



HANYCO
HAMOUN NYZEH CO.

English flyers

Our mission, water conservation





Eco-Friendly Casting

By adopting a closed-loop approach, we contribute to a circular economy by 100% utilizing Recycled scrap for the cast iron melt



Creating a Sustainable Habitat

We're advancing two crucial initiatives to promote sustainability. Firstly, installing drinking fountains and feeding stations for birds to foster harmony in our environment. Secondly, placing 10,000 tree basins to conserve water



Sustainable Afforestation Initiative

12,300 trees have been meticulously planted featuring a rich diversity of six distinct species



Achieving 100% Asbestos-Free Refractory Processes

Our organization proudly commits to the complete elimination of asbestos consumption in the refractory process.



Thermal Recovery Distillation System

We implement a robust thermal recovery process from boilers to generate 1000 liters per day of high-quality distilled water



Sewage treatment system

Implementing a sewage treatment system with a capacity of 50 cubic meters per day. This treated effluent is utilized to irrigate trees, promoting water conservation and ecosystem health.



Dust Collection System

Eliminating dust particles and harmful gases with a 500 CFM cutting-edge dust collection system for safeguarding the surrounding environment from potential pollutants



Environmental Monitoring

We conduct regular monitoring of environmental pollutants such as dust, noise, toxic gases, and car exhaust emissions. Through proactive measures, we ensure compliance with environmental regulations and mitigate potential impacts on surrounding ecosystems and communities.



Integrated Waste Management System

Aligning Practices with ISO 14001:2018 Standards to ensure a sustainable and environmentally responsible approach to waste handling



Clean Energy Investment

As part of our commitment to renewable energy, we have invested in the clean energy sector by establishing a solar power plant with a capacity of 2.5 megawatts. This initiative significantly reduces our carbon footprint and demonstrates our dedication to sustainable business practices.



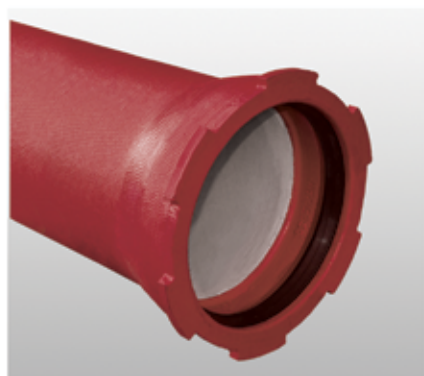
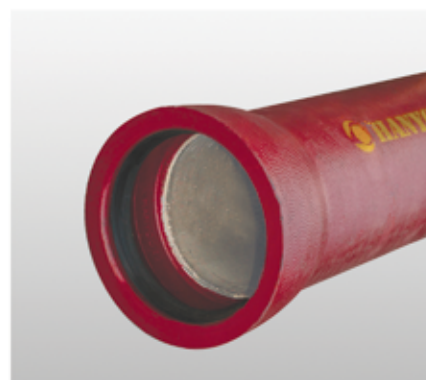
Integrated Eco-Conservation Programs

Nature Excursions, Tree Planting, and Employee Training in Environmental Management aiming not only to protect our natural but to raise awareness and promote sustainable practices and fostering a culture of responsibility among our workforce



**Ductile cast iron sewerage pipes
comply with the EN 598:2007 standard**

Ductile cast iron pipes used in sewerage transportation are one of the products manufactured by Hamoun Nyzeh Company, which are produced in accordance with the international EN 598:2007 standard with a variety of joints including Tyton, R.J Pipe, and Q.R Flex.



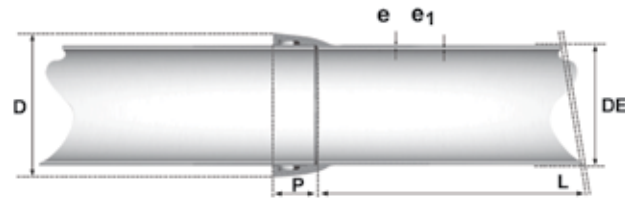
The sealing of ductile iron pipes manufactured in Hamoun Nyzeh company can be performed by using two types of Tyton gaskets, including EPDM rubber gasket and Self-Anchoring gasket (equipped with a steel locking system) per ISO4633 and EN681-1 standards. These gaskets are designed to fit in the DIN28603 standard sockets.

According to the factors of characterizing aggressivity the items in the table below can be used for applying internal and external coatings to ductile iron sewerage pipes.

Unit	Minimum quantity or size	The applied surface	Type of applied coating
gr/m ²	150	External	Zinc-rich paint
gr/m ²	200	External	(Zn %99.99) Pure metal zinc coating
gr/m ²	400	External	(Al%15 – Zn) Zinc-aluminum alloy coating
micrometer	70	External	Finishing layer (synthetic resin or bitumen)
micrometer	700	External	Polyurethane paint
micrometer	800-1000	Internal	Polyurethane paint
According to the specification table of dimensions and weights of ductile iron pipes.		Internal	High alumina cement

One of the distinctive characteristics of high alumina cement, which makes it suitable for lining ductile iron pipes, is capability to withstand environments with a pH greater than 4 and various corrosive elements like Aggressive CO₂, sulfate ions (SO₄⁻), magnesium ions (Mg⁺⁺), and ammonium ions (NH₄⁺).

Specification of dimensions and weights of ductile iron pipes according to EN 598:2007



DN	External diameter DE	Pipe Length L	Nominal thickness e	Cement lining thickness (e1)	Pipe weight with internal cement lining and external coatings
	(mm)	(m)	(mm)	(mm)	(Kg)
80	98	6	4.8	4	77
100	118	6	4.8	4	94
125	144	6	4.8	4	116
150	170	6	4.8	4	138
200	222	6	4.9	4	186
250	274	6	5.3	4	246
300	326	6	5.6	4	309
350	378	6	6.0	5	395
400	429	6	6.3	5	468
450	480	6	6.7	5	555
500	532	6	7.0	5	638
600	635	6	7.7	5	829
700	738	6	9.6	6	1186
800	842	6	10.4	6	1455
900	945	6	11.2	6	1763
1000	1048	6	12.0	6	2082
1100	1152	6	14.4	6	2613
1200	1255	6	15.3	6	3002

The dimensions and weights are in accordance with the EN 598:2007 standard and without tolerance consideration.
Therefore, if you need thickness classes of other ductile iron pipe standards, contact Hanyco's technical experts.



Ductile iron pipes with Puddle

Puddle Pipe

The Puddle pipes are used to strengthen the pipeline. Puddles are performed as a preventive factor against hydraulic forces, protecting pipeline against forces that made by suddenly fluid pressure change. For this purpose, it is possible to install puddle pipes in the joint of pipeline to the main water entry including powerhouses and pump stations.

