

MH500 Hydraulic Servo Project Case

——WALTON Haitian 800T injection molding machine

Summary:

WALTON is the biggest electrical products manufacturer, such as AC, Freezer, TV or cellphones, it is a well known brand in Bangladesh, also export its products to some around countries. This industrial park consist employees about 60000 employees, include Walton Hi-tech and Micro-tech.

Key Words : Injection molding machine, Hydraulic Servo.

1, Project introduction

Haitian 800T injection molding machine, this machine original equip with 2 motors and pumps.

System 1		System 2	
Motor 1	Pump 1	Motor 2	Pump 2
RPM 985 r/min	VICKERS Double pump 4535V-42A25-86DA-22R Capacity 134+79.2 ml/r	RPM 1470 r/min	YUKEN A145-FR04HS-60 Capacity 145 ml/r
Calculate system flow rate 210 L/min		Calculate system flow rate 213 L/min	
Suggest Servo System : K8 Driver : 4502 Motor: K235F20C25P Pump : 125cc		Suggest Servo System : K8 Driver : 4502 Motor: K235F20C25P Pump : 125cc	

After check all technical data, we suggest 2 sets of K8 series INVT hydraulic servo system MH500 for this machine retrofit. Both of 2 induction motors will be replaced by K8 servo.



Fig.1 Machine overview



Fig.2 Original 2 sets of motors

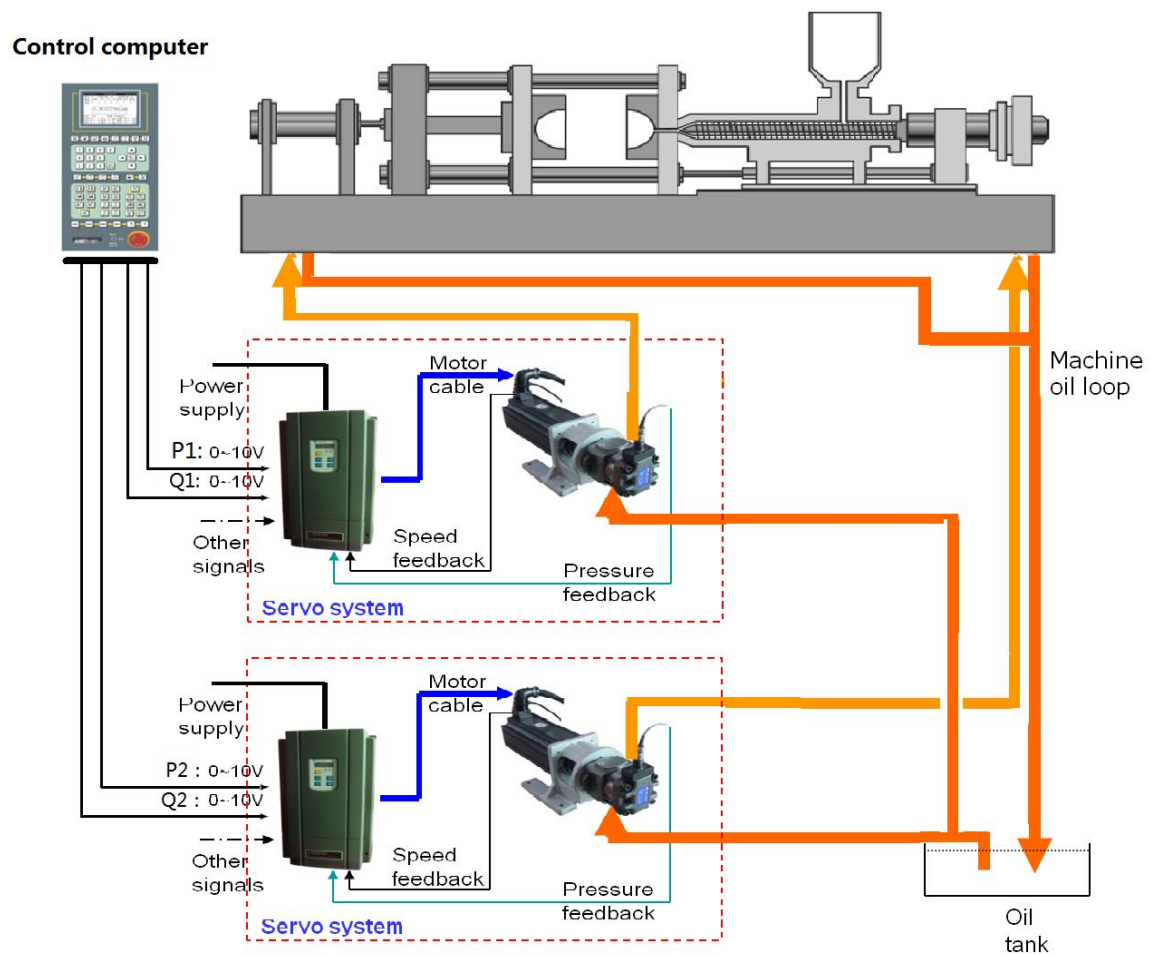


Fig.3 System diagram

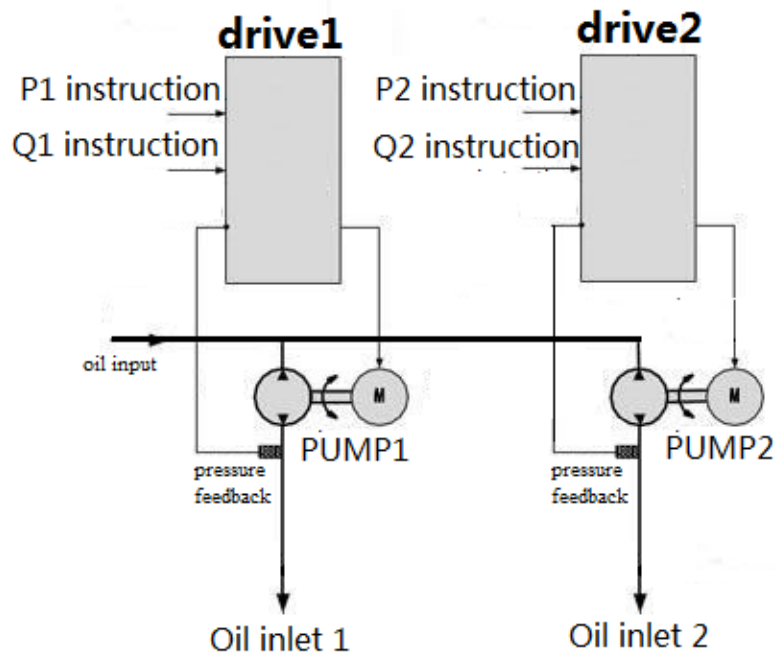


Fig.4 Solution diagram

3, Project features and advantages

1) Power saving

Remarkable power saving ability, high advanced motor control automatically adapt to plastic process, compared to induction motor, servo saving power cost about 70%.

2) More accurate.

With pressure and flow rate PID feedback system, the close loop system can be more accurate control process, raise plastic products and mold accuracy 2%.

