Unipole Insulated Conductor

Mobile Electrification System

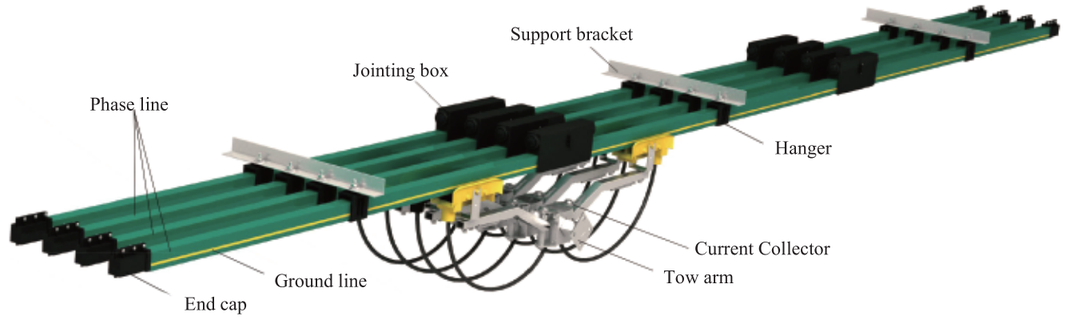
Catalogue NSP-H Series

NSP-H unipole insulated conductor rail system is a modern mobile power supply system. The material of conductor rail can be copper and aluminum.

The aluminum conductor is mounted with a stainless strip to be long service life.

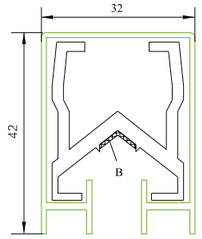
Any numbers of poles of conductor rail can be installed vertically or horizontally, no matter on straight or curved system. This type of conductor rail also can be used indoor and outdoor.

System Description



Technical Data

Unipole Conductor Rail system NSP-H Series					
Conductor rail	Aluminium			Copper	
Type	H19	H24	H32	H24	H32
Nominal current at 100% DC and 35°C[A]	150	250 - 300	320 - 1250	500 - 800	800 - 1600
D.C.resistance at 35°C [Ω/km]	0.376	0.2030.187	0.1530.046	0.1160.067	0.0670.039
Impendance at 35°C [Ω/km]	0.376	0.2090.195	0.1550.048	0.1180.069	0.0690.04
Support spacing [m]	1.8	1.5	1.8	1.5	1.8
Rail length [m]	4/6	4/6	4/6	4/6	4/6
Housing length [m]	3.88/5.88	3.88/5.88	3.83/5.83	3.88/5.88	3.83/5.83
Max.voltage [V]	660V	Dielectric strength[KV/mm]		30-40	
Travelling speed	⩽ 600 m/min	Standard		GB7251.2-2006	
Expansion joint	only required when total length ≥ 200m				
Flame retardant	Class B1-no flaming particles,self-extinguishing				
Permissible ambient temperature	Standard insulation -20C- +70C High temperature insulation -10C- +115C				

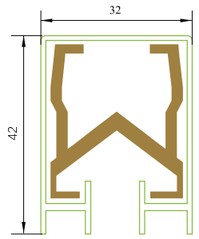


Model Code
NSP-H32-n/m

max.current capacity
conductor cross section

Standard Length : 4m, others are available, but not more than 6m

Type	Conductor Rail	Cross section (mm2)	Nominal current (A)	Leakage-distance (mm)	Resistance (Q/km)	Weight (kg/m)
NSP-H32-230/320	Aluminium	230	320	80	0.153	0.96
NSP-H32-285/500	Aluminium	285	500	80	0.116	1.13
NSP-H32-360/630	Aluminium	360	630	80	0.087	1.38
NSP-H32-420/800	Aluminium	450	800	80	0.067	1.5
NSP-H32-550/1000	Aluminium	550	1000	80	0.058	1.83
NSP-H32-600/1250	Aluminium	600	1250	80	0.046	2.01