In such cases, it is possible to install puddle pipes on the wall of tank that connected to the valve. Using these types of pipes in cement blocks could lead to increase the pipeline general strength and statics while passing over high-step regions.



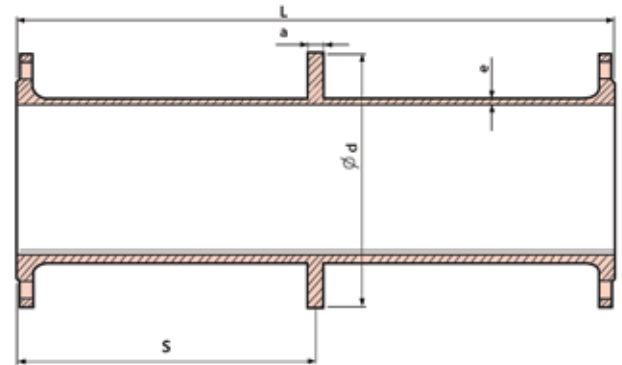
Types of Puddle pipes classes:

- ∴ Double flanged ductile iron pipe with puddle
- ∴ Flanged spigot ductile iron pipe with puddle
- ∴ Double spigot ductile iron pipe with puddle



Dimensions and weights specifications of ductile iron pipes with puddle

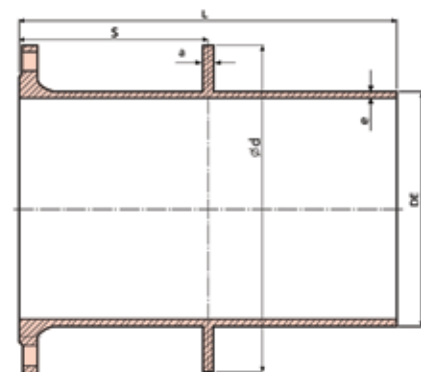
DN	e	a	L	d	m		
					PN 10	PN 16	PN 25
					(kg)		
80	7	16	1000	200	24	24	24
100	7/2	16	1000	220	28	28	29
150	7/8	18	1000	285	45	45	47
200	8/4	20	1000	340	64	63	67
250	9	20	1000	400	86	85	92
300	9/6	20/5	1000	455	110	109	120
350	10/2	20/5	1000	505	134	137	159
400	10/8	20/5	1000	565	160	167	188
500	12	22/5	1000	670	220	245	264
600	13/2	25	1000	780	293	342	362
700	14/4	27/5	1000	895	385	404	465
800	15/6	30	1000	1015	493	516	605



Double flanged ductile iron pipe with puddle

All weights are calculated based on the K12 thickness class. In case of other thickness classes, Please contact Hanyco technical experts. "S" parameter is related to puddle place according to the customer's order that its tolerance is ±10 mm.

DN	DE	e	a	L	d	m		
						PN 10	PN 16	PN 25
						(kg)		
80	98	7	16	1000	200	20	20	20
100	118	7/2	16	1000	220	24	24	25
150	170	7/8	18	1000	285	39	39	40
200	222	8/4	20	1000	340	55	55	57
250	274	9	20	1000	400	73	72	76
300	326	9/6	20/5	1000	455	87	87	92
350	378	10/2	20/5	1000	505	112	114	124
400	429	10/8	20/5	1000	565	134	137	148
500	532	12	22/5	1000	670	183	196	205
600	635	13/2	25	1000	780	241	265	276
700	738	14/4	27/5	1000	895	315	324	355
800	842	15/6	30	1000	1015	398	409	454



Flanged spigot ductile iron pipe with puddle

All weights are calculated based on the K12 thickness class. In case of other thickness classes, Please contact Hanyco technical experts. "S" parameter is related to puddle place according to the customer's order that its tolerance is ±10 mm.

Double flanged & flanged spigot of ductile iron pipe with puddle are supplied according to ISO 2531 & EN 545.

- **Casting method:** By using this method, it is possible to produce integrated pipes up to 800 mm in length.
- **Welding method:** By using this method, pipe is prepared and welded according to the customer's order with Maximum 6000 mm in length.

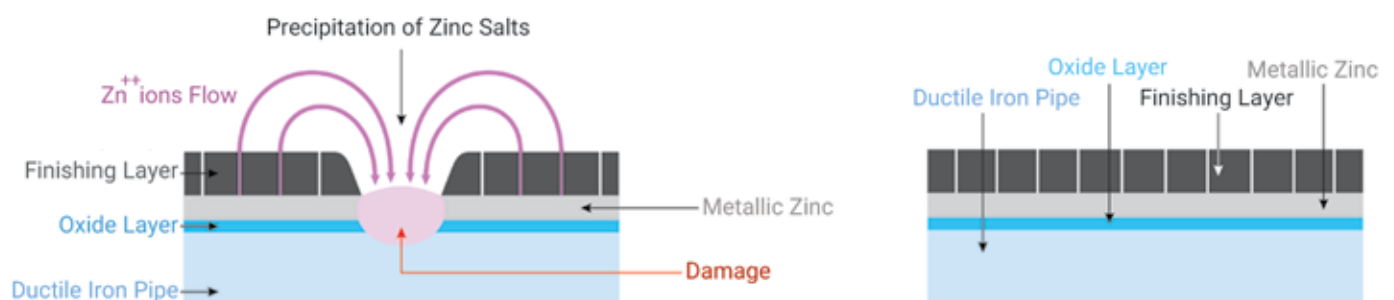


Ductile Iron pipe's coating and lining

External zinc coating

One of the most conventional applicable coating on ductile iron pipes is metallic zinc with finishing layer of bituminous or synthetic resin (epoxy and polyurethane), having self repairing specification that it protects base metal (ductile iron) electrochemically.

Relying on this specification, the external surface of pipes are coated according to ISO 8179 standard with thickness of 200 gr/m² by zinc wire of 99.99 purity, using thermal spray method.



