

Integrated Automation and Control System

Overview

1. High speed DSP (Digital Signal Processing) chip with reinforced computing ability;
2. Single-board design, with easy maintenance and installation;
3. With output short circuit protection, overvoltage protection, overcurrent protection, watchdog protection and etc., providing safe and reliable hardware protection;
4. Specialized control modules, which are more professional and with better performance;
5. Distributed control systems, with more flexible structures;
6. A variety of digital communication methods, achieving full digital control.

Advantages

1. Various models and specifications, offering flexible cost-effective options;
2. Applicable to various types of injection molding machines covering high-end models such as all-electric injection molding machines and oil-electric hybrid injection molding machines, as well as special purpose machines such as extruders, hollow molding machines, injection blow molding machines, cup making machines and rubber machines;
3. Connection to TM PLAS CLOUD, achieving online production management;
4. Intelligent control, convenient set-up, high-level automation;
5. Cloud services available for remote assistance and maintenance;
6. Integrated control of production units.

With professional technologies
Offer high-quality system solutions

Integrated Automation Control System

01 HMI

Advantages

User-friendly UI, high-resolution, clear image, multi-language support, fast communication.

Q8A(Aluminum Casing)

Items	Specifications
Size W(mm)*L(mm)	260*470
Central Processor	AM3354 32bit@800MHZ
LCD Display	8.0" LED
LCD Resolution	800*600
Baud Rate	10/100Mbps
Operation Temperature	-10°C~50°C
Storage Temperature/RH	-20°C~85°C/85%RH
Communication Port	RS232*1+Optional*1 NET*1+Optional*1
Memory Card Port	USB*1



Q12A(Aluminum Casing)

Items	Specifications
Size W(mm)*L(mm)	335*600
Central Processor	AM3354 32bit@800MHZ
LCD Display	12.1" LED
LCD Resolution	800*600
Baud Rate	10/100Mbps
Operation Temperature	-10°C~50°C
Storage Temperature/RH	-20°C~85°C/85%RH
Communication Port	NET*2 RS232*1+Optional*1
Memory Card Port	USB*1



Q15A(Aluminum Casing)

Items	Specifications
Size W(mm)*L(mm)	368*426/300*546
Central Processor	AM437X 32bit@1GHZ
LCD Display	15.0" LED
LCD Resolution	1024*768
Baud Rate	10/100Mbps
Operation Temperature	-10°C~50°C
Storage Temperature/RH	-20°C~85°C/85%RH
Communication Port	NET*2
Memory Card Port	USB*1



Integrated Automation Control System

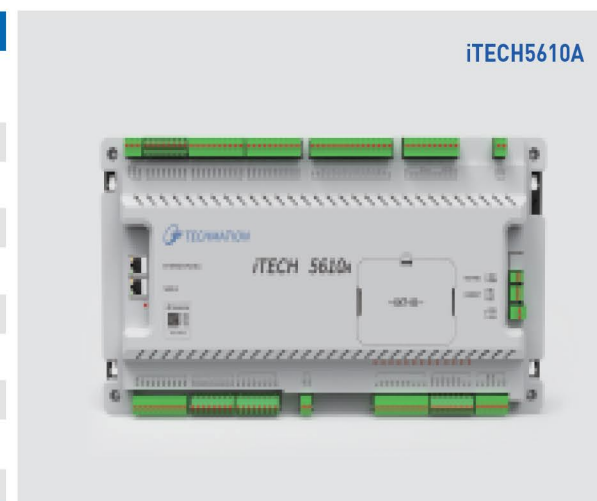
02 Controller

Characteristics

1. All digital communication with faster speed, stronger stability, higher noise immunity and better real-time data interaction.
2. Bus communication, simplified wiring, optimized cost .
3. Support native extension/bus extension.
4. Intelligent algorithm of mold opening and closing, automatic compensation.
5. Flexible online configuration of software functions.
6. Intelligent multi-stage control.
7. Online monitoring of the servo system, intelligent alerts of system maintenance/faults.
8. Optional power meter for energy monitoring and power analysis of equipment/products.
9. Optional one manipulator for one machine with digital communication, automatic compensation for mold opening position.
10. Optional TM PLAS CLOUD system to achieve seamless connection between production and its management.

