



a world class African city



	REFERENCE	REV
TITLE	<b>CP_TSSPEC_045</b>	<b>3</b>
	DATE:	<b>JULY 2021</b>
	PAGE: <b>1</b>	OF <b>15</b>
	REVISION DATE:	<b>AUGUST 2021</b>

---

## TABLE OF CONTENTS

	Page
<b>FOREWORD .....</b>	<b>3</b>
<b>INTRODUCTION .....</b>	<b>4</b>
<b>1 SCOPE.....</b>	<b>4</b>
<b>2 NORMATIVE REFERENCES .....</b>	<b>4</b>
<b>3 REQUIREMENTS.....</b>	<b>4</b>
3.1 General .....	4
3.2 Type.....	4
3.3 Construction .....	5
3.4 Flexibility.....	5
3.5 Friction.....	5
3.6 Jointing .....	5
<b>4 PHYSICAL PROPERTIES.....</b>	<b>5</b>
4.1 Impact.....	5
4.2 Compression .....	5
4.3 Temperature.....	6
4.4 Ultra violet.....	6
<b>5 END CAPS .....</b>	<b>6</b>
<b>6 TESTS.....</b>	<b>6</b>
6.1 Type test .....	6
6.2 Routine test.....	6
<b>7 MARKING AND PACKAGING .....</b>	<b>6</b>
7.1 Marking.....	6
7.2 Packing.....	6
<b>8 DOCUMENTATION.....</b>	<b>7</b>

**SPECIFICATION FOR PROTECTIVE  
UNPLASTICISED PVC SLEEVES**

REFERENCE

REV

**CP\_TSSPEC\_045**

**3**

PAGE

**2**

OF

**15**

---

<b>9 QUALITY MANAGEMENT .....</b>	<b>7</b>
<b>10 HEALTH AND SAFETY .....</b>	<b>7</b>
<b>11 ENVIRONMENTAL MANAGEMENT .....</b>	<b>7</b>
<b>Annex A - Bibliography .....</b>	<b>8</b>
<b>Annex B - Revision information.....</b>	<b>9</b>
<b>Annex C – Item 1 – SLEEVE PVC 6M X 110MM– SAP NO. 12236 .....</b>	<b>11</b>
<b>Annex C – Item 2 – SLEEVE PVC 6M X 160MM– SAP NO. 12237 .....</b>	<b>13</b>
<b>Annex D – Stock Items .....</b>	<b>15</b>

## **FOREWORD**

The following Work Group members prepared this specification:

Mpho Ntsiyene

Technology Services

The Work Group was appointed by the Distribution Study Committee, which, at the time of approval, comprised of the following members:

Nolubabalo Makana	Metering (Revenue Services)
Arsenio Cossa	Metering
Masape Mokgadi Kahumba	Secondary Plant (Metering)
Katlego Mogale	Maintenance (Engineering Operations)
Gavin Jardine	Infrastructure Planning
David Makoni	Primary Plant (Network Operation)
Hilda Nonkonyana	Infrastructure Planning
Anza Mudau	Infrastructure Planning
Noel Maso	Field Services
Sipho Gamede	Maintenance (Engineering Operations)
Thabiso Letsaoana	Logistics & Warehouse
Mpho Molope	Logistics & Warehouse

Recommendations for corrections, additions or deletions should be addressed to the:

Technology Services General Manager

City Power Johannesburg (Pty) Ltd

P O Box 38766

Booyens

2016

## **INTRODUCTION**

The protective sleeve will be used to provide a ready means of drawing cable under streets and pavements, to ensure the safety of persons engaged in excavating work in the vicinity of such cables and to afford protection to the cables that will be subject to loads due to heavy transport passing in the road above.

## **1 SCOPE**

This specification covers City Power's requirements for protective PVC piping.

## **2 NORMATIVE REFERENCES**

The following documents contain provisions that, through reference in the text, constitute requirements of this specification. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

SANS 791:	Unplasticised polyvinyl chloride (uPVC) sewer and drain pipes and pipe fittings
SANS 1222:	Classification of degrees of protection provided by enclosures
SANS 1601:	Structured wall pipes and fittings of uPVC for buried drainage and sewerage systems.
EN 500861-2-4:	Particular requirements for conduit systems buried underground.

## **3 REQUIREMENTS**

### **3.1 General**

The protective PVC sleeve shall comply to SANS 791 or the alternatives as specified in this specification.

### **3.2 Type**

The protective sleeve shall:

- Be constructed from black unplasticised polyvinyl chloride (uPVC) or high density polyethylene (HDPE).
- Bear the SANS 791 mark of approval.
- Be 6m in length.
- Have a nominal outside diameter of 110mm or 160mm.

- e) Have a wall thickness of between 2,3mm and 2,8mm for nominal outside size 110mm.
- f) Have a wall thickness of between 3.3 mm and 3,8mm for nominal outside size 160mm.
- g) Be supplied with a knock on coupling and end caps at either end of the sleeve.
- h) Be suitable for normal duty use.