According to EN 545 standard and depending on the corrosion of the surrounding environment, the following coatings with higher corrosion resistance is suggested to use against harsh environmental conditions and UV-ray:

- Zinc-Aluminum alloy coating (**Zn-15% Al**)
- Bituminous-Aluminum finishing layer (**Max 20% Al**)

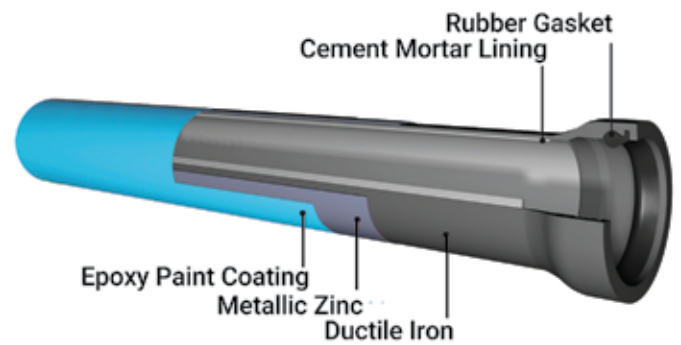
Finishing layer

Bituminous coating

In order to increase resistance against corrosion of soil and other environmental factors, bituminous paint with minimum thickness of 70 microns is sprayed uniformly on the outer surface of pipes (This thickness should be not less than 50 microns locally).

Epoxy paint coating

Epoxy paint is a two-components coating based on special epoxy resin and polyamide hardener that it is applied on the surface of pipe which creates a corrosion resistant layer. After completion of the epoxy paint reaction, it makes a very hard surface that shows high resistant to scratches, abrasion and chemical resistance. Epoxy paint coating is applied on the surface of ductile iron pipes according to international standard ISO 8179.



:: Proper mechanical and thermal properties (high temperature resistant).

Advantages

:: High resistance against corrosive and chemical conditions.



:: High stability and adhesion.

:: Good abrasion resistance.

:: Electrical insulator.

Internal lining

Cement mortar lining

One of the most common lining of ductile iron pipe is cement mortar. Self-healing is considered as one of the unique advantages of this lining. Cement mortar lining is applied via centrifugal method. For curing of applied cement mortar, pipes are transferred to a container with certain temperature condition and controlled humidity.

:: Prevention from transferring dangerous chemical compositions to the drinking water

Advantages

:: Acceptable surface roughness



:: Proper adhesion

:: High density

Various types of cement mortar linings are applied according to ISO 4179 standard and based on customer's demand as following:

:: Portland Cement

:: High Alumina cement

:: Blast furnace slag cement

It is also feasible to apply cement coating based on EN 598 standard or polyurethan coating according to EN15655.

Water characteristics	Portland cement	Sulphate resisting cements (including blast furnace slag cements)	High Alumina cement
Minimum value of pH	6	5/5	4
Maximum content (mg/l)			
Aggressive CO ₂	7	15	No limit
Sulphate SO ₄ ⁻	400	3000	No limit
Magnesium Mg ^{**}	100	500	No limit
Ammonium NH ₄ ⁺	30	30	No limit



Ductile iron pipe with resistant joint (R.J.Pipe)

Reliable investment

R.J.Pipe is an advanced design of Push-in flexible restrained Joint that its locking system prevents from pipe separation while earthquake or subsidence. It is noteworthy that increased safety in water supply networks and significant decrease in water-loss are among the most important advantages of using such pipes.

Using restrained joint leads to the integration of pipeline and distribution of stress and strain that is produced among different components of pipeline. One of the main specification of this kind of joint is ease of assembly and disassembly without bolt and nut.



Standards



- :: R.J.Pipe is designed according to ISO 16134 and the joint tested according to ISO10804.
- :: Applying external coatings according to ISO 8179 and internal lining according to ISO 4179 and EN 598.
- :: Sealing rubber gasket is similar to Tyton joint, following ISO 4633 and 681.

Applications



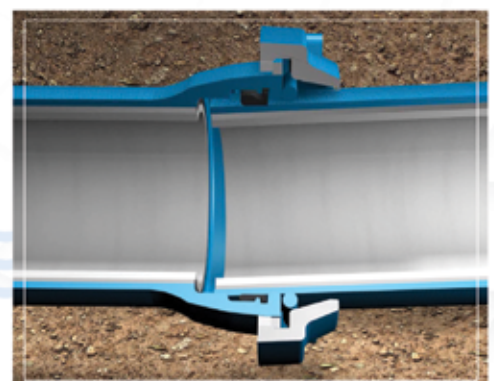
- :: Suitable for earthquake regions and unstable soils, without concrete thrust blocks in the joint place.
- :: Suitable for trenchless application systems especially horizontal directional drilling.



Advantages

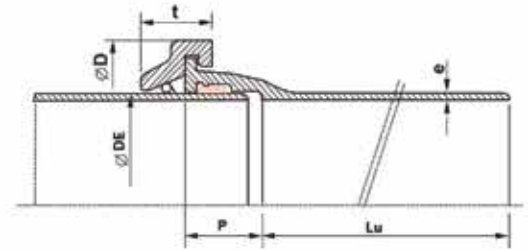


- :: Suitable axial displacement and angular deflection with perfect sealing
- :: Easy and fast installation without nut and bolt
- :: High resistance against hydraulic forces



Dimensions and weights specifications of R.J.Pipes according to EN 545 Standard

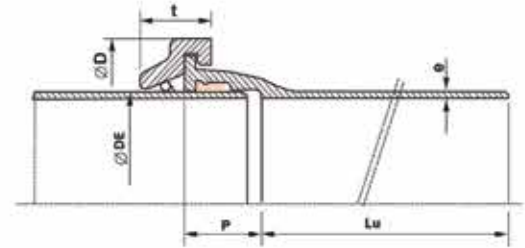
DN	External diameter DE (mm)	Pipe length L (m)	Socket length P (mm)	Nominal thickness e (mm)	Pipe weight with internal cement lining and external coatings (Kg)	Gland external diameter D (mm)	Gland weight (Kg)	Gland width t (mm)	Pipe weight with internal cement lining and external coatings and Gland (Kg)
80	98	6	84	6	67	207	7	83	97
100	118	6	88	6	107	229	8	86	120
125	144	6	91	6	132	256	9	87	147
150	170	6	94	6	158	287	11	94	175
200	222	6	100	6.3	217	347	15	94	241
250	274	6	105	6.8	287	405	20	97	317
300	326	6	110	7.2	363	463	27	101	403
350	378	6	110	7.7	476	518	35	101	511
400	429	6	110	8.1	568	574	36	104	605
450	480	6	120	8.6	670	632	45	104	716
500	532	6	120	9	775	690	55	106	831
600	635	6	120	9.9	1010	810	73	109	1083
700	738	6	150	10.8	1302	932	111	128	1413
800	842	6	160	11.7	1600	1050	147	140	1747
900	945	6	175	12.6	1942	1172	185	164	2127



R.J.Pipe according to EN 545:2007 K Class

All dimensions except pipe length are in mm and weight are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the K9 thickness class. In case of other thickness classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

