



THE TOP IN QUALITY
for all areas of healthcare

TOP SYRINGE PUMP TOP-5530

On-site Clinical Capabilities



A syringe pump with outstanding capabilities and ease of use in the clinical setting, whether on the general ward or when administering an anesthetic.



TOP Drug Library Manager™

Specifications

Description	TOP Syringe Pump TOP-5530	
Model	TOP-5530	
Power Supply	AC power supply : AC100-127V±10% 50/60Hz (for 100V Area) AC200-240V±10% 50/60Hz (for 200V Area)	
	DC power supply : DC12V±5% (type : ST55-4)	
	Internal battery : DC3.6V 1500mAh Ni-MH (type : BP-55) Battery life is approximately 12 hours (at flow rate of 5 mL/h using new battery in fully recharged state)	
	Alkaline battery : Uses four LR6 type, AA size alkaline batteries DC 6V Battery life is approximately 24 hours (at flow rate of 5 mL/h using new batteries)	
Input Current	AC power supply : 0.1A (for 100V Area), 0.05A (for 200V Area) DC power supply : 0.4A	
Applicable Syringe	TOP, TERUMO, NIPRO, JMS, B-D, MONOJECT(except 50mL syringe), and B, BRAUN syringes, plus one additional syringe registered by user per syringe size (10mL, 20mL, 30mL, and 50mL) 1% Diprivan Injection-kit 20mL, 50mL	
Flow Rate Range	0.1~300.0mL/h (10mL syringe) 0.1~400.0mL/h (20mL syringe) 0.1~500.0mL/h (30mL syringe) 0.1~1200.0mL/h (50mL syringe) 0.1~1200.0mL/h (1% Diprivan Injection-kit 20mL·50mL) (settings adjustable in 0.1 mL/h increments) Factory default value: 150.0mL/h	
Agent Range	0.1~1000.0mg	
Solution Range	0.1~1000.0mL	
Weight Range	0.1~300.0kg	
KVO Rate Range	0.01 - 99.99 µg/kg/min 0.01 - 99.99 mg/kg/h	
Bolus Rate	300.0 mL/h (10 mL syringe) 400.0 mL/h (20 mL syringe) 500.0 mL/h (30 mL syringe) 1200.0 mL/h (50 mL syringe, 1% Diprivan Injection-kit 20 mL, 50 mL)	
Bolus Volume	mL: 0.1-50.0 mL (0.1 mL steps) µg: 0.1-50000.0 µg (0.1 µg steps) mg: 0.1-5000.0 mg (0.1 mg steps)	
Purging	Approximately 330mL/h (TOP 10mL syringe) Approximately 620mL/h (TOP 20mL syringe) Approximately 740mL/h (TOP 30mL syringe) Approximately 1200mL/h (TOP 50mL syringe)	
KVO Rate Range	0.1~5.0mL/h (0.1mL/h step) Factory default value:0.1mL/h	
Volume Limit Setting	0.1~1000.0mL	
Total volume display range	0.0~1000.0mL	
*Infusion Accuracy	Mechanical accuracy : ± 1% Accuracy including the syringe : ± 3%	*For at least one hour of infusion at flow rate of at least 1.0mL/h.
*Occlusion Detection	Can be set to any of four levels High : 93 ± 33 kPa (700 ± 250 mmHg/0.95 ± 0.34 kgf/cm ²) Middle : 67 ± 27 kPa (500 ± 200 mmHg/0.68 ± 0.27 kgf/cm ²) Low : 40 ± 20 kPa (300 ± 150 mmHg/0.41 ± 0.2 kgf/cm ²) Very low : 20 ± 10 kPa (150 ± 75 mmHg/0.2 ± 0.1 kgf/cm ²) *When using TOP syringe (50mL) for TOP syringe pump	
Overload Detection	Approximately 20N (2.0 kgf) or more : (10 mL syringe) Approximately 40N (4.0 kgf) or more : (20 mL syringe) Approximately 55N (5.5 kgf) or more : (30 mL syringe) Approximately 80N (8.0 kgf) or more : (50 mL syringe)	
Alarms / Warnings	High priority alarm	*Occlusion, Overload, *Infusion complete, Power off, Power loss, * Malfunction, Syringe barrel clamp disengaged, Syringe plunger disengaged, Syringe barrel flange disengaged, *Infusion complete(KVO)
	Low priority alarm	Operation reminder, Low volume, Prior end, No battery, Low battery, No rate, No volume limit, No value in some fields, Set value check, Hard limit, Soft limit
	Information signal(warning)	Sensor Check, Maintenance timer, Standby mode, Power supply switched, Bolus cancel