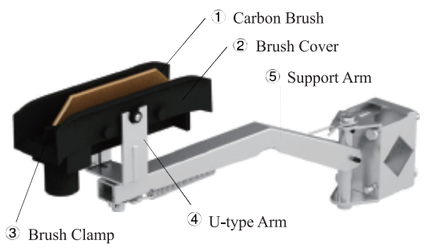
Model code
NSP-HT32-n/m

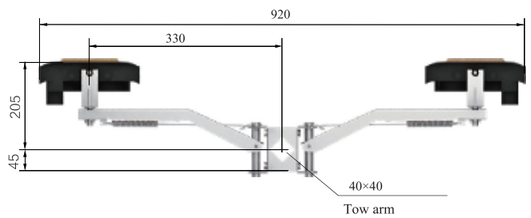
max.current capacity
conductor cross section

Standard Length : 4m, others are available, but not more than 6m

Type	Conductor Rail	Cross section (mm2)	Nominal current (A)	Leakage-distance (mm)	Resistance (Q/km)	Weight (kg/m)
NSP-HT32-230/800	Copper	230	800	80	0.067	2.43
NSP-HT32-300/1000	Copper	300	1000	80	0.058	3.05
NSP-HT32-360/1250	Copper	360	1250	80	0.046	3.56
NSP-HT32-450/1600	Copper	450	1600	80	0.039	4.37

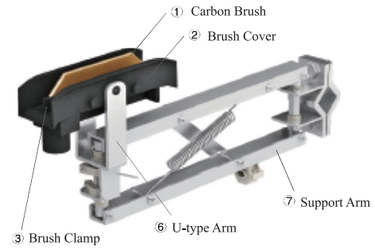
NSP-H32 Accessories - Current Collector
NCC-400 NCC*2-400

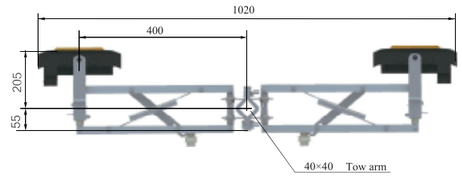




Type	Weight (kg)	Material	Rated Current
NCC-400	1.75	steel	400Amp
NCC*2-400	3.45	steel	800Amp

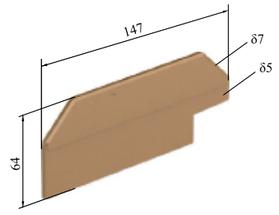
NSP-H32 Accessories - Current Collector
NCL-400 / NCL*2-400





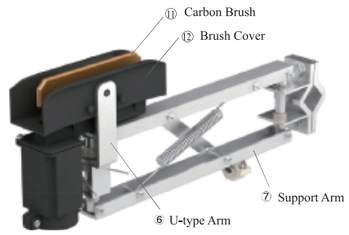
Type	Weight (kg)	Material	Rated Current
NCL-400	2.35	Aluminum	400Amp
NCL*2-400	4.61	Aluminum	800Amp

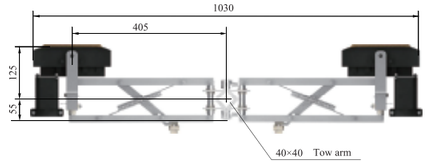
NSP-H32 Accessories - Carbon Brush & Spare Parts of Collector
H32CB-147



Name	Type	Weight (kg)	Material	Remark
Carbon brush	32CB-147	0.27	Copper-graphite Brush	①
Brush cover	32BC-1	0.18	Plastic	②
Brush clamp	32BL	0.025	Plastic	③
U-type arm	32UA-1	0.15	Steel	④
Support arm	32SA-1	1.2	Steel	⑤
U-type arm	32UA-2	0.2	Steel	⑥
Support arm	32SA-2	1.6	Steel	⑦
Carbon brush assembly	32CBA-1	0.57	Plastic&carbon brush&clamp	①+②+③+ Copper clamp

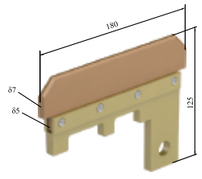
NSP-H32 Accessories - Current Collector
NCT-500 / NCT*2-500





