ZLSG-B type
ZLSG-G type
ZLSG-GⅡ type

全自动滤水器使用说明书

Operation Manual of Automatic Water Strainer

川滤公司 CO.LTD

ZIGONG CHUANLV EQUIPMENT MANUFACTURING CO.，LTD

ZIGONG OIL FILTER FACTORY

欢迎使用我公司生产的 ZLSG 型系列全自动滤水器。在使用前，请仔细阅读本使用说明书，它将使您对我公司产品的结构性能、操作程序及注意事项有更深入地了解。我公司对本使用说明书拥有最终解释权。

一、简介

我公司为国家分离机械定点生产企业，已有 30 余年分离机械设计制造的历史。建厂伊始，我公司便着眼于国际同类厂家产品的设计理念与发展方向，大胆引进国外先进技术，消化吸收其核心技术，结合国内外用户的实际需求，通过积极探索创新，形成了以自主研发为主的产品设计生产模式，开发了以油净化、水处理、气体干燥处理为主体的系列产品，并获得了多项国家技术专利。经过几代川滤人的刻苦努力，积极进取，立足国内市场，并积极开拓国外市场，使我厂壮大成为国内同行业的尖兵企业，分离机械制造业技术发展趋势的领头羊。

滤水器，是发电系统中不可或缺的一个系统设备，它对发电机组的正常运行有着至关重要的作用。我公司从七十年代末引进以色列技术，开始生产全自动滤水器。由于受国内水文环境条件的限制，初期的全自动滤水器在结构、性能及过滤、排污效果上都体现出了诸多弊端。随着我国经济建设步伐的加快，对电力能源的需求量日益加剧，我公司强烈意识到需对原有的全自动滤水器从根本上进行技术革新，必须研发出一种新型的滤水器将其取代。随着对全国几十所火电、水电的走访考查，并结合美国、以色列、意大利等先进技术，经过我厂技术研发人员几年的精心设计，研发出了现在被全国电力行业广泛认可，并不断远销海外的 ZLSG 系列全自动滤水器。

二、滤水器的结构特点

ZLSG 系列全自动滤水器主要分为两个大类:ZLSG-G(GII)型和 ZLSG-B 型。ZLSG-G（GII）型滤水器进出水形式为上进水下出水结构，而 ZLSG-B 型滤水器是在 ZLSG 基本型的基础上改进而成的，其进出水形式为下进水上出水结构。如此设计的原因是在于适应不同电站管道布置的需要。

ZLSG-G（GII）、ZLSG-B（ZLSG）系列全自动滤水器均由以下部件组成:滤水器本体（壳体、端盖法兰、转动机构、过滤机构、排污机构组成）、电动行星摆线针轮减速机、电动排污球阀、差压测量控制器、压力表及带 PLC 的电气控制柜。

ZLSG-G（GII）、ZLSG-B（ZLSG）全自动滤水器虽然在机械构造上和适用性能上有天壤之别，但它们都具备了自动过滤、自动反冲洗清污、排污等功能,且在排污时不影响供水管正常的供水量;电气控制上都采用了 PLC 控制技术，可实现定时排污、差压排污、手动排污以及减速机故障报警、差压过高报警、排污阀过力矩故障报警等功能；在线运行时，都可实现无人值班。另外，ZLSG-G（GII）、ZLSG-B 型都在上罐体设置了对开式检修孔,因此检修起来非常方便快捷，无需拆卸整体。下面主要介绍 ZLSG-G（GII）和 ZLSG-B（ZLSG）型全自动滤水器的性能特点。

1、ZLSG-G（GII）型全自动滤水器技术特点

ZLSG-G 系列全自动滤水器属国际领先技术,为国家专利产品(专利号:ZL 99 2 41273.0)。它特别适用于水质环境较恶劣的电站使用，能有效地过滤水中的泡沫塑料、木屑、塑料袋、编织袋等漂浮杂物以及泥沙等沉积物。

ZLSG-G 系列分为 G 型复合排污和 GII 型单排污两种,在水源中含有大量漂浮物的情况下，应该采用 G 型复合排污，而一般的水质，GII 型单排污就能很好地胜任。

◆ G 型复合排污技术

利用重力分离原理，把滤水器本体设计为上、下腔。上腔为浊水腔,下腔为清水腔。在上腔设置进水孔、上排污孔、检修孔。下腔设置排污架、过滤筒、下排污孔。当含有大量泥沙和漂浮物的水由进水口进入浊水腔后,

泥沙和漂浮物首先被分离，沉积物进入过滤筒，沉积于过滤筒底部，排污时经下排污孔排出，进入上腔的漂浮物在上腔等压的作用下漂浮在上腔，当上排污阀开启时，在水流压力的作用下，经上排污孔排出。有效避免了漂浮物及沉积物因从单一排放孔排放造成污物卡阻缠绕设备的事故发生，抗堵塞能力极强。此技术获国家专利，国内其它厂家均达不到此技术性能。

◆进出口方式的革新

ZLSG-G 系列滤水器采用上进水下出水的进出水形式，这可以说是ZLSG-G 系列滤水器结构上的一大亮点，这种结构最主要的作用是便于漂浮物和沉积物的分流过滤排污，复合排污的功能也是基于这种结构上的特点而实现的。

◆过滤面积大

ZLSG-G 型滤水器的下罐体处悬挂着数个制作精密的过滤筒，通过现代激光冲孔技术的加工，使每个过滤筒的过滤孔都尽可能的紧凑排列，使其过滤面积为最大值，即使是在排污时，也能充分保证过滤筒的过滤面积总和为出水管截面积的多倍以上，保证了出水管供水。

◆“双剪刀”设计

滤水器在线工作中，特别是在汛期，经常出现大量的树枝或其他较长的物体经水流进入滤水器过滤筒内，并卡死在过滤筒中。如果不能有效地解决这个问题，则极易造成过滤筒的损坏和堵塞，给滤水器的正常工作带来隐患。针对这个问题，我公司巧妙的在过滤筒上方和下方分别设计了两个形似剪刀的装置，一旦出现长形杂物卡死在过滤筒内，那么在清污排污过程中，电动减速机就会带动该装置做旋转运动，将过滤筒内的物体剪断成小段，逐步排出滤水器。

