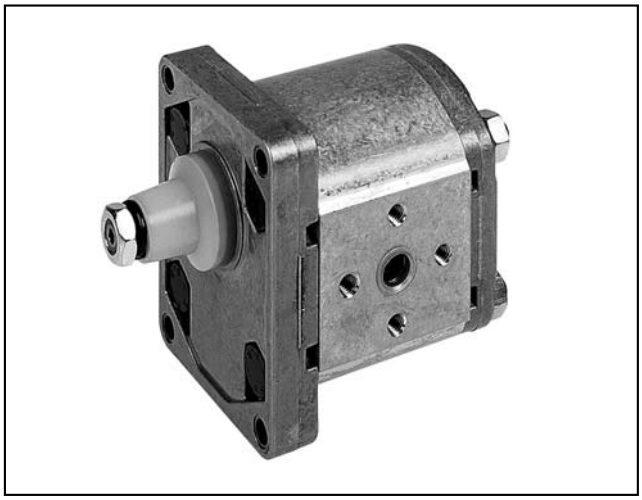
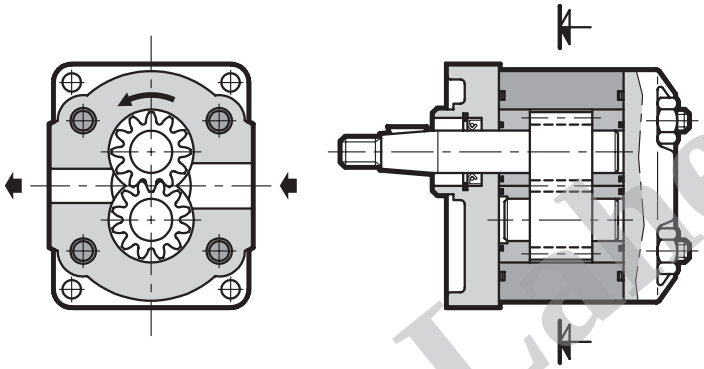
DUPLOMATIC
HYDRAULICS



GP
EXTERNAL GEAR PUMPS
SERIES 10

OPERATING PRINCIPLE



— The GP pumps are fixed displacement external gear pumps with axial clearance compensation.

— They give high volumetric flows even with high operating pressures, a low noise level, and they have a high endurance thanks to the balancing system of the loads on the guide bushings.

— They are divided into three size groups, with displacements of up to 9,1 - 34,4 and 87,6 cm^3/rev respectively, and with operating pressures of up to 230 bar (standard) and up to 310 bar (version for high pressures H).

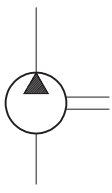
— They are available in multiple versions, and can be combined in multi-flow groups.

TECHNICAL SPECIFICATIONS

GP PUMP SIZE		1	2	3
Displacement range	cm^3/rev	1,3 ÷ 9,1	7 ÷ 34,4	20,7 ÷ 87,6
Flow rate and operating pressures		see table 3 - Performance ratings		
Rotation speed		see table 3 - Performance ratings		
Rotation direction		clockwise, anticlockwise or reversible (seen fron the shaft side)		
Loads on the shaft		radial and axial load are not allowed		
Max torque applicable to the shaft		see par. 14.1		
Hydraulic connection		flanged fittings (see par. 16)		
Type of mounting		4 hole flange - rectangular type		
Mass	kg	approx. 1,6	approx. 3,2	approx.7,5

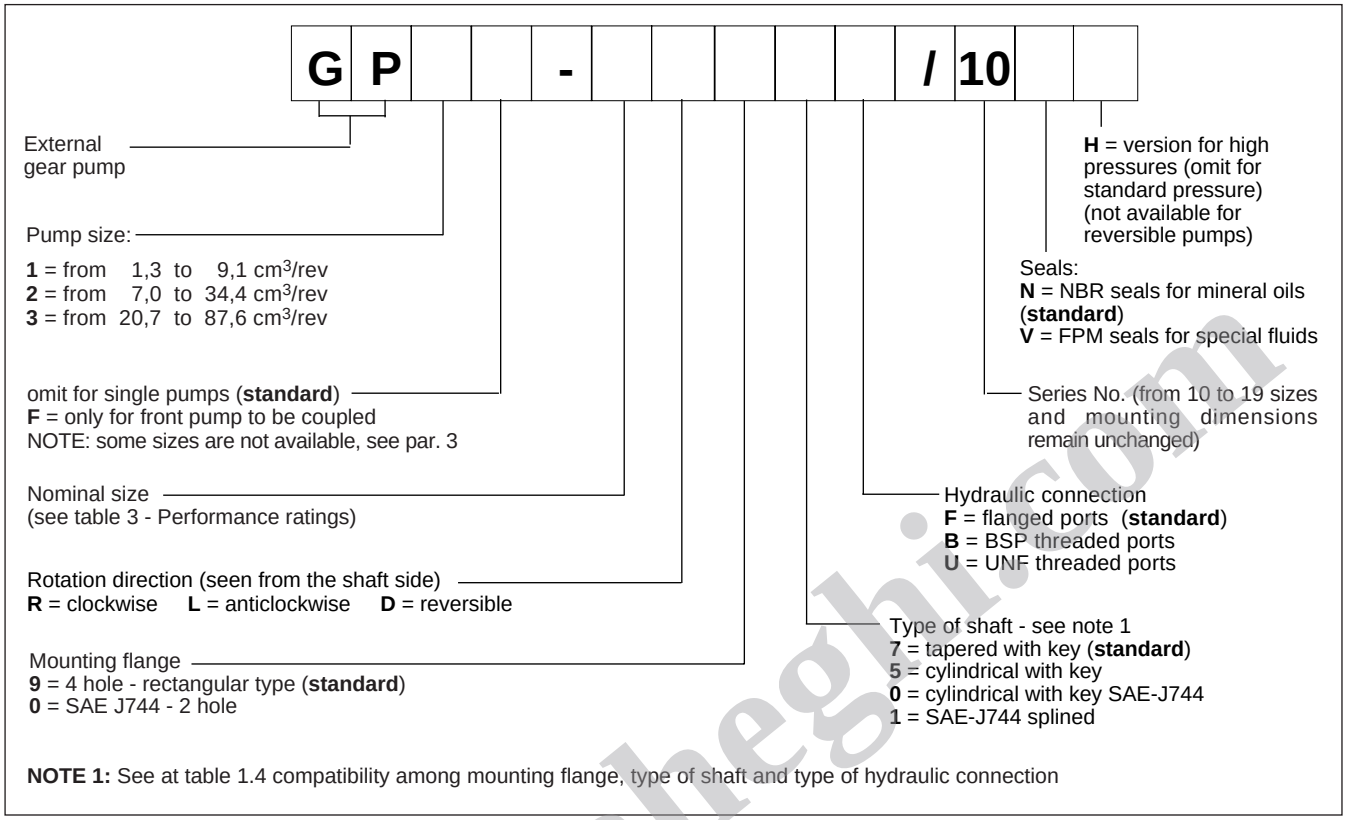
Ambient temperature range	°C	–20 ÷ +50
Fluid temperature range	°C	–15 ÷ +80
Fluid viscosity range	see par. 2.2	
Recommended viscosity	cSt	25 ÷ 100
Degree of fluid contamination	see par. 2.3	