iTECH5610A

Items	Specifications
Size H(mm)*W(mm)*D(mm)	232*424*44
PB(Digital Input)	24
PC(Digital Output)	28
Relay	11(6 heating+2 motor+3 other)
Temperature Input	7(6 barrel temperature+1 oil temperature)
AD(Analog Input)	4
DA(Analog Output)	1(V) + 1(A)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	NET*1, SABUS*1
Power Supply	DC24V

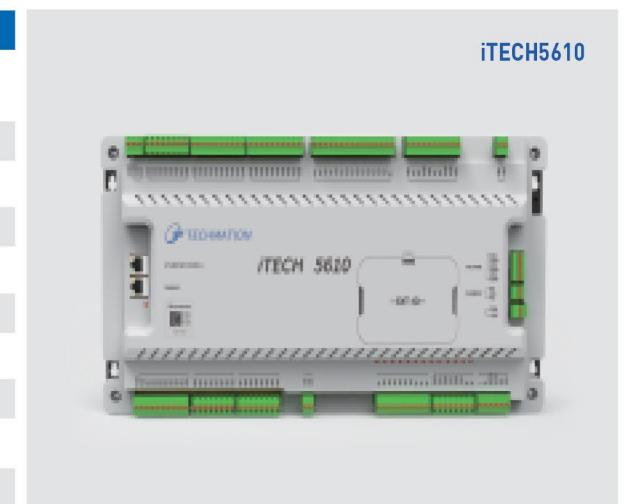


Integrated Automation Control System

02 Controller

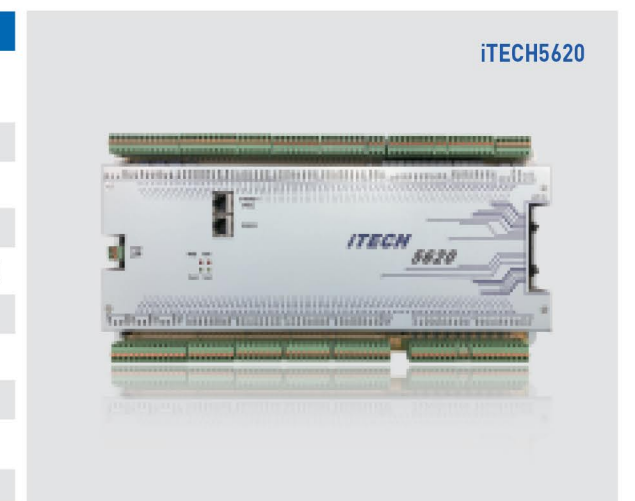
iTECH5610

Items	Specifications
Size H(mm)*W(mm)*D(mm)	232*424*44
PB(Digital Input)	24
PC(Digital Output)	28
Relay	12(6 heating+3 motor+3 other)
Temperature Input	7(6 barrel temperature+1 oil temperature)
AD(Analog Input)	4
DA(Analog Output)	3(V) + 1(A)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	NET*1, SABUS*1
Power Supply	DC24V



iTECH5620

Items	Specifications
Size H(mm)*W(mm)*D(mm)	170*415*46.7
PB(Digital Input)	32
PC(Digital Output)	32
Relay	15(9 heating+2 motor+4 other)
Temperature Input	10(9 barrel temperature+1 oil temperature)
AD(Analog Input)	6
DA(Analog Output)	6(V) + 1(A)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	NET*1, SABUS*1
Power Supply	DC24V

