

# 意大利 SETTIMA “连续性” 液压泵产品介绍

-----适用于高压低噪音产业机械

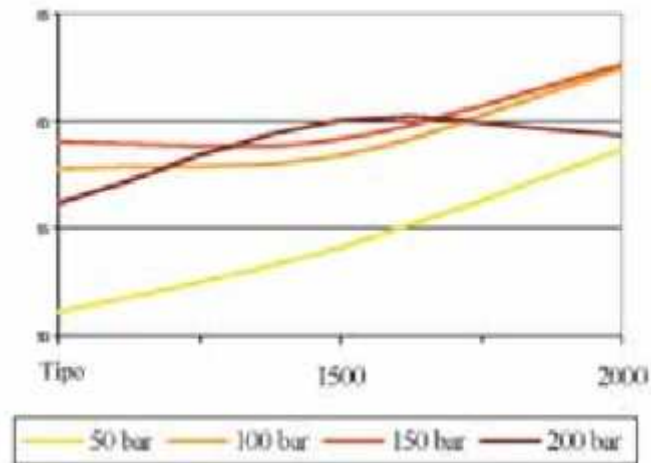
## CONTINUUM 项目

现代社会中，液压机械所承担的工作、液压机械的设计与制造商对产品本身能承受的负荷和提供的动力有着越来越高的要求。随着这种要求的提高，噪音的控制和压力波动的减小成为越来越关键的注重点。

当系统的可循环性、环保、能量消耗以及产品性能等因素影响日渐突出，对于上述因素的解决力求在产品最初设计阶段就加以解决。

不论是从小型的方向控制系统到大型的市政建设项目，从润滑系统到叉车设备，噪音都是备受关注的。噪音不单来自于液压泵本身，在大多数情况下也来自于压力波动的效应。随之而来的压降在消耗了能量的同时也减低了整体效率。在绝大多数的应用情况下，本产品所

遵循的“连续性”原则得以让设计者对产品功能及其特性加以重视，不需考虑如何采用昂贵的外壳、软管以及噪音消除装置，而是从设计的根本上就实现噪音的降低。



本产品外观上和齿轮泵相似，

其实有着很大的不同。作为一种相当安静的工作泵，SETTIMA 螺旋泵可以说改变了用户对液压系统的通常观念，将“安静”的标准作为产品的终极目标。

SETTIMA 流体机械，在引入“连续性”产品生产线的同时，也在为今后越来越高的流体动力的应用铺平道路。在大力投资先进设计和制造能力的背后，

SETTIMA 流体机械以及所有其第三方制造商将其价值链的品质植基于基本的

人文因素，鼓励革新和增强个人责任感，SETTIMA 流体机械已经实现了高品质的标准以及相当灵活的生产体系。

### “连续性” 准则

致力于效果显著、极具革新性的发明理念，用于螺旋泵中连续咬合以及最低泄漏的转子。

### 致力于达到高压，低噪音和低脉动的技术革新

“连续性” 概念是基于以下三个获得专利的突破性技术：

- 转子的外形轮廓
- 螺旋进程
- 内部受力平衡

### 压力脉动和噪音分析

由于在结构上，高压齿轮泵在齿轮间存在着对流体进行压缩的空间，从而导致了：

- 压力的突然增大
- 噪音（转速高于 1500rpm）

对于 continuum pump，其设计理念做到了以下两点：

- 螺旋状齿轮之间完全消除了对液压油的压缩空间
- 选用高质素的材料和表面热处理方法

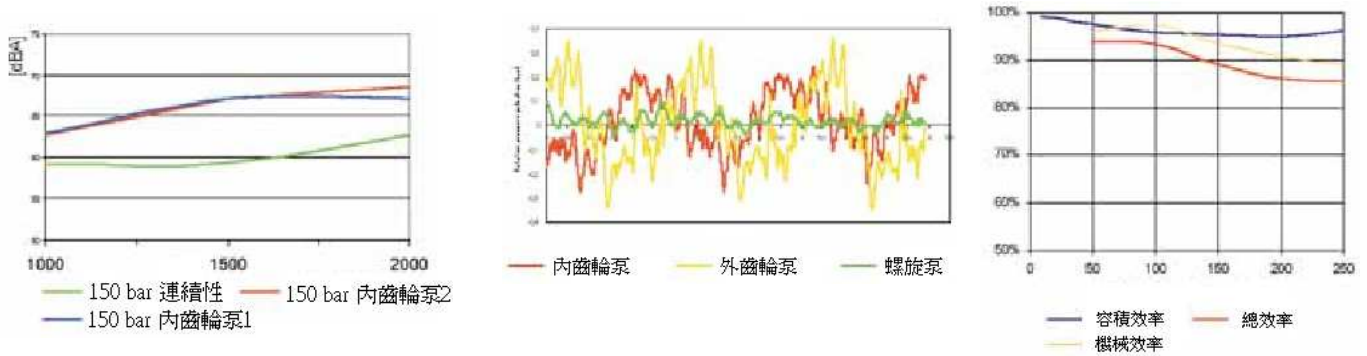
这就意味着：

- 压力升高的平稳变化
- 高性能
- 低噪音（转速低于 5000rpm）

压力脉动实验室的测试结果显示，以“连续性”为基础所设计的泵在保持优质性

能的同时，其压力脉动性能有了显著的提高。

噪音实验室的测试结果同时显示，SETTIMA 连续性泵在噪音曲线上也有了显著的提高



## 详细技术参数

型号	GR28 — GR33— GR38— GR47— GR55— GR72
法兰	第一类—第二类(European, German, BKT, SAE-A) —第三类 (European, SAE-B)
连接	气牙: SAE 3/4' 5000 PSI 法兰: 4 HOLES M6 SU Φ40 DN20(***)
安装位置	外部安装
轴转向	顺时针
轴转速	3600rpm 以下
排量	6 至 184 立方厘米每转 9 升到 264 升每分钟(1500rpm 条件下)
工作压力(*)	连续工作压力: 240bar; 间歇工作压力: 250bar; 峰值工作压力: 280bar (转速: 2750rpm)
入口压力	0.8 — 2 bar(***)
工作油	矿物油 HLP e HLVP 可降解液压油 HETG-HEPG-HEE

	人造乳化油：(**) HFA 油-水 乳化油 – 油最少比例(20%) HFB 水-油乳化油- 油最少比例(20%) HFDR 磷脂酸 高粘度润滑油(**) 特别合成流体: MIL-H, SKYDROL, 或其他特别要求
黏度	允许范围 (**): 20-800mm <sup>2</sup> /s [cSt] 推荐范围: 24-150mm <sup>2</sup> /s [cSt] 起动条件: 3.000 mm <sup>2</sup> /s [cSt] 起
环境温度	-15 — 60 摄氏度
液压系统温度	-15 — 80 摄氏度
污染级别	10 NAS (21/9/15 ISO4406) — 8NAS (18/17/14 ISO4406) (对于重型负载) (****)
滤网	吸油口: 50 至 30 微米 (对于重型负载) (*****) 排油口: 25 至 10 微米 (对于重型负载) (*****)
油封	NBR, VITON, FPM, EPDM- 其他特殊要求
噪音	52 至 68 dB(A) (2750 转每分钟), 以 ISO 4412 标准程序测量而得
泵体(标准)	铝合金
螺杆	表面硬化研磨钢
保养	无需

(\*) 测试标准为 46 号液压油，油温 40 摄氏度 (\*\*\*) 详情请与公司联系

(\*\*\*\*) 根据特殊要求专用 (\*\*\*\*\*)根据特殊要求油封压力可达 10bar

(\*\*\*\*\*)重型负载指 150 公斤压力或以上，每天工作多于 4 小时，多于 100 个循环每天。使用 46 号液压油

单位说明:

排量: 毫升/每转

流量: 升/分钟

尺寸: 毫米

压力: bar

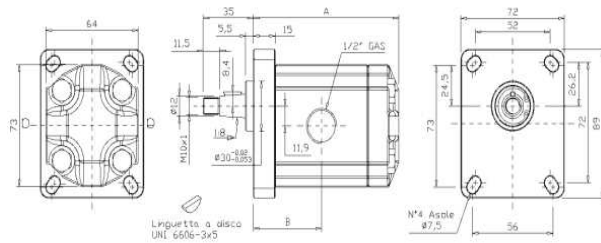
噪音: dB(A)

性能参数说明:

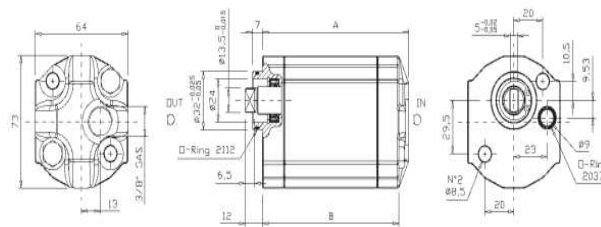
(\*) 间歇工作压力: 开机状态 20 秒关机状态 3 秒

峰值压力: 开机状态 1 秒 关机状态 3 秒

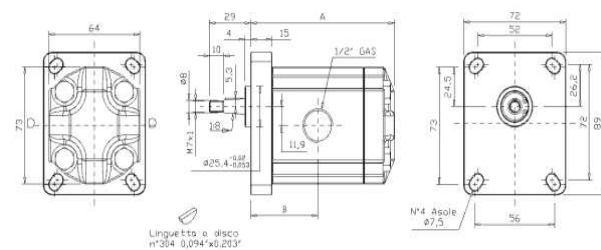
GR28 图纸



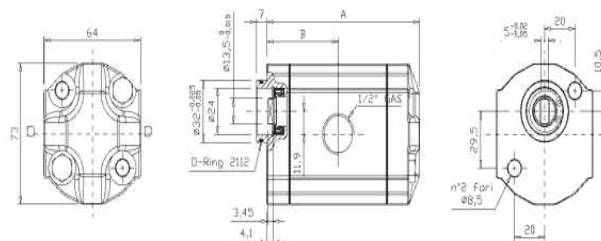
型号 1-C3								
型号	排量	流量/分钟	尺寸A	尺寸B	连续工作压力*	间歇压力*	尖峰值*	噪音水平
4	4.2	6	95,6	44,55	275	280	300	55
6	6.4	9,2	101,1	47,3	275	280	300	55
8	8.3	12,0	106,1	49,8	246	260	280	55
10	10.2	14,7	111,1	52,3	222	250	270	55
13	12.9	18,6	118	55,75	176	230	250	55



型号 1L-GL54							
型号	排量	流量/分钟	尺寸A	连续工作压力*	间歇压力*	尖峰值*	噪音水平
4	4.2	6	95,6	275	280	300	55
6	6.4	9,2	101,1	275	280	300	55
8	8.3	12,0	106,1	246	260	300	55
10	10.2	14,7	111,1	222	250	300	55
13	12.9	18,6	118	176	230	280	55

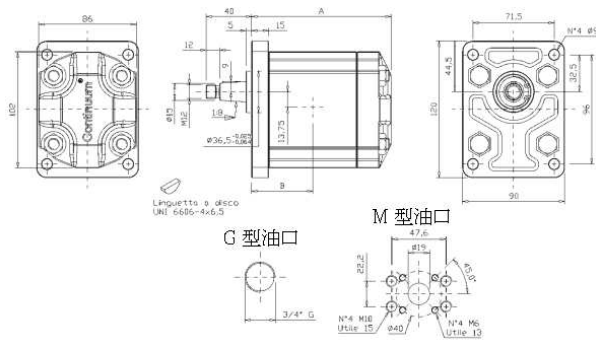


型号 1P-C2								
型号	排量	流量/分钟	A部	B部	连续工作压力*	间歇压力*	尖峰值*	噪音水平
4	4.2	6	95,6	44,55	275	280	300	55
6	6.4	9,2	101,1	47,3	275	280	300	55
8	8.3	12,0	106,1	49,8	246	260	280	55
10	10.2	14,7	111,1	52,3	222	250	270	55
13	12.9	18,6	118	55,75	176	230	250	55



