



شركة الصناعات الوطنية

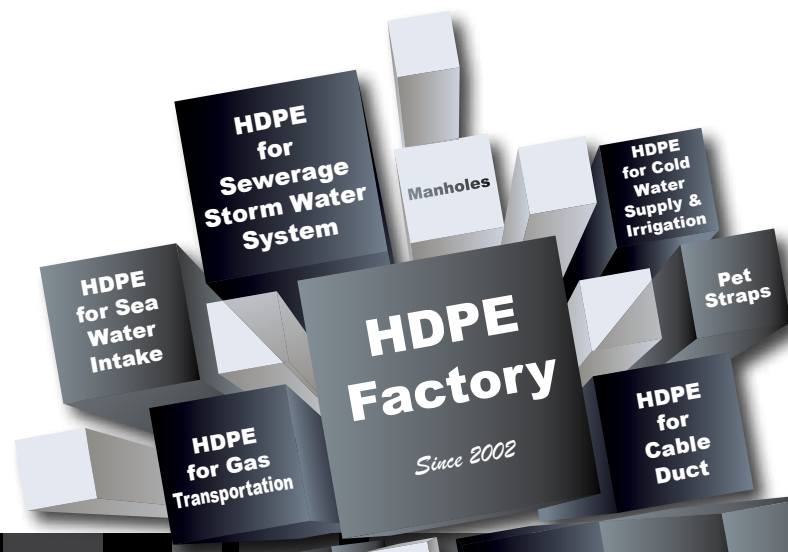
NATIONAL INDUSTRIES COMPANY

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# HDPE Corrugated



## PIPES & FITTINGS



# NIC Products

HDPE



LimeStone



Ready Mix



Tiles & Interlock



Dry Mortar



Ceramics



White Blocks



Concrete Pipes



Paints

Plastics



Benches & Bowls

Cladding



## introduction

“NIC HDPE” factory was established in 2002 in response to the ever increasing demand in Kuwait and neighboring countries for sewerage and rain water pipes. This factory is considered one of the largest in the Middle East, with an annual production capacity reaching 9,000 metric tones of HDPE corrugated pipes and fittings. HDPE pipes with profiled corrugation ranges from 300 to 4000 mm. (5000 MT/Yr), and HDPE pipes with circular corrugation ranges from 100 to 500mm (4000 MT/Yr).

“NIC HDPE” corrugated pipes are produced as per various international standards. Special pipes are also produced meeting special requirements of clients.



NIC HDPE corrugated pipes  
with spiral corrugation 300 to 4000mm



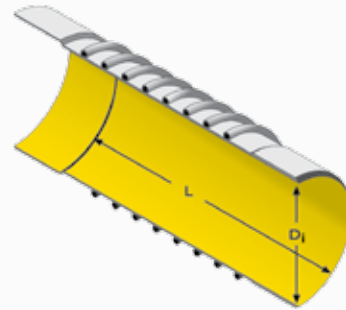
Production of NIC HDPE  
corrugated pipes with integrated socket



NIC HDPE corrugated pipes  
with circular corrugation 100 to 500mm

## “NIC HDPE” Corrugated pipes Used Standards and recommendations

Pipe:	DIN 16961, EN 13476 Or on request meeting ASTM F 894, NBR 7373, JS K 6780
Statical calculations:	ISO 9969, ATV A 127
Hydraulic calculations:	ATV A 110
Laying of pipes	EN 1610, ASTM D 2321, ASTM D 2774, ASTM F 1668
Welding / Electro fusion of pipes:	DVS 2207, ASTM D 2657, ASTM F 1055
Flexible rubber joints for pipes	ASTM D 3212, EN 13476
Testing of installation	ASTM 1417
Internal standard:	KWS



Pipes with profiled corrugation  
Di = 300mm to 400mm, Standard L = 6m



Pipes with circular corrugation  
Di = 100mm to 500mm, Standard L = 6m

“NIC HDPE” corrugated pipes are produced with standard length of 6 meters. However, special lengths can be provided on request. For HDPE pipes with profiled corrugation, short pipes with double socket or double spigot can also be produced. Double socket coupling, with stop and without stop (slip on), are available to connect corrugated pipes.

