

CP160CR-**CP**180CR

SITEX

Constant Potential Crawler Units

Deploying the cutting-edge technology of our constant potential portable X-ray generator into the best X-ray crawler tube ever designed.

KEY FEATURES

- Lightweight
- **D** Compact: ∅120 x 688 mm
- 6" Pipe ready
- D Constant Potential
- Reduced exposure time
- **O CP**RCU: independent pocketsize Remote Control Unit
- 100% working cycle at 30°C

UNEQUALED WEIGHT TO PERFORMANCE RATIO

Without any compromise on the performance, The **CP**160CR and **CP**180CR are, with an outside diameter of 120 mm, a length of just 688 mm and a weight of less than 10 kg, the most compact portable x-ray generators available on the market for crawler. Offering an output range from 40 to 160 kV (180 kV for the **CP**180CR)/0.5 to 2 mA, this crawler X-ray generator fits perfectly to inspect pipelines starting from 6 inches.

CONSTANT POTENTIAL

The constant potential X-ray output of the **CP**160CR and **CP**180CR generators allows reducing drastically (an average factor of 2 can be considered) the exposure time to penetrate an equivalent thickness

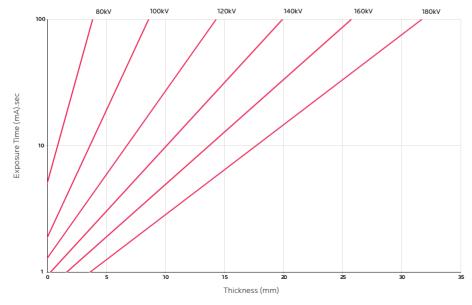
of steel. 22 mm of steel in 25 seconds for a 6" pipe or 28 mm of steel in 10 minutes for a 18" pipe (AA400, D=2) are results you will achieve with the 160 kV generator. It means quicker results, lower power consumption by inspection and by consequence more controls with the same battery charge.

LIGHT AND USER-FRIENDLY REMOTE CONTROL UNIT

ICM crawler generators are equipped with a complete removable control unit, including LCD display and keypad. This pocket size Remote Control Unit, the CPRCU, provides the operator the necessary user-friendly interface to program the crawler tube. As soon as the preheating is completed and the kVs and mAs are keyed in, the remote control unit is disconnected and the crawler is ready to go.

Exposure chart for CP160CR / CP180CR $\,$

(Steel -D=2.0 -FFD=84.15mm (6" pipe) -KODAK AA400)







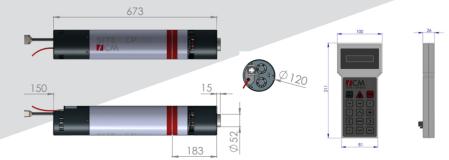
SITEX CP160CR-180CR technical specifications

