

Targeted engineering design

Hedge and Grasscutter mowers



Fixed displacement axial piston pump and motor swash plate design for open circuit

One of Casappa's aims is to produce targeted engineering solutions to improve machine performance.

The new fixed displacement axial piston pump and motor has a higher output than gear pumps and motors.

The standardized connecting flanges comply with SAE and European regulations and permit use for diverse applications.

The design itself is extremely compact while integrating a number of functions, with an electrically controlled valve on the pump and anti-shock valves on the motor.

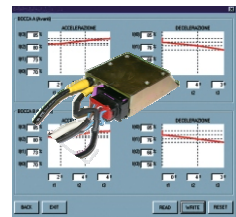
The compact motor size means it can be directly coupled to the bush-cutter's rotor.

This open circuit solution does not in any way restrict the use of all the machine's accessories and avoids all the problems that may be encountered with closed circuits.

Pump

➤ Integrated pump functions

- Three-position electrically controlled valve with relief valve
- Electronic control of the rotor start-up and stop ramps
- Rotation reverse with controlled delay
- Easy integration with the machine cabin controls
- Auxiliary gear pump with common suction, available with either cast-iron or aluminum body



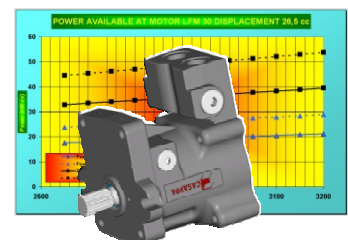
Motor

➤ Excellent performance

- Power up to 63 kW – 85 Hp output (at maximum speed)

➤ Flexibility

- Reversible rotation with integral anti-shock valves
- European and SAE standard mounting flanges
- Side or rear inlet options
- Compact size



Filters

➤ Long life hydraulic components with Ikron-Casappa filters

- Full range
- Filtering elements in line with world standards



Technical data - Pump

Technical data (with HL or HLP mineral oil based hydraulic fluid to DIN 51524)

Pump type	LFP 48.27 (*)	LPF 48.34 (*)	LFP 48.36,7	LFP 48.45,5 (*)	LPF 48.48	
Displacement (theor.) V [cm ³ /rev]	27	34	36,7	45,5	48,2	
Direction of rotation defined looking at the drive shaft	Anti-clockwise (S) - Clockwise (D)					
Drain	Internal					
Max. inlet pressure [bar ass.]	min.	0,7				
	max.	3				
Max. outlet pressure [bar]	cont.	280				
	int.	315				
	peak	350				
Max speed n _{max} [min ⁻¹]	(1) 2600					
Max speed with inlet . supercharged n _{max} [min ⁻¹]	@ V _{max} 3100					
Max. delivery (theor.) [l/min]	@ 2600 min ⁻¹ 70,2 88,4 95,4 118 125					
Max. power (theor.) (p= 280 bar) [KW]- ((cv))	@ 2600 min ⁻¹ 32,1 (43,7) 41,2 (56) 43,7 (59,4) 55 (74,8) 58,5 (79,6)					
Max. torque (theor.) [Nm]	p = 280 bar	120	151	163	200	214
	p = 100 bar	43	54	58	72	76
Moment of inertia [kgm ²]	0,0030					
Max. permissible loading on drive shaft [N]	F _{ax}	1500				
	F _{rad}	1500				
Fill capacity [l]	0,9					
Mass (without oil) [kg]	35					
Seals	N= Buna					
Operating temperature [°C]	with Buna seals -25 +90					

(*) Availability

cont. = continuous

int. = intermittent

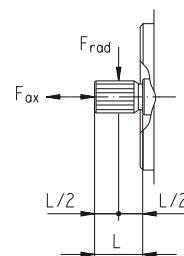
F_{ax} = axial force

F_{rad} = radial force

(1) = with an inlet pressure of 1 bar abs.

For different working conditions, please consult our sales department.

External load position



D042-D 10/1102

FLUID VISCOSITY

The fluid viscosity range for optimal use of PLATA pumps and motors is between 15 and 35 mm²/s (cSt).

Limit functional conditions are:

1500 mm²/s at start up at -25 °C

10 mm²/s at maximum temperature of 90 °C.

FILTERS

For a maximum pump life, we recommend the use of filtration systems suitable to contain the hydraulic fluid contamination in the class 16/13 conforming to ISO 4406. Satisfactory operation is obtained also with contamination class 19/15 conforming to ISO 4406 or with cleanliness grade 9 conforming to class NAS 1638.