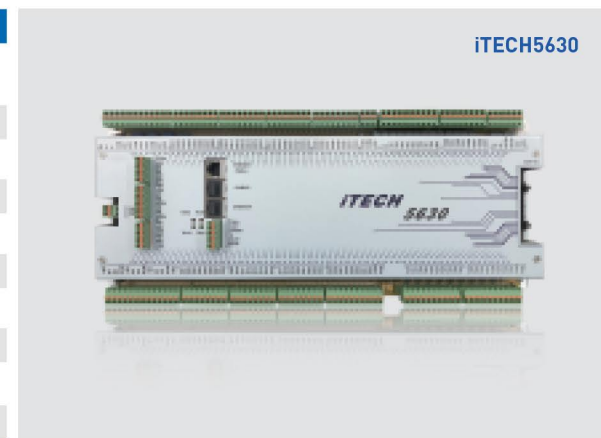


Integrated Automation Control System

02 Controller

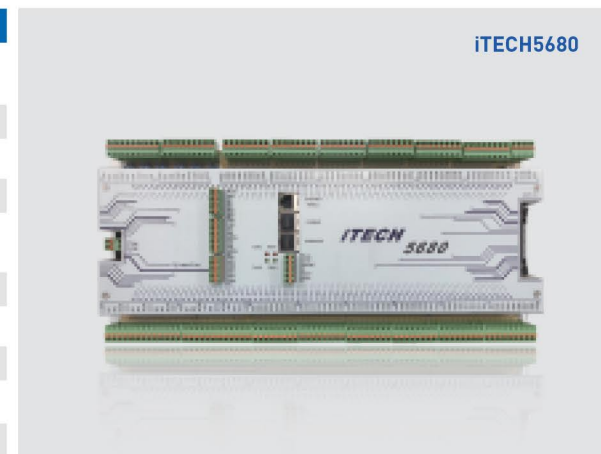
iTECH5630

Items	Specifications
Size H(mm)*W(mm)*D(mm)	170*415*61.4
PB(Digital Input)	32
PC(Digital Output)	32
Relay	15(9 heating+2 motor+4 other)
Temperature Input	10(9 barrel temperature+1 oil temperature)
AD(Analog Input)	6 + 4 (motion control)
DA(Analog Output)	6(V) + 1(A) + 4(V) (motion control)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	NET*2, SABUS*1, CAN*2
Power Supply	DC24V



iTECH5680

Items	Specifications
Size H(mm)*W(mm)*D(mm)	170*410*61.4
PB(Digital Input)	48
PC(Digital Output)	48
Relay	None, need external connection
Temperature Input	Standard layout of external 12-stage and it is expandable
AD(Analog Input)	12 + 4 (motion control)
DA(Analog Output)	12(V) + 4(V) (motion control)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	NET*2, SABUS*1, CAN*2
Power Supply	DC24V

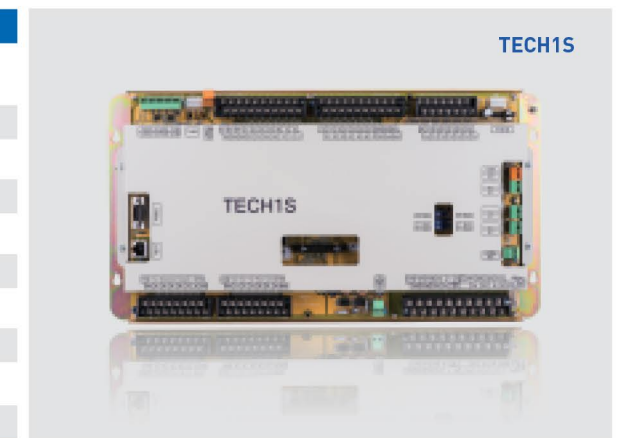


Integrated Automation Control System

02 Controller

TECH1S

Items	Specifications
Size H(mm)*W(mm)*D(mm)	227*424*47
PB(Digital Input)	24
PC(Digital Output)	28
Relay	12(6 heating+3 motor+3 other)
Temperature Input	7(6 barrel temperature+1 oil temperature)
AD(Analog Input)	4
DA(Analog Output)	2(A) // 2(V)+1(A)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	RS232*1, NET*1
Power Supply	DC24V



