

SYMBOL	DESCRIPTION	DATE

DESIGNED BY:	BAKER	DATE:	09-30-09
DWN BY:	BAKER	SUBMITTED BY:	BAKER
CHK BY:	GPH	FILE NO.:	ANPSDP-501XXX

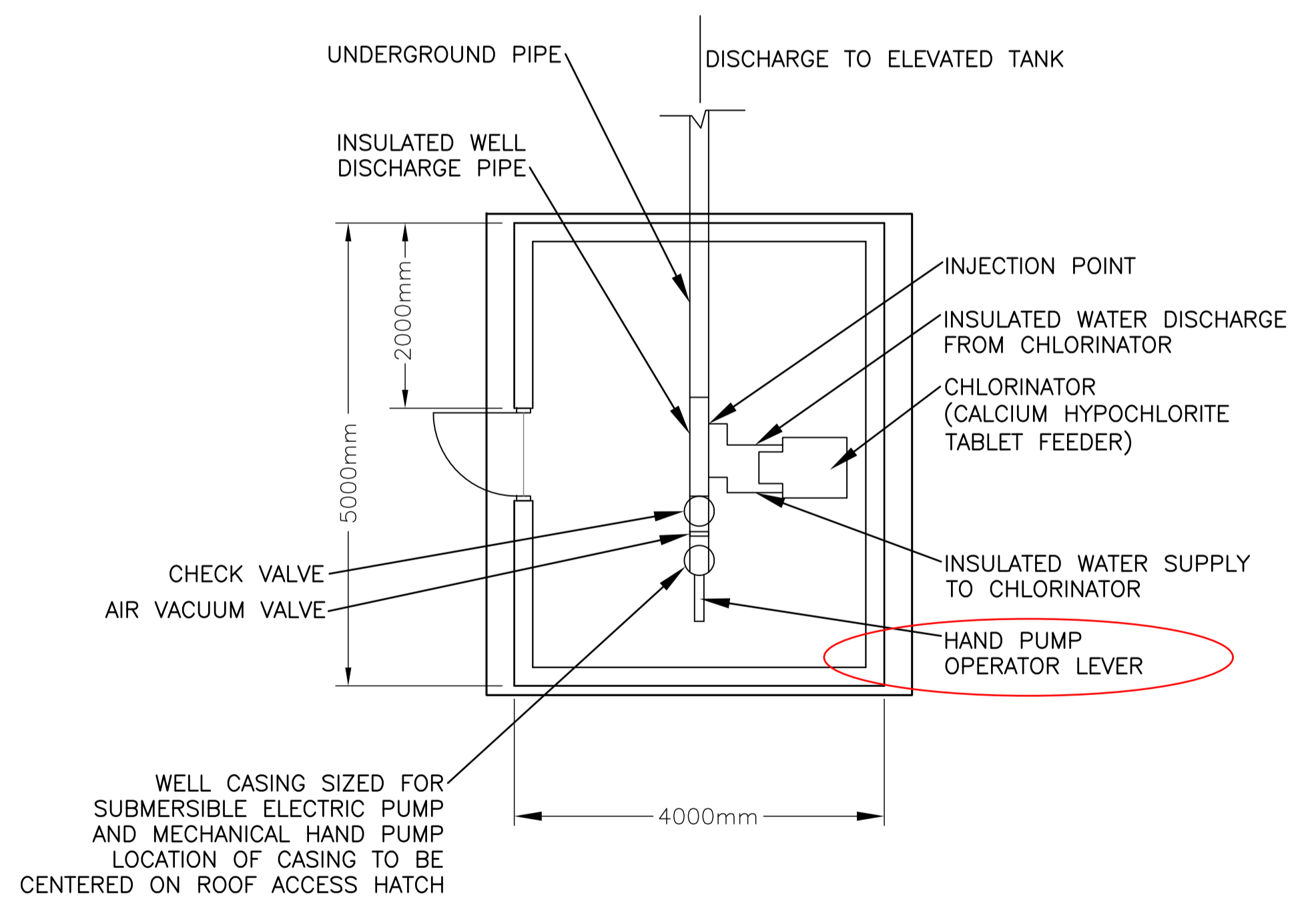
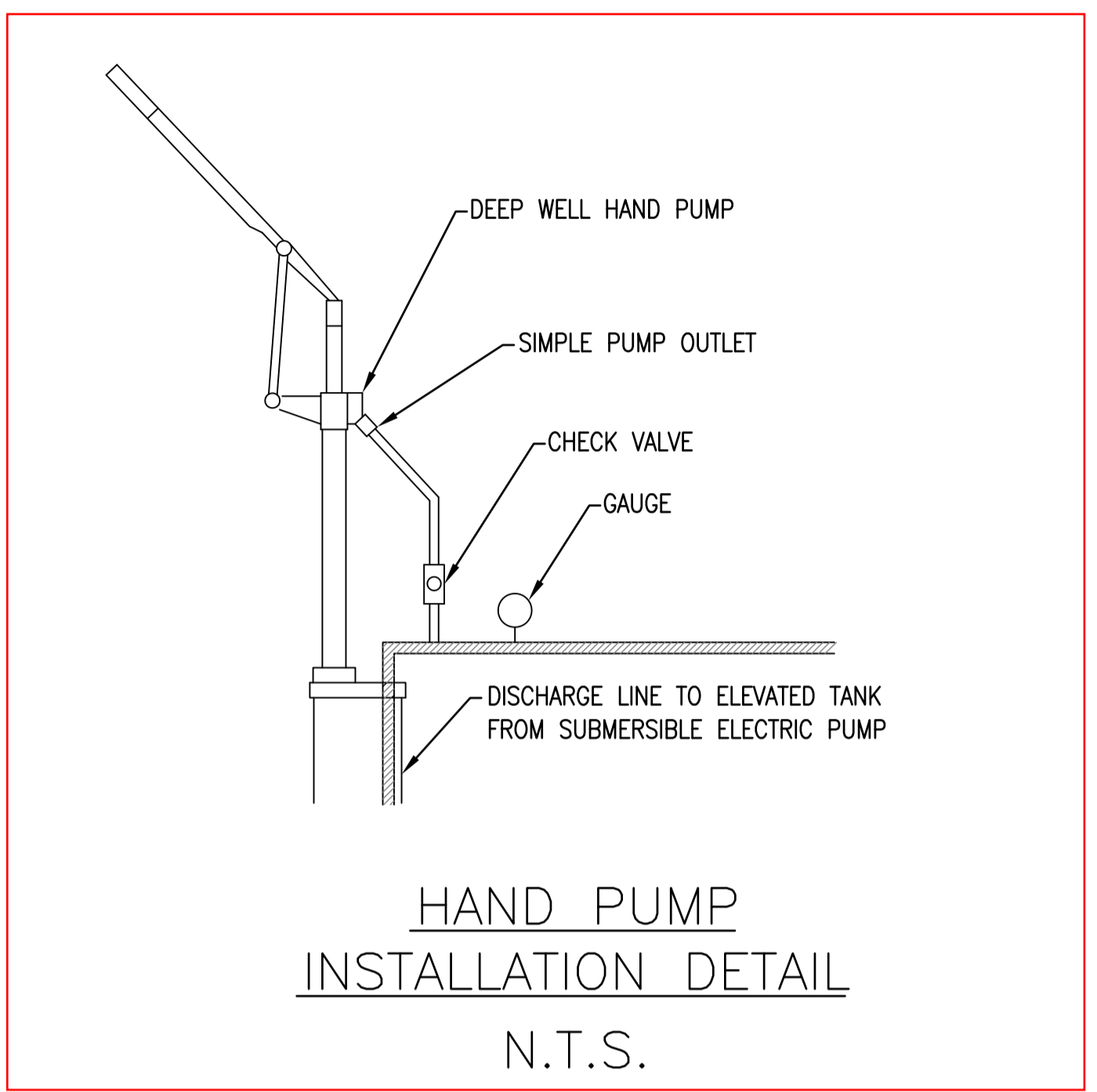
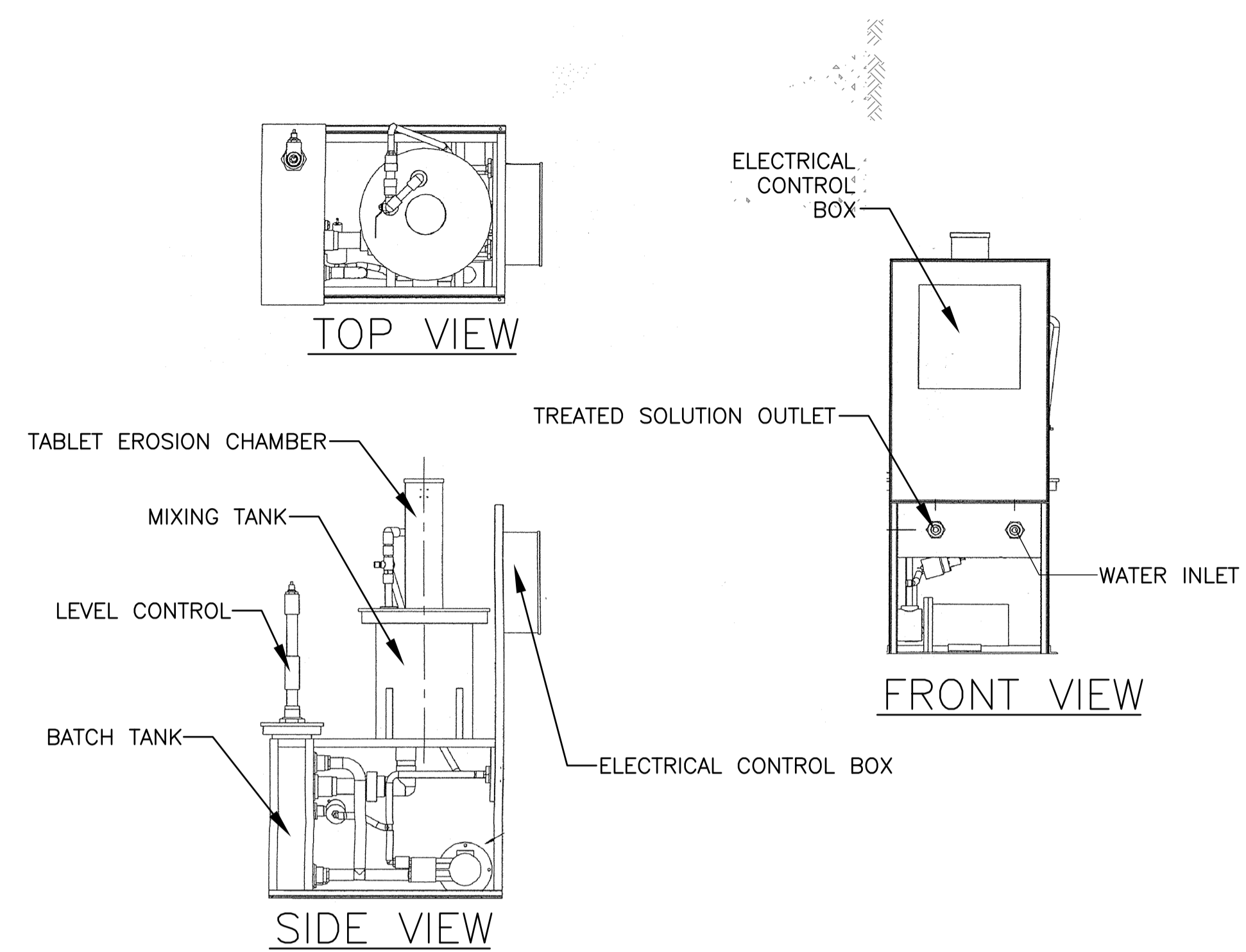
Michael Baker, Jr. Inc.  
A Unit of Michael Baker Corporation  
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Moon Township, PA 15108  
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AFGHAN NATIONAL POLICE  
STANDARD DESIGN  
WELL HOUSE  
PLUMBING SCHEMATIC AND DETAILS

