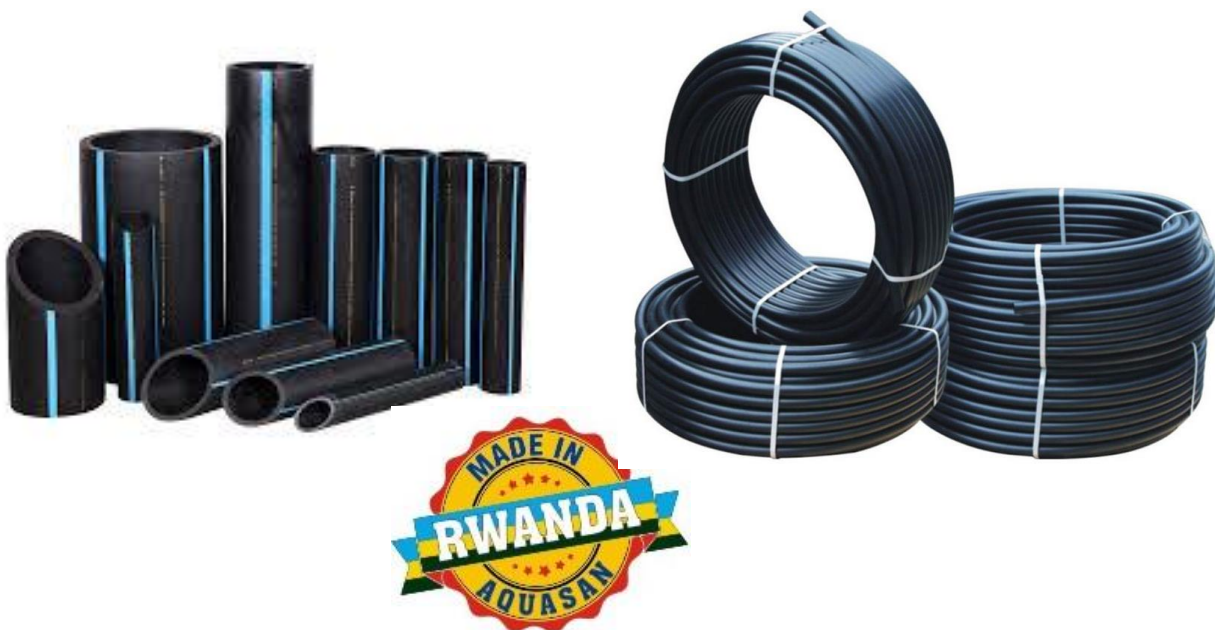


LIFELINE HDPE PIPE

safe water • for healthy living



Rwanda's largest manufacturer
of HDPE Pipes

About Us

AQUASAN LIMITED is operating in Rwanda since 2003 and is a member of Aquasantec Group of Companies. Aquasantec Group of companies is the market leader in water and sanitation solutions in East Africa. AQUASAN's innovative products have helped hundreds of thousands of people in twelve countries gain access to clean water and hygienic sanitation in some of the most challenging environments in the world. From design to manufacture to installation, AQUASAN leads the way in affordable, sustainable, and practical water conservation and use.

Some of our key products/brands include, **AFRITANK** water tanks – the only tanks with more than 2.3% carbon black to provide 30 years' expected lifespan and **LIFELINE** HDPE pressure pipes.

AQUASAN LIMITED is the market leader in Rwanda with the highest manufacturing capacity installed for HDPE pipes. Our products are certified by Rwanda Standards Board with S mark.

LIFELINE is produced as per ISO 4427-2 standards and we provide warranty on our products.



CERTIFIED BY



RWANDA STANDARDS BOARD



LIFELINE HDPE

AQUASAN produces LIFELINE HDPE pressure pipes with PE100 material only. PE100 is the third generation of pipe grade PE.

It has an optimum balance of three key properties:

- Minimum Required Strength (MRS) – this provides long-term strength and creep resistance.
- Stress crack resistance (sometimes referred to as slow crack growth resistance).
- Rapid crack propagation resistance.

PE100 pipe is easy to install, light, flexible, corrosion-free and has a service life of up to 50 years. It can be jointed using butt fusion or electrofusion to create a leak-free pressure network for gas or water. For the trenchless applications butt fusion is most widely used because this results in a smooth exterior profile with no protrusions that might cause difficulties in pulling the pipe into the ground or host pipe.