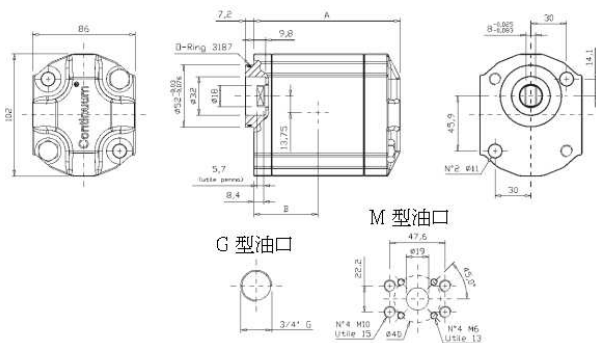
型号 1K-G54								
型号	排量	流量/分钟	尺寸A	尺寸B	连续工作压力*	间歇压力*	尖峰值*	噪音水平
4	4.2	6	95,6	44,55	275	280	300	55
6	6.4	9,2	101,1	47,3	275	230	250	55
8	8.3	12,0	106,1	49,8	246	195	215	55
10	10.2	14,7	111,1	52,3	222	170	190	55
13	12.9	18,6	118	55,75	176	140	160	55

# GR33 图纸



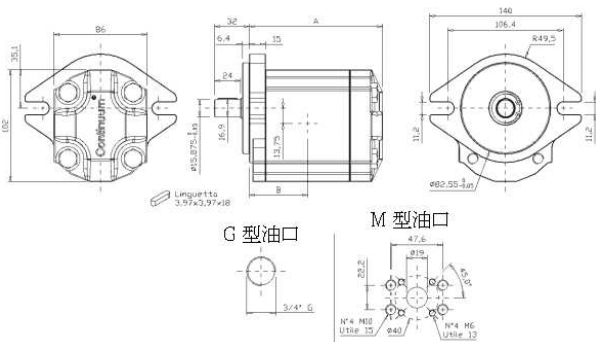
## 型號 2-C4

型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55



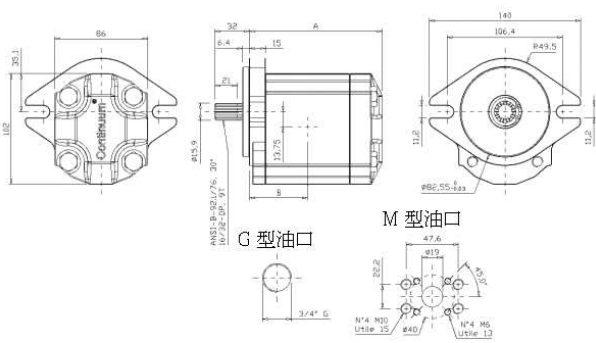
## 型號 2BK7-G54

型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55



## 型號 SAEA-AC

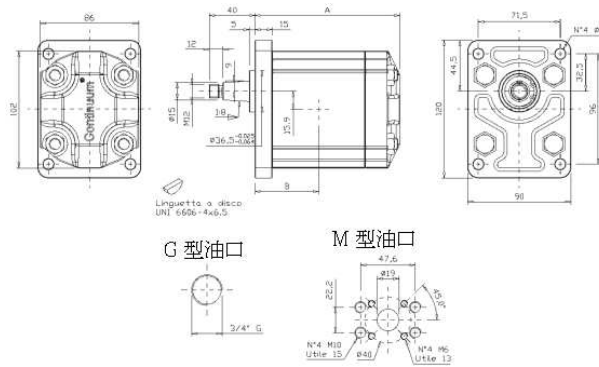
型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55



## 型號 SAEA-T9

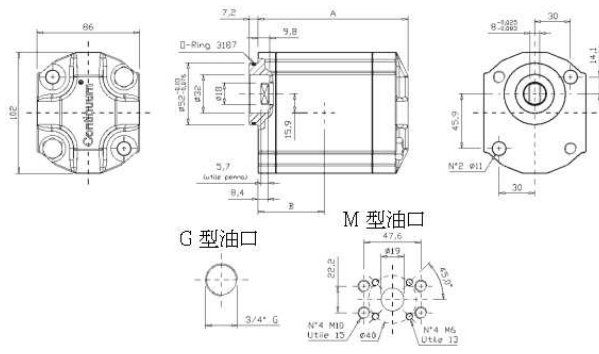
型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55

# GR38 图纸



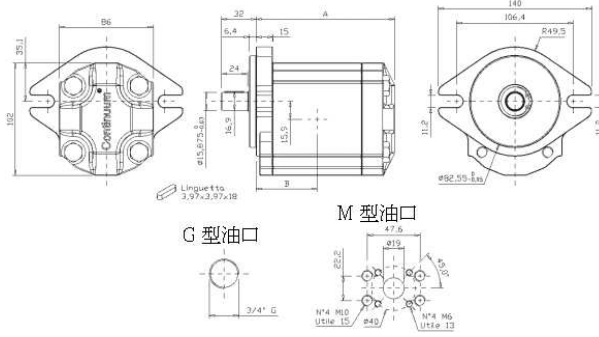
## 型號 2-C4

型號	排量	流量分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
16	15,9	22,8	126,1	55,55	265	280	300	55
18	17,9	25,8	129,1	57,05	247	260	280	55
20	20	28,8	132,1	58,55	230	250	270	55
22	22,1	31,8	135,1	60,05	222	250	270	55
25	25,2	36,2	139,6	62,3	208	250	270	55
28	28,3	40,7	144,1	64,55	197	250	270	55



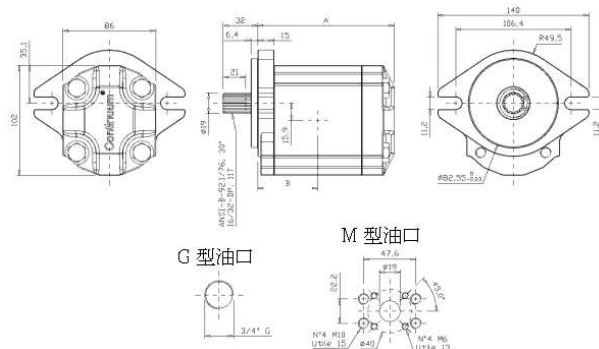
## 型號 2BK7-G

型號	排量	流量分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
16	15,9	22,8	126,1	55,55	265	280	300	55
18	17,9	25,8	129,1	57,05	247	260	280	55
20	20	28,8	132,1	58,55	230	250	270	55
22	22,1	31,8	135,1	60,05	222	250	270	55
25	25,2	36,2	139,6	62,3	208	250	270	55
28	28,3	40,7	144,1	64,55	197	250	270	55



## 型號 SAEA-AC

型號	排量	流量分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
16	15,9	22,8	126,1	55,55	265	280	300	55
18	17,9	25,8	129,1	57,05	247	260	280	55
20	20	28,8	132,1	58,55	230	250	270	55
22	22,1	31,8	135,1	60,05	222	250	270	55
25	25,2	36,2	139,6	62,3	208	250	270	55
28	28,3	40,7	144,1	64,55	197	250	270	55



## 型號 SAEA-T11

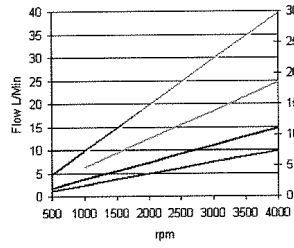
型號	排量	流量分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
16	15,9	22,8	126,1	55,55	265	280	300	55
18	17,9	25,8	129,1	57,05	247	260	280	55
20	20	28,8	132,1	58,55	230	250	270	55
22	22,1	31,8	135,1	60,05	222	250	270	55
25	25,2	36,2	139,6	62,3	208	250	270	55
28	28,3	40,7	144,1	64,55	197	250	270	55

# Continuum® Product Line

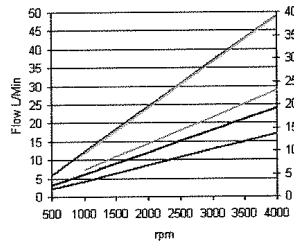
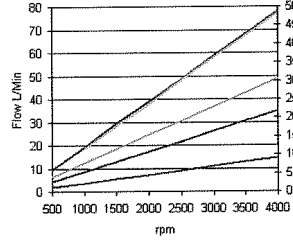
## PUMP PERFORMANCE CURVES For Group 2

GROUP 2 Displacement CC/Rev

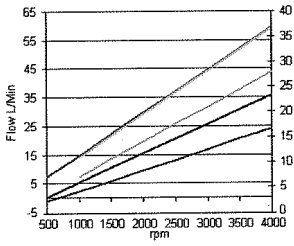
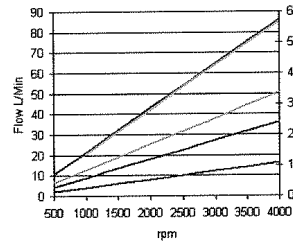
## CURVE PRESTAZIONI POMPE per Gruppo 2



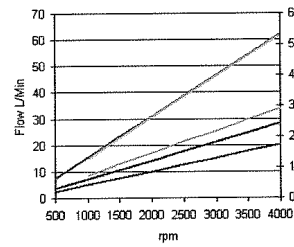
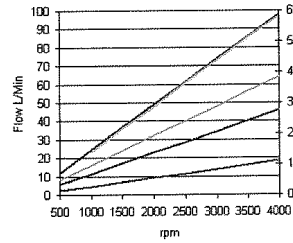
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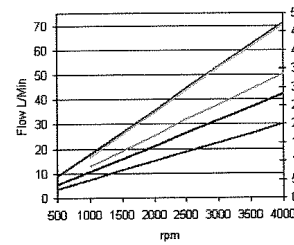
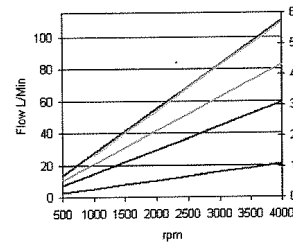
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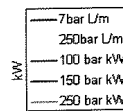
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28

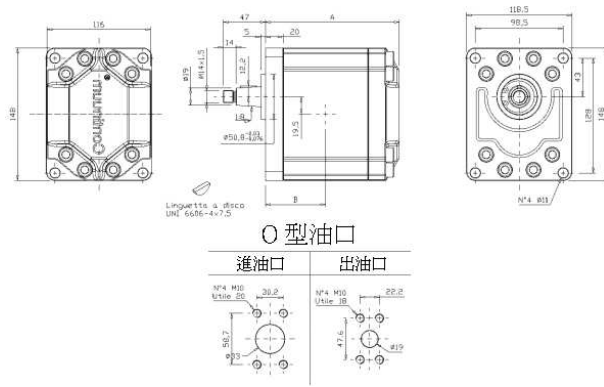


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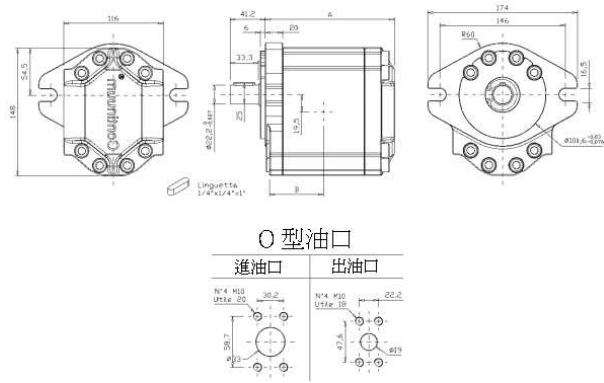