Type	Weight (kg)	Material	Rated Current
NCT-500	3.05	Aluminum	500Amp
NCT*2-500	6.01	Aluminum	1000Amp

NSP-H32 Accessories - Carbon Brush & Spare Parts of Collector
H32CB-180 H32HT-2 H32TB-2

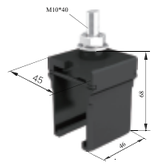


Name	Type	Weight (kg)	Material	Remark
Carbon brush	32CB-180	0.73	Copper-graphite brush	⑪
Brush cover	H32HT-2	0.30	Plastic	⑫
Carbon brush assembly	H32TB-2	1.03	Plastic & carbon brush	⑬

NSP-H32 Accessories - Tow Arm
HTA-400 / HTA-350

Type	Weight (kg)	Material
HTA-400	1.0	Galvanized Steel
HTA-350	0.85	
HTA-X	>1.00	

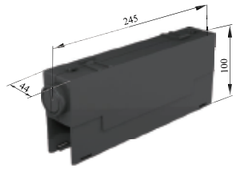
NSP-H32 Accessories - Hanger
H32HG-1 / H32HG5*

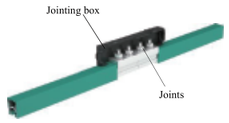


Type	Weight (kg)	Material
H32HG-1	0.075	Plastic
H32HG-5*	0.088	Polyseter

* be used for high temperature

NSP-H32 Accessories - Jointing Box
H32JBX-1 / H32JBX-5*

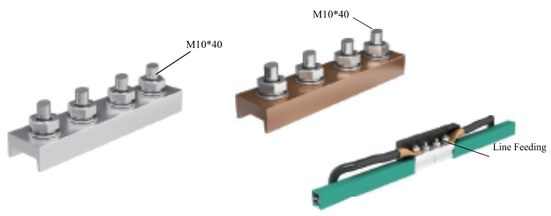




Type	Weight (kg)	Material
H32JBX-1	0.21	Plastic
H32JBX-5*	0.23	Polyseter

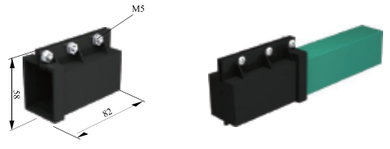
* be used for high temperature

NSP-H32 Accessories - Joint
H32JBT



Type	Weight (kg)	Material
H32JBT-500A	0.32	Aluminium
H32JBT-800A	0.41	Copper
H32JBT-1000A	0.40	Aluminium
H32JBT-1250A	0.66	Copper
H32JBT-1600A	0.82	Copper

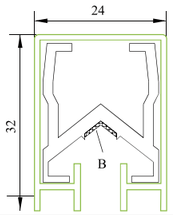
NSP-H32 Accessories - End Cap
H32EC



Type	Weight (kg)	Material
H32EC	0.04	Plastic

NSP-H32 Accessories - Isolating Section
H32IS

Type	Weight (kg)	Material
H32IS	0.13	Plastic

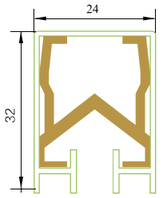


Model code
NSP-H24-n/m

max.current capacity
conductor cross section

Standard Length : 4m, others are available, but not more than 6m

Type	Conductor Rail	Cross section (mm2)	Nominal current (A)	Leakage-distance (mm)	Resistance (Ω/km)	Weight (kg/m)
NSP-H24-160/250	Aluminium	160	250	45 or 80	0.203	0.63
NSP-H24-180/300	Aluminium	180	300	45 or 80	0.187	0.71



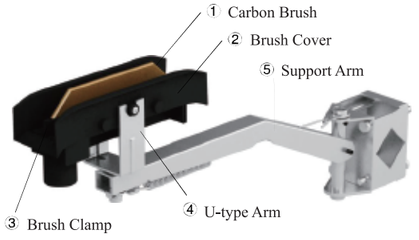
Model code
NSP-HT24-n/m

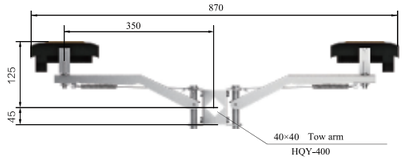
max.current capacity
conductor cross section