SHEET REFERENCE NUMBER:  
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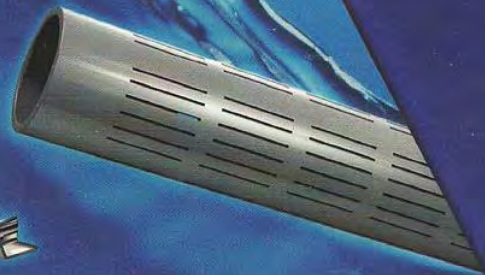
WELL HOUSE  
PLUMBING SCHEMATIC  
N.T.S.



# KAWSAR

## WATER HAND PUMPS

We Never Compromise on "Quality"







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# ISO

## 9001-2000

# CERTIFIED COMPANY

APPROVED BY

- PSI Pakistan Standards Institution (Govt. of Pakistan)
- LGRD Local Govt. of Rural Development Dept (NWFP)
- SGS Societe General DE Surveillance
- WMD Water Management Deptt. Govt. of NWFP, Punjab
- PSQCA Pakistan Standard & Quality Control Authority
- PHED Public Health Engineering Deptt. Govt. of NWFP
- ISO International Standards Organization

**Enlisted with**

- DACCAR Danish Committee for Aid to Afghan Refugee
- SCA Swedish Committee for Afghanistan
- IRC International Rescue Committee
- UNDP United National Development Program
- UNICEF United Nations Children Emergency Fund for Pakistan and Afghanistan
- ICRC International Committee of the Red Cross

**ACHIEVEMENTS**

Winner of Export Trophy Awards from last 7 years.



