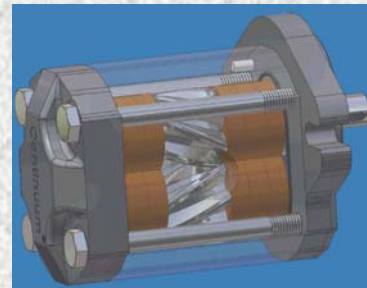
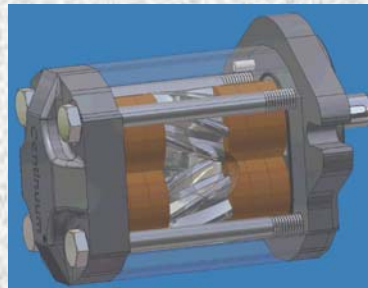
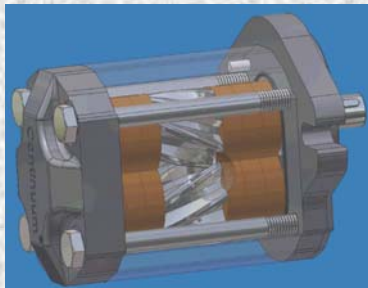
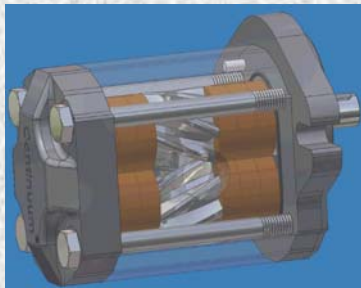
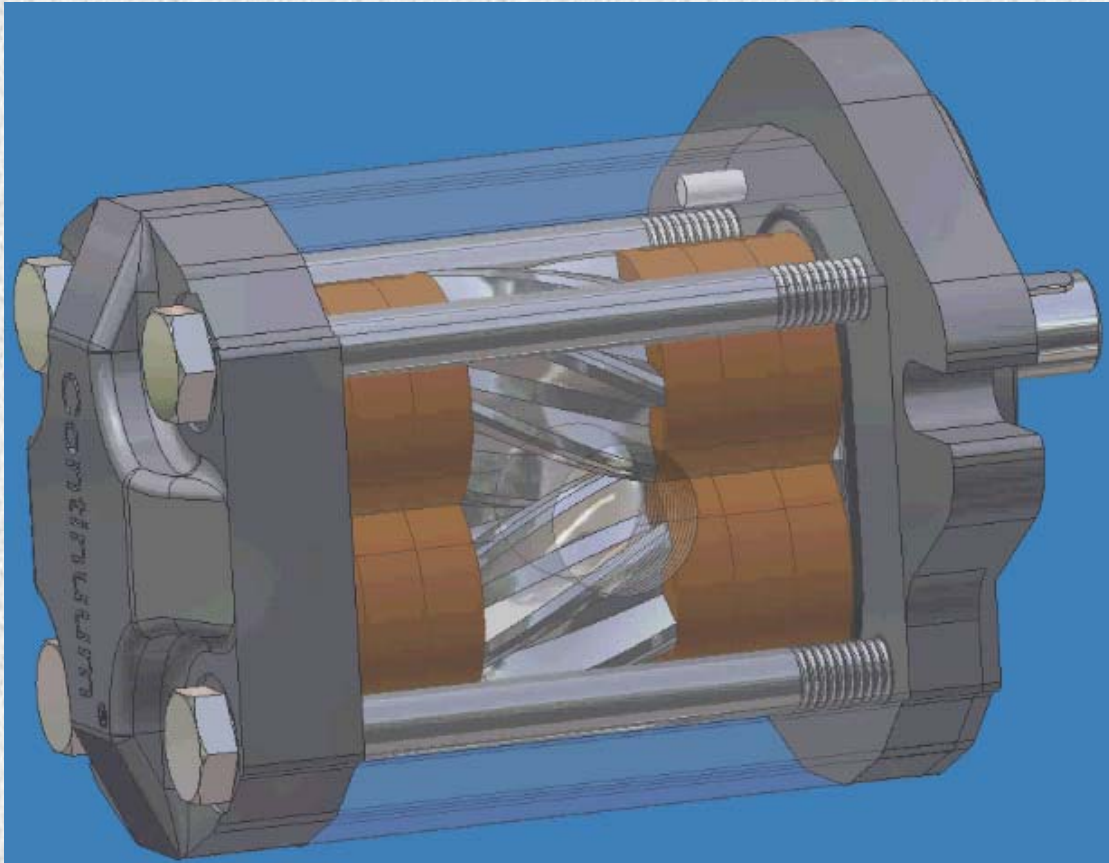




# Continuum<sup>®</sup> pumps

Helical rotor pumps for high pressure low noise industrial application  
Patents Pending



**SETTIMA**   
flow mechanisms

## 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, Performances are paramount the ultimate solution is to cut the problem at its root.