Standard Length : 4m, others are available, but not more than 6m

Type	Conductor Rail	Cross section (mm2)	Nominal current (A)	Leakage-distance (mm)	Resistance (Ω/km)	Weight (kg/m)
NSP-HT24-160/500	Copper	160	500	45 or 80	0.112	1.68
NSP-HT24-180/600	Copper	180	600	45 or 80	0.098	1.86
NSP-HT24-200/700	Copper	200	700	45 or 80	0.087	2.04
NSP-HT24-230/800	Copper	230	800	45 or 80	0.076	2.3

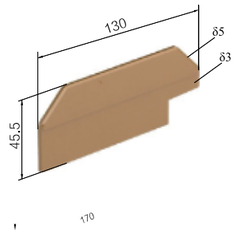
NSP-H24 Accessories - Current Collector
NCC-200 & NCC*2-200





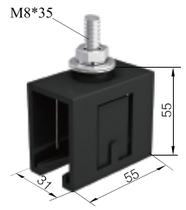
Type	Weight (kg)	Material	Rated Current
NCC-200	1.45	Galvanized Steel	200Amp
NCC*2-200	2.72		400Amp

NSP-H24 Accessories - Carbon brush & Spare parts of Collector
H24CB-130



Name	Type	Weight (kg)	Material	Remark
Carbon brush	24CB-130	0.120	Copper-graphite Brush	①
Brush cover	24HT-1	0.090	Plastic	②
Brush clamp	24HB-1	0.015	Plastic	③
U-type arm	24UA-1	0.095	Galvanized Steel	④
Support arm	32SA-1	1.200	Galvanized Steel	⑤
U-type arm	24UA-2	0.130	Galvanized Steel	⑥
Support arm	32SA-2	1.100	Galvanized Steel	⑦
Carbon brush assembly	24CBA-1	0.300	Plastic&carbon brush&clamp	①+②+③+ Copper clamp

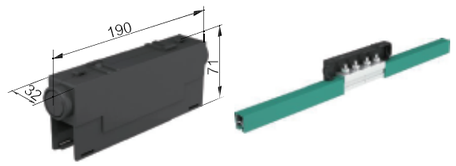
NSP-H24 Accessories - Hanger
H24HG-1 / H24HG-5*



Type	Weight (kg)	Material
H24HG-1	0.05	Plastic
H24HG-5*	0.05	Polyseter

* be used for high temperature

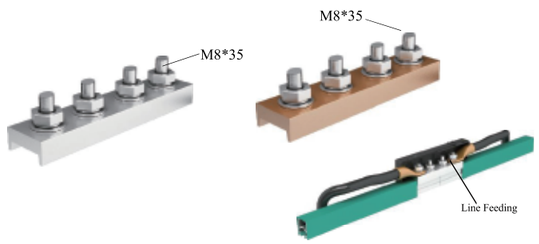
NSP-H24 Accessories - Jointing box
H24JBX-1 / H24JBX-5*



Type	Weight (kg)	Material
H24JBX-1	0.12	Plastic
H24JBX-5*	0.13	Polyseter

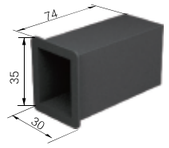
* be used for high temperature

NSP-H24 Accessories - Joints
H24JBT



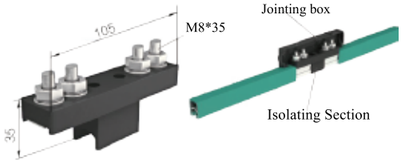
Type	Weight kg	Material
H24JBT-250A	0.15	Aluminium
H24JBT-500A	0.23	Copper
H24JBT-800A	0.31	Copper

