO 1 MOTORE BID. NBR	*GROUP 1 MOTOR NBR*	BAUGRÖSSE 1 NBR MOTOR
HPL48671MARVV00R05	GRUPPO 1 MOTORE BID. VITON	*GROUP 1 MOTOR VITON*	BAUGRÖSSE 1 VITON MOTOR
HPL48672PAUNB00R05	GRUPPO 2 POMPA/MOTORE NBR	*GROUP 2 PUMP/MOTOR NBR*	BAUGRÖSSE 2 PUMPE UND MOTOR NBR
HPL48672PAUNB01R05	GRUPPO 2 ALTE PRESS.POMPA/	*GROUP 2 HIGH PRESS PUMP/MOTOR NBR*	BAUGRÖSSE 2 HOCHDRUCK NBR PUMPE UND MOTOR
HPL48672PAUNV00R05	GRUPPO 2 POMPA/MOTORE VITON	*GROUP 2 PUMP/MOTOR VITON*	BAUGRÖSSE 2 PUMPE UND MOTOR
HPL48673PAUNB00R05	GRUPPO 3/4 POMPA NBR	*GROUP 3/4 PUMP NBR*	BAUGRÖSSE 3/4 NBR PUMPE
HPL48673MARVB00R05	GRUPPO 3/4 MOTORE NBR	*GROUP 3/4 MOTOR NBR*	BAUGRÖSSE 3/4 NBR MOTOR
HPL48673PAUNV00R05	GRUPPO 3/4 POMPA VITON	*GROUP 3/4 PUMP VITON*	AUGRÖSSE 3/4 VITON PUMPE

GIUNTI E SEMIGIUNTI PER SUPPORTI
HUBS AND HALF HUBS FOR SPINDLES
KUPPLUNGEN UND HALBKUPPLUNGEN FÜR VORSATZLAGER

TIPO *TYPE* TYP	DESCRIZIONE	*DESCRIPTION*	BEZEICHNUNG
HPL21000007010R05	GR.1 SEMIG.(25X22 Z=14) TC C1-C2	*GR.1 HALF HUB (25X22 Z=14) TC C1-C2*	GR.1 HALBKUP (25X22 Z=14) TC C1-C2
HPL00020045140R05	GR.1 GIUNTO PER ALBERO K	*GR.1 HUB FOR SHAFT K*	GR.1 KUPPLUNG FÜR WELLE K
HPL21000008010R05	GR.2 SEMIG.(28X25 Z=15) TC C3-C4	*GR.2 HALF HUB (28X25 Z=15) TC C3-C4*	GR.2 HALBKUP (28X25 Z=15) TC C3-C4
HPL21000010010R05	GR.2 SEMIG.(32X28 Z=17) TC B1	*GR.2 HALF HUB (32X28 Z=17) TC B1*	GR.2 HALBKUP (32X28 Z=17) TC B1
HPL21000002010R05	GR.2 SEMIG.(25X22 Z=14) TC C5-C6	*GR.2 HALF HUB (25X22 Z=14) TC C5-C6*	GR.2 HALBKUP (25X22 Z=14) TC C5-C6
HPL00020045240R05	GR.2 GIUNTO PER ALBERO Z	*GR.2 HUB FOR SHAFT Z*	GR.2 KUPPLUNG FÜR WELLE Z
HPL21000003010R05	GR.3 SEMIG.(35X31 Z=18) TC C7-C8	*GR.3 HALF HUB (35X31 Z=18) TC C7-C8*	GR.3 HALBKUP (35X31 Z=18) TC C7-C8
HPL21000004010R05	GR.4 SEMIG.(40X36 Z=20) TC C9-C0	*GR.4 HALF HUB (40X36 Z=20) TC C9-C0*	GR.4 HALBKUP (40X36 Z=20) TC C9-C0