HYDRAULIC SYMBOL



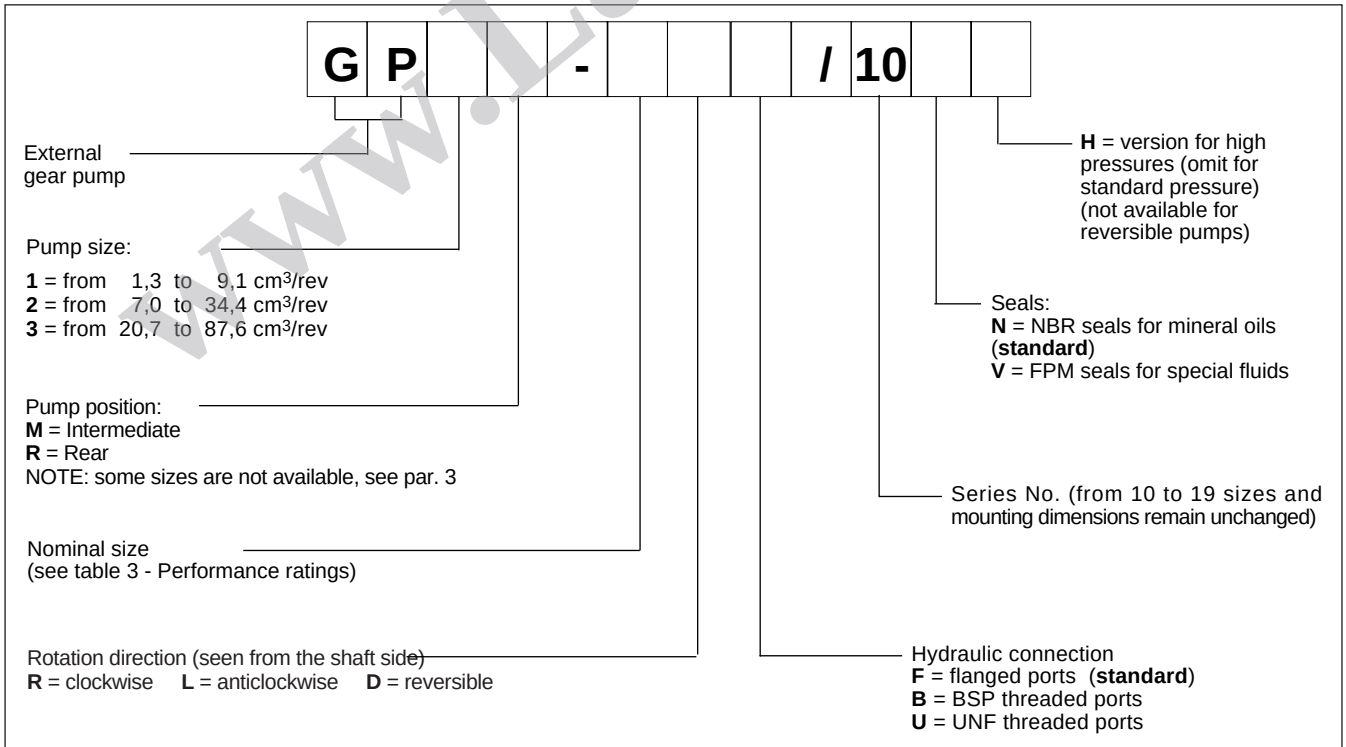
1 - IDENTIFICATION CODE

1.1 - Identification code for single and front pumps



NOTE 1: See at table 1.4 compatibility among mounting flange, type of shaft and type of hydraulic connection

1.2 - Identification code for intermediate and rear pumps



NOTE 2: Front, intermediate or rear pumps for multiple groups are supplied without mating joint, which must be ordered separately (see par. 1.5). To order a group of one or more pumps completely assembled see par. 1.3.

1.3 - Identification code for multiple pumps

identification code front pump	+	identification code intermediate pump (omit for double pumps)	+	identification code rear pump

1.4 - Compatibility among mounting flange, type of shaft and type of hydraulic connection

FLANGE CODE	SHAFT CODE				HYDRAULIC CONNECTION CODE		
	7	5	0	1	F	B	U
9	yes	yes	no	no	yes	yes	no
0	no	no	yes	yes	yes	no	yes

NOTA 3: Group 1 pumps with SAE flange code **0** can only have UNF hydraulic connection code **U**.

1.5 - Identification code for mating joints

FIRST PUMP	SECOND PUMP	
	GP1	GP2
	MATING JOINT CODE	
GP1	0730224	-
GP2	0730245	0730246
GP3	0730248	0730247

1.6 - Examples

a) single pump size 1 - 1,3 cm^3/rev - anticlockwise rotation - standard flange and shaft
GP1-0013L97F/10N

b) single pump size 2 - 14 cm^3/rev - clockwise rotation - standard flange and shaft
GP2-0140R97F/10N

c) single pump size 3 - 22,5 cm^3/rev - clockwise rotation - SAE flange and shaft
GP3-0225R01F/10N

d) double pump made of: - pump size 2 - 7 cm^3/rev
- pump size 1 - 2 cm^3/rev - high pressure
GP2F-0070R97F/10N + GP1R-0020RF/10NH

e) triple pump made of: - pump size 3 - 22,5 cm^3/rev
- pump size 2 - 14 cm^3/rev
- pump size 1 - 2 cm^3/rev
GP3F-0225R97F/10N + GP2M-0140RF/10N + GP1R-0020RF/10N

2 - HYDRAULIC FLUID

2.1 Type of fluid

Use mineral oil based hydraulic fluids with anti-foam and antioxidant additives, in conformity with the requisites of the following standards:
- FZG test - 11th stage
- DIN 51525
- VDMA 24317

For use with other types of fluid (water glycol, phosphate esters and others), consult our technical dept.

Operation with fluid at a temperature greater than 70°C causes a premature deterioration of the fluid quality and of the seals.
The physical and chemical properties of the fluid must be maintained.

2.2 - Fluid viscosity

The operating fluid viscosity must be within the following range:

minimum viscosity	12 cSt	referred to the maximum fluid temperature of 80 °C
optimum viscosity	25 ÷ 100 cSt	referred to the operating temperature of the fluid in the tank
maximum viscosity	1600 cSt	limited to only the start-up phase of the pump

2.3 - Degree of fluid contamination

The maximum degree of fluid contamination must be according to NAS 1638 class 9; therefore, use of a filter with $\beta_{20} \geq 75$ is recommended. A degree of maximum fluid contamination according to NAS 1638 class 7 is recommended for optimum endurance of the pump. Hence, use of a filter with $\beta_{10} \geq 100$ is recommended.
In the event a filter is installed on the suction line, be sure that the pressure at the pump inlet is not lower than the values specified in par. 13.
The suction filter must be equipped with a by-pass valve and, if possible, with a clogging indicator.

3 - PERFORMANCE RATINGS (values obtained with mineral oil with viscosity of 36 cSt at 50°C)

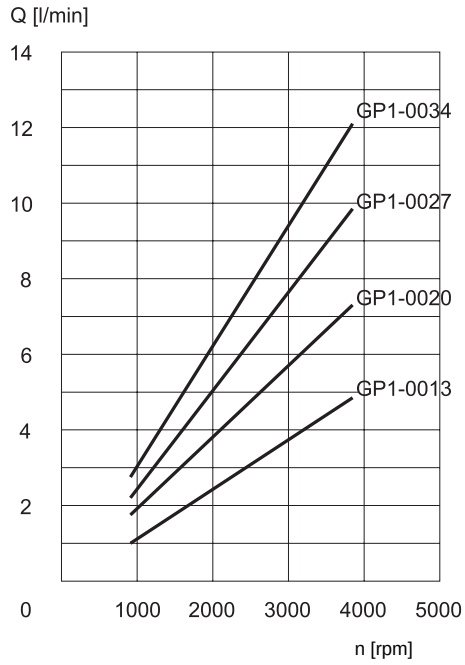
The nominal dimensions indicated in the table are those available for standard pumps.
The displacements that are available for versions with SAE flange are indicated at par. 8 - 10 - 12 concerning overall and mounting dimensions.