Output voltage range kV 40 to 160 40 to 180 Output voltage selection step kV 1 1 Tube current range mA 0.5 to 2 0.5 to 2 Tube current range & full output mA 2 2 Tube current selection step mA 0.1 0.1 Max, power at the anode W 320 360 Input voltage range VDC 40 to 60 40 to 60 Input current at 48 VDC A 9 10 KV and mA stability % <0.5 <0.5 Radiation geometry - True radial beam True radial beam Maximum useful angle of X-ray beam (°) 360 x (2 x 20) 360 x (2 x 20) Dimension of the optical focal spot mm Dia. 4 x 0.5 Dia. 4 x 0.5 Inherent filtration mm Equiv. 3.5 (Al) Equiv. 3.5 (Al) Working cycle at 30°C ambient temperature % 100 100 Operating temperature range °C -30 to +60 -30 to +60 SF6 insulation pressure at 20	CRAWLER	UNITS	CP 160CR	CP 180CR
Output voltage selection step kV 1 1 Tube current range mA 0.5 to 2 0.5 to 2 Tube current range @ full output mA 2 2 Tube current selection step mA 0.1 0.1 Max. power at the anode W 320 360 Input voltage range VDC 40 to 60 40 to 60 Input current at 48 VDC A 9 10 kV and mA stability % <0.5 <0.5 Radiation geometry - True radial beam True radial beam Maximum useful angle of X-ray beam (*) 360 x (2 x 20) 360 x (2 x 20) Dimension of the optical focal spot mm Dia. 4 x 0.5 Dia. 4 x 0.5 Inherent filtration mm Equiv. 3.5 (Al) Equiv. 3.5 (Al) Equiv. 3.5 (Al) Working cycle at 30°C ambient temperature % 100 100 100 Operating temperature range "C -30 to +60 -40 to +70 -40 to +70 <th></th> <th></th> <th></th> <th>Soon available</th>				Soon available
Tube current range mA 0.5 to 2 0.5 to 2 Tube current range @ full output mA 2 2 Tube current selection step mA 0.1 0.1 Max. power at the anode W 320 360 Input voltage range VDC 40 to 60 40 to 60 Input current at 48 VDC A 9 10 kV and mA stability % <0.5	Output voltage range	kV	40 to 160	40 to 180
Tube current range @ full output mA 2 2 Tube current selection step mA 0.1 0.1 Max. power at the anode W 320 360 Input voltage range VDC 40 to 60 40 to 60 Input current at 48 VDC A 9 10 kV and mA stability % < 0.5	Output voltage selection step	kV	1	1
Tube current selection step mA 0.1 0.1 Max. power at the anode W 320 360 Input voltage range VDC 40 to 60 40 to 60 Input current at 48 VDC A 9 10 kV and mA stability % < 0.5	Tube current range	mA	0.5 to 2	0.5 to 2
Max. power at the anode	Tube current range @ full output	mA	2	2
Input voltage range	Tube current selection step	mA	0.1	0.1
Input current at 48 VDC	Max. power at the anode	W	320	360
Radiation geometry -	Input voltage range	VDC	40 to 60	40 to 60
Radiation geometry	Input current at 48 VDC	А	9	10
Maximum useful angle of X-ray beam (°) 360 x (2 x 20) 360 x (2 x 20) Dimension of the optical focal spot mm Dia. 4 x 0.5 Dia. 4 x 0.5 Inherent filtration mm Equiv. 3.5 (Al) Equiv. 3.5 (Al) Working cycle at 30°C ambient temperature % 100 100 Operating temperature range °C -30 to +60 -30 to +60 Storage temperature range °C -40 to +70 -40 to +70 SF6 insulation pressure at 20 °C kg/cm2 5.5 5.5 Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level - IP65 IP65 Exposure time for max. wall thickness sec 25 11 (6" pipe / AA400/D=2 / WT=22mm) Steel penetration at max kV and mA mm Fe 28 35 (18" pipe / AA400 /D=2 / T=10 min) - Optional Optional Position of interconnection socket Axial Axial Axial Type of connector - MIL-DTL 26482 MIL-DTL 26482 metallic circular <	kV and mA stability	%	< 0.5	< 0.5
Dimension of the optical focal spot mm Dia. 4 x 0.5 Dia. 4 x 0.5 Inherent filtration mm Equiv. 3.5 (Al) Equiv. 3.5 (Al) Working cycle at 30°C ambient temperature % 100 100 Operating temperature range °C -30 to +60 -30 to +60 Storage temperature range °C -40 to +70 -40 to +70 SF6 insulation pressure at 20 °C kg/cm2 5.5 5.5 Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level - IP65 IP65 Exposure time for max. wall thickness sec 25 11 (6" pipe / AA400 / D=2 / WT=22mm) mm Fe 28 35 Steel penetration at max kV and mA mm Fe 28 35 (18" pipe / AA400 / D=2 / T=10 min) - Optional Optional Position of interconnection socket Axial Axial Axial Type of connector - MIL-DTL 26482 metallic circular Max. leakage dose at 1m at full output mm Sv/h < 2.0	Radiation geometry	-	True radial beam	True radial beam