◆ 滤筒快速检修装置

一般的滤水器检修滤筒时，均需进行整体拆卸（有的还需动用起吊装置），而本公司生产的 ZLSG-G（GII）系列滤水器均设置了滤筒专用检修孔，能非常方便地把滤筒取出检修或更换，省时省力。

2、ZLSG-B（ZLSG）系列全自动滤水器技术特点

ZLSG-B（ZLSG）系列全自动滤水器是我公司在 ZLSG 型全自动滤水器加以改进而形成的一款系列滤水器。

ZLSG-B（ZLSG）系列全自动滤水器在水质较好的环境中使用能达到近乎完美的工况表现，能有效地过滤各类沉积物及悬浮物，但在处理漂浮物等杂物上作用不明显。ZLSG-B（ZLSG）系列全自动滤水器同样具有过滤筒过滤面积大、排污时水损和压损小、先进的 PLC 控制技术等特点。另外，与 ZLSG 型全自动滤水器不同的是，ZLSG-B 型全自动滤水器在上罐体设置有对开的检修孔，可通过其方便的对滤筒进行检修或更换。

三、工作原理

1、机械工作原理

1）ZLSG-G（GⅡ）型全自动滤水器

正常过滤时，电动减速机不启动，排污阀呈关闭状态。

当达到清污状态时，下排污阀（沉积物排污阀）打开，减速机启动，带动滤水器内转动机构旋转，使排污转筒依次与每一个过滤筒排污孔相连通，与此同时，过滤筒进水口被转板封闭，形成一个相对密封的环境。此时，沉积于被封闭过滤筒内的部分悬浮物及沉积物借助其他过滤筒过滤后的部分清洁水反冲洗，随着打开的下排污阀经排污管排出。

当上排污阀打开时，减速机不启动，漂浮于滤水器本体上部的漂浮物及部分悬浮物通过上排污阀排出。

2）ZLSG-B（ZLSG）型全自动滤水器

正常过滤状态时，电动减速机不启动，排污阀关闭。

当达到清污状态时，排污阀打开，减速机启动，带动滤水器内排污机构转动，使排污机构与被冲洗的过滤筒依次相连通，附着在过滤筒上面的污物借助滤水器内部的部分过滤后的清洁水反冲洗，并随着开启的排污阀经排污管流出。

2、电气控制原理和特点

◆清污状态

定时起动：通过 PLC 可编程控制器内部时间继电器定时起动减速机和排污阀。即减速机启动，排污阀随即开起。

差压控制起动：通过所设置的进出口压差控制器自动控制减速机和排污阀的起动，自动进行清污、排污。

手动控制起动：由设在电气控制柜上的按纽手动控制减速机和排污阀的开启。

◆故障保护功能

减速机出现故障或过力矩，排污阀过力矩，差压过高时均设有安全保护措施和故障报警及相应指示。

◆监测功能

利用专用连接线、接线接头及电脑连接线将 PLC 可编程控制器和电脑连接，即可通过电脑进行监控。

若需监测滤水器在工作状态时进出口的压力差值，则可在滤水器上安装一台能输出 4-20mA DC 模拟信号的差压变送器，然后接入电脑即可实现。

四、主要技术参数

公称压力：0.6MPa；1.0MPa；1.6MPa；2.5MPa

工作压力：0.25-1.0MPa；0.25-1.6MPa；0.25-2.5MPa

压力损失：0.01-0.03MPa

排污水量损失：＜5%

工作电源：AC 380V　50Hz（或其它电源等级）

过滤精度：0.05～6mm

差压设定范围：0.02-0.1MPa（可调节）

自动冲洗时间：5min 或根据工况要求

定时设定范围：0-72h

附表一：　　ZLSG-G（GⅡ）参数表

参数 / 型号	设计流量 m^3/h	进出口径 mm	排污口径 mm	减速机		减速机输出转速 rpm	排污阀功率 kW
				功率 kW	型号		
ZLSG-50G	21	50	20	0.37	XLED-32	3	0.05
ZLSG-65G	36	65	20	0.37	XLED-32	3	0.05
ZLSG-80G	54	80	25	0.37	XLED-32	3	0.05
ZLSG-100G	100	100	50	0.37	XLED-32	3	0.05
ZLSG-125G	113	125	50	0.55	XLED-42	2	0.09

ZLSG-150G	191	150	50	0.55	XLED-42	2	0.09
ZLSG-200G	340	200	65	0.75	XLED-53	1.5	0.09
ZLSG-250G	530	250	65	0.75	XLED-53	1.5	0.09
ZLSG-300G	750	300	100	0.75	XLED-53	1.5	0.09
ZLSG-350G	1039	350	100	0.75	XLED-63	1.5	0.18
ZLSG-400G	1200	400	100	1.1	XLED-63	1.5	0.18
ZLSG-450G	1500	450	100	1.1	XLED-63	1.5	0.18
ZLSG-500G	2120	500	125	1.1	XLED-63	1.0	0.25
ZLSG-600G	3055	600	150	1.5	XLED-74	1.0	0.37
ZLSG-700G	3890	700	150	1.5	XLED-74	1.0	0.37

