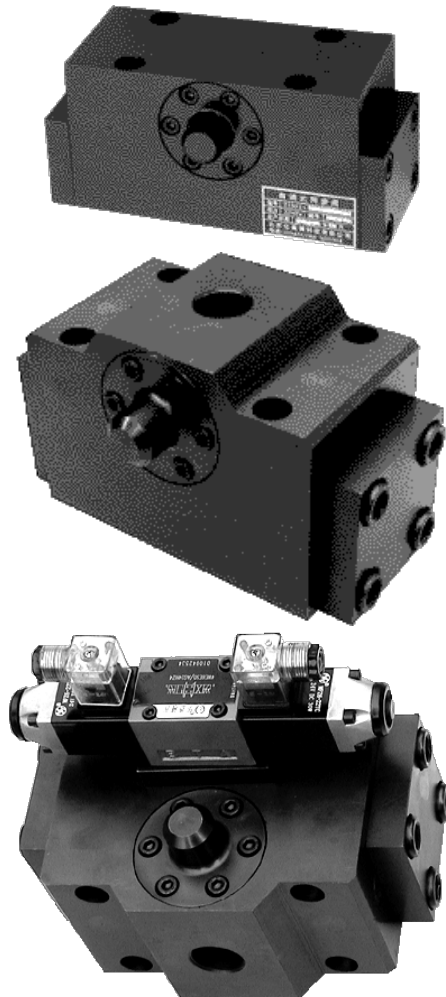


## Novel self regulating (flow adaptive) synchronous valve

### Product specification



**AEMETEC Co., Ltd.**

## Catalog

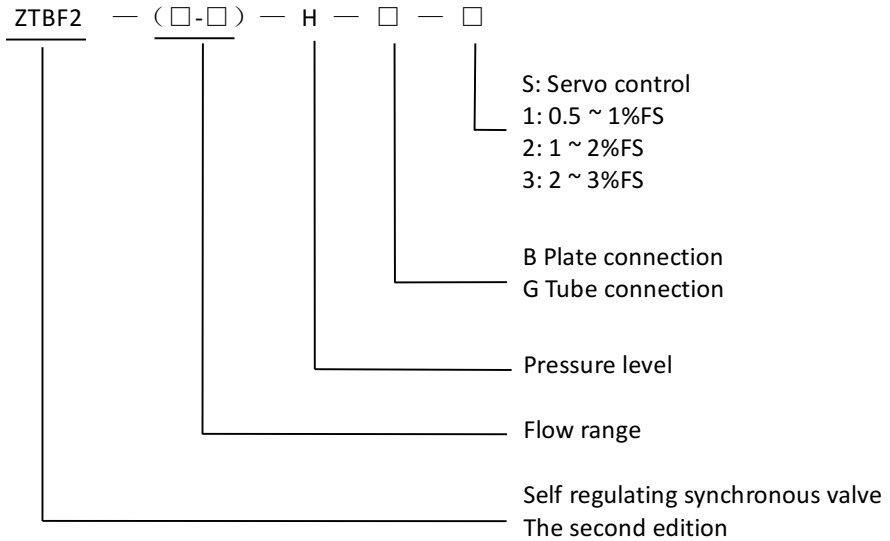
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## Summary

The new self regulating synchronous valve is mainly used in hydraulic system of two or more than two oil cylinders or oil motors in the same speed movement under different load. It is the most convenient method to synchronize by using the synchronous valve. It has the advantages of simple structure, convenient operation, precision guarantee, lower price and less pressure loss and so on, we have four specifications of the self regulating synchronous valve at present. It won the Chinese National Invention Award, and has been widely used in national defense, scientific research, industry and transportation, engineering machinery, water conservancy machinery, mining machinery and machine tools, and other hydraulic synchronous systems.

## Product description and technical specifications

### 1 Self regulating synchronous valve



### 2 Technical specifications

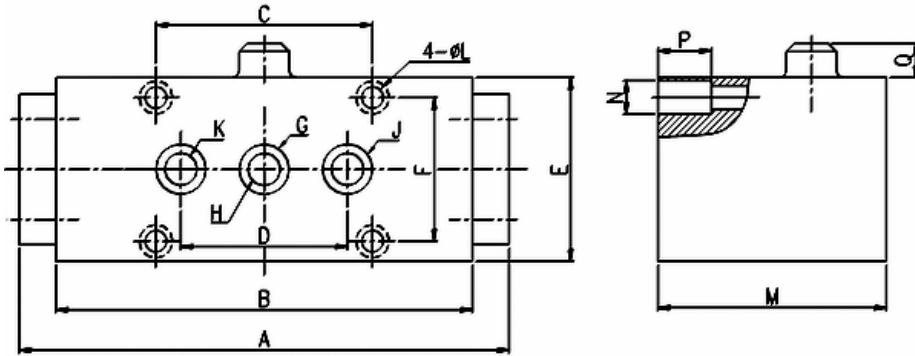
Product Name Model Code	Nominal diameter (mm)	Working pressure (MPa)	Pressure loss (MPa)	Partial load pressure (MPa)	Synchronization error %FS	
ZTBF2 - (3 - 12)	8	31.5	1~1.5	5~15	S	Servo Control
ZTBF2 - (10 - 50)	15	31.5			1	≤ 0.5~1
ZTBF2 - (40 - 130)	25	31.5			2	≤ 1~2
ZTBF2 - (80 - 320)	35	31.5			3	≤ 2~3