NSP-H24 Accessories - End Cap
H24EC

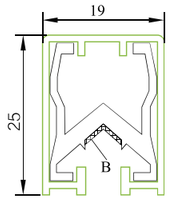


Type	Weight (kg)	Material
H24EC	0.02	Plastic

NSP-H24 Accessories - Isolating Section
H24IS



Type	Weight (kg)	Material
H24IS	0.07	Plastic

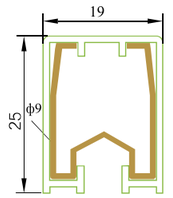


Model code
NSP-H19-n/m

max.current capacity
conductor cross section

Standard Length : 4m, others are available, but not more than 6m

Type	Conductor Rail	Cross section (mm2)	Nominal current (A)	Leakage-distance (mm)	Resistance (Ω/km)	Weight (kg/m)
NSP-H19-100/150	Aluminium	100	150	35 or 80	0.376	0.46



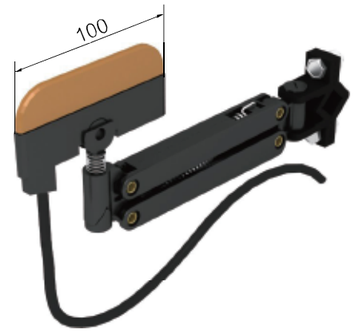
Model code
NSP-HT19-n/m

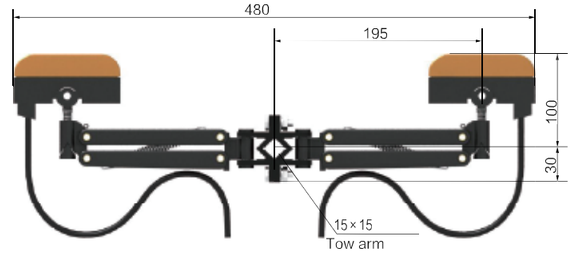
max.current capacity
conductor cross section

Standard Length : 4m, others are available, but not more than 6m

Type	Conductor Rail	Cross section (mm2)	Nominal current (A)	Leakage-distance (mm)	Resistance (Ω/km)	Weight (kg/m)
NSP-HT19-50/150	Copper	50	150	35 or 80	0.376	0.63
NSP-HT19-65/200	Copper	65	200	35 or 80	0.289	0.75
NSP-HT19-110/300	Copper	110	300	35 or 80	0.195	1.15
NSP-HT19-130/500	Copper	130	500	35 or 80	0.156	1.33

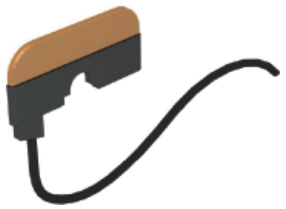
NSP-H19 Accessories - Current Collector
NCC-100 & NCC*2-100





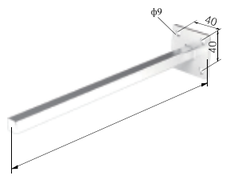
Type	Weight (kg)	Material	Rated Current
NCC-100	0.25	Galvanized	100Amp
NCC*2-100	0.49	Steel	200Amp

NSP-H19 Accessories - Carbon brush & Spare parts of Collector
H19CB-100



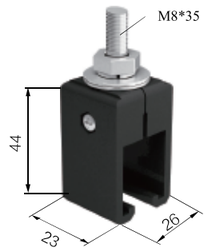
Type	Weight (kg)	Material
H19CB-100	0.1	Copper-graphite Brush

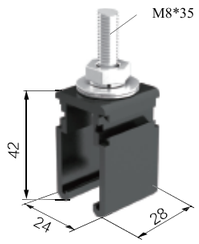
NSP-H19 Accessories - Tow arm
HTX-350



Type	Weight (kg)	Material
HTX-350	0.45	Galvanized Steel

NSP-H19 Accessories - Hanger
H19HG-1 / H19HG-2 / H19HG-5*

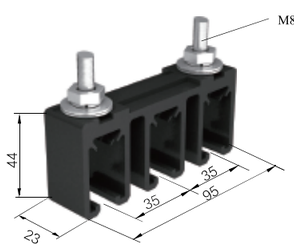




Type	Weight (kg)	Material
H19HG-1	0.043	Plastic
H19HG-2	0.035	Plastic
H19HG-5*	0.043	Polyseter

