

Technical Specification



Cross Connection Cabinet

About this
technical
data sheet

The greatest possible care has been taken in preparing this document, which represents the current technological situation at the time of its printing. Any revisions and/or corrections to this document will be incorporated edition without announcement into the next new. Subject to technical changes.

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Technical Specifications (TS) for Outdoor Cabinets KVz 82 A

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1. General points

1.1 Applicability

These technical specifications (TS) apply to the outdoor cabinets model KVz 82 A for the integration of telecommunications networks components, and their matching bases model 84.

1.2 Use

The outdoor or cross connection cabinets KVz 82 A have been developed for outdoor use, offering high mechanical and climatic protection to the telecommunications equipment they house. They are designed for the distribution and branching of cables. The KVz 82 A are also designed to accommodate cable terminations (CTs).

1.3 Requirements for cross connection cabinets

- 1.3.1 - Protection class in compliance with IEC 529, IP 54
- 1.3.2 - Reliability: durability and corrosion resistance of all parts over a minimum of 20 years
- 1.3.3 - In-line arrangement of cabinets
- 1.3.4 - Cable entry from below
- 1.3.5 - No formation of condensation water
- 1.3.6 - Locking system 81, design type 1
- 1.3.7 - Exterior color RAL 7038, optional graffiti protection
- 1.3.8 - Material: fiberglass-reinforced polycarbonate (PC)
- 1.3.9 - Environmental conditions in accordance with ETSI EN 300019-1-4, Class 4.1
- 1.3.10 - Insect and rodent protection
- 1.3.11 - Grounding and lightning protection

1.4 Scope of delivery

- | | | |
|-------|--|--|
| 1.4.1 | Determining factors of the delivery scope: | Parts list
Drawings
Order attachments |
| 1.4.2 | Information material to be added: | Installation instructions including spare parts list |

2. Construction

2.1 General points

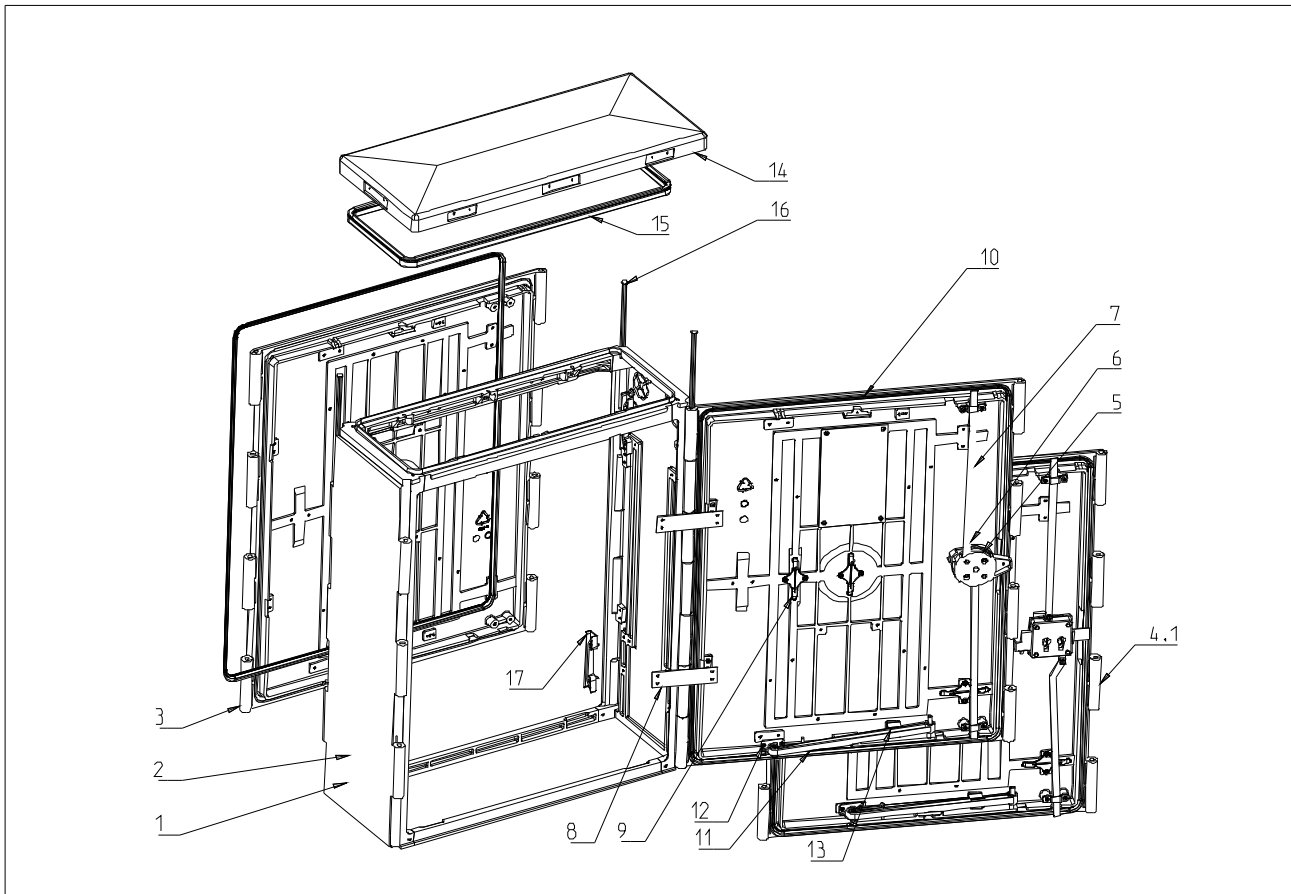
The construction of the outdoor cabinets KVz 82 A is subject to the VDI-R 2243, „Designing recyclable products“.