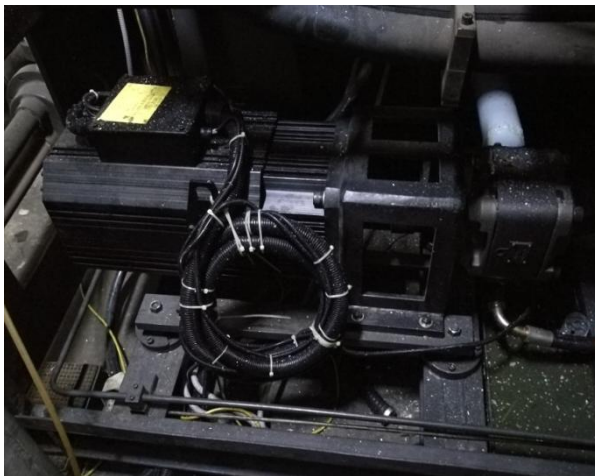
3) High Efficiency

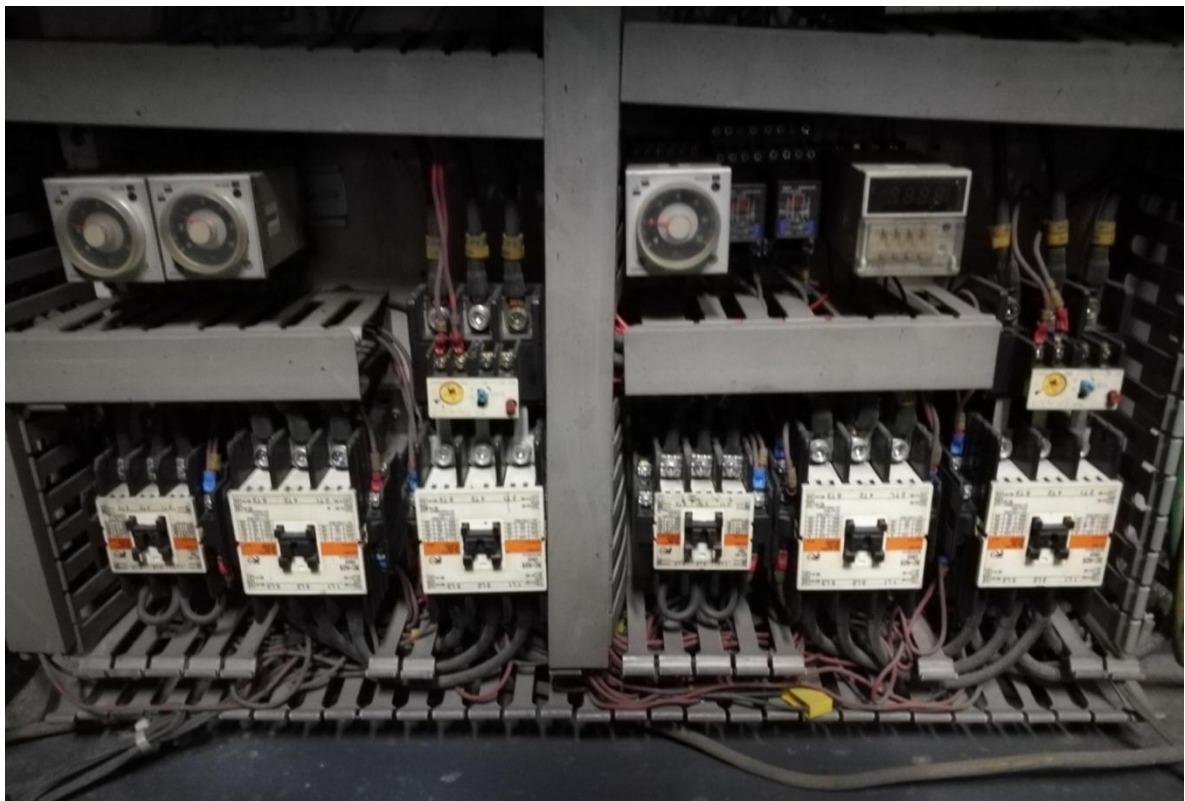
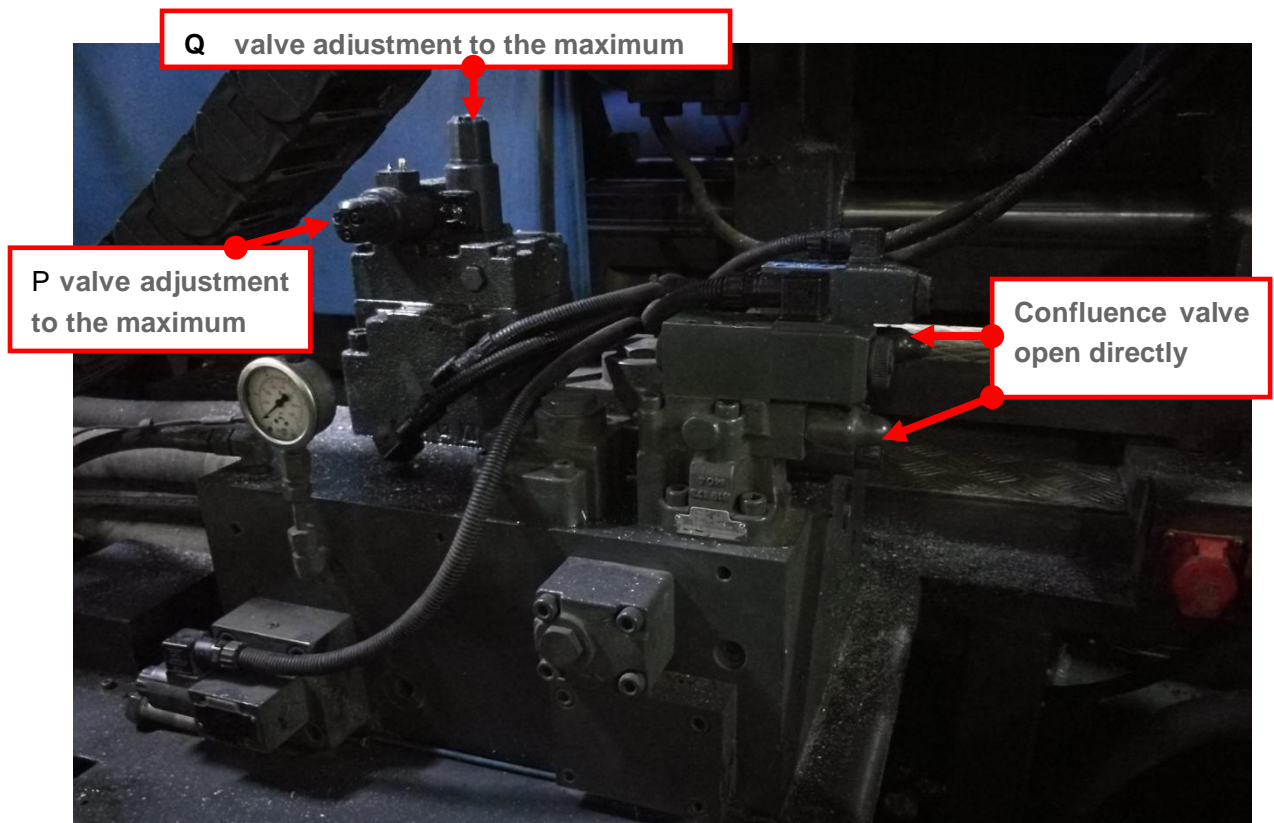
Servo has more than 3 times of sudden overload ability 2500 r/m speed, compare to normal induction motor, same condition reduce process time 15%