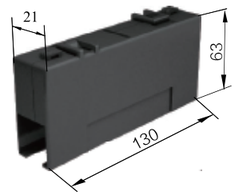
* be used for high temperature

NSP-H19 Accessories - Hanger
H19HG-13 / H19HG-35*



Type	Weight (kg)	Material
H19HG-13	0.088	Plastic
H19HG-35*	0.092	Polyseter

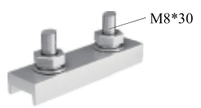
NSP-H19 Accessories - Jointing Box
H19JBX-1 / H19JBX-5*

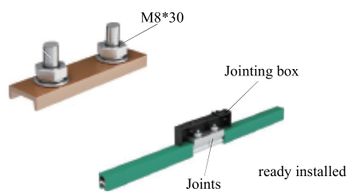


Type	Weight (kg)	Material
H19JBX-1	0.078	Plastic
H19JBX-5*	0.083	Polyseter

* be used for high temperature

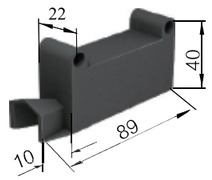
NSP-H19 Accessories - Joints
H19JBT

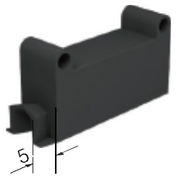




Type	Weight (kg)	Material
H19JBT-150A	0.071	Aluminium
H19JBT-200A	0.085	Copper
H19JBT-300A	0.092	Copper
H19JBT-500A	0.119	Copper

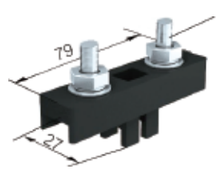
NSP-H19 Accessories - End Cap
H19EC





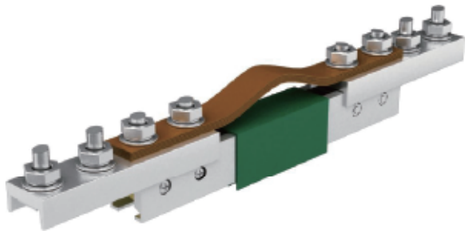
Type	Weight (kg)	Material
H19EC	0.02	Plastic

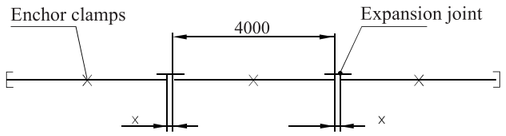
NSP-H19 Accessories - Isolating Section
H19IS



Type	Weight (kg)	Material
H19IS	0.07	Plastic

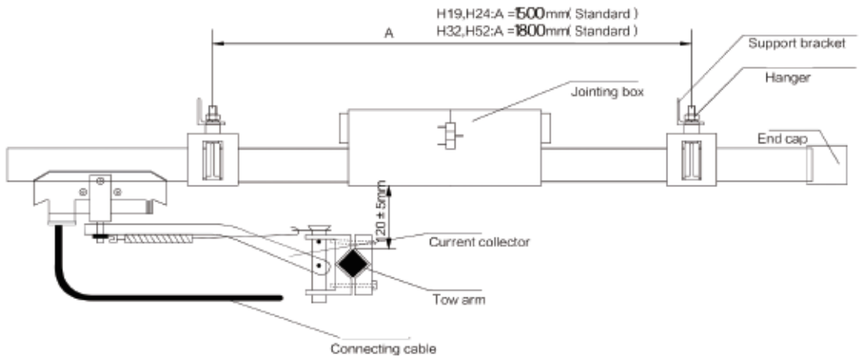
NSP-H Accessories - Expansion Joint
EJ





Type	Material
H19EJ-AL	AL
H19EJ-CU	CU
H24EJ-AL	AL
H24EJ-CU	CU
H32EJ-AL	AL
H32EJ-CU	CU

NSP-H Installation Diagram



Installation Guide

1. Support Installion:Fix the two supports of both sides of the track(welding or bolt) and adjust to the horizontal state(add 1 or 2 points to meet the length of the wiring route).Take the wiring between the two supports as the benchmark,the rest supports should be installed according to the standard distance(1800 mm for bolt and 2000mm for welding), to ensure the depth of parallelism of the conductor rail between the height of the track less than 10 mm..