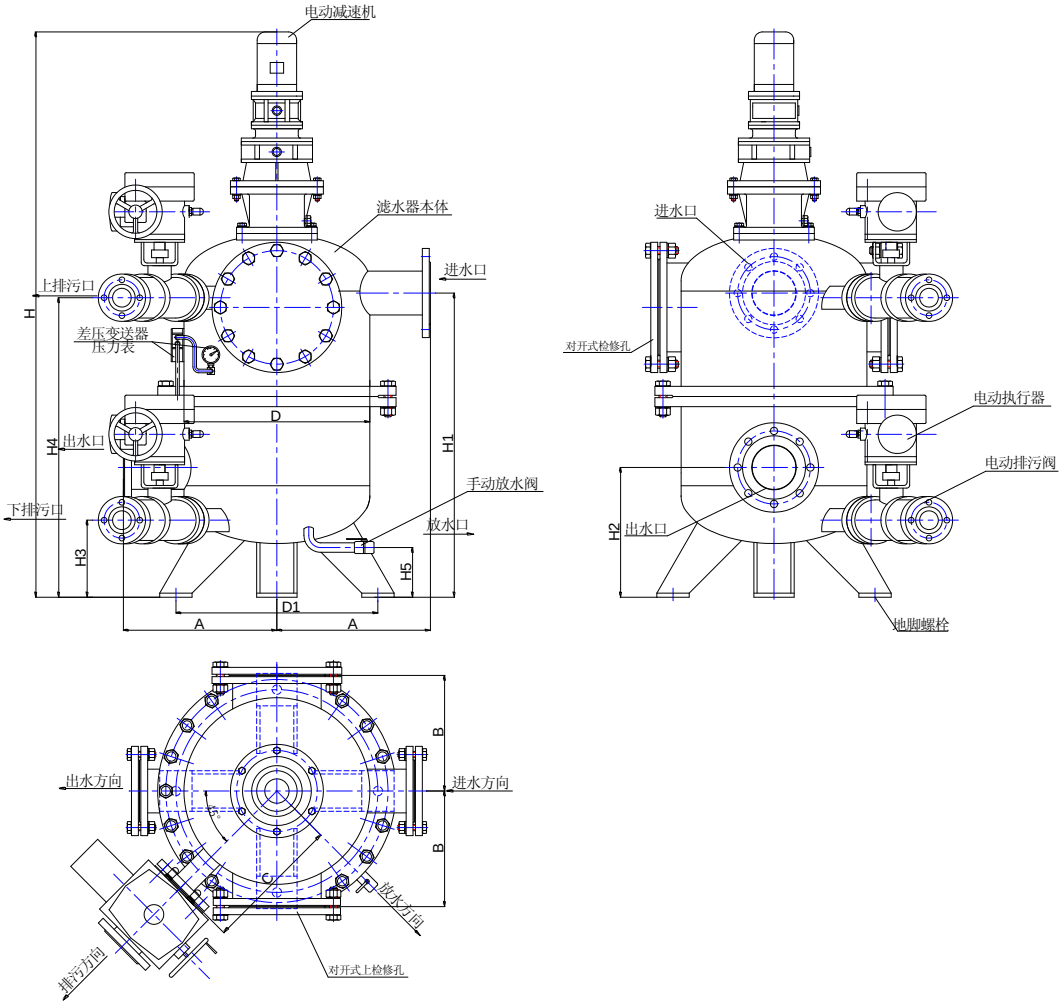
注：1、以上参数为我公司 ZLSG-G 型滤水器设计标准值；2、设计流量为保守值，最高适用数值可比表中数值＞15%；3、排污阀功率是指单个排污阀的功率；4、以上列表中的数值不适用于有特殊要求的产品。

附表二：ZLSG-B（ZLSG）型参数表

参数 / 型号	设计流量 m^3/h	进出口径 mm	排污口径 mm	减 速 机		减速机输出转速 rpm	排污阀功率 kW
				功率 kW	型 号		
ZLSG-50B	21	50	20	0.37	XLED-32	3	0.05
ZLSG-80B	54	80	25	0.55	XLED-42	2	0.05
ZLSG-100B	100	100	40	0.55	XLED-42	2	0.05
ZLSG-125B	113	125	50	0.75	XLED-53	1.5	0.09
ZLSG-150B	191	150	50	0.75	XLED-53	1.5	0.09
ZLSG-200B	339	200	65	0.75	XLED-63	1.5	0.09
ZLSG-250B	530	250	80	0.75	XLED-63	1.5	0.18
ZLSG-300B	750	300	100	1.1	XLED-63	1.5	0.18
ZLSG-400B	1200	400	100	1.5	XLED-74	1.0	0.25
ZLSG-500B	2120	500	125	1.5	XLED-74	1.0	0.25

注：1、以上参数为我公司 ZLSG-G 型滤水器设计标准值；2、设计流量为保守值，最高适用数值可比表中数值＞15%；3、排污阀功率是指单个排污阀的功率；4、以上列表中的数值不适用于有特殊要求的产品。

