



# DATA SHEET FOR INFRAPIPE HDPE

## ✓ SOLIDWALL IN SDR 7.4-41

### OD 473-2741 DN/ID 450-DN3200

#### APPLICATIONS - ALTERNATIVE TO FRP/GRP, DI, PVC, INLINE EXTRUDED HDPE

- ✓ Pressure sewer, WWTPs & WWPSs.
- ✓ Pressure stormwater/steep grades, outfalls.
- ✓ WWTP fittings and manifolds.
- ✓ KiwiRail or NZTA sites.
- ✓ Carrier (host) pipes.
- ✓ Relining failed pipes.
- ✓ Pile liners, ports, mine shafts.
- ✓ Chambers & structures.

**This product is perfect for short runs as it has no setup costs!** To compare to traditional inline HDPE, choose the OD and SDR from the first table, this gives the ID in green. Then choose the most suitable ID in the green column in the second table and see the OD. At the back of this document is a matching table with cross sectional areas.

PN	25	20	16	12.5	10	8	6.3	4
OD / SDR	7.4	9	11	13.6	17	21	26	41
500	365	389	409	426	441	452	462	476
560	409	436	458	478	494	507	517	533
630	460	490	515	537	556	570	582	599
710	518	552	581	606	626	642	655	675
800	584	622	655	682	706	724	738	761
900	657	700	736	768	794	814	831	856
1000	730	778	818	853	882	905	923	951
1200	876	933	982	1024	1059	1086	1108	1141
1400	1022	1089	1145	1194	1235	1267	1292	1332
1600	1168	1244	1309	1365	1412	1448	1477	1522
1800	1314	1400	1473	1535	1588	1629	1662	1712
2000	1459	1556	1636	1706	1765	1810	1846	1902

#### OD FROM KRAH<sup>TM</sup> ID

PN	25	20	16	12.5	10	8	6.3	4
ID / SDR	7.4	9	11	13.6	17	21	26	41
450	617	579	550	528	510	497	488	473
525	719	675	642	616	595	580	569	552
600	822	771	733	703	680	663	650	631
700		900	856	821	793	774	758	736
800		1029	978	938	907	884	867	841
900			1100	1055	1020	995	975	946
1000			1222	1172	1133	1105	1083	1051
1100			1344	1290	1247	1216	1192	1156
1200				1407	1360	1326	1300	1262
1350				1583	1530	1492	1463	1419
1500					1700	1658	1625	1577
1600					1813	1768	1733	1682
1800					2040	1989	1950	1892
2000						2211	2167	2103



The maximum wall thickness achievable is 255mm; a blank space indicates this configuration is not currently possible.

Spiral wound KRAH™ SOLID WALL is **a fully certified alternative** to GRP/FRP, DI (ductile iron), PVC or inline extruded HDPE pressure pipe. Inline extruded HDPE pipe is manufactured using equipment which dictates the OD and then varies the ID to achieve the Wall Thickness (WT), and hence Pressure Rating (PN) required.



The state-of-the-art European KRAH™ plant operated by INFRAPIPE in NZ winds layers of PE100 onto a rotating mandrel of the required ID. For flexible pipes it adds a polypropylene core tube but for manholes, risers and solid wall pipes the pipe strength is created by adding additional layers of resin to achieve the desired WT and hence PN.

The pipe therefore has identical properties and bursting strength to inline extruded pipe but is **highly economical for short runs or more exotic requirements, as it has no substantial tool change costs**. Furthermore, it can be supplied pre-fitted with flanges, bends and made to the precise length or even delivered integrated into structures or manifolds.

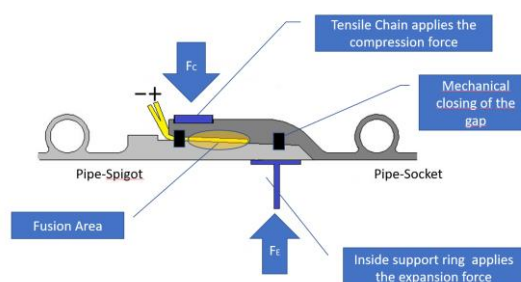
### JOINING INFRAPIPE SOLID WALL PIPE

- ✓ The pipe can be supplied with plain ends and butt welded on site like plain inline HDPE.
- ✓ It can also be supplied with stub flanges, or with socket and spigot with rubber ring or extrusion weld.
- ✓ To join to other pipes or fittings, use slip couplers, PE Restraint coupler, shearbands or Hermetica clamps.
- ✓ **The preferred option, which inline HDPE cannot offer, is internal Fusion welding** where the pipe is supplied with wire installed in the socket. The join is easily braced internally and externally as shown below and a current applied for 30-45 minutes. This is standard practice in Europe.
- ✓ The result is a completely homogenous pipe with superb seismic resistance and no possibility of infiltration or failure. The process is quicker, cheaper and more reliable than butt welding.