DN	External diameter DE (mm)	Preferred pressure class (bar)	Pipe length L (m)	Socket length P (mm)	Nominal thickness e (mm)	Pipe weight with internal cement lining and external coatings (Kg)	Gland external diameter D (mm)	Gland weight (Kg)	Gland width t (mm)	Pipe weight with internal cement lining and external coatings and Gland (Kg)
80	98	40	6	84	4.4	72	207	7	83	82
100	118	40	6	88	4.4	88	229	8	86	100
125	144	40	6	91	4.5	110	256	9	87	124
150	170	40	6	94	4.5	131	287	11	94	148
200	222	40	6	100	4.7	160	347	15	94	204
250	274	40	6	105	5.5	251	405	20	97	281
300	326	40	6	110	6.2	328	463	27	101	367
350	378	30	6	110	6.3	421	518	35	101	456
400	429	30	6	110	6.5	495	574	36	104	531
450	480	30	6	120	6.9	586	632	45	104	631
500	532	30	6	120	7.5	690	690	55	108	745
600	635	30	6	120	8.7	928	810	73	109	1001
700	738	25	6	150	8.8	1145	932	111	128	1256
800	842	25	6	160	9.6	1404	1050	147	140	1551
900	945	25	6	175	10.1	1642	1172	185	164	1827



R.J.Pipe according to EN 545:2010 C Class

All dimensions except pipe length are in mm and weights are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the preferred pressure class. In case of non-preferred pressure classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

CONFIRMATION

This is to certify that Hanyco Hamoun Nyzeh Co. (HANYCO) has manufactured the product in accordance with the specifications of EN 545:2007 K Class for R.J. Pipe with nominal diameter DN 80-900 mm and length L=6m. The product is confirmed to be in accordance with the specifications of EN 545:2007 K Class for R.J. Pipe with nominal diameter DN 80-900 mm and length L=6m. The product is confirmed to be in accordance with the specifications of EN 545:2007 K Class for R.J. Pipe with nominal diameter DN 80-900 mm and length L=6m.

Other important specifications are as following table:

Parameter	Slip-out resistance	Expansion/ contraction performance	Joint deflection angle
R.J Pipe joint place	A	S ₂	M ₂
Performance	3d KN or more	+0.5% to less than ±1% of L	$\frac{\theta}{2}$ to Less than θ

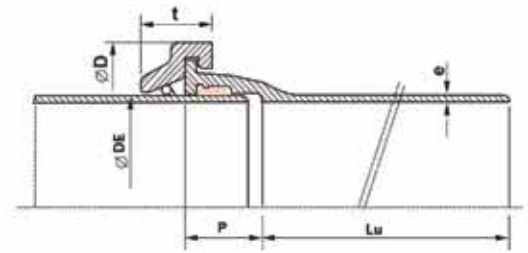
Joint deflection angle:

DN (mm)	80-400	450-900
Joint deflection angle θ (degree)	8	7



Dimensions and weights specifications of R.J.Pipes according to ISO 2531 Standard

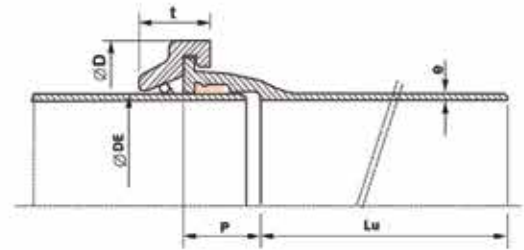
DN	External diameter DE (mm)	Pipe length L (m)	Socket length P (mm)	Nominal thickness e (mm)	Pipe weight with internal cement lining and external coatings (Kg)	Gland external diameter D (mm)	Gland weight (Kg)	Gland width t (mm)	Pipe weight with internal cement lining and external coatings and Gland (Kg)
80	98	6	84	6	87	207	7	83	94
100	118	6	88	6	107	229	8	86	115
125	144	6	91	6	132	256	9	87	142
150	170	6	94	6	158	287	11	94	169
200	222	6	100	6.3	217	347	15	94	233
250	274	6	105	6.8	287	405	20	97	307
300	326	6	110	7.2	363	463	27	101	390
350	378	6	110	7.7	476	518	35	101	511
400	429	6	110	8.1	568	574	36	104	605
450	480	6	120	8.6	670	632	45	104	718
500	532	6	120	9	775	690	55	108	831
600	635	6	120	9.9	1010	810	73	109	1083
700	738	6	150	10.8	1302	932	111	128	1413
800	842	6	160	11.7	1600	1050	147	140	1747
900	945	6	175	12.6	1942	1172	186	164	2127



R.J.Pipe according to ISO 2531:1998 K Class

All dimensions except pipe length are in mm and weight are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the K9 thickness class. In case of other thickness classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

DN	External diameter DE (mm)	Preferred pressure class (bar)	Pipe length L (m)	Socket length P (mm)	Nominal thickness e (mm)	Pipe weight with internal cement lining and external coatings (Kg)	Gland external diameter D (mm)	Gland weight (Kg)	Gland width t (mm)	Pipe weight with internal cement lining and external coatings and Gland (Kg)
80	98	40	6	84	4.4	72	207	7	83	79
100	118	40	6	88	4.4	88	229	8	86	96
125	144	40	6	91	4.5	110	256	9	87	119
150	170	40	6	94	4.5	131	287	11	94	142
200	222	40	6	100	4.7	180	347	15	94	195
250	274	40	6	105	5.5	251	405	20	97	271
300	326	40	6	110	6.2	328	463	27	101	355
350	378	30	6	110	6.3	421	518	35	101	456
400	429	30	6	110	6.5	495	574	36	104	531
450	480	30	6	120	6.9	596	632	45	104	631
500	532	30	6	120	7.5	690	690	55	108	745
600	635	30	6	120	8.7	928	810	73	109	1001
700	738	25	6	150	8.8	1145	932	111	128	1256
800	842	25	6	160	9.6	1404	1050	147	140	1551
900	945	25	6	175	10.1	1642	1172	185	164	1827



R.J.Pipe according to ISO 2531:2009 C Class

All dimensions except pipe length are in mm and weights are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the preferred pressure class. In case of non-preferred pressure classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

CONFIRMATION

This is certify that Hanyco
Hamoun Nyzeh Co. (HANYCO)
 Head Office: No. 28, 3rd St., Shargh Road
 Mahan Abad, Tehran - Iran
 Phone: 0098 21 8488 2468 Fax: 0098 21 8488 2467

Product description: **Resistance class K9 ISO 2531 EN 12556 (K9)** Type: **Ball**

DN: **80-900** Length: **6000** Material: **EN 15618 S355**

Standard: **ISO 2531:2009**

Signature: _____
 Date: _____

QMS CERTIFIED
 ISO 9001:2015

Other important specifications are as following table:

Parameter	Slip-out resistance	Expansion/ contraction performance	Joint deflection angle
R.J Pipe joint place	A	S ₂	M ₂
Performance	3d KN or more	+0.5% to less than ±1% of L	θ/2 to Less than θ

Joint deflection angle:

DN (mm)	80-400	450-900
Joint deflection angle θ (degree)	8	7



Welding procedure specification of R.J.Pipe

Welding Instruction

If R.J.Pipe is cut out during installation or customer purchases the pipes without welding ring from producer, it is possible to use below instruction for the purpose of welding the locking ring around R.J.Pipe's spigot.