CASAPPA recommends to use its own production filters:



01/03.03

Q	[l/min]	Delivery
M	[Nm]	Torque
P	[kW]	Power
P	[cv]	Power [kW] • 1,36
V	[cm ³ /rev]	Displacement
n	[min ⁻¹]	Speed
p	[bar]	Pressure
$v = v(V, p, n)$		Volumetric efficiency
$m = m(V, p, n)$		Mechanical efficiency
$t = v \cdot m$		Overall efficiency

DESIGN CALCULATION FOR PUMP

$$Q = V \cdot v \cdot n \cdot 10^{-3} \quad [\text{l/min}]$$

$$M = \frac{p \cdot V}{62,83 \cdot m} \quad [\text{Nm}]$$

$$P = \frac{p \cdot V \cdot n}{600 \cdot 1000 \cdot t} \quad [\text{kW}]$$

Technical data - Motor

Technical data (with HL or HLP mineral oil based hydraulic fluid to DIN 51524)

Motor type		LFM 30.22	LPFM30.26,5 (*)	LFM 30.28,5	LFM 30.30,2 (*)
Displacement (theor.) V	[cm ³ /rev]	22	26,5	28,5	30,2
Direction of rotation defined looking at the drive shaft		Reversible (R)			
Drain		External			
Max. inlet pressure	[bar]	cont.	280		
		int.	315		
		peak	350		
Max. drain line pressure	[bar abs.]	2			
Max speed n _{max}	[min ⁻¹]	4900	4800	4700	4500
Max. delivery (theor.)	[l/min] @ n _{max} min ⁻¹	108	127	134	136
Max. power (theor.) (p= 280 bar)	[kW]-[(cv)] @ 2400 min ⁻¹	24,64 (33,51)	29,68 (40,36)	31,92 (43,41)	33,82 (46)
Max. power (theor.) (p= 280 bar)	[kW]-[(cv)] @ 2800 min ⁻¹	28,75 (39,1)	34,62 (47,08)	37,24 (50,64)	39,46 (53,66)
Max. power (theor.) (p= 280 bar)	[kW]-[(cv)] @ 3200 min ⁻¹	32,85 (44,68)	39,57 (53,81)	42,56 (57,88)	45,09 (61,32)
Max. torque (theor.)	[Nm] p = 280 bar	98	118	126	134
Starting torque	[Nm] p = 250 bar	55	66,4	71,4	75,6
Max. permissible loading on drive shaft	[N]	F _{ax}	1000		
		F _{rad}	1500		
Fill capacity	[l]	0,5			
Mass (without oil)	[kg]	14			
Seals		N= Buna			
Operating temperature	[°C] with Buna seals	-25 +90			

(*) Availability

cont. = continuous

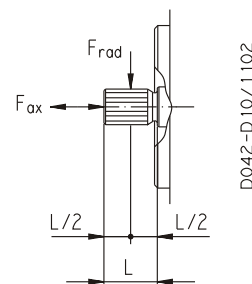
int. = intermittent

F_{ax} = axial force

F_{rad} = radial force

For different working conditions, please consult our sales department.

External load position



Q	[l/min]	Delivery
M	[Nm]	Torque
P	[kW]	Power
P	[cv]	Power [kW] • 1,36
V	[cm ³ /giro]	Displacement
n	[min ⁻¹]	Speed
p	[bar]	Pressure
$v = v(V, p, n)$		Volumetric efficiency
$m = m(V, p, n)$		Mechanical efficiency
$t = v \cdot m$		Overall efficiency