Functions	Auto power off : During battery operation, when the pump is left for three minutes with infusion stopped or in an alarm state, the buzzer sounds. When the buzzer has been left sounding for three minutes, the power shuts off automatically.
	Alarm reminder : Unless the cause of an alarm is collected within two minutes after the operator presses the Silence key, the alarm will sound again to remind the operator of the problem.
	Power supply switch alarm : An alarm will sound when the AC power supply has stopped and the unit has switched over to battery operation.
	KVO function : After the volume limit is reached, infusion is performed at the set KVO rate for thrombus prevention.
	Standby function : The Remainder alarm can be temporarily reset.
	Buzzer setting : Presence/absence of wait tone and operation tone can be specified.
	History function : The history of infusion start/stop, alarm generation, change of flow rate while infusion is under way, power on/off can be checked.
	Key lock function : During infusion, places the system in the Key Lock state. In the Key Lock state, all keys except the Power, Light and Silence keys are disabled.
	Syringe brand limit function : Selectable syringe brands can be limited.
	Volume limit display switching function : Whether volume limit is displayed can be specified.
Battery refresh function : Performs refresh operation in order to maintain the battery performance.	
Maintenance timer function : When the preset timing has been reached, a screen to prompt regular inspection is displayed.	
Flow rate upper limit value setting function : Flow rate upper limit value can be set.	
User syringe registration function : A syringe not registered to this machine can be registered.	
Drug Library Functions : Makes the previously registered drug information and settings available.	
Operating Conditions	Ambient temperature : 5~40°C Relative humidity : 20~90% (noncondensing) Atmospheric pressure : 70~106kPa
Transport and Storage Conditions	Ambient temperature : -20~45°C Relative humidity : 10~95% (noncondensing) Atmospheric pressure : 50~106kPa
Service Life	6 years [Based on self certification using TOP corporation data] assuming inspection and maintenance are carried out as indicated and consumable parts are replaced as needed.
Classification	Classification by the form of protection against electric shock : Class II □, Internal powered equipment Classification of attaching part by the degree of protection against electric shock : Type CF ◻ Classification by the degree of protection against harmful entry of water : IPX2 (Drip proof)
Fuse	T0,2AH
External Dimensions	320mm (Width) × 90mm (Height) × 160mm (Depth)
Weight	Approximately 2.0 kg
Accessories	AC power cable, Operation Guide - - - - - 1
Composition	Case : ABS (Acrylonitrile Butadiene Styrene) Syringe barrel clamp, Syringe plunger slider : Glass fiber-reinforced Polycarbonate (30%) Operation panel : Polyester film LED Cover : Methyl methacrylate polymer

* Essential performance : Critically affects the safety of patients if it is not operated according to specifications. (IEC/EN 60601-2-24)

TOP Corporation

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THE TOP IN QUALITY
for all areas of healthcare

TOP SYRINGE PUMP TOP-5520

Pump Technology for IV Anesthesia



High functionality
in a single pump for
both TIVA and PCA,
thanks to new advances
in IV anesthesia.