Welding process	Shielded metal arc Welding (SMAW)		
Type of Joint	Single weld		
Technical specification of base metal	Type of cast iron	Standard	Thickness
	SG cast iron	EN-GJS400-15	5 to 14 mm
Technical specification of filler metal	Type of Electrode	ANSI/AWS-A5.15	Electrode diameter
	ENiFe-CI		3.25 mm
Electrical specification	Transfer mode	Current polarity	
	Short circuit	DCEP current and electrode is connected to the positive pole and use minimum amperage	
Welding method	75 to 100 Amps	22 to 24 Volt	Welding speed: 3-6 m/s
Welding Position	Horizontal		

Joint Scheme



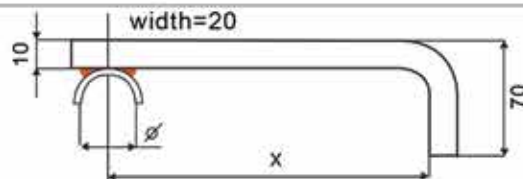
Dimensions specifications of locking rings and its installation place

Weathering steel or DIN 16MnCr5 (EN1.7131) Locking rings should be placed in a certain distance of spigot end.

DN	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
Locking ring (diameter) (mm)	14	14	14	14	14	14	14	14	14	14	16	16	16	16	20
Locking ring (Length) (mm)	340	400	480	565	730	895	1055	1220	1380	1540	1705	2030	2350	2694	3020
a	97	101	104	108	114	119	123	124	124	134	136	136	165	170	200
Tolerance	±1						±2								

Locating bar measurements

DN	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
X (± 1)	90.5	94.5	97.5	101	107	112	116	117	117	127	129	129	158	167	190
Ø(+0.5)	14						16						20		



All dimintions are in mm



Installation guideline of R.J.PIPE's fitting DN80-DN900 mm



Ductile iron pipes with Push-on Joint (Tyton)

The best in drinking water transmission

Push-on Joint (Tyton)

One of the most common type of joints, used for ductile iron pipes is Push-On joint (Tyton) which can be assembled easily and quickly. This joint includes a rubber gasket with a special material and design that placed inside the socket of pipe so that the next pipe's spigot could fit into socket by pressure and get assembled and sealed at the same time. These sealing gaskets are made of EPDM according to ISO 4633 and EN 681 .

- Advantages**
- ∴ Easy and fast installation, without special equipment and expert manpower
 - ∴ Not require welding and using bold and nut
 - ∴ Proper angular deflection
 - ∴ Perfect sealing

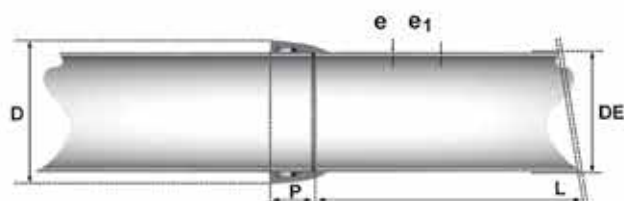


This joint is designed in a way that could provide a maximum 5 degrees of angular deflection.

DN	Maximum angular deviation (Degree)
80-150	5
200-300	4
350-600	3
700-1200	2

Dimensions and weights specifications of ductile iron pipes according to ISO 2531 Standard

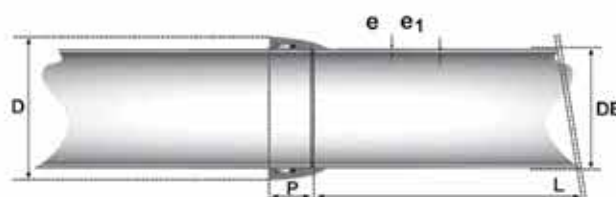
DN	External diameter (DE)	Pipe Length (L)	Socket length (P)	Socket external Diameter (D)	Nominal Thickness (e)	Nominal Cement Thickness (e1)	Pipe weight with internal cement and external coatings
	(mm)	(m)	(mm)	(mm)	(mm)	(mm)	(Kg)
80	98	6	85	142	6/0	3	87
100	118	6	88	164	6/0	3	106
125	144	6	91	196	6/0	3	132
150	170	6	94	217	6/0	3	157
200	222	6	100	278	6/3	3	217
250	274	6	105	332	6/8	3	286
300	326	6	110	388	7/2	3	362
350	378	6	110	442	7/7	5	474
400	429	6	110	497	8/1	5	567
450	480	6	115	551	8/6	5	669
500	532	6	120	606	9/0	5	774
600	635	6	120	715	9/9	5	1008
700	738	6	150	828	10/8	6	1299
800	842	6	160	940	11/7	6	1596
900	945	6	175	1044	12/6	6	1934
1000	1048	6	185	1156	13/5	6	2285
1100	1152	6	166	1264	14/4	6	2613
1200	1255	6	171	1314	15/3	6	3002



Push-on joint (Tyton) Pipe according to ISO 2531:1998 K class

All dimensions except pipe length are in mm and weight are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the K9 thickness class. In case of other thickness classes, Please contact Hanyco technical experts.

DN	External diameter (DE)	Pipe Length (L)	Preferred pressure class	Socket length (P)	Socket external Diameter (D)	Nominal Thickness (e)	Nominal Cement Thickness (e1)	Pipe weight with internal cement and external coatings
	(mm)	(m)	(bar)	(mm)	(mm)	(mm)	(mm)	(Kg)
80	98	6	C40	85	142	4/4	3	69
100	118	6	C40	88	164	4/4	3	84
125	144	6	C40	91	196	4/5	3	106
150	170	6	C40	94	217	4/5	3	126
200	222	6	C40	100	278	4/7	3	172
250	274	6	C40	105	332	5/5	3	243
300	326	6	C40	110	388	6/2	3	321
350	378	6	C30	110	442	6/3	5	410
400	429	6	C30	110	497	6/5	5	479
450	480	6	C30	115	551	6/9	5	568
500	532	6	C30	120	606	7/5	5	672
600	635	6	C30	120	715	8/7	5	910
700	738	6	C25	150	828	8/8	6	1110
800	842	6	C25	160	940	9/6	6	1362
900	945	6	C25	175	1044	10/6	6	1685
1000	1048	6	C25	185	1156	11/6	6	2028
1100	1152	6	C25	166	1264	12/6	6	2345
1200	1255	6	C25	171	1314	13/6	6	2726



Push-on joint (Tyton) Pipe according to ISO 2531:2009 C class

All dimensions except pipe length are in mm and weight are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the preferred pressure class. In case of non-preferred pressure classes, Please contact Hanyco technical experts.