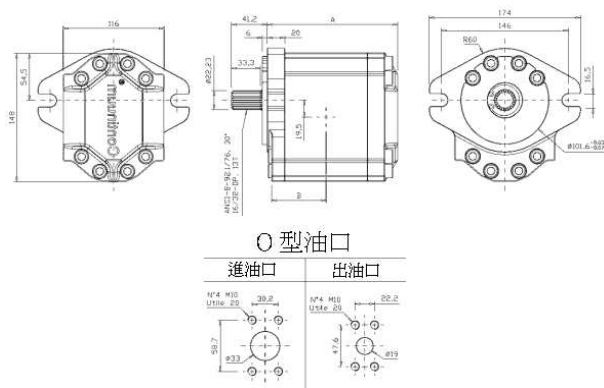
# GR47 图纸



型號 3-C9								
型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
28	28	40.3	150,1	67,55	270	280	300	57
32	32,2	46,3	154,1	69,55	252	270	280	57
36	36,3	52,3	158,1	71,55	239	250	270	57
40	40,5	58,3	162,1	73,55	225	250	270	57
45	45,1	65,0	166,6	75,8	213	250	270	57
50	50,3	72,4	171,6	78,3	202	250	270	57

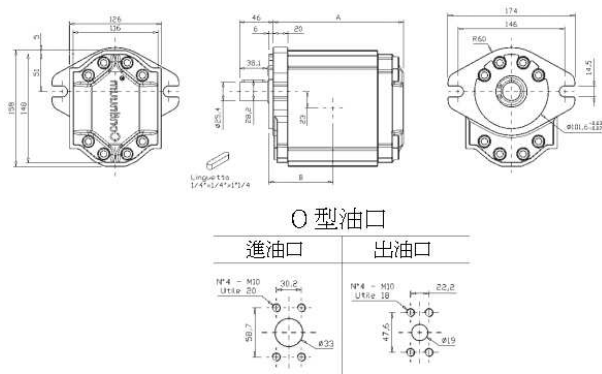


型號 SAEB-AC								
型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
28	28	40.3	150,1	67,55	270	280	300	57
32	32,2	46,3	154,1	69,55	252	270	280	57
36	36,3	52,3	158,1	71,55	239	250	270	57
40	40,5	58,3	162,1	73,55	225	250	270	57
45	45,1	65,0	166,6	75,8	213	250	270	57
50	50,3	72,4	171,6	78,3	202	250	270	57



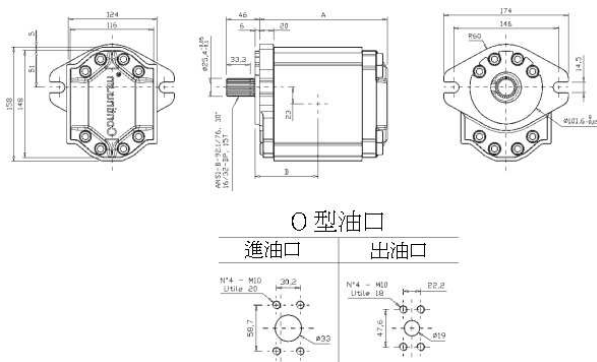
型號 SAEB-T13								
型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
28	28	40.3	150,1	67,55	270	280	300	57
32	32,2	46,3	154,1	69,55	252	270	280	57
36	36,3	52,3	158,1	71,55	239	250	270	57
40	40,5	58,3	162,1	73,55	225	250	270	57
45	45,1	65,0	166,6	75,8	213	250	270	57
50	50,3	72,4	171,6	78,3	202	250	270	57

## GR55 图纸



## 型號 SAEB-AC

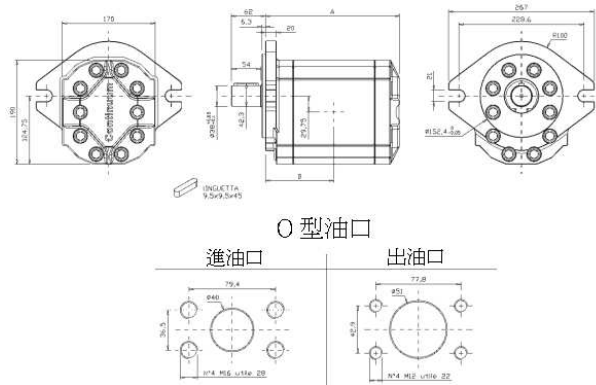
型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
50	50,5	72,7	178,1	81,55	275	280	300	57
63	63,5	91,4	187,1	86,05	249	260	280	57
75	75	108,1	195,1	90,05	229	250	270	57
90	90,9	130,9	206,1	95,55	178	240	260	57



## 型號 SAEB-T15

型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
50	50,5	72,7	178,1	81,55	275	280	300	57
63	63,5	91,4	187,1	86,05	249	260	280	57
75	75	108,1	195,1	90,05	229	250	270	57
90	90,9	130,9	206,1	95,55	178	240	260	57

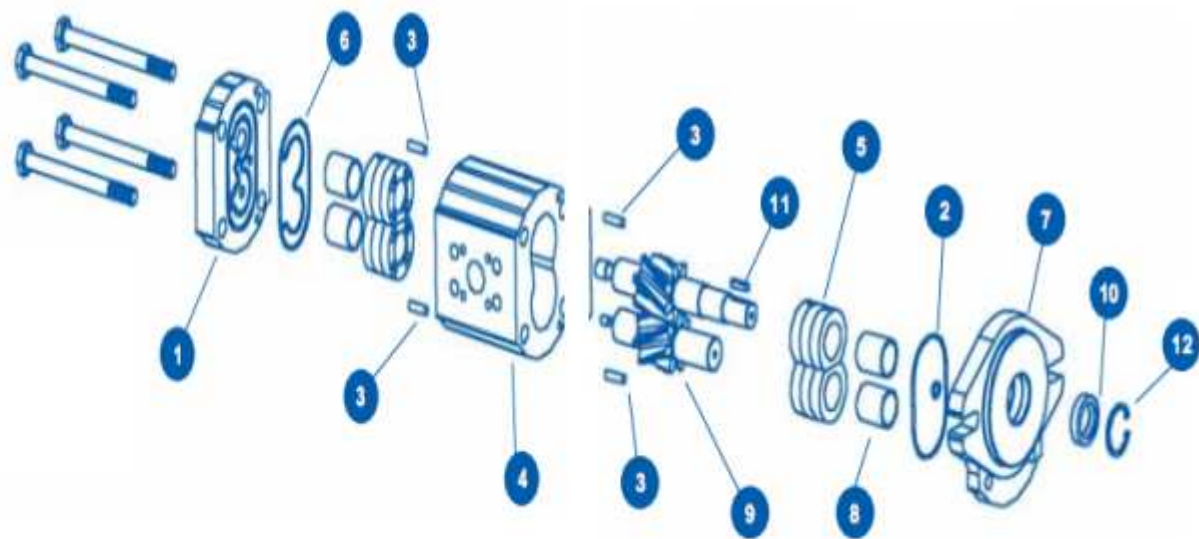
## GR72 图纸



### 型號 SAED-AAC

型號	排量	流量/分鐘	尺寸A	尺寸B	連續工作壓力*	間歇壓力*	尖峰值*	噪音水平
94	94,1	136	245,2	125,6	270	280	300	57
101	101,45	147	248,2	127,1	252	270	300	57
125	125,5	181	258,2	132,1	239	250	300	57
150	150,9	218	268,7	137,35	225	250	275	57
175	175	253	278,7	142,35	213	250	275	57
200	200,4	290	289,2	147,6	202	250	275	57

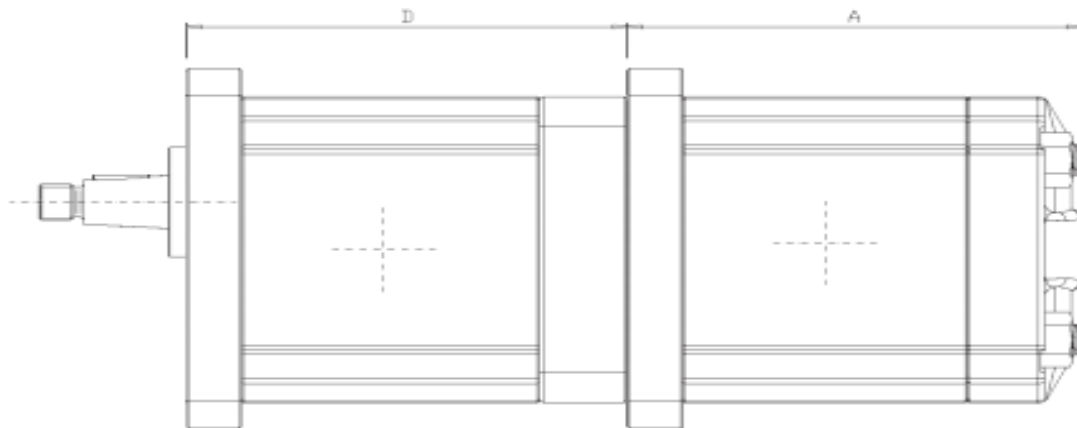
- |          |         |
|----------|---------|
| 1. 法蘭    | 9. 轉子   |
| 2. O型密封圈 | 10. 密封圈 |
| 3. 定位銷   | 11. 軸鍵  |
| 4. 泵體    | 12. 卡簧  |
| 5. 軸套    |         |
| 6. O型密封圈 |         |
| 7. 馬達法蘭  |         |
| 8. 軸套    |         |



双联泵尺寸.

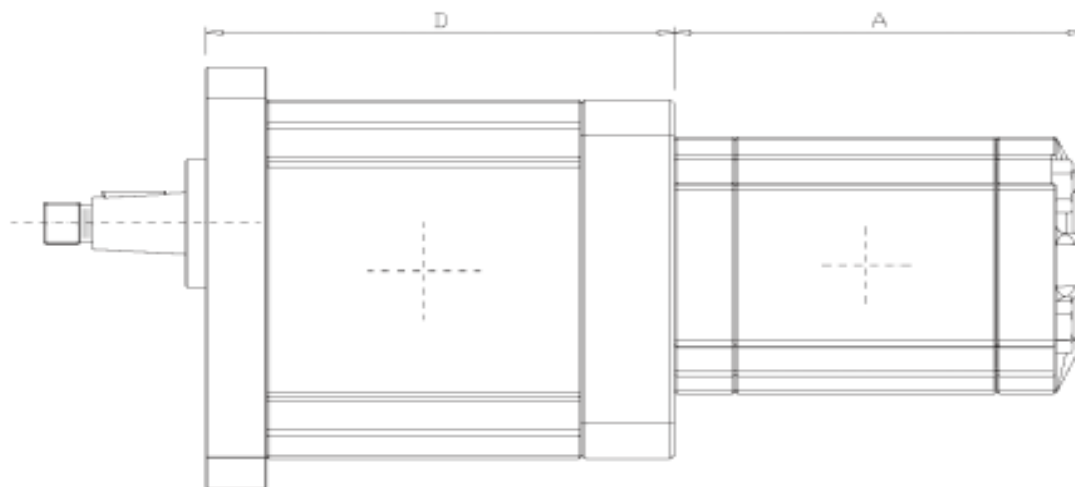
A 部尺寸请参考前面资料

图纸 (串联型 组别 2+组别 2)