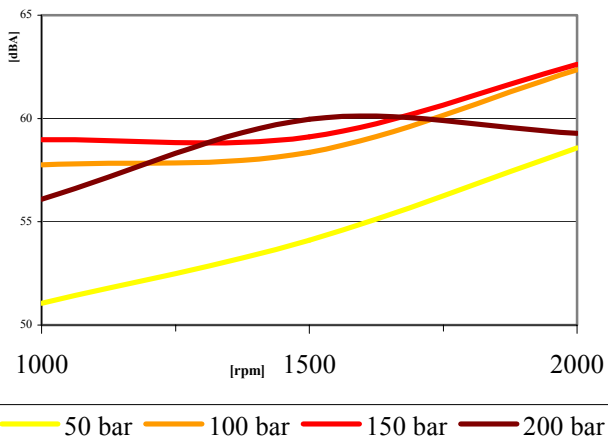
## Noise is Expensive

From the small steering system to the large municipal equipment, from the lubrication system to the forklift.

Noise not only is generated by the pumps but in most cases the systems generated noise by amplifying the ripple. Consequent pressure drops are a noticeable energy consumption and reducing overall efficiency.

Even in the most demanding condition Continuum enables the system designer to focus on functions and features, not only on reducing customer frustration by

mean of expensive enclosures, hoses and attenuators. Noise is relieved at the root.



## Power of Silence

Endowed with the form factor of the most used hydraulic devices such as gear pumps, Continuum is set to transform the way end users are perceiving 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

Behind investing in the most advanced design and manufacturing capability, Settima Flow Mechanisms and all its third party manufacturers base the quality of their value chain on the human factor.

Encouraging the innovation and the personal responsibility, Settima FM has reached an high standard of quality and a extremely flexible manufacturing.

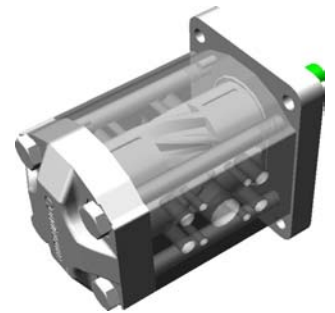
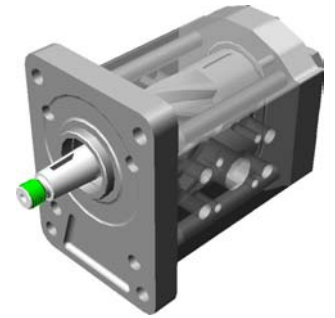
# The Continuum® Principle

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**.



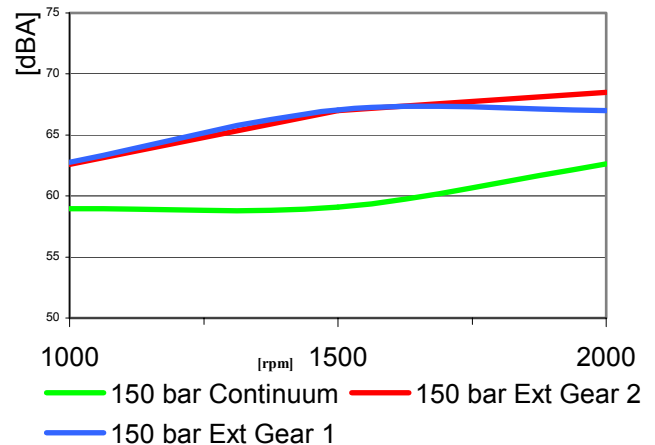
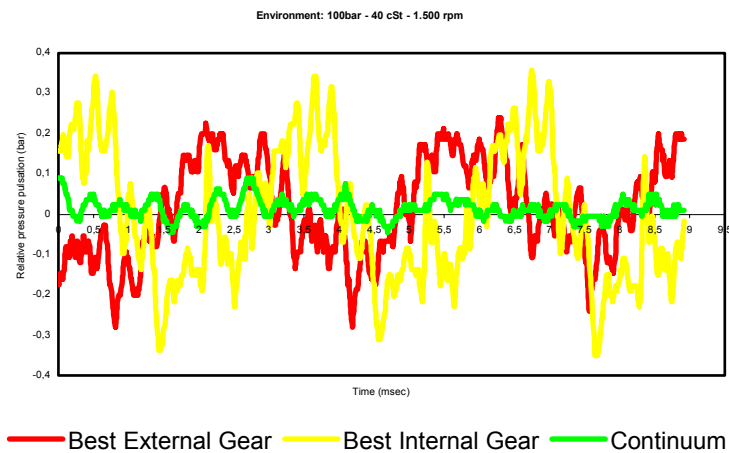


# Pressure Ripple and Noise Analysis

The **present structure** of high pressure gear pumps typically implies **rooms** of compressed fluid between gear teeth.