附图一：ZLSG-G（GⅡ）方位图

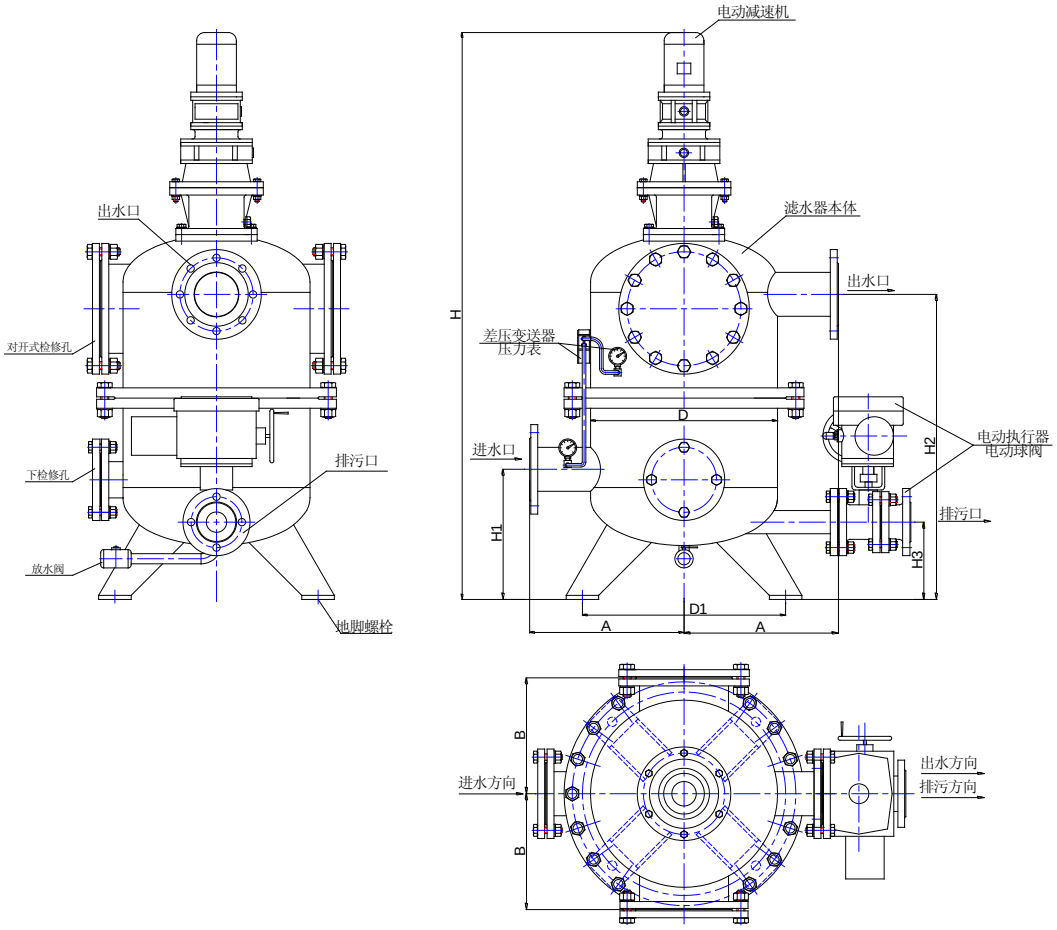


附表三 ZLSG-G（GⅡ）型全自动滤水器外形尺寸图

尺寸 / 型号	H	H1	H2	H3	H4	H5	D	D1	A	B	C
ZLSG-50G	1100	568	250	148	600	100	Φ350	Φ390	264	230	314
ZLSG-65G	1100	568	250	148	600	100	Φ350	Φ390	264	230	314
ZLSG-80G	1420	750	320	190	780	120	Φ450	Φ500	340	285	400
ZLSG-100G	1420	750	320	190	780	110	Φ450	Φ500	340	285	400
ZLSG-125G	1650	760	320	200	820	110	Φ500	Φ550	400	320	450
ZLSG-150G	1650	760	320	200	820	110	Φ500	Φ550	400	320	450
ZLSG-200G	1970	950	450	240	1050	120	Φ600	Φ640	450	350	450
ZLSG-250G	2115	1030	510	260	1120	120	Φ700	Φ680	510	420	510
ZLSG-300G	2115	1080	550	300	1195	120	Φ700	Φ680	510	420	510
ZLSG-350G	2210	1160	550	300	1270	150	Φ800	Φ900	570	450	570
ZLSG-400G	2310	1280	610	340	1350	150	Φ800	Φ900	570	450	570
ZLSG-500G	2900	1540	700	400	1680	200	Φ1100	Φ1150	750	650	750
ZLSG-600G	3650	1950	850	450	2150	250	Φ1300	Φ1300	850	750	850
ZLSG-700G	3650	1950	850	450	2150	250	Φ1300	Φ1300	850	750	850

(注:以上图示及列表为我厂 ZLSG-G 滤水器各规格标准产品尺寸方位,具体尺寸和方位可按用户实际需要做合理调整，若是 ZLSG-GⅡ则没有 H4 项参数。)

附图 2：ZLSG-B（ZLSG）方位图



附表四：ZLSG-B（ZLSG）外形尺寸图

尺寸 / 型号	H	H1	H2	H3	H4	D	D1	A	B
ZLSG-50B	1190	250	550	170	100	Φ350	Φ400	250	240
ZLSG-80B	1250	260	600	170	100	Φ400	Φ450	300	260
ZLSG-100B	1320	270	700	190	100	Φ450	Φ500	340	285
ZLSG-125B	1580	320	760	200	110	Φ500	Φ550	360	320
ZLSG-150B	1580	320	760	200	110	Φ500	Φ550	360	320
ZLSG-200B	1850	385	880	265	120	Φ600	Φ640	420	380
ZLSG-250B	1950	400	980	290	120	Φ700	Φ680	460	420
ZLSG-300B	1950	400	980	290	120	Φ700	Φ680	460	420
ZLSG-400B	2475	560	1200	340	150	Φ900	Φ900	620	530
ZLSG-500B	2985	700	1500	450	150	Φ1100	Φ1150	750	650

(注:以上图示及列表为我厂 ZLSG-B 滤水器各规格标准产品尺寸方位,具体尺寸和方位可按用户实际需要做合理调整，若是 ZLSG 型则没有 B 项参数。)

五、操作维护说明及注意事项

我公司生产的滤水器均设有吊耳，吊装非常方便，安装时，请平稳地将滤水器吊运到指定安装地点，使用地脚螺栓将滤水器固定在基础台上，随后可联接进出水管及排污管道。

滤水器安装好后，将电气控制柜安装到滤水器附近的墙壁上（如果是电气柜安装在滤水器本体上则不需要），按照我公司提供的电气原理图接好所有控制线及电源线。

设定滤水器清污、排污工况:

1、定时清污、排污：可根据水质情况来确定清污、排污频率，所需时间可在 PLC 中调节。

2、差压控制清污、排污：根据水质情况，可通过调节差压控制器的动作值来控制滤水器差压清污、排污频率。

3、现场手动清污、排污：可在现场操作电气控制柜上的电动减速机启动按钮来控制滤水器进入清污、排污流程，此操作由用户自行决定。

4、另外，滤水器与供水管连接时，有必要装设旁路管道及切换阀门，以便设备出现故障时，能及时隔离处理，与滤水器排污阀连接的管路如无特殊情况，均应向下沿水流方向成一定斜度，保证排污通畅，以免污物在管道中堵塞。

5、请注意供水管路系统的水流方向应与滤水器上标志一致，才能使滤水器正常工作，以免出现故障。

6、设备启动前，应将电气控制柜上所有按钮设为自动状态；通过手动排污，检查电动减速机电机与排污球阀驱动装置电机旋向是否正确。

7、以上准备工作完成后，缓慢开启进水管阀门，同时拧开排气阀，排完滤水器内空气，检查滤水器本体及供水系统连接处有无渗漏现象，然后关闭排气阀，打开出水口阀门，滤水器开始正常过滤。

Welcome to using the ZLSG series Full-Automatic Water Strainers produced by the company. Before using, please read the instruction carefully. It will help you well know the structure, performance and operating procedure, as well as the notice of our products. The company remains the right to final interpretation for this manual.