### **3.3 Construction**

The protective sleeve shall:

- a) Be of a double wall with an outer corrugated type construction.
- b) Have a bore that is true and smooth.
- c) Be impact and chemical resistant and thermal conductivity.
- d) Contain no recycled or pitch fibre material.

### **3.4 Flexibility**

The protective sleeve shall be flexible to facilitate the installation of the sleeve around immovable objects.

### **3.5 Friction**

The protective sleeve shall have a low co-efficient of friction to accommodate the easy draw of cables through the sleeve.

### **3.6 Jointing**

Jointing of the protective sleeve shall be done by means of the push on coupling which shall have an IP 30 rating as per SANS 1222.

## **4 PHYSICAL PROPERTIES**

### **4.1 Impact**

The protective sleeve shall show no signs of splits and cracks when subject to an impacted force, such as rough handling or compaction.

### **4.2 Compression**

4.2.1 The resistance to impact shall be normal, as per EN 50086-2-4.

4.2.2 The uPVC or HDPE protective sleeves shall be Type 2 of stiffness class 400, which is at least 400 kPa, complying with SANS 1601 or Type 450, as per En 50086-2-4.

### **4.3 Temperature**

The protective sleeve shall be capable of dissipating the heat (working temperature of at least 70 °C) generated by the cable.

### **4.4 Ultra violet**

The protective sleeve, although intended to be buried underground, shall be UV resistant for storage purposes up to one year.

## **5 END CAPS**

End caps for sealing the open ends of sleeves already laid in the ground, but not yet installed with cable, shall be provided for both ends of the sleeve. The end caps shall fit securely into the sleeve ends.

## **6 TESTS**

### **6.1 Type test**

6.1.1 The protective sleeve shall be type tested as per SANS 791 or EN 50086-2-4.

6.1.2 Type tests shall be performed by an accredited laboratory.

### **6.2 Routine test**

Visually examine each sleeve for compliance with the relevant requirements of this specification.

## **7 MARKING AND PACKAGING**

### **7.1 Marking**

7.1.1 All protective sleeves shall have the 110mm nominal size indelibly marked on the sleeve.

7.1.2 The manufacturer's trademark or name shall be on all protective sleeves.

7.1.3 Bearing the SANS 791 mark of approval.

7.1.4 The duty of the sleeve, i.e. "normal" shall be indelibly marked on the sleeve.

7.1.5 The classification code "400" or "450" shall be marked on the sleeve.

7.1.6 The markings shall be spaced at intervals not longer than 3m apart.

### **7.2 Packing**

All protective sleeves shall be securely packed in pallets of 100 sleeves per pallet.

## **8 DOCUMENTATION**

- 8.1 Documentation shall be submitted in a technical catalogue format.
- 8.2 The catalogue shall specify the protective sleeve sizes, dimensions, reference number, and whether the sleeves offered are in compliance with the SANS 791 specification and bear the SANS 791 mark or alternative.
- 8.3 Test reports shall be provided.

## **9 QUALITY MANAGEMENT**

A quality management plan shall be set up in order to assure the quality of during design, development, production and servicing. Guidance on the requirements for the services quality management TPVS may be found in the following standards: ISO 9001:2015. The details shall be subject to agreement between the purchaser and supplier.

## **10 HEALTH AND SAFETY**

A health and safety plan shall be set up in order to ensure proper management and compliance of the protective unplasticised Pvc sleeves. Guidance on the requirements of a health and safety plan may be found in OHSAS 18001:2007 standards. This is to ensure that the services provided conforms to standard operating procedures and City Power SHERQ Policy. The details shall be subject to agreement between City Power and the Supplier.

## **11 ENVIRONMENTAL MANAGEMENT**

An environmental management plan shall be set up in order to ensure the proper environmental management and compliance of the protective unplasticised PVC sleeves for the entire life cycle (i.e. during design, development). Guidance on the requirements for an environmental management TPVS may be found in ISO 14001:2015 standards. The details shall be subject to agreement between City Power and the Supplier. This is to ensure that the asset created conforms to environmental standards and City Power SHERQ Policy.

## **Annex A - Bibliography**

Durban Metro: Technical specification for unplasticized Polyvinyl Chloride pipes and end caps.



**Annex B - Revision information**

DATE	REV. NO.	NOTES
Dec. 2002	0	First issue
Aug. 2003	1	2.SANS 1601 2. EN 500861-2-4 3.1 or the alternatives as specified in this specification. 3.2 (a) or high density polyethylene (HDPE). 3.2 (g) use 4.2.1 The resistance to impact shall be normal, as per EN 50086-2-4. 4.2.2 or HDPE 4.2.2 1601 or Type 450, as per EN 50086-2-4. 6.1.1 or EN 50086-2-4 7.1.5 The classification code “400” or “450” shall be marked on the sleeve. 7.1.6 The markings shall be spaced at intervals not longer than 3m apart. 8.2 or alternative. Annex A moved SANS 1601 to Normative References. Annex C Added in item 5. Annex D HIGH DENSITY POLYETHYLENE
April 2010	2	Format changes Addition of 150mm diameter pipe for 300mm xlpe cable 3.2 d) or 150mm.
July 2021	3	3.2 f) Have a wall thickness of between 3.3 mm and 3,8mm for nominal outside size 160mm. Format Changes