TECH2S

Items	Specifications
Size H(mm)*W(mm)*D(mm)	255*423*47
PB(Digital Input)	32
PC(Digital Output)	32
Relay	14(9 heating+3 motor+4 other)
Temperature Input	10(9 barrel temperature+1 oil temperature)
AD(Analog Input)	8
DA(Analog Output)	4(A) // 4(V)
IO Extendable(Input + Output)	IO88(8 PB+8 PC)
Communication Port	RS232*1, NET*1
Power Supply	DC24V



Integrated Automation Control System

03 Extension Module-Temperature Control Card

Overview

Professional 12-stage temperature control module with Card design of smaller size, which makes it possible to be placed in the junction box of temperature sensors.

Advantages

1. Digital Communication;
2. Easy for extension;
3. Temperature self-learning;
4. Specifications:12/16-stage temperature control.

RMTP12C

Items	Specifications
Size H(mm)*W(mm)*D(mm)	190*115*35.5
Central Processor	240MHZ
Temperature Input	12
Digital Output	12
Communication Port	CAN



RMTP16B

Items	Specifications
Size H(mm)*W(mm)*D(mm)	190*115*35.5
Central Processor	120MHZ
Temperature Input	16
Digital Output	16
Communication Port	CAN



Integrated Automation Control System

04 Extension Module-Analog Quantity/IO Expansion Card

Advantages

Digital communication over long distances, easy extension and wiring.

tmIoT-i201C
Analog Quantity/IO Expansion Card

Items	Specifications
Size L(mm)*W(mm)*D(mm)	190*115*35.5
Central Processor	240MHZ
PB(Digital Input)	8(DC0V, MAX.5mA)
PC(Digital Output)	8(DC24V, MAX.2A)
AD(Analog Input)	6
DA(Analog Output)	6
Communication Port	NET/SAUBS



tmIoT-i202C
IO Expansion Card

Items	Specifications
Size L(mm)*W(mm)*D(mm)	190*115*35.5
Central Processor	240MHZ
PB(Digital Input)	16(DC0V, MAX.5mA)
PC(Digital Output)	16(DC24V, MAX.2A)
Communication Port	NET/SAUBS



Integrated Automation Control System

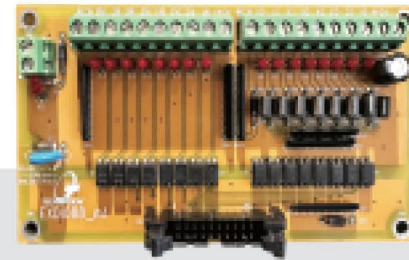
05 Extension Module/IO Expansion Card

Overview

Professional function extension modules with small size.

I088

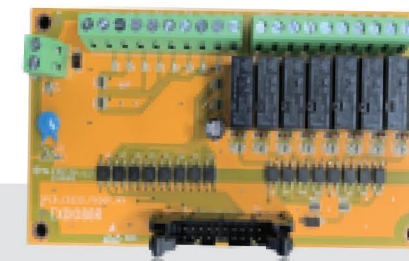
Items	Specifications
Size L(mm)*W(mm)*D(mm)	135*72*28
PB(Digital Input)	8(DC24V 5mA)
PC(Digital Output)	8(DC24V 2A)



I088

I088R

Items	Specifications
Size L(mm)*W(mm)*D(mm)	135*72*28
PB(Digital Input)	8(DC24V 5mA)
Relay	8