Ⅰ. Introduction

As a national oriented separation machine manufacturer, we have a history of over 30 years in designing and producing separation machine. Just at the time of establishment, we had concentrated on the design concept and developing tendency of other foreign manufacturers. We decidedly introduced advanced foreign technology, digesting and absorbing their core parts. Combining with end-users' specified requirement at home and abroad, through actively exploring and innovating, the design and production model on the basis of independent research and development was formed. Series products concerning oil purification, water treatment and air drying were developed, which has won many national technology patent. With the hard and upward working of generations' workers in Chuanlv, through stably occupying the home market and actively exploring the foreign market, the company will be much more powerful. We will become the top enterprise in this circle at home, and take the lead on the technology tendency of separation machine's manufacturing.

Water Strainer is indispensable equipment in electric power generation, which is very important for the regular operation of electric power generation units. On the end of 1970's, the company introduced Israeli technology, and began producing fully automatic Water Strainer. Because of the domestic hydrology environmental condition, the fully automatic filter had many defects in structure and performance in early years. And the effect of filtering and discharging pollutant was poor as well. Along with China's accelerating economic development, demand for electric power is increasing rapidly. With this, we strongly recognized the necessity of thorough technology innovation on original fully automatic Water Strainers, and a new type Water Strainer must be developed to replace the old ones. After the visits and inspection in dozens domestic thermal power plants and hydropower plants, combining with the advanced technology of US, Israel, Italy and so forth, and thanks to the years' hard working of our researchers, we developed the ZLSG series fully

automatic Water Strainer, which has not only been widely accepted in national electric power industry, but has been sold overseas.

Ⅱ. Structural Features of Water Strainer

The ZLSG series full-automatic water strainer is mainly divided into two types: ZLSG-G (GII) and ZLSG-B. The ZLSG-G (GII) Water Strainer has a structure with inlet up and outlet down, while the ZLSG-B Water Strainers is outlet up and inlet down, which is improved from the basic ZLSG in the ZLSG. The reason for this design is to meet the requirement of power station's different pipe arrangement.

ZLSG-G (GII), the ZLSG-B (ZLSG) series full-automatic water strainer are composed of the following parts: Water Strainer main body (composed of shell, cover-end-piece flange, rotation mechanism, filtration mechanism, filth discharge mechanism), electric cyclonical pin wheel reducer, electric filth discharge ball valve, water chiller controller, pressure gauge and PLC electronic control cabinet.

Although ZLSG-G(GII), ZLSG-B(ZLSG) full-automatic water strainer are quite different in mechanical structure and adaptable performance, they both feature the function of automatic filtration, automatic counter-flushing filth discharge and so on, and will not influence the normal amount of water pipe's water supply. PLC control technology has been adopted in electronic control, which can make time filth discharge, differential pressure filth discharge, manual filth discharge and reducer's failure alarm, differential pressure overload alarm, over force moment failure alarm function. Running without people taking charge can also be achieved. In addition, ZLSG-G (GII), ZLSG-B was both set opening manhole on upper tank, so that the repair will be quite convenient without disassembling the whole. The following will mainly introduce the performance and features of ZLSG-G (GII) and ZLSG-B (ZLSG).

1. The Technology Features of ZLSG-G (GII) Fully Automatic Water Strainer

The ZLSG-G series full-automatic water strainer is equipped with international leading technology, which possess national patent (patent number: ZL 99 2 41273.0). It is especially suitable for the power plant in bad water quality environment, for it can effectively filter deserted floater like foam, sawdust, plastic bag, and weave bags, as well as deposit like bedload.

The ZLSG-G series are divided into G compound filth discharge and GII single filth discharge. In the condition of having large amount floater in water, the G compound filth discharge should be adopted, while the common water quality condition can be well addressed by the GII single filth discharge.

◆ G compound filth discharge technology

Taking advantage of the gravity separation principle, the Water Strainer's main body is designed with upper tank and low tank. The upper one is turbid water tank, which is set water inlet, upper filth discharge hole and manhole. And the low one is purified water tank, which set filth discharge shelf, filtration cylinder, low filth discharge hole. When the water entered the turbid water tank with a great number of dedlock and floater, bedlock and floater will be separated firstly, meanwhile, the deposits enter the filter and deposited on the bottom of filtration cylinder. During the time of filth discharge, they will be discharged through the low filth discharge hole, and the floater which has entered the upper tank will float in the tank under the isotonic effect. When the upper pollutant wash water valve is open, floater will be discharged through the upper discharge hole under hydraulic pressure. This will effectively protect the equipment from being blocked or twined by the floater or deposits which are discharged through single discharge hole. The ability to resist being blocked is strengthened. This technology has attained a national patent. Other domestic manufacturers can still not reach this level.

◆Innovation of the Form of Inlet and Outlet

The ZLSG-G series Water Strainer adopts an inlet/outlet form of inlet from above while outlet from below, which can be recognized as a highlight on the structure of ZLSG-G series Water Strainer. Its main effect is being convenient for floater and deposits to be separated, filtered and discharged. And the function of compound filth discharge is achieved on the features of this structure as well.