## NIC HDPE Corrugated pipes (Circular corrugation) Stiffness as per ISO 9969

Nominal Dia. DN mm	Outside Dia. mm	Type SN 2 SR=2kN	Type SN 4 SR=4kN	Type SN 8 SR=8kN	Type SN 16 SR=16kN
100	116	**	**	DWCC 100	**
150	174	**	**	DWCC 150	**
200	232	**	**	DWCC 200	**
250	290	**	**	DWCC 250	**
300	348	**	**	DWCC 300	**
350	406	**	**	DWCC 350	**
400	463	**	**	DWCC 400	**
500	580	**	**	DWCC 500	**

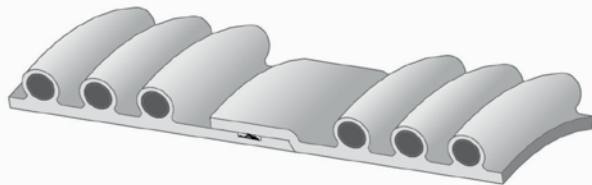
\*\* stands for special profile shapes on request

## NIC HDPE Corrugated pipes (Spiral corrugation) Stiffness as per ISO 9969

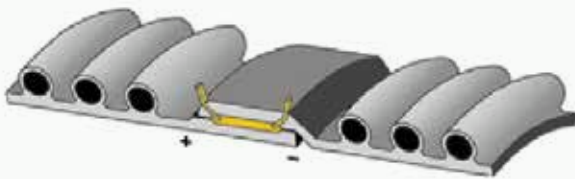
Nominal Dia. DN mm	Outside Dia. mm	Type SN 2 SR=2kN	Type SN 4 SR=4kN	Type SN 8 SR=8kN	Type SN 16 SR=16kN
300	356	PR 21-0.4	PR 21-0.4	PR 21-0.4	PR 34-0.99
400	482	PR 21-0.4	PR 21-0.4	PR 34-0.99	PR 42-1.9
500	598	PR 21-0.4	PR 34-0.99	PR 42-1.9	PR 54-4.5
600	702	PR 34-0.99	PR 34-1.2	PR 42-2.6	PR 54-4.7
700	826	PR 34-0.99	PR 42-1.9	PR 54-4.5	PR 54-8.0
800	930	PR 42-1.9	PR 54-4.5	PR 54-5.5	PR 54-11.39
900	1038	PR 42-2.28	PR 54-4.5	PR 65-7.22	PR 54-16.3
1000	1140	PR 42-2.6	PR 65-6.46	PR 65-11.28	**
1200	1342	PR 54-4.5	PR 65-8.25	PR 65-18.4	**
1400	1564	PR 54-7.0	PR 75-14.61	OP 65-29.16	**
1600	1772	PR 54-11.36	PR 75-20.38	OP 65-43.95	**
1800	1980	PR 54-16.3	PR 75-29.65	OP 65-62.74	**
2000	2270	PR 54-24.25	OP 75-42.77	OP 65-83.77	**
2200 to 4000	**	**	**	**	**

\*\* stands for special profile shapes on request

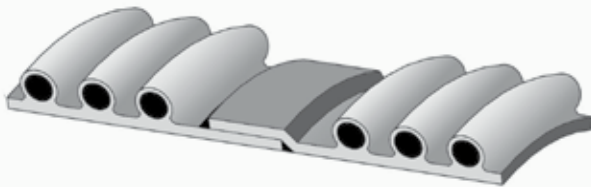
Outside diameter of sizes 300 to 900 are for Type SN8 and above size 900 are Type SN4



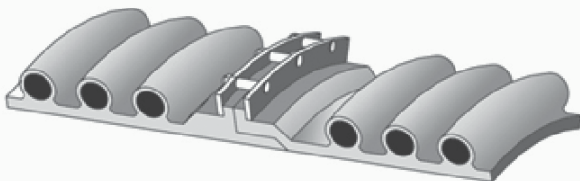
Rubber Seal Joint



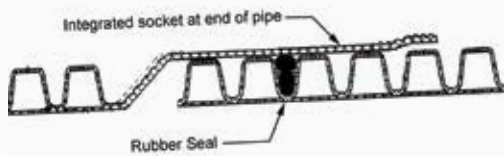
Electro-fusion Joint



Extrusion Welding Joint



Flange Joint



Rubber Seal Joint for circular corrugated pipes

## Joining Techniques

“NIC HDPE” corrugated pipes having spiral corrugation can be supplied with four type of joints.

Pipes with rubber seal joint are most easy to install.

Pipes with Electro-fusion joint are recommended because whole pipe becomes homogeneous after welding.