I088R

Integrated Automation Control System

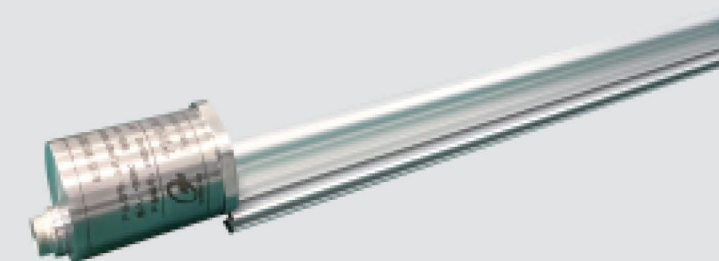
06 Displacement Sensor

Advantages

1. Application of magnetostriction with advanced digital circuits.
2. Non-touching measurement, no mechanical wear, longer service life, simultaneous measurement of multiple displacements.
3. Accurate and reliable remote transmission, digital output of measurement results, good anti-interference performance, long-distance transmission.
4. Isolated CAN circuit, strong resistance to power interference and environmental interference.

Items	Specifications
Output	Output interface:CANbus Communication protocol:CANopen
Baud Rate	1Mbps
Systemic Resolution	1μm
Measurement Range	80-5000mm(Customized according to customer requirements)
Degree of Nonlinearity	≤0.05%F.S.(F.S means Full Scale)
Repeatability Accuracy	≤0.002%F.S.
Hysteresis	4μm
Drift	±0.01% F.S./°C
Supply Voltage	+24VDC±10%
Current Consumption	<90mA
Working Temperature	-40°C~85°C
Material of Measuring Bar	G structure:304 stainless steel, H structure:aluminum
Material of Housing for Electronic Circuit	G structure:304 stainless steel, H structure:304 stainless steel
Protection Grade	IP65 (plug mode)

Magnetostrictive Displacement Sensor



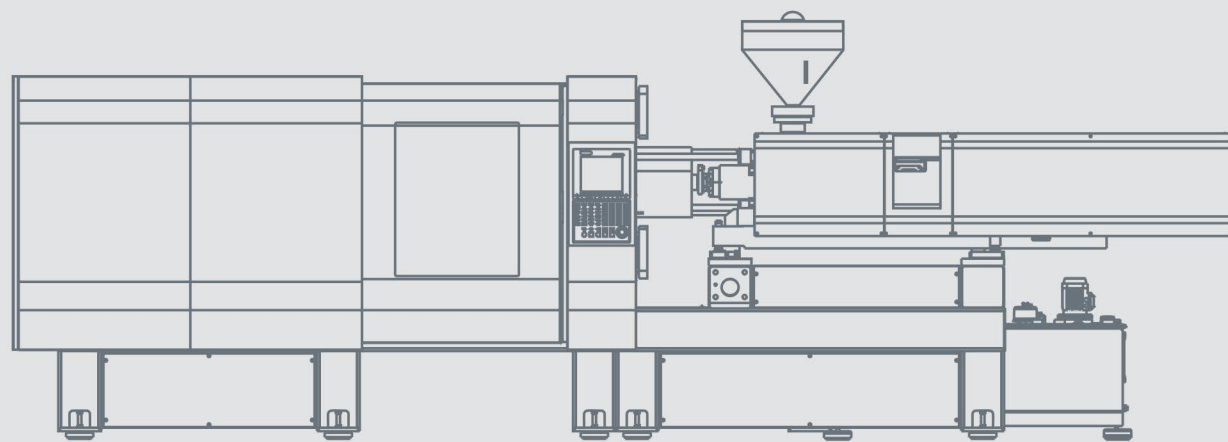
Servo Power System

Our independently developed "HYB" hydraulic servo energy-saving system, constituted by servo drivers, servo motors and gear pumps, is a pioneer product leading the plastics industry marching towards energy saving, consumption reduction and green environmental protection.

This system has excellent performance, which can save 40% - 70% energy compared to traditional systems, and is with much faster response and better control compared to traditional systems.

Advantages

The perfect combination of servo systems and Techmation controllers provides different control solutions to satisfy the different needs of plastics machinery, raising the working efficiency, reducing the energy consumption, improving the operational accuracy and enhancing the running stability, which makes the maintenance and performance tuning of equipment easier and more convenient. All these are our real competitive advantages in markets and applications.