As consequence:

- ⊕ sharp changes in pressure growth
- ⊕ noise (starting from 1.500 rpm)



The **continuum** design concept achieves one main design objective:

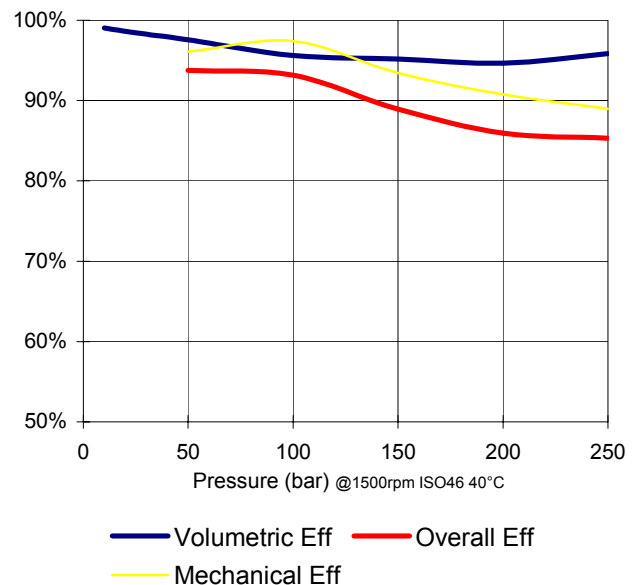
- ⊕ Total absence of high pressure **rooms** of compressed oil between gears;
- ⊕ No trade-offs on material selection and treatments.

The above implies:

- ⊕ **smooth changes** in the pressure growth
- ⊕ HIGH Performances
- ⊕ **LOW** noise (up to 5.000 rpm)

The **pressure ripple** laboratory test shows the impressive improvement of the pulsation in a **Continuum**<sup>®</sup> 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**<sup>®</sup> designed pump.



# Detailed technical information

<i>Models available</i>	GR28 – GR33 – GR38 – GR47 – GR55 – GR72
<i>Flanges</i>	Group 1 – Group 2 (European, German, BKT, SAE-A) – Group 3 (European, SAE-B)
<i>Connections</i>	GAS – SAE 3/4" 5000 PSI FL 4 HOLES M6 SU Ø40 DN20 (***)
<i>Installation position</i>	External
<i>Shaft rotation</i>	Clockwise
<i>Shaft speed</i>	Up to 3.600 rpm
<i>Displacements – Flows</i>	From 6 up to 184 cm <sup>3</sup> From 9L/min up to 264L/min (at 1.500 rpm)
<i>Operating pressure (*)</i>	Continuous: 240 bar Cycle ON/OFF: 250 bar Peak: 280 bar
<i>Inlet pressure</i>	0,8 – 2 bar (****)
<i>Fluids</i>	Mineral oil HLP e HLVP Ecologic fluids HETG-HEPG-HEE Synthetic fluid or emulsion: (**) HFA oil-water emulsion – oil minimum 20% HFB water-oil emulsion – oil minimum 20% HFDR phosphate ester
<i>Viscosity</i>	Lubrication oils high viscosity (**) Special synthetic fluid: MIL-H, SKYDROL, special on request 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]
<i>Environment temperature</i>	From -15° up to +60°C
<i>Hydraulic temperature</i>	From -15° up to +80°C
<i>Contamination Level</i>	From 10 NAS (21/9/15 ISO4406) to 8 NAS (18/17/14 ISO4406) for heavy duty operations (*****)
<i>Filtration</i>	Inlet Port: from 50 to 30 µm for heavy duty operations (*****) Outlet Port: from 25 to 10 µm for heavy duty operations (*****)
<i>Seals</i>	NBR, VITON, FPM, EPDM – Special on request
<i>Noise</i>	from 52 up to 68 dB(A) at 2.750 rpm Value based on ISO 4412 test procedure
<i>Pump body (standard)</i>	Extruded aluminium alloy
<i>Screw</i>	Case hardened grinded steel
<i>Maintenance</i>	No