Extrusion welding are carried out as additional measure with electro-fusion joint while using ppipes under vacuum.

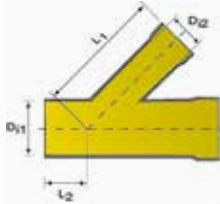
Flange joints are resourceful when we wish to connect HDPE pipes with shut off valves or butter fly valves.

“NIC HDPE” corrugated pipes with circular corrugation have integral built-in bell for pipe sizes 200mm & above.

For pipe size 100 to 150mm, a special coupler is fixed on one end of pipe. Pipes are supplied with factory installed rubber gasket at spigot end.

Installation of pipes is facilitated just by applying lubricant of gasket and then pushing spigot into bell end or coupler. Due to push fit jointing technique, these pipes have faster installation and low labor costs.

## Fittings for “NIC HDPE” Corrugated pipes



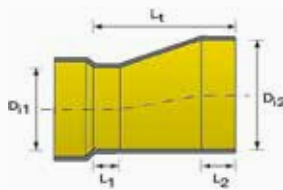
### 1. Branches:

Branches can be manufactured and delivered in every type and form. The angle can be adapted individually from 30° to 90° as well as the ends and the respective segment lengths. Branches can be all socket or socket - spigot as per customers requirement.



### 2. Bends:

Bends can be manufactured and segmented in different angles (150, 300, 450, 600, 750, 900) and the related radius of the bend to pipe diameter can be selected independently. Bends can be all socket or socket - spigot as per customers requirement.

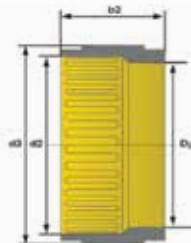


### 3. Reductions:

Reduction can be made both centric and eccentric so that the reduction will always meet the requirements. Reductions can be all socket or socket - spigot as per customers requirement.

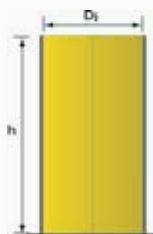
### 4. Couplers & Repair Couplers:

Couplers with stop at center & couplers without stop (for repair work) are available for all pipe sizes 100mm to 2,000mm.



### 5. Puddle Flanges:

In order to lead “NIC HDPE” corrugated pipes through wall, e.g. in sewage plants or concrete shafts of manholes, we recommend our puddle flanges which can be mounted in concrete. The tightness is secured by a ring made of EPDM. Special projections on outer surface can be provided if more tightness is required.



### 6. Septic Tanks

HDPE septic tanks are a key part of household and commercial septic systems. Naturally occurring bacteria completely treats the septic waste in environmentally responsible way. HDPE septic tanks are long life, light weight and are easy to install on sites with difficult access.

**Please contact us for detailed information on NIC HDPE Manholes.**



NIC HDPE Corrugated Pipes for Storm Water, connecting to Concrete Manholes at project in Kuwait



NIC HDPE Corrugated Pipes for Sanitary / Sewerage water, connecting to HDPE Manholes, project in Oman



NIC HDPE Corrugated Pipes with flanged connection for sea water intake project in UAE



NIC HDPE Corrugated Pipes for sea water intake project in UAE



Bend for NIC HDPE Corrugated Pipe, with socket and spigot, for project in Iraq



NIC HDPE Corrugated Pipes for Storm Water with electro-fusion connection at project in Kuwait



Special Tank made from NIC HDPE Corrugated Pipes for water treatment



NIC HDPE Corrugated Pipe used as sewerage water bio treatment plant for project in Oman





Testing of MeltFlow Rate



Dimension check by QC Department



Ring stiffness testing as per ISO 9969



## Quality

“NIC HDPE” corrugated pipes are made from HDPE material which have service life of more than 100 years.

### Before production control

The raw material HDPE is purchased from reputed supplier. This raw material is tested (Biyearly) for various requirements listed by local governmental bodies by third party testing facilities like KISR and Kuwait University. Every test is documented, analyzed and filed with local governmental bodies.

### During production control

During the production the individual working steps are continuously supervised and documented. Moreover the most important dimensions are measured and if necessary, corrected. These measured dimensions are randomly verified by third party approved by local governmental bodies.

### After production control

After the production, the final product is tested and compared to the all requirements of the customer.

In order to guarantee that the static theoretic values are conforming to the reality, pipes are tested with the help of ring stiffness according to DIN 16961 or ISO 9969.

Pipe joint is also tested to ensure tightness of joint.