Create superior system solutions with the most professional technologies

Servo Power System

01 Servo Driver ID680 series

Characteristics

LED operation panel makes debugging and maintenance faster and more convenient.

Model	Input voltage/ V	Output power/ kW	Rated current/ A
1BX_ID680K1F3_XXXX		11	25
1BX_ID680K5F3_XXXX		15	32
1BX_ID680K8F3_XXXX		18.5	37
1BX_ID680J2F3_XXXX		22	45
1BX_ID680I0F3_XXXX	AC 3PH 380~480V (-15%~10%)	30	60
1BX_ID680I7F3_XXXX		37	75
1BX_ID680H5F3_XXXX		45	91
1BX_ID680G5F3_XXXX		55	112
1BX_ID680E5F3_XXXX		75	150
1BX_ID680C0F3_XXXX		90	176



Specifications

Power Input	Input Voltage(V)	AC 3PH 380~480V(-15%~10%, 380V Driver) AC 3PH 220V(-10%~20%, 220V Driver)
	Input Frequency(Hz)	50Hz/60Hz, fluctuation range±3%
Power Output	Output Voltage(V)	0-480V
	Output Power(kW) Output Current(A)	Please refer to "Rated Value"
Control Performance	Control Mode	Closed-loop vector control
	Motor Type	AC permanent-magnet synchronous motor
	Control Mode	Pressure closed-loop mode, speed mode
	Maximum Output Frequency	300Hz
	Pressure Indication	Analog setting(DC0-10V)
	Overcurrent Capability	Up to 2.0 times
Peripheral Interface	Overload Capability	120% rated current for 30 minutes, 150% rated current for 90 seconds, 180% rated current for 8 seconds, 200% rated current for 1 second
	Terminal Analog Input Resolution	≤10mV
	Terminal Switching Input Resolution	≤1ms
	Analog Input	3, DC0-10V
Protective Function	Digital Switch Input	6, maximum frequency of 1kHz, internal impedance:3.3kΩ
	Digital Switch Output	4, Common terminals(24V)
Communication	21 protective functions: overcurrent, overvoltage, undervoltage, phase loss, over temperature, overload, braking overload, timing, etc.	
	NET; CAN, maximum 255 nodes	
Other	Install Method	Support wall mount
	Operating Ambient Temperature	-10°C~50°C (Derate when above 40°C)
	Protection Class	IP20
	Type of Cooling	Forced air
	Storage Temperature	-20°C~60°C
	Braking Unit	Internally installed [Other alternatives: externally installed]
	Braking Resistance	Optional, externally installed
Reactor	30~55kW built-in DC reactor	



Servo Power System

Servo Power System

01 Servo Driver DE688 series

02 Oil Pump SETTIMA series

Characteristics

1. Multiple control modes;
2. Multiple protective functions including short-circuit, overcurrent, overvoltage, undervoltage and etc.;
3. Various communication methods, making control more accurate and operation easier with digital communication.

Model	Input voltage/ V	Output power/ kW	Rated current/ A
1BX_DE688K1F3_XXXX		11	25
1BX_DE688K5F3_XXXX		15	32
1BX_DE688K8F3_XXXX		18.5	37
1BX_DE688J2F3_XXXX		22	45
1BX_DE688I0F3_XXXX	AC 3PH 380-480V [-15%~10%]	30	60
1BX_DE688I7F3_XXXX		37	75
1BX_DE688H5F3_XXXX		45	91
1BX_DE688G5F3_XXXX		55	112
1BX_DE688E5F3_XXXX		75	150
1BX_DE688C0F3_XXXX		90	176