#### *The wire installed*



#### *The process*



#### *In progress*

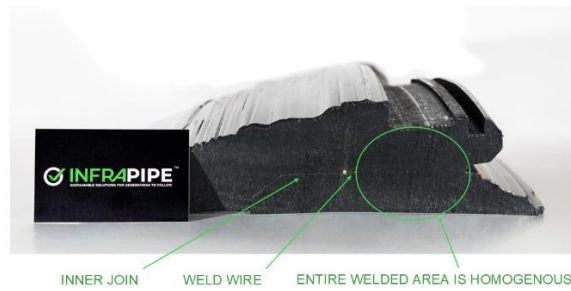




### The wire installed



### The results



- ✓ Pipes can be delivered in 11.8m, 15m or 18m lengths if transport will allow, reducing work on site.
- ✓ Pipes can be made with approved crack resistant resin.

**THIS PRODUCT CAN BE MADE IN ESCR – CRACK RESISTANT MATERIAL!**

### WALL THICKNESS

PN	25	20	16	12.5	10	8	6.3	4
ID / SDR	7.4	9	11	13.6	17	21	26	41
450	83	64	50	39	30	24	19	12
525	97	75	58	45	35	28	22	13
600	111	86	67	52	40	32	25	15
700	130	100	78	60	47	37	29	18
800	148	114	89	69	53	42	33	21
900	167	129	100	78	60	47	38	23
1000	185	143	111	86	67	53	42	26
1100		157	122	95	73	58	46	28
1200		171	133	103	80	63	50	31
1350		193	150	116	90	71	56	35
1500			167	129	100	79	63	38
1600			178	138	107	84	67	41
1800			200	155	120	95	75	46
2000				172	133	105	83	51



**Left** – Some large SOLID WALL pipes prepared for installation in a WWTP, and

**Right** – Some examples show how smooth the inner of an INFRAPIPE SOLID WALL is – as it is formed on a mandrel, the interior must be smooth, consistent and round.





## WEIGHT PER METRE

PN	25	20	16	12.5	10	8	6.3	4
SDR	7.4	9	11	13.6	17	21	26	41
<b>450</b>	134	100	75	57	43	34	26	16
<b>525</b>	182	136	103	78	59	46	36	22
<b>600</b>	238	177	134	102	77	60	47	29
<b>700</b>	324	241	182	138	105	82	64	39
<b>800</b>	423	315	238	181	137	107	84	51
<b>900</b>	536	399	301	229	174	135	106	64
<b>1000</b>	662	492	372	282	214	167	131	79
<b>1100</b>		595	450	342	259	202	158	96
<b>1200</b>		709	536	406	309	240	188	114
<b>1350</b>		897	678	514	391	304	238	144
<b>1500</b>			837	635	482	376	294	178
<b>1600</b>			953	723	549	428	335	203
<b>1800</b>			1206	915	695	541	424	257
<b>2000</b>				1129	857	668	523	317

## TO SPECIFY THE PIPE

Write **INFRAPIPE SW DN x PN y** where x is the ID/DN, and y is the PN – or use SDR instead of PN.

## INTEGRATION INTO THE STRUCTURE

- The versatility of the KRAH™ SOLID WALL system enables the designer or contractor to place the entire waterway in the hands of one manufacturer who can provide a seamless solution with no differentiation between pipe and fittings.
- This approach minimises installation cost, installation risk, lifetime risk and inspection/maintenance costs as points of failure are minimized, or with EF welding, removed entirely.
- This approach has worked successfully in WWTPs and with surge/overflow WW tanks.
- INFRAPIPE manufacture tanks from 10m<sup>3</sup> to 1000m<sup>3</sup> delivered (ID 3200mm) [see here for more details](#).