LIFELINE Pipe Properties:

- Minimum Required Strength (MRS): 10.0 MPa (1450 psi)
- Hydrostatic Design Basis (HDB) Pressure: 1600 psi (11 MPa)
- Allowable Compressive Strength: 7.93 MPa
- Tensile Strength at Yield: 23 MPa
- Elongation at Break: >600%
- Modulus of Elasticity (50 years): 200 MPa
- Flexural Modulus: 1000 MPa
- Poisson's Ratio: 0.45
- Thermal Expansion Co-efficient: $1.3 \times 10^{-4} \text{ }^{\circ}\text{C}^{-1}$

Key Advantages:

- Weather resistance in ground applications.
- Highly corrosion resistant & Excellent abrasion resistance.
- Easy to handle, install and transport.
- Service performance in excess of 50 years.



Manufacturing Facility



Butt Welding Machine

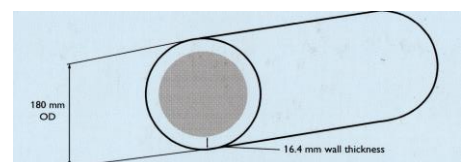


Machine No.	Size Produced	Production capacity
Machine 1	90 mm – 450 mm	350 – 400 Kg/Hr
Machine 2	20 mm – 110 mm	150 – 170 Kg/Hr
Machine 3	20 mm – 110 mm	80-90 Kg/Hr
Machine 4	500 mm 1000 mm	800 – 1200 Kg/hr
Machine 5	20 mm – 110 mm	150 – 170 Kg/hr