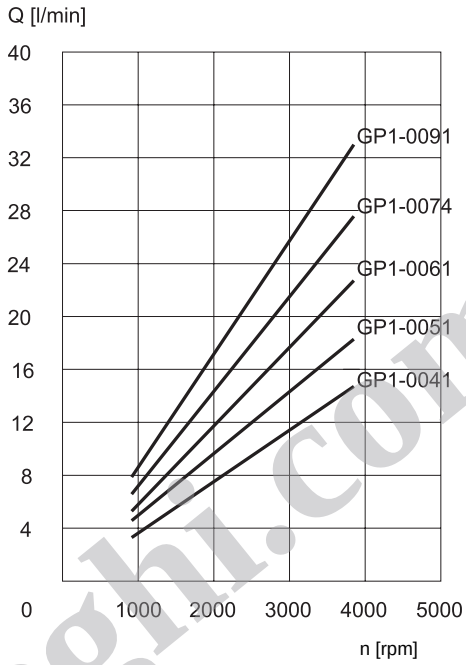
PUMP SIZE	NOMINAL SIZE	DISPLACEMENT	MAX FLOW RATE (at 1500 rpm) [l/min.]	MAX OPERATING PRESSURE (at 1500 rpm) [bar]	MAX PEAK PRESSURE (at 1500 rpm) [bar]	MAX ROTATION SPEED [rpm]	MIN ROTATION SPEED [rpm]
GP1	**0013**	1,3	2,0	220 (260)	260 (300)	6000	500
	0020	2,0	3,0				
	0027	2,7	4,0			5000	
	0034 *	3,4	5,1				
	0041	4,1	6,1	210 (250)	250 (290)	4000	
	0051	5,1	7,6				
	0061	6,1	9,1	200 (240)	240 (280)	3800	
	0074 *	7,4	11,1	170	200	3200	
	0091 *	9,1	13,6	160	190	2600	
GP2	**0070**	7,0	10,5	230 (270)	270 (310)	4000	500
	0095	9,5	14,2	220 (260)	260 (300)	3000	
	0113	11,3	16,9			4000	
	0140	14,0	21,0	210 (250)	240 (280)		
	0158	15,8	23,7				
	0178	17,8	26,7	200 (240)	230 (270)	3600	
	0208	20,8	31,2	180 (220)	210 (250)	3200	
	0234*	23,4	35,1	160 (200)	190 (230)	3000	
	0279	27,9	41,8	150 (200)	180 (230)	2800	
	0344*	34,4	51,7	120	150	2500	
GP3	**0207**	20,7	31,0	230 (270)	270 (310)	3500	400
	0225	22,5	33,7				
	0264	26,4	39,6			3000	
	0337	33,7	50,5	220 (260)	260 (300)		
	0394	39,4	59,1				
	0427	42,7	64,0			2800	
	0514	51,4	77,1	200 (240)	240 (280)	2400	
	0600	60,0	90,0	180	220	2800	
	0696	69,6	104,4	170	200	2500	
	0776	77,6	116,4	160	190	2300	
	0876	87,6	131,4	140	170	2000	

NOTE: the values in parentheses refer to the version for high pressures: H
(*) = Sizes with * are available only in sigle pump version.

4 - CURVES AND CHARACTERISTIC DATA OF GROUP GP1 PUMPS (values obtained with mineral oil with viscosity of 36 cSt at 50°C)

4.1 - Flow rate curves Q=f (n) obtained with operating pressure 0 bar





4.2 - Efficiencies

PUMP NOMINAL SIZE	VOLUMETRIC EFFICIENCY [%]	TOTAL EFFICIENCY [%]
0013	0,90	0,82
0020	0,90	0,85
0027	0,95	0,90
0034	0,91	0,87
0041	0,94	0,90
0051	0,96	0,92
0061	0,96	0,92
0074	0,96	0,90
0091	0,96	0,88

The volumetric and total efficiencies for the various nominal dimensions of the Group GP1 pumps, measured at 1500 rpm and with 150 bar operating pressure, are shown in the table.

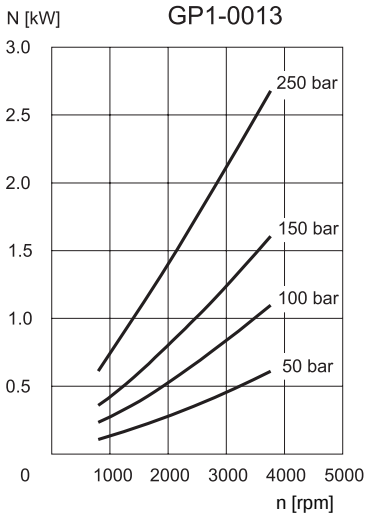
The total efficiency considers the volumetric efficiency and the mechanical efficiency of the pump in the specified operating conditions.

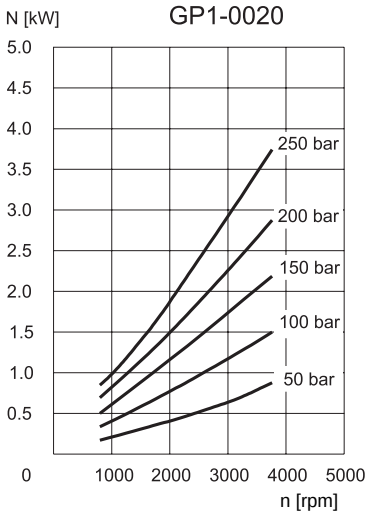
4.3 - Noise level

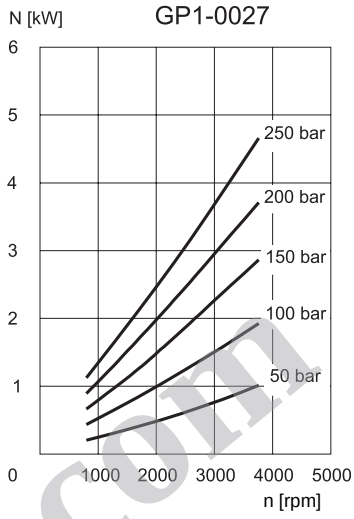
PUMP NOMINAL SIZE	NOISE LEVEL [dB (A)]
0013	65
0020	66
0027	68
0034	68
0041	70
0051	73
0061	73
0074	73
0091	77

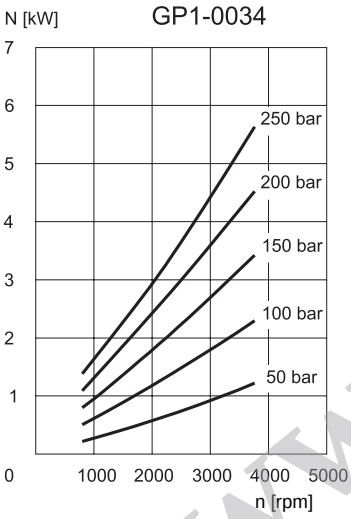
The noise levels for the various nominal dimensions of the Group GP1 pumps, measured at 1500 rpm, with 150 bar operating pressure and measured at a distance of 1 metre from the pump, are shown in the table.

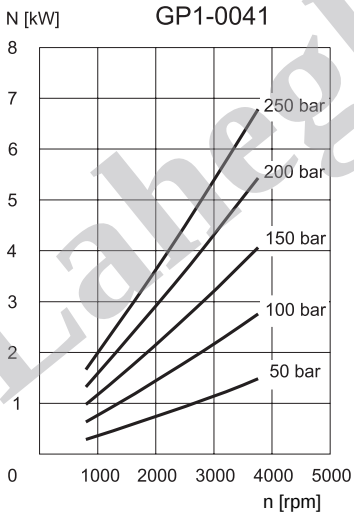
4.4 - Absorbed power curves N=f (n), measured with operating pressures from 50 to 250 bar

