

# Power<sup>IT</sup> Pole Mounted Switch Disconnecter, NPS

630 A, up to 36 kV



**Industrial<sup>IT</sup>**  
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**ABB**



## NPS Pole Mounted Switch Disconnectors

630 A up to 36 kV

### Index

Description .....	3
Selection table .....	5
Technical data and ordering information	
— Rocking type switch disconnectors .....	5
— Complete rocking type switch disconnectors .....	6
— Rocking type switch disconnector phase elements .....	8
Accessories	
— Breaking chambers .....	9
— Crossarm and fixing accessories .....	10
— Operating mechanisms .....	11
— Motor operating device .....	12
— Connecting accessories .....	13
— Transformer station .....	14
— Selection of fuses .....	14
Dimension drawings	
— Rocking type phase elements .....	15
— Fixing accessories and operating mechanisms .....	17
— Operating mechanisms .....	19
— Connecting accessories .....	20
— Accessories for the transformer station .....	22
Overall dimensions	
— Typical mounting arrangements .....	23

This product has been certified by ABB Group as **Industrial IT Enabled™ - Information Level**. All product information is supplied in interactive electronic format, based on ABB Aspect Object™ technology. The Industrial IT commitment from ABB ensures that every enterprise building block is equipped with the integral tools necessary to install, operate, and maintain it efficiently throughout the product lifecycle.



## NPS Pole Mounted Switch Disconnectors

630 A up to 36 kV



### Description

#### Safety Foremost

The robust mechanical construction is a trade mark of ABB's NPS disconnector series. The equipment will perform in all weather conditions, in different installation positions, manually or remotely operated. High electrical ratings ensure operation even under heavy loading or fault conditions.

A reasonable safety margin is incorporated in the mechanical and electrical ratings, which in turn ensure the reliability of the ABB disconnectors in all circumstances.

#### Over All Suitability - "Future Proof"

A modular construction system together with a wide range of accessories make the disconnectors suitable for all the different applications in the network.

The system can be expanded and upgraded as required. For example, a simple disconnector with breaking whips can be fitted with breaking chambers to increase the making and breaking capacity without having to change the whole disconnector. In the same way, a disconnector built

for local control can be modified for remote control, simply by fitting a motor operating device in place of the manual operating device. The disconnectors are "Future proof" they can be upgraded as the operational demands of the network increase.

#### High Performance Values

The disconnectors are always fitted with either breaking whips or chambers to safely break the load currents.

The number of breaks that can be performed by the breaking cham-



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## NPS Pole Mounted Switch Disconnectors Description

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bers is usually enough to cover normal applications for decades of use. The disconnectors have been designed from the very beginning to be suitable for the isolation of faults. The breaking chambers are capable of making almost all short circuit currents found in overhead line distribution systems. All NPS 24\_ disconnectors withstand the making of fault current.

### Easy to Store and Mount

Due to the modular construction of the disconnectors, the space requirements during transport and storage is kept in minimum. Because of different forms of installation the NPS disconnectors are suitable for many different type of substations.

### Phase Elements

The phase elements are based upon two types of insulators - porcelain and epoxy. The breaking whips are included as standard. The whips can be replaced with breaking chambers, see page 9.

### Mounting Positions of the Phase Elements

Phase elements with breaking whips and with air breaking chambers can be mounted either horizontally or vertically. Phase elements with breaking chambers filled with transformer oil, code K2, can be mounted only horizontally.

### Insulators

The porcelain insulators are solid-core and glazed. The insulators are ultrasonically tested and subject to a full series of voltage and mechanical tests.

The epoxy insulators are made of cycloaliphatic epoxy cast resin, which is very suitable for outdoor use. They are light, shock-proof and very resistant against arcing.

For different ambiental circumstances insulators with different creepage distances can be selected.

### Main Contacts

All conductive parts are made of electrolytic copper. Contact pressure is maintained by stainless steel compression springs. Due to the unique construction the main contacts are not affected by the forces of short circuit current or lateral forces caused by the line conductors. The contact life is further increased by the possibility to reverse the contact tips. The tips can be turned quickly and easily using ordinary pliers.

### Operating Devices

The complete rocking type disconnectors are delivered with control shaft and levers, manual operating device and operating tubes with protective insulator.

### Motor Operating Device

For remote control of NPS disconnectors any manual operating device can be replaced with a motor operating device.

The motor operating device has all the necessary safety features. The operating device can be mechanically locked with a padlock to prevent both motor and the manual operation mechanism being used. The door of the enclosure can also be locked with a padlock. In addition to the remote control facility, it is also possible to operate the device from the local control push buttons, or use the hand crank. When switched to manual operation, the electrical functions are always automatically inhibited.

The motor operating device will tolerate ambient temperatures down to -50°C. In order to prevent corrosion and condensation it has an anti-condensation heater rated at 20 W 220 V AC fitted. The enclosure is made of stainless steel and all the other parts are corrosion free material.

Ordering information and technical data are given in catalogue 34 UEMC 35.

### Surface Treatment Ensures Long Life

All steel parts of the disconnectors are hot dip galvanized. Copper parts are silver plated, except parts for the terminals which are tinned. Both aluminium and copper conductors can be used. The flexible copper strip extension pieces are tinned, and a special aluminium alloy is used for the untreated aluminium parts. Protective insulators of the operation tube are made of acetal resin for 24 kV disconnectors and of composite material for 36 kV disconnectors. Small screws, nuts and washers are of stainless steel. NPS disconnectors can be considered as corrosion free product thus achieving a long operational life.

### Extensive Range of Accessories

The disconnectors can easily be completed with a range of accessories, such as breaking chambers, motor operating device, spark-gaps, fuse bases and fuses.

Terminations on the moving side of the disconnector prevent the conductor from being damaged and make the opening operation lighter. Connecting accessories, page 13.

Extension bars on transformer station installations ensure that sufficient distance is kept between the disconnector and transformer and that the conductors are taught during operation of the disconnector. Accessories for transformer station, page 14.

### High Rupturing Capacity Fuse-Links

Fuse-links OFCD\_ are current limiting type and they are used for short circuit protection of transformers. Their high rupturing characteristics ensure selectivity with the feeding circuit-breaker.

Order information and technical data, page 14.

## Rocking type Switch Disconnectors

### Selection table

Type tests are made according to IEC 129 (1984) and IEC 265 (1983).

Type		NPS 24 A2_	NPS 24 A2_J2	NPS 24 B1_J2	NPS 36 A2
Insulator		Porcelain	Porcelain	Epoxy	Porcelain
- Creepage	mm	530	620	740	900
- Arcing distance	mm	212	270	272	360
- Cantilever strength	kN	4	3.5	2	2.7
- Salt fog test, IEC 507, (1 h) salt solution	g/l	20...40	56...80	160	-
Rated voltage, max.	kV	24	24	24	36
Rated current	A	630	630	630	630
Rated frequency	Hz	50/60	50/60	50/60	50/60
Rated lightning impulse withstand voltage:					
- across the isolating distance	kV	145	165	145	220 4)
- to earth and between phases	kV	125	150	125	200 4)
Rated power frequency withstand voltage in wet conditions					
- across the isolating distance	kV	75	75	75	88 4)
- to earth and between phases	kV	55	55	55	80 4)
					430
Min. distance between phases 3)	mm	310	350	260	350
Min. isolating distance	mm	200	230	200	
Rated short-time withstand current	1 s kA	20	20	16	21 4)
	3 s kA	16	16	10	16 4)
Rated peak withstand current	kA	50	50	40	52 4)
Rated short-circuit making current with 7 closing operations 1)	kA	5	5	5	-
Rated breaking current 1)					
- mainly active load with 100 closing and opening operations					
	12 kV A	40	40	40	-
	15 kV A	32	32	32	-
	24 kV A	25	25	25	16
	36 kV A	-	-	-	16
	52 kV A	-	-	-	-
- cable- and line-charging with 20 closing and opening operations	A	15	15	15	10
Mechanical endurance 2)	Operat.	2000	2000	2000	2000
Permissible ice thickness	mm	5	-	-	-
Ambient temperature limits	°C	-40...+40	-40...+40	-40...+40	-40...+40

1) When the breaking chamber is used, see technical data on page 9.

2) Tests are made with breaking chambers

3) With breaking chambers, see mounting instructions.

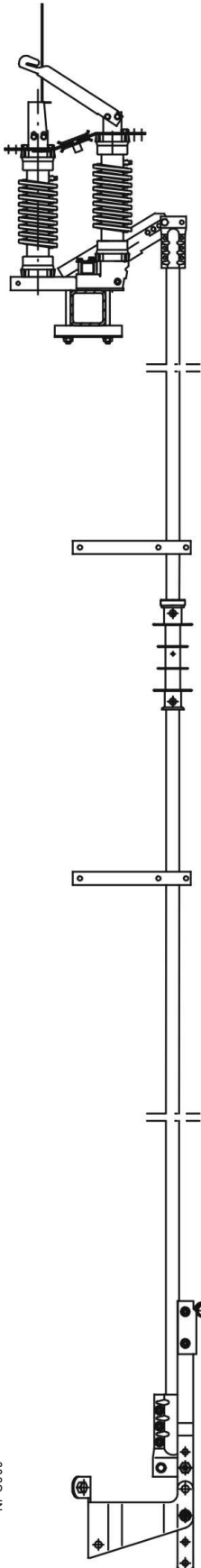
4) Type NPS 36 A204 with earthing contact have lower ratings

- lightning impulse withstand voltage 170 kV
- power frequency wet withstand voltage 80 kV
- short-time withstand current 16 kA 1s
- peak withstand current 40 kA

# Complete Rocking Type Switch Disconnectors

## Technical data and ordering information

### Complete rocking type disconnectors with porcelain insulators, $I_n = 630 \text{ A}$ , 3 phase



Type	Max $U_n$	Creepage/ Arcing distance	Breaking <sup>1)</sup> capacity mainly active load with 100 oper. cycles	Salt fog test (IEC 507)	Weight	Remarks Type also includes  (See REMARKS)
	kV	mm		g/l	kg	

#### FOR ONE OR TWO POLE MOUNTING

NPS 24 A2 01	24	530/212	40 A/12 kV 32 A/15 kV 25 A/24 kV	20...40	103	Control shaft size 40 x 1830 Crossarm size 80 x 2000
NPS 24 A2 01-J2	24	620/270	40 A/12 kV 32 A/15 kV 25 A/24 kV	56...80	114	Control shaft size 40 x 1830 Crossarm size 80 x 2000

#### FOR TWO POLE MOUNTING

NPS 24 A2 05	24	530/212	40 A/12 kV 32 A/15 kV 25 A/24 kV	20...40	87	Shaft support control shaft size 40 x 2320
NPS 24 A2 05-J2	24	620/270	40 A/12 kV 32 A/15 kV 25 A/24 kV	56...80	98	Shaft support control shaft size 40 x 2320
NPS 36 A 201 <sup>2)</sup> NPS 36 A 202 <sup>3)</sup> NPS 36 A 204 <sup>4)</sup>	36 36 36	900/360 900/360 900/360	16 A/36 kV 16 A/36 kV 16 A/36 kV	-	180 180 210	Control shaft size 40 x 2320 Crossarm 2 pcs size 80 x 2850 and fixing parts

- 1) Higher breaking values can be achieved by installing breaking chambers instead of breaking whips. Add the chamber code to the type, for ex. NPS 36 A 201-K3
- 2) For two pole mounting, horizontal or vertical position
- 3) For one pole mounting in horizontal position
- 4) This type have an earthing contact, installed vertical position

## REMARKS

### Includes:

- breaking whips
- manual operating mechanism
- operating tubes length  
2 x 4 mm and tube supports
- control shaft
- crossarm in some types

### Optional accessories:

- breaking chamber
- connecting elements
- motor operating device etc.