## INTRODUCTION

The dream of Pioneer, KAWSAR ENGINEERING PRIVATE LIMITED is a major Presence in manufacturing of community type of water Hand Pumps and its components. Kawsar Engineering Private Limited has established in 1994 as a manufacturer for water Hand Pumps. Kawsar started its regular production of unplastic Polyvinyl Chloride (uPVC) Pressure and non-Pressure pipe system for cold and potable water and other industrial uses from March, 2004. KAWSAR manufacturing unit is in K.P.K. Pakistan with having a vast area of 23 canals.

We aim to set standards in every field we enter. Customer focus, quality and innovation are reflected in every aspect of our business. Our strength lies in pre-empting customer expectations and product demands. KAWSAR today is a hallmark of trust and reliability. This is why KAWSAR employs are highly skilled and experienced labor, KAWSAR utilizes the most advanced technology on its production line and retains the modern management system.

As a group, we have commitment to high ethical business values, quality of products, committed deliveries and competitive pricing. These are the factors which had taken us to the path of success achieving great heights and we are confident to achieve further heights in the times to come with the new setup. We are registered with UN organizations and many other NGO's for supply of these products. KAWSAR has highly qualified staff and has experienced staff of about 16 years in the hand pump industry KAWSAR Water Hand Pumps are manufactured in compliance with SKAT Manual and Specifications.

We believe that our strength lies in delighting our customers. That is why, providing quality products backed by superior technical support services, is the KAWSAR promise to all our valued customers.

Besides its unique place in the Pakistan plastic and Hand Pumps industry, KAWSAR products are being exported to various other countries and thus play an important role in economy of Pakistan. That's why KAWSAR was awarded the "BEST EXPORTER AWARDS TROPHY" continuously from 2002-2010 from chamber of commerce of Pakistan.

## CERTIFICATIONS

In our quest to lead by example, our joint efforts have led KAWSAR to ISO 9001:2000 certification and accreditation for supreme product performance and quality by the Pakistan Standard Institute (PSI) and Pakistan Engineering Council.





## QUALITY POLICY

In KAWSAR 'Total Quality Control' perceptive is taken as a principal while performing the mission. Our main policy is to provide the present and future needs and demands of our customers in the most economical way and on time.

In all our processes, we adopt in the principle of customer oriented understanding, aim for improvement and full participation of our staff.

In this process management, our main goal is to continuously improve our production and to respond the demands of our customers, personals and suppliers.



## OUR MISSION

To increase the number of pleased and trusted customers in our sector by satisfying them from our Quality.



## OUR VISION

To be committed to the mission of being the symbol of trust and contentment in the plastic and fittings market, KAWSAR proceeds to its targets as being the leader in the domestic market, and being a fundamental and permanent supplier in the international market.





## WHY KAWSAR?

Being one of the best firms in the country in Water Hand Pumps, uPVC Pipes and Fittings sector, KAWSAR gives at most importance to Quality and :

Compliance to international quality standards
Excellent manufacturing capabilities
In depth industry experience
Professional services
Committed to customer delight
Environmental friendly products
Wide market distribution
Competitive Prices
On time delivery
Experts in handling bulk orders
Expertise in custom manufacturing
Uses the most appropriate raw material
Has the most advanced high technology
Has well qualified technical staff and experienced labor
Produces Hand Pumps in compliance with SKAT & HTN Standard and Specification.
OUR NAME STANDS FOR QUALITY

Because "We never compromise on Quality"  
"Quality durability for life time"



## ADVANTAGES OF KAWSAR HAND PUMPS:

KAWSAR Hand Pumps are according to SKAT & HTN manual and specifications

KAWSAR Hand Pumps are Hot Dip Galvanized due to which it's not harmful to health.

KAWSAR Hand Pumps are made of appropriate material.

KAWSAR Hand Pumps utilizes the most advanced technology.

KAWSAR Hand Pumps has a well equipped separate laboratory for Hand Pumps, which is round the clock busy to control quality at each stage of production.

KAWSAR Hand Pumps all rubber & Plastic spare parts are produced by it self by latest injection mold machines.