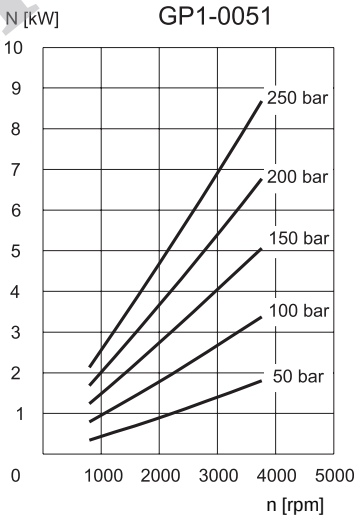


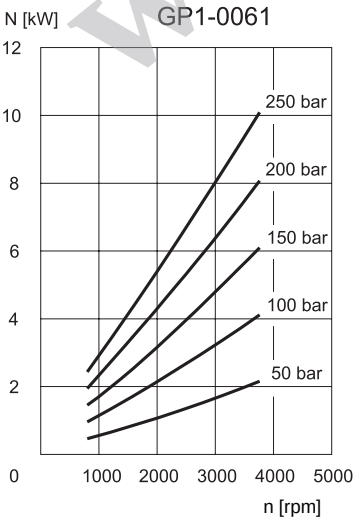


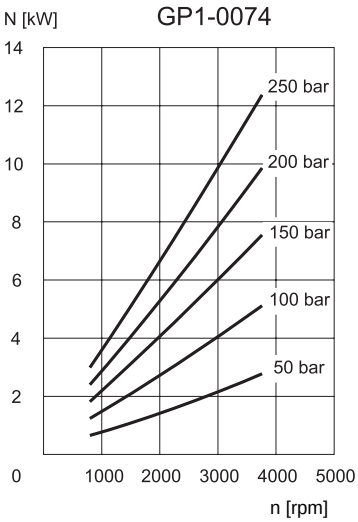


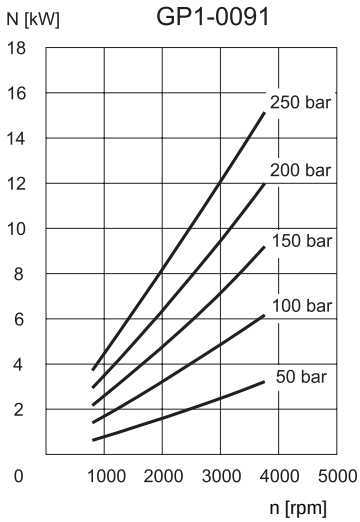






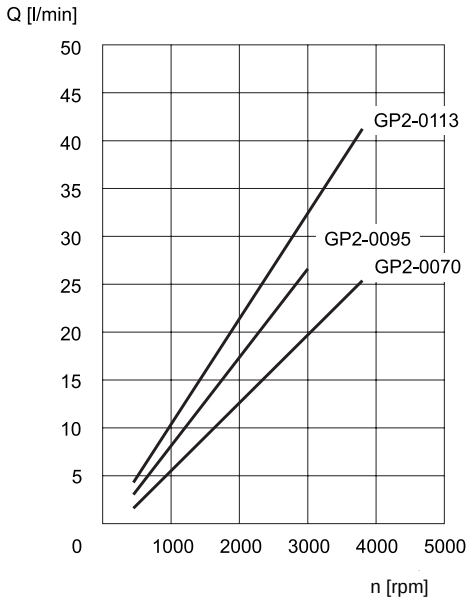


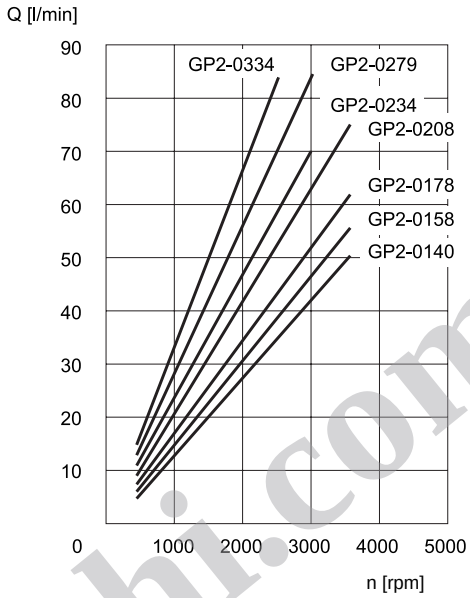




5 - CURVES AND CHARACTERISTIC DATA OF GROUP GP2 PUMPS (values obtained with mineral oil with viscosity of 36 cSt at 50°C)

5.1 - Flow rate curves Q=f (n) obtained with operating pressure 0 bar





5.2 - Efficiencies

PUMP NOMINAL SIZE	VOLUMETRIC EFFICIENCY [%]	TOTAL EFFICIENCY [%]
0070	0,92	0,87
0095	0,95	0,88
0113	0,95	0,87
0140	0,93	0,87
0158	0,95	0,86
0178	0,93	0,85
0208	0,93	0,88
0234	0,97	0,89
0279	0,94	0,85
0344	0,94	0,89

The volumetric and total efficiencies for the various nominal dimensions of the Group GP2 pumps, measured at 1500 rpm and with 150 bar operating pressure, are shown in the table.

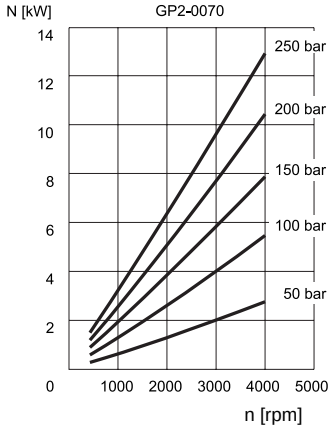
The total efficiency considers the volumetric efficiency and the mechanical efficiency of the pump in the specified operating conditions.

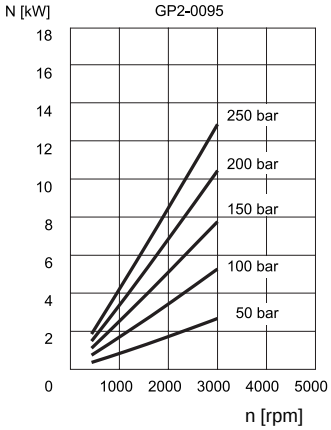
5.3 - Noise level

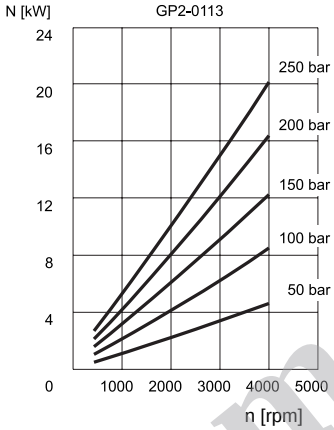
PUMP NOMINAL SIZE	NOISE LEVEL [dB (A)]
0070	75
0095	77
0113	77
0140	72
0158	72
0178	73
0208	74
0234	76
0279	76
0344	81

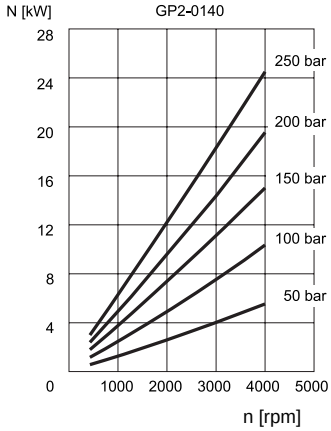
The noise levels for the various nominal dimensions of the Group GP2 pumps, measured at 1500 rpm, with 150 bar operating pressure and measured at a distance of 1 metre from the pump, are shown in the table.

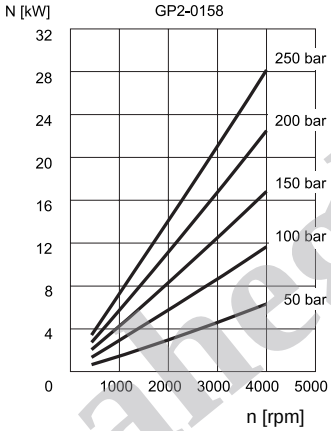
5.4 - Absorbed power curves N=f (n), measured with operating pressures from 50 to 250 bar