◆Large Filtration Area

Under the ZLSG-G Water Strainer, there are several skillful filters. Through the processing of modern laser hole punching, every filter hole can be arranged as tight as possible, maximizing the filtration area. Even during the time of discharge, the filter's total filtration area can be guaranteed 2 times more than inlet-outlet pipes' sectional area, which guaranteed the water supply from inlet-outlet pipes.

◆Double Scissors Design

When Water Strainer is working, especially during the flood season, a great number of branches or other long object frequently enter Water Strainers and block them. If this problem can not be solved effectively, filters can be damaged or blocked easily. And this will bring many hidden troubles for the normal work. For this problem, we subtly designed two scissors devices up and down separately. Once long projects block in filters, electronic reducer will rotate this device together during clearing and discharging. And the projects going through filters will be cut into several sects, and discharged through filters gradually.

◆Filter fast examination and repair device

While repairing the filter of common Water Strainer, disassembling the whole is a must (crane is needed sometimes as well). But the entire ZLSG-G (GII) series Water Strainer produced by the company have special manhole for filters, through which, the filter can be taken out and fixed easily, saving time and manual effort.

2. Technology Features of ZLSG-B (ZLSG) Series Full-automatic water strainer

The ZLSG-B (ZLSG) series full-automatic water strainer is series Water Strainer improved from our ZLSG fully automatic Water Strainer.

In good water quality environment, the ZLSG-B (ZLSG) series full-automatic water strainer can perform perfectly, effectively filter varies of suspender and deposits. But the effect is not very obvious while processing impurity like floater. Besides the features such as large filtration area, low pressure loss and water loss during discharging and advanced PLC control technology, the differences of ZLSG-B(ZLSG) series full-automatic water strainer from ZLSG series full-automatic water strainer is that, symmetric manhole is set on upper tank, through which, the repair and change on filter will be convenient.

Ⅲ. Operating Principle

1. Mechanical Operating Principle

1）ZLSG-G（GⅡ）Series Fully Automatic Water Strainer

During normal filtration, the electronic reducer doesn’t work. The wash water valve is close.

When the state of discharge is reached, nether row of wash water valve (deposits wash water valve) will open, and reducer will be initiated, rotating the rotation mechanism in filters, which can make rotating cylinder orderly connect to every discharge hole on filters. Meanwhile, filter's inlet will be closed by rotating board, forming a relatively sealed environment. At that time, part of the suspender and deposits in the sealed filter will be backwashed by the clear water partly from other filters' filtering, and be discharged through the nether row of open wash water valve.

When the upper row of wash water valve is open, reducer will not be initiated. The floater and part suspender floating in filter's main body will be discharged through the upper row of wash water valve.

2）ZLSG-B(ZLSG) Series Fully Automatic Water Strainer

In normal filtration condition, electronic reducer will not be initiated, and wash water valve will be closed.

In clearing condition, wash water valve will open, and reducer will be initiated, rotating the discharge mechanism in filters, making discharge mechanism orderly connect to the washed filters. The filth attached to filter will be backwashed by the clear water partly from other filters' filtering, and be discharged through the discharge pipe of open wash water valve.

2. Electronic Control Principle and Features

◆Clearing Condition

Timely Initiate:

Through the time relay in PLC programmable controller, timely initiate reducer and wash water valve. Namely reducer is initiated and wash water valve is immediately started.

Initiated by differential Pressure Control

The initiation by set inlet/outlet differential pressure controller automatically controlling reducer and wash water valve, and clear and discharge automatically.

Initiated by Manual Control

Pressing the button on electronic control cabinet control, manually control the initiation of reducer and wash water valve.

◆Failure Protect Function

Protective measure and failure alarm, as well as relative indication will be launched when reducer

failure or over force moment, wash water valve over force moment, overhigh differential pressure occurs.

◆Monitoring Function

Using special cable, tie-in and computer cable connect PLC programmable controller and computer, namely monitoring with computer.

If monitoring the differential pressure value at inlet/outlet is needed when filter is working, a pressure gauge of differential pressure transmitter who can output 4-20mA DC simulating signal can be installed on Water Strainer. And then, computer can be connected.

Ⅳ. Major Technical Parameter

Ominal pressure: 0.6MPa; 1.0MPa; 1.6MPa; 2.5MPa

Working pressure: 0.25-1.0MPa; 0.25-1.6MPa; 0.25-2.5MPa

Pressure loss: 0.01-0.03MPa

Water loss during discharge: ＜5%

Power supply: AC 380V 50Hz (or other voltage grade)

Filtration accuracy: 0.05 ~ 6mm

Differential pressure set value scope: 0.02-0.1MPa（adjustable）

Automatic wash hours: 5min or according to working condition

Timing set value scope:

Attached List 1: ZLSG-G（GⅡ）parameter table

Parameter / Type	Designed flux m^3/h	In/out caliber mm	Discharge caliber mm	Reducer		Reducer output rev rpm	Wash water valve power kW
				Power kW	Type		
ZLSG-50G	21	50	20	0.37	XLED-32	3	0.05
ZLSG-65G	36	65	20	0.37	XLED-32	3	0.05
ZLSG-80G	54	80	25	0.37	XLED-32	3	0.05
ZLSG-100G	100	100	50	0.37	XLED-32	3	0.05
ZLSG-125G	113	125	50	0.55	XLED-42	2	0.09
ZLSG-150G	191	150	50	0.55	XLED-42	2	0.09
ZLSG-200G	340	200	65	0.75	XLED-53	1.5	0.09
ZLSG-250G	530	250	65	0.75	XLED-53	1.5	0.09

ZLSG-300G	750	300	100	0.75	XLED-53	1.5	0.09
ZLSG-350G	1039	350	100	0.75	XLED-63	1.5	0.18
ZLSG-400G	1200	400	100	1.1	XLED-63	1.5	0.18
ZLSG-450G	1500	450	100	1.1	XLED-63	1.5	0.18
ZLSG-500G	2120	500	125	1.1	XLED-63	1.0	0.25
ZLSG-600G	3055	600	150	1.5	XLED-74	1.0	0.37
ZLSG-700G	3890	700	150	1.5	XLED-74	1.0	0.37