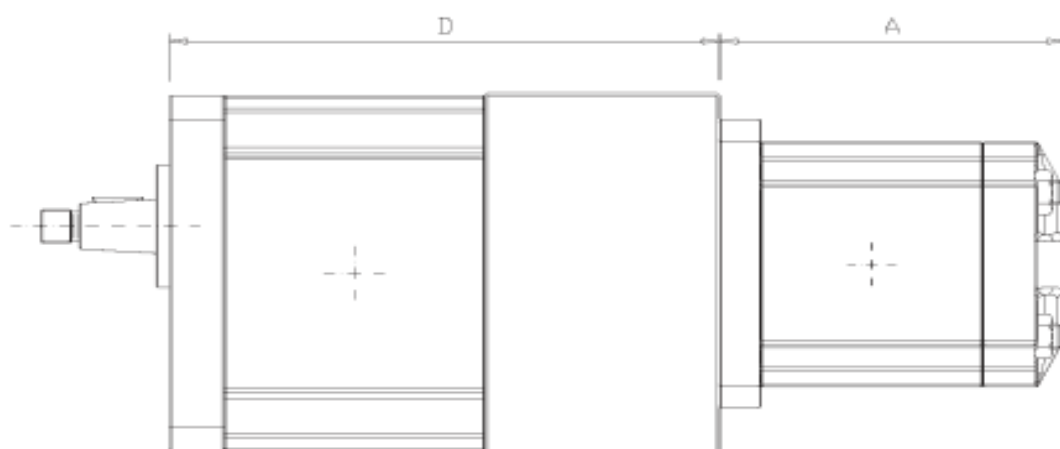
泵的前部	排量	D部	連續工作壓力	間歇工作壓力	峰值壓力	噪音水平
GR33	010	113,6	275	280	300	55
	013	118,5	265	270	300	55
	015	123,5	241	250	300	55
	018	129,3	206	250	300	55
GR38	016	120,1	265	280	300	55
	018	123,1	247	260	300	55
	020	126,1	230	250	300	55
	022	129,1	222	250	300	55
	025	133,6	208	250	300	55
	028	138,1	197	250	300	55
		mm	bar	bar	bar	dB(A)

图纸 (串联型 组别 2+组别 1)



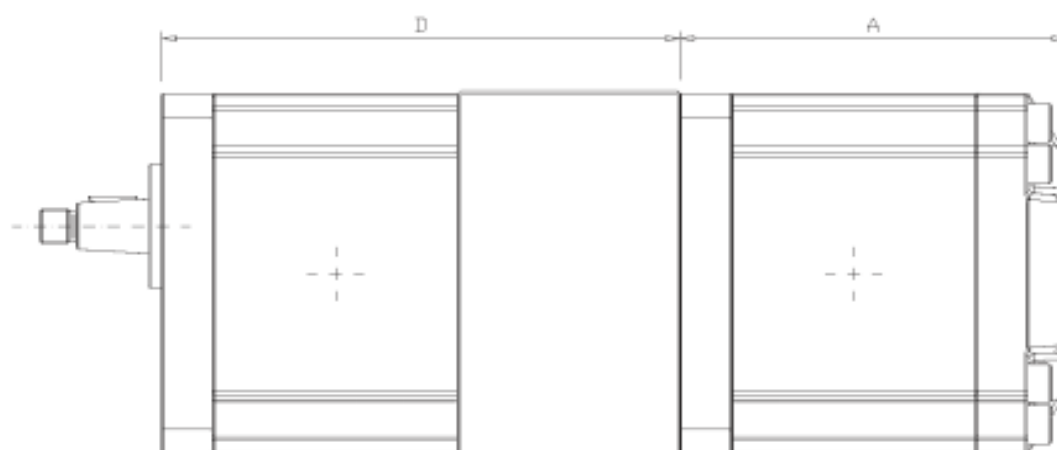
泵的前部	排量	D部	連續工作壓力	間歇工作壓力	峰值壓力	噪音水平
GR33	010	113,6	275	280	300	55
	013	118,5	265	270	300	55
	015	123,5	241	250	300	55
	018	129,3	206	250	300	55
GR38	016	120,1	265	280	300	55
	018	123,1	247	260	300	55
	020	126,1	230	250	300	55
	022	129,1	222	250	300	55
	025	133,6	208	250	300	55
	028	138,1	197	250	300	55
		mm	bar	bar	bar	dB(A)

图纸 (串联型 组别 3+组别 2)



泵的前部	排量	D部	連續工作壓力	間歇工作壓力	峰值壓力	噪音水平
GR47	28	201,1	270	280	300	57
	32	205,1	252	270	300	57
	36	209,1	239	250	300	57
	40	213,1	225	250	300	57
	45	217,6	213	250	300	57
	50	222,6	202	250	300	57
		mm	bar	bar	bar	dB(A)

图纸 (串联型 组别 3+组别 3)



泵的前部	排量	D部	連續工作壓力	間歇工作壓力	峰值壓力	噪音水平
GR47	28	201,1	270	280	300	57
	32	205,1	252	270	300	57
	36	209,1	239	250	300	57
	40	213,1	225	250	300	57
	45	217,6	213	250	300	57
	50	222,6	202	250	300	57
		mm	bar	bar	bar	dB(A)



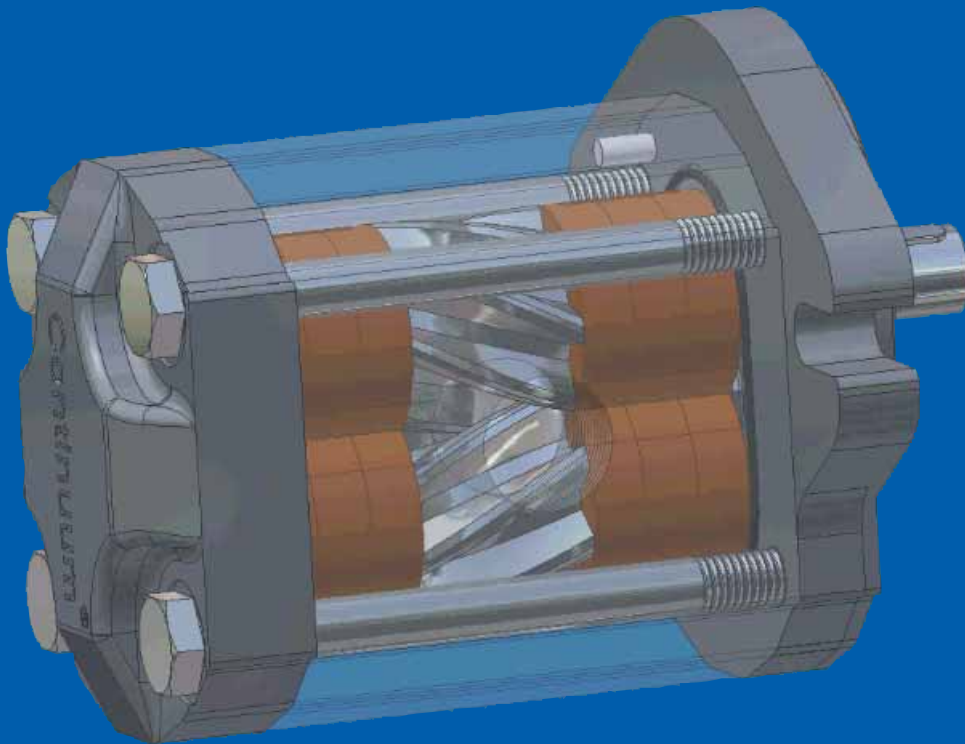


# CONTINUUM<sup>®</sup> PUMPS

Patents Garanted  
Brevetti approvati

Helical rotor pumps for high pressure and low noise application

Pompe a rotori elicoidali per applicazioni ad alta pressione e basso rumore



**SETTIMA**   
*flow mechanisms*

## CONTINUUM® PROJECT

### Sustainable Power

In a ever increasing demand for power, designers and manufacturers of hydraulic devices have explored all opportunities to contain noise and reduce ripple. When System Life Cycle, Environmental Conditions, Energy Consumption, and Performance are paramount the ultimate solution is to cut the problem at its root.

### Noise is Expensive

From small steering systems to large municipal equipment, from a lubrication system to a forklift, noise is not only generated by the pumps, but in most cases the system generates noise by amplifying the ripple. Consequent pressure drops are a noticeable energy consumer and reduce overall efficiency. Even in the most demanding conditions Continuum enables the system designer to focus on functions and features, reducing customer frustration by eliminating expensive enclosures, hoses and attenuators. Noise is relieved at the root.

### Power of Silence

Our product looks like the most popular of hydraulic pumps, the Gear pump, but their the similarity ends. Continuum is set to transform the way end users perceive hydraulic devices. The ultimate solution for preserving the experience of silence. Settima FM, introducing its new Continuum Product Line, is paving the way for Sustainable Fluid Power.

### The Human Factor

As well as investing in the most advanced design and manufacturing capability, Settima Flow Mechanisms base the quality of their value chain on the human factor. Encouraging innovation and personal responsibility, Settima has reached a high standard of quality and an extremely flexible manufacturing system.

## The Continuum® Principle

Investing in innovation is about empowering impressive and revolutionary ideas. Such as the one embraced by Continuum, a new pumps with continuous intermeshing, no-leaking rotors.

### Technological innovation for HIGH pressure, LOW noise and LOW pulsations

The Continuum® concept is based on three patented breakthroughs:

- the rotors profile
- the screw step
- the inner force balancing

## PROGETTO CONTINUUM®

### Potenza sostenibile

Per far fronte alla crescente domanda di potenza, progettisti e costruttori di dispositivi idraulici hanno esplorato tutte le opportunità per contenere il rumore e ridurre le pulsazioni del circuito. Quando la durata della vita del sistema, le condizioni ambientali, i consumi e le funzionalità sono fondamentali l'ultima soluzione è quella di tagliare il problema alla radice.

### Il rumore è costoso

Dal piccolo sistema di sterzo all'ingombrante apparato della nettezza urbana, dal sistema di lubrificazione al carrello elevatore. Il rumore non solo è generato dalle pompe idrauliche, ma nella maggior parte dei casi il sistema genera rumore amplificando la pulsazione di pressione. Le perdite di carico conseguenti sono un considerevole consumo di energia e sorgente di una inefficienza complessiva. Persino nelle condizioni più esigenti Continuum® abilita il progettista di sistema ad implementare nuove funzioni e proprietà non solo a ridurre la frustrazione del cliente mediante costosi attenuatori, tubi flessibili e contenitori. Il Rumore è rimosso alla radice.

### Il potere del silenzio

Dotata delle dimensioni e flangiature dei dispositivi idraulici più diffuse come le pompe ad ingranaggi, Continuum® è pronta a trasformare il modo in cui l'utente finale percepisce il dispositivo idraulico. La soluzione definitiva per preservare l'esperienza del silenzio. Settima FM,

introducendo la sua nuova linea di prodotti Continuum®, prepara la strada per una Potenza Fluida Sostenibile.

### Il fattore umano

Al di là degli investimenti in capacità di progettazione e produttive Settima Flow Mechanisms e l'intera filiera produttiva basano la loro qualità sul fattore umano. Incoraggiando l'innovazione e la responsabilità personale, Settima FM ha raggiunto un alto standard di qualità e una produzione estremamente flessibile.

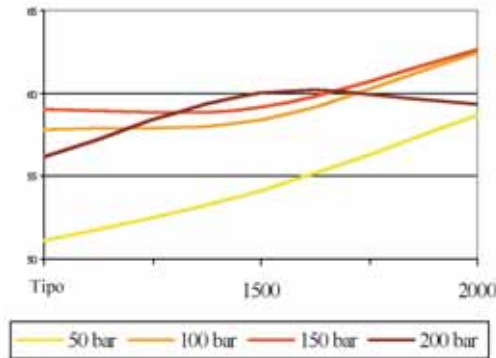
## Il principio Continuum®

Investire in innovazione significa dare valore a idee rivoluzionarie. Così come quella adottata da Continuum, una nuova pompa con rotori a contatto continuo e senza perdite.