(\*) Test executed with Oil ISO VG46 (40°C) – 10µm filtration

(\*\*) Please contact the company to have further details

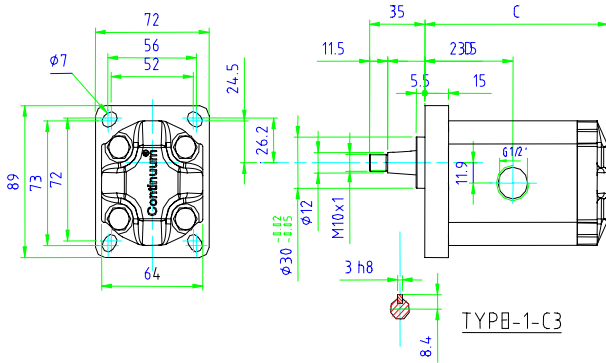
(\*\*\*) Available on certain models upon customer request

(\*\*\*\*) Up to 10 bar Shaft Seal available on certain models upon request

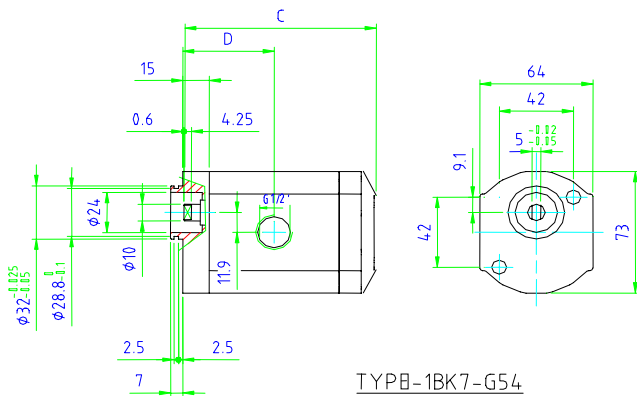
(\*\*\*\*\*) Heavy Duty operation are defined as above 150bar , more than 4h/day, more than 100 cycle/day, oil ISO 46.

# Dimensional drawing – GR28

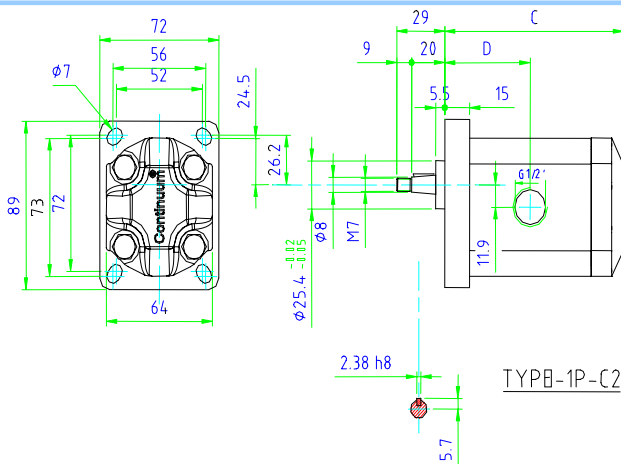
## Shaft types & dimensions



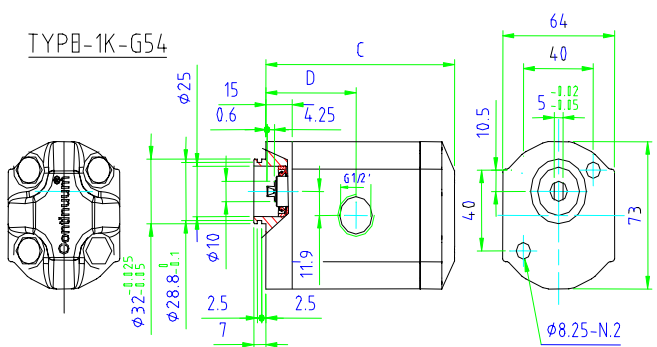
TYPE 1-C3								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
6	6,4	9,2	100	47,25	275	280	300	55
8	8,3	12,0	105	49,75	246	260	300	55
10	10,2	14,7	110	52,25	222	250	300	55
12	12,9	18,6	117	55,7	176	230	280	55



TYPE 1BK7-G54								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
6	6,4	9,2	100	47,25	200	230	280	55
8	8,3	12,0	105	49,75	153	195	260	55
10	10,2	14,7	110	52,25	126	170	250	55
12	12,9	18,6	117	55,7	99	140	230	55



TYPE 1P-C2								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
6	6,4	9,2	100	47,25	275	280	300	55
8	8,3	12,0	105	49,75	246	260	300	55
10	10,2	14,7	110	52,25	222	250	300	55
12	12,9	18,6	117	55,7	176	230	280	55

