

HDPE TECHNICAL SPECIFICATION

1	Compound Material	The material from which the pipes are made shall be in accordance with ISO 4427-1. All pipes shall be manufactured using pre-compounded carbon black, bimodal, high density polyethylene MRS 10.0 material (PE100) . The use of natural PE100 with a Carbon black master batch is strictly not allowed . Carbon black should be well dispersed to give outstanding UV resistance, and should have a minimum carbon content of 2%. Pipes should be manufactured from certified PE100+ material with batch certification available with pipe delivery.
2	Identification compound	The compound used for identification stripes shall be manufactured from a PE polymer manufactured from the same type of base polymer as used in the compound for pipe production.
3	General appearance	When viewed without magnification, the internal and external surfaces of pipes shall be smooth, clean and free from scoring, cavities and other surface defects such as would prevent conformity of the pipe to ISO 4427. The pipe ends shall be cut cleanly and square to the axis of the pipe.
4	Color	The pipes shall be black with coloured identification stripes.
5	Dimensions	
5a	General	The dimensions of the pipe shall be measured in accordance with ISO 3126. Manufacturing shall be to ISO 4427 Standard, as per annexed dimensional chart . Pipes should be manufactured in machinery capable of ultrasonic wall thickness detection with production reports provided with delivery of pipes.
5b	Lengths and coils	Where coiling is possible, the minimum internal diameter of the coil shall be not less than $18d_n$.
		The lengths shall be supplied to minimize the number of joints to be done in the field, and the size that is allowed to be legally transported on Kenyan roads by the traffic department.
6	Markings	
	General	All pipes shall be permanently and legibly marked in such a way that the marking does not initiate cracks or other types of failure and such that normal storage, weathering, handling, installation and use does not affect the legibility of the marking. The colour of the printed information shall differ from the basic colour of the product. The marking shall be such that it is legible without magnification. The frequency of marking shall not be less than once per metre. Markings should be made using a hot embossed foil stamp printing.
6a	Stripe Marking	Each pipe shall a minimum of 3 equispaced blue longitudinal stripes indicating medium of fluid transported in the pipes

6b	<p>The minimum required marking shall be in accordance with Table 1, with the frequency of marking being <u>not less than once per metre</u></p> <p style="text-align: center;">Table 1 — Minimum required marking</p> <table> <tr> <th><u>Aspect</u></th><th><u>Marking</u></th></tr> <tr> <td>Standard Number</td><td>ISO 4427</td></tr> <tr> <td>Manufacturer's identification</td><td>Name or symbol</td></tr> <tr> <td>Dimensions (dn × en)</td><td>e.g. 125X11.4</td></tr> <tr> <td>SDR series (for DN > 32)</td><td>e.g. SDR 11</td></tr> <tr> <td>Material and designation</td><td>PE 100</td></tr> <tr> <td>Pressure rating in bar</td><td>e.g. PN 16</td></tr> <tr> <td>Production period (date or code)</td><td>e.g. 0204^a</td></tr> <tr> <td>Country of Production</td><td>Kenya</td></tr> </table> <p>Coils shall be sequentially marked with the metreage, indicating the length remaining on the coil.</p> <p>^a - In clear figures or in code providing traceability to the production period within year month and, if the manufacturer is producing at different sites, the production site.</p>	<u>Aspect</u>	<u>Marking</u>	Standard Number	ISO 4427	Manufacturer's identification	Name or symbol	Dimensions (dn × en)	e.g. 125X11.4	SDR series (for DN > 32)	e.g. SDR 11	Material and designation	PE 100	Pressure rating in bar	e.g. PN 16	Production period (date or code)	e.g. 0204 ^a	Country of Production	Kenya
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Please see overleaf for Dimensional chart for HDPE pipes under ISO 4427:2 standards

Dimensional Chart for ISO4427-2:2007 PE 100 Pipes

OD IN MM		6.3BAR			8 BAR			10BAR			12.5BAR			16BAR			20 BAR			25 BAR		
	MIN	MAX	STANDARD LENGTH & ROLL IN MTRS		SDR26		SDR21		SDR 17		SDR13.6		SDR11		SDR9		SDR7.4					
			Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Wall Thickness in MM		Final Weight / meter	
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	Final Weight / meter	Final Weight / meter
16.00		16.30																				
20.00		20.30									1.90	1.90	2.00	2.30	2.00	2.30	2.30	2.70	2.30	2.70	2.30	2.70
25.00		25.30									2.00	2.30	2.00	2.70	2.30	2.70	2.70	3.40	3.00	3.40	3.00	3.40
32.00		32.30									2.40	2.80	2.40	3.40	3.00	3.40	3.40	4.10	3.60	4.10	3.60	4.10
40.00		40.40									3.00	3.50	3.70	4.20	3.70	4.20	4.20	5.10	4.50	5.10	4.50	5.10
50.00		50.40									3.70	4.20	4.60	5.20	4.60	5.20	5.20	6.30	5.60	6.30	5.60	6.30
63.00		63.40									4.70	5.30	5.80	6.50	5.80	6.50	6.50	8.00	7.10	8.00	7.10	8.00
75.00		75.50									5.60	6.30	6.80	7.60	6.80	7.60	7.60	9.40	8.40	9.40	8.40	9.40
90.00		90.60									6.70	7.50	8.20	9.20	8.20	9.20	9.20	11.30	10.10	11.30	10.10	11.30
110.00		110.70									8.10	9.10	10.00	11.10	10.00	11.10	11.10	13.70	12.30	13.70	12.30	13.70
125.00		125.80									9.20	10.30	11.40	12.70	11.40	12.70	12.70	15.60	14.00	15.60	14.00	15.60
140.00		140.90									10.30	11.50	12.70	14.10	12.70	14.10	14.10	17.40	15.70	17.40	15.70	17.40
160.00		161.00									11.80	13.10	14.60	16.20	14.60	16.20	16.20	19.80	17.90	19.80	17.90	19.80
180.00		181.10									13.30	14.80	16.40	18.20	16.40	18.20	18.20	22.30	20.10	22.30	20.10	22.30
200.00		201.20									14.70	16.30	18.20	20.20	18.20	20.20	20.20	24.80	22.40	24.80	22.40	24.80
225.00		226.40									16.60	18.40	20.50	22.70	20.50	22.70	22.70	27.90	25.20	27.90	25.20	27.90
250.00		251.50									18.40	20.40	22.70	25.10	22.70	25.10	25.10	30.80	27.90	30.80	27.90	30.80
280.00		281.70									20.60	22.80	25.40	28.10	25.40	28.10	28.10	34.60	31.30	34.60	31.30	34.60
315.00		316.90									23.20	25.70	28.60	31.60	28.60	31.60	31.60	38.90	35.20	38.90	35.20	38.90
355.00		357.20									26.10	28.90	32.20	35.60	32.20	35.60	35.60	43.80	39.70	43.80	39.70	43.80
400.00		402.40									29.40	32.50	36.30	40.10	36.30	40.10	40.10	49.30	44.70	49.30	44.70	49.30
450.00		452.70									33.10	36.60	40.90	45.10	40.90	45.10	45.10	55.50	50.30	55.50	50.30	55.50
500.00		503.00									36.80	40.60	45.40	50.10	45.40	50.10	50.10	61.50	55.80	61.50	55.80	61.50
560.00		563.40									41.20	45.50	50.80	56.00	50.80	56.00	56.00	68.90	62.50	68.90	62.50	68.90
630.00		633.80									46.30	51.10	57.20	63.10	57.20	63.10	63.10	77.50	70.30	77.50	70.30	77.50