The individual parts are easy to disassemble and easily sorted by material for repair purposes.

Defective parts in the case of any failure can be replaced without interrupting operation. Electrolytic corrosion due to contact between different metals does not occur. Integrated protective measures comply with DIN VDE 0804.

2.2 Structure

Basically, the outdoor cabinet KVz 82 A consists of the following parts: housing framework (two side panels and four joint rods), rear panel, roof, door, frame and base panel. The parts are screwed together. The housing framework and the rear panel make up the housing body. The cross connection cabinets are mounted onto bases which are inserted into the ground (connecting dimensions!).

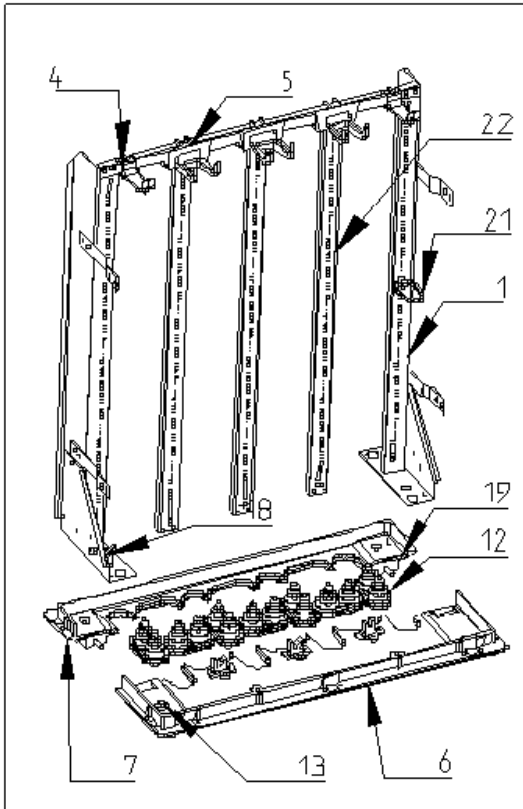


1	Housing body 82 A/82 B without door, includes items 2, 3, 10, 16, 17
2	Housing framework 82 A/82 B
3	Back panel 82 A / 82 B with gasket
4	Door 82 A, complete, with single locking mechanism
5	Lock case
6	Recessed door handle
7	Locking rods
8	Door check straps (2x)
9	Clip holder for connection diagram
10	Door gasket
11	Door stop
12	Door stop bracket
13	Clamp for door stop
14	Roof 82 A / 82B with clamping plate
15	Roof gasket 82 A
16	Hinge pin
17	Guide strip

Notes:

Items 5 and 6 will be replaced by a turning-lever lock.