Specifications

Description	TOP Syringe Pump	
Model	TOP-5520 (There are two models, each having a different voltage specification.)	
Power Supply	AC power supply	: AC 100-127 V± 10% 50/60 Hz (for 100V Area) AC 200-240 V± 10% 50/60 Hz (for 200V Area)
	External DC power supply	: DC 9-15 V 5 W
	Internal battery	: Rechargeable, DC3.6 V, 1500 mAh Ni-MH (type BP-55). Battery life is approximately 12 hours (at flow rate of 5 mL/h using new battery in fully recharged state)
	Alkaline batteries	: Uses four LR6 type, AA size alkaline batteries DC6 V. Battery life is approximately 24 hours (at flow rate of 5 mL/h using new batteries)
Input Current	AC power supply : 0.1 A (for 100V Area), 0.05 A (for 200V Area)	
Applicable Syringe	TOP, TERUMO, NIPRO, JMS, B-D, MONOJECT, and B. BRAUN syringes, plus one additional syringe registered by user per syringe size (10 mL, 20 mL, 30 mL, and 50 mL) 1% Diprovan Injection-kit 2.0 mL, 50 mL	
Flow Rate Range	TIVA mode	0.1 - 300.0 mL/h (10 mL syringe) 0.1 - 400.0 mL/h (20 mL syringe) 0.1 - 500.0 mL/h (30 mL syringe) 0.1 - 1200.0 mL/h (50 mL syringe, 1% Diprovan Injection-kit 2.0 mL, 50 mL) (settings adjustable in 0.1 mL/h increments) Rate limit setting at shipment shall be 150.0 mL/h without exception.
	PCA mode	0.1 - 150.0 mL/h (10 mL syringe) 0.1 - 150.0 mL/h (20 mL syringe) 0.1 - 150.0 mL/h (30 mL syringe) 0.1 - 150.0 mL/h (50 mL syringe) (settings adjustable in 0.1 mL/h increments) Set to " - - -" for bolus infusion only. Rate limit setting at shipment shall be 150.0 mL/h without exception.
Agent Range	0.1 - 1000.0 mg	
Solution Range	0.1 - 1000.0 mL	
Weight Range	0.1 - 300.0 kg	
Dosage Range	TIVA mode	0.01 - 99.99 µg/kg/min 0.01 - 99.99 mg/kg/h
	PCA mode	0.1 - 9999.9 µg/h 0.1 - 9999.9 mg/h Set to " - - -" for bolus infusion only.
Volume Limit Setting	0.1 - 1000.0 mL	
Solution Range	0.1 - 1000.0 mL	
*Infusion accuracy	Mechanical accuracy : ±1% Accuracy including the syringe : ±3% ■ For at least one hour of infusion at flow rate of at least 1.0 mL/h.	
Purging	Approximately 330.0 mL/h (10 mL TOP syringe) Approximately 620.0 mL/h (20 mL TOP syringe) Approximately 740.0 mL/h (30 mL TOP syringe) Approximately 1200.0 mL/h (50 mL TOP syringe, 1% Diprovan Injection-kit 2.0 mL, 50 mL)	
Bolus Rate	TIVA mode	300.0 mL/h (10 mL syringe) 400.0 mL/h (20 mL syringe) 500.0 mL/h (30 mL syringe) 1200.0 mL/h (50 mL syringe, 1% Diprovan Injection-kit 2.0 mL, 50 mL)
	PCA mode	[Basic flow rate] + 125 mL/h
*Bolus Volume	mL : 0.1 - 50.0 mL (0.1 mL steps) µg : 0.1 - 50000.0 µg (0.1 µg steps) mg : 0.1 - 5000.0 mg (0.1 mg steps)	
*Occlusion Detection	Can be set to any of four levels High : 93 ± 33 kPa (700 ± 250 mmHg / 0.95 ± 0.34 kgf/cm ²) Middle : 67 ± 27 kPa (500 ± 200 mmHg / 0.68 ± 0.27 kgf/cm ²) Low : 40 ± 20 kPa (300 ± 150 mmHg / 0.41 ± 0.2 kgf/cm ²) Very low : 20 ± 10 kPa (150 ± 75 mmHg / 0.2 ± 0.1 kgf/cm ²) ■ When using TOP dedicated syringe (50 mL) for the TOP syringe pump.	
Overload Detection	Unit : N (kgF)	Approximately 20 N (2.0 kgf) or more : (10 mL syringe) Approximately 40 N (4.0 kgf) or more : (20 mL syringe) Approximately 55 N (5.0 kgf) or more : (30 mL syringe) Approximately 80 N (8.0 kgf) or more : (50 mL syringe)
	Unit : Pa	Approximately 110 kPa or more : (TOP 10 mL syringe) Approximately 115 kPa or more : (TOP 20 mL syringe) Approximately 133 kPa or more : (TOP 30 mL syringe) Approximately 120 kPa or more : (TOP 50 mL syringe)
Lockout	1 - 120 minutes (one - minute steps)	
Bolus Limit	Time	1 - 24 hours (one - hour steps)
	No. of times	1 - 10 times (one - time steps)
	Total infusion volume	mL : 0.1 - 50.0 mL (0.1 mL steps) µg : 0.1 - 50000.0 µg (0.1 µg steps) mg : 0.1 - 5000.0 mg (0.1 mg steps)