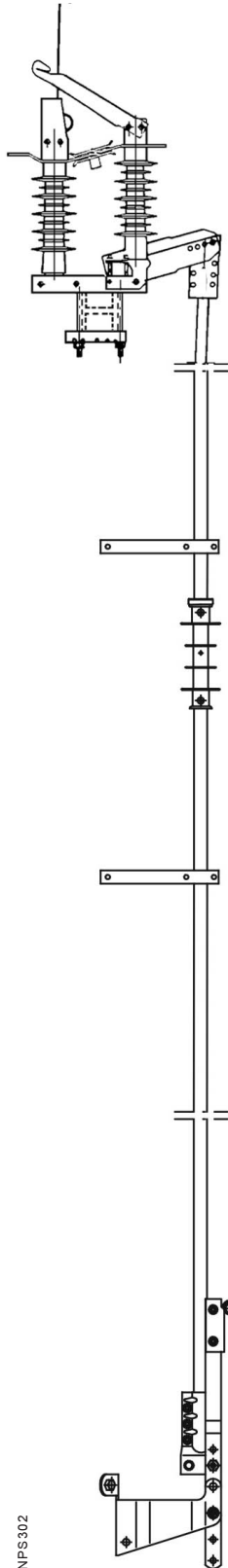
### To be ordered:

- crossarm fixing parts for 24 kV range, see page 10
- conductor connecting clamps, see page 13

# Complete Rocking Type Switch Disconnectors

## Technical data and ordering information

### Complete rocking type disconnectors with epoxy insulators, $I_n = 630 \text{ A}$ , 3 phase



Type	Max. $U_n$  kV	Creepage/ Arcing distance  mm	Breaking 1) capacity mainly active load with 100 oper. cycles	Salt fog test (IEC 507)  g/l	Weight  kg	Remarks Type also includes  (See REMARKS)
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#### FOR ONE OR TWO POLE MOUNTING ON ABB CROSSARM

NPS 24 B1 01-J2	24	740/272	40 A/12 kV 32 A/15 kV 25 A/24 kV	160	67	Control shaft NPAZL 7 size 30 x 1630 Crossarm NPTRN TT6 size 80 x 2000
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#### FOR ONE OR TWO POLE MOUNTING ON ANY OTHER CROSSARM (NOT INCLUDED)

NPS 24 B1 05-J2	24	740/272	40 A/12 kV 32 A/15 kV 25 A/24 kV	160	50	Control shaft NPAZL 12 30 x 2320
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NPS3 TBL

1) Higher breaking values can be achieved by installing breaking chambers instead of breaking whips

Add the chamber code to the type for ex. NPS 24 B 101-K5J2

## REMARKS

### Includes:

- breaking whips
- manual operating mechanism  
UEKE 3A1
- operating tubes NPTOT 383  
length 2 x 4 mm  
and two tube supports NPAZL 9
- control shaft
- crossarm in NPS 24B101-J2

### Optional accessories:

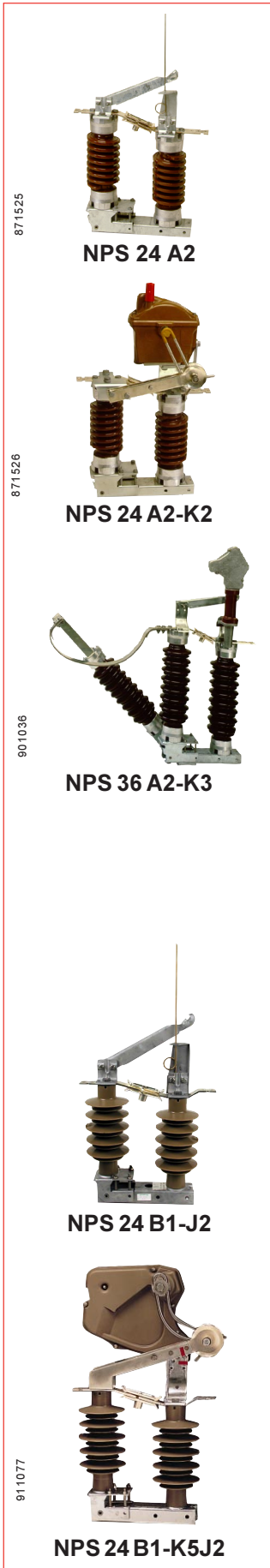
- breaking chamber NPAK 4 or NPAK 5
- connecting elements
- motor operating device etc.

### To be ordered:

- crossarm fixing parts for 24 kV  
range, see page 10
- conductor connecting clamps,  
see page 13

## Rocking Type Switch Disconnecter Phase Elements

### Technical data and ordering information



### Rocking type disconnecter phase elements with porcelain insulators, $I_n = 630 \text{ A}$

Max. $U_n$  kV	Creepage/ Arcing distance  mm	Breaking capacity mainly active load/closing and opening  op = co	Short circuit making current/ closing op. = c	Weight  kg	Remarks Type also includes  (See REMARKS)	Type
24	530/212	40A/12kV/100co 32A/15kV/100co 25A/24kV/100co	5kA/7c 1)	15.3	Includes breaking whip	NPS 24 A2
	620/270			18.1		NPS 24 A2-J2
36	900/360	16A/36kV/100co	-	40		NPS 36 A2
24	530/212	630A/24kV/20co	12.5kA/16c 2)	22.3	Includes breaking chamber	NPS 24 A2-K2
	620/270			25.1		NPS 24 A2-K2 J2
24	530/212	250A/24kV/100co	5kA/7c 1)	17.5		NPS 24 A2-K4
	620/270			20.3		NPS 24 A2-K4 J2
24	530/212	400A/24kV/100co 630A/24kV/20co	8kA/50c 2)	19.1		NPS 24 A2-K5
	620/270			21.9		NPS 24 A2-K5 J2
36	900/360	400A/36kV/10co	-	40		NPS 36 A2-K3

- 3 pcs needed for 3 phase disconnecter

**All accessories have to be  
ordered separately**

### Rocking type disconnecter phase elements with epoxy insulators, $I_n = 630 \text{ A}$

Max. $U_n$  kV	Creepage/ Arcing distance  mm	Breaking capacity mainly active load/ closing and opening  op = co	Short circuit making current/ closing op. = c	Weight  kg	Remarks Type also includes  (See REMARKS)	Type
24	740/272	40A/12kV/100co 32A/15kV/100co 25A/24kV/100co	5kA/7c 1)	5.5	Includes breaking whip	NPS 24 B1-J2
24	740/272	250A/24kV/100co	5kA/7c 1)	9.0	Includes breaking chamber	NPS 24 B1-K4J2
24	740/272	630A/24kV/20co 400A/24kV/100co	8kA/50c 2)	10.6		NPS 24 B1-K5J2

- 3 pcs needed for 3 phase disconnecter

**All accessories have to be  
ordered separately**

- 1) Making current by the main contact if closing time abt. 1.2 s
- 2) Making current by the chamber and independent of the speed of the manual or motor operating device



# Breaking Chambers Accessories

## Technical data and order information

### Breaking chambers, suitable for NPS-disconnectors

Technical information	Rated voltage 12 kV Rated frequency 50/60 Hz		Rated voltage 24 kV Rated frequency 50/60 Hz		Types incl. pcs	Weight kg	Type includes 3 pcs <sup>1)</sup>	Suitable for disconn.
	Current	Number of operations	Current	Number of operations				
<b>AIR BREAKING CHAMBER, K5</b> Mainly active load breaking current	400 A	100 co	400 A	100 co	3	3 x 5.1	<b>NPAK 5/3</b>	24 kV with porcelain and epoxy insulator
	630 A	10 co	630 A	10 co				
Closed-loop breaking current	400 A	10 co	400 A	10 co				
Cable/line-charging breaking current	35 A	10 co	10 A	20 co				
Earth-fault breaking current	50 A	10 co	50 A	10 co				
Cable/line-charging breaking current under earth fault conditions	44 A	10 co	-	-				
No-load transformer breaking:								
No-load current/rated power	2 A/7.5 MVA	20 co	2 A/15 MVA	20 co				
Short-circuit making current	12.5 kA	10 c	8 kA	50 c				
			9 kA	2 c				
Mechanical endurance	-	2000 co	-	2000 co				
Ambient air temperature limits	-50...+60 °C		-50...+60 °C					
IEC Publication	IEC 60265-1 (1998)		IEC 265-1 (1983)					
<b>AIR BREAKING CHAMBER, K4</b> Rated breaking current			250 A	100 co	3	3 x 4.3	<b>NPAK 41/3</b>	24 kV with porcelain insulators
- mainly active load			250 A	10 co				
- closed loop current			10 A	20 co				
- cable charging current			-	2000 co	3	3 x 4.1	<b>NPAK 4/3</b>	24 kV with epoxy insulators
Mechanical endurance								
Ambient air temperature limit			-50...+60 °C					
<b>OIL FILLED BREAKING CHAMBER, K2</b> Rated breaking current			630 A	10c	3	3 x 8	<b>NPAK 2/3</b>	24 kV with porcelain insulator
- mainly active load			200 A	150 co				
- mainly active load			630 A	10 co				
- closed loop current			200 A	20 co				
- line charging			50 A	20 co				
- cable charging current								
- cable charging current under earth fault conditions			50 A	10 o				
- earth fault current			50 A	10 o				
- single capacitor bank			200 A	20 co				
Short-circuit making current			12.5 kA	16 c				
Mechanical endurance			-	1000 co				
<b>AIR BREAKING CHAMBER, K3</b> Rated breaking current			400 A	10 o	3	3 x 2.3	<b>NPAK 3/3</b>	36 kV
- mainly active load			63 A	200 o				
- mainly active load			4 A	20 o				
- inductive load			16 A	20 o				
- line/cable charging cos φ = 0,15			400 A	20 o				
Closed loop current			-	2000 co				
Mechanical endurance								

co = closing and opening cycle  
o = opening operation  
c = closing operation

1) Type code K5, K4, K3 or K2 when included in NPS-types and then factory mounted on the disconnector phase units for ex. NPS 24 B1-K5, NPS 24 A 201-K2

