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Hydraulic and Pneumatic Integrated Trainer

(Transparent Hydraulic Circuit,Low Pressure)

PN:0401030030

The PLC,hydraulic and pneumatic comprehensive trainer adopts "two in one" structures composed by one side of hydraulic training and and the other side pneumatic training.Both has independent PLC controller.This trainer can achieve pneumatic control basic circuits experiments and hydraulic control basic circuit experiments.It also can be integrated to complete training such as:electric-pneumatic control, pneumatic-hydraulic control, electric-hydraulic control,and pneumatic-electric-hydraulic comprehensive control.This trainer is an idea tool for skills training of PLC, solenoids, pneumatic, hydraulic, relays and so on. The panel is made of AL, and trainees can design and carry out various experiments of various pneumatic control circuits and hydraulic circuits

[Hydraulic and Pneumatic Integrated Trainer](#)

[Typical Hydraulic Training Contents](#)

1.Direction control circuit

1.1Sequence action circuit

1.1.1 Reversing circuit of manual directional/reversing valve

1.1.2 Reversing circuit by pilot oriented pressure relief valve/overflow valve

1.2 Sequence action circuit

1.2.1 Sequence action circuit of sequence valve

1.2.2 Sequence action circuit of pressure relay

1.2.3 Sequence action circuit of limit switch

1.2.4 Sequence action circuit of travel/reversing valve

1.3 Lock circuit

1.3.1 Lock circuit of mid position function solenoid reversing valve

1.3.2 Lock circuit by pilot check valve

2.Pressure control circuits

2.1 Pressure regulating circuit

2.1.1 Pressure regulating circuit

2.1.2 Two-stage pressure regulated circuit

2.2 Pressure reducing circuit

2.2.1 Pressure reducing circuit of pressure reducing valve

2.3 Booster circuit

2.3.1 Booster circuit of booster cylinder

2.4 Pressure relief circuit(Pressure-venting circuit)

2.4.1 Pressure relief circuit by reversing valve

3.Speed control circuits

3.1 Throttle speed regulating circuit

3.1.1 Oil-inlet throttle speed regulating circuit

3.1.2 Oil-return/back throttle speed regulating circuit

3.1.3 Reversing speed regulating circuit of gear pump

3.1.4 Complex speed control circuit by joint gear pump and speed regulating valve

3.1.5 Secondary feed circuit of series speed regulating valve

3.1.6 Secondary feed circuit by parallel speed regulating valve

3.2 Speed shift circuit

3.2.1 Speed shift circuit of flow valve

3.3 Synchronization circuit

3.3.1 Synchronization circuit of series hydraulic cylinder

Typical Pneumatic Training Contents

1.Pressure control circuits

1.1 Secondary pressure control circuit

1.2 High and low pressure shift circuit

1.3 Overload protection circuit

1.4 Unloading circuit

2.Direction control circuit

2.1 Single-acting cylinder reversing circuit

2.2 Double-acting cylinder reversing circuit

2.3 Single-cylinder reciprocating control circuit

2.4 Single-cylinder continuous reciprocating control circuit

2.5 Sequence action circuit of straight cylinder,rotating cylinder

2.6 Multi-cylinders sequence action circuit

2.7 Double cylinders synchronous action circuit

3.Speed control circuits

3.1 Single-acting cylinder speed regulating circuit

3.2 One-way/Unidirectional speed regulated circuit of double-acting cylinder

3.3 Two-way/Bidirectional speed regulated circuit of Double pneumatic acting cylinder

3.4 Speed shift circuit

3.5 Buffer circuit

4. Other circuits

4.1 Relay circuit

- 4.2 Counting circuit
- 4.3 Interlock circuit
- 4.4 Four cylinders linkage circuit
- 4.5 The application circuit of OR-gate type shuttle valve
- 4.6 The application circuit of quick exhaust valve

Hydraulic and Pneumatic Integrated Trainer
Main Technical Parameters

Nos	Items	Specification	
1	Motor	Speed	0-1500r/min
		Power	400W
2	Hydraulic Pump	maximum pressure	2.5MPa
		Circuit action pressure	0.3-0.8MPa
		Size	550mm×350mm×600mm
3	Air compressor	Power	250W
		output pressure	1Mpa
		Voltage	220V
3	Hydraulic pump station	Volume	90L
		AC supply	AC220V 50HZ
4	Power supply	DC supply	input AC220V,output DC24V/3A
	dimensions	L*W*H	1230mm × 660mm × 1810mm