Alarms	High priority alarm	*Occlusion, Overload, *Infusion complete, Power off, Power loss, *Malfunction, Syringe barrel clamp disengaged, Syringe plunger disengaged, Syringe barrel flange disengaged, *Infusion complete (KVO)
	Low priority alarm	Low volume, No battery, Low battery, Operation reminder alarm, Prior end alarm, No rate alarm, No volume limit alarm, No value in some fields alarm, Set value check alarm
	Information signal (warning)	Sensor Check, Maintenance timer, Standby mode, Power supply switched, Bolus cancel
Special Functions	Auto power off : During battery operation, when the pump is left for three minutes with infusion stopped or in an alarm state, the buzzer sounds. When the buzzer has been left sounding for three minutes, the power shuts off automatically. Alarm reminder : Unless the cause of an alarm is corrected within two minutes after the operator presses the Silence key, the alarm will sound again to remind the operator of the problem. Buzzer setting : Presence / absence of wait tone and operation tone can be specified. Power supply switch alarm : An alarm will sound when the AC power supply has stopped and the unit has switched over to battery operation. History function : The history of infusion start / stop, alarm generation, bolus infusion, change of flow rate / dose while infusion is under way, power on / off can be checked. PCA history printout function : The operation history of PCA switch can be printed out. Standby function : The Remainder alarm can be temporarily reset. KVO function : After infusion is completed, the device continues to operate at 0.1 mL/h to prevent thrombus. Key lock function : During infusion, places the system in the Key Lock state. External communication function : Pump state can be monitored. Syringe brand limit function : Selectable syringe brands can be limited. Infusion mode limit function : Selectable infusion modes can be limited. Dose unit limit function : Selectable dose units can be limited. Volume limit display switching function : Whether volume limit is displayed can be specified. Battery refresh function : Performs refresh operation in order to maintain the battery performance . Maintenance timer function : When the preset timing has been reached, a screen to prompt regular inspection is displayed. Flow rate upper limit value setting function : Flow rate upper limit value can be set. User syringe registration function : A syringe not registered to this machine can be registered.	
	Operating Conditions	Ambient temperature : 5 - 40 °C Relative humidity : 20 - 90% (noncondensing) Atmospheric pressure : 70 - 106 kPa
	Transport and Storage Conditions	Ambient temperature : - 20 - 45 °C Relative humidity : 10 - 95% (noncondensing) Atmospheric pressure : 50 - 106 kPa
	Service Life	6 years [Based on self certification using TOP corporation data] assuming inspection and maintenance are carried out as indicated and consumable parts are replaced as needed.
	Classification	Class II □ and Internally powered equipment, Type CF ♡, IPX2 (Drip proof)
	Fuse	T0.2AH
	External Dimensions	320 mm (Width) × 90 mm (Height) × 160 mm (Depth)
	Weight	Approximately 2.0 kg
	Accessories	AC power cable × 1, Remote PCA switch × 1, Operation Guide × 1
	Composition	Case : ABS (Acrylonitrile Butadiene Styrene) Syringe barrel clamp : Glass fiber-reinforced Polycarbonate (30%) Syringe plunger slider : Glass fiber-reinforced Polycarbonate (30%) Operation panel : Polyester film LED Cover : Methyl methacrylate polymer

*; Essential performance : critically affects the safety of patients if it is not operated according to specifications. (IEC/EN 60601-1-2)

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THE TOP IN QUALITY
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TOP SYRINGE PUMP TOP-S500



THE NEW STANDARD

Proposal of a simple and easy-to-use SYRINGE PUMP

Japan's lightest SYRINGE PUMP

35% lighter than before, making it even easier to use.

*The general name is the value as of July 2020 for "injection tube infusion pump".

*Portable insulin infusion pump (injection tube infusion pump) Patient management Painless infusion pumps (injection tube infusion pumps) are excluded.



Step-by-step operation from left to right

A series of operations can be performed from turning on the power to starting

When an abnormality occurs, you will be notified by light in addition to sound.