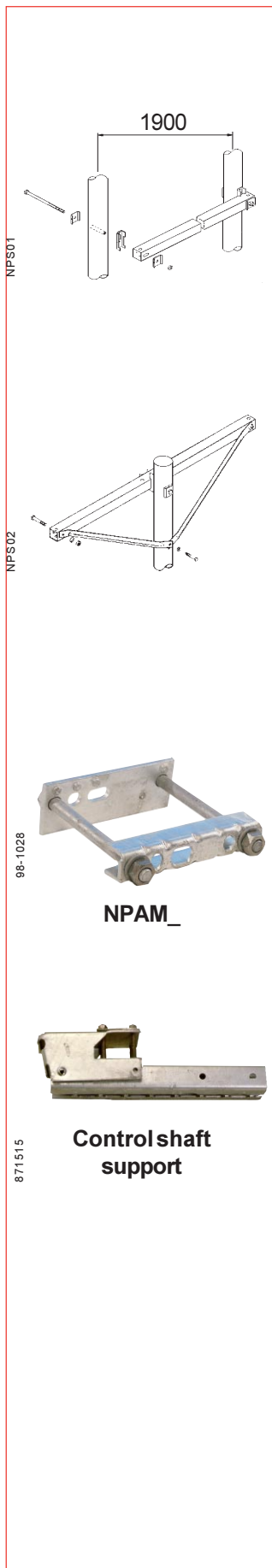
NPS6.TBL

## Crossarm and fixing accessories

### Accessories

#### Technical data and ordering information

#### Crossarm and fixing accessories for wooden poles

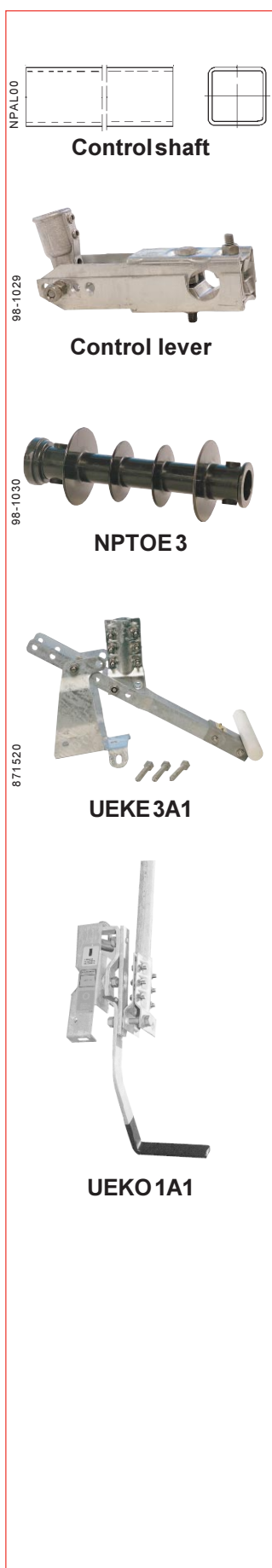


Accessory	Suitable for	Type incl. pcs	Weight kg	Type
Crossarm 1)	Max. 24 kV disconnectors □ 80 mm x 2 m, c/c 1900	1	20	NPTRN 1 T6
Crossarm fixing bolts for 1-pole mounting, angle supports	Max. 24 kV disconnectors with porcelain insulators, needed 1 pc/disconnector	1	17	OJUPZK 9
	Max. 24 kV disconnectors with epoxy insulators, needed 1 pc/disconnector	1	8.5	OJUPZK 5
Crossarm fixing bolts for 2-pole mounting	Max. 24 kV disconnectors with porcelain insulators, needed 2 pcs/disconnector	1	4.4	OJUPZK 8
	Max. 24 kV disconnectors with epoxy insulators, needed 2 pcs/disconnector	1	2.0	NPTMK 7K6
Clamps for fixing the phase-element of the disconnector to the crossarm, included in types in complete disconnectors	- height 80...100 x width 50 ...100	3	3 x 1.0	NPAM 1/3
	- height 70...130 x width 50...100	3	3 x 1.0	NPAM 2/3
	- height 80...170 x width 50...160	3	3 x 1.5	NPAM 3/3
Control shaft support for different sizes of crossarm for two pole mounting only, included in types NPS 24 A2 05_ and NPS 24 B1 05_	Max. 24 kV disconnectors with porcelain insulators - 80 x 80 or 100 x 100	1	4.0	NPAZL 3
	- height 70...130 x width 50...100	1	4.1	NPAZL 8
	Max. 24 kV disconnectors with epoxy insulators - 80 x 80 or 100 x 100	1	2.4	NPAZL 4
	- height 70...130 x width 50...100	1	2.4	NPAZL 14

1) Other dimensions on request

# Operating Mechanisms Accessories

Technical data and ordering information



## Operating mechanisms

Accessory	Suitable for	Type incl. pcs	Weight kg	Type
Control shaft 2)	Disconnectors with porcelain insulators max. 36 kV - 40 x 1830 mm - 40 x 2320 mm	1 1	6.5 8.0	NPAZL 5 NPAZL 6
	Disconnectors with epoxy insulators max. 24 kV - 30 x 1630 mm - 30 x 2320 mm - 30 x 1100 mm	1 1 1	4.2 6.0 3.0	NPAZL 7 NPAZL 12 NPAZL 16
Control lever 2)	- 40 mm shaft - 30 mm shaft	1 1	3.9 2.6	NPAZL 1 NPAZL 2
	Operating tube set 2)	1 1	12 14	NPTOT 383 NPTOT 3103
Extension tube 2)	3 m extension of the operating tube sets NPTOT_	1	6	OJUPZY 10
Protection insulator 2)	- 24 kV - 24 kV and 36 kV	1 1	0.25 0.65	NPTOE 3 NPSZJ 30
	Tube support 2)	1	1.0	NPAZL 9
Manual operating device 1) 2)	For all disconnectors 3)	1	5.0	UEKE 3 A1
	For disconnectors with epoxy insulators	1	4.0	UEKO 1A1
	All disconnectors, includes auxiliary contacts, 3 NC and 3 NO	1	4.0	UEKE 2/1

1) Motor control device for remote control, see catalogue 34 UEMC 35.

2) Included in complete disconnectors, types NPS 24 A02 01\_, -05\_, NPS 36 A2 01, NPS B1 01\_, -05\_

3) This is standard manual operating device for all disconnectors.

**Motor Operating Device**  
**Refer to catalogue 34 UEMC 35**

**Motor operating device UEMC 50\_**

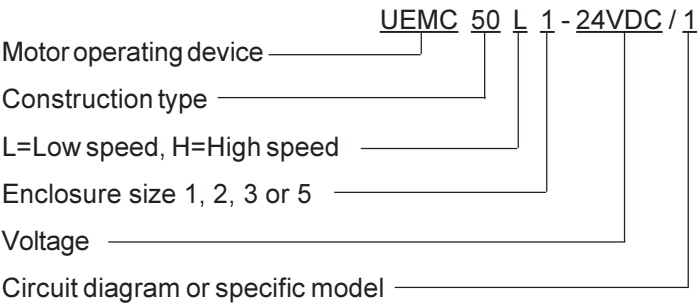


**The manual operating mechanism can be replaced with a motor operating device.** The device is made in four enclosure sizes, and with two different operating speeds. **Enclosure, IP 44 or IP 55, is made of stainless steel and all other parts corrosion free material.**

The operating device can be mechanically locked with a padlock to prevent both the motor and the manual operation mechanism being used. The door of the enclosure can also be locked with a padlock.

**All types includes:** Limit switches, blocking switch for hand operation, heater and 1 NC + 1 NO auxiliary contact and a handcrank for emergency use, 20 turns of the handcrank are needed.

**Type designation**



**Enclosure**

Dimension drawing	135 UEMC 1_
Height	480 mm
Width	300 mm
Depth	205 mm
Material	stainless steel AISI 304
Degree of protection	IP 44



**Enclosure**

Dimension drawing	135 UEMC 36
Height	620 mm
Width	500 mm
Depth	330 mm
Material	stainless steel AISI 304
Degree of protection	IP 55



**Note!**

Enclosures UEMC 50 H5\_ and UEMC 50 L5\_ are for example used with the remote motoring and control units REC 501 and REC 523.

## Connecting Accessories

### Technical data and ordering information

#### Connecting Accessories

Accessory	Suitable for	Type incl. pcs	Weight kg	Type
<b>TERMINATION ON THE ROCKING SIDE ON THE PHASE-ELEMENT</b>				
Conductor guide for the rocking side of the phase-element	Max. 36 kV disconnecter	3	0.07	OJUZLT 8/3
Hinged conductor guide for the rocking side of the phase-element	Max. 36 kV disconnecters for conductors up to 99 mm <sup>2</sup>	3	1.5	OJUPZL 9/3
Third insulator set to provide stationary line terminal on the rocking side of the phase-element, recommended for cross sections over 99 mm <sup>2</sup>	Disconnecters with porcelain insulators - NPS 24 A2_ - NPS 24 A2_J2	3 3	3 x 9.5 3 x 10.9	NPAC 1/3 NPAC 1-J2/3
	Disconnecters with epoxy insulators - NPS 24 B1_J2	3	3 x 5.4	NPAC 9-J2/3
<b>CONNECTION TO THE INSULATED CABLES</b>				
Dropping bar set, for stationary side of the phase-element	Max. 24 kV disconnecters with porcelain insulators - earthing bolt included	3	3 x 1.0	NPAC 2/3
Flexible dropper, suitable for both sides of the phase-element. Insulators have to be ordered separately.	Max. 24 kV disconnecters	3	3 x 2.5	NPAC 7/3
	Insulators, needed 3 pcs for 3-phase disconnecters			
	- NPS 24 A2_ - NPS 24 A2_J2 - NPS 24 B1_J2	1 1 1	3.9 5.3 1.65	NPSZJ1 NPSZJ 2 NPSZJ 21
<b>MOUNTING SETS TO CONNECT TWO DISCONNECTORS FOR BRANCHING</b>				
Mounting set for branching upwards 	For 24 kV disconnecters	3	3 x 3.0	NPAM 8/3
Bushing bar set, used together with NPAM 8/3 for branching up and downwards 	NPS 24 A2_ NPS 24 A2_J2	3 3	3 x 10 3 x 11.4	NPAC 6/3 NPAC 6-J2/3
<b>CLAMPS</b>				
Terminal clamps, suitable for all NPS-disconnecters	Cu-conductors 16 mm <sup>2</sup>	3	3 x 0.09	OJUZLL 1/3
	Al-conductors			
	- 16...2 x 70 mm <sup>2</sup>	3	3 x 0.28	OJUZLL 3/3
	- 62...99 mm <sup>2</sup>	3	0.4	NPTL 24/3
	- 95...240 mm <sup>2</sup>	3	3 x 0.14	OJUZLL 4/3
Earthing clamp	Crossarm NPTRN 1T6 - Cu-conductors 16...63 mm <sup>2</sup>	1	1.0	NPTMS 8

NPS14, TBL



## Transformer station Accessories

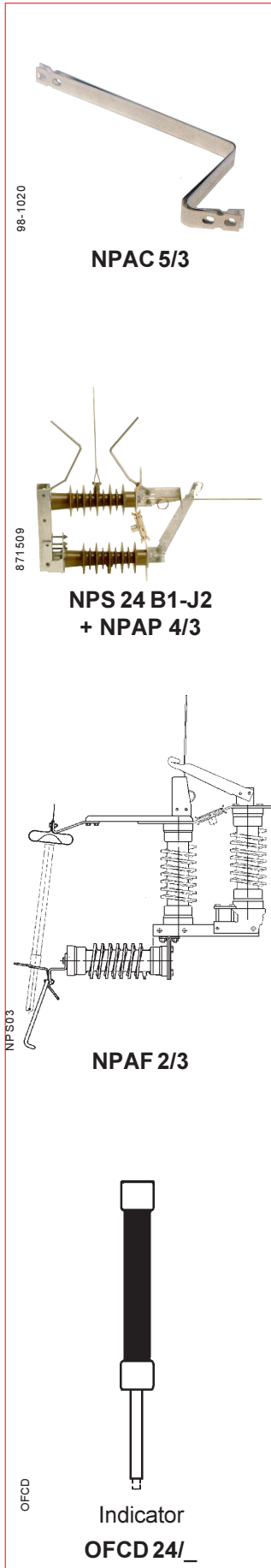
### Technical data and ordering information