Specifications

As per ISO 4427-2 standards																															
PN 4		PN 5		PN 6.3		PN 8		PN 10		PN12.5		PN16		PN 20		PN 25															
SDR-41		SDR-33		SDR-26		SDR-21		SDR-17		SDR13.6		SDR-11		SDR-9		SDR-7.4															
Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg	Wall thickness MM	WT/M in kg														
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max														
20								1.6	1.9	0.12	1.8	2.2	0.10	1.8	2.1	0.11	2.2	2.6	0.13	2.7	3.2	0.15									
25								1.6	1.9	0.12	1.8	2.2	0.14	2.3	2.7	0.17	2.8	3.3	0.20	3.1	4	0.25									
32								1.6	1.9	0.16	1.9	2.2	0.18	2.4	2.8	0.23	2.9	3.4	0.27	3.6	4.2	0.33	4.3	5.1	3.39						
40								1.9	2.2	0.24	2.4	2.8	0.29	2.9	3.4	0.35	3.6	4.3	0.43	4.4	5.2	0.51	5.4	6.3	0.60						
50								1.6	1.9	0.25	1.9	2.3	0.30	2.4	2.8	0.37	2.9	3.4	0.45	3.7	4.3	0.55	4.5	5.3	0.67	5.6	6.5	0.80	6.8	7.0	0.94
63	1.6	1.9	0.32	1.9	2.2	0.38	2.4	2.8	0.48	3	3.5	0.59	3.7	4.3	0.75	4.6	5.4	0.88	5.7	6.7	1.06	7	8.2	1.27	8.5	10.0	1.50				
75	1.8	2.1	0.43	2.3	2.3	0.53	2.9	3.3	0.67	3.6	4.1	0.82	4.4	5.1	1	5.5	6.3	1.23	6.8	7.8	1.50	8.3	9.6	1.78	10	11.7	2.11				
90	2.2	2.5	0.62	2.7	3.1	0.77	3.5	4	0.97	4.3	4.7	1.19	5.5	6.1	1.45	6.6	7.6	1.78	8.2	9.4	2.16	10	11.5	2.57	12	14.0	3.04				
110	2.7	3.1	0.93	3.3	3.8	1.15	4.2	4.9	1.45	5.2	6	1.77	6.5	7.4	2.16	8.1	9.4	2.67	10	11.5	3.22	12	14.1	3.84	15	17.0	4.53				
125	3	3.5	1.20	3.6	4.4	1.48	4.8	5.5	1.87	6	6.8	2.29	7.4	8.5	2.79	9.2	11	3.43	11	13.1	4.16	14	16.0	4.96	17	19.4	5.86				
140	3.4	3.9	1.51	4.2	4.9	1.86	5.4	6.2	2.34	6.7	7.7	2.87	8.2	9.2	3.50	10	12	4.30	13	14.6	5.21	16	17.9	6.22	19	21.8	7.34				
160	3.9	4.4	1.94	4.8	5.4	2.40	6.2	6.9	3.02	7.6	8.5	3.70	9.4	11	4.51	12	13	5.55	15	16.3	6.72	18	19.9	8.02	22	24.2	9.48				
180	4.4	4.9	2.46	5.5	6.1	3.04	6.9	7.8	3.82	8.6	9.5	4.68	11	12	5.71	13	15	7.06	16	18.3	8.51	20	22.4	10.16	24	27.2	12.00				
200	4.9	5.5	3.03	6.1	6.8	3.75	7.7	8.6	4.71	9.5	11	5.78	12	13	7.05	15	17	8.66	18	20.4	10.50	22	24.9	12.53	27	30.4	14.81				
225	5.5	6.1	3.83	6.8	7.6	4.73	8.7	9.6	5.95	11	12	7.30	13	15	8.90	17	18	10.95	21	22.8	13.27	25	27.9	15.83	30	33.8	18.71				
250	6.1	6.8	4.73	7.6	8.4	5.84	9.6	10.7	7.35	12	13	9.01	15	16	11	18	21	13.51	23	25.3	16.38	28	31.1	19.55	34	37.8	23.10				
280	6.8	0.6	5.94	8.5	9.5	7.33	11	12	9.22	13	15	11.3	17	18	13.8	21	23	16.95	26	28.4	20.54	31	35.0	24.52	38	42.2	28.97				
315	7.7	8.6	7.51	9.5	10.6	9.27	12	13.5	11.67	15	17	14.3	19	21	17.5	23	26	21.45	29	31.9	26.00	35	39.0	31.03	43	47.5	36.36				
355	8.7	9.2	9.19	10.9	11.5	11.4	14	14.4	14.13	17	18	17.37	21	22	21.4	26	28	26.09	32	33.9	32.56	40	41.8	37.96	49	51	44.00				
400	9.6	10.9	12.1	12.1	13.5	15	15	17.2	18.81	19	21	23.60	24	26	28.1	30	33	34.58	36	40.5	41.91	44	49.6	50.03	54	60.3	59.11				
450	11	12.2	15.3	13.6	15.1	18.9	17	19.2	23.75	21	24	29.12	27	29	35.5	33	39	43.68	41	45.4	52.94	50	55.5	63.19	61	67.5	74.67				
500	12	13	18.80	15.3	16.2	22.6	19	20.2	27.96	24	25	34.58	30	31	42.4	37	39	51.81	45	47.8	62.63	56	58.7	75.1							
560	14	14.5	22.8	18.2	18.7	29.6	21	22.6	35.06	27	28	43.32	33	35	53.2	41	43	64.91	51	53.4	78.48	63	65.7	94.3							
630	15	16.3	28.8	19.3	20.4	35.9	24	25.4	44.43	30	32	54.69	37	39	67.3	46	49	82.06	57	60.2	99.42	70	73.9	119							
710	17	18.4	36.7	21.8	23	45.6	27	28.7	56.49	34	36	69.64	42	44	85.4	52	55	104.25	65	67.8	126.31	79	83.4	152							
800	20	20.7	46.6	24.5	25.8	57.8	31	32.2	71.57	38	40	88.23	47	50	108	59	62	132.28	73	76.3	160.20	89	93.9	192							
900	22	23.2	58.7	27.6	29.1	73.2	34	36.4	90.71	43	45	111.7	53	56	137	66	70	167.56	82	85.9	202.79										
1000	25	25.8	72.7	30.6	32.1	90	38	40.2	111.70	48	50	138.00	59	62	169	73	76	204.10	90	94.8	248.95										

Relation between wall thickness and outside diameter (OD) is generally known as STANDARD DIMENSION RATIO (SDR). ISO 4427: Safety factor PE100 = 1.25
SDR = Normal outside diameter/Pipe wall thickness.