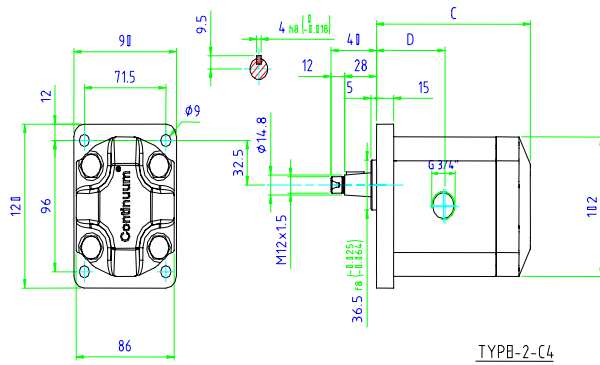


TYPE 1K-G54								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
6	6,4	9,2	100	47,25	200	230	280	55
8	8,3	12,0	105	49,75	153	195	260	55
10	10,2	14,7	110	52,25	126	170	250	55
12	12,9	18,6	117	55,7	99	140	230	55

(\*) Intermittent: cycle 20 sec. ON & 3 sec. OFF – Peak: cycle 1 sec. ON & 3 sec. OFF

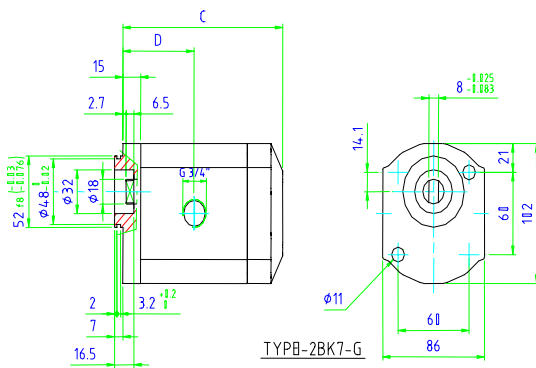
# Dimensional drawing – GR33

## Shaft types & dimensions



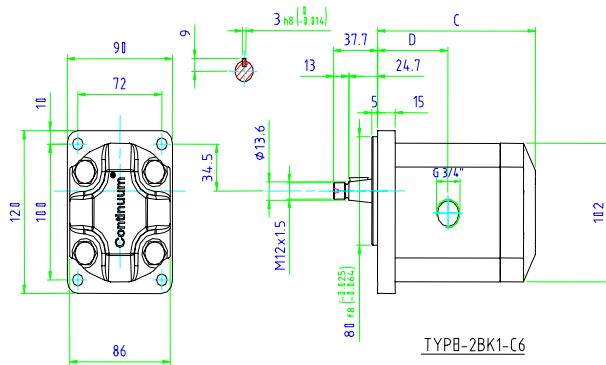
TYPB-2-C4

TYPE 2-C4								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
10	10,1	14,5	123	53,8	275	280	300	55
13	12,6	18,1	128	56,25	265	270	300	55
15	15,2	21,8	133	58,75	241	250	300	55
18	18,2	26,1	139	61,65	206	250	300	55



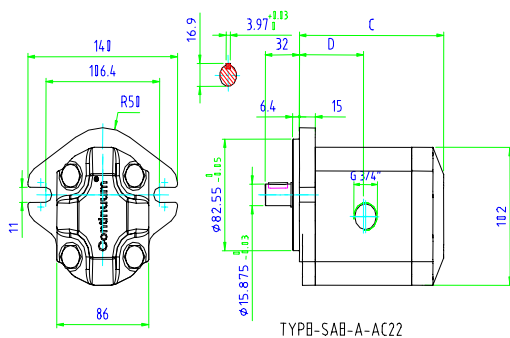
TYPB-2BK7-G

TYPE 2BK7-G54								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
10	10,1	14,5	123	53,8	275	280	300	55
13	12,6	18,1	128	56,25	265	270	300	55
15	15,2	21,8	133	58,75	241	250	300	55
18	18,2	26,1	139	61,65	206	250	300	55



TYPB-2BK1-C6

TYPE 2BK1-C6								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
10	10,1	14,5	123	53,8	275	280	300	55
13	12,6	18,1	128	56,25	265	270	300	55
15	15,2	21,8	133	58,75	241	250	300	55
18	18,2	26,1	139	61,65	206	250	300	55