#### Accessories for transformer station

Accessory	Suitable for	Type incl. pcs	Weight kg	Type
Flexible extension bar to keep the conductors to the transformer in tension	24 kV disconnectors. Alternative to third insulator	3	3 x 0.5	<b>NPAC 5/3</b>
Vertical spark-gap sets  Settings: at 12 kV: 2 x 20 mm at 24 kV: 2 x 40 mm	24 kV disconnectors without breaking chambers  - with porcelain insulators - with epoxy insulators	3 3	3 x 0.4 3 x 0.4	<b>NPAP 3/3</b> <b>NPAP 4/3</b>
Fuse base sets for mounting to the disconnector	Disconnectors with porcelain insulators - NPS 24 A2_ - NPS 24 A2_J 2_  Disconnector with epoxy insulators - NPS 24 B1_ J2_	3 3  3	3 x 9.4 3 x 10.8	<b>NPAF 2/3</b> <b>NPAF 2-J/3</b>  <b>NPAF 7-J2/3</b>
Fuse base sets for separate mounting	Includes porcelain insulators Includes epoxy insulators	3 3	3 x 14.2 3 x 7.8	<b>NPF 24 A2/3</b> <b>NPF 24 B2/3</b>
Fuse-links HRC fuses - Breaking capacity $I_b = 20 \text{ kA}$ - See table: Selection of fuses - Tests acc. to IEC 282-1	Rated voltage 24 kV  - rated current 6.3A  - rated current 16 A  - rated current 25 A	1  1  1	0.96  0.96  0.96	<b>OFCD 24/6.3</b>  <b>OFCD 24/16</b>  <b>OFCD 24/25</b>

#### Selection of fuses

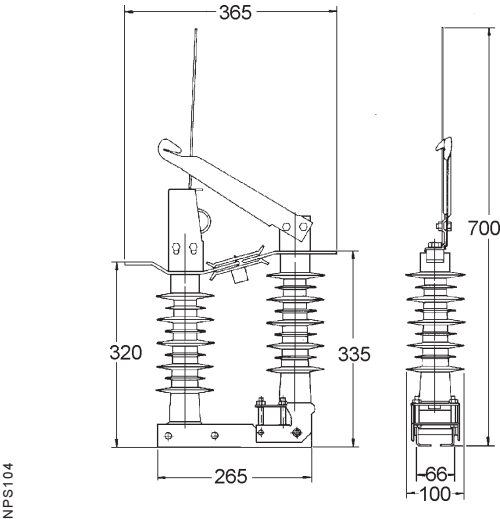
Transformer size  kVA	Fuse type OFCD 24/_		Minimum current $I_s$	
	12 kV	24 kV	12 kV	24 kV
30	6.3 A	6.3 A	18 A	18 A
50	16 A	6.3 A	43 A	18 A
100	16 A	16 A	43 A	43 A
200	25 A	16 A	140 A	43 A
315	25 A	25 A	140 A	140 A
500	-	25 A	140 A	140 A



# Rocking Type Phase Elements

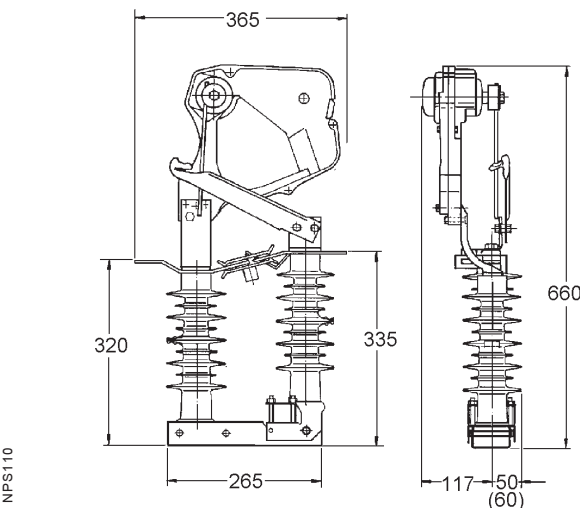
## Dimension drawings

NPS 24 B1-J2



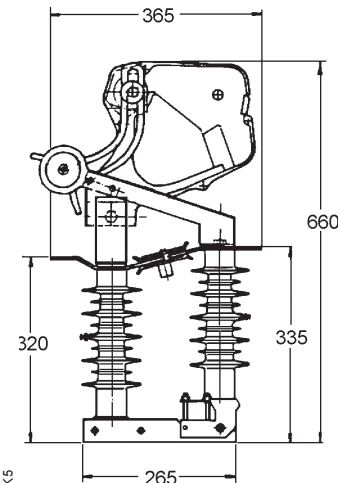
NPS104

NPS 24 B1-K4J2



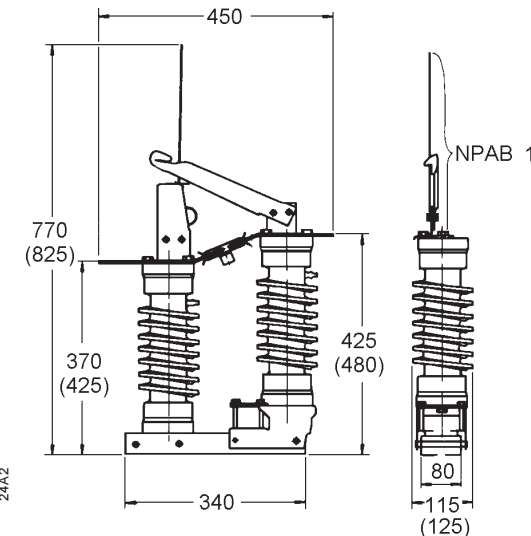
NPS110

NPS 24 B1-K5J2



B1K5

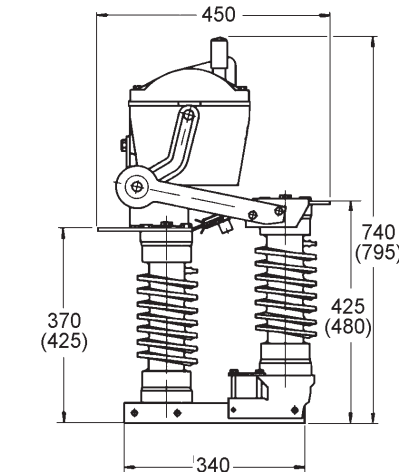
NPS 24 A2  
NPS 24 A2-J2 ( )



24A2

NPAB 1

NPS 24 A2-K2  
NPS 24 A2-K2J2 ( )

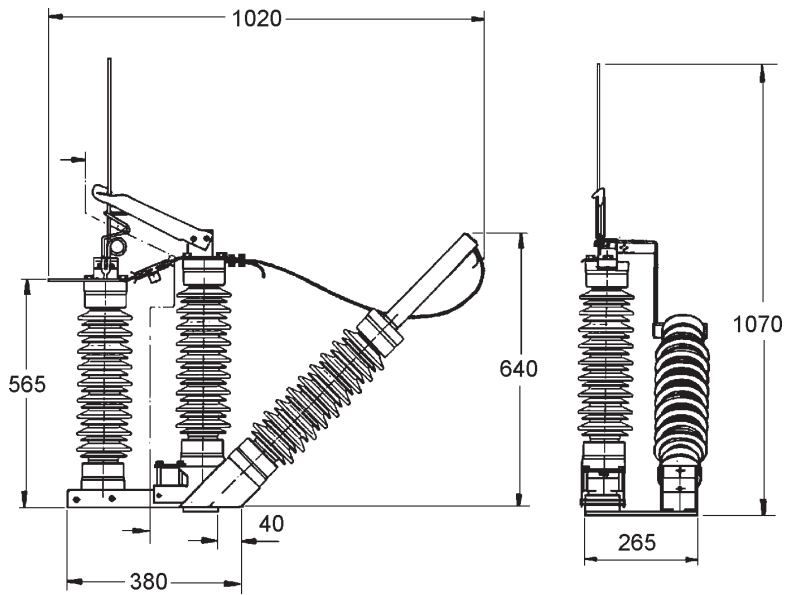


A2K2

# Rocking Type Phase Elements

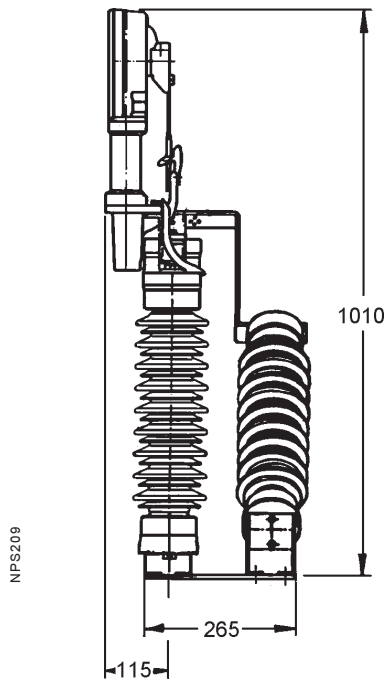
## Dimension drawings

### NPS 36 A2



NPS205

### NPS 36 A2-K3



NPS209

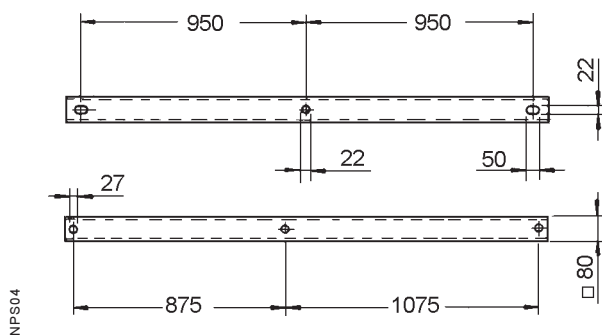
# Fixing Accessories and Operating Mechanisms

## Accessories

### Dimension drawings

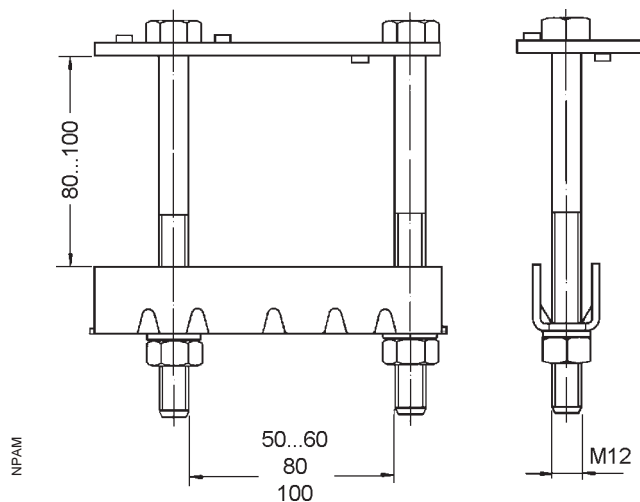
#### Crossarm for 24 kV

##### NPTRN 1 T6



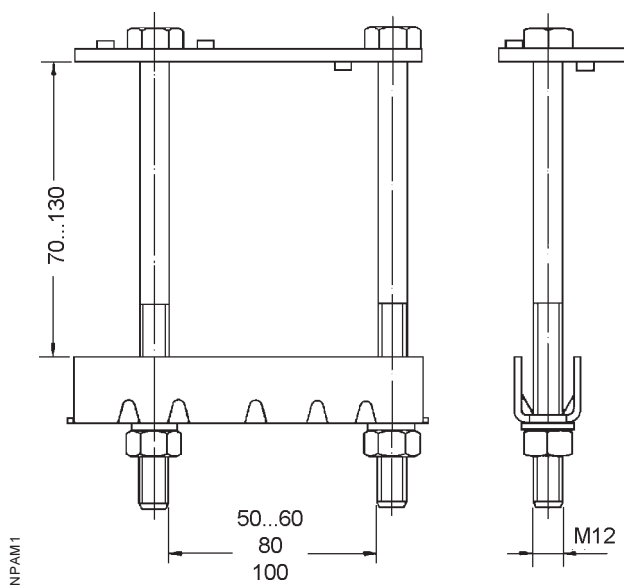
#### Clamps for fixing the phase element to the crossarm