## AFRIDEV / INDUS WATER HAND PUMP

The Afridev Hand Pump is suitable for lifting water up to depth of 45 m very easily. Though it also works as more as upto 60m but it needs then more maintenance and care. It is suitable for boreholes with casing size of nominal 100mm, 127mm or 200 mm of internal diameter and hand Dug Well.

### SALIENT FEATURES

- Ideal VLOM (Village Level Operation and Maintenance) Designed and developed keeping in view maintenance problem.
- Capable of lifting water from depths up to approx 45 meters.
- Fully fabricated steel structure duly Hot Dip Galvanized.
- Adjustable Handle to suit varying installation depths.
- Injection Moulded special grade plastic bush bearings easy to replace at village level.
- Interchangeable plunger & foot valves easy extract without removing riser pipe.
- Non-corrosive underground components capable of handling corrosive water situation there by giving longer life.
- Easy installation and inexpensive maintenance at village level women can handle easily.

### CONSTRUCTION

The complete System of Kawsar Afridev Hand Pump consists of four main sub assemblies briefly described below.

### PUMP HEAD ASSEMBLY

- Fully fabricated steel structure duly Hot Dip Galvanized.
- Adjustable Handle providing different Handle settings to suit different cylinder setting depths.
- Conical flange with conical rubber grommet provides better holding grip on uPVC Riser Pipe.
- Fulcrum & rod hanger pins are supported on special grade plastic bush bearing which are very easy to replace at a village level.
- Fully covered to avoid any contamination of water. Design offers a stroke length of 225 mm.



## CYLINDER ASSEMBLY

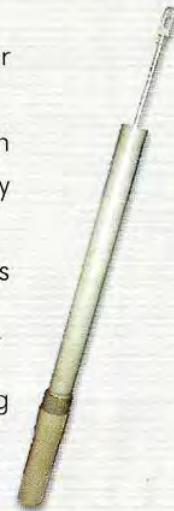
UPVC Pipe 63mm (OD) x 4.7 mm thick lined from inside with seamless brass liner 50 mm I.D. x 700 mm long.

Interchangeable Plunger and foot valves made out of interchangeable injection moulded delrin with stainless steel pick up device mounted on foot valves for easy extraction of foot valve without removing riser pipe.

U-seal, Bobbins and 'O' rings are of Nitrile Rubber and Plunger Rod of stainless steel and can be mild steel.

Larger dia extension pipe at the bottom of cylinder reduces silt and sand intake.

Sleeve is provided for plastic rope to pass for supporting the system during installation & maintenance.



## CONNECTING ROD

10mm dia x 3 meters long mild steel Hot Dip Galvanized Rod with forged eye and Hook

Connectors welded at both ends. This provides easy rod connections without use of any tool.

Each rod is provided with a rubber rod centraliser to avoid contact with uPVC riser pipes.

For corrosive water application we offer connecting rod made of stainless steel (AISI 304 grade, AISI 316 grade).

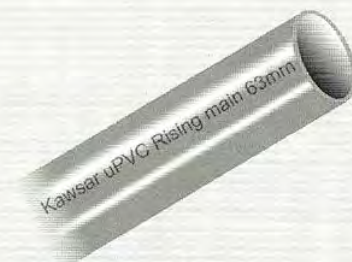


## RISER PIPE

Connects cylinder to pump head and is a passage for water.

UPVC Pipe 63 mm OD x 4.7mm thickness x 2.9 meters long with socket spigot cemented joint.

Each pipe is provided with a rubber pipe centraliser to avoid contact with casing pipe.



## KABUL WATER HAND PUMP

This is mini Afridev water Hand Pump. It named Kabul because mostly this Hand Pump is installed in "Afghanistan" the Capital of Afghanistan is Kabul. Since then the economical condition of Afghanistan is very weak, so, most of UN Agencies and NGO'S involved in drinking water sector in Afghanistan decided to design such Hand Pumps, Which might be low in price and its parts maybe easily interchangeable with Afridev (Indus) Hand Pump.

Thus DACAAR (Danish Committee for Aid to Afghan Refugees), the leading agency in drinking water sector took initiative to design it and arrange drawing, it's field testing and other information shared with UNICEF Afghanistan. Ideal VLOM (Village Level Operation and Maintenance) Designed and Developed keeping in view maintenance problem.