**SPECIFICATION FOR PROTECTIVE  
UNPLASTICISED PVC SLEEVES**

REFERENCE

REV

**CP\_TSSPEC\_045**

**3**

PAGE

**10**

OF

**15**

9. QUALITY MANAGEMENT

10. HEALTH AND SAFETY

11. ENVIRONMENTAL MANAGEMENT

New Study Committee

**Annex C – Item 1 – SLEEVE PVC 6M X 110MM– SAP NO. 12236**

**Schedule A: Purchaser's specific requirements**

**Schedule B: Guarantees and technical particulars of equipment offered**

Item	Subclause of CP_TSSPEC_045	Description	Schedule A	Schedule B
1		Quantity of sleeves required		XXXXXX
2	3.2.2	Bear SANS 791 mark of approval	Required	
3	5	End caps on both ends                      Yes/No	Yes	
4	6	Type test report	Required	
5	7	Markings on the sleeve	Required	
6	8	Technical catalogue provided	Required	

**Note: Ticks, Cross [✓, X], Asterick [\*], Word [Noted] or TBA ["To Be Advice"] will not be accepted**

Tender Number: \_\_\_\_\_

Tenderer's Authorised Signatory: \_\_\_\_\_  
Name in block letters                      Signature

Full name of company: \_\_\_\_\_

**Item 1 – SLEEVE PVC 6M X 110MM– SAP NO. 12236**

**Deviation schedule**

**Any deviations offered to this specification shall be listed below with reasons for deviation. In addition, evidence shall be provided that the proposed deviation will at least be more cost-effective than that specified by City Power.**

<b>Item</b>	<b>Subclause of CP_TSSPEC_045</b>	<b>Proposed deviation</b>

**Note: Ticks, Cross [√, X], Asterick [\*], Word [Noted] or TBA [“To Be Advice”] will not be accepted**

Tender Number: \_\_\_\_\_

Tenderer's Authorised Signatory: \_\_\_\_\_  
Name in block letters Signature

Full name of company: \_\_\_\_\_

**Annex C – Item 2 – SLEEVE PVC 6M X 160MM– SAP NO. 12237**

Schedule A: Purchaser's specific requirements

Schedule B: Guarantees and technical particulars of equipment offered

Item	Subclause of CP_TSSPEC_045	Description	Schedule A	Schedule B
1		Quantity of sleeves required		XXXXXX
2	3.2.2	Bear SANS 791 mark of approval	Required	
3	5	End caps on both ends Yes/No	Yes	
4	6	Type test report	Required	
5	7	Markings on the sleeve	Required	
6	8	Technical catalogue provided	Required	

**Note: Ticks, Cross [✓, X], Asterick [\*], Word [Noted] or TBA ["To Be Advice"] will not be accepted**

Tender Number: \_\_\_\_\_

Tenderer's Authorised Signatory: \_\_\_\_\_  
Name in block letters Signature

Full name of company: \_\_\_\_\_

**Item 2 – SLEEVE PVC 6M X 160MM– SAP NO. 12237**

**Deviation schedule**

**Any deviations offered to this specification shall be listed below with reasons for deviation. In addition, evidence shall be provided that the proposed deviation will at least be more cost-effective than that specified by City Power.**

<b>Item</b>	<b>Subclause of CP_TSSPEC_045</b>	<b>Proposed deviation</b>

**Note: Ticks, Cross [√, X], Asterick [\*], Word [Noted] or TBA [“To Be Advice”] will not be accepted**

Tender Number: \_\_\_\_\_

Tenderer's Authorised Signatory: \_\_\_\_\_

Name in block letters

Signature

Full name of company: \_\_\_\_\_

**Annex D – Stock Items**

**Material Group: PIPE-DST**

<b>Item</b>	<b>SAP No</b>	<b>SAP Short Description</b>	<b>SAP Long Description</b>
1	12236	SLEEVE PVC 6M X 110MM	SLEEVE, PROTECTIVE, BLACK UNPLASTICIZED POLYVINYL CHLORIDE OR HIGH DENSITY POLYETHYLENE, 6M IN LENGTH WITH AN OUTER DIAMETER OF 110MM FITTED WITH AN END CAP AND COUPLING PER END. ITEM SPECIFICATION NO. CP_TSSPEC_045
2	12237	SLEEVE PVC 6M X 160MM	SLEEVE, PROTECTIVE, BLACK UNPLASTICIZED POLYVINYL CHLORIDE OR HIGH DENSITY POLYETHYLENE, 6M IN LENGTH WITH AN OUTER DIAMETER OF 160MM FITTED WITH AN END CAP AND COUPLING PER END. ITEM SPECIFICATION NO. CP_TSSPEC_045