### Innovazione tecnologica per ALTA pressione, BASSO rumore e BASSE pulsazioni

Il Concetto Continuum® e' basato su tre innovazioni brevettate:

- il profilo dei rotori
- il passo della vite
- il bilanciamento delle forze interne



## Pressure Ripple and Noise Analysis

The current designs of high pressure gear pumps permit a quantity of fluid to be trapped and compressed between the gear teeth with the following consequences:

- sharp changes in pressure growth
- noise (increasing rapidly above 1500 rpm)

The continuum design concept achieves one main design objective:

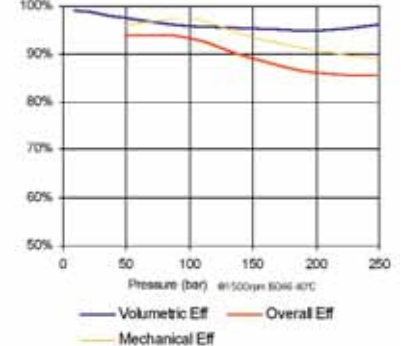
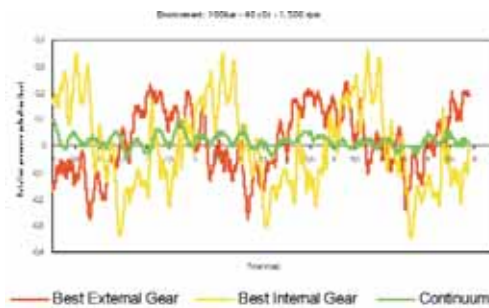
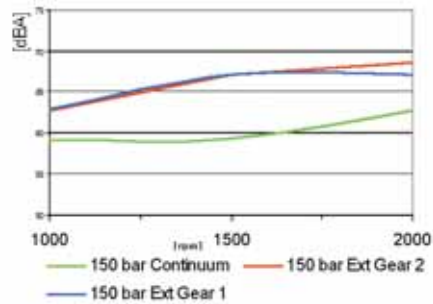
- total absence of trapped and compressed oil between the gears;
- no trade-offs in material selection or treatment.

This results in:

- smooth changes in pressure growth
- HIGH Efficiency
- LOW noise (up to 5.000 rpm)

The pressure ripple laboratory test shows the impressive improvement of the pulsation in a Continuum® designed pump (pressure sampling at 100 KHz) while maintaining excellent efficiency.

The noise laboratory test shows the impressive improvement of the noise curve in a Continuum® designed pump.



## Analisi della pulsazione di pressione e del rumore

L'attuale struttura di pompe ad ingranaggi per alta pressione tipicamente implica camere di compressione del fluido tra denti delle ruote dentate. Conseguentemente si osservano:

- rapide variazioni nella pressione
- rumore (a partire da 1.500 rpm)

Il concetto di progettazione Continuum® consente un principale obiettivo di progettazione:

- totale assenza di camere di alta pressione di olio compresso nell'ingranaggio;
- nessun compromesso su selezione materiale e sui trattamenti degli stessi.

Questo implica:

- smorzate variazioni di crescita di pressione
- ALTE efficienze
- BASSO rumore (fino a 5.000 rpm)

I test di Pulsazione della Pressione mostrano un miglioramento impressionante sulla pulsazione nelle pompe Continuum® (con pressione campionata a 100KHz) pur mantenendo efficienze eccellenti.

I test di laboratorio di rumore mostrano un significativo miglioramento delle curve di rumore.

## Detailed technical information / Informazioni tecniche dettagliate

Models available / Modelli Disponibili	GR28 - GR33 - GR38 - GR47 - GR55 - GR72	
Flanges / Flange	Group 1 - Group 2 (European, German, BKT, SAE-A) - Group 3 (European, SAE-B) Gruppo 1 - Gruppo 2 (Europeo, Tedesco, BKT, SAE-A) - Gruppo 3 (Europeo, SAE-B) ISO 3019/2 - IEC standard (per accoppiamento diretto)	
Connections / Conessioni	GAS - SAE 3/4" 3000 PSI - FL 4 HOLES M6 SU Ø40 DN20 (***) / GAS - SAE 3/4" 3000 PSI FL 4 HOLES M6 SU Ø40 DN20 (***)	
Installation position / Posizione di installazione	External, underoil / Esterna e immersa	
Shaft rotation / Rotazione albero	Clockwise / Destra (standard)	
Shaft speed / Velocità di rotazione	From 700 to 3.600 rpm (for GR72 to 2200RPM) / Da 700 a 3.600 rpm (per GR72 a 2200 RPM)	
Displacements - Flows / Dislocamento - Flusso	From 4 up to 200 cm <sup>3</sup> - From 6L/min up to 300L/min (at 1.500 rpm) / Da 4 a 200 cm <sup>3</sup> - Da 6L/min a 300L/min (a 1.500 rpm)	
Operating pressure (*) / Pressione operativa (*)	Continuous: 240 bar Cycle ON/OFF: 250 bar Peak: 280 bar	Continuo: 240 bar Ciclo ON/OFF: 250 bar Picco: 280 bar
Inlet pressure / Porta di ingresso	0,8 - 2 bar (***) / 0,8 - 2 bar (***)	
Fluids / Fluidi	Mineral oil HLP e HLVP - Ecologic fluids HETG-HEPG-HEE - Synthetic fluid or emulsion: (**) HFA oil-water emulsion - (**) HFB water-oil emulsion - (**) HFDR phosphate ester	Olii minerali HLP e HLVP - Fluidi ecologici HETG - HEPG - HEE Fluidi sintetici o emulsioni: (**) HFA emulsione acqua-olio - (**) HFB emulsione acqua-olio - (**) HFDR estere fosfato
Viscosity / Viscosità	Permissible (**): from 20 up to 800 mm <sup>2</sup> /s [cSt] Recommended: from 24 up to 150 mm <sup>2</sup> /s [cSt] Starting conditions (**): up to 3.000 mm <sup>2</sup> /s [cSt]	Consentita (**): da 20 a 800 mm <sup>2</sup> /s [cSt] Raccomandata: da 24 a 150 mm <sup>2</sup> /s [cSt] Condizioni di avviamento (**): fino a 3.000 mm <sup>2</sup> /s [cSt]
Environment temperature / Temperatura ambiente	From -15° up to +60°C / Da -15° a +60°C	
Hydraulic temperature / Temperatura idraulica	From -15° up to +80°C / Da -15° a +80°C	
Contamination Level / Livello di contaminazione	From 10 NAS (21/9/15 ISO4406) to 8 NAS (18/17/14 ISO4406) for heavy duty operations (****) Da 10 NAS (21/9/15 ISO4406) a 8 NAS (18/17/14 ISO4406) per operazioni pesanti (****)	
Filtration / Filtrazione	Inlet Port: from 50 to 30 µm for heavy duty operations (****) Outlet Port: from 25 to 10 µm for heavy duty operations (****) Porta d'Ingresso: da 50 a 30 µm per operazioni pesanti (****) Porta d'uscita: da 25 a 10 µm per operazioni pesanti (****)	
Seals / Guarnizioni	NBR, FKM, FPM, EPDM - Special on request / NBR, FKM, FPM, EPDM - Speciali su richiesta	
Noise / Rumore	from 52 up to 63 dB(A) at 2.950 rpm - Value based on ISO 4412 test procedure / da 52 a 63 dB(A) a 2.950 rpm - Valore rilevato con procedura ISO 4412	
Flanges / Flange	Cast Iron / Ghisa	
Pump body (standard) / Corpo pompa (standard)	Extruded aluminium alloy / Alluminio estruso	
Screw / Viti	Case hardened grinded steel / Acciaio temperato	
Maintenance / Manutenzione	No / Nessuna	

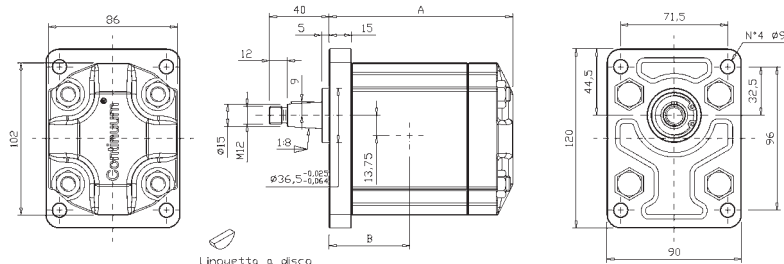
(\*) Test executed with Oil ISO VG46 (40°C) - 10µm filtration - (\*\*) Please contact the company to have further details - (\*\*\*) Available on certain models upon customer request  
(\*\*\*\*) Up to 10 bar Shaft Seal available on certain models upon request - (\*\*\*\*\*) Heavy Duty operation are defined as above 150bar , more than 4h/day, more than 100 cycle/day, oil ISO 46

(\*) Test eseguito con Olio ISO VG46 (40°C) - filtrazione a 10µm - (\*\*) Per maggiori dettagli contatta i nostri uffici - (\*\*\*) Disponibile su alcuni modelli su richiesta  
(\*\*\*\*) Anello di tenuta dell'albero fino a 10 bar disponibili su alcuni modelli - (\*\*\*\*\*) Operazioni Pesanti sono definite come sopra 150bar , piu' di 4h/day, oltre 100 cicli/giorno con olio ISO 46.



## Dimensional drawing - GR33

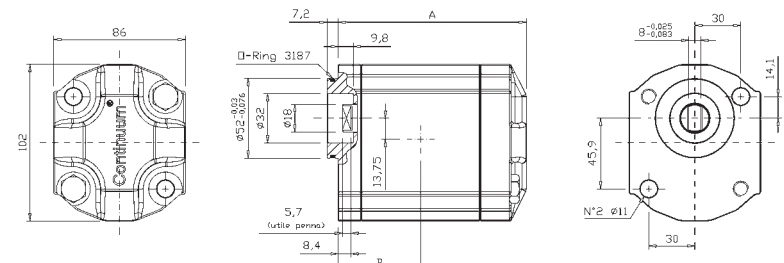
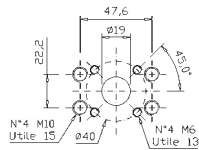
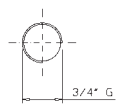
Shaft types & dimensions



Linguetta  $\phi$  disco  
UNI 6606-4x5,5

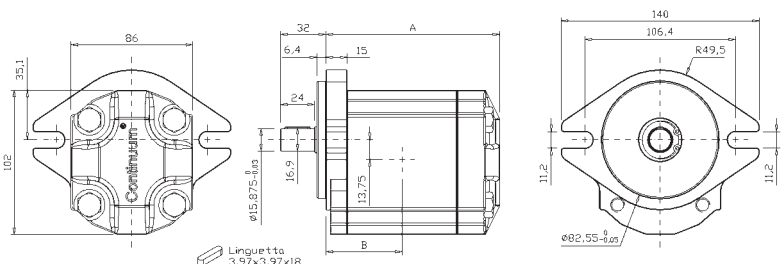
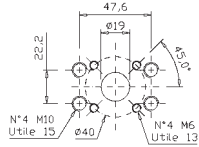
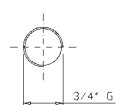
PORTA TIPO M

PORTA TIPO G



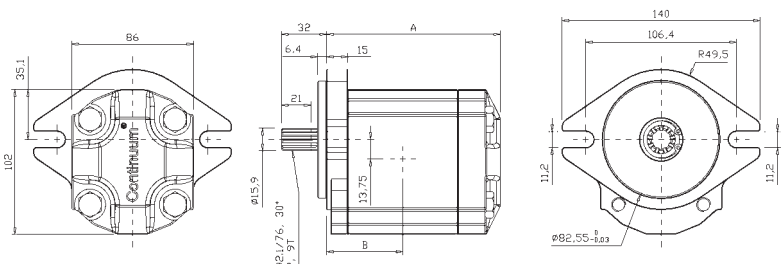
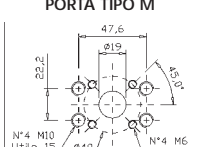
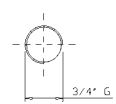
PORTA TIPO M