### SALIENT FEATURES

- Kabul Water Hand Pump is suitable for lifting water from depth up to 20 meter
- It is suitable for Bore Holes (with same casing size as in Afridev) and Hand Dug Well.
- Parts of Kabul and Afridev Water Hand Pumps are the same and easily interchangeable.
- Kabul Water Hand Pump body is slightly lighter than Afridev Hand Pump.
- Kabul Water Hand Pump Handle is not adjustable and lighter than Afridev pump.



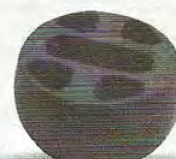
Rubber Cone



Flapper



Pipe Centerizer



Rod Centerizer



Small Ring



Large Ring



U-Seal



Babin



Plunger



Bearing



Small Pin



Large Pin



## AFRIDEV DEEP WELL PAMIR WATER HAND PUMP

For those areas where water table was lower than 50m, Afridev Hand Pumps were not working properly. The UN Agencies and other NGO's who were involved in Drinking water sector for Afghan refugees working in Pakistan as well as inside Afghanistan started research to find such Hand Pumps that can easily lift water from the desired dept. Finally SKAT (Swiss Centre for development cooperation in technology and management), the designer of Afridev, took initiative to design Afridev Deep well (Pamir) Hand Pump. Ideal VLOM (Village Level Operation and Maintenance) Designed and Developed keeping in view maintenance problem.

### SALIENT FEATURES

- Pamir Water Hand Pumps are suitable for lifting water up to 80 m.
- It is suitable for Bore Holes (with same, size as in Afridev Water Pump) and hand Dug Well.
- Pump body, stand (Pedestal), Top Cover, Rubber components, Plastic components (Foot Valve, Plunger) and Cylinder except Plunger Rods are the same as Afridev Water Hand Pumps.
- Handle is stronger and heavy, Ball bearing with different pins and hosing is used in this Pump instead of Plastic bearing.
- Pump Rod used in this pump is "Double Hook & Eye" and is completely different from Afridev Hand Pump Rod.





## KAWSAR SPECIFICATION & MATERIAL TOLERANCES

- All parts of Hand Pumps are according to Drawing and specification of SKAT.
- The washer, bolts and nuts used for Afridev Hand Pump Assembly confirm the specification given in Afridev Hand Pump specification's (Revision-2 1994)
- Pipes included Rising Main PVC Pipe, Steel Pipes and Tubes qualify the standard and specification given in Afridev Hand Pump specification (Revision - 2, 1994)
- The Steel Plates, sheets, Angle iron leg and square bars for fabrication of the Afridev Hand Pumps confirm the designation ISO 630/DIN 17100, ST 37-2 (as per Afridev Hand Pump specification revision-2, 1994)
- The square tube confirm to ISO 4019/Din 5911, Hollow section for structural engineering.
- All plastic and rubber parts are made according to Afridev Hand pumps specifications (Revision - 2, 1994)
- The Brass Cylinder liner is made of seamless tubing of CuZn 37 confirming to DIN 17660.
- In some parts of the pumps minor changes are proposed by WSG (Water Supply and Sanitation Sectoral Group).

### GALVANIZING ANTI CORROSIVE TREATMENT

The following assemblies are Galvanized according to "Afridev Hand Pump specification" (Revision - 2, 1994)

- a. Pump Head Assembly
- b. Cover Assembly
- c. Handle Assembly
- d. Stand Assembly
- e. Pump Rod Assembly (unless stainless steel in used)

The following are Electro-Galvanized and passivated to DIN 50961 Fe/Zn12c, Electroplated Coating, Coating of Zinc and Cadmium coatings on Iron and steel.