The frame is designed to accommodate the integration of subunits in the cabinet.

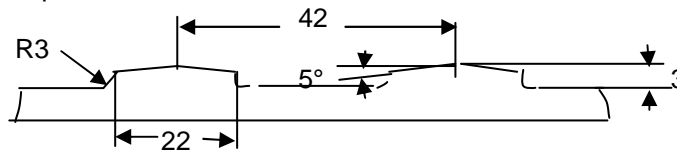


1	Patching frame A with rails
2	Patching frame B without rails
3	Patching frame C with rails
4	Mounting bracket for horizontal patching, single
5	Mounting bracket for horizontal patching, double
6	Base panel A, front part
7	Base panel A, rear part
12	Rubber grommets for cable passage
13	Rubber grommets for the grounding and the locking pins
18	Ground lug
19	Sealing strip
20	Mounting plate
21	Patching ring

Notes:
Items 6 and 7 will be replaced by a special base panel with stainless steel inserts.

2.3 Design/outer surfaces

The outer surfaces of the door and the rear panel are profiled vertically as shown in the illustrations, so as to prevent the attachment of posters on the outside.



Roof and side panels are processed to a smooth surface, the door and rear panels feature profiled and etched surfaces.

The color of the external surfaces is gray in accordance with RAL 7038.

2.4 Dimensions

KVz 82 A	Overall dimensions:	Height x width x depth	=	999 x 754 x 310 mm
	Available space inside:	Height x width x depth	=	876 x 670 x 225 mm
KVz 82 C	Overall dimensions:	Height x width x depth	=	999 x 442 x 310 mm
	Available space inside:	Height x width x depth	=	876 x 358 x 225 mm
KVz 82 A	Frame	Width of vertical	=	4 x 120 mm
	Connecting dimensions (to base):	Width x depth	=	618x164 mm (hole pattern)
KVz 82 C	Frame	Width of vertical	=	2 x 120 mm
	Connecting dimensions (to base):	Width x depth	=	306 x 164 mm (hole pattern)

2.5 KVz 82 A interior equipment

Equipped with: Mounting brackets for horizontal patching
Accessories: Guide rings for vertical routing (to be ordered separately)

2.6 Labeling

The cabinet is fitted with fastening options for labels at the front and side edges of the roof.

2.6.1 Owner identification (example)

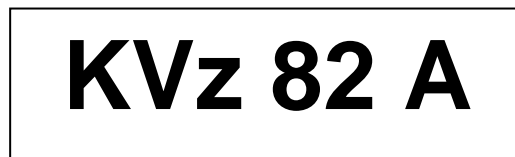
The owner identification plate, see example below, is placed on the left side of the cabinet's front.



Dimensions: 68 x 20 mm

2.6.2 KVz identification (example)

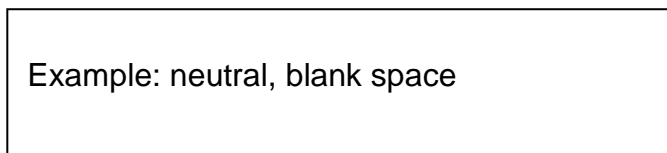
The cabinet type plate is placed on the right side of the cabinet's front.



Dimensions: 68 x 20 mm

2.6.3 Notice plate for mandatory signs (example)

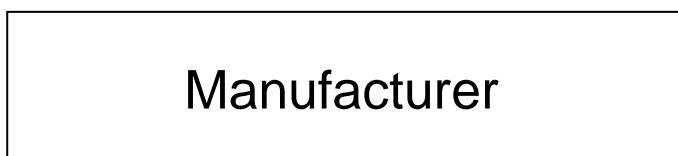
The notice plate is attached in the center of the cabinet's front.