Pipe samples are also sent to third party like Kuwait University for quality test (Bi yearly). Every test is documented, analyzed and filed with local governmental bodies.

### Quality certificates and external quality control

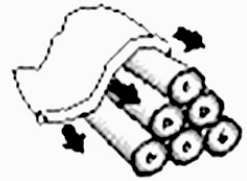
In general the whole production is constantly supervised by our QC department and by a third party inspection, like Kuwait University. All quality procedures and management confirms to requirement of ISO 9001 : 2008.

## Handling, Storage and Installation of “NIC HDPE” Corrugated Pipes.

### A. Storage at site



Storage at site



For safety and Pipes and fittings should be transported and stored in their packaging. The protective packaging on socket and spigot should be kept intact until material is required for use. All pipe stacks should be made on firm, flat ground to support the weight of the pipes and lifting equipment. Pipes or fittings must not rest on the socket. Pipes should be stacked with the sockets at alternate ends. the stacking height for pipes should be limited to 4 units, not more than 3 meters, and adequately wedged to prevent movement. Pipes must be stored from timber to timber. Pipes and fittings should be stored away from heat sources. Avoid contamination from medias such as diesel oil. When pipes are exposed to sunlight for prolonged time, pipes should be covered. Protect all materials from theft, vandalism, accidental damage or contamination.

### B. Trenching



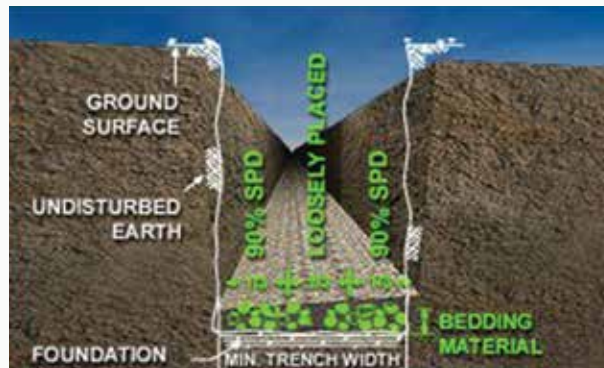
Trenching at Oman



Trenching at Kuwait

References for trenching practice are in AASHTO Section 30 and ASTM D2321. Both of these specifications provide guidelines for trench widths applicable to a variety of installation conditions. Trench widths may be varied based on the competency of the in-situ soil, backfill materials, compaction levels and loads.

### C. Foundation



Bedding of Trench

A stable foundation must be provided to ensure proper line and grade is maintained. Unsuitable foundations must be stabilized at the engineer's direction. Unsuitable or unstable foundations may be undercut and replaced with a suitable bedding material, placed in 6" lifts. Other methods of stabilization, such as geo fabrics may be appropriate based on the engineer's judgment.

### D. Bedding



Trench Foundation



Bedding at Oman

A stable and uniform bedding shall be provided for the pipe and any protruding features of its joints and/or fittings. The middle of the bedding, equal to 1/3rd of the pipe OD, may be loosely placed, with the remainder compacted to a minimum of 90 percent standard proctor density. Class I, II and III materials are suitable for use as bedding.

## E. Loading



Loading at project in Kuwait

Never drop the pipes. Lifting points should always be well spread and evenly spaced. Care must be taken to prevent slippage or excessive bowing of the pipes. Tie the load well to prevent rubbing. Use nylon straps, not chains or ropes.

## F. Cleaning & Rubber Lubrication



Applying Lubrication to socket and spigot,  
after cleaning, at Kuwait

Make sure that spigot end, socket and sealing ring are clean from sand, moisture, dust etc. Install the rubber sealing into the groove. Apply lubricant evenly onto the spigot end and the rubber sealing.

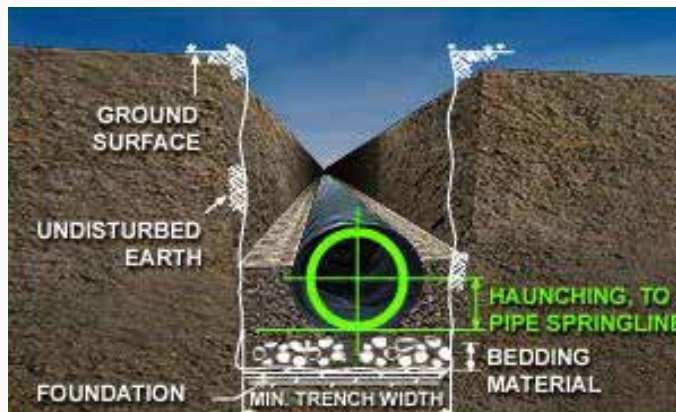
## G. Assembly



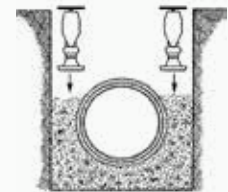
Assembly of pipes at project in Kuwait

Align the pipes vertically and horizontally. Larger dimensions can be installed by using an excavator. Protect the socket opening with a sheet or plank. Observe that the sealing ring stays in position.