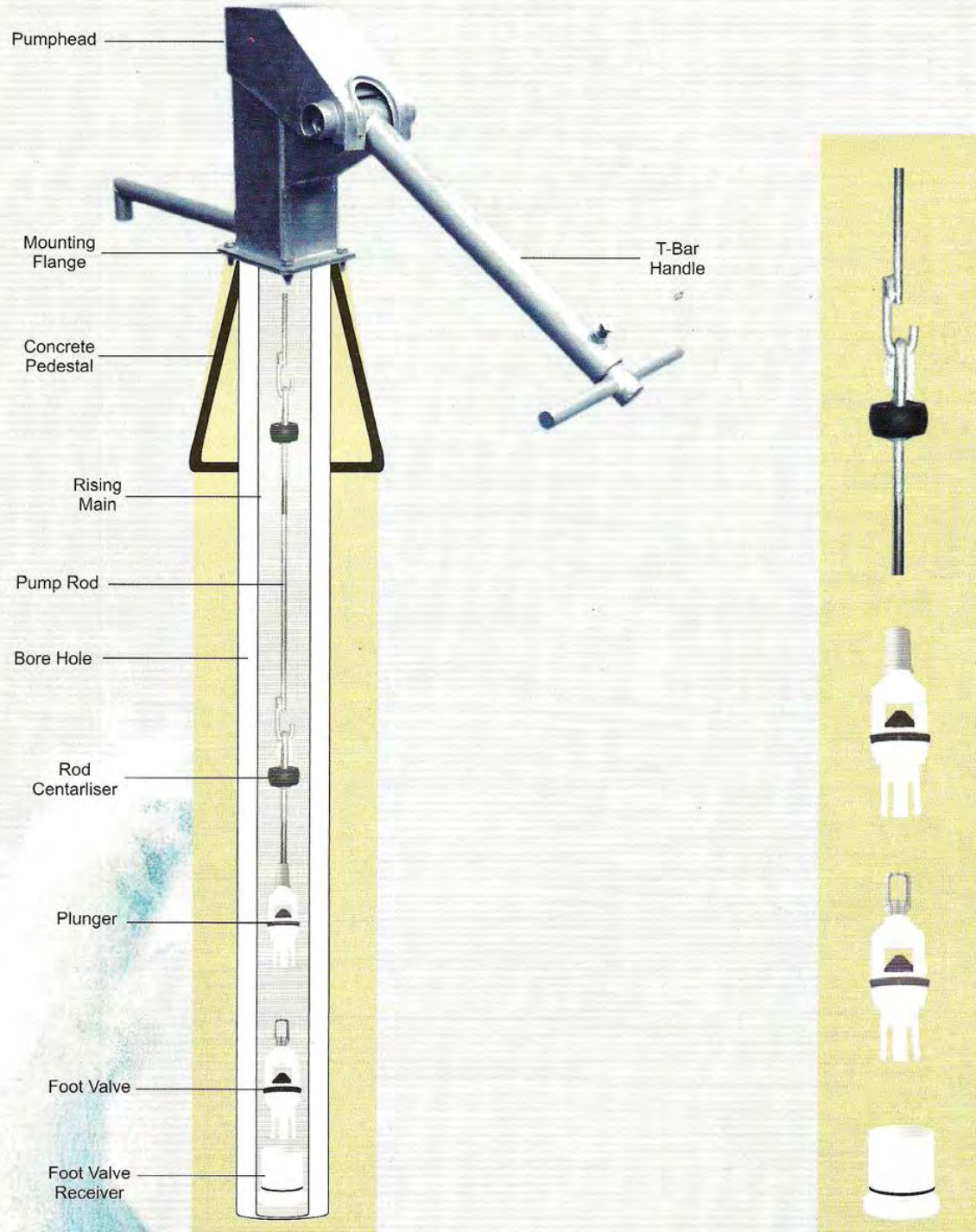
- a. Fulcrum pin and rod hanger pin.
- b. Spanner
- c. All bolts, nuts and washers (except stainless Steel/Chromate conversion coating type C to DIN 50941, protection against corrosion, chromating of electroplated Zinc and Cadmium coating.

### QUALITY CONTROL

A well-trained and highly skilled staff has been employed to check and maintain a strict quality control at each step of the manufacturing process. Various tests are taken to ensure that the Hand Pumps are always of high standard and confirm to the appropriate standard / specification. Finally a thorough checking is done by a well qualified inspection team like SGS international etc. We provide best possible material and services to our valuable customers.



## INSTALLATION STRUCTURE





## KAWSAR CAST IRON / ABYAAR HAND PUMP:

KAWSAR Abyaar No. 6 is a cast iron suction pump, capable of drawing water from shallow depths by creating a partial vacuum in the suction pipe depending as they do on atmospheric pressure to drive water up to the surface. The pump use is restricted to regions with water table no more than 40-50 feet below the surface. For reasons of economy and convenience this pump has become very popular for serving individual families and small group of communities. Millions of pumps are in regular use in the Asian countries. With minimum skill this pump can be installed and maintenance can be carried out. It lifts water twice faster than Afridev Hand Pump.

### SALIENT FEATURES

- It is Suitable for depths upto 40-50 feet. It is constructed almost entirely of Cast Iron.
- It is mounted directly on to 1 1/2" galvanized iron pipe.
- The Plunger is a molded PVC cap washer which ensures less wear.
- The check valve is a simple leather flap with C.I weight.
- All moving parts are above ground level and are easily accessible.
- The pump requires very simple maintenance, using skill and few tools meeting Village Level Operation & Maintenance (VLOM) concept.