Inherent filtration	Maximum useful angle of X-ray beam	(°)	360 x (2 x 20)	360 x (2 x 20)
Working cycle at 30°C ambient temperature % 100 100 Operating temperature range °C -30 to +60 -30 to +60 Storage temperature range °C -40 to +70 -40 to +70 SF6 insulation pressure at 20°C kg/cm2 5.5 5.5 Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level Exposure time for max. wall thickness sec 25 11 (6" pipe / AA400 / D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 /D=2 / T=10 min) Guard rings Position of interconnection socket Type of connector MIL-DTL 26482 metallic circular metallic circu	Dimension of the optical focal spot	mm	Dia. 4 x 0.5	Dia. 4 x 0.5
Operating temperature range Storage temperature range C -30 to +60 -30 to +60 Storage temperature range C -40 to +70 -40 to +70 SF6 insulation pressure at 20 °C kg/cm2 5.5 5.5 Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level Exposure time for max. wall thickness (6" pipe / AA400/D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 /D=2 / T=10 min) Guard rings Position of interconnection socket Type of connector MIL-DTL 26482 metallic circular Max. leakage dose at 1m at full output Max. leakage dose at 1m at full output Microcontroller HT measurement circuit (kV and mA) Overall dimensions Mg 9.9 9.9	Inherent filtration	mm	Equiv. 3.5 (Al)	Equiv. 3.5 (Al)
Storage temperature range SF6 insulation pressure at 20 °C kg/cm2 SF6 insulation pressure at 20 °C kg/cm2 SF6 insulation pressure at 20 °C Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level Exposure time for max. wall thickness sec 25 11 (6" pipe / AA400 / D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 / D=2 / T=10 min) Guard rings Position of interconnection socket Type of connector - MIL-DTL 26482 metallic circular Max. leakage dose at 1m at full output mSv/h - Ves Yes Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings	Working cycle at 30°C ambient temperature	%	100	100
SF6 insulation pressure at 20 °C Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level Exposure time for max. wall thickness (6" pipe / AA400/D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 /D=2 / T=10 min) Guard rings Position of interconnection socket Type of connector MIL-DTL 26482 metallic circular metallic circular Max. leakage dose at 1m at full output mSv/h VDC 40 to 60 40 to 6	Operating temperature range	°C	-30 to +60	-30 to +60
Cooling fan supply voltage VDC 40 to 60 40 to 60 Weatherproof level Exposure time for max. wall thickness (6" pipe / AA400 / D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 / D=2 / T=10 min) Guard rings Position of interconnection socket Type of connector - MIL-DTL 26482 metallic circular Max. leakage dose at 1m at full output Max. leakage dose at 1m at full output Microcontroller HT measurement circuit (kV and mA) Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings	Storage temperature range	°C	-40 to +70	-40 to +70
Weatherproof level Exposure time for max. wall thickness sec 25 11 (6" pipe / AA400/D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 / D=2 / T=10 min) Guard rings Position of interconnection socket Type of connector - MIL-DTL 26482 metallic circular metallic circular Max. leakage dose at 1m at full output mSv/h Vexample ABAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	SF6 insulation pressure at 20 °C	kg/cm2	5.5	5.5
Exposure time for max. wall thickness (6" pipe / AA400 / D=2 / WT=22mm) Steel penetration at max kV and mA (18" pipe / AA400 / D=2 / T=10 min) Guard rings - Optional Optional Position of interconnection socket Type of connector - MIL-DTL 26482 MIL-DTL 26482 metallic circular metallic circular Max. leakage dose at 1m at full output Max. leakage dose at 1m at full output Microcontroller HT measurement circuit (kV and mA) Overall dimensions Total weight without guard rings	Cooling fan supply voltage	VDC	40 to 60	40 to 60