Note:

1. The above parameter is designed normal value of our ZLSG-G Water Strainer.

2. The designed flux is a minimum value, the highest appropriate value can be as much as 15% more than the value in this table;

3. The wash water valve power refers to the power of single wash water valve;

4. The value in above table can not be applied to the product with special requirement.

Attached List 2: ZLSG-B（ZLSG）parameter table

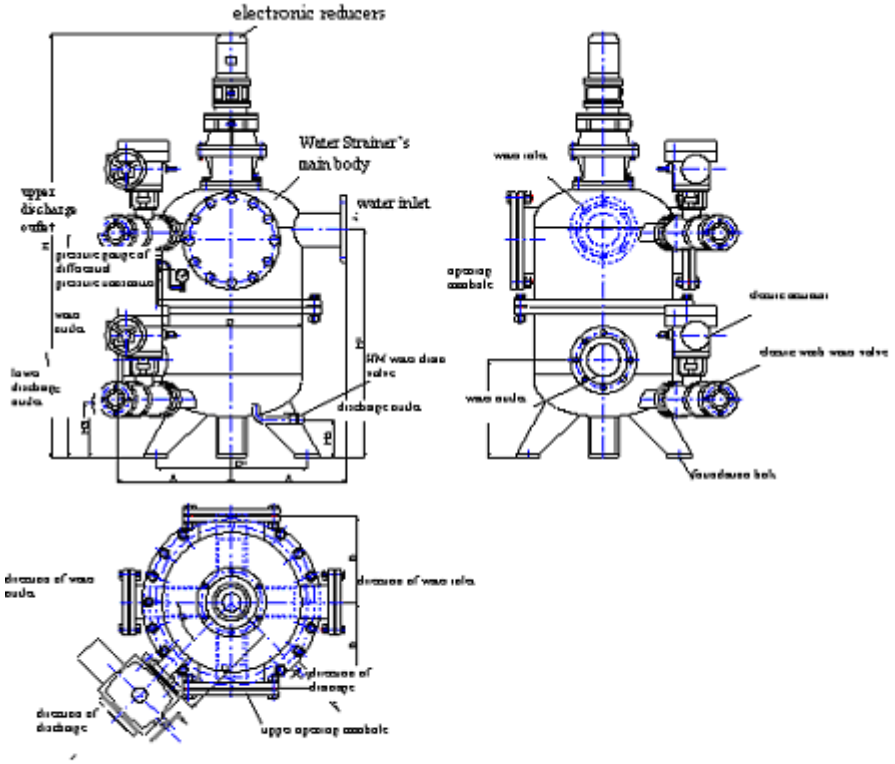
Parameter / Type	Designed flux m^3/h	In/out caliber mm	Discharge caliber mm	Reducer		Reducer output revr pm	Wash water valve power kW
				Power kW	Type		
ZLSG-50B	21	50	20	0.37	XLED-32	3	0.05
ZLSG-80B	54	80	25	0.55	XLED-42	2	0.05
ZLSG-100B	100	100	40	0.55	XLED-42	2	0.05
ZLSG-125B	113	125	50	0.75	XLED-53	1.5	0.09
ZLSG-150B	191	150	50	0.75	XLED-53	1.5	0.09
ZLSG-200B	339	200	65	0.75	XLED-63	1.5	0.09
ZLSG-250B	530	250	80	0.75	XLED-63	1.5	0.18
ZLSG-300B	750	300	100	1.1	XLED-63	1.5	0.18
ZLSG-400B	1200	400	100	1.5	XLED-74	1.0	0.25
ZLSG-500B	2120	500	125	1.5	XLED-74	1.0	0.25

Note:

1. The above parameter is designed normal value of our ZLSG-G Water Strainer;
2. The designed flux is a minimum value, and the highest appropriate value can be as much as 15% more than the value in this table;

3. The wash water valve power refers to the power of single wash water valve;
4. The value in above table can not be applied to the product with special requirement.