## H. Haunching

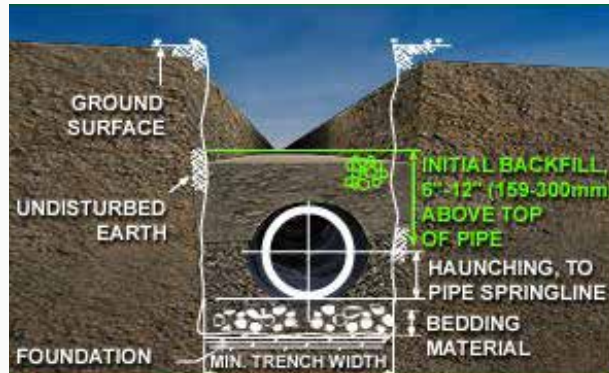


Haunching



Proper haunching provides a major portion of the pipe's strength and stability. Care must be exercised to ensure placement and compaction of the embedment material in the haunches. For larger diameter pipes (>700mm), embedment materials should be worked under the haunches by hand. Haunching materials may be Class I, II or III and must be placed and compacted in 8 inch maximum lifts, compacted to 90 percent standard proctor density.

## I. Initial Backfill



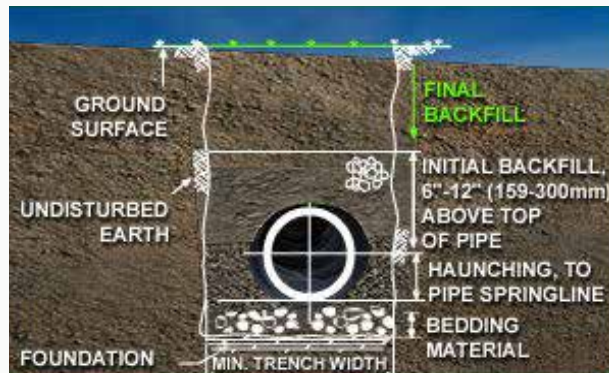
Initial backfill



Initial backfill at project in Oman

Initial backfill materials are required to  $\frac{3}{4}$  of the pipe diameter for proper structural performance of the pipe. The AASHTO and ASTM specifications extend the initial backfill from the springline 6 to 12 inches above the pipe to provide protection for the pipe from construction operations during placement of the final backfill and protect the pipe from stones or cobbles in the final backfill. For proper structural performance of the pipe, the initial backfill need only extend to  $\frac{3}{4}$  of the pipe diameter. Class I, II, III or low plasticity Class IV materials may be used for initial backfill.

## J. Final Backfill



Final Backfill



Final Backfill at project in Oman

The final backfill should be the same material as the proposed embankment. Generally, the excavated material may be used as final backfill. Placement should be as specified for the embankment. In lieu of a specification, the final backfill should be placed in 12 inch maximum lifts and compacted to a minimum 85 percent standard proctor density. Compaction should be performed at optimum moisture content.

# Sales Outlet



## Shuwaikh

Tel: 24837095/6/7/8/9

Kuwait Hotline: 1844555

Ceramics Sales: 24836564

### Working Hours:

**Sunday - Thursday**

7:30am - 3:00pm

5:00pm - 8:00pm

**Saturday:**

7:30am - 2:00pm



## Sulaibiya

Tel: 24674055

### Working Hours:

**Sunday - Thursday**

7:30am - 3:00pm

**Saturday:**

7:30am - 2:00pm



## Ceramics Showroom Shuwaikh

Humaidhi Complex  
Opposite to Bin Nisaf Co.

Tel: 24836564

Factory: 23262714/10



## Western Industrial Shuaiba

Tel: 23262622 - 23262866

Ceramics Factory: 23262714/10

### Working Hours:

**Sunday - Thursday**

7:30am - 3:00pm

**Saturday:**

7:30am - 2:00pm



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