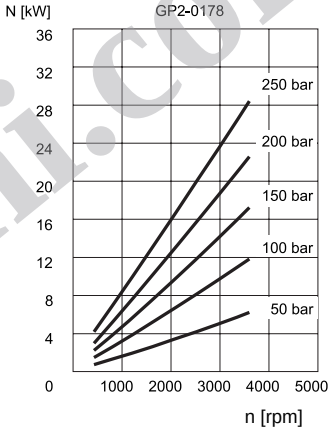


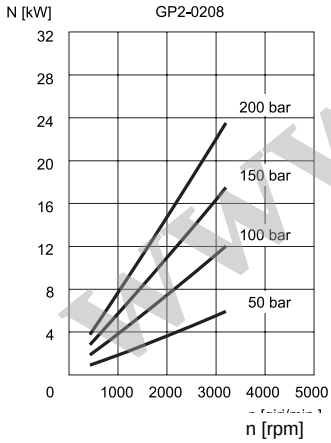


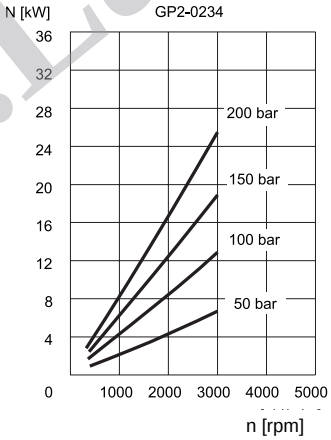


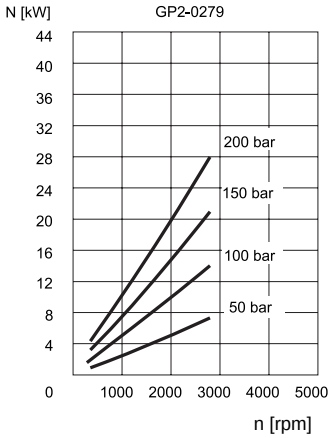


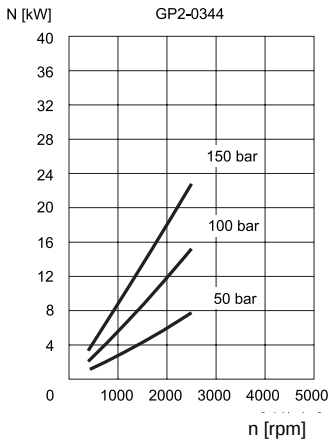






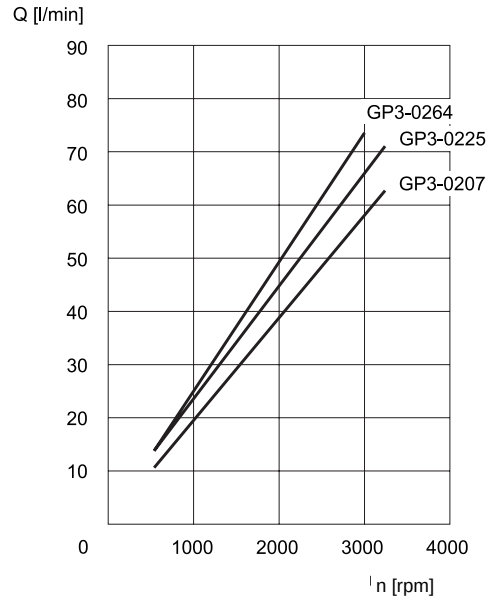


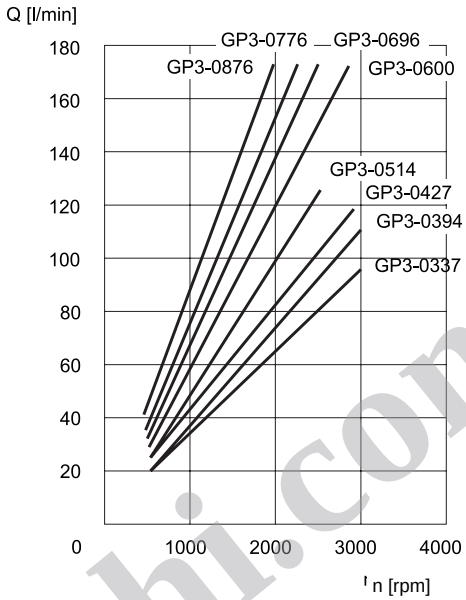




6 - CURVES AND CHARACTERISTIC DATA OF GROUP GP3 PUMPS (values obtained with mineral oil with viscosity of 36 cSt at 50°C)

6.1 - Flow rate curves Q=f (n) obtained with operating pressure 0 bar





6.2 - Efficiencies

PUMP NOMINAL SIZE	VOLUMETRIC EFFICIENCY [%]	TOTAL EFFICIENCY [%]
0207	0,88	0,83
0225	0,97	0,92
0264	0,90	0,84
0337	0,92	0,87
0394	0,91	0,86
0427	0,92	0,82
0514	0,93	0,83
0600	0,85	0,82
0696	0,95	0,90
0776	0,93	0,87
0876	0,89	0,84

The volumetric and total efficiencies for the various nominal dimensions of the Group GP3 pumps, measured at 1500 rpm and with 150 bar operating pressure, are shown in the table.

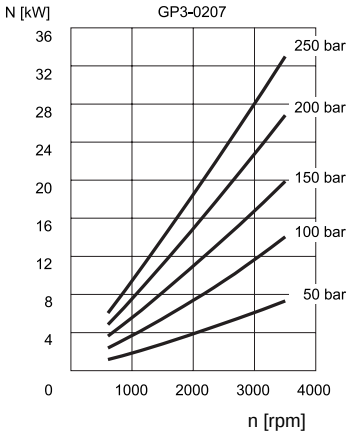
The total efficiency considers the volumetric efficiency and the mechanical efficiency of the pump in the specified operating conditions.

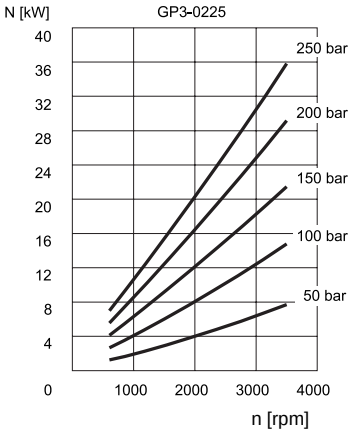
6.3 - Noise level

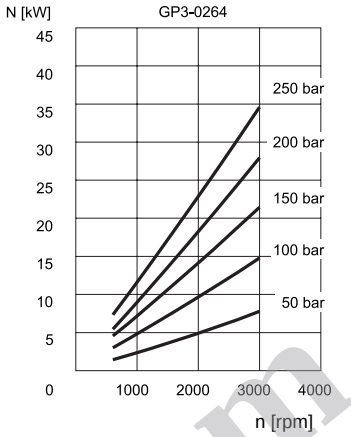
PUMP NOMINAL SIZE	NOISE LEVEL [dB (A)]
0207	75
0225	75
0264	76
0337	72
0394	72
0427	73
0514	75
0600	77
0696	77
0776	76
0876	78

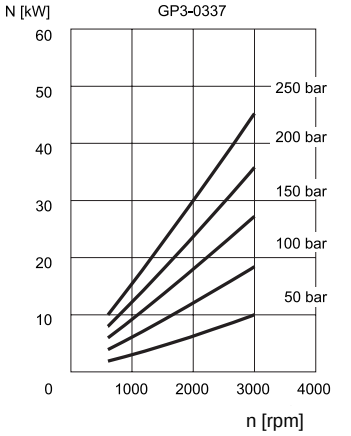
The noise levels for the various nominal dimensions of the Group GP3 pumps, measured at 1500 rpm, with 150 bar operating pressure and measured at a distance of 1 metre from the pump, are shown in the table.

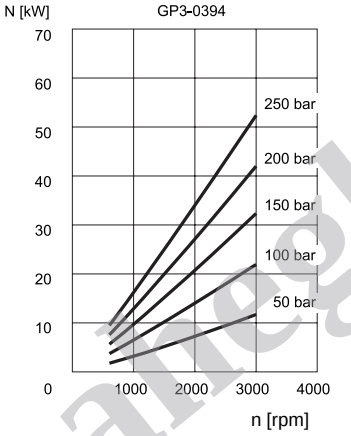
6.4 - Absorbed power curves N=f (n), measured with operating pressures from 50 to 250 bar