When an alarm occurs, the cause part lights up in red, making it easier to find the cause part.





ed smoothly
liquid feeding.

Inflow can be changed while continuing injection

You can change the inflow without stopping the injection.

Battery driven

It can be driven by dry batteries even in an environment where power cannot be secured in the event of a disaster.

Guide light

The fast forward, start, and stop key lights prompt you for the next step.



Smooth and clean shape

It has a shape with less unevenness and grooves for easy regular cleaning.



Fast forward forced setting

After setting the syringe, if fast-forwarding to fill the gap has not been performed, it is possible to restrict the start of infusion.

*The factory setting is OFF.

Specification

Brand name	TOP syringe pump TOP-S500	
Type	TOP-S500	
Power supply	AC power supply: AC100 - 240V 50/60Hz Internal battery : Li-ion Battery, rechargeable DC3.6V 3250mAh Type : BP-A6LG Continuous use time approximately ten hours (in the state that, however, completely charged new internal battery at 5mL/h setting)	
	Alkali dry cell : Four size AA battery form alkali dry cells Continuous use time approximately ten hours (with thealkali dry cell which, however, is new at 5mL/h setting)	
Consumption electric current	0.3A	
Use syringe	5, 10, 20, 30, 50mL syringe	
Syringe brand	TOP, TERUMO, NIPRO, JMS, B-D, B Braun, 1% Diprivan Injectionkit note - kit (20mL, 50mL), the syringe that have been registered	
Flow rate setting range	0.10-150mL/h (5mL syringe) 0.10-300mL/h (10mL syringe) 0.10-400mL/h (20mL syringe) 0.10-500mL/h (30mL syringe) 0.10-1200mL/h (50mL syringe) 0.10-1200mL/h (1% Diprivan Injection-kit 20mL .50mL)	
	0.10-99.99mL/h: 0.01mL/h step 100-1200mL/h: 1mL/h step	
Volume limit range	Setting none, 0.1-999.9mL (0.1mL step)	
Total volume range	0.0-999.9mL (0.1mL step)	
Infusion accuracy *	Mechanical precision : ±1% Precision including syringe: ±3% (precision after, in flow rate 1.0mL/h or more, having transfused it more than one hour of one hour)	
Purge flow rate	150mL/h (5mL syringe) 300mL/h (10mL syringe) 400mL/h (20mL syringe) 500mL/h (30mL syringe) 1200mL/h (50mL syringe) 1200mL/h (1% Diprivan Injection-kit 20mL .50mL)	
Bolus flow rate	150mL/h (5mL syringe) 300mL/h (10mL syringe) 400mL/h (20mL syringe) 500mL/h (30mL syringe) 1200mL/h (50mL syringe) 1200mL/h (1% Diprivan Injection-kit 20mL .50mL)	
Quantity of bolus	0.1-5.0mL (5mL syringe) 0.1-10.0mL (10mL syringe) 0.1-20.0mL (20mL syringe) 0.1-30.0mL (30mL syringe) 0.1-50.0mL (50mL syringe) 0.1-50.0mL (1% Diprivan Injection-kit 20mL .50mL) (0.1mL step)	
Bolus accuracy *	±3% (however, at the 0.1-3.3mL setting ±0.1mL)	
Occlusion detection pressure *	SL (special low): 30 ± 20kPa L (low): 50 ± 20kPa Among M(): 70 ± 30kPa H (high): 90 ± 30kPa	
Alarm	High priority	Occlusion *, syringe empty *, Infusion complete *, Battery empty, Power loss, malfunction *, Syringe barrel clamp, syringe plunger clamp, Syringe barrel flange
	Low priority	No action, No battery, Low battery, low volume, Infusion complete pre-alarm, Flow rate is not set, Volume limit is not set, flow rate> volume limit, flowrate soft limit
	Information signal	Sensor check, Power supply switched, Maintenance timer, shock detection
Special features	Auto power OFF	:During internal power supply drive, be cut off automatically approximately three minutes later when we just leave you unattended after no action (Low priority)occurred.
	Repeat alarm	: Alarm sound occurs again when we leave you unattended for approximately two minutes without removing an alarm state after silence in various alarm.
	Standby	: Invalidate no action (Low priority)temporarily.
	Key-lock	: Invalidate key operation transfusing.
	KVO	: After infusion complete of the volume limit,transfuse it in the KVO flow rate which we set for thrombosis.
	Change rate during infusion	: Can change flow rate without terminating an infusion.
	Bolus	: Can inject bolus in an infusion.
	Maintenance timer	: A screen promoting periodic maintenance is displayed when it reaches during the period when we set it.
	Automatic brightness reshuffling	: Change brightness of the indication depending on neighboring brightness automatically. (when it became dark, lower brightness)
	Syringe brand change	: Can change syringe brand.
Decimal second place indication reshuffling	: Can change indication of the decimal second place of the flow rate.	