Specifications		
Power Input	Input Voltage[V]	AC 3PH 380-480V[-15%~10%, 380V Driver] AC 3PH 220V[-10%~20%, 220V Driver]
	Incoming Frequency[Hz]	50Hz/60Hz, fluctuation range±3%
Power Output	Output Voltage[V]	0-480V
	Output Power[kW]	Please refer to "Rated Value"
	Output Current[A]	
Control Performance	Control Mode	Closed-loop vector control, V/F control
	Motor Type	AC permanent-magnet synchronous motor
	Control Mode	Pressure closed-loop mode, speed mode
	Maximum Output Frequency	300Hz
	Pressure Indication	Analog setting; NET; CAN; SA BUS;
	Overcurrent Capability	Up to 2.0 times
	Overload Capability	120% rated current for 30 minutes, 150% rated current for 90 seconds, 180% rated current for 8 seconds, 200% rated current for 1 second.
Peripheral Interface	Terminal Analog Input Resolution	≤10mV
	Terminal Switching Input Resolution	≤1ms
	Analog Input	3, DC0-10V
	Digital Switch Input	6, Common terminals(internal or external power 24V)
	Digital Switch Output	4, Common terminals(24V)
Protective Function	Overcurrent, overvoltage, undervoltage, over temperature, overload, short-circuit, etc	
Communication	NET; CAN; SABUS	
Other	Install Method	Support wall mount
	Operating Ambient Temperature	-10°C~50°C (Derate when above 40°C)
	Protection Class	IP20
	Type of Cooling	Forced air
	Storage Temperature	-20°C~70°C
	Braking Unit	Internally installed [Other alternatives: externally installed]
	Braking Resistance	Optional, externally installed
	Reactor	30-55kW built-in DC reactor



Low noise
Low pulsation



Low mechanical
inertial force



High volumetric
efficiency

Series	GR38 Series		GR47 Series			GR55 Series			GR63 Series	
Specifications	018	025	032	040	050	063	075	090	100	125
Displacement(cm ³ /rev)	17.9	25.2	32.2	40.5	50.3	63.5	75.0	90.2	100	125
Continuous Working Pressure(bar)	230	200	250	225	200	250	230	180	160	160
Short Time Pressure(bar)	260	210	270	250	250	260	250	240	200	200
Peak Pressure(bar)	280	220	280	270	270	280	270	260	210	210



02 Oil Pump Eckerle series

Characteristics

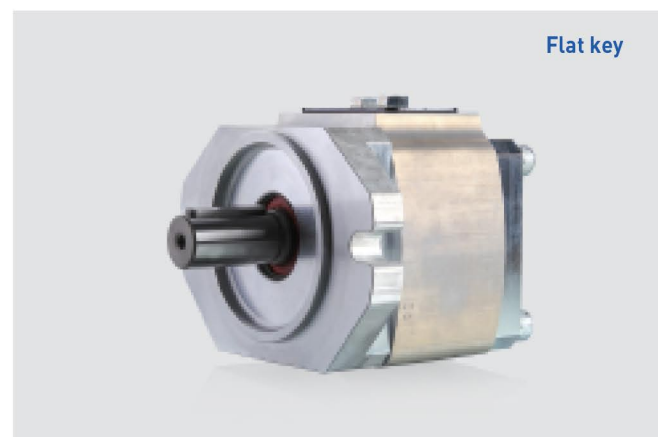
1. New series EIPC of new technologies;
2. High pressure;
3. Aluminum casing;
4. Radial and axial pressure compensation;
5. Low pulse and stable pressure, ensuring stable operation and long service life of equipment.