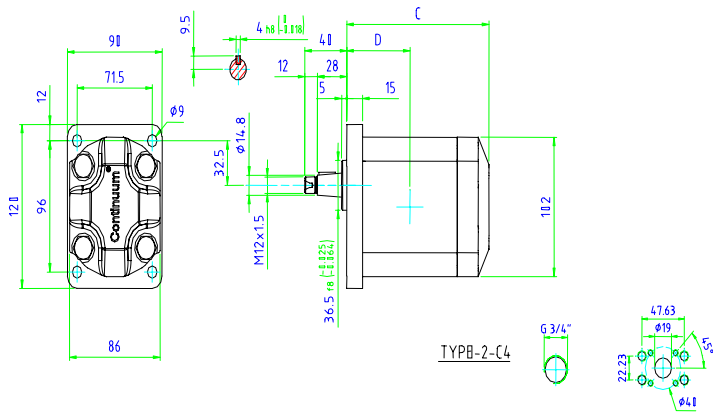
TYPB-SAB-A-AC22

TYPE SAE-A-AC22								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
10	10,1	14,5	123	53,8	275	280	300	55
13	12,6	18,1	128	56,25	265	270	300	55
15	15,2	21,8	133	58,75	241	250	300	55
18	18,2	26,1	139	61,65	206	250	300	55

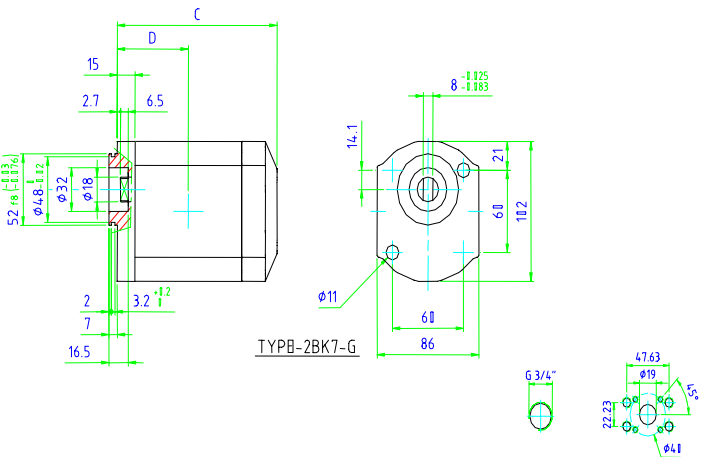
(\* Intermittent: cycle 20 sec. ON & 3 sec. OFF – Peak: cycle 1 sec. ON & 3 sec. OFF

# Dimensional drawing – GR38

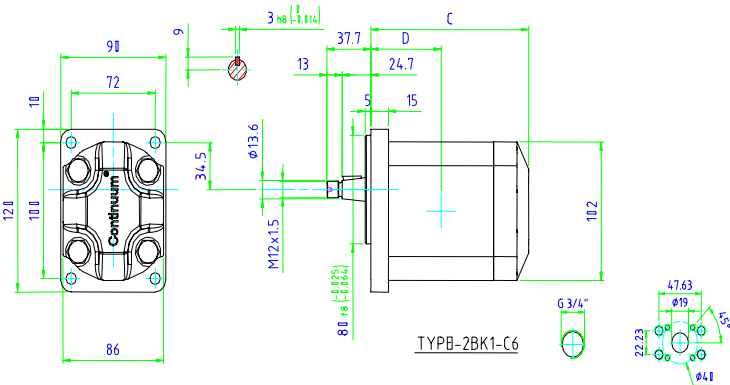
## Shaft types & dimensions



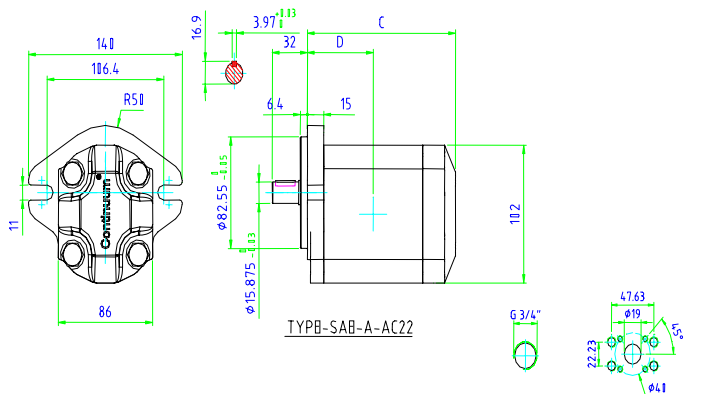
TYPE 2-C4								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
16	15,9	22,8	127	55,55	265	280	300	55
18	17,9	25,8	130	57,15	247	260	300	55
20	20	28,8	133	58,55	230	250	300	55
22	22,1	31,8	136	60,05	222	250	300	55
25	25,2	36,2	140	62,3	208	250	300	55
28	28,3	40,7	145	64,55	197	250	300	55