PORTA TIPO G



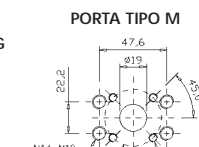
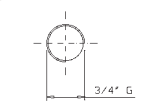
PORTA TIPO M

PORTA TIPO G



PORTA TIPO M

PORTA TIPO G



## Disegni dimensionali GR33

Tipo albero e dimensioni

### Type / Tipo 2-C4

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press(**)	Peak / Press Press(*)/Picco	Noise / Livello Level / Rumore
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55

### Type / Tipo 2BK7-G54

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press(**)	Peak / Press Press(*)/Picco	Noise / Livello Level / Rumore
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55

### Type / Tipo SAEA-AC

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press(**)	Peak / Press Press(*)/Picco	Noise / Livello Level / Rumore
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55

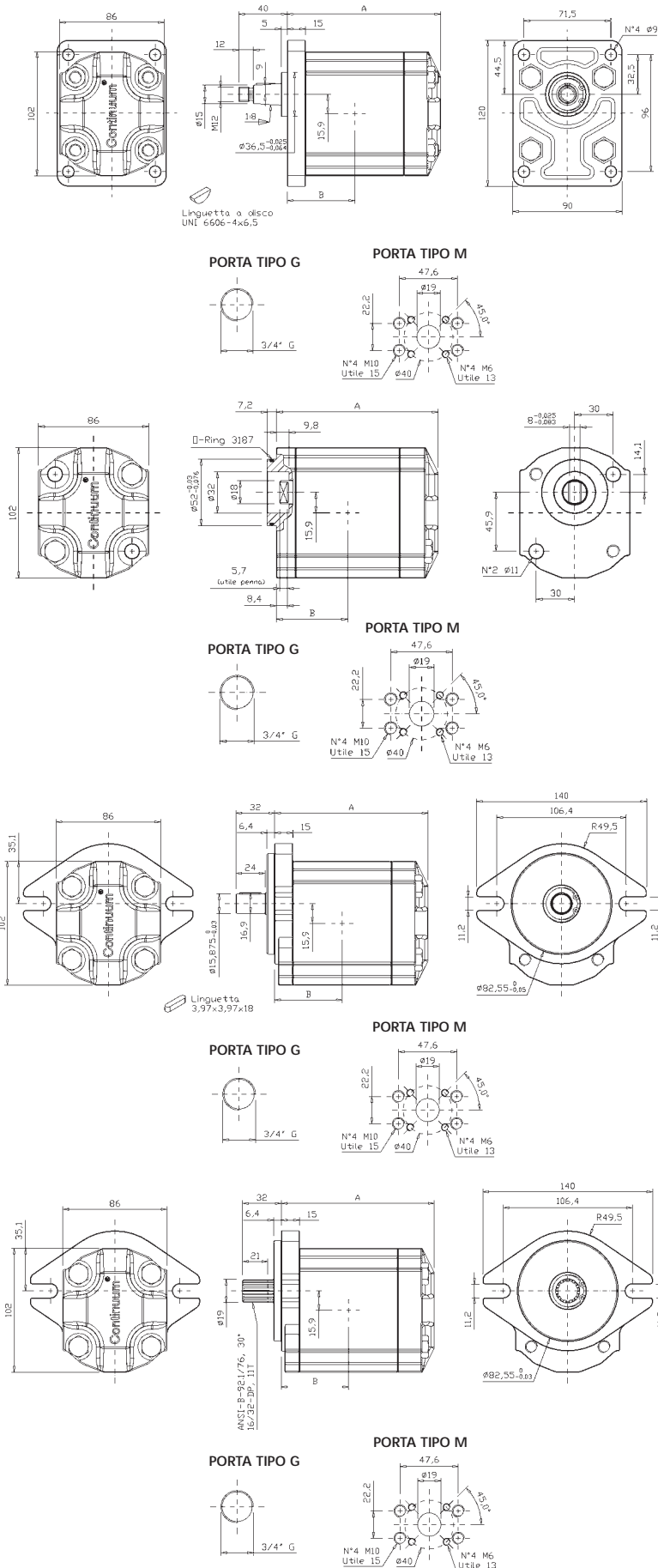
### Type / Tipo SAEA-T9

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press(**)	Peak / Press Press(*)/Picco	Noise / Livello Level / Rumore
10	10,1	14,5	122,6	53,8	275	280	300	55
13	12,6	18,1	127,5	56,25	265	270	290	55
15	15,2	21,8	132,5	58,75	241	250	270	55
18	18,2	26,1	138,3	61,65	206	250	270	55

(\*) Intermittent: cycle 20 sec. ON & 3 sec. OFF - Peak: cycle 1 sec. ON & 3 sec. OFF  
 (\*\*) Intermittente: ciclo 20 sec. ON & 3 sec. OFF - Picco: ciclo 1 sec. ON & 3 sec. OFF

## Dimensional drawing - GR38

Shaft types & dimensions



## Disegni dimensionali GR38

Tipo albero e dimensioni

### Type / Tipo 2-C4

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press(*)	Peak / Press Noise / Livello Press / Picco Level / Rumore
16	15,9	22,8	126,1	55,55	265	280	300 55
18	17,9	25,8	129,1	57,05	247	260	280 55
20	20	28,8	132,1	58,55	230	250	270 55
22	22,1	31,8	135,1	60,05	222	250	270 55
25	25,2	36,2	139,6	62,3	208	250	270 55
28	28,3	40,7	144,1	64,55	197	250	270 55

### Type / Tipo 2BK7-G

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press(*)	Peak / Press Noise / Livello Press / Picco Level / Rumore
16	15,9	22,8	126,1	55,55	265	280	300 55
18	17,9	25,8	129,1	57,05	247	260	280 55
20	20	28,8	132,1	58,55	230	250	270 55
22	22,1	31,8	135,1	60,05	222	250	270 55
25	25,2	36,2	139,6	62,3	208	250	270 55
28	28,3	40,7	144,1	64,55	197	250	270 55

### Type / Tipo SAEA-AC

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Noise / Livello Press / Picco Level / Rumore
16	15,9	22,8	126,1	55,55	265	280	300 55
18	17,9	25,8	129,1	57,05	247	260	280 55
20	20	28,8	132,1	58,55	230	250	270 55
22	22,1	31,8	135,1	60,05	222	250	270 55
25	25,2	36,2	139,6	62,3	208	250	270 55
28	28,3	40,7	144,1	64,55	197	250	270 55

### Type / Tipo SAEA-T11

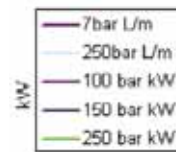
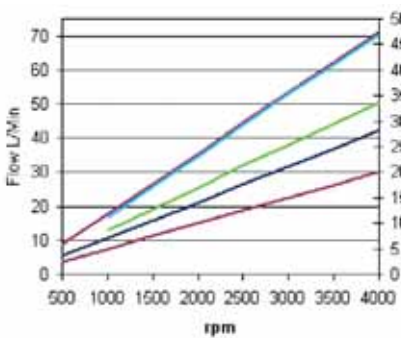
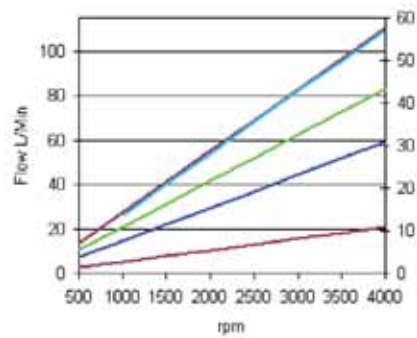
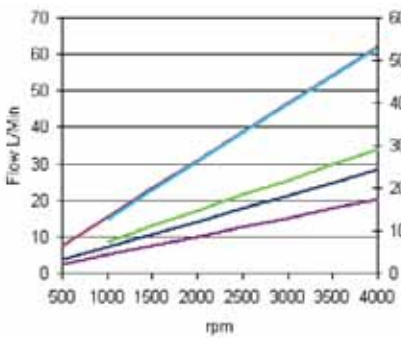
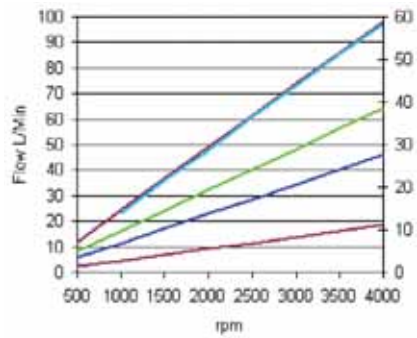
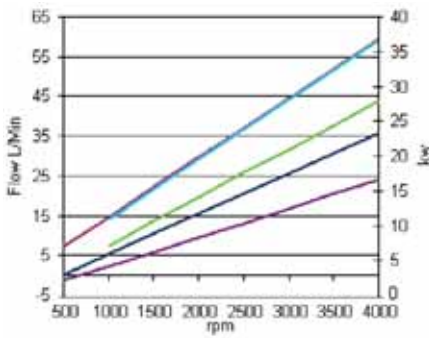
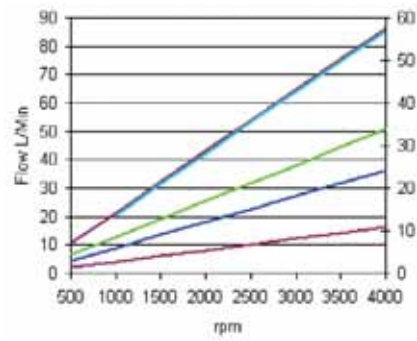
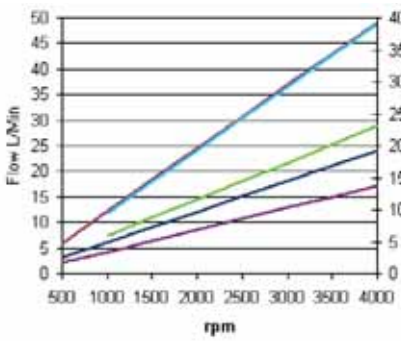
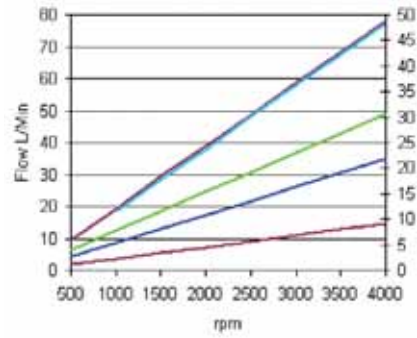
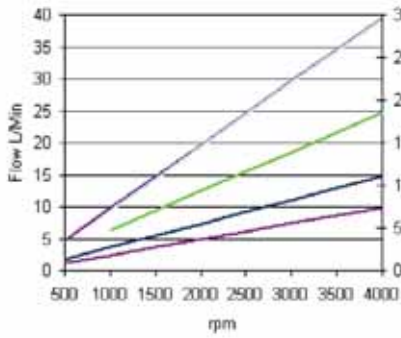
Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Noise / Livello Press / Picco Level / Rumore
16	15,9	22,8	126,1	55,55	265	280	300 55
18	17,9	25,8	129,1	57,05	247	260	280 55
20	20	28,8	132,1	58,55	230	250	270 55
22	22,1	31,8	135,1	60,05	222	250	270 55
25	25,2	36,2	139,6	62,3	208	250	270 55
28	28,3	40,7	144,1	64,55	197	250	270 55