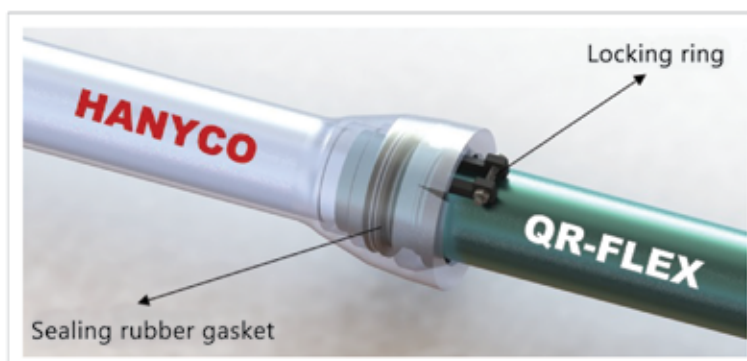


New generation of Quake-resistant pipe and fittings with integrated design (Q.R.Flex)

Insurance for the water future

Q.R.Flex

Q.R.Flex pipe is the most recent Hanyco's product. Q.R.Flex is a push-on flexible restrained joints so that it needs an assembly force similar to Tyton joint, making the assembly very easy. One of the unique specifications of Q.R.Flex pipe is its proper angular deflection and axial movement.



Q.R.Flex benefits from the normal Tyton gasket for sealing, that it makes installation much easier and faster. A ductile iron locking ring, inserted through a slot in the bell face, provide a positive axial lock between the bell interior surface and a retainer weldment on the spigot end of the pipe.

Q.R.Flex resistant joint provides a chain structure along the pipeline so it can distributes the created forces in different points along the pipeline.

Standards



- :: Q.R.Flex is designed according to ISO 16134 and performance tests were done according to ISO10804.
- :: Applying external coatings according to ISO 8179 and internal lining according to ISO 4179 and EN 598.
- :: Q.R.Flex is manufactured according to ISO 2531 or EN 545.
- :: Sealing gasket is similar to Tyton joint, following ISO 4633 and EN 681.

Applications



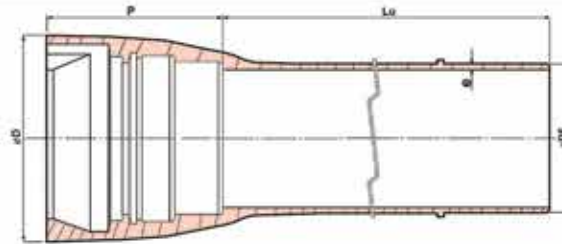
- :: Suitable for all types of soils and grounds especially regions having unstable soil or marshes.
- :: Regions where installation of inhibitory concrete block is impossible.
- :: Suitable for trenchless application systems especially horizontal directional drilling.
- :: In high-steep and hilly regions.
- :: On faults and earthquake-prone regions.

Advantages



- :: Improving pipeline resistance against thrust forces and joint protrusion and creating a chain structure in pipeline.
- :: Reduction execution costs due to needing no shock-absorbing and cement thrust blocks.
- :: Easy and quick assembly operation without any gland, bolt and nut.
- :: Increase the water networks safety against earthquake and land sliding.
- :: Considerable reduction of loss-water in transferring pipeline and distribution networks.

Dimensions and weights specifications of Q.R.Flex pipes according to ISO 2531 Standard



Q.R.Flex DN 150-600 mm in K Class-ISO 2531:1998

DN	External diameter (DE)		Pipe Length (L)	Socket length (P)	External diameter of socket (D)	Nominal thickness (e)	Pipe weight with internal cement lining and external coatings
	(mm)		(m)	(mm)	(mm)	(mm)	(Kg)
150	Nominal	170	6	155	227	6.0	160
200	Nominal	222	6	163	295	6.3	224
250	Nominal	274	6	165	350	6.8	293
300	Nominal	326	6	185	416	7.2	378
350	Nominal	378	6	193	475	7.7	497
400	Nominal	429	6	198	525	8.1	591
500	Nominal	532	6	210	640	9	831
600	Nominal	635	6	224	751	9.9	1083

The weight of locking ring is not calculated in final Q.R.Flex pipe's weight. All dimensions except pipe length are in mm and weight are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the K9 thickness class. In case of other thickness classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

Q.R.Flex DN 150-600 mm in C Class-ISO 2531:2009

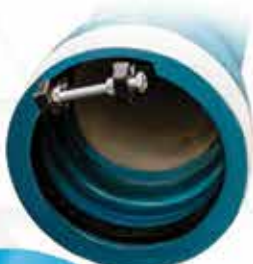
DN	External diameter (DE)		Pipe Length (L)	Preferred Pressure Class	Socket length (P)	External diameter of socket (D)	Nominal thickness (e)	Pipe weight with internal cement lining and external coatings
	(mm)		(m)	(bar)	(mm)	(mm)	(mm)	(Kg)
150	Nominal	170	6	C40	155	227	4.5	134
200	Nominal	222	6	C40	163	295	4.7	190
250	Nominal	274	6	C40	165	350	5.5	264
300	Nominal	326	6	C40	185	416	6.2	340
350	Nominal	378	6	C30	193	475	6.3	437
400	Nominal	429	6	C30	198	525	6.5	514
500	Nominal	532	6	C30	210	640	7.5	740
600	Nominal	635	6	C30	224	751	8.7	1001

The weight of locking ring is not calculated in final Q.R.Flex pipe's weight. All dimensions except pipe length are in mm and weights are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the preferred pressure class. In case of non-preferred pressure classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

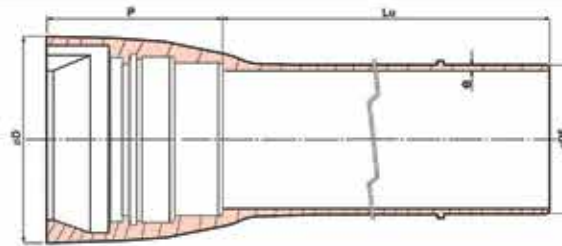
Other important specifications are as following table:

Parameter	Slip-out resistance	Expansion/ contraction performance	Joint deflection angle
Q.R.Flex joint place	A	S-2	M-2
Performance	3d KN or more	±0.5% to less than ±1% of L	θ/2 to less than θ

DN(mm)	80-400	450-600
Joint deflection angle θ (degree)	8	7



Dimensions and weights specifications of Q.R.Flex pipes according to EN 545 Standard



Q.R.Flex DN 150-600 mm in K Class-EN 545:2007

DN	External diameter (DE)		Pipe Length (L)	Socket length (P)	External diameter of socket (D)	Nominal thickness (e)	Pipe weight with internal cement lining and external coatings
	(mm)		(m)	(mm)	(mm)	(mm)	(Kg)
150	Nominal	170	6	155	227	6.0	166
200	Nominal	222	6	163	295	6.3	232
250	Nominal	274	6	165	350	6.8	303
300	Nominal	326	6	185	416	7.2	391
350	Nominal	378	6	193	475	7.7	497
400	Nominal	429	6	198	525	8.1	591
500	Nominal	532	6	210	640	9	831
600	Nominal	635	6	224	751	9.9	1083

The weight of locking ring is not calculated in final Q.R.Flex pipe's weight. All dimensions except pipe length are in mm and weight are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the K9 thickness class. In case of other thickness classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

Q.R.Flex DN 150-600 mm in C Class-EN 545:2010

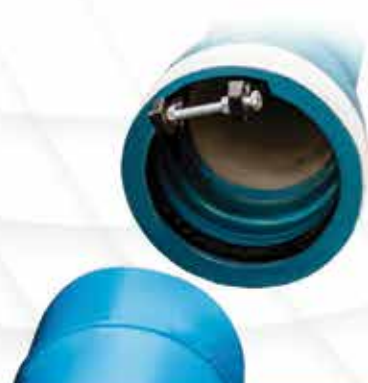
DN	External diameter (DE)		Pipe Length (L)	Preferred Pressure Class	Socket length (P)	External diameter of socket (D)	Nominal thickness (e)	Pipe weight with internal cement lining and external coatings
	(mm)		(m)	(bar)	(mm)	(mm)	(mm)	(Kg)
150	Nominal	170	6	C40	155	227	4.5	140
200	Nominal	222	6	C40	163	295	4.7	199
250	Nominal	274	6	C40	165	350	5.5	274
300	Nominal	326	6	C40	185	416	6.2	352
350	Nominal	378	6	C30	193	475	6.3	437
400	Nominal	429	6	C30	198	525	6.5	514
500	Nominal	532	6	C30	210	640	7.5	740
600	Nominal	635	6	C30	224	751	8.7	1001

The weight of locking ring is not calculated in final Q.R.Flex pipe's weight. All dimensions except pipe length are in mm and weights are in kg. Dimensions and weights are mentioned without tolerance consideration. All weights are calculated based on the preferred pressure class. In case of non-preferred pressure classes, Please contact Hanyco technical experts. Cement thickness in various sizes is similar to Push-on joint (Tyton) pipe.

Other important specifications are as following table:

Parameter	Slip-out resistance	Expansion/ contraction performance	Joint deflection angle
Q.R.Flex joint place	A	S-2	M-2
Performance	3d KN or more	±0.5% to less than ±1% of L	θ/2 to less than θ

DN(mm)	80-400	450-600
Joint deflection angle θ (degree)	8	7



Ductile iron pipes compatible with plastic (PVC or PE) piping systems

Higher reliability in urban and rural water distribution networks

Light pipe is a new generation of ductile iron pipe with less wall thickness than conventional ductile iron pipes. Thus, due to significant decrease of weight, it is more engineering, cost effective and logical using them in drinking water distribution network. Since ductile iron is preferred option for drinking water lines, The L.Pipes have been the best alternative for polymeric pipes in drinking water distribution lines. It also eliminates several deficiencies and limitations existing in the polymeric pipes, such as restrictions on outdoor maintenance and storage, environmental issues, high repair and maintenance costs due to fracture and leakage of the polymeric pipes, and so on.

Standards



- ∴ L.Pipe is manufactured with the nominal wall thickness of 3 to 4 millimeter, according to ISO16631.

Applications



- ∴ In regions with limited access to which it is rarely possible to carry pipes with usual weight
- ∴ Proper alternative for polymeric pipes in drinking water distribution network
- ∴ The best choice in distribution lines with low working pressure

Advantages

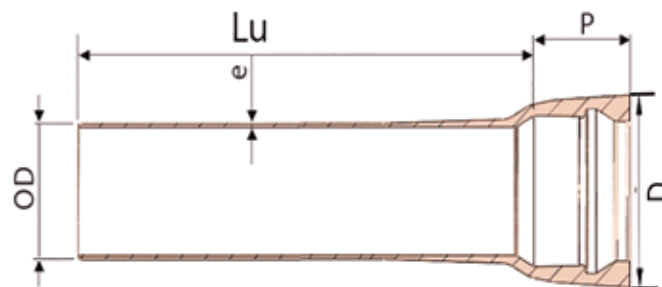


- ∴ Prevention from transferring dangerous chemical compositions to the drinking water
- ∴ Eliminate the limitation of maintenance and storage in open area of polymeric pipe
- ∴ Decrease water leakage and waste in network due to using polymeric pipe
- ∴ Much easier storage and transferring comparing to polymeric pipes
- ∴ Compatible with environment and its relevant requirements
- ∴ Easy leakage-tracing due to conductivity of pipe body
- ∴ Easy installation, usage and cutting in customer site
- ∴ Proper angular deflection up to 6 degrees
- ∴ A green product with high scrap value
- ∴ Less fracture in distribution network
- ∴ Impossibility of illegal branching
- ∴ Less repair and maintenance

Conformity of DN/OD Sizes of L.Pipe and polymer pipes

L.Pipe Sizes	Polymeric pipes (PE and PVC) sizes
DN/OD 90	DN/OD 90
DN/OD 110	DN/OD 110
DN/OD 125	DN/OD 125
DN/OD 160	DN/OD 160
DN/OD 200	DN/OD 200

Suitable alternative for polymeric pipes in drinking water distribution network



Dimensions and weights specifications of L.Pipes according to ISO 16631

OD	External diameter (DE)	Pipe Length (Lu)	Preferred Pressure Class	Socket length (P)	External diameter of socket (D)	Maximum angular deflection	Nominal thickness (e)	Nominal cement thickness	Pipe weight with internal cement lining and external coatings
	(mm)	(m)	(bar)	(mm)	(mm)	(degree)	(mm)	(mm)	(Kg)
90	Nominal 90	6	C25	84	127	6	3	3	47
110	Nominal 110	6	C25	87	148	6	3	3	58
125	Nominal 125	6	C25	92	164	6	3	3	67
160	Nominal 160	6	C25	97/5	202	6	3/2	3	90
200	Nominal 200	6	C25	108	247	6	3/4	3	121

All dimensions except pipe length are in mm and weights are in Kg. Dimensions and weights are mentioned without tolerance consideration.