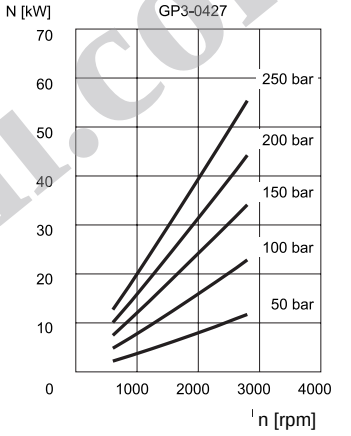


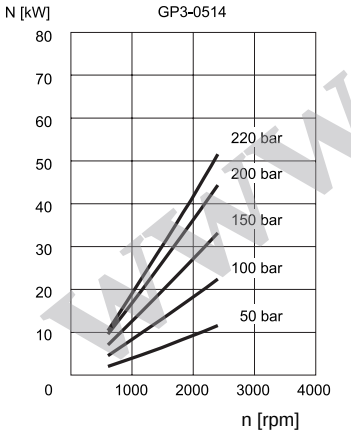


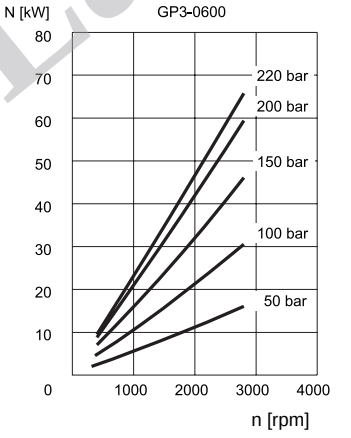


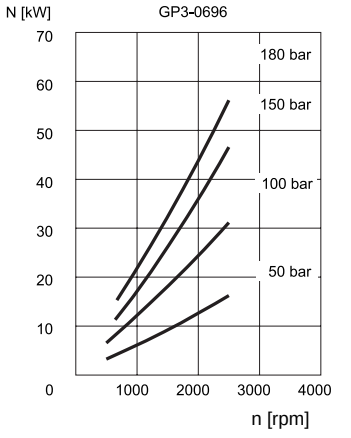


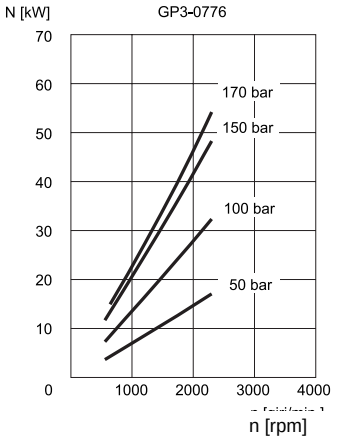


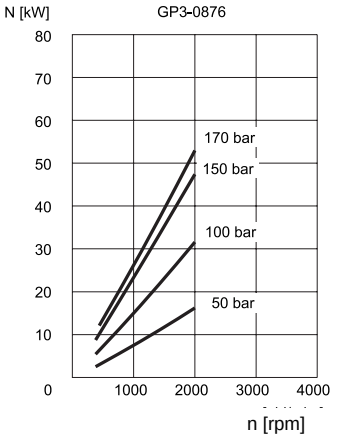






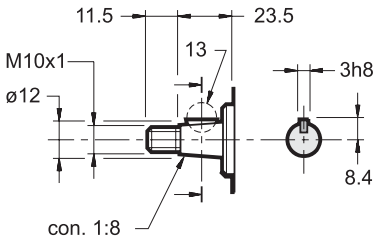




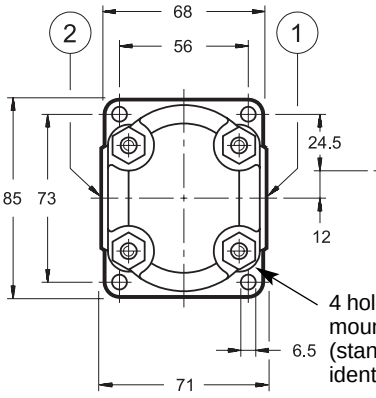


7 - GROUP GP1 PUMPS OVERALL AND MOUNTING DIMENSIONS with standard flange

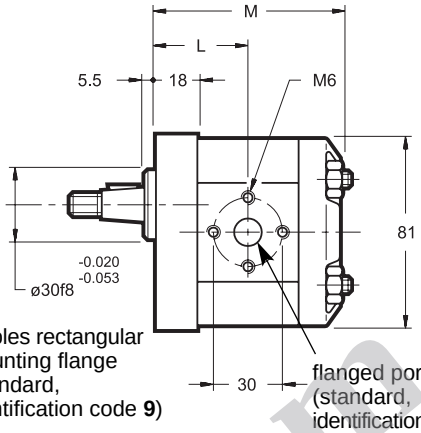
dimensions in mm



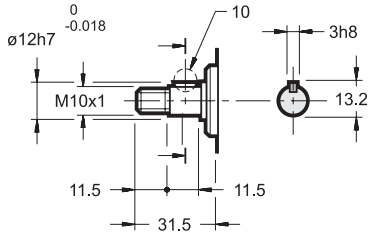
tapered shaft end
(standard, identification code **7**)



4 holes rectangular mounting flange (standard, identification code **9**)



flanged ports (standard, identification code **F**)
also available with BSP ports (identification code **B**)

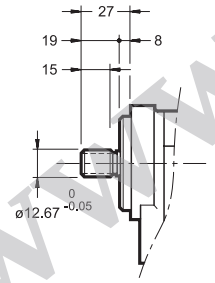


cylindrical with key shaft end
(identification code: **5**)

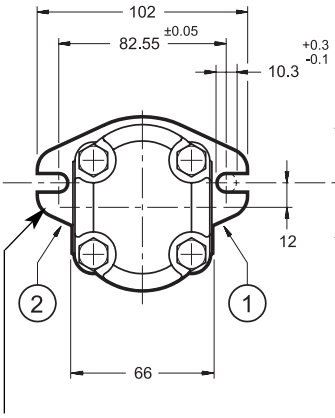
Pump nominal dimension	L	M	1 suction port clockwise rot.		2 delivery port clockwise rot.	
			flange	BSP	flange	BSP
0013	40	80	∅ 12	1/2”	∅ 12	3/8”
0020	41	82				
0027	42	84				
0034	43	86				
0041	44	88				1/2”
0051	45,5	91				
0061	47	94				
0074	49	98				
0091	51,5	103				

8 - GROUP GP1 PUMPS OVERALL AND MOUNTING DIMENSIONS with SAE flange

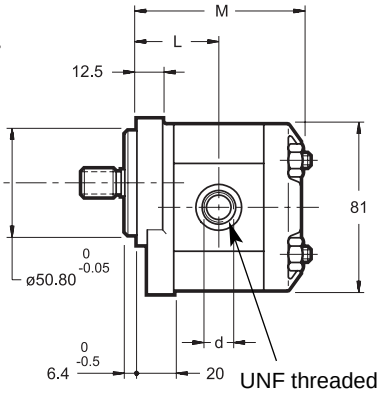
dimensions in mm



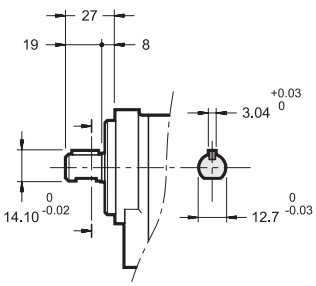
SAE J744 splined shaft end
20/40 d.p. - 9T
(standard, identification code **1**)



2 holes SAE J744 flange - type “B”
(identification code **0**)



UNF threaded ports (identification code **U**)

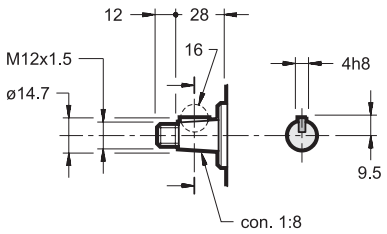


SAE J744 cylindrical shaft end
(identification code: **0**)

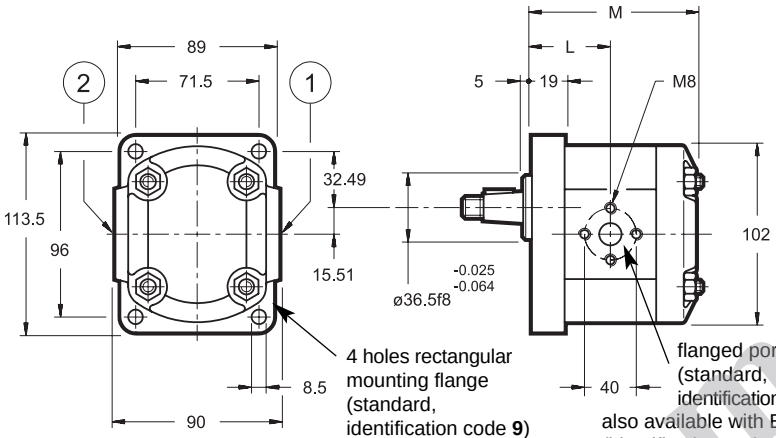
Pump nominal dimension	L	M	1	2
			suction port clockwise rotation	delivery port clockwise rotation
0013	40	80	3/4” - 16 UNF - 2B	9/16” - 18 UNF - 2B
0020	41	82		
0027	42	84		
0041	44	88		
0061	47	94		

9 - GROUP GP2 PUMPS OVERALL AND MOUNTING DIMENSIONS with standard flange

dimensions in mm

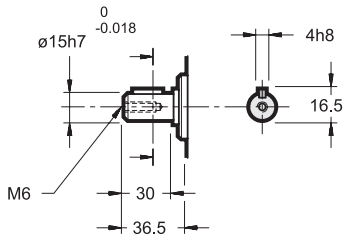


tapered shaft end
(standard, identification code **7**)



4 holes rectangular mounting flange (standard, identification code **9**)

flanged ports (standard, identification code **F**)
also available with BSP ports (identification code **B**)