DESIGN CALCULATION FOR MOTOR

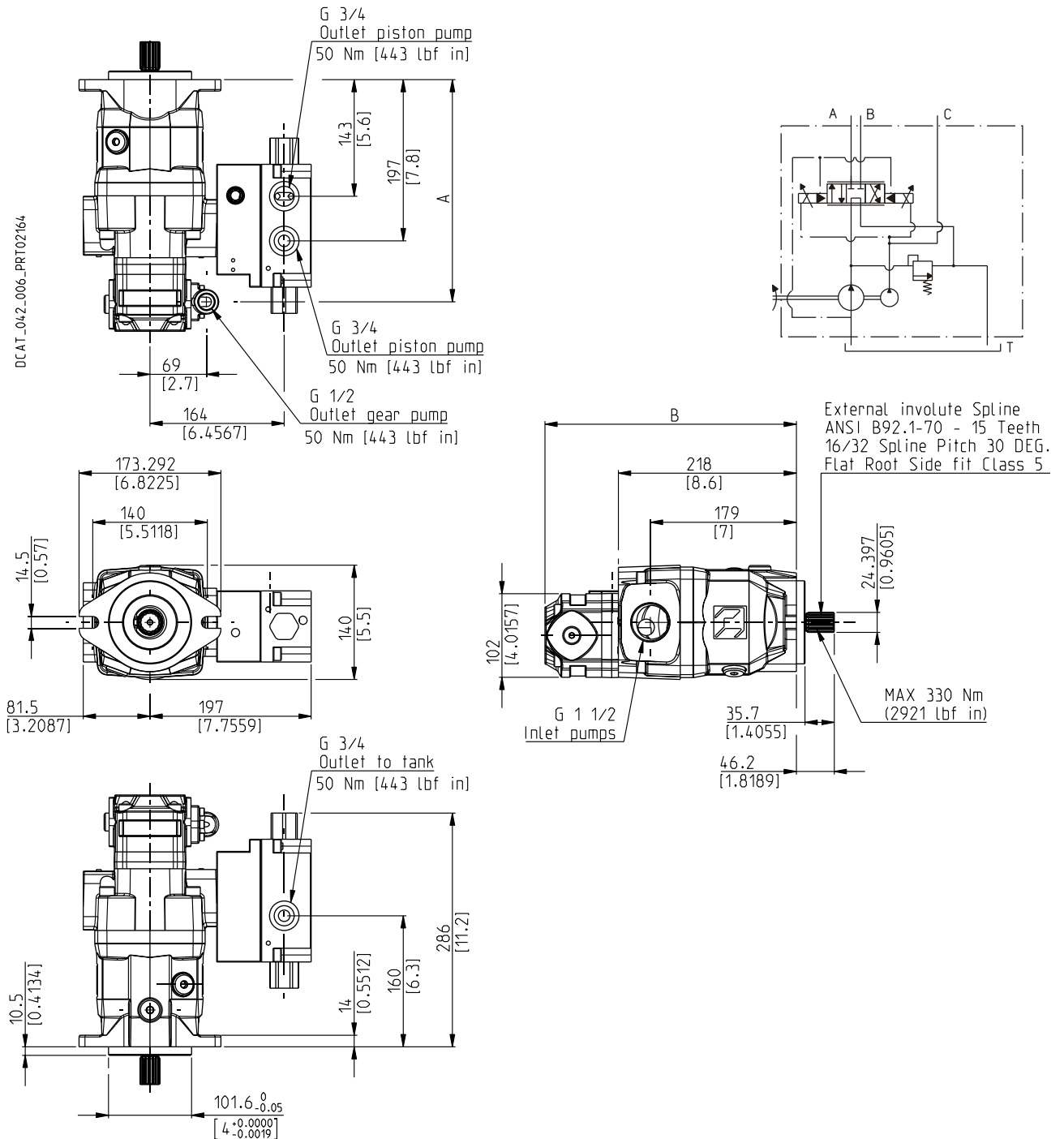
$$Q = \frac{V \cdot n \cdot 10^{-3}}{v} \quad [\text{l/min}]$$

$$M = \frac{p \cdot V \cdot m}{62,83} \quad [\text{Nm}]$$

$$P = \frac{p \cdot V \cdot n \cdot t}{600 \cdot 1000} \quad [\text{kW}]$$

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Fixed displacement axial piston pump swash plate design