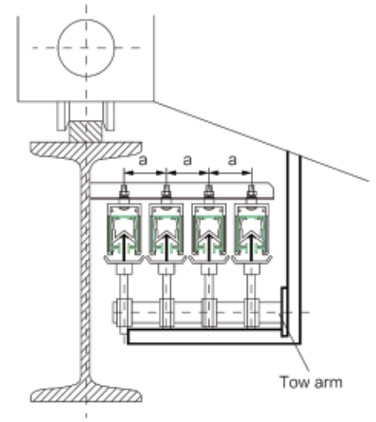
2. The connection part of the conductor and the connector should be polished with abrasive cloth to remove the oxide layer,apply the electrical conductive pastes and screw the bolt,double check if the seam of the guides is in minimum.

3. The installation of the current collector: Dedine the length of the tow arm unit according to the poles ofelectrode and installation space. 120±5mm distance should be ensured in distance between the upper end and down end of the conductor rail(refer to the installation diagram of the conductor rail for more details)

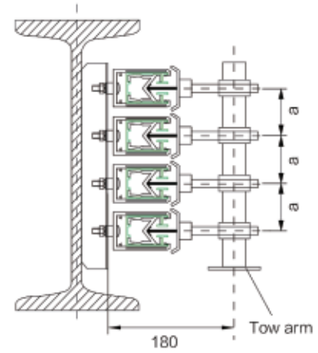
4. End cap: Install the end caps on both sides and tighten them with rubberized fabric.

5. Inspection: Inspect the depth of parallelism between the conductor rail and operation trackof the hoisting unit and control the depth within 20mm, make a test run and check the running state of the flake passing through each nodal point,tighten all the fastening piece if some problems occurs,try to run one month without interval and tighten all fastening pieces again.

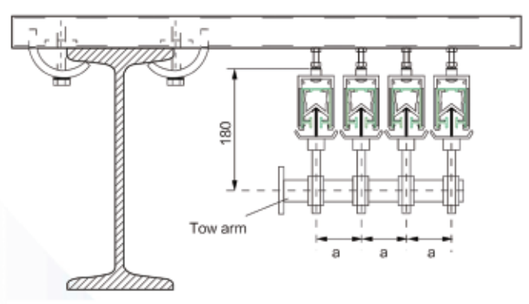
NSP-H System Installtion



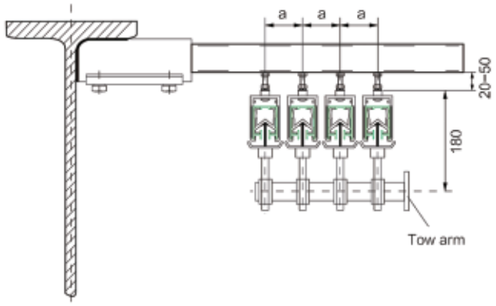
Angle Steel Bracket - Vertical Installation



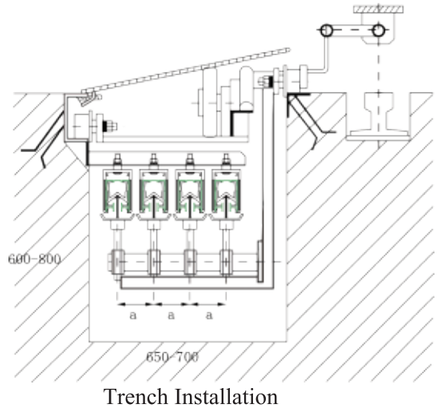
Angle Steel Bracket - Horizontal Installation



C-track Bracket - Vertical Installation



C-track Bracket - Vertical Installation



Trench Installation

Type	Distance between two conductor rail
H32	80
H24	45 OR 80
H19	35 OR 80