TYPE 2BK7-G								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
16	15,9	22,8	127	55,55	265	280	300	55
18	17,9	25,8	130	57,15	247	260	300	55
20	20	28,8	133	58,55	230	250	300	55
22	22,1	31,8	136	60,05	222	250	300	55
25	25,2	36,2	140	62,3	208	250	300	55
28	28,3	40,7	145	64,55	197	250	300	55



TYPE 2BK1-C6								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
16	15,9	22,8	127	55,55	265	280	300	55
18	17,9	25,8	130	57,15	247	260	300	55
20	20	28,8	133	58,55	230	250	300	55
22	22,1	31,8	136	60,05	222	250	300	55
25	25,2	36,2	140	62,3	208	250	300	55
28	28,3	40,7	145	64,55	197	250	300	55



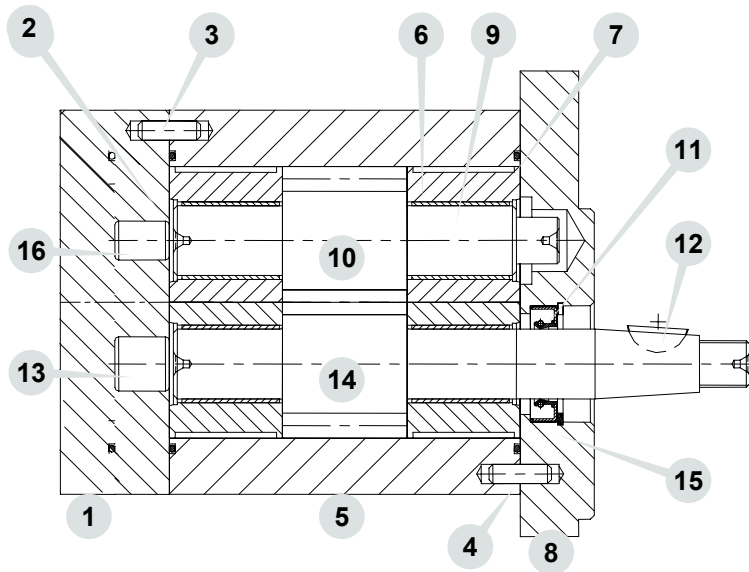
TYPE SAE-A-AC22								
Type	CC	L/min	Dim C	Dim D	Cont Pres (r)	Interm Press	Peak Press	Noise Level
16	15,9	22,8	127	55,55	265	280	300	55
18	17,9	25,8	130	57,15	247	260	300	55
20	20	28,8	133	58,55	230	250	300	55
22	22,1	31,8	136	60,05	222	250	300	55
25	25,2	36,2	140	62,3	208	250	300	55
28	28,3	40,7	145	64,55	197	250	300	55

(\* Intermittent: cycle 20 sec. ON & 3 sec. OFF – Peak: cycle 1 sec. ON & 3 sec. OFF





# Component description



1	Flange	9	Bushings
2	O-ring seal	10	Continuum® rotor
3	Centring key	11	Seal
4	Centring key	12	Shaft key
5	Body	13	Piston
6	Bushings	14	Continuum® rotor
7	O-ring seal	15	Seeger
8	Motor flange	16	Piston