Hydraulic oil: mineral oil

Oil filter accuracy: NAS 9 – 11

Use temperature: 30 to 60 degrees Celsius

### Exterior connection dimension



Specifications L / min	A	B	C	D	E	F	G	H
3 - 12	200	172	100	60	80	60	Φ24	Φ15
10 - 50	200	172	100	60	80	60	Φ24	Φ15
40 - 130	238	190	130	60	110	86	Φ28	Φ20
80 - 320	436	360	200	150	156	115	Φ65	Φ50

J	K	L	M	N	P	Q
2-Φ20	2-Φ12	4-Φ12	96	4-Φ17	20	21
2-Φ20	2-Φ12	4-Φ12	96	4-Φ17	20	21
2-Φ28	2-Φ20	4-Φ14	137	4-Φ20	32	28
2-Φ45	2-Φ30	4-Φ20	200	4-Φ29	40	45

This size only supply the installation reference, the final size take the object as.

When the flow is divided, the H is the oil inlet, and the K is the oil outlet.

“Φ” is the size of O ring

## Synchronization system diagram

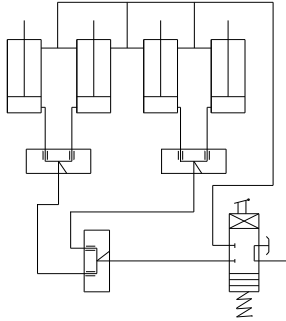


Figure 1, Four cylinder synchronous sample

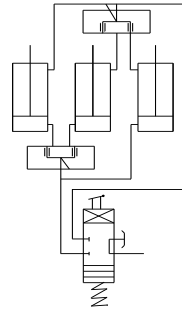


Figure 2, Three cylinder synchronous sample

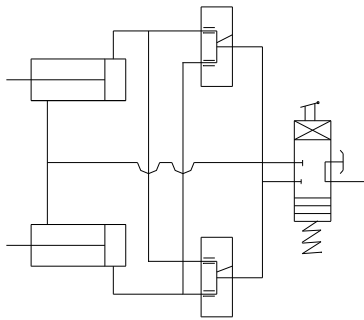


Figure 3, Example of large flow parallel two cylinder synchronous circuit

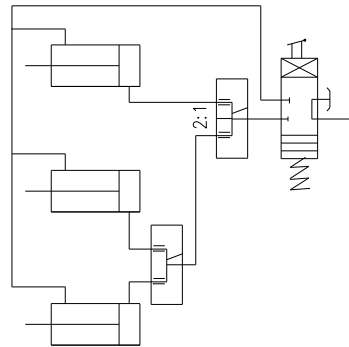


Figure 4, Proportional three cylinder synchronization sample

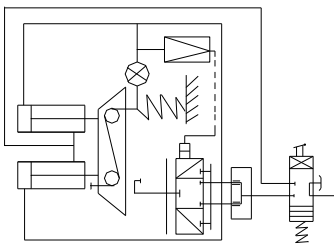


Figure 5, Servo synchronization loop

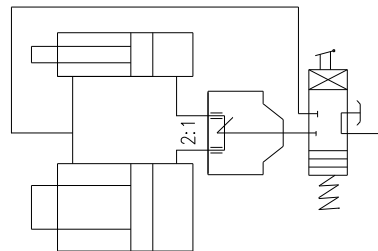


Figure 6, Differential cylinder synchronization example

## Use and Maintenance

1. Oil and temperature should be same to the other hydraulic components.
2. When multiple cylinders are required to be synchronized, use a multi-stage serial, such as one is divided into two, then two is divided into four and so on (see figure 1) but should pay attention to error accumulation (see the application examples in the “technical note” ).
3. Three synchronous cylinders connect as shown in figure 4, it is best to mix the positive and negative error of the valve to improve the accuracy. But if connect as shown in figure 4, the first level must be proportional (2:1) self regulating synchronous valve.
4. If the system flow is large, you can use parallel connection circuit, referring to figure 3. It can improve the Synchronous precision by mixing the positive and negative error of the valve.
5. When the high precision synchronization is required, you can use the self regulating synchronous valve and servo valve together, or use the new digital electrically controlled synchronous valve, the error can be controlled at about 0.5-1.5%FS. Referring to figure 5.
6. When the proportional synchronization is required, refer to figure 6, and you can also choose differential motion system if the cylinders are the same.
7. The valve should be used within the specified flow range, shall not exceed the rated flow by 20%, although the accuracy has improved, but the pressure loss increases and the oil is easy to heat; the situation is the opposite when the flow is less than.
8. The valve can not be arbitrarily disassembled, if necessary, you should clean all parts and then assembly it in the original direction and position, otherwise it will affect the accuracy of the valve, even lead to the valve can not work.

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