Hydraulic and Pneumatic Integrated Trainer
Hydraulic Configuration List

Nos	Items	Quantity
Hydraulic Station		
1	Motor	1
2	Gear pump	1
3	High precision Digit tachometer	1
4	Pilot oriented pressure relief valve/overflow valve	1
5	Oil tank	1

Nos	Items	Quantity
6	Hydraulic station board	1
7	Pressure gauge	1
8	Oil level gauge	1
9	Oil filter	1
10	Air filter	1
11	Hydraulic oil	none
Hydraulic Control Components		
12	Double-acting cylinder	2
13	Pressurized cylinder	1
14	Three position and four-way solenoid directional/reversing valve(O-type)	1
15	Three position and four-way solenoid directional/reversing valve(M-type)	1
16	Three position and four-way solenoid directional/reversing valve(H-type)	1
17	Two position and four-way solenoid directional/reversing valve	2
18	Two position and two-way solenoid directional/reversing valve	1
19	Three position and five-way manual directional/reversing valve	1
20	Two position and four-way manual travel/reversing valve	1
21	Pilot oriented pressure relief valve/overflow valve	1
22	Direct-acting pressure relief valve	1
23	Sequence valve	2
24	Pressure reducing valve	1
25	Direct-acting throttle valve	1
26	Speed regulated valve	2
27	Pilot check valve	2

Nos	Items	Quantity
28	One-way valve	2
29	Pressure Relay	1
Monitoring and Control Components		
30	Control button	1
31	Relay	1
32	Limit switch(normally open, normally closed)	2
33	PLC	1
34	PLC communication cable	1
35	Pressure relay plug wire	1
36	Solenoid cable	3
Software and Documentation		
37	PLC programming software	1
38	Experimental instructions	1
Auxiliary Components		
39	Tee	10
40	Transparent compression resistant hose ($\phi 8$)	1 roll
41	Pressure gauge	3
Tools		
42	Phillips screwdriver	1
43	Screwdriver	1
44	Allen wrench	2
45	Adjustable wrench	1
46	Scissor	1

Nos	Items	Quantity
47	Needle-nose plier	1
48	Inner ring plier	1
49	Snap ring plier	1
50	Oil plug	5
51	Tool box	1
Spare Parts and Worn Parts		
52	Quick connector	5
53	O-ring(various siz)	1 pack
Bench&Cabinet		
54	Training bench	1
55	Training cabinet	1

Pneumatic Configuration List

Nos	Items	Quantity
Pneumatic Actuators		
56	Triplet	1
57	Double acting single cylinder	1
58	Single acting cylinder	1
59	Rotating cylinder	1
Pneumatic Control Components		
60	Pressure reducing valve	1
61	Manual reversing valve	1
62	Two position five-way single solenoid reversing valve	2
63	Two position five-way double solenoid reversing valve	1
64	Three position five-way double solenoid reversing valve	1

Nos	Items	Quantity
65	Two position five-way single air control reversing valve	2
66	Two position five-way double air control reversing valve	1
67	Travel reversing valve	1
68	Non-return valave	1
69	Shuttle valve(OR-gate valve)	2
70	Quick exhaust valve	2
71	Sequence valve	2
72	One way throttle valve	2
73	One way throttle valve	1
74	One-way valve	2
Monitoring and Control Components		
75	Control button	1
76	Relay	1
77	Limit switch(mounted on the cylinder)	2
78	PLC	1
79	PLC communication cable	1
80	Solenoid cable	3
81	Silent air compressor	1
Software and Documentation		
82	PLC programming software	1
83	Experimental instructions	1
Auxiliary Components		

Nos	Items	Quantity
84	T- type tee	4
85	Y- type tee	1
86	Four-way pipe joint	2
87	Six-way pipe joint	2
88	L-type coupling crank	2
89	L-type coupling crank	2
90	Air lock Ø 6	5
91	Silencer 1/8	2
92	Silencer 3/8	1
93	Air-capacitor	1
94	Plastic pipe	20m
Tools		
95	Phillips screwdriver	1
96	Screwdriver	1
97	Allen wrench	2
98	Adjustable wrench	1
99	Scissor	1
100	Needle-nose pliers	1
101	Tool box	1
Spare Parts and Worn Parts		
102	Teflon tape	1
103	Fuse	2
Bench&Cabinet		
104	Training bench	1
105	Training cabinet	1

*Products and configuration list described herein are subject to changes without notice.