##### NPAM 1/3



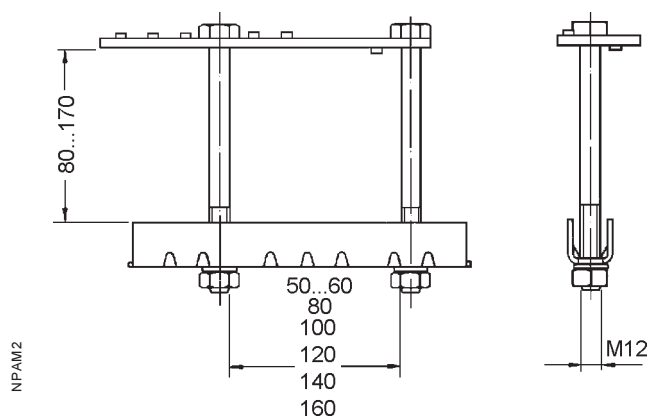
#### Clamps for fixing the phase element to the crossarm

##### NPAM 2/3



#### Clamps for fixing the phase element to the crossarm

##### NPAM 3/3

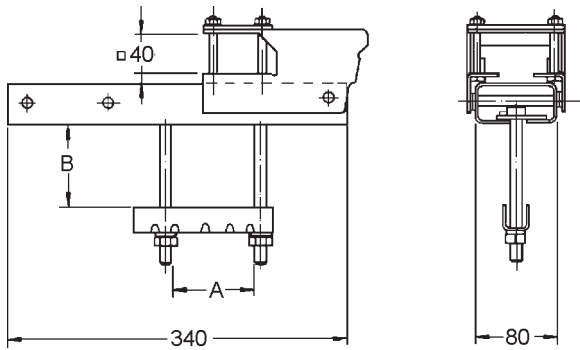


# Fixing Accessories and Operating Mechanisms

## Accessories

### Dimension drawings

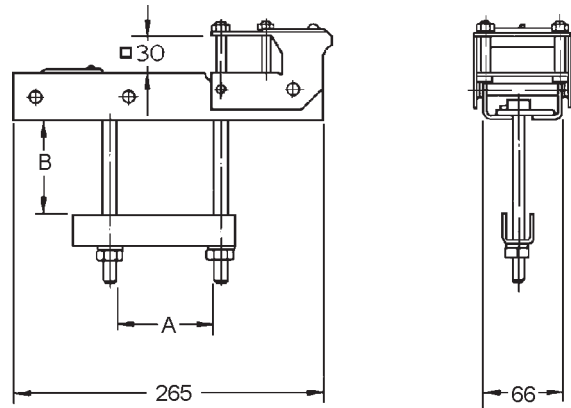
#### Control shaft support for different sizes of crossarm. Disconnecter with porcelain insulators



NPAL30

	A	B
NPZL 3	50...60, 80, 100	80...100
NPZL 8	50...60, 80, 100	70...130

#### Control shaft support for different sizes of crossarm. Disconnecter with epoxy insulators

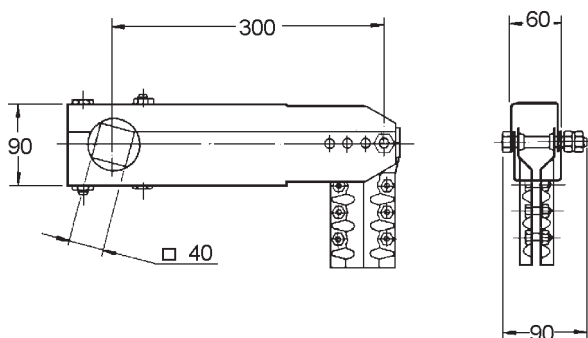


NPAL31

	A	B
NPZL 4	50...60, 80, 100	80...100
NPZL 14	50...60, 80, 100	70...130

#### Control lever for disconnecter with porcelain insulators

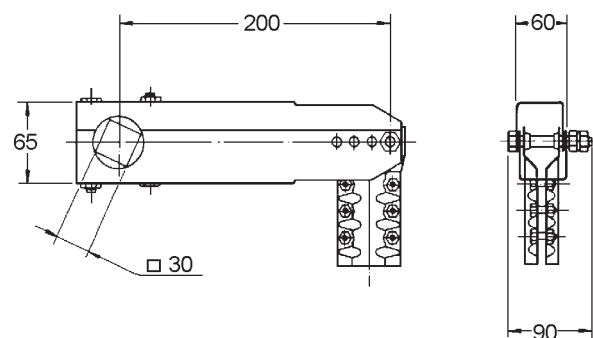
##### NPZL 1



NPAL40

#### Control lever for disconnecter with epoxy insulators

##### NPZL 2

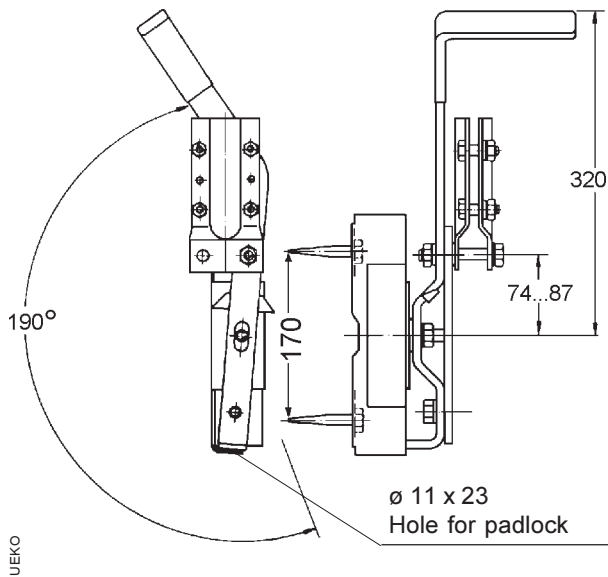


NPAL41

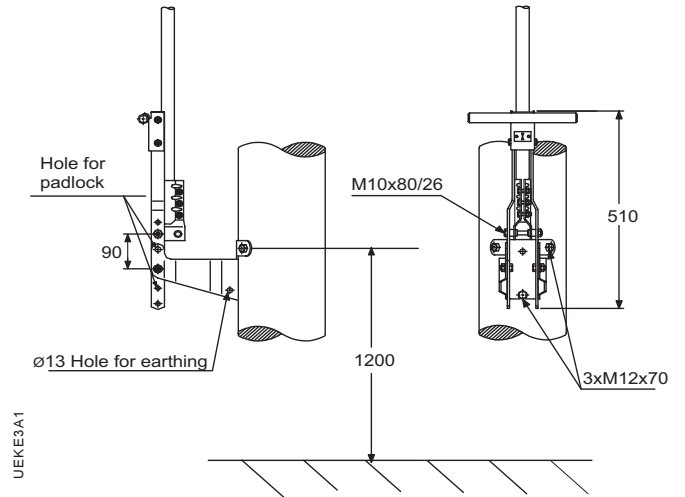


# Operating Mechanisms Accessories Dimension drawings

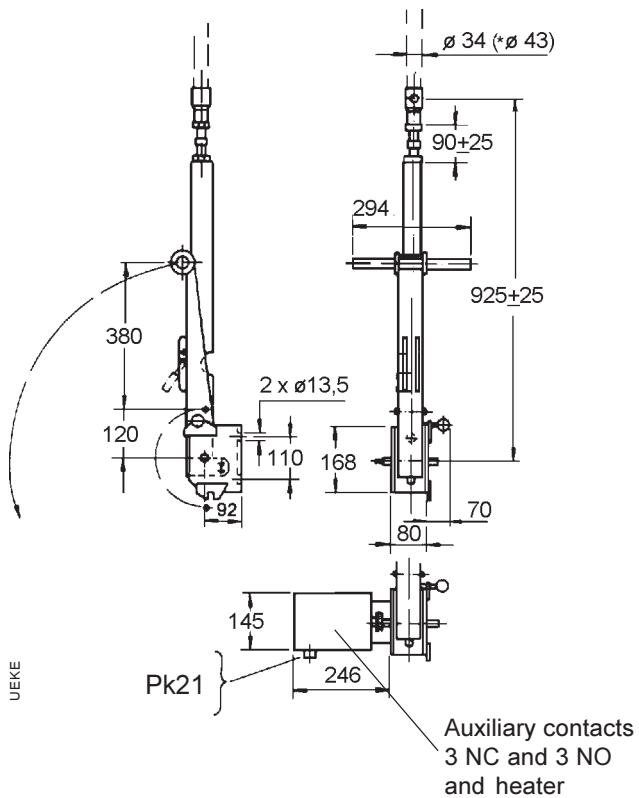
**Manual operating device  
UEKO 1 A 1**



**Manual operating device  
UEKE3A1**



**Manual operating device with auxiliary contacts  
UEKE 2/1**



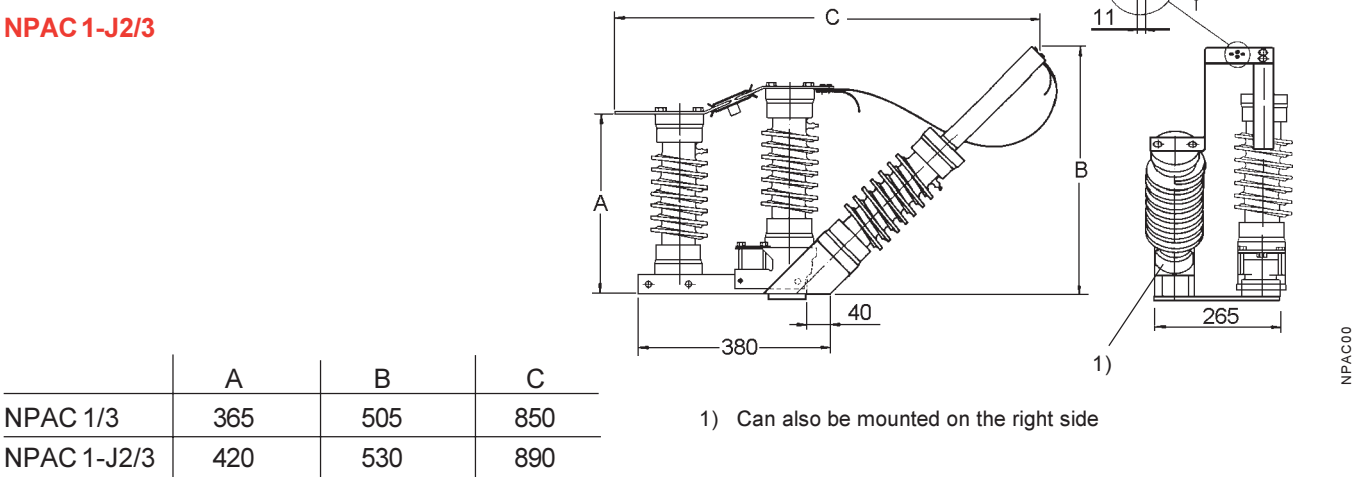
# Connecting AccessoriesDimension drawings