Dimensions: 90 x 20 mm

2.6.4 Manufacturer identification (example)

The manufacturer's identification plates are attached at the left and right edge of the roof.



Dimensions: 90 x 20 mm

2.7 Performance data

The formation of condensation water within the housing in adverse climatic conditions is to be prevented. The applicable standard for climatic requirements is ETS 300019 1-4.

2.8 Individual parts

Table 3: Design requirements

Item	Part and category	Requirements and conditions	Comments
2.8.1	Housing body	(= housing framework plus rear panel)	
	Material	Fiberglass-reinforced polycarbonate (PC)	s. 3.1
	Dimensions	Outer: height x width x depth = 999 x 754 x 310 mm Inner: height x width x depth = 850 x 590 x 225 mm Door opening: height x width = 876 x 670 mm	s. 2.4
	Color	gray, RAL 7038	
	Surface	Side panels = smooth, rear panel = profiled and etched	s. 2.3
2.8.1.1	Cable passage	Predetermined round breaking points near the top of the side panel to provide cable passage when the cabinets are aligned in a row. It must be possible to cap the predetermined breaking points if they are not needed.	s. 2.2
	Pressure compensation	Has to be ensured by inserting a gap (of 1 to 2 mm) between the housing body and the base panel.	
	Ventilation	None with the KVz82A.	
2.8.1.2	Side panels	Dimensions: height x width = 999 x 310 mm Must be equipped with fastening for frames.	
2.8.1.3	Rear panel	Dimensions: height x width = 999 x 754 mm Can be replaced by a door.	
	Accessories	None	
2.8.2	Roof		
	Material	Fiberglass-reinforced polycarbonate (PC)	s. 3.1
	Dimensions	Height x width x depth = 50 x 754 x 316 mm	
	Color	gray, RAL 7038	
	Surface	Smooth finish, painted	
	Flush design	To ensure in-line arrangement, roof and side panels must be flush with each other	
	Drip edges	The front and the rear roof edges function as drip edges, therefore protruding by 3 mm.	
2.8.2.1	Sealing	The sealing ensures IP 54 tightness.	
2.8.2.2	Labeling	Fastening options for labeling must be provided.	s. 2.6
2.8.3	Door		
	Material	Fiberglass-reinforced polycarbonate (PC)	s. 3.1
	Dimensions	Height x width = 999 x 754 mm	
	Color	gray, RAL 7038	
	Surface	Profiled and etched	s. 2.3
2.8.3.1	Door type	Turning-lever lock	
	Door stop	Optional, left or right	
	Door opening	Minimum opening angle = 100°	

2.8.3.2	Door suspension	Hinges and hinge pin	
2.8.3.3	Door latching mechanism	Three-point latching (top-center-bottom) with centralized control; a safety lock can be added to block the latch. The position of the latch is always clearly marked.	s. 2.2
2.8.3.4	Door locking mechanism	Turning-lever lock: single or double locking. Lock cylinder selected in view of the locking system 81.	
2.8.3.5	Door arrester	Door arresting option provided; holding force in accordance with DIN 47609.	s. 2.2, Pos. 11
2.8.3.6	Holder	Clip holders for connection diagrams and installation instructions provided.	
2.8.3.7	Door sealing gasket	The sealing ensures IP 54 tightness.	
	Accessories	None	
2.8.4	Frame		
	Material	Stainless steel X5CrNi 18-10, steel key number 1.4301	s. 3.3
	Dimensions	Height x width = 932 x 716 mm Vertical width = 120 mm	
	Function	Equipment and subunits that are integrated into the cabinet are mounted to and held by the frame. It is screwed to the base and the housing body.	
2.8.4.1	Frame rails	These rails split the frame into verticals of 120 mm in width. Rails width = 38 mm	
2.8.4.2	Guide hooks	For the routing of installation wires.	
2.8.4.3	Guide rings	For the vertical routing of the wires.	
2.8.4.4	Grounding	Ground connection provided, d = 8...12 mm.	
	Mounting space		
	Protection measures	In compliance with DIN VDE 0804	
	Accessories	None	
2.8.5	Base panel		
	Material	Fiberglass-reinforced polycarbonate (PC) Stainless steel X5CrNi 18-10	s. 3.1 s. 3.3
	Dimensions	Width x depth = 754 x 280 mm	
	Color	gray, RAL 7038	
	Split panel	As a rule the base panel is split into two to allow repair work and the replacement of parts without interrupting operation.	
2.8.5.1	Rubber grommets	Double rubber grommets for the cable passages and single rubber grommets for the sealing of the round steel ground connection	
	Accessories	None	
2.8.6	Base		
	Material	Fiberglass-reinforced polycarbonate (PC)	s. 3.1
	Dimensions	Height x width x depth = 1060 x 754 x 280 mm	
	Color	gray, RAL 7038	
	Accessories	None	