4) More working life

Servo system reduce impact, increase system working life time 20%

4、 Site photos reference

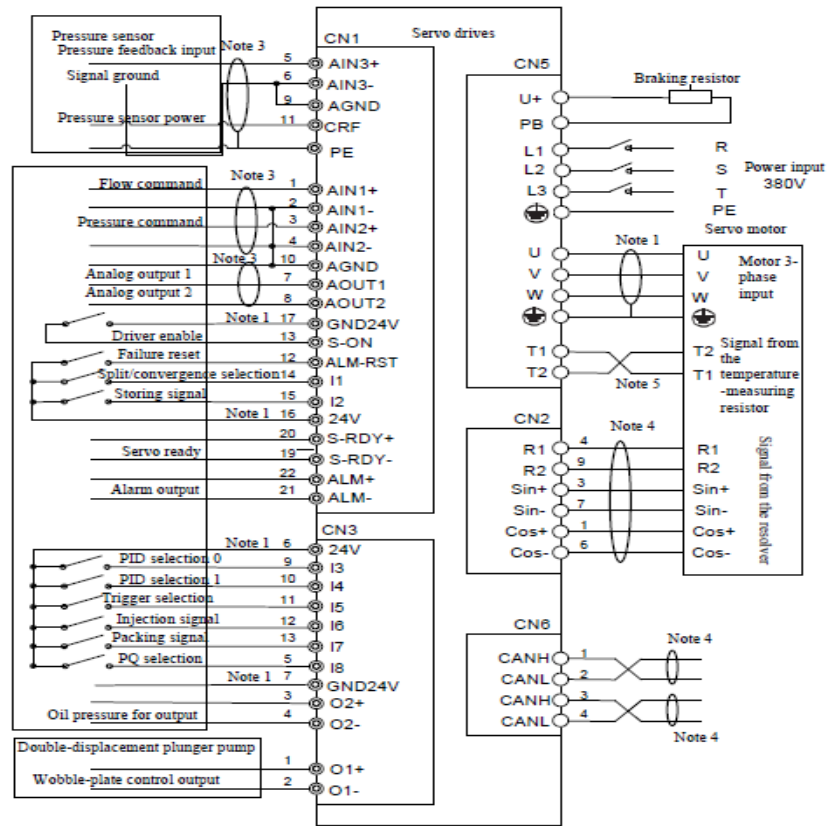




MH500 applied into Walton Haitian 800T injection molding machine

4.1 Wiring diagram:

3.4.1 Terminal function chart of the drives



4.2 Debug and parameters setting:

- 1、Connect wires according to the diagram.
- 2、Set 2 drivers parameters base on operation manual (2 single pumps).
- 3、Initialize system and driver pressure and flow 0V and 10V analog signal.
- 4、Power on machine and test, each action testing.
- 5、Install mold and start produce testing.

5, Conclusion:

WALTON Haitian 800T machine retrofit energy saving data

Before retrofit power cost per day:	1520 KW/H
After retrofit :	480 KW/H
Power saving rate:	68%

6, Reference.

- MH500 Hydraulic servo system operation manual.
- INVT Kinway servo application on injection molding machine.