(\*) Intermittent: cycle 20 sec. ON & 3 sec. OFF - Peak: cycle 1 sec. ON & 3 sec. OFF  
 (\*) Intermittente: ciclo 20 sec. ON & 3 sec. OFF - Picco: ciclo 1 sec. ON & 3 sec. OFF

**PUMP PERFORMANCE CURVES**  
For Group 2

GROUP 2 Displacement CC/Rev

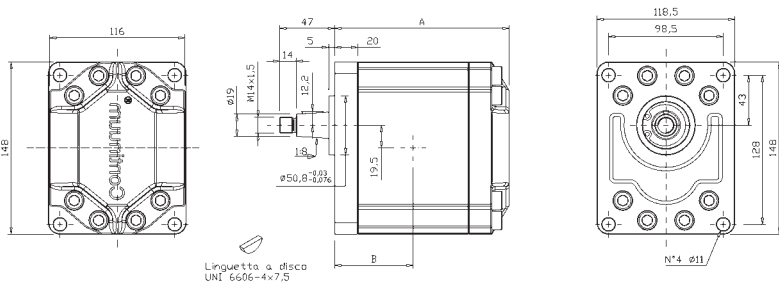
*CURVE PRESTAZIONI POMPE*  
per Gruppo 2



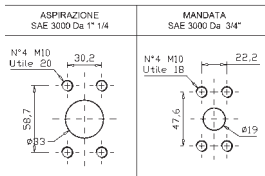


## Dimensional drawing - GR47

Shaft types & dimensions



### PORTA TIPO O



## Disegni dimensionali - GR47

Tipo albero e dimensioni

### Type / Tipo 3-C9

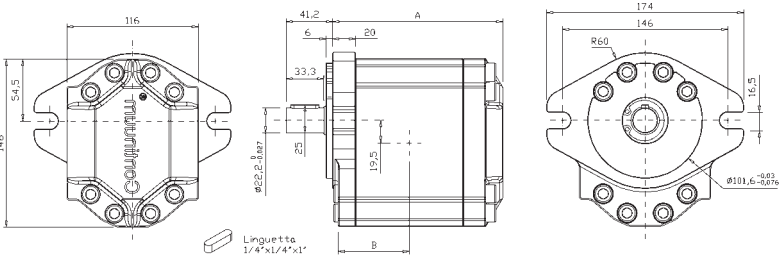
Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Noise / Livello Press / Picco Level / Rumore
28	28	40,3	150,1	67,55	270	280	300 57
32	32,2	46,3	154,1	69,55	252	270	280 57
36	36,3	52,3	158,1	71,55	239	250	270 57
40	40,5	58,3	162,1	73,55	225	250	270 57
45	45,1	65,0	166,6	75,8	213	250	270 57
50	50,3	72,4	171,6	78,3	202	250	270 57

### Type / Tipo SAEB-AC

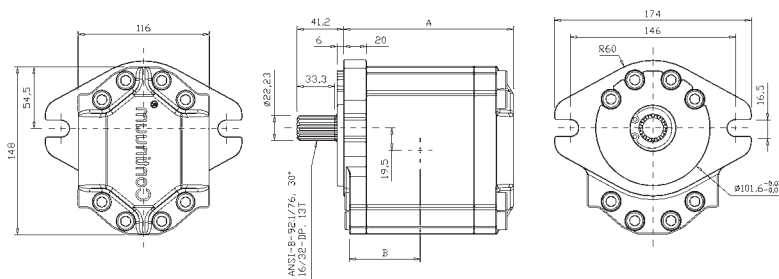
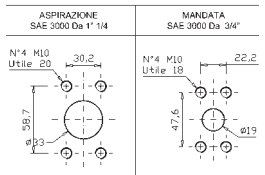
Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Noise / Livello Press / Picco Level / Rumore
28	28	40,3	150,1	67,55	270	280	300 57
32	32,2	46,3	154,1	69,55	252	270	280 57
36	36,3	52,3	158,1	71,55	239	250	270 57
40	40,5	58,3	162,1	73,55	225	250	270 57
45	45,1	65,0	166,6	75,8	213	250	270 57
50	50,3	72,4	171,6	78,3	202	250	270 57

### Type / Tipo SAEB-T13

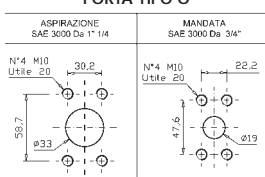
Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Noise / Livello Press / Picco Level / Rumore
28	28	40,3	150,1	67,55	270	280	300 57
32	32,2	46,3	154,1	69,55	252	270	280 57
36	36,3	52,3	158,1	71,55	239	250	270 57
40	40,5	58,3	162,1	73,55	225	250	270 57
45	45,1	65,0	166,6	75,8	213	250	270 57
50	50,3	72,4	171,6	78,3	202	250	270 57



### PORTA TIPO O



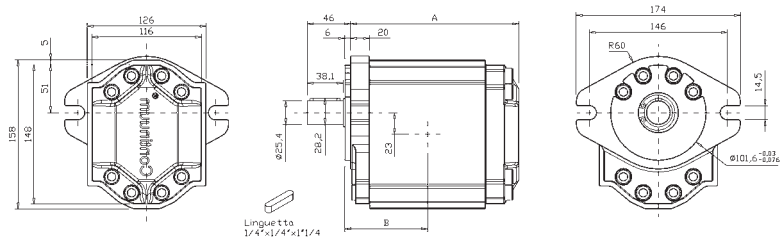
### PORTA TIPO O



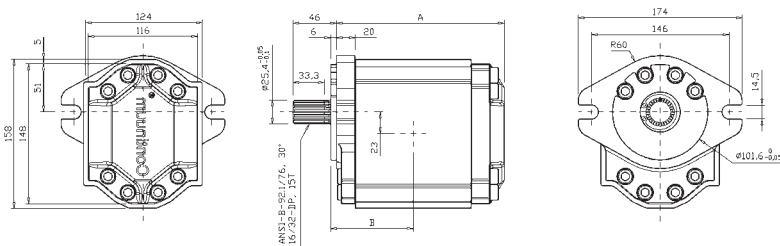
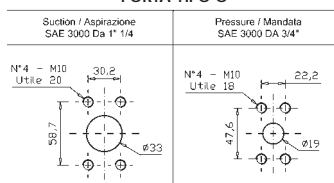
(\*) Intermittent: cycle 20 sec. ON & 3 sec. OFF - Peak: cycle 1 sec. ON & 3 sec. OFF  
 (\*) Intermittente: ciclo 20 sec. ON & 3 sec. OFF - Picco: ciclo 1 sec. ON & 3 sec. OFF

## Dimensional drawing - GR55

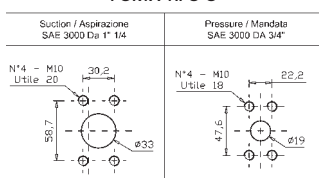
Shaft types & dimensions



### PORTA TIPO O

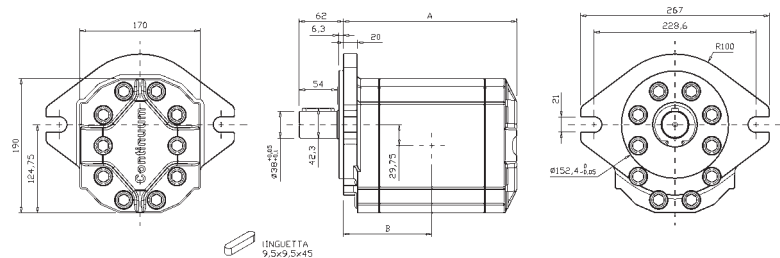


### PORTA TIPO O

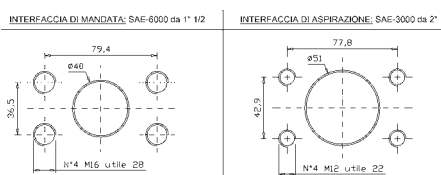


## Dimensional drawing - GR72

Shaft types & dimensions



### PORTA TIPO M



## Disegni dimensionali - GR55

Tipo albero e dimensioni

### Type / Tipo SAEB-AC

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Press / Picco	Noise / Livello Level / Rumore
50	50,5	72,7	178,1	81,55	275	280	300	57
63	63,5	91,4	187,1	86,05	249	260	280	57
75	75	108,1	195,1	90,05	229	250	270	57
90	90,9	130,9	206,1	95,55	178	240	260	57

### Type / Tipo SAEB-T15

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Press / Picco	Noise / Livello Level / Rumore
50	50,5	72,7	178,1	81,55	275	280	300	57
63	63,5	91,4	187,1	86,05	249	260	280	57
75	75	108,1	195,1	90,05	229	250	270	57
90	90,9	130,9	206,1	95,55	178	240	260	57

## Disegni dimensionali - GR72

Tipo albero e dimensioni

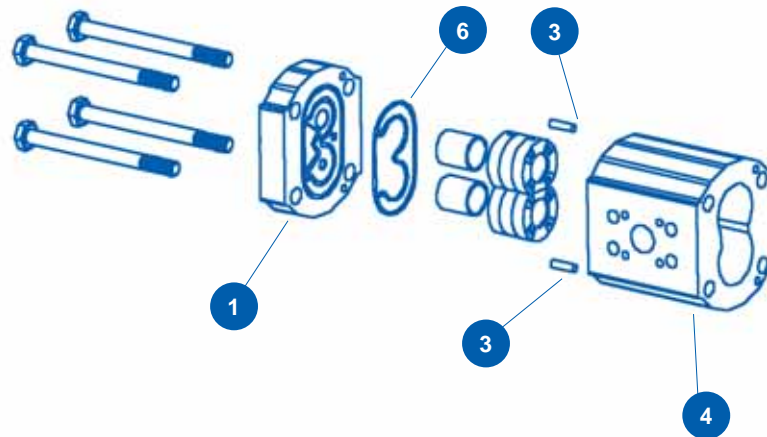
### Type / Tipo SAED-AAC

Type / Tipo	CC	L/min	Dim A	Dim B	Cont Press (*)	Interm Press	Peak / Press Press / Picco	Noise / Livello Level / Rumore
94	94,1	136	245,2	125,6	270	280	300	57
101	101,45	147	248,2	127,1	252	270	300	57
125	125,5	181	258,2	132,1	239	250	300	57
150	150,9	218	268,7	137,35	225	250	275	57
175	175	253	278,7	142,35	213	250	275	57
200	200,4	290	289,2	147,6	202	250	275	57

(\*) Intermittent: cycle 20 sec. ON & 3 sec. OFF - Peak: cycle 1 sec. ON & 3 sec. OFF  
 (\*) Intermittente: ciclo 20 sec. ON & 3 sec. OFF - Picco: ciclo 1 sec. ON & 3 sec. OFF

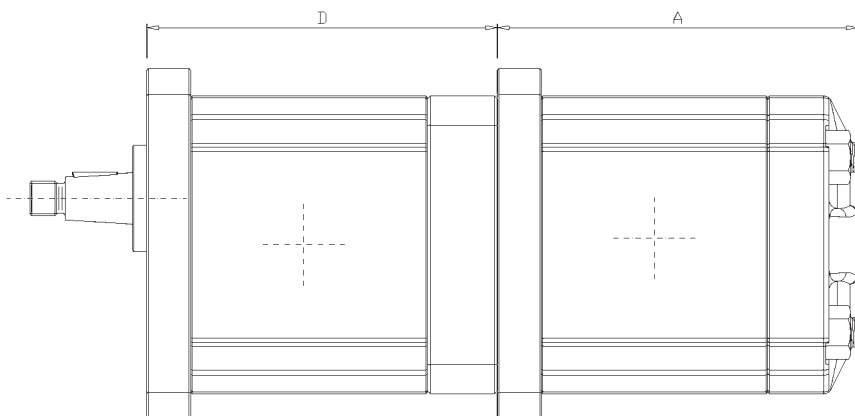
## Component description

- 1 Flange/Flangia
- 2 O-ring seal/O-ring
- 3 Centring key /Spine di centraggio
- 4 Body/Corpo
- 5 Bushings/Bronzine
- 6 O-ring seal/O-ring
- 7 Motor flange/Flangia motore