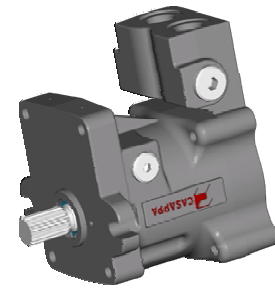


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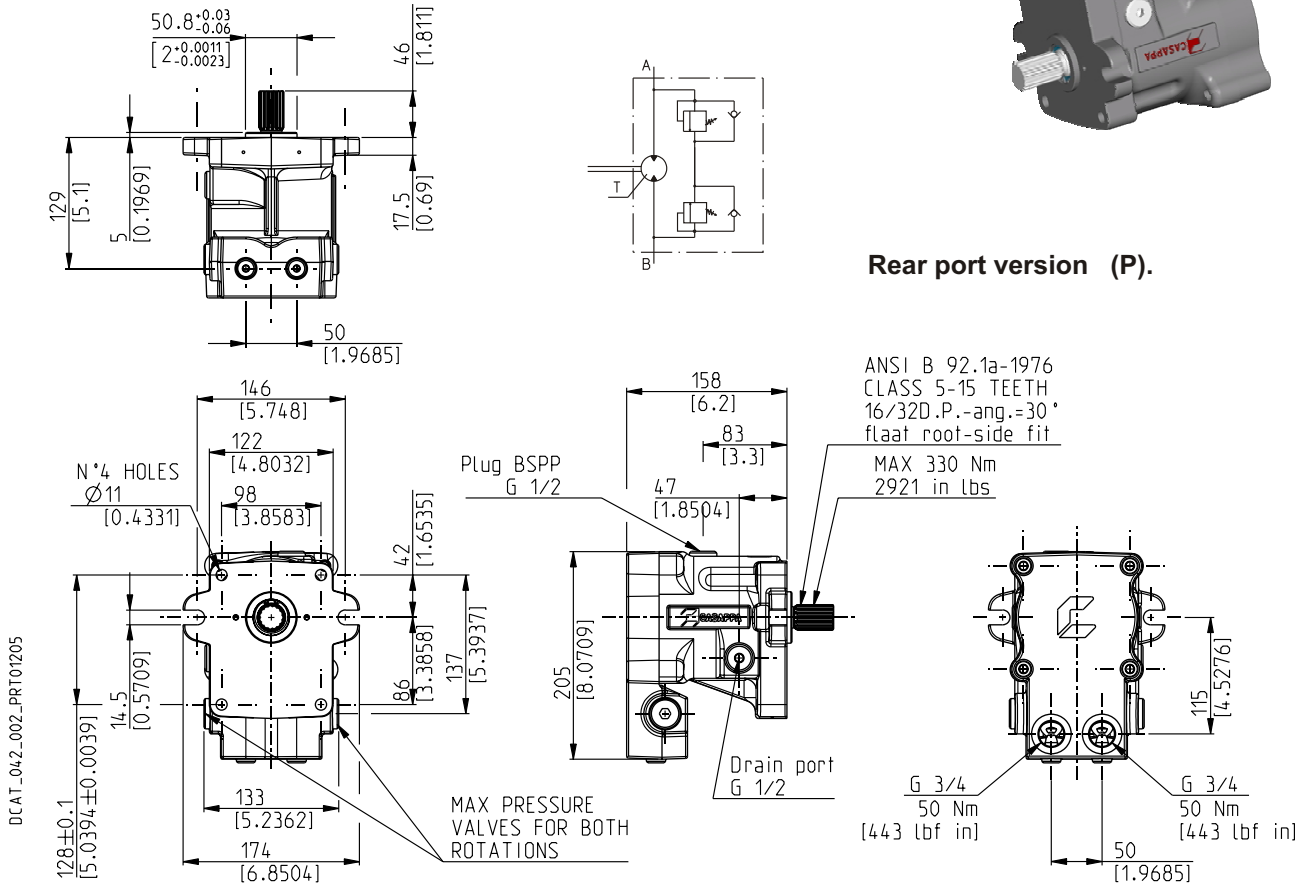
To place your order contact our sales service dept.

Auxiliary gear pump cast-iron body - KAPPA series									
	20.4	20.6,3	20.8	20.11,2	20.14	20.16	20.20	20.25	20.31,5
A (mm)	260	262	264,5	268	266,5	272	278,5	271,5	281,5
B (mm)	302,5				308			323	

Fixed displacement axial piston motor swash plate design

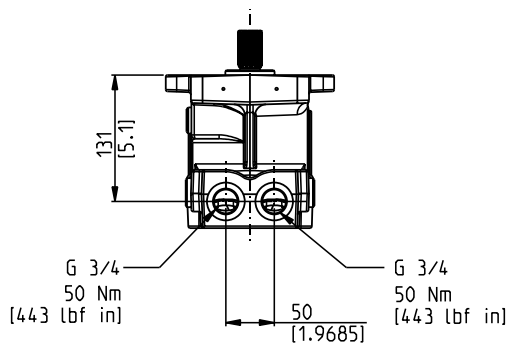


Rear port version (P).