Attached figure 1: ZLSG-G（GⅡ）azimuth map

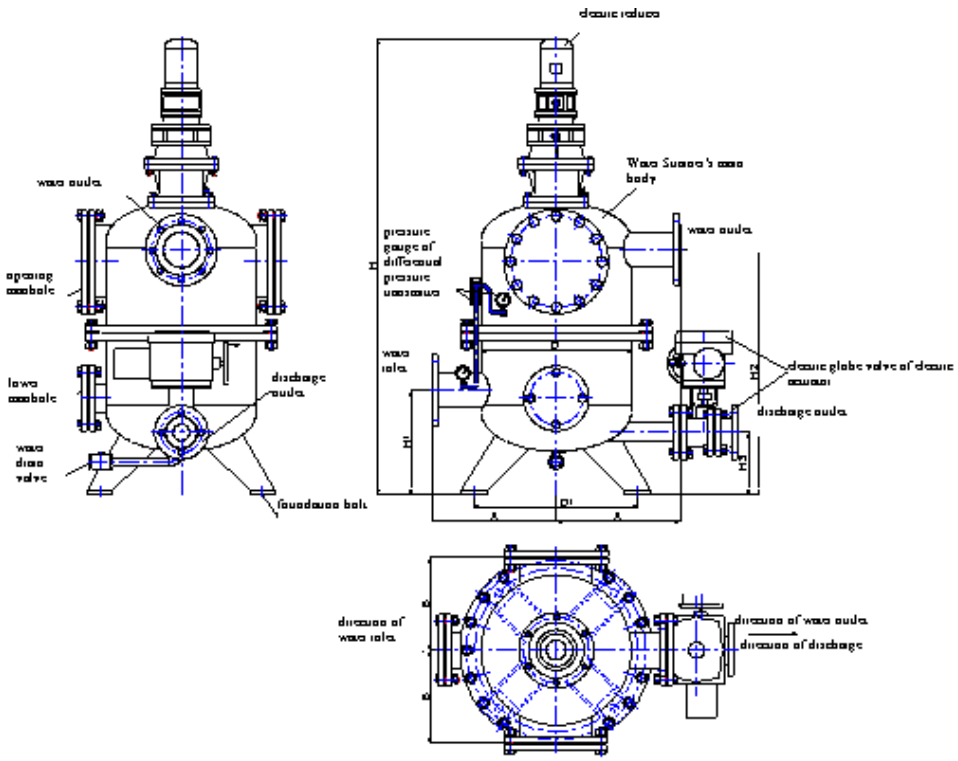


Attached List 3 ZLSG-G（GⅡ）Fully Automatic Filter External Dimension Map

Size / Type	H	H1	H2	H3	H4	H5	D	D1	A	B	C
ZLSG-50G	1100	568	250	148	600	100	Φ350	Φ390	264	230	314
ZLSG-65G	1100	568	250	148	600	100	Φ350	Φ390	264	230	314
ZLSG-80G	1420	750	320	190	780	120	Φ450	Φ500	340	285	400
ZLSG-100G	1420	750	320	190	780	110	Φ450	Φ500	340	285	400
ZLSG-125G	1650	760	320	200	820	110	Φ500	Φ550	400	320	450
ZLSG-150G	1650	760	320	200	820	110	Φ500	Φ550	400	320	450
ZLSG-200G	1970	950	450	240	1050	120	Φ600	Φ640	450	350	450
ZLSG-250G	2115	1030	510	260	1120	120	Φ700	Φ680	510	420	510
ZLSG-300G	2115	1080	550	300	1195	120	Φ700	Φ680	510	420	510
ZLSG-350G	2210	1160	550	300	1270	150	Φ800	Φ900	570	450	570
ZLSG-400G	2310	1280	610	340	1350	150	Φ800	Φ900	570	450	570
ZLSG-500G	2900	1540	700	400	1680	200	Φ1100	Φ1150	750	650	750
ZLSG-600G	3650	1950	850	450	2150	250	Φ1300	Φ1300	850	750	850
ZLSG-700G	3650	1950	850	450	2150	250	Φ1300	Φ1300	850	750	850

(Note: the above figures and tables is normal product dimension and azimuth map for all types of ZLSG-G Water Strainer produced by us. Specified dimension and azimuth can be adjusted according to customer's practical requirement. If it is ZLSG-GⅡ, the parameter of H4 will not be available.)

Attached figure 2: ZLSG-B（ZLSG）azimuth map



Attached List 4: ZLSG-B（ZLSG）External Dimension Map

Size / Type	H	H1	H2	H3	H4	D	D1	A	B
ZLSG-50B	1190	250	550	170	100	ϕ350	ϕ400	250	240
ZLSG-80B	1250	260	600	170	100	ϕ400	ϕ450	300	260
ZLSG-100B	1320	270	700	190	100	ϕ450	ϕ500	340	285
ZLSG-125B	1580	320	760	200	110	ϕ500	ϕ550	360	320
ZLSG-150B	1580	320	760	200	110	ϕ500	ϕ550	360	320
ZLSG-200B	1850	385	880	265	120	ϕ600	ϕ640	420	380
ZLSG-250B	1950	400	980	290	120	ϕ700	ϕ680	460	420
ZLSG-300B	1950	400	980	290	120	ϕ700	ϕ680	460	420
ZLSG-400B	2475	560	1200	340	150	ϕ900	ϕ900	620	530
ZLSG-500B	2985	700	1500	450	150	ϕ1100	ϕ1150	750	650

(Note: the above figures and tables is normal product dimension and azimuth map for all types of

ZLSG-B Water Strainer produced by us. Specified dimension and azimuth can be adjusted according to customer's practical requirement. If it is ZLSG, the parameter of B will not be available.)

Ⅴ. Instruction of Operation and Maintenance, and Notice

The entire Water Strainers produced by the company are equipped with stationary rings, which can make hoisting and installation very convenient. While installing, please steadily lift and carry the Water Strainer to arranged installation site, fixing Water Strainer with foundation bolt on basic platform. Then you can connect inlet/outlet pipes to wash water pipes.

After the Water Strainer is fixed, install the electronic control cabinet on the wall close to the Water Strainer (it is not necessary if electronic cabinet is installed on Water Strainer's main body), and connect all the control cable and power line according to the diagram of electronic principle provided by us.

Set Water Strainer's working condition of clearing and discharge:

1. Timely clearing, discharge: The frequency of clearing and discharge can be fixed according to the water quality. The required time can be adjusted in PLC.

2. Clearing and discharge controlled by differential pressure: According to the water quality, the frequency of Water Strainer's differential pressure clearing and discharge can be controlled through adjusting the active value of differential pressure controller.

3. Manually clearing and discharge at site: You may press the electronic reducer's start button, which is on the electronic cabinet, to control Water Strainer to start clearing and discharging. This operation can be decided by customers.

4. In addition, while Water Strainer is connected to water supply pipe, it is necessary to install the branch pipeline and switch valve, in order to isolate and address timely when failure emerges. If there is no special situation in the pipeline connected to Water Strainer's wash water valve, all these should have a bevel with the direction of downward water flow, keeping discharge fluent and avoiding being blocked by filth in pipeline.

5. Please notice that the direction of water flow in water supply pipeline should keep consistent

with the mark on Water Strainer, so that the Water Strainer can work normally, avoiding the emergence of failure.

6. Before the equipment is started, all the buttons on electronic control cabinet should be set as automatic; through manually filth discharge, check if the engineer rotating of electronic reducer and wash water ball valve's driving device is correct.

7. After the above preparation is completed, open the water inlet valve slowly, twists off the air discharge valve, and exhausts all the air in the Water Strainer. Examine whether there is leakage in the connection between Water Strainer's main body and water supply system, and then close the air discharge valve and open water outlet valve. Thus the Water Strainer can start working normally.