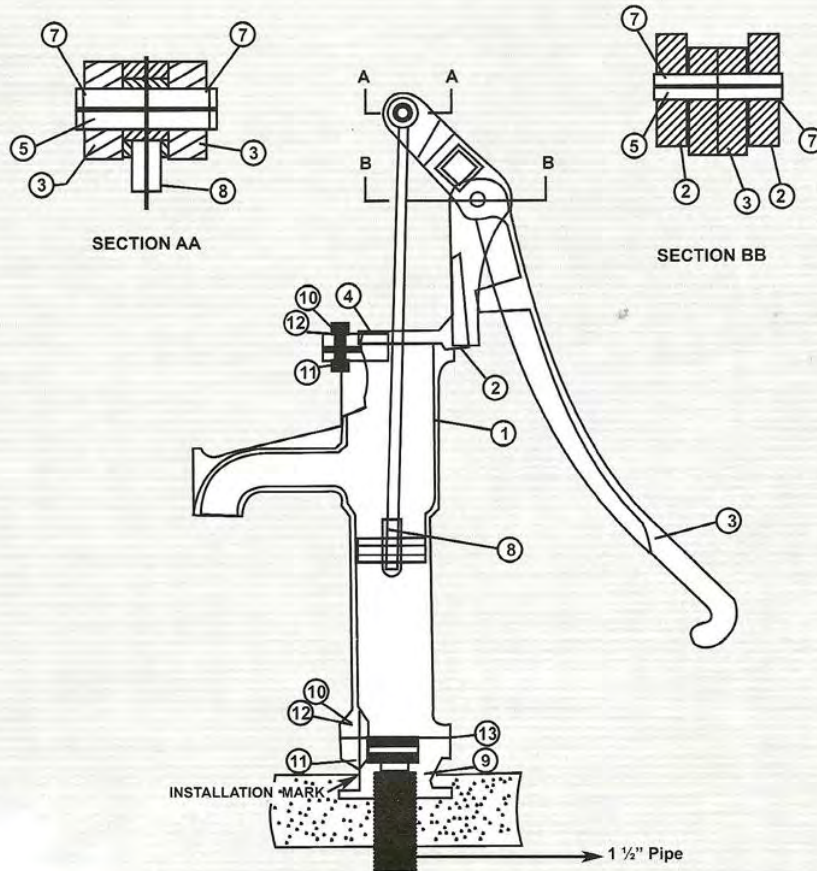
### APPLICATION DATA:

Operating depth 40-50 feet depth	45 (Approx.)
Operated Strokes per minute	20-30
Average discharge per stroke	1.2 – 1.3 Litres
Pump Weight	31- Kg





## CAST IRON / ABYAAR HAND PUMP:



Part No.	No. off	Description
13	1	Rubber Gasket
12	9	Spring Washer for w12 bolt
11	8	Max. Bolt w12 x1.75 - 65 long
10	9	Max. Bolt w12 x1.75
9	1	Bolt Assembly
8	1	Plunger Assembly
7	4	Leather Check valve with C.I weight
6	1	Fulcrum Pin
5	1	Plunger Pin
4	1	Sliding Plate
3	1	Handle
2	1	Hood
1	1	Body

This pump should be used in places where the water table depth is less than 50 feet.



## SPECIAL THANKS TO

**HTN (HAND PUMP TECHNOLOGY NETWORK)**

**SKAT (SWISS RESOURCE CENTER AND CONSULTANIES FOR DEVELOPEMENT)**

**WATER SANITATION HYGIENE**

**RWSN (RURAL WATER SUPPLY NETWORK)**

**Engineer Khurram Raza (SGS Pakistan, Inspection Engineer)**

**92-Designs, Graphic Designer**

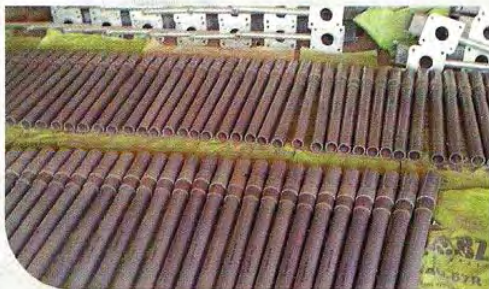
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Catalogue Designed, Researched & Developed By  
**KAWSAR TECHNICAL & SENIOR STAFF**

### SUGGESTIONS & RECOMMENDATIONS




## PHOTO GALLERY





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