Completed Action of the connection of the conn	Weatherproof level	-	IP65	IP65
Steel penetration at max kV and mA (18" pipe / AA400 /D=2 / T=10 min) Guard rings - Optional Optional Position of interconnection socket Type of connector - MIL-DTL 26482 MIL-DTL 26482 metallic circular metallic circular Max. leakage dose at 1m at full output mSv/h - Yes Yes Overall dimensions mm Dia. 120 x 688 Total weight without guard rings mm Pe 28 35	Exposure time for max. wall thickness	sec	25	11
(18" pipe / AA400 /D=2 / T=10 min) Guard rings - Optional Optional Position of interconnection socket	(6" pipe / AA400/ D=2 / WT=22mm)			
Guard rings Position of interconnection socket Type of connector MIL-DTL 26482 metallic circular Max. leakage dose at 1m at full output Microcontroller HT measurement circuit (kV and mA) Overall dimensions Total weight without guard rings Optional Optional Axial Axial Axial MIL-DTL 26482 metallic circular metallic circular Metallic circular Max. leakage dose at 1m at full output mSv/h Ves Yes Overall dimensions Mm Dia. 120 x 688 Dia. 120 x 688	Steel penetration at max kV and mA	mm Fe	28	35
Position of interconnection socket Type of connector - MIL-DTL 26482 MIL-DTL 26482 metallic circular metallic circular Max. leakage dose at 1m at full output mSv/h < 2.0 < 2.0 Microcontroller HT measurement circuit (kV and mA) - Yes Yes Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings kg 9.9 9.9	(18" pipe / AA400 /D=2 / T=10 min)			
Type of connector - MIL-DTL 26482 MIL-DTL 26482 metallic circular metallic circular Max. leakage dose at 1m at full output mSv/h < 2.0 < 2.0 Microcontroller HT measurement circuit (kV and mA) - Yes Yes Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings kg 9.9 9.9	Guard rings	-	Optional	Optional
metallic circular metallic circular Max. leakage dose at 1m at full output mSv/h < 2.0 < 2.0 Microcontroller HT measurement circuit (kV and mA) - Yes Yes Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings kg 9.9 9.9	Position of interconnection socket		Axial	Axial
Max. leakage dose at 1m at full output mSv/h < 2.0	Type of connector	-	MIL-DTL 26482	MIL-DTL 26482
Microcontroller HT measurement circuit (kV and mA) - Yes Yes Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings kg 9.9 9.9			metallic circular	metallic circular
Overall dimensions mm Dia. 120 x 688 Dia. 120 x 688 Total weight without guard rings kg 9.9 9.9	Max. leakage dose at 1m at full output	mSv/h	< 2.0	< 2.0
Total weight without guard rings kg 9.9 9.9	Microcontroller HT measurement circuit (kV and mA)	-	Yes	Yes
	Overall dimensions	mm	Dia. 120 x 688	Dia. 120 x 688
Prewarning timesec3 to 593 to 59	Total weight without guard rings	kg	9.9	9.9
	Prewarning time	sec	3 to 59	3 to 59

CPRCU technical specifications

CP RCU	UNITS	CP 160CR / CP 180CR	
GENERAL			
Microcontroller processor	-	8 bits – 11 MHz	
Type of electronic components	-	Industrial series (-25°C to + 85 °C)	
POWER SUPPLY			
Type of power supply	-	Provided by generator	
MEASUREMENT & CONTROL			
kV and mA measurement accuracy	%	±0.5	
Display of programmed parameters	-	Yes	
kV, mA programming step	kV / mA	1 / 0.1	
Semi-automatic preheating	-	Yes	
Preheating time range	min	5 to 60 (1 min step)	
Battery voltage control accuracy	%	±0.5	
CONTROL & DISPLAY			
LCD display with variable contrast	Line x Char.	2 X 20	
Polyester keypad	keys	14	
General power on function	-	Provided by the crawler	
START-STOP functions	-	Provided by the crawler	
WEIGHT, DIMENSIONS, ENVIRON.			
Total weight	kg	0.28	
Overall dimensions of CPRCU (W x H x D)	mm	211 x 100 x 26	
Operating temperature range	°C	-20 to +70	
Storage temperature range	°C	-40 to +85	

Dimensions



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