TESTING FACILITY



Tensile Testing Machine

HYDRO PRESSURE TESTING MACHINE



CERTIFICATIONS



CERTIFIED BY



RWANDA STANDARDS BOARD

Key Customers

Some of our Key/Large customers are:

- WASAC
- FAIR CONSTRUCTION
- KONOIKAE
- GREEN ROCK IWACU

- LOYAL TRUST COMPANY
- MTN RWANDA LTD.
- BFCC
- CRESTANK



KONOIKE CONSTRUCTION CO., LTD

THE PROJECT FOR DEVELOPMENT OF IRRIGATION SCHEME
IN NGOMA DISTRICT

Ref. No.: KIG/AQU-001

25th August 2016

Mr. RAKESH SINGH
DIRECTOR
AQUASAN LIMITED
KIGALI, RWANDA

Dear Sir,

RE : APPRECIATION / WORK COMPLETION LETTER

We are pleased to inform you that we greatly appreciate your efforts and services provided to us in supplying your 'LIFELINE' brand HDPE pipes of various capacities from 90mm to 450mm, Galvanized steel pipes, Valves, and other accessories for our Ngoma Irrigation Dam Project, as per our contract with JICA and MINAGRI.

Till now, we have purchased all the above items worth 466,330,330 Rwf from you for the year 2014-2016, till date. We are extremely happy with the quality of the HDPE pipes manufactured and supplied by you along with the other HDPE accessories. The other items supplied were also of very good quality. Your services were excellent and all the items were delivered within the time schedule. Not only deliveries, but you also helped us fabricating fittings as per our specific requirements.

We sincerely appreciate your responsiveness and the way you conduct business. We would like to recommend your company to others because of our satisfaction with your service. We look forward to doing business with you for years to come.

Yours truly,

KONOIKE CONSTRUCTION CO., LTD.

影澤 龍
Tatsuo Kagesawa
Resident Representative



NGOMA PROJECT OFFICE : P.O.Box15, Kibungo, Ngoma District, Rwanda
TOKYO MAIN OFFICE : 7-5, 2-chome, Hiramatsua, Koto-ku, Tokyo, JAPAN
Telephone: (03) 5617-7862 Facsimile: (03) 5617-7864



Ref No: KIG/1/GM/GRI/17

4th November 2017

The Director of Aquasan Limited,
P.O Box 5159
Kigali- Rwanda.

Dear Sir;

Re: Appreciation for delivery of PVC drainage pipes Brand HDPE 400mm PN 8

On behalf of Green Rock Iwacu Ltd, I would like to send my appreciation for the exceptional services rendered to us as regards supplying and delivering the HDPE pipes of 400mm PN 8 to Kigali Logistics Platform project.

The HDPE pipes were delivered within the specified time and the standard of the pipes were good. We have since installed the pipes and no complaints have been raised from our clients as regards the quality.

Please convey my gratitude to the entire team at Aquasan Limited and all those involved in the success of this delivery. I am confident that this partnership will continue.

Sincerely,

Eng. Jean Claude GAHAMANYI,
General Manager
Green Rock-Iwacu Ltd



12 JUL 2017

Kigali, on...../...../2017

N 11.07.053/264/16-17/PROC-CEO/JS/jbd

TO WHOM IT MAY CONCERN

Subject: Certificate of Good Completion

In Accordance with the Contract N° 11.07.053/009/G/417/NCB/15-16/PROC-WASAC-CEO/JS/en signed on January 09th, 2017 between AQUASAN LTD and WASAC LTD (Water Sanitation and Corporation) for "SUPPLY OF HDPE PIPES AND BUTT FUSION MACHINES",

I hereby certify that AQUASAN LTD has successfully completed the above mentioned Services to the Satisfaction of WASAC LTD for the Contract Amount 696, 221, 303.9 RWF All Taxes Included in the period of 4 Months as imposed by the Contract.

James SANO
Chief Executive Officer



KINSH: WASAC Ltd. HQ, Rukiri, Gasabo District, Kigali City, Rwanda
Email: wasac@wasac.rw Website: www.wasac.rw P.O Box 2331 Kigali-Rwanda

Contact Us



Head Office & Plant I Factory Address:

G-3, Prime Economic Zone, Phase 1
Munini, Masoro, Gasabo District, Kigali,
Rwanda
P.B. 5159

Mobile : +250 788 306 833 / 788 380 855

Email : sales@aquasanrw.com

Website: www.aquasanltd.com

PLANT – II Factory Address

Plot No C1, Prime Economic Zone, Phase 2
Munini, Masoro,
Gasabo District, Kigali
Rwanda