# Performances in a Nutshell

Models available

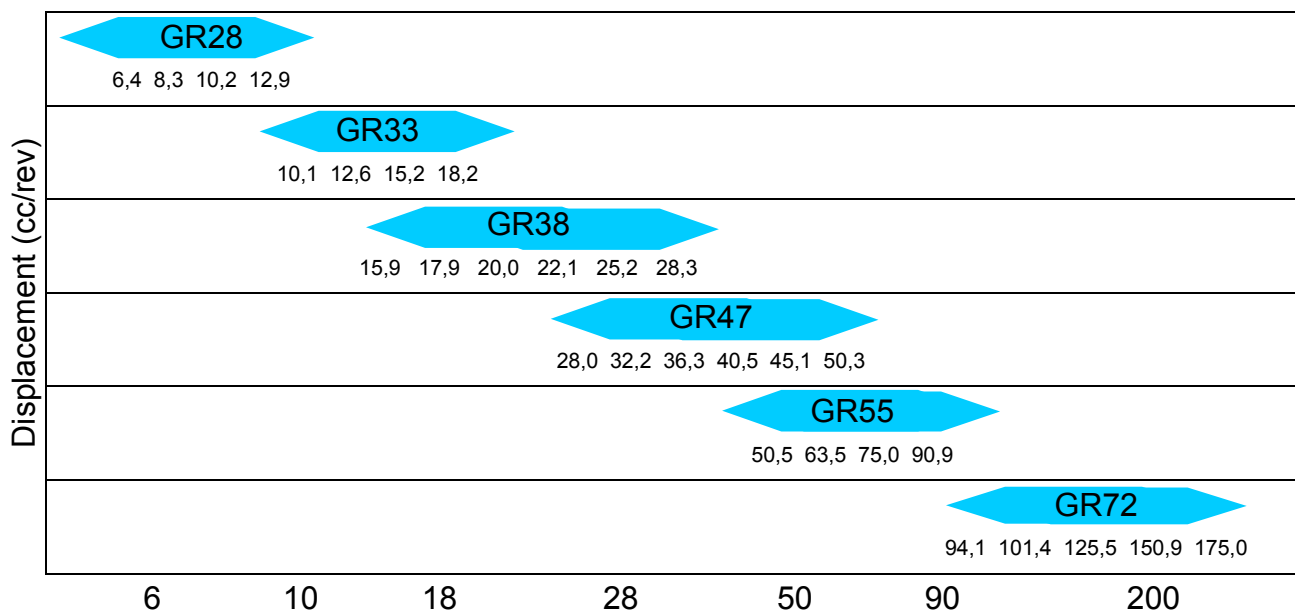
Type	Model	Displacement (cm <sup>3</sup> / rev)	Flow <sup>(*)</sup> (L/min)	Pressures available <sup>(**)</sup>			Noise Level db(A) at 150 bar
				Continuous (bar)	Intermittent (bar)	Peak (bar)	
GR28	6	6,4	9,2	275	280	300	55
	8	8,3	12,0	246	260	300	55
	10	10,2	14,7	222	250	300	55
	13	12,9	18,6	176	230	280	55
GR33	10	10,1	14,5	275	280	300	55
	13	12,6	18,1	265	270	300	55
	15	15,2	21,8	241	250	300	55
	18	18,2	26,1	206	250	300	55
GR38	16	15,9	22,8	265	280	300	55
	18	17,9	25,8	247	260	300	55
	20	20,0	28,8	230	250	300	55
	22	22,1	31,8	222	250	300	55
	25	25,2	36,2	208	250	300	55
GR47	28	28,3	40,7	197	250	300	55
	28	28,0	40,3	270	280	300	57
	32	32,2	46,3	252	270	300	57
	36	36,3	52,3	239	250	300	57
	40	40,5	58,3	225	250	300	57
GR55	45	45,1	65,0	213	250	300	57
	50	50,3	72,4	202	250	300	57
	50	50,5	72,7	275	280	300	57
	63	63,5	91,4	249	260	300	57
GR72 <sup>(***)</sup>	75	75,0	108,1	229	250	300	57
	90	90,9	130,9	178	250	300	57
	94	94,1	135,5	275	300	300	57
GR72 <sup>(***)</sup>	101	101,4	146,0	275	280	300	58
	125	125,5	180,7	258	260	300	58
	150	150,9	217,3	235	250	300	59
	175	175,0	252,0	219	230	300	59

(\*) the flow is computed assuming a volumetric efficiency equal to 96% and 1.500 rpm

(\*\*) Intermittent: cycle 20 sec. ON & 3 sec. OFF – Peak: cycle 1 sec. ON & 3 sec. OFF ; Refer to Dimensional Drawing tables for Exact Pressure supported

(\*\*\*) Available H2-2004

# Product Range



## Ordering code

Type		Size					Flange				Ports		Shaft Seal	Rot.
G R	2 V	28	006	008	010	013	F1-AC3	F1P-AC2	F1BK7-AG54	F1K-AG54	G (G3.4)	M (SAE)	None NBR	DX Right rotation
		33	010	013	015	018	F2-AC4	F2BK1-AC6	F2BK7-AG	FSAEA-AAC22				
		38	016	018	020	022	025	028	F2-AC4	F2BK1-AC6	F2BK7-AG	FSAEA-AAC22	G	
		47	028	032	036	040	045	050	F3-AC9	F3BK1-AC10	FSAEB-AAC25.4	M	V	
		55	050	063	075	090	FSAEB-AAC25.4		FSAEB-AT15			Viton FPM		
		72 **	094	105	128	156	184	FSAEB-AAC25.4						

The data shown in the catalogue can change without notice.  
For special applications – please contact the main office.

Examples: GR28 2V 006 F1-AC3 DX;  
GR33 2V 016 F2BK1-AC6 DX;  
GR38 2V 050 FSAEB-AAC25.4 G V DX.

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info@settimaflowmechanisms.it

Area Agency/Reseller: