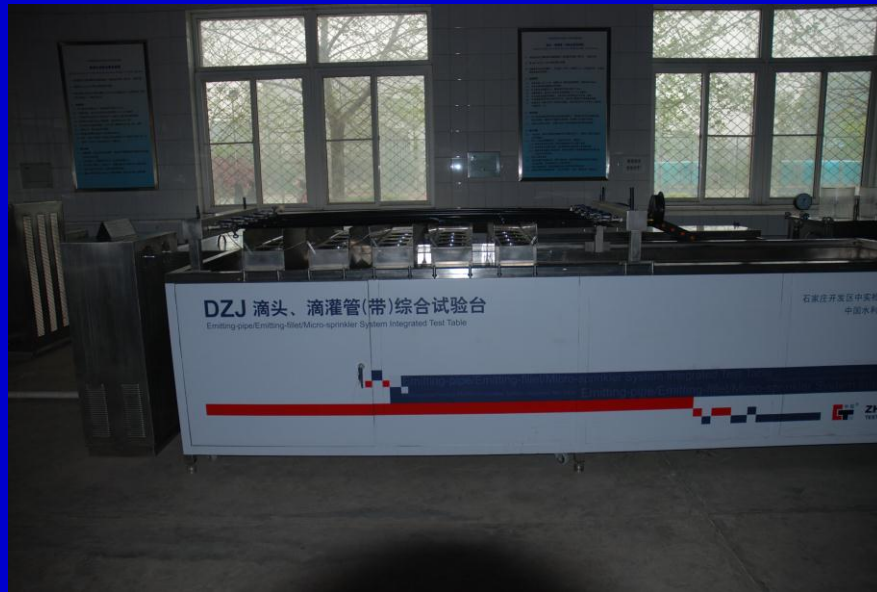


Quality Supervision and Test of Irrigation and Drainage Equipment in China



**China Institute of Water Resources and
Hydropower Research (IWHR)**

Fortaleza 2012.05.29

Contents

- **Basic information**
- **Certification & authorization**
- **Test facility**
- **Test, R&D**
- **Problems encountered**

Basic information

Founded in 1985, namely “Test Center for Equipment on Irrigation and Drainage, Ministry of Water Resources”,

Founded in 2006, namely “National Center for Quality Supervision and Test of Agricultural Irrigation and Drainage Equipment” is attached to China Institute of Water Resources and Hydropower Research(IWHR). It has been authorized by the Certification and Accreditation Administration of the People’s Republic of China. It has a staff of 19 (including 5 professors, 2 senior engineers, 5 engineers and 7 technicians) and has a test hall with 1500 m² and 4 laboratories well-equipped with more than 200 instruments and devices. The laboratories can conduct the tests of hydraulic properties, material properties, soil physical and chemistry properties and geotextiles properties.

Basic information

Tasks and Functions

Products Certification: Authorizing the products for efficient irrigation according to international, national and local standards

Supervision and Test: Conducting the laboratory tests and on-site tests of efficient irrigation products, Supervising and evaluating the product quality

Standard Formulation: Formulating and revising national and local standards, and developing test methods

Training and Consultation : Training technicians for other test laboratories, and providing professional consulting service

Basic information

Scope of Business

9 kinds of the equipment/materials on irrigation and drainage can be tested, including:

Sprinklers, Micro-irrigation Emitters, Pipes, Pipe fittings, Geotextiles, Materials of rubber dams , Soil physical and chemical properties, Pumping devices of wells

Certification & authorization

Our test center possess 4 kinds marker (logo)



2011002745Z



(2011)国认监认字(315)号

Certification & authorization



- **ilac-MRA** stand for The International Laboratory Accreditation Cooperation (ilac) --Mutual Recognition Arrangement (MRA)
- **CNAS** stand for China National Accreditation Service for Conformity Assessment

Certification & authorization



**中国合格评定国家认可委员会
实验室认可证书**
(注册号: CNAS L2733)

兹证明:
中国水利水电科学研究院灌排设备实验室
北京市海淀区车公庄西路20号, 100048

符合 ISO/IEC 17025:2005《检测和校准实验室能力的通用要求》
(CNAS-CL01《检测和校准实验室能力认可准则》)的要求, 具备承担
本证书附件所列检测服务的能力, 予以认可。

获认可的能力范围见标有相同认可注册号的证书附件, 证书附件是
本证书组成部分。

签发日期: 2011-09-21
有效期至: 2014-09-20
初次认可: 2006-06-30
更新日期: 2011-09-21



中国合格评定国家认可委员会授权人 

中国合格评定国家认可委员会 (CNAS) 经国家认证认可监督管理委员会 (CNCA) 授权, 负责实施合格评定国家认可制度。CNAS 是国际实验室认可合作组织 (ILAC) 和亚太实验室认可合作组织 (APLAC) 的多边互认协议成员。

No.CNAS AL 1 0002000



**China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE**
(Registration No. CNAS L2733)

**Laboratory for Irrigation and Drainage Equipment of
China Institute of Water Resources and Hydropower Research**
No.20, Chegongzhuang West Road, Haidian District, Beijing, China

*is accredited to ISO/IEC 17025:2005 General Requirements for the
Competence of Testing and Calibration Laboratories (CNAS-CL01
Accreditation Criteria for the Competence of Testing and Calibration
Laboratories) for the competence of testing.*

*The scope of accreditation is detailed in the attached appendices bearing the same
registration number as above. The appendices form an integral part of this
certificate.*

Date of Issue: 2011-09-21
Date of Expiry: 2014-09-20
Date of Initial Accreditation: 2006-06-30
Date of Update: 2011-09-21



Signed on behalf of China National Accreditation Service
for Conformity Assessment

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC-MRA) and Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC-MRA).

No.CNAS AL 2 0002202

Certification & authorization



CMA stand for China
Metrology Accreditation
(Authorized according to
China Metrology Law)



Certification & authorization



CAL stand for China
Accreditation Laboratory
(Authorized according to China
Standardization Law)



TEST REPORT SAMPLE



国家农业灌排设备质量监督检验中心
National Center for Quality Supervision and Test of Agricultural
Irrigation and Drainage Equipment

检验报告

TEST REPORT

编号(NO.): X12044

产品名称: 内镶式滴灌带

Product Name

委托单位: 湖北孚龙管业科技有限公司

Inspected Body

检验类别: 委托检验

Kind of Test

检验中心公章:

Seal of Test Center

报告发送日期: 2012年4月10日

Date of Report



说明

1. 检验报告无检验中心公章无效。
2. 未经本中心书面批准, 不得复制本报告(完整复制除外), 本检验报告的复印件未重新加盖检验中心公章无效。
3. 本检验报告无审核、签发人签字、无骑缝章无效。
4. 本检验报告涂改无效, 本报告页数不全无效。
5. 根据《产品质量法》第十五条规定, 对检验报告若有异议, 应于收到报告之日起十五日之内向本中心提出, 并进行处理。
6. 本报告仅对来样负责。
7. 竭诚为您服务, 真诚欢迎用户多提宝贵意见。

通讯地址: 北京市海淀区车公庄西路20号

试验地点: 中国水利水电科学研究院

联系电话: 010-68786522, 68786521

传 真: 010-68451169

邮政编码: 100048

电子邮件: gaobenu@iwhr.com; yangshj@iwhr.com

网 址: www.watsave.cn

TEST REPORT SAMPLE

国家农业灌排设备质量监督检验中心

National Center for Quality Supervision and Test of Agricultural
Irrigation and Drainage Equipment

检验报告首页

TEST REPORT

编号(NO.): X12044

共 2 页 第 1 页

样品名称 Product Name	内镶式滴灌带	型号规格 Model/Type	(详见续页)
委托单位 Inspected Body	湖北孚龙管业科技有限公司	委托单位地址 Address of Inspected Body	湖北省黄石市发展大道 269号 邮编: 435005
生产单位 Manufacturer	湖北孚龙管业科技有限公司	检验项目 Test Item	共 5 项 (详见续页)
抽样单位 Sampling Body	/	送样单位 Client	湖北孚龙管业科技有限公司
抽样日期 Sampling Date	/	抽样地点 Sampling Site	/
样品数量 Samples Quantity	40 米	抽样基数 Sampling Base	/
到样日期 Receipt Date	2012-04-05	样品等级 Sample Grade	合格品
样品特性和状态 Sample Character & Condition	样品正常, 包装无损坏	原编号或生产日期 Serial No. / Manufactured Date	2011 年 10 月
检验依据 Test Criterion	GB/T 19812.3-2008《塑料节水灌溉器材 内镶式滴灌管、带》		
检验结论 Test Conclusion	(详见续页)		
备注 Note			

主检:

宋光宇

审核:

杨书君

批准(技术负责人): 高本虎

Approved by:

高本虎

Tested by:

2012年4月10日

Audited by:

2012年4月10日

2012年4月10日

国家农业灌排设备质量监督检验中心

National Center for Quality Supervision and Test of Agricultural
Irrigation and Drainage Equipment

检验报告

TEST REPORT

共 2 页 第 2 页

委托单位: 湖北孚龙管业科技有限公司

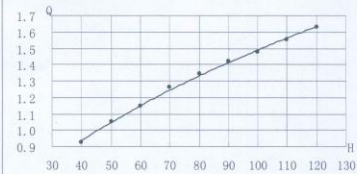
样品名称: 内镶式滴灌带

型号规格: MGD16×150-1.38-100

试验编号: X12044

检验依据: GB/T 19812.3-2008

试验日期: 2012-04-09

序号 Serial No.	检验项目 Test Item	技术指标 Technical Requirement	检验结果 Test Result	单项判定 Judgement	
1	规格 尺寸	公称内径 及极限偏差	$16^{+0.3}_{-0.3}$ mm	$16^{+0.2}_{+0.02}$ mm	合格
		公称壁厚 及极限偏差	$0.30^{+0.05}_{-0.02}$ mm	$0.30^{+0.05}_{-0.03}$ mm	合格
2	流量均匀度	\bar{q} 相对于 q_n 的偏差 (C 值) % A 类 ≤ 5 B 类 ≤ 10	3.51%	合格	
		变异系数 (C _v 值) % A 类 ≤ 5 B 类 ≤ 10	7.92%	合格	
3	耐静水压性能	在 1.2 倍最大工作压力, 即 120kPa 压力下保压 1 小时不损坏	未损坏	合格	
		试验前后每个滴头流量偏差应不大于 10%	1.37%	合格	
4	耐拉拔性能	滴灌带应能承受 130N 试验拉力不出现断裂现象 试验前后标线间距的变化不大于 5%	未断裂 1%	合格 合格	
5	压力与流量关系	 $Q = 0.1444 \times H^{0.5070}$ ($r = 0.9991$) 式中: Q —流量, L/h; H —工作压力, kPa; r —相关系数	/	/	

备注: 本报告有效日期截止至受检产品全年生产日期

Note:

Test facility



Test hall

Test facility

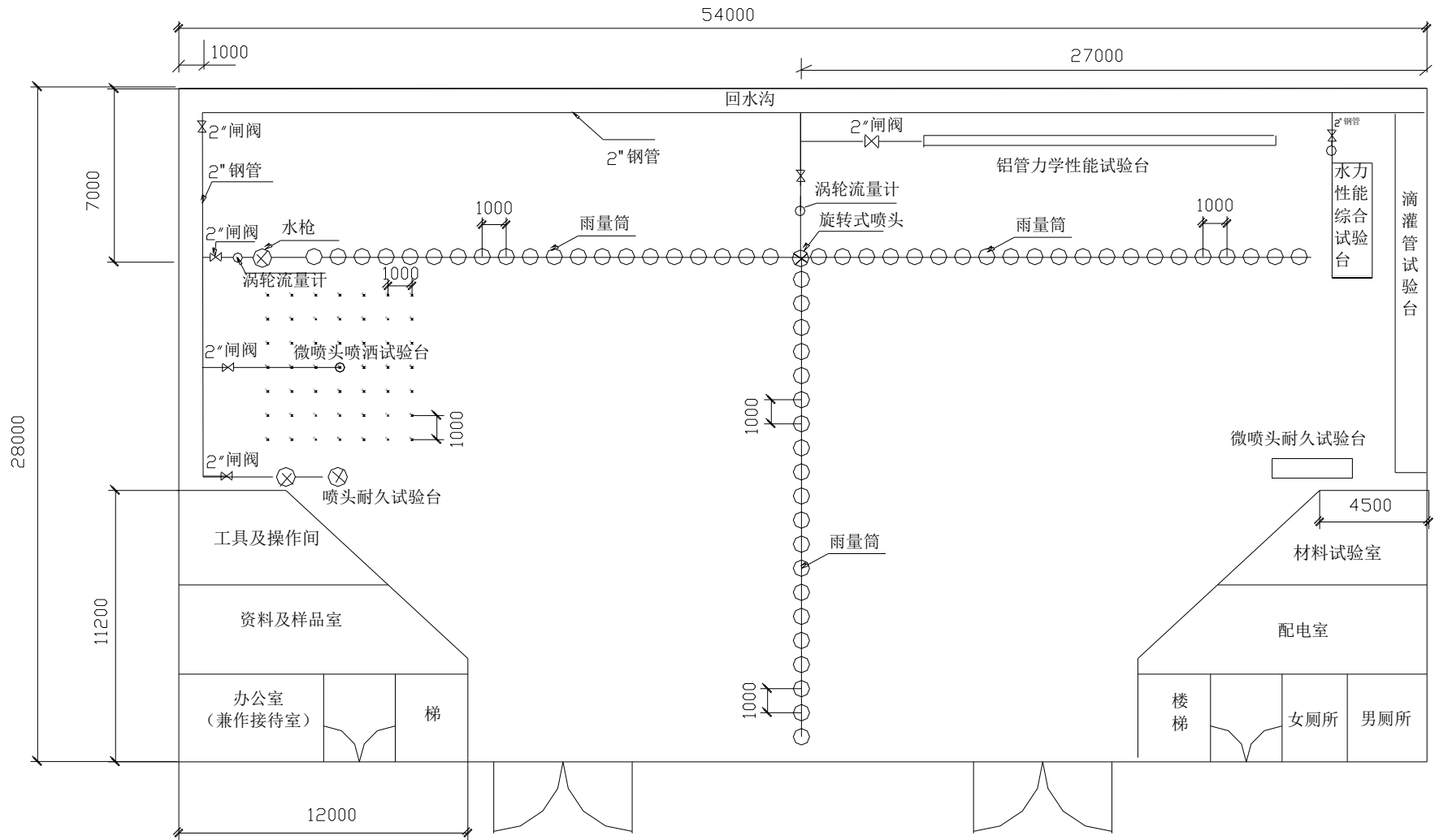


Pump station



Control panel

国家农业灌排设备质量监督检验中心实验大厅平面图



检测大厅试验装置平面布置图

注：二层为样品室、仪表室等。

Test facility



Tester for durability and blasting of pipes



Universal computer-controlled electronic tester

Test facility



**Automatic tester for
flowrate-pressure**



**Accelerated weathering tester
for rubber and plastic material**

Test facility



Test equipment for hydraulic performances of metal pipe



Test equipment for micro-sprayer durability

Test facility



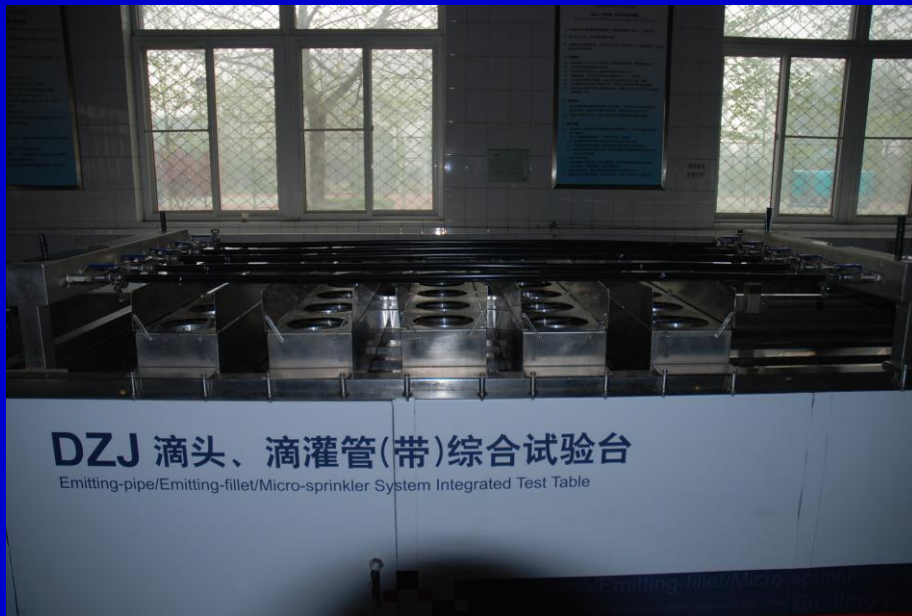
Test bench for Emitters (Manual)

Test facility



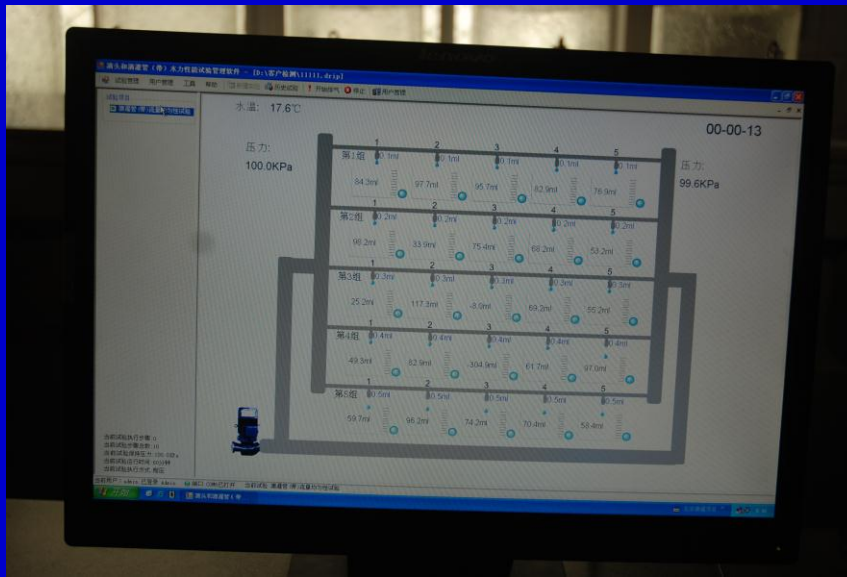
Test bench for Emitters (Automatically)

Test facility



Test bench for Emitters (Automatically)

Test facility



Test bench for Emitters (Automatically)

Test facility



**Machine for cooling
water(Automatically)**



**Resistance to hydraulic pressure
at elevated temperature (60°C) for
Emitters**

Test facility



Test facility for Rotating sprinkler (Manual)

Test facility



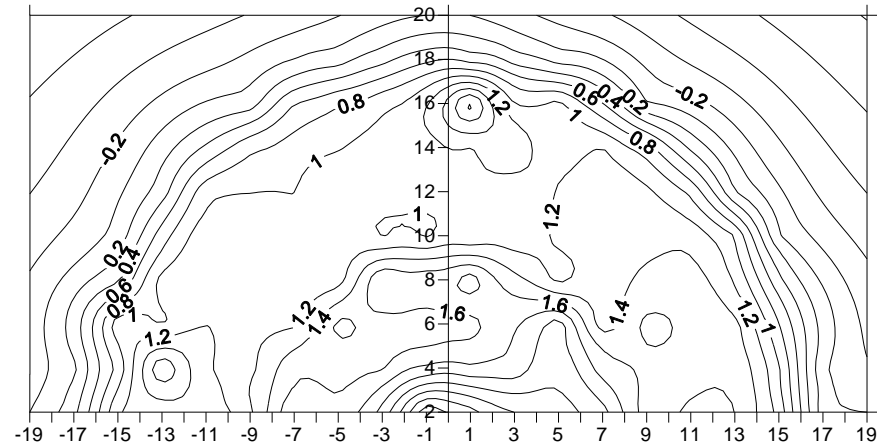
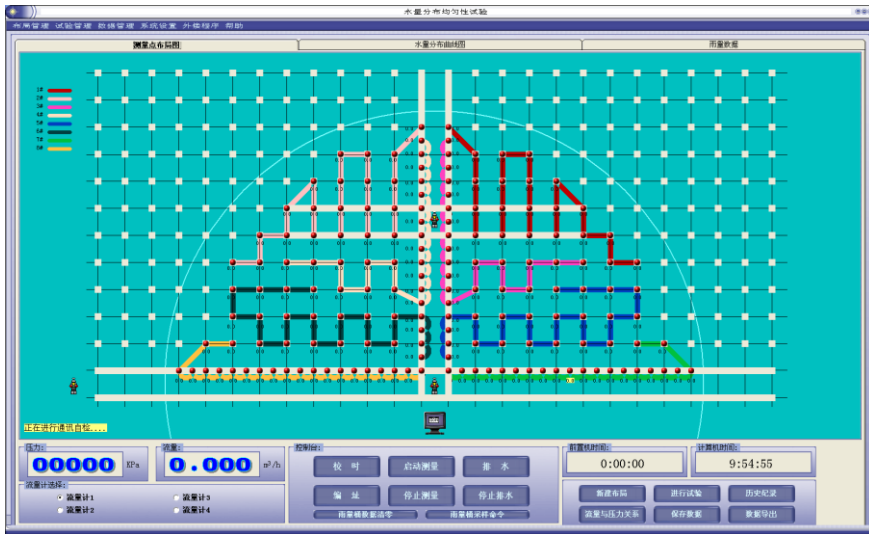
Test facility for Rotating sprinkler (Automatically)

Test facility



Test facility for Rotating sprinkler (Automatically)

Test facility



试验压力：0.3MPa

坐标轴单位：m

喷灌强度单位：mm/h

Test facility for Rotating sprinkler (Automatically)

Test facility



Test bench for Sprayers (Automatically)

Test facility



Test bench for valve (torque & fatigue strength, Automatically)

Routine Test



Filters test

National Supervising Test

In 1999, 2003, 2008,
our center had carried
out 3 times
supervision and
inspection on the
irrigation products all
over China

中华人民共和国水利部

水函〔2003〕121号

关于组织开展节水灌溉产品质量 国家监督抽查工作的函

国家质量监督检验检疫总局：

水资源紧缺已成为我国农业和经济社会发展的重要制约因素。发展节水灌溉是缓解我国水资源紧缺矛盾的战略选择。1998年以来，国家利用国债资金加大了对节水灌溉的投入，节水灌溉取得了前所未有的显著成效。据统计，“九五”以来全国投入节水灌溉建设资金近600亿元，其中半数左右用于购买节水灌溉材料设备；节水灌溉企业发展到300多家。但由于我国许多生产企业规模小、技术力量薄弱，产品存在着严重的质量问题，致使许多节水灌溉工程不能正常发挥效益。

多年来，你局对节水灌溉产品质量的监督工作十分重视，特别是1999年，你局与我部共同组织开展的全国首次部分节水灌溉产品质量国家监督抽查活动，在社会上引起了强烈反响，强化了生产

2003 12 18

The management level had improved and the awareness of product quality had enhanced through the supervision and inspection

Sampling



Test results issued

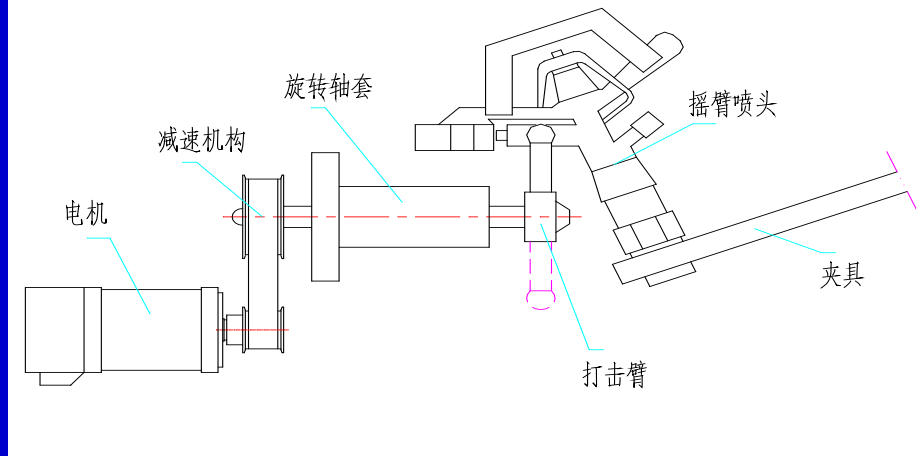
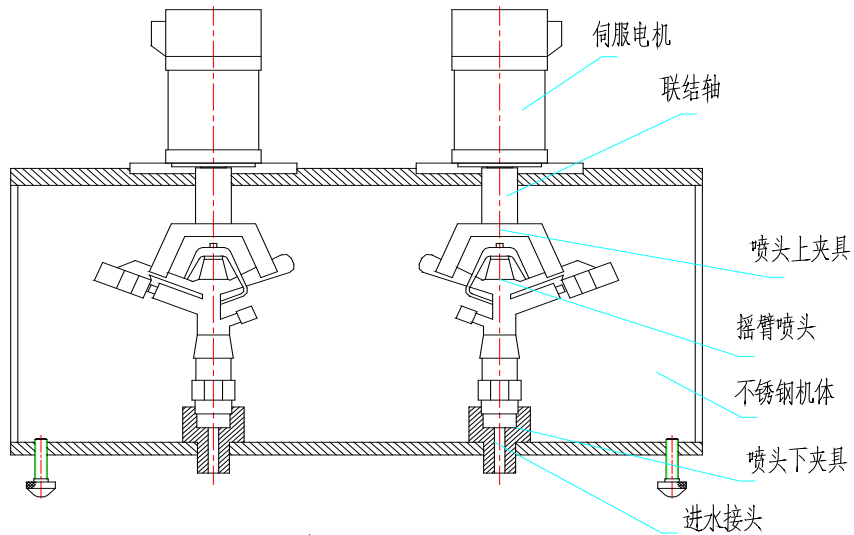
Standard Formulation

- 《Technical specification for irrigation projects with low pressure pipe conveyance》 GB/T20203-2006
- 《Unplasticized poly(vinyl chloride) (PVC-U) pipes for low-pressure conveyance in irrigation》 GB/T13664-2006
- 《General technical conditions for water saving products》 GB/T18870-2011
- 《 Technical code for sprinkler engineering》 GB/T50085-2007
- 《 Technical code for micro irrigation engineering 》 GB/T50485-2009
- 《Specification for water measuring of irrigation canal system》 GB/T21303-2007

Standard Formulation

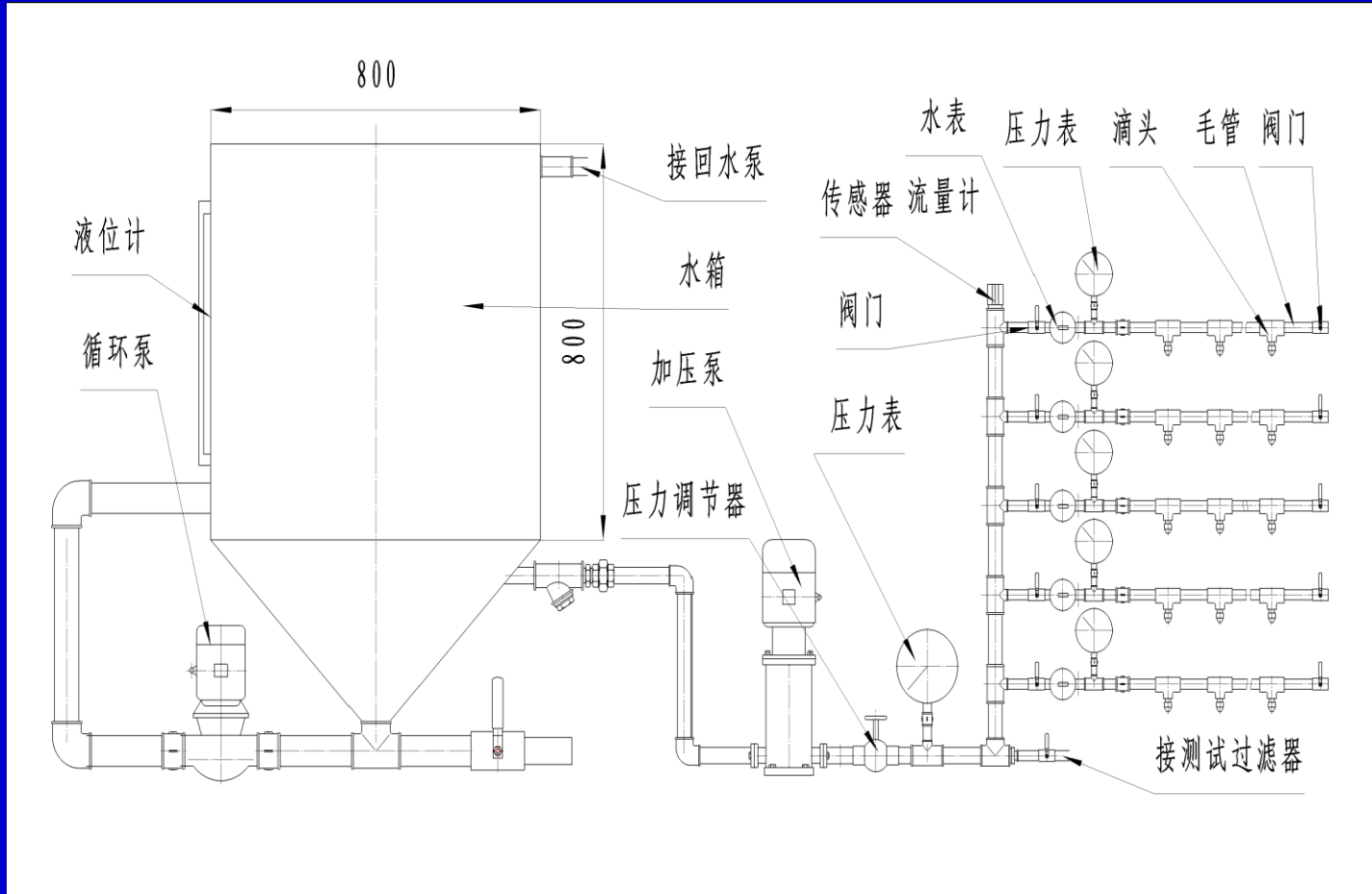
- **《Technical Code for Rubber Dam》 SL227-1998**
- **《Single wall corrugated plastics pipes for agricultural drainage》 GB/T16947-2005**
- **《Rubber dam bag》 SL554-2001**
- **《Test Guidance for irrigation equipment》 SL**
- **《Technical Code for Landscape and Turf Irrigation》 SL**
- **《Code for Amelioration of the Large-Sized Irrigation and Drainage Scheme》 SL418-2008**
- **《Technical terminology for rural water conservancy》 SL56-2005**
- **《Acceptance code of practice for water-saving irrigation equipment on the site》 GB/T21031-2007**

Test facility in build



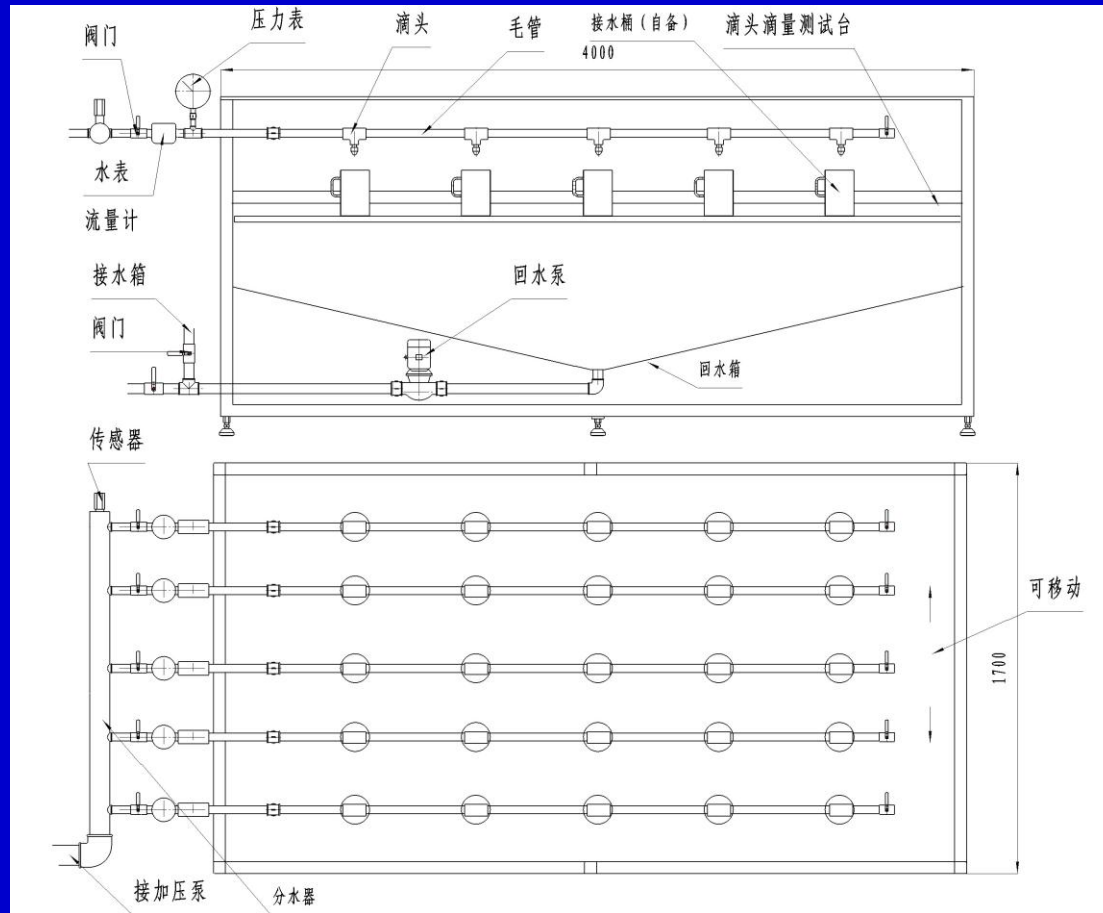
Accelerated Test bench for Rotating sprinklers