### Termination on the rocking side of the phase element

Third insulator set

NPAC 1/3

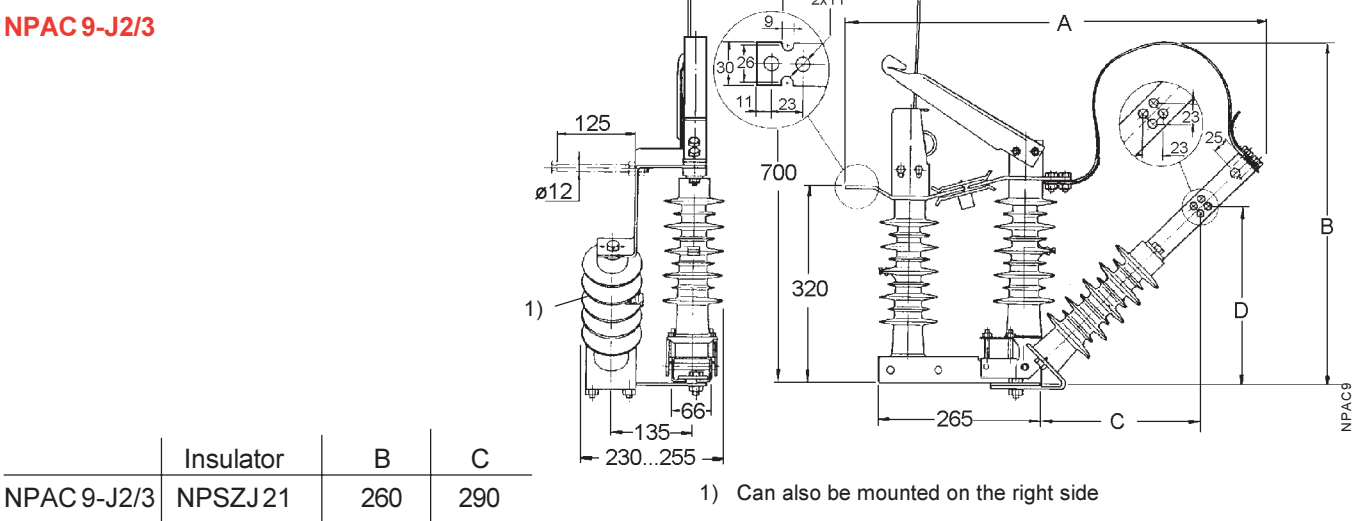
NPAC 1-J2/3



### Termination on the rocking side of the phase element

Third insulator set

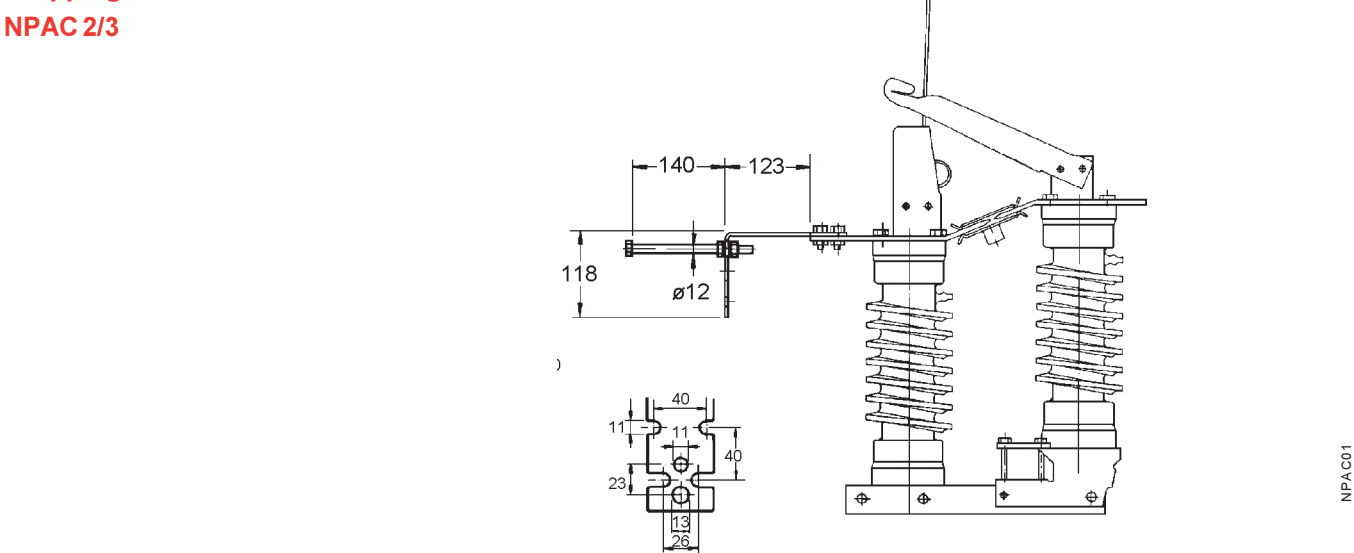
NPAC 9-J2/3



### Connection to the insulated cables

Dropping bar set

NPAC 2/3



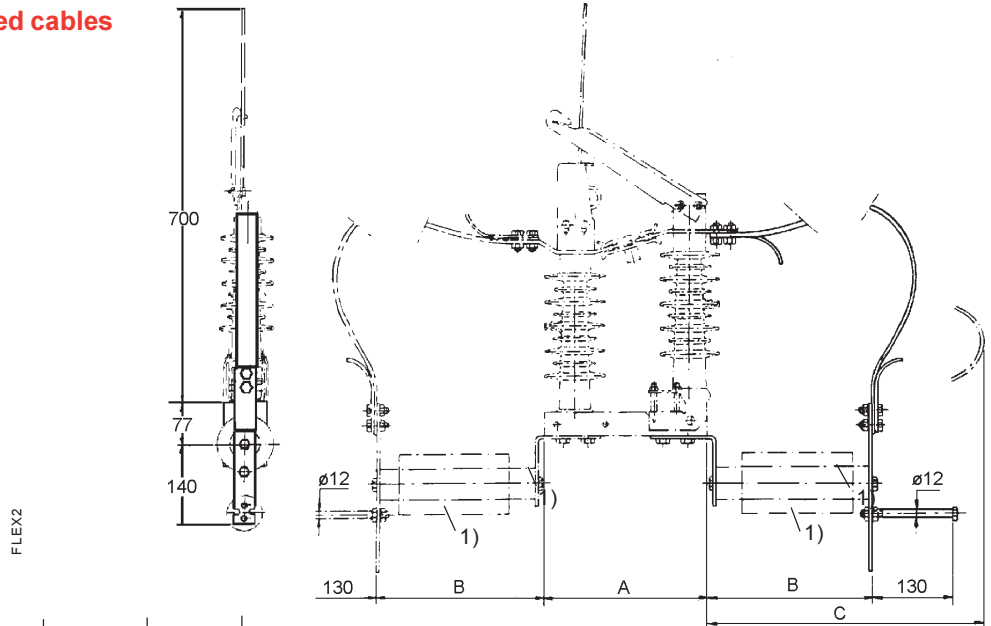
## Connecting Accessories

### Dimension drawings

#### Connections to the insulated cables

#### Flexible dropping bar

#### NPAC 7/3

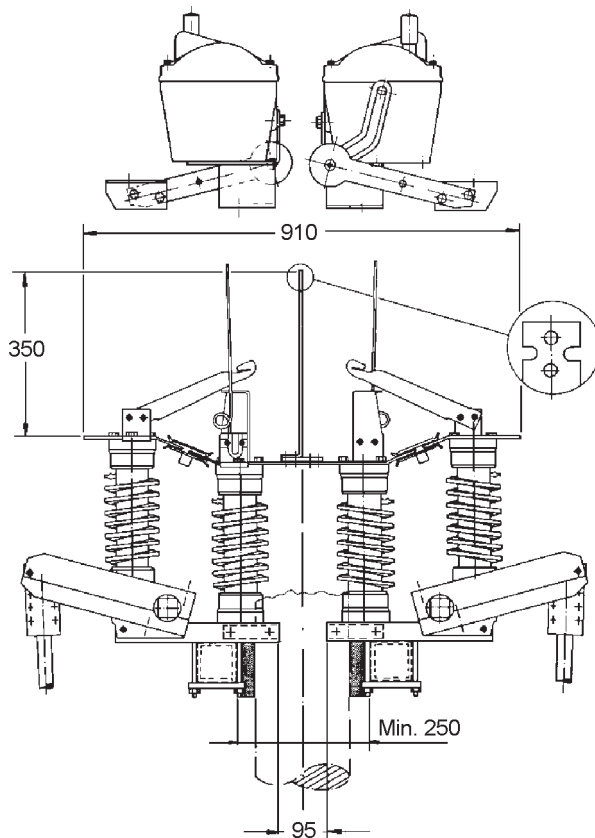


Phase-element	Insulator 1)	A	B	C
NPS 24 A2	NPSZJ 1	340	345	530
NPS 24 A2-J2	NPSZJ 2	340	395	620
NPS 24 B1-J2	NPSZJ 21	265	270	530

1) Insulator to be ordered separately.  
Also surge arrester can be used.

#### Mounting sets to connect two disconnectors for branching

#### NPAM 8/3

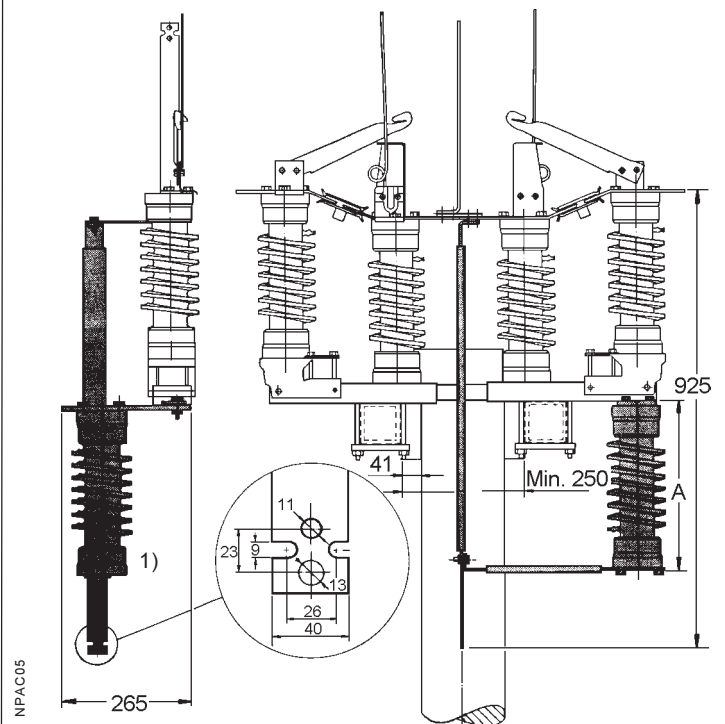


NPAM3

#### Bushing part set

#### NPAC 6/3

#### NPAC 6-J2/3



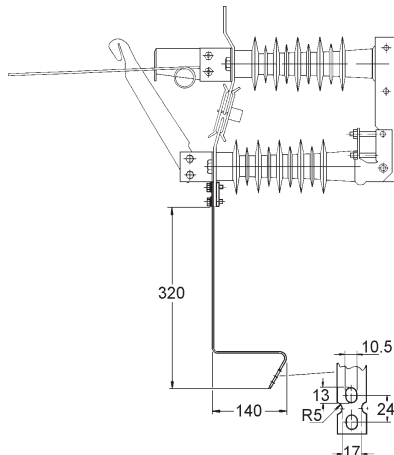
1) Can also be mounted on the right side