3. Materials

Only recyclable materials are used.

The use of halogenated or chlorinated plastics is not allowed.

Components of comparable functions to be manufactured from the same material.

Electrolytic corrosion is avoided. Voltage difference does not exceed 0.25V.

3.1 Housing and housing parts materials

Table 4: Properties of polycarbonate

Item	Property	Test condition and requirement	Value	Unit	Test method
3.1	Polycarbonate fiberglass reinforced				
3.1.1	Mechanical properties				
3.1.1.1	Tensile modulus	1 mm/min, foamed 6.4 mm, density 900-1000 kg/m ³	2000	MPa	ISO 527-1,-2
3.1.2	Flammability				
3.1.2.1	Flammability UL 94 V-0	Foamed 6.4 mm, density 900-1000 kg/m ³	V-0	Class	UL 94
3.1.2.2	Flammability UL 94 V5A	Foamed 6.4 mm, density 900-1000 kg/m ³	5VA	Class	UL 94

3.2 Sealing material

Table 5: Properties of rubber

Item	Property	Test condition and requirement	Value	Unit	Test
3.2	Rubber				
3.2.1	TPE - V	Shore A	50	Shore	DIN 7868
					DIN 53505

3.3 Frames and subunits materials

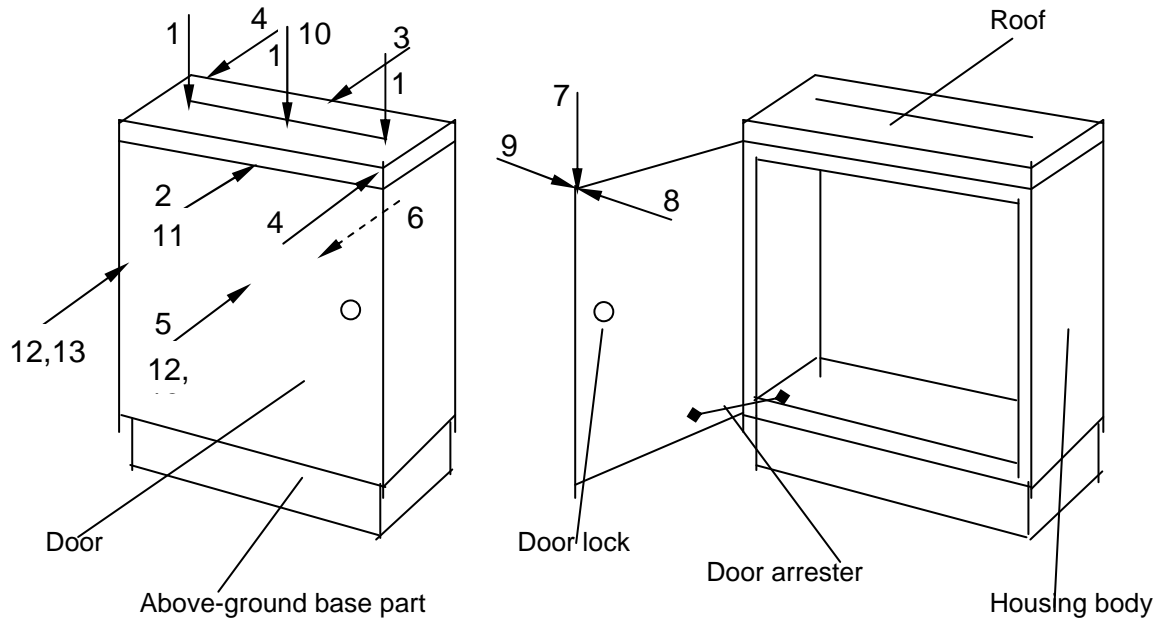
Table 6: Properties of stainless steel

Item	Property	Test condition and requirement	Value	Unit	Test
3.3	Stainless steel				
3.3.1	Stainless	X5CrNi18-10, steel key no. 1.4301 or 1.4016			