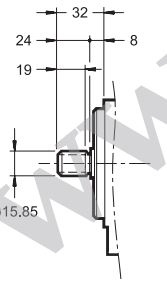


cylindrical with key shaft end
(identification code: **5**)

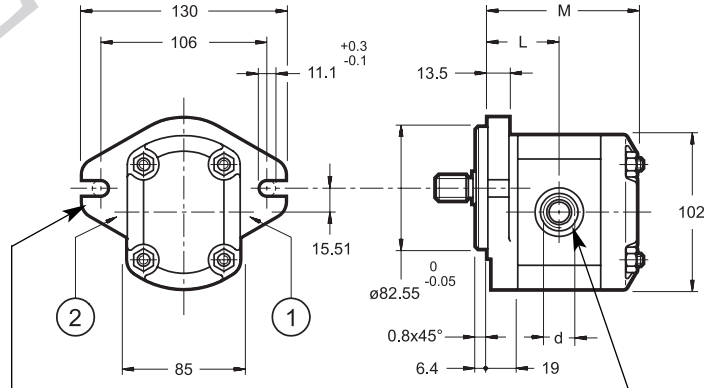
Pump nominal dimension	L	M	1 suction port clockwise rotation		2 delivery port clockwise rotation	
			flange	BSP	flange	BSP
0070	47,5	99	∅ 13	1/2"	∅ 13	1/2"
0095	49,5	103				
0113	51	106	∅ 19	3/4"		
0140	53	110				
0158	54,5	113				
0178	56	116			∅ 19	
0208	58,5	121				
0234	60,5	125				
0279	64	132				
0344	69,5	143	∅ 21			

10 - GROUP GP2 PUMPS OVERALL AND MOUNTING DIMENSIONS with SAE flange

dimensions in mm

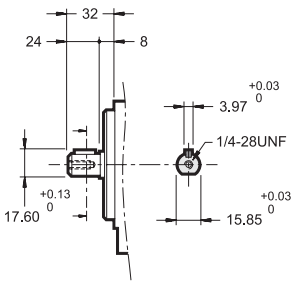


SAE J744 splined shaft end
16/32 d.p. - 9T
(standard, identification code **1**)



2 holes SAE J744 flange - type "B"
(identification code **0**)

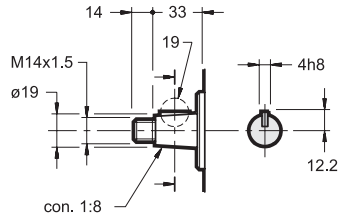
UNF threaded ports
(identification code **U**)



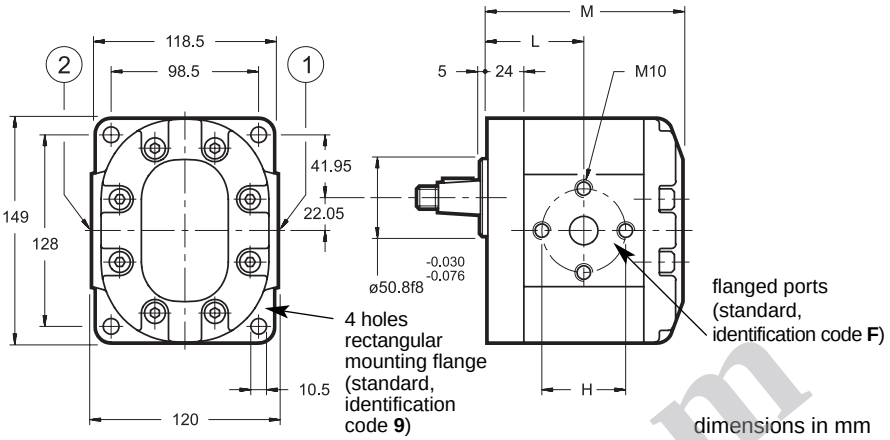
SAE J744 cylindrical shaft end
(identification code: **0**)

Pump nominal dimension	L	M	1 suction port clockwise rotation		2 delivery port clockwise rotation	
			flange	UNF	flange	UNF
0070	47,5	99	∅ 13	11/16" 12 UNF	∅ 13	7/8" 14 UNF
0095	49,5	103				
0113	51	106	∅ 19			
0140	53	110				
0178	56	116				
0208	58,5	121			∅ 19	
0279	64	132				
0344	69,5	143	∅ 21	15/16" 12 UNF		11/16" 12 UNF

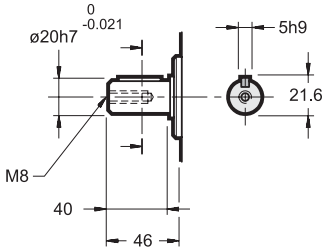
11 - GROUP GP3 PUMPS OVERALL AND MOUNTING DIMENSIONS with standard flange



tapered shaft end
(standard, identification code **7**)



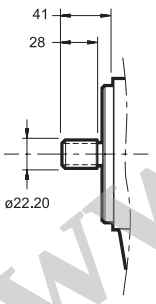
dimensions in mm



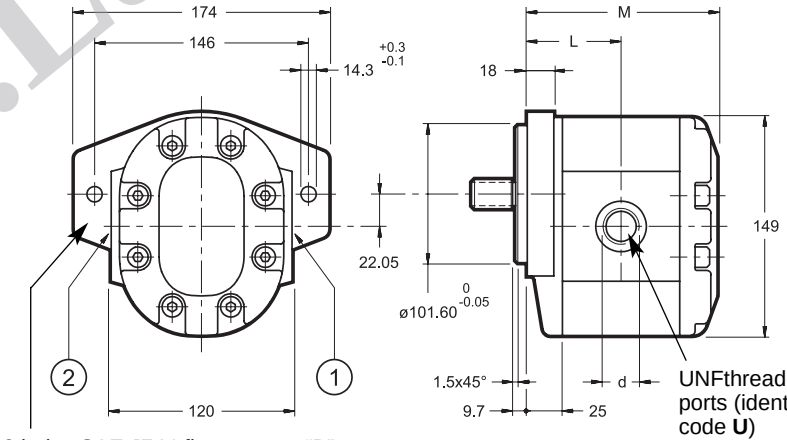
cylindrical with key
shaft end
(identification code: **5**)

Pump nominal dimension	L	M	H	1suction port clockwise rot.		2 delivery port clockwise rot.	
				flange	BSP	flange	BSP
0207	64	129,5	56	∅ 27	not available	∅ 19	not available
0225	64,5	130,5	56				
0264	66	133,5	56				
0337	68,5	138,5	56				
0394	70,5	142,5	56				
0427	72	145,5	51			∅ 27	
0514	75	151,5	56				
0600	78	157,5	62	∅ 33			
0696	81,5	164,5	62				
0776	84	169,5	62				
0876	87	175,5	62				

12 - GROUP GP3 PUMPS OVERALL AND MOUNTING DIMENSIONS with SAE flange

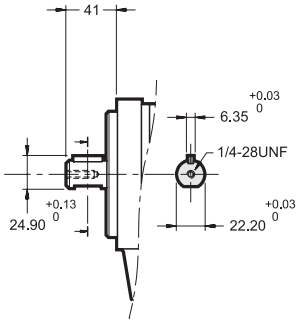


SAE J744 splined shaft end
16/32 d.p. - 13T
(standard, identification code **1**)



2 holes SAE J744 flange- type “B”
(identification code **0**)

dimensions in mm



SAE J744 cylindrical shaft end
(identification code: **0**)

Pump nominal dimension	L	M	1suction port clockwise rot.		2 delivery port clockwise rot.	
			flange	UNF	flange	UNF
0225	65,5	131,5	∅ 27	15/16” 12 UNF	∅ 19	11/16” 12 UNF
0264	67	134,5				
0337	69,5	139,5				
0394	71,5	143,5		15/8” 12 UNF		
0427	73	146,5			∅ 27	
0514	76	152,5				
0600	79	158,5	∅ 33	17/8” 12 UNF		15/16” 12 UNF
0696	82,5	165,5				
0776	85	170,5				
0876	88	176,5				

13 - INSTALLATION

– The GP gear pumps can be installed with the shaft oriented in any position.

– Be sure the control rotation direction corresponds to the direction of the arrow marked on the pump before putting the pump into operation.

– It is necessary to vent the air from the delivery connection before operating it the first time.

– The pump start up, especially at a cold temperature, should occur with the pump unloading.

