



2.1

HP3G SERIES

Swash-plate Type
Axial Piston Variable Displacement Pump

HP3G series variable axial piston pump with swashplate design for hydrostatic drives in closed circuit, high pressure, high speed, high reliability, low noise, can be applied in Aerial work platform.

Applied in medium pressure closed circuit
Size: 46
Rated pressure (bar): 345
Max. pressure (bar): 385



Am I rc I rq

Technical Data	02-03
Type introduction	04-05
Control mode	
· Electrical displacement control (EDC)	06
Pump principle installation size	
· HP3G 46	07-10

Dc_rspcq

- Variable axial piston pump of swashplate design for hydrostatic drives in closed circuit.
- The fow is proportional to the drive speed and displacement. The fow increases as the angle of the swashplate is adjusted from zero to its maximum value.
- Flow direction changes smoothly when the swashplate is moved through the neutral position.
- Two pressure-relief valves are provided on the high pressure ports to protect the hydrostatic transmission (pump and motor) from overload.
- The integrated charge pump can provide system replenishing and cooling fluid fow.
- High reliability, long working lifetime
- Compact structure, high power density.

Technical data

Size		46
Displacement (cc/rev)		45.9
Speed	Rated (rpm)	3000
	Max. (rpm)	4100
	Min. (rpm)	500
Pressure	Rated (bar) (relative to Charge pressure)	345
	Max. (bar) (relative to Charge pressure)	385
	Min. low loop pressure(bar) (relative to Charge pump)	10
Charge pressure (relative to Charge pump)	Min. (bar)	6
	Max. (bar)	31
Control Pressure (relative to Charge pump)	Min. (bar) (EDC control)(bar)	21.5
Charge pump displacement (cc/rev)		13.9
Casting pressure	Rated (bar)	1.7
	Max. (bar) (Short-time peak pressure)	5.2
Suction pressure (Absolute pressure)	Rated (bar) Oil viscosity ≤ 30mm ² /s	0.8
	Max. (bar)	6
Oil viscosity (mm ² /s)		10~1000, Best range: 16~36
Oil Temperature (ar 5Oil Te ak p i t w)		t -

Technical data

Permissible input and through-drive torques			
Size			
1 μ ss Š t Å Å na T u			

Type introduction

HP3G	D	46	E1	M	/	R	N	B1	F4	A2	K2	2	P	S

Npmb sar qcpgcq

Variable piston pump of swashplate in closed circuit	HP3
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Lm k g l _ j npcqqspc

nominal pressure 345 bar	G
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Bgq nj _ ac k c l r

Displacement cc/rev	46
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Am l r pmj k mbc

	46	Code
High current electric proportional displacement control (HC EDC), oil filled, Deutsch DT04-2P, voltage 12V DC, control range: 600mA–1650mA	•	E1
High current electric proportional displacement control (HC EDC), oil filled, Deutsch DT04-2P, voltage 24V DC, control range: 200mA–500mA	•	E2
Hydraulic pilot proportional control	•	H2

Bgq nj _ ac k c l r Jg k g rcpq

Without displacement limiters	Blank
With displacement limiters	M

Pmr _ r g m l

Right hand (clockwise)	R
Left hand (counter-clockwise)	L

Qc _ j g l e k _ rcpq _ j

NBR (nitrile rubber)	N
Shaft seal in NBR (nitrile rubber)	

Kms l r g l e _ l e c _ l b g l n s r q f _ dr

Mounting fange	Input shaft	46	Code
SAE B J744-101-2	ANSI B92.1b 7/8 in 13T 16/32DP	•	B1
	ANSI B92.1b 1 in 15T 16/32 DP	•	B3
	ANSI B92.1b 1 1/4 in 14T 12/24 DP	•	B4

Type introduction

@mmqr ns k n _ l b p m r _ p w e p m s n a m l e s p _ r g m l

Standard rotary group, without boost pump			K
Standard rotary group, boost pump integrated	Charge pump displacement (cc/rev)	46	Code
	13.9	●	F4