4. Tests

4.1 Strength tests

4.1.1 Mechanical strength acc. to DIN 47609 and EN 60439-5



The outdoor cabinets KVz 82, i.e. their individual parts, withstand loads as specified in DIN 47609 and EN 60439-5 at the above shown loading points (LP) within a temperature range of -20°C to $+80^{\circ}\text{C}$. The table below shows the individual test loads. Neither damage nor permanent deformation affecting function or protection level may occur.

Table 7: Mechanical test loads

LP	Part	Property / test	Testing equipment	Load	Duration	Standard
		Static loads				
1	Roof	Roof load	Load piston	3x1000N	30 min	DIN 47609
2	Cabinet	Overturning strength, front	Pull rope	1500 N	30 min	DIN 47609
3	Cabinet	Overturning strength, rear	Pull rope	1500 N	30 min	DIN 47609
4	Cabinet	Torsional stiffness	Torsion applicance	2x1000N	30 min	EN 60439-5
5	Door	Area load center front	Load piston, 400 cm ²	1200 N	30 min	DIN 47609
6	Rear panel	Area load center back	Load piston, 400 cm ²	1200 N	30 min	DIN 47609
7	Door	Support load, vertical	Load piston	750 N	30 min	DIN 47609
8	Door	Hinge load	Pull rope	450 N	30 min	DIN 47609
9	Door	Door retention force / arrester	Pull rope	250 N	30 min	DIN 47609
		Dynamic loads				
10	Roof	Ball drop test	Ball, 3 kg	30 Nm	-	DIN 47609
11	Cabinet	Shock load	Sandbag, 15 kg	150 Nm	-	EN 60439-5
12	Door	Pendulum impact test	Ball, 3 kg	30 Nm	-	DIN 47609
13	Door	Impact of sharp bodies	Tapered mandrel, 22°	20 Nm	-	EN 60439-5

4.2 Environmental testing

Table 8: Test standards

	Part	Property / Test	Testing equipment	Value		Standard
4.2.1	Cabinet	Preparation				IEC 68-1
		Preparation				IEC 68-2d
4.2.2	Cabinet	Door functional test		-20°..+80°		
4.2.3	Cabinet	Corrosion resistance (Kesternich test)		SFW 0.2 S		DIN 50018
4.2.4	Cabinet and individual parts	Visual inspection				DIN 41640 Part 1

5. Quality

5.1 Quality assurance system

The commissioned party maintains a quality assurance system in compliance with ISO 9004 (EN 29004).

5.2 Quality assurance measures, product-specific

Product-specific quality assurance measures comprehend product audits, quality monitoring and quality control. Quality monitoring follows specified test schedules. The defined sample size is AQL 2.5

6. Delivery

6.1 General points

The KVz cabinets' properties, dimensions and functions are not affected by storage or transport at temperatures between –20°C and 80°C.

Delivery is effected ex works, upon agreement.

6.1 Packaging

Cabinets are packed individually and put in lots onto one-way pallets.

The packaging material is recyclable.

Environmentally detrimental packing material is avoided; PVC material is not allowed.

Packaging material made of PE or PP is admitted but must be free of any coatings or adhesive tape.

Cardboard must be made of recycled paper and not contain any chemical products such as color, oil, glue, or impregnating agents.

6.2 Identification

The label contains the name or the company of the commissioned party.

Plus object description, type,
material number and part number

6.2 Transport

Transport upon agreement.