– The suction line must be suitably sized to facility the flow of the oil. Bends and restrictions or an excessive line length can impede correct operation of the pump. It is advisable that the speed of 2 ÷ 3 m/sec is not exceeded in the suction line.

– The minimum suction pressure allowed is -0,3 bar relative. The pumps can not function with suction pressure.

– The gear pumps must not operate with a rotation rating of less than the minimum rotation speed (see table 3 - performance ratings). They must be filled with the same plant operation oil before installation. Filling is done through the connection lines. If necessary, rotate the pump manually.

– The motor-pump connection must be carried out directly with a flexible coupling able to compensate any offsets. Couplings that generate axial or radial loads on the pump shaft are not allowed.

14 - MULTIPLE PUMPS

The possibility to couple several pumps makes it possible to create multi-flow groups with independent hydraulic circuits.
While sizing coupled pumps, it is necessary to make reference to the following conditions:

- The coupling can be carried out between pumps with the same dimensions or to a size of decreasing order.
- The max. rotation speed is determined by the pump with the lowest speed.
- The values of the max. applicabe torque can not be exceeded.

14.1 - Max. applicable torque

The input torque (M) for each pump is given by the following ratio:

$$M = \frac{9550 \cdot N}{n} = [Nm]$$

n = rotation speed [rpm]

where the absorbed power (N) is given by:

Q = flow rate [l/min]

Δp = differential pressure between the pump suction and delivery [bar]

$$N = \frac{Q \cdot \Delta p}{600 \cdot \eta_{tot}} = [kW]$$

η_{tot} = total efficiency (see diagrams in par. 4.2 - 5.2 - 6.2).

or it can be obtained from the diagrams ABSORBED POWER (see par. 4.4 - 5.4 - 6.4).

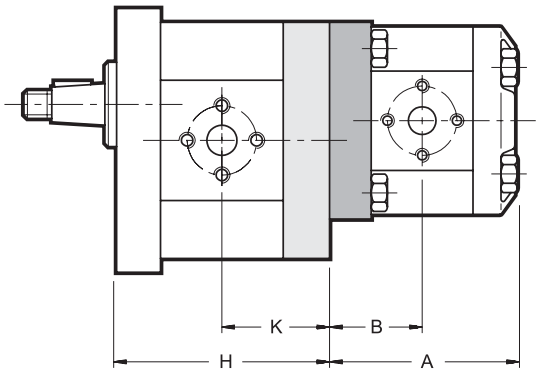
If several pumps are coupled, the torque of each single pump has to be added to the torque of subsequent pumps when they are loaded simultaneously.
The obtained torque value for each pump has to be lower than the value specified in the table below:

If the obtained torque values are higher than the ones stated in the table, it is necessary to reduce the working pressure value or to replace the overloaded pump with a pump suitable to bear the required torque.

FRONT PUMP SIZE	MAX TORQUE APPLICABLE TO THE SHAFT OF THE FRONT PUMP [Nm]			MAX APPLICABLE TORQUE [Nm] (not simultaneously to the front pump)		
	tapered shaft with key (code 7)	cylindrical shaft with key (code 5)	SAE J744 splined shaft (code 1)	PUMP TO BE MATED		
				GP1	GP2	GP3
GP1	60	50	-	40	-	-
GP2	130	70	120		110	
GP3	280	170	300			250

15 - MULTIPLE PUMPS OVERALL DIMENSIONS

dimensions in mm

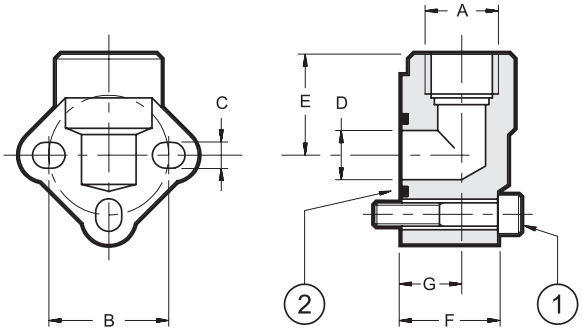


NOTE: For the dimensions of groups composed of three or more pumps, please consult our Technical Dept.

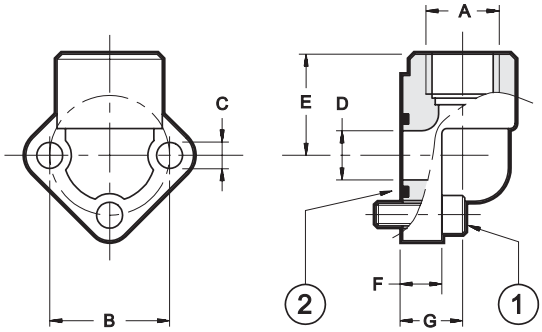
PUMP SIZE	NOMINAL SIZE	FRONT PUMP		REAR PUMP	
		H	K	A	B
GP1	0013	86	46	86	46
	0020	88	47	88	47
	0027	90	48	90	48
	0041	94	50	94	50
	0051	97	51,5	97	51,5
	0061	100	53	100	53
GP2	0070	101	53,5	105	53,5
	0095	105	55,5	109	55,5
	0113	108	57	112	57
	0140	112	59	116	59
	0158	115	60,5	119	60,5
	0178	118	62	122	62
	0208	123	64,5	127	64,5
	0279	134	70	138	70
GP3	0207	135,5	71,5	137	71,5
	0225	136,5	72	138	72
	0264	139,5	73,5	141	73,5
	0337	144,5	76	146	76
	0394	148,5	78	150	78
	0427	151,5	79,5	153	79,5
	0514	157,5	82,5	159	82,5
	0600	163,5	85,5	165	85,5
	0696	170,5	89	172	89
	0776	175,5	91,5	177	91,5
	0876	181,5	94,5	183	94,5

16 - CONNECTION FLANGES

dimensions in mm



ALUMINIUM FLANGES
TYPE **RP**



STEEL FLANGES
TYPE **RPA**

ALUMINIUM FLANGES TYPE RP

Pump size	Flange code	Flange description	p_{max} [bar]	∅A	B	C	∅D	E	F	G	① bolts	②
GP1	0610506	RP1 - 38	180	3/8" BSP	30	6,5	12,5	30	26	18	n. 3 M6 x 35	OR 121
	0610248	RP1 - 12		1/2" BSP	30	6,5	12,5	30	26	18		
GP2	0610508	RP2 - 12		1/2" BSP	40	8,5	18,5	40	31	20	n. 3 M8 x 45	OR 130
	0610249	RP2 - 34		3/4" BSP	40	8,5	18,5	40	31	20		
GP3	0610717	RP3 - 34		3/4" BSP	51	10,5	25	46	43	26	n. 3 M10 x 60	OR 4118
	0610250	RP3 - 100		1 " BSP	56	10,5	25	46	43	26		
	0610251	RP35 - 114		1 1/4 " BSP	62	13	32	57	17	33,5	n. 2 M10 x 60	OR 4143

STEEL FLANGES TYPE RPA

Pump size	Flange code	Flange description	p_{max} [bar]	∅A	B	C	∅D	E	F	G	① 3 bolts	②
GP1	0771048	RPA1 - 038	315	3/8" BSP	30	6,5	12	24	17	9,5	M6 x 20	OR 121
	0771049	RPA1 - 12		1/2" BSP	30	6,5	12	24	17	9,5		
GP2	0771050	RPA2 - 12		1/2" BSP	40	8,5	20	36	22	11,5	M8 x 25	OR 132
	0770615	RPA2 - 34		3/4" BSP	40	8,5	20	36	22	11,5		
GP3	0771051	RPA3 - 34A		3/4" BSP	51	10,5	24	46	26	13	M10 x 30	OR 4118
	0770617	RPA3 - 100A		1" BSP	51	10,5	24	46	26	13		
	0770618	RPA3 - 34B		3/4" BSP	56	10,5	24	46	26	13		
	0770619	RPA3 - 100B		1" BSP	56	10,5	24	46	26	13		
	0771052	RPA35 - 114A		1 1/4 " BSP	62	13	31	55	35	14	M10 x 35	OR 4150

DUPLOMATIC HYDRAULICS

DUPLOMATIC OLEODINAMICA SpA
20025 LEGNANO (MI) - P.le Bozzi, 1 / Via Edison
Tel. 0331/472111 - Fax 0331/548328