R f p m s e f b p g t c m n r g m l

Through drive		46	Code
Without through drive		●	Blank
Flange	Splined shaft		
SAE A J744-82-2	ANSI B92.1b 5/8 in 9T 16/32 DP	●	A1
	ANSI B92.1b 3/4 in 11T 16/32 DP	●	A2
SAE B J744-101-2	ANSI B92.1b 7/8 in 13T 16/32DP	●	B1

F g e f + n p c q q s p c p c j g c d t _ j t c

High-pressure relief valve	Setting range Δp	46	Code
High pressure relief valve setting	250 bar	●	K2
	280 bar	●	K4
	300 bar	●	K5
(di ferential pressure: relative to Charge pressure)	320bar	●	K6
	330 bar	●	K7
	345 bar	●	K8

Remark: Please contact us for configurations or pressures not shown in above form.

Q c r r g l e n p c q q s p c m d r f c j m u n p c q q s p c p c j g c d t _ j t c

21.5 bar	1
24 bar	2
26.9 bar	3

A m l r p m j m p g a c

Control ori fce of Servo A&B φ0.9mm	P
Control ori fce of Servo A&B φ1.4mm	R

D g j r p _ r g m l ` m m q r a g p a s g r - c v r c p l \_ j ` m m q r n p c q q s p c q s n n j w

Filtration boost circuit/external boost pressure supply	46	Code
Filtration in the boost pump suction line	●	S
Filtration in the boost pump pressure line (ports with external filter circuit)	●	D

Remark ● = Available ○ = On request

Electrical displacement control (EDC)

The High Current Electrical Displacement Control (HC EDC) consists of a pair of proportional solenoids on each side of a three-position, four-way porting spool. The proportional solenoid applies a force input to the spool, which ports hydraulic pressure to either side of a double acting servo piston. Differential pressure across the servo piston rotates the swashplate, changing the pump's displacement from full displacement in one direction to full displacement in the opposite direction.

A serviceable 125 µm screen is located in the supply line immediately before the control porting spool.

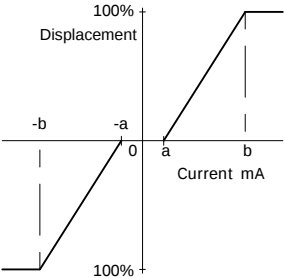
Features:

- Precision parts provide repeatable accurate displacement settings with a given input signal.
- Both ends of the double acting servo piston are drained to case when input signal current is not present. The servo piston is coupled to a spring centering mechanism.

Benefits:

- Simple, low-cost design.
- Pump will return to neutral after prime mover shuts down.
- Pump will return to neutral if external electrical input signal fails or if there is a loss of charge pressure

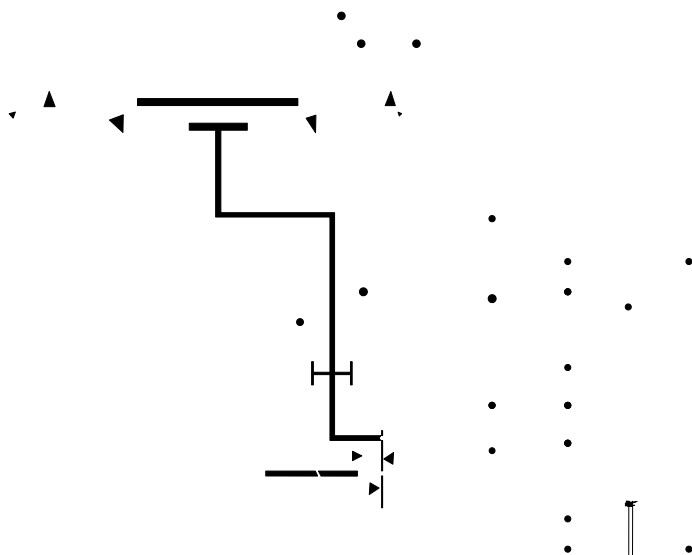
• Pump displacement — control current



• EDC Response time

Orifice diameter* mm [in]	Average response time [seconds]	
	Acceleration	Deceleration
1.2 [0.046]	2.0	1.6
None	0.9	1.0

*Contact Hengli for special orifice combinations.



Installation size

HP3G46 installation size

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