7. Annexes

7.1 Terms, abbreviations

TS	Technical specifications
KVz	Cross connection cabinet (K abel v er z weiger), also outdoor cabinet
QS	Quality System
IEC	International Electrotechnical Commission
IP	International Protection
RAL	German Institute for Quality Assurance and Certification e. V. (Deutsches Institut für Gütesicherung)
ETSI	European Telecommunications Standards Institute
EN	European Norm
VDI	Association of German Engineers (Verein Deutscher Ingenieure)
VDI-R	VDI regulation
DIN	German Institute for Standardization (Deutsche Industrienorm)
VDE	Association of German Electrical Engineers (Verein Deutscher Elektrotechniker)
X	Identification
Cr	Chromium
Ni	Nickel
ISO	International Organization for Standardization
UL	Underwriters Laboratories, Inc.
mm	Millimeter
Mpa	Mega-Pascals (unit of pressure)
cm ²	Square centimeter
min	Minute
N	Newton (unit of force)
Nm	Newton-meter (unit of energy)
kg	Kilogram
m ³	Cubic meter
V	Volt
°C	Degree Celsius
°	Degree of angle
S	Sulfur
AQL	Acceptable Quality Level
TPE	Thermoplastic elastomer
PC	Polycarbonate
PE	Polyethylene
PP	Polypropylene
PVC	Polyvinylchloride
CTs	Cable terminations

7.2	Standards
DIN 41640-1	Visual inspections
DIN 47609	Cable distribution cabinets from plastic for outdoor use; requirements, tests
DIN 50018	Testing in a saturated atmosphere in the presence of sulfur dioxide
ETS 300019	Equipment Engineering (EE). Environmental conditions and Environmental tests for telecommunications equipment
EN 60068	Electrical engineering. Basic environmental testing procedures
EN 60439-5	Low-voltage switchgear and controlgear assemblies. Part 5: Particular requirements for assemblies for power distribution in public networks
IEC 68-1	Environmental testing procedures: classification of environmental parameters
IEC 68-2d	Environmental testing procedures: preparation of test items
IEC 529	Degrees of protection provided by enclosures (IP Code)
ISO 527-1	Plastics. Determination of tensile properties
ISO 9004	Quality management systems. Guidelines for creating quality improvement.
RAL 840 HR	RAL color charts
VDI-RL 2243	Designing recyclable products
VDE 0804	Particular safety requirements for equipment to be connected to telecommunications networks
UL 94	Flammability of plastic materials

7.3 Weights & Dimensions

R-Number	Description	Dimensions (WxHxD)	Weight (kg)
R312847	Cabinet 82C, VS	442x998x310 mm	approx 16.0
R312844	Cabinet 82A, VS	754x999x316 mm	approx 37.0
R312848	Cabinet 82/2C, VS	442x998x310 mm	approx 16.0
R312845	Cabinet 82/2A, VS	754x999x316 mm	approx 37.0
R311355	Cabinet 82A, FO/Hybrid	754x999x316 mm	approx 37.0
R312846	Cabinet 82C, FO/Hybrid	442x998x310 mm	approx 16.0
R311353	Base 82A	754x1'060x284 mm	approx 25.0
R312849	Base 82C	442x1'060x284 mm	approx 18.0
R312860	Base Top 82A	754x400x284 mm	approx 9.6
R312861	Base Top 82C	442x400x284 mm	approx 6.0
R312862	Mounting Frame 82A		approx 7.0
R312863	Mounting Frame 82C		approx 5.0
R320533	Base UNI8	754x1'060x375 mm	approx 27.0
R320534	Base Top UNI8	754x400x375 mm	approx 11.4
R320535	Mounting Frame UNI8		approx 7.0
R320536	Mounting Frame for Base Top UNI8		approx 5.0
R315839	Cabinet UNI8, 19"	754x997x400 mm	approx 39.0
R313361	Mounting Frame for Base Top 82A		approx 5.0
R313362	Mounting Frame for Base Top 82C		approx 5.0

8. Mutation Protocol

Date	Kind of mutation	Reason for mutation	Name
July 08	Created		DV