	A
NPAC 6/3	340
NPAC 6-J2/3	395

# Accessories for the Transformer Station

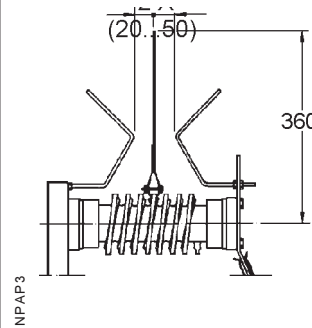
## Dimension drawings

**Extension bar**  
**NPAC 5/3**



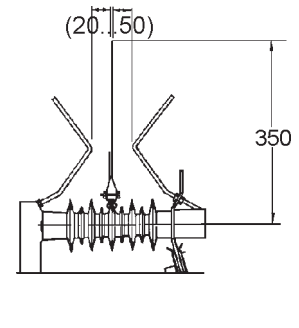
NPAC04

**Spark-gap sets**  
**NPAP 3/3**



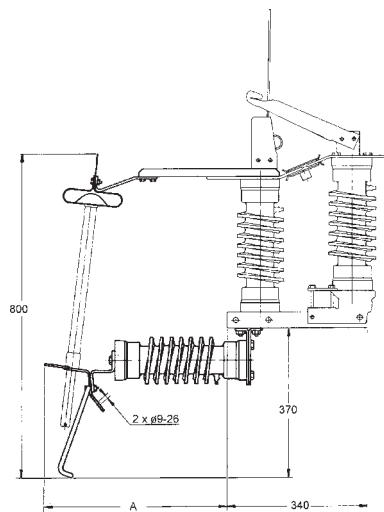
NPAP3

**NPAP 4/3**



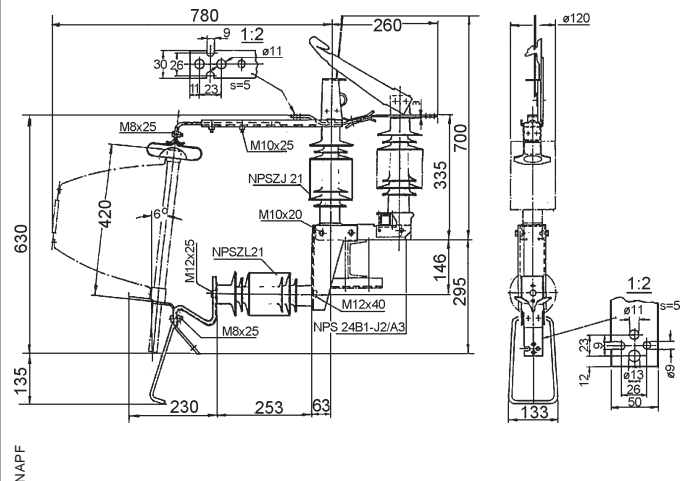
NPAP4

**Fuse base sets**  
**NPAF 2/3**  
**NPAF 2-J2/3**



NPAF

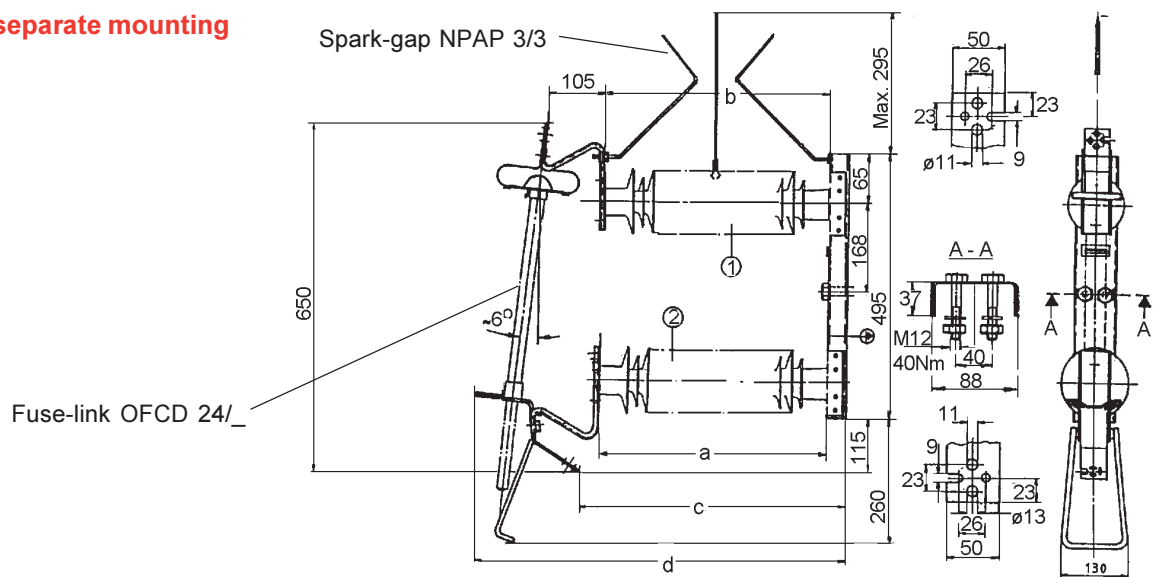
**Fuse base sets**  
**NPAF 7-J2/3**



NPAF

**Fuse base for separate mounting**

**NPF 24 A 2/3**  
**NPF 24 B 2/3**

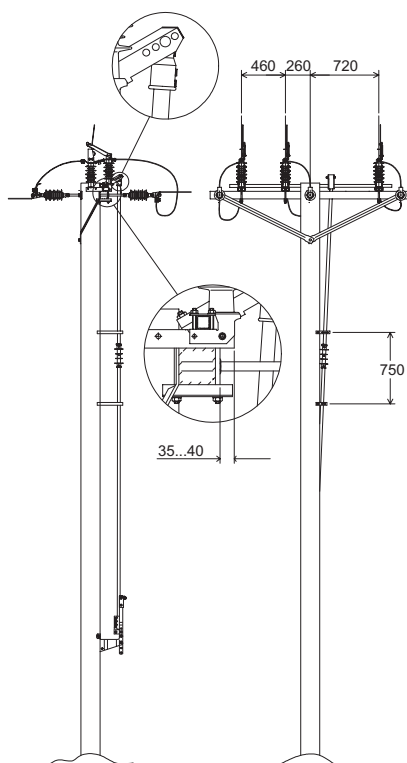


NPF

Type	Insulator type		b1	c	d
	1	2			
<b>NPF 24 A 2/3</b>	NPSZJ 1	NPSZJ 1	325	403	595
<b>NPF 24 B 2/3</b>	NPSZJ 21	NPSZJ 21	253	331	523

## Typical Mounting Arrangements Line Disconnectors Overall dimensions

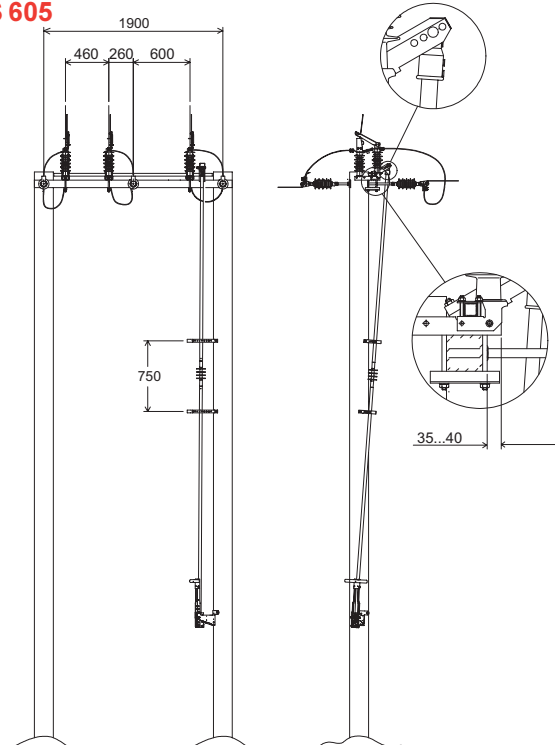
### 135 NPS 570



Equipped used:

- 1 pc NPS 24 B101-J2
- 1 pc OJUP ZK 5

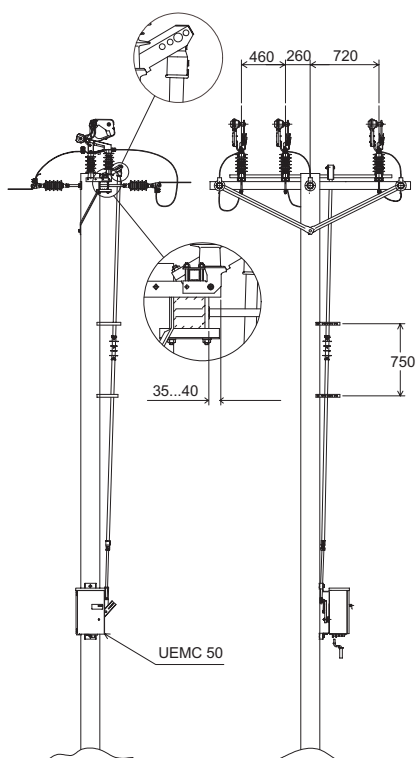
### 135 NPS 605



Equipped used:

- 1 pc NPS 24 B101-J2
- 1 pc NPA ZL 4
- 2 pcs NPTMK 7K6

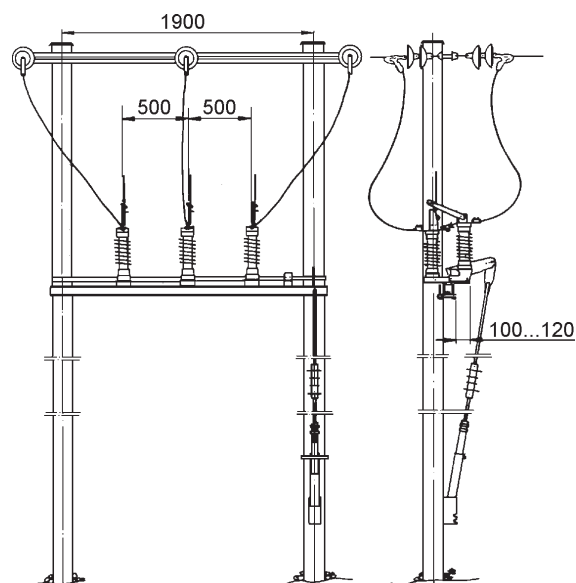
### 135 NPS 568



Equipped used:

- 1 pc NPS 24 B105-K5J2
- 1 pc OJUP ZK 5
- 1 pc NPTRN 1T6
- 1 pc UEMC 50 L1-24 VDC/1

### 13 NPS 505 B



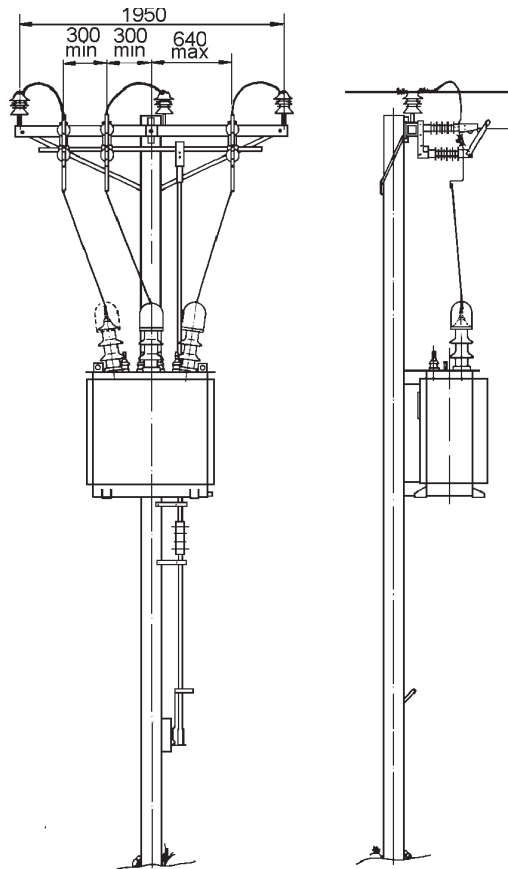
Equipped used:

- 1 pc NPS 24 A 201
- 1 pc NPA ZL 3
- 2 pcs OJUP ZK 8



# Typical Mounting Arrangements Transformer Disconnectors Overall dimensions

## 13 NPS 502 E

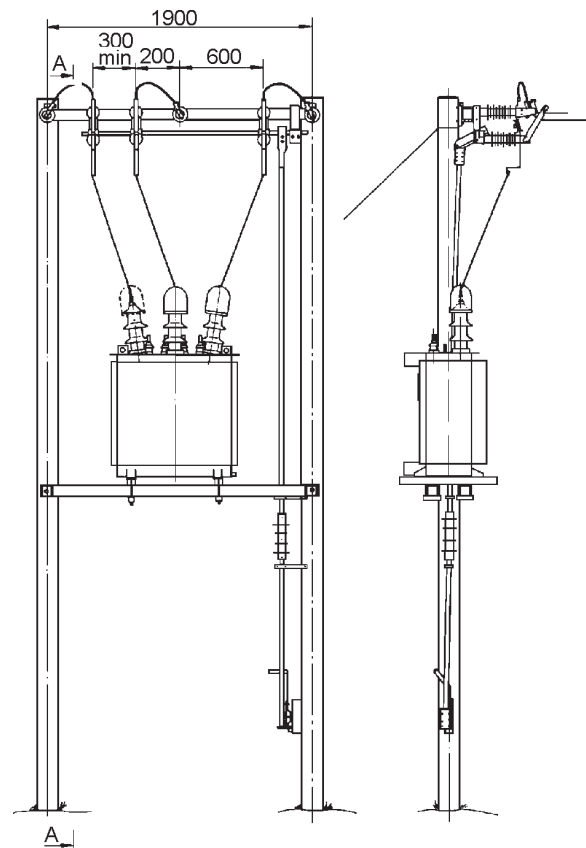


NPS502

Equipment used:

- 1 pc NPS 24 B 101-J2 1)
- 1 pc OJUP ZK 5
- 1 pc NPAC 5/3
- 2 pcs NPTL 24/3

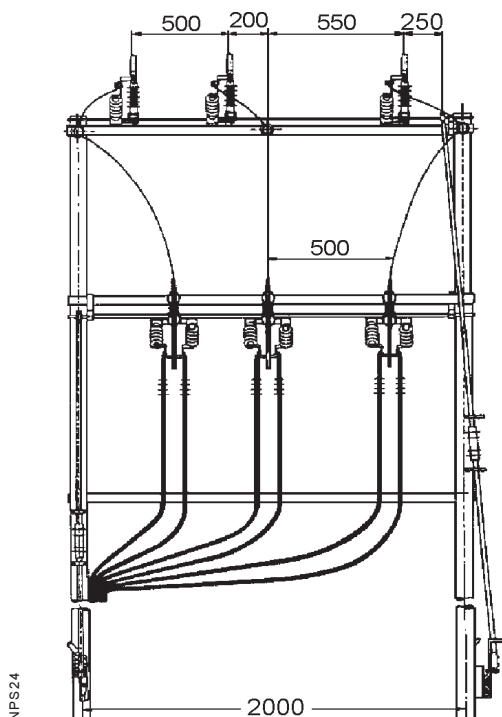
## 13 NPS 503 F



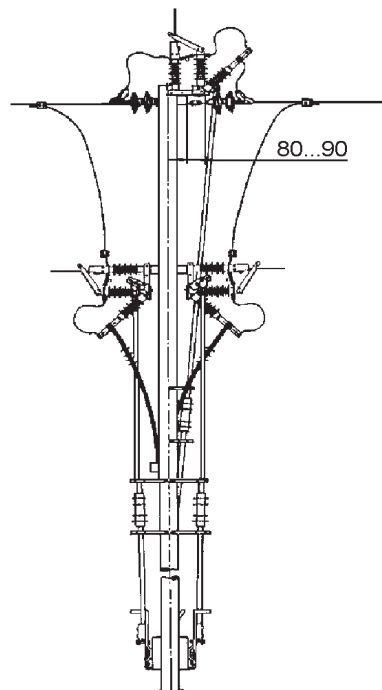
NPS503

Equipment used:

- 1 pc NPS 24 B 101-J2 1)
- 2 pcs NPTMK 7K6
- 1 pc NPAC 5/3
- 2 pcs NPTL 24/3



NPS24



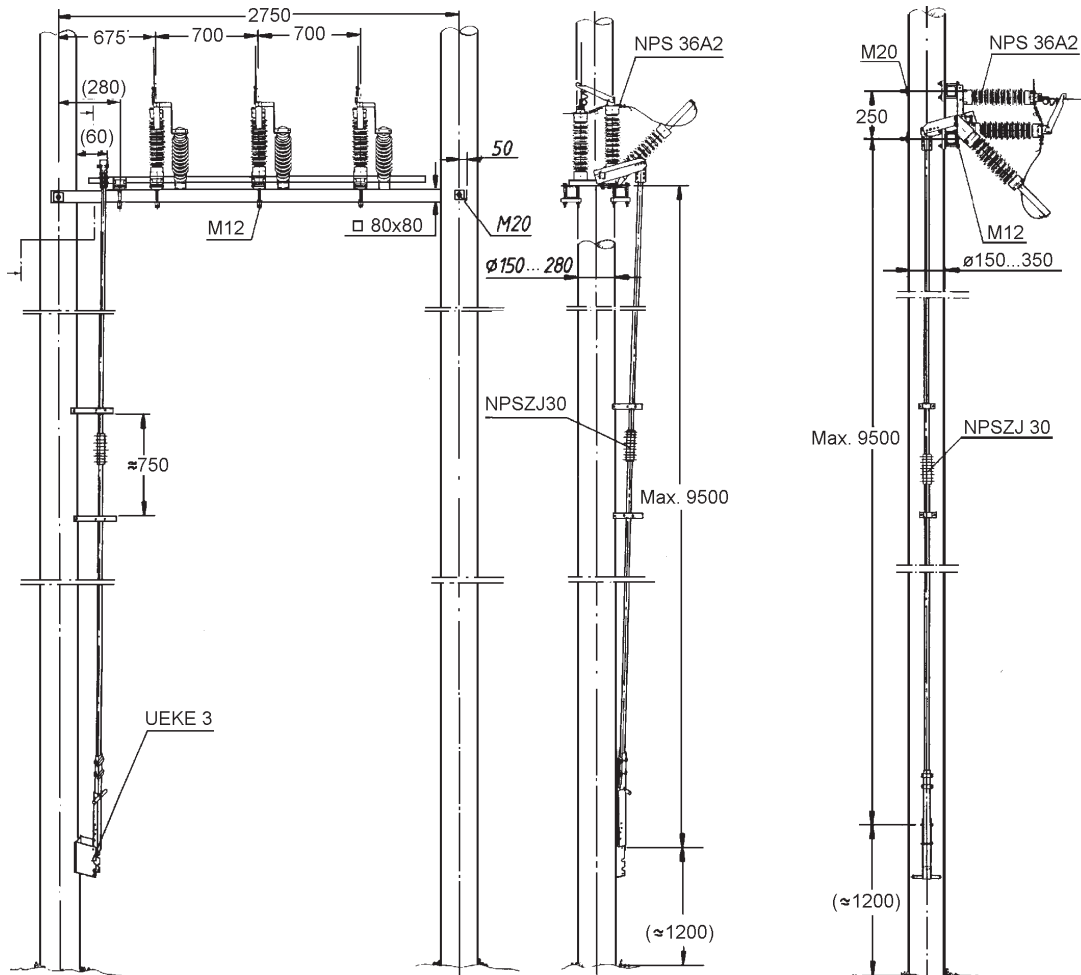
1) Other types of customer produced crossarms can be used

- 3 pcs NPS 24 B 105-J2
- 3 pcs NPAC 9-J2/3
- 3 pcs NPTRN 1T6 1)
- 2 pcs NPTMK 7-K29
- 2 pcs NPTMK 7K6
- 6 pcs NPTL 24/3



## Typical Mounting Arrangements Transformer Disconnectors Overall dimensions

### 36 kV pole-mounted disconnector with breaking contacts

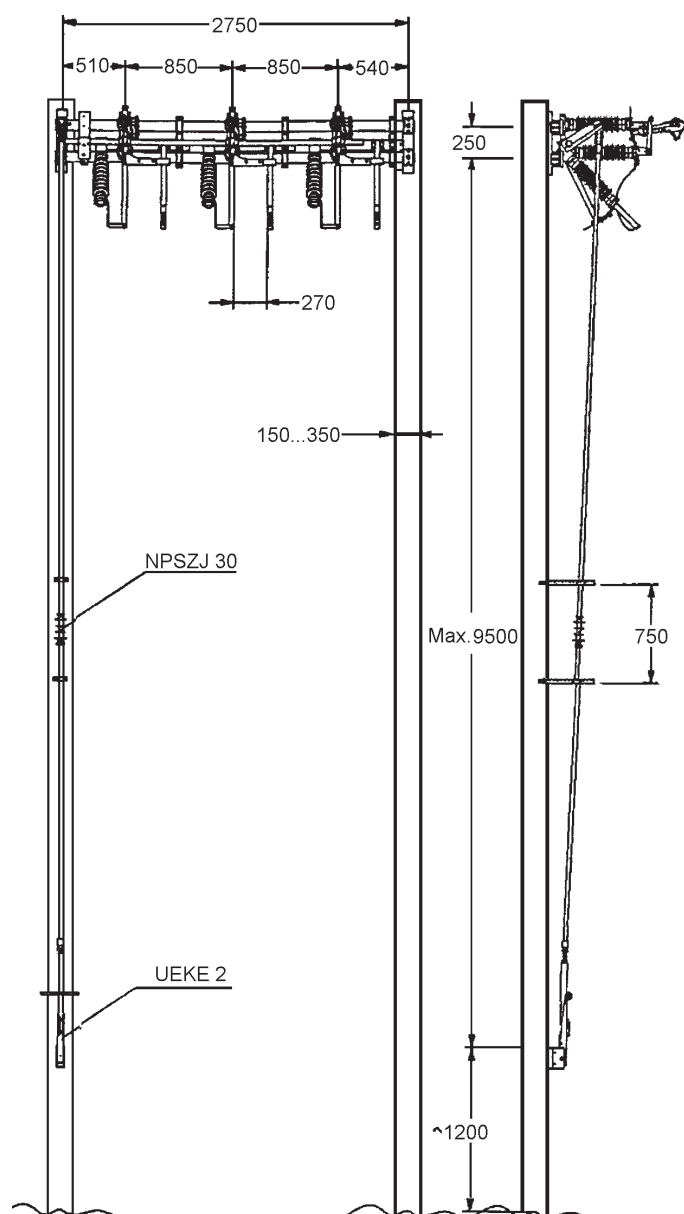


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## Typical Mounting Arrangements Transformer Disconnectors Overall dimensions

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NPS 36 A204K3





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