### Dimensional drawing Tandem Group 2 + 2

For unit dimensions please refer to GR33 and GR38 dimensional drawings



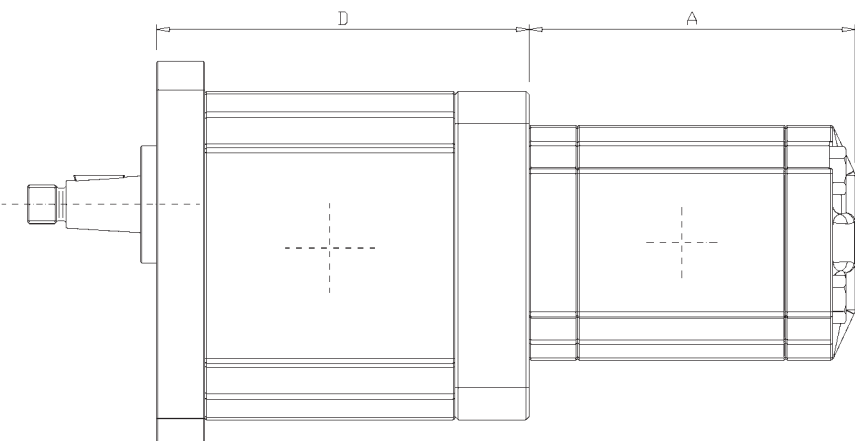
### Disegni dimensionali Tandem Gruppo 2+Gruppo 2

Per dimensionali delle singole pompe vedere sezioni precedenti

Front Pump	CC	Dim D	Cont Pres	Intern Press	Peak Press	Noise Level
GR33	010	113,6	275	280	300	55
	013	118,5	265	270	300	55
	015	123,5	241	250	300	55
	018	129,3	206	250	300	55
GR38	016	120,1	265	280	300	55
	018	123,1	247	260	300	55
	020	126,1	230	250	300	55
	022	129,1	222	250	300	55
	025	133,6	208	250	300	55
028	138,1	197	250	300	55	
		mm	bar	bar	bar	dB(A)

### Dimensional drawing Tandem Group 2 + 1

For unit dimensions please refer to GR33 and GR38 dimensional drawings

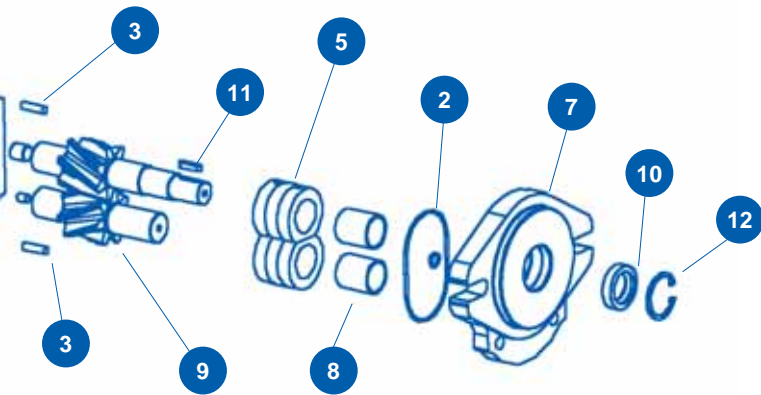


### Disegni dimensionali Tandem Gruppo 2+Gruppo 1

Per dimensionali delle singole pompe vedere sezioni precedenti

Front Pump	CC	Dim D	Cont Pres	Intern Press	Peak Press	Noise Level
GR33	010	115,6	275	280	300	55
	013	120,5	265	270	300	55
	015	125,5	241	250	300	55
	018	131,3	206	250	300	55
GR38	016	122,1	265	280	300	55
	018	125,1	247	260	300	55
	020	128,1	230	250	300	55
	022	131,1	222	250	300	55
	025	135,6	208	250	300	55
028	140,1	197	250	300	55	
		mm	bar	bar	bar	dB(A)

For dimension "A" make reference to pages 4-9  
Per la misura "A" fare riferimento alle pagine da 4 a 9



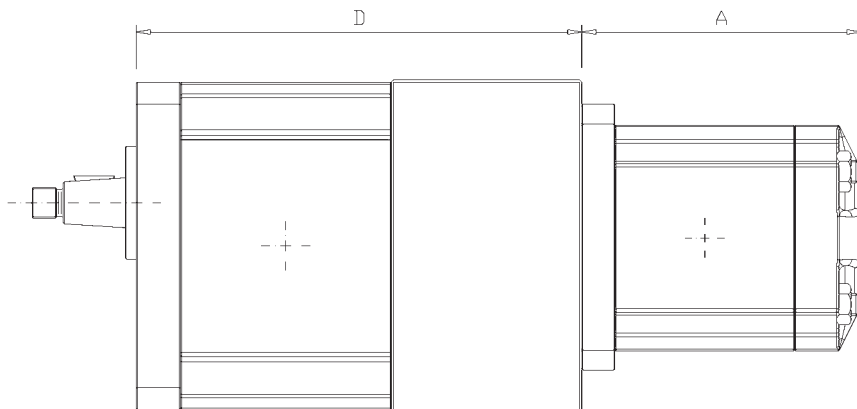
- 8 Bushings/Bronzine
- 9 Continuum® rotor/Rotore Continuum®
- 10 Seal/Anello di tenuta
- 11 Shaft key/Chiavetta
- 12 Seeger / Seeger

### Dimensional drawing Tandem Group 3 + 2

For unit dimensions please refer to GR33 and GR38 dimensional drawings

### Disegni dimensionali Tandem Gruppo 3 + Gruppo 2

Per dimensionali delle singole pompe vedere sezioni precedenti



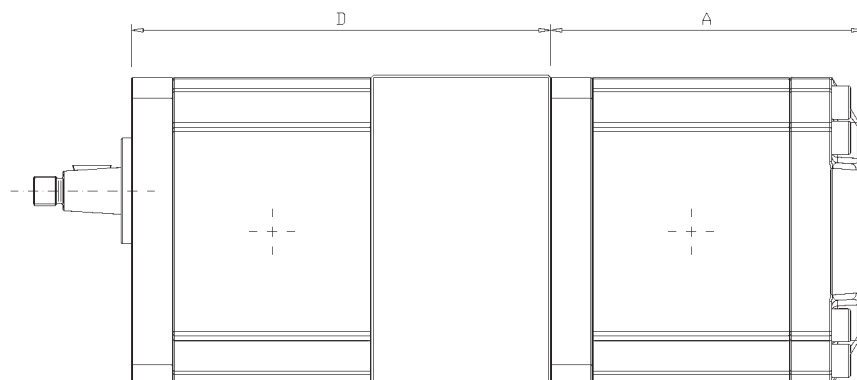
Front Pump	CC	Dim D	Cont Pres	Interm Press	Peak Press	Noise Level
GR47	28	201,1	270	280	300	57
	32	205,1	252	270	300	57
	36	209,1	239	250	300	57
	40	213,1	225	250	300	57
	45	217,6	213	250	300	57
	50	222,6	202	250	300	57
	mm		bar	bar	bar	dB(A)

### Dimensional drawing Tandem Group 3 + 3

For unit dimensions please refer to GR33 and GR38 dimensional drawings

### Disegni dimensionali Tandem Gruppo 3 + Gruppo 3

Per dimensionali delle singole pompe vedere sezioni precedenti



Front Pump	CC	Dim D	Cont Pres	Interm Press	Peak Press	Noise Level
GR47	28	201,1	270	280	300	57
	32	205,1	252	270	300	57
	36	209,1	239	250	300	57
	40	213,1	225	250	300	57
	45	217,6	213	250	300	57
	50	222,6	202	250	300	57
	mm		bar	bar	bar	dB(A)

For dimension "A" make reference to pages 4-9  
Per la misura "A" fare riferimento alle pagine da 4 a 9

## Ordering code / Codice d'ordinazione

DG\*\* 2V \*\*\*CC F\*\*\*\*A\*\*\* \* GR\*\* \*\*\*CC \* \* \*\*  
 1 2 3 4 5 6 7 8 9 10

Pump Type <i>Tipo</i>	Class <i>Classe</i>	Displacement <i>Cilindrata</i>	Flange & Shaft <i>Flangia &amp; Albero</i>	Ports <i>Porte</i>	Shaft Seal <i>Guarnizione Albero</i>	Rotation <i>Rotazione</i>
28		004-006-008-010-013	F1AC3-F1PAC2-F1KAG54-F1LAGL54	G	(none) V	DX (default)  SX
33		010-013-015-018	F2AC4-F2BK7AG-FSAEAAC-FSAEAAT9	G-M		
38		016-018-020-022-025-028	F2AC4-F2BK7AG-FSAEAAC-FSAEAAT11			
47		028-032-036-040-045-050	F3AC9-FSAEBAC-FSAEBAT13	O		
55		050-063-075-090	FSAEBAC-FSAEBAT15			
72		094-101-125-150-175-200	FSEADAC			

## Ordering code multiple pumps / Codice d'ordinazione pompe multiple

DG\*\* 2V \*\*\*CC F\*\*\*\*A\*\*\* \* GR\*\* \*\*\*CC \* \* \*\*  
 1 2 3 4 5 6 7 8 9 10

Pump Type <i>Tipo</i>	Class <i>Classe</i>	Displacement 1st stage <i>Cilindrata primo stadio</i>	Flange & Shaft <i>Flangia &amp; Albero</i>	Ports <i>Porte</i>	Displacement 2nd stage <i>Cilindrata secondo stadio</i>	Ports <i>Porte</i>	Shaft Seal <i>Guarnizione Albero</i>	Rotation <i>Rotazione</i>	
		<b>First stage - primo stadio</b>			<b>Second stage - secondo stadio</b>				
33		010-013-015-018	F2AC4	G-M	28	004-006-008-010-013	G	(none) V	DX (default)  SX
					33	010-013-015-018	G-M		
					38	016-018-020-022-025-028	G-M		
38	016-018-020-022-025-028	F2AC4	G-M	28	004-006-008-010-013	G			
				33	010-013-015-018	G-M			
				38	016-018-020-022-025-028	G-M			
47	028-032-036-040-045-050	F3AC9	O	33	010-013-015-018	G-M			
				38	016-018-020-022-025-028	G-M			
				47	028-032-036-040-045-050	O			
55	050-063-075-090	FSAEBAT15	O	33	010-013-015-018	G-M			
				38	016-018-020-022-025-028	G-M			
				47	028-032-036-040-045-050	O			
				55	050-063-075-090	O			

Group /  
Gruppo

### Product Range / Gamma Prodotti

Group / Gruppo	Displacement <i>Cilindrata</i>	
1	<b>GR28</b>	4,2 6,4 8,3 10,2 12,9
2	<b>GR33</b>	10,1 12,6 15,2 18,2
	<b>GR38</b>	15,9 17,9 20,0 22,1 25,2 28,3
3	<b>GR47</b>	28,0 32,2 36,3 40,5 45,1 50,3
	<b>GR55</b>	50,5 63,5 75,0 90,9
4	<b>GR72</b>	94,1 101,4 125,5 150,9 175,0 200,4
		6      10      18      28      50      90      200



Cont\_ITA-UK\_1.1

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