Test facility in build



Clogging Test bench for Emitters

Test facility in build



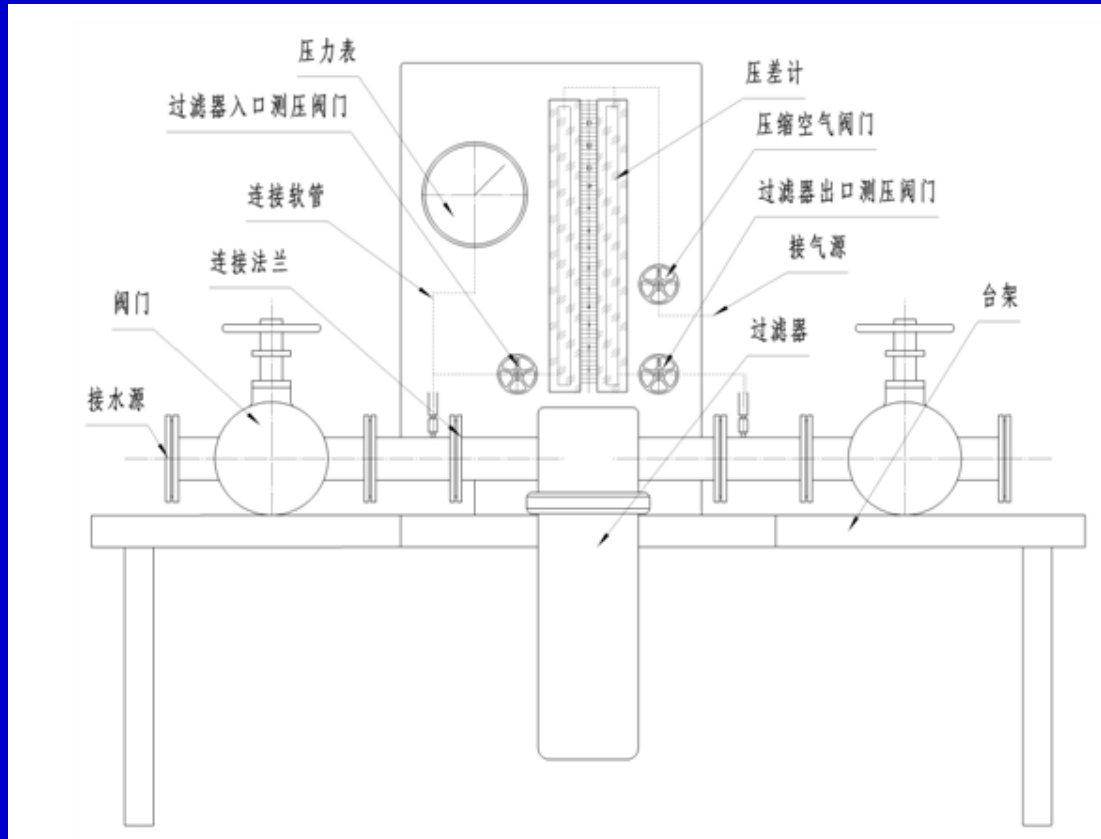
Clogging Test bench for Emitters

Test facility in build



Mechanical test bench for filter

Test facility in build



Clean pressure drop test bench for filter

Research works

- **Study on the quality monitoring, assessment and test system of efficient irrigation products**
- **Strategy study on development of coordination between technical standards and research and development practice**
- **Study on Technical System of Water-Saving Irrigation**

Problems encountered



Problems encountered

Why?

- **Extension quickly, low management;**
- **Raw materials (tape reused);**
- **Too many plants (e.g. only in Xinjiang Province, there are about 500 emitters production plants);**
- **Low price (Drip tape with labyrinth : 0.14~0.16 CHY yuan per meter);**
- **Low cost (1 set of drip tape with labyrinth production line: 100000~120000 CHY yuan);**
- **Low quality.**

Problems encountered



Problems encountered

Action: Standards review and edit

《Plastic equipment for water saving irrigation-
Drip tape with labyrinth on one side》 GB/T 19812.1-
2005

《Plastic equipment for water saving irrigation-
Pressure compensating emitter and emitting pipe
》 GB/T 19812.2- 2005

《Plastic equipment for water saving irrigation-
Drip pipe and tape inlaid with emitters inside》 GB/T
19812.3- 2008

Thanks a lot !

Gao benhu (gaobenhu@iwhr.com)

**China Institute of Water Resources and Hydropower
Research (IWHR)**

**(National Centre for Efficient Irrigation Engineering
and Technology Research-Beijing) (NCEI)**

**Deputy Director of National Centre for Quality
Supervision and Test of Agricultural Irrigation and
Drainage Equipment**

**Director of Rubber Dam Group of Chinese Hydraulic
Engineering Society**