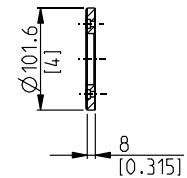


Side port version (L).

It is not possible to have both side and rear inlets on the same motor.



Conversion flange E3 - S5



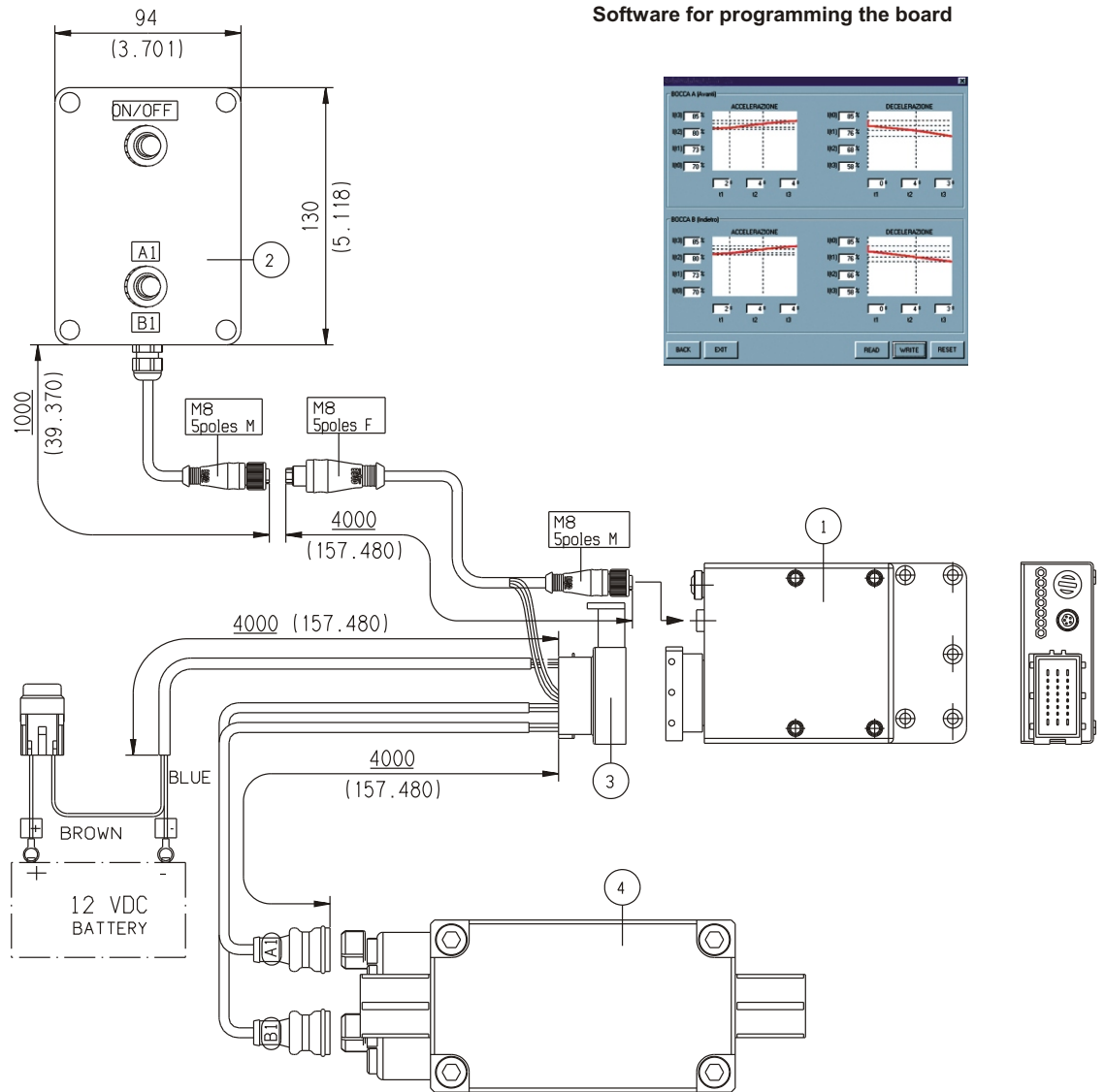
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Electronic control components for integral pump valve

Software for programming the board

D042-D09/1102



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Item	Description
1	Electronic board
2	Control box
3	Cable kit
4	Electrically controlled valve

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