Series	EIPS2		EIPC3			
Specification	016	025	032	040	050	063
Displacement(cm ³ /rev)	15.8	25.2	32.1	40.1	50.3	63.1
Continuous Working Pressure(bar)	250					180
Peak Pressure(bar)	320	280	320	300	280	200
Burst Pressure(bar)	325	300	350	325	300	210
Maximum Speed(min-1)	4000	3600	3700	3600	3600	2400
Operating Viscosity(mm ² /s)	10 – 300					
Initial Viscosity(mm ² /s)	2000					
Operating Temperature(°C)	-20 – 100					
Operating Medium	HL – HLP DIN 51 524 part 1/2					
Maximum Medium Temperature(°C)	120					
Minimum Medium Temperature(°C)	-40					
Maximum Ambient Temperature(°C)	80					
Minimum Ambient Temperature(°C)	-40					
Maximum Inlet Pressure(bar)	2(bar) Absolute					
Minimum Inlet Pressure(bar)	0.8(bar) Absolute					
Weight(kg)	3.6	4.2	9.2	9.8	10.5	10.5
Degree of Filtering	Class 20 / 18 / 15 due to ISO 4406					
Volumetric Efficiency	95	95	94	95	95	95
Noise	61	64	64	65	66	66

n = 1,450 p = 250 bar T = 50 °C Medium: HLP 46

Series	EIPC5		EIPC6			
Specification	80	100	125	160	200	250
Displacement(cm ³ /rev)	80.4	100.5	125.7	160.1	200.9	249.9
Continuous Working Pressure(bar)	250		250		160	140
Peak Pressure(bar)	270		280		170	150
Burst Pressure(bar)	280		300		180	160
Maximum Speed(min-1)	3000	3000	2800		2200	
Operating Viscosity(mm ² /s)	10 – 300					
Initial Viscosity(mm ² /s)	2000					
Operating Temperature(°C)	-20 – 100					
Operating Medium	HL – HLP DIN 51 524 part 1/2					
Maximum Medium Temperature(°C)	80					
Minimum Medium Temperature(°C)	-20					
Maximum Ambient Temperature(°C)	80					
Minimum Ambient Temperature(°C)	-20					
Maximum Inlet Pressure(bar)	2(bar) Absolute					
Minimum Inlet Pressure(bar)	0.8(bar) Absolute					
Weight(kg)	13.0	13.5	27.5	30.0	43.0	54.0
Degree of Filtering	Class 20 / 18 / 15 due to ISO 4406					
Volumetric Efficiency	95	95	94	94	93	93
Noise	70	71	76	77	77	78

n = 1,450 p = 250 bar T = 50 °C Medium: HLP 46



The foundation for next generation
of future industry 4.0
intelligent manufacturing.

03 Servo Motor

AC permanent magnet synchronous servo motors

AC permanent magnet synchronous servo motors are the new generation of high-performance products independently developed by Techmation. This product adopts a new magnetic circuit design. Compared with traditional servo motors, it has higher power density, higher torque density and stronger field weakening ability. It can be widely used in various hydraulic equipment or systems, and is especially suitable for applications with ultra-high response and short-term overload.

Model Unit	Rated speed nN (rpm)	Rated torque TN (Nm)	Rated current IN (A)	Rated power PN(kW)	Voltage constant EMF(V/1000rpm)	Torque constant KT (Nm/A)	Moment of Inertia J (10 ⁻⁴ kgm ²)
665K05BB	2000	51	18	11	173	2.86	60
665K08BB	2000	75	27	16	178	2.94	83
665K10BB	2000	98	36	21	172	2.85	107
665K13BB	2000	119	42	25	175	2.90	130
665K16BB	2000	145	52	30	178	2.94	154
665K20BB	2000	190	69	40	173	2.86	202
665K23BA	1800	203	70	38	184	3.04	250
665K28BA	1800	251	87	47	184	3.04	306
665H33BA	1800	300	105	57	168	2.80	374
665H38BA	1800	350	113	66	168	2.80	430

Advantages

1. The performance is more than **20%** higher than that of traditional hydraulic servos.
2. Low inertia, dynamic response increased by **30%**.
3. High overload capacity, S6 overload running time increased by more than **30%**.
4. Low noise, better control performance with dedicated drivers.
5. Maximum rotational speed can reach over **1.5 times** of the rated speed.
6. Embedded magnetic circuits, stronger anti-demagnetization capability.