## WHOLE OF LIFE COST

Fusion welded HDPE SOLID WALL INFRAPIPE has the lowest Whole of Life Cost of any infiltration-free solution:

- ✓ Low purchase price – NO SETUP FEE.
- ✓ Low install price (lay).
- ✓ Low install price (EF weld).
- ✓ Lowest seismic risk.
- ✓ Chemically inert.
- ✓ Does not decay.
- ✓ No maintenance required.
- ✓ 100yr life.
- ✓ Modification quick and easy.
- ✓ Product can be recycled at end of life.





### COMPARISON AGAINST ALTERNATIVE MATERIALS:

Requirement	HDPE	Concrete	FRP/GRP	Ductile Iron (DI)	PVC
Material life	Very good	Satisfactory	Can decay	Can rust	Good
Abrasion resistance	Very good	Very poor	Poor	Very good	Good
Seismic performance	Very good	Poor	Poor	Good	Satisfactory
Hydraulic efficiency	Very good	Satisfactory	Very good	Very good	Very good
Weight	Light	Very heavy	Medium	Very heavy	Heavy
Design constraints	Few	Many	Many	Some	Some
Infiltration resistance	Very good	Very poor	Very poor	Poor	Poor
Homogeneity	Yes	Yes	No	Yes	Yes
Water permeability	No	Yes	Yes	No	No
Chemical resistance	Very good	Very poor	Good	Good	Good
Biological resistance	Very good	Poor	Very poor	Very good	Very good
<b>Recycled in NZ</b>	<b>Very good</b>	<b>Rare</b>	<b>Nil</b>	<b>Very good</b>	<b>Rare</b>
Ease of modification	Very good	Satisfactory	Poor	Poor	Poor
Brittleness	No	Some	Yes	No	Yes
Tensile Strength	Very good	Good	Satisfactory	Very good	Satisfactory
Compressive Strength	Good	Very good	Very good	Very good	Good
Deformation Recovery	Good	Nil	Nil	Little	Nil

### ADVANTAGES TO THE ASSET OWNER OVER INLINE EXTRUDED HDPE:

- ✓ No setup fees or minimum run size.
- ✓ Can be produced to any length.
- ✓ Short lead time.
- ✓ Can be made to any SDR/PN.
- ✓ Fusion welding superior to butt welding.
- ✓ Can be supplied with bends or risers.
- ✓ Can be supplied fitted with flanges or many other connections.

### SUSTAINABILITY

INFRAPIPE SOLID WALL HDPE and structures fabricated from it are the best solution for the environment:

- ✓ Lowest environmental impact material.
- ✓ Less freight, less setup waste.
- ✓ Less diggers, less cranes.
- ✓ Completely recyclable.
- ✓ All production waste is reprocessed.
- ✓ Less abrasion = less pollution.

### STANDARDS

1. INFRAPIPE is certified to AS/NZS 5065:2005 licence no. AMI 74961 and AS/NZS 4130:2018 no. 74999.
2. INFRAPIPE is certified to ISO 9001:2015 licence no. AMI 78044.
3. Pipes are tested by INFRAPIPE in their test lab in accordance with ISO 9969:2016 *Thermoplastic pipes – Determination of Ring Stiffness*.



### CROSS SECTIONAL AREAS

The pipe has the following Cross Sectional Area (which does not vary with PN/SDR):

ID (DN)	CSA mm
450	158,963
525	216,366
600	282,600
700	384,650
800	502,400
900	635,850
1000	785,000
1100	949,850
1200	1,130,400
1350	1,430,663
1500	1,766,250
1600	2,009,600
1800	2,543,400
2000	3,140,000



**INFRAPIPE SOLID WALL** is used for manholes efficiency.

### OTHER APPLICATIONS

INFRAPIPE SOLID WALL pipe is used in combination with connections and other fittings to provide the optimum solution for the site. This example to the right combined manholes with **30m3 of water storage. Pump chambers, wetwells** or **terminal chambers** can be independent or supplied integrated into the pipeline or **tank** reducing complexity, cost and seismic or infiltration risk.



### FOR MORE DETAIL

Visit [INFRAPIPE's website](#) or the [Downloads section for Design Manuals and Data Sheets](#) on INFRAPIPE for civil applications (storm and waste water), tanks, SN16 drainage, manholes and other structures.