Special features	Operation tone setting	: Can set presence or absence of operationtone.
	Wait tone setting	: Can set presence or absence of wait tone.
	Alarm sound setting	: Can set volume of the alarm sound.
	Occlusion setting	: Can set occlusion detection level.
	Operation history	: Can verify that operation history (running out of /, purge, initiation, termination, bolus of the power supply containing flow rate change, alarm). (greatest: 800)
	Time setting	: Can set the time (year, month, day, time, share).
	Priming volume addition setting	: Can set it whether you add quantity of purge to total volume.
	Purge forced setting	: Can set it whether it prevents an infusion from starting when we do not forward syringe after fitting.
	Volume limit setting	: Can set it whether you validate volume limit setting.
	Change rate during infusion setting	: Can set it whether you validate a flow rate change transfusing.
	Bolus setting	: Can set it whether you validate bolus.
	Power supply switched release setting	: Can set it whether you remove Power supply switched (information signal) automatically.
	KVO flow rate setting	: Can set KVO flow rate.
	Syringe brand setting	: Can limit syringe brand to use.
	Flow rate soft limit setting	: Can set flow rate soft limit (lower limit value to receive heads up of the setting flow rate) of each syringe size.
	Flow rate hard limit setting	: Can set flow rate hard limit (upper limit level of the setting flow rate) of eachsyringe size.
	Maintenance timer setting	: Can set the days before Maintenance timer occurring.
	Lighting check	: A lamp all; can verify that lighting state by turning on.
	Flow rate check	: Can verify that movement an infusion.
	Occlusion check	: Can verify that occlusion detection.
Shock detection	: Verify that we detected impact, date and time, and can reset it.	
User syringe registration	: Can register the syringe which is not registered with this product.	
History data transmission of a message	: Can send operation history data to a PC.	
Infusion complete pre-alarm setting	: Can set a development timing of the Infusion complete pre-alarm (Low priority).	
Alarm sound lower limit setting	: Can set the lower limit of the alarm sound which we can set by a menu.	
History elimination	: Can remove operation history.	
Set it at shipment	: Can change the setting except the password to the setting at shipment.	
Password change	: Can change a password to enter the administrator mode.	
External communication	: Can monitor the movement situation of this product.	
Terms of use	Ambient temperature: 5-40 degrees Celsius Relative humidity: 20-90% (however, the thing without the dewcondensation) Ambient pressure: 70 - 106kPa	
Transportation andStorage condition	Ambient temperature: - 10-45 degrees Celsius Relative humidity: 10-90% (however, the thing without the dewcondensation) Ambient pressure: 50 - 106kPa	
Durability period	Six years [self-certification using TOP corporation data] However, durability period when we changed designated maintenance and inspection and expendable supplies	
Classification	The classification by the protective pattern for the electric shock:Class II and internally powered equipment A classification of the applied parts by the protective degree for the electric shock: Type CF applied part The protection class by the outer fence: IP34	
Dimensions	360 (width) *110 (height) *135 (depth) mm * movable range does not include it	
Weight	Approximately 1.3kg	
Accessories	AC power cable :one Operation guide, Administrator manual : for each one copy	
Material used	Case, Syringe plunger slider : ABS (Acrylonitrile Butadiene Styrene) Syringe plunger clamp lever. : POM (polyacetal) resin Syringe plunger clamp arm, Syringe barrel clamp Drive Shaft : Stainless steel Syringe barrel : Silicone rubber detection switch Operation indicator : PC (polycarbonate) resin Operation panel : Polyester film	

* Essential performance: Performance to greatly influence the security of the patients when we do not work according to specifications.

Option

TOP PoleClamp Type CS



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