It is noteworthy that the amount of weight reduction in L.Pipe is 40 to 50 percent comparing to normal ductile iron pipe.

L.Pipe assembly and disassembly

Assembling and disassembling of this product is similar to Tyton pipes, except that the assemblage required force is less, which can often be carried out with a hand lever due to the lower weight of these pipes, especially in smaller sizes. Therefore, it is recommended to use the least amount lubricant as possible during assembly and installation operations. In this case, it'd better to primarily apply lubricant on the pipe's spigot and consequently perform assembly, after making sure of cleanness of the socket

Other specifications and type of internal and external coatings of L.Pipes

- :: Type of external coatings: External coating of metallic zinc (200 gr/m²) and finishing layer of green epoxy/polyurethane with the minimum thickness of 70 microns according to ISO 8179 Standard
- :: Type of internal lining: Portland cement according to ISO 4179 and EN 598 standards
- :: Sealing gasket type: Polyethylene fitting's gasket

How to order and store the product

Due to the less wall thickness of these pipes, it is recommended to order and convey this product in packing. Moreover, it is proper to use four-sided woods while unloading and storage.



R.J.Pipe Assembly instructions

First step

Primarily unfasten the holding wire which fix gland to the spigot as well as the safe transportation of pipe and accessories. Afterwards, clean all the contaminations and impurities from the end of spigot, socket and gland internal body using a proper wire brush.

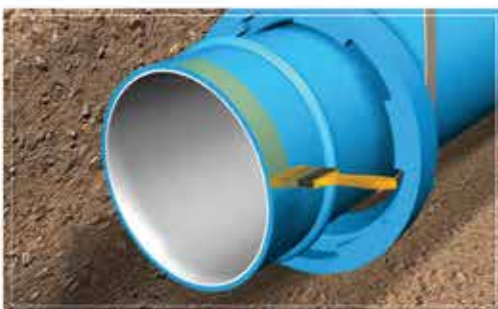


Second Step

Before sealing gasket insertion, please make sure that socket of pipe is clean. Then apply a proper soap-based lubricant inside socket. Finally start assemblage operation by fixing the proper gasket into the socket.

Third Step

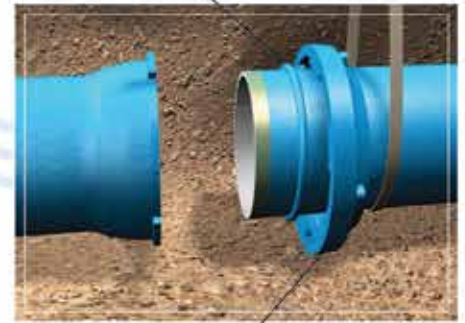
Apply the proper lubricant on spigot end and inside of socket again.



Fourth Step

Place the end of pipe spigot into the pipe socket. Make certain that the locking ring has been properly welded around spigot. When two pipes are along each other, Apply uniform pressure to assemble two pipes preferably with relevant tools such as mechanical winches or crowbar.

Locking ring



Gland



Fifth Step

Move the gland toward pipe socket so that its lugs are placed among the lugs existing on the pipe socket. Then move it toward pipe socket and rotate consequently so that all its lugs are placed behind pipe's lugs.

Sixth Step

Three or four drilled holes with certain distances of each other are placed on the gland depending on the pipe's size. After putting gland's lock in its proper place, please insert a corrosion-resistant roll pin into one the drilled holes.

It's better to put the roll pin higher than the gland's external body so that the disassembling operations would be easily performed.

In order to prevent from re-rotating the gland around socket, the gland's lock should be selected in proportion to that pipe size.

Roll pin



Gland's lock



Ductile Iron Pipes with Polyurethane lining

Hamoun Nyzeh Company is capable of producing ductile iron pipes with polyurethane lining in accordance with EN 15655-1 standard. The polyurethane lining is considered as an ideal choice for ductile iron pipes because of having high corrosion and abrasion resistance, adheres well to the surface and by maintaining its flexibility, positively affects on performance of the system. Compared to cement lining, the polyurethane lining has less weight, which leads to decreasing transportation and installation costs, on the other hand drying time for this lining is faster than cement thus it has better chemical resistance, due to its high impact resistance. polyurethane lining is also resistant to cracking or breaking during transportation and impact.



Some of the significant advantages of polyurethane lining are as follows:

- :: Suitable for drinking water and sewage applications.
- :: Decreasing operational costs of water and sewage transmission system followed by minimal pressure drop and no reduction in pump energy efficiency and performance.
- :: Suitable for various acidic and alkaline environments with pH ranging from 2 to 14.



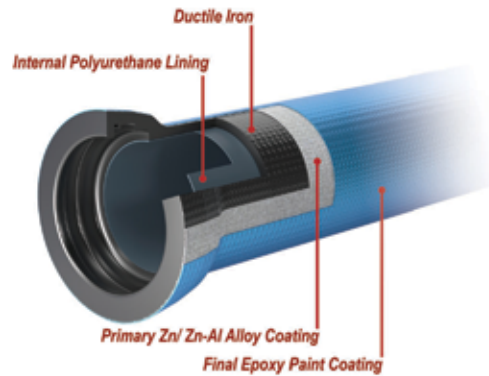
Advantages



- :: Provides a much smoother surface compared to cement coating and creating a larger internal cross-sectional area.
- :: Ideal for water and waste water pipes with minimum slope.
- :: No chemical reaction with chlorine or any other disinfectants and highly corrosive industrial liquids used for transfer.
- :: No breakage or chipping during pipe drilling or cutting.

PU Lining - Energy Efficient and Mechanically Robust

The Polyurethane lining meets the requirements of the German Environmental Protection Agency's "Guideline for Hygienic Assessment of Organic Coatings in Contact with Drinking Water" as well as the requirements of DVGW Worksheet W 270.



Minimum thickness of polyurethane lining for ductile iron pipes for water transfer in accordance with EN 545 standard.

DN	Minimum lining thickness (µm)
80 -1200	800

Minimum thickness of polyurethane lining for ductile iron pipes for sewage transfer in accordance with EN 598 standard.

DN	Minimum lining thickness (µm)
80 -700	800
800 -1200	1000

