MOCEN®

WE ARE THE SOLUTION.

All-in-one Electro-hydraulic Actuator & Mini Hydraulic Power Pack

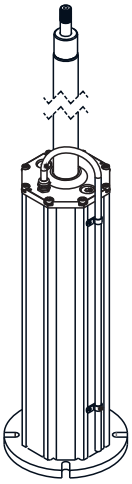
For Vehicle Barrier / Bollard

TÜVRheinland® CERT ISO 9001

Shanghai Mocen Fluid Power Co., Ltd
www.mocen.cn

MOCEN®

Hydraulic Solutions for Vehicle Barrier/Bollard



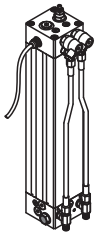
TCP Series

All-in-one Electro-Hydraulic Actuator

Standard Duty
3 Seconds，130kg

Heavy Duty
2 Seconds，250kg

Built-in AC motor, pump, valves, hydraulic cylinders and pressure switch.
Standard duty, Rated Power 350W and 700W

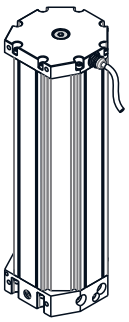


TS Series

Mini Electro-Hydraulic Power Pack

Light Duty
4.8LPM, 50Bar

Built-in AC motor, pump, valves. Light duty, rated power 350W.

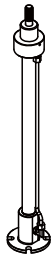


TP Series

Compact Electro-Hydraulic Power Pack

Heavy Duty
10LPM，130Bar

Built-in AC motor, pump, valves. Heavy duty, rated power 700W.



HSG Series

Hydraulic Cylidner, works with TS and TP series power pack.

TÜVRheinland® CERT ISO 9001

Shanghai Mocen Fluid Power Co., Ltd | www.mocen.com.cn | biz@mocen.cn
388 SanBang Road, Songjiang District, Shanghai, China | Tel：021-52656331，52656332

General Functions and Features

1) Automatic Stop TCP TP TS

TCP, TS and TP series are avaiable for a optional built-in pressure switch. It is for automatic cutoff when cylinder extending or retracting to the end. It is good for avoiding system overheating from overload. We don't suggest to use timer relay to stop the motor running.

2) Emergency Override TCP TP TS

In case of blackout, motor failure or overheat, there is a built-in 2-way solenoid valve (DC12V) as a emergency release valve to lower the bollard. You should have a DC12V backup battery in the control system, and a switch. The lowest operating voltage to energize the solenoid valve is 9V.

4) Duty Cycle TCP TP TS

TCP、TS and TP series are all intermittent duty cycle. they can continuously running in intermittently condition, all weather. The ambient temperature will cause duty cycle changed. Larger oil capacity tank and filling more oil will improve the duty cycle. Please consult us. Furthermore, water cooling is an option to improve the duty cycle by submerged under water.

5) Overheat/Thermal Protection TCP TP TS

There is a thermal switch built inside to protect motor and system from overheat after continuously running.

6) Internal Heater TCP TP

There is a optional built-in heater inside the unit. Generally, the built-in motor will heat the oil in the initial cycles.
Please conside it if the unit will be installed in a cold area. It will keep the oil warm to ensure the unit preform high speed in any time.
The built-in heater will be cut off automatically when oil reach 45°C.

7) Hydraulic Fluid TCP TP TS

We recommend hydraulic fluid L-HM#22 or #32 for TS, TP and TCP series product which used in vehicle bollard /barrier applications. The low our point hydraulic fluid should be used if the unit will installed in cold area, such as L-HV#22/32. Higher viscosity will effect the rising or lower speed.

8) Bottom Support and Cushion TCP TP

Please avoid the cylinder to support load when bollard retracted. Especially for those High Security version. It may caused the damage due to the impact from high speed lowering or running vehicle. An optional "Bottom Cushion" will help to reduce the impact when bollard lowered to the end.

All-in-One Electro-Hydraulic Actuator

for Vehicle Barrier/Bollard

TCP Series

Heavy Duty
2 Seconds，300kg

High Speed + Heavy Load
with Cushion on the Bottom End

All-in-One Design, Tough Structure

The electrical motor, pump, valves and cylinder are built inside steel housing.
Simplified installation, increased durability.

IP68 Protection Grade

High protection grade is an advantage of all-in-one construction.
Working stable even in worst conditions, like underwater.

Highly Corrosion Resistance

The integrated hydraulic cylinder is with stainless steel SS304 housing.
And the rod surface is treated with Liquid Nitro-Carbonrizing process, 5 times harder and 8-10 times corrosion resistance compare with chrome plating.

Easy Installation & Low Maintenance

No Hydraulic pipe, hose or fitting, no Leaking risk, plug and play, extremely low maintenance.

All-weather Capability

The TCP is capability of running in all weather condition.
There is a internal heater(optinal) built-in for extremely cold weather.
A internal thermal switch installed to prevent motor burned after long lasting operation.

IP68 Certificated by SGS

TCP Series

Standard Duty & Heavy Duty

	Code	Rated Power (W)	Voltage (V)	Amp (A)	Speed (mm/s)	Max Load	Duty Cycle
Standard Duty	**TCP30S***	300W	Single Phase 220-240V, 50Hz	2.7- 3.0A	200 ± 10mm/s	100kg	30 cycles/hour
	TCP30T*	300W	Three Phase 380-415V, 50Hz	1.7- 1.9A	220 ± 10mm/s	130kg	40 cycles/hour
Heavy Duty	**TCP65S***	650W	Single Phase, 220-240V, 50Hz	4.0 - 5.5A	300 ± 10mm/s	250kg	45 cycles/hour
	TCP70T*	700W	Three Phase, 380-415V, 50Hz	2.1 - 3.5A	320 ± 10mm/s	350kg	45 cycles/hour

Stroke: Standard stroke 600mm, other strokes upon customer's requirements.

Functions & Options:

- ◙ Emergency Lowering (DC12V)
- ☐ Stroke Limit Pressure Switch
  (Optional, for cutting off power when rising/lowering to end)
- ☐ Bottom Cushion (Optional)
- ☐ Built-in Heater (Optional)

Function:
Either Double Acting (power up, and power down), or Single Acting(power up, gravity down)

Hydraulic Fluid:
HV22 or HV32 (ISO VG22 or VG32)
Tank Capacity 3.5- 6.5L

Overheat Protection
Yes, at 75°C

Mounting:
Recommend to do VERTICAL mounting for best performance.

TCP	30	T	2	D25	P	600	N	R	E	-	01
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		(11)

1	TCP	All-one Electro-Hydraulic Actuator
2	Rated Power	Rated Power: 30- 300W, 65 -650W, 70-700
3	Voltage	S - 220/240V Single Phase, 50/60Hz F - 115V Single Phase, 50/60Hz T - 380/415V Three Phase, 50/60Hz G - 230V Three Phase, 50/60Hz
4	Pump Disp.	1 - 1.5cc, 2 - 2.0cc
5	Rod Dia.	D20- 20mm , D18 - 18mm
6	Pressure Switch	N - None, P- with Built-in pressure switch
7	Stroke	600 - 600mm, 700 - 700mm ...
8	Bottom Cushion	N – None, B - with Button Cushion
9	Built-in Heater	N – None, R - with Built-in Heater
10	Emergency Override	N - None, E - with 2-Way Solenoid Valve (DC12V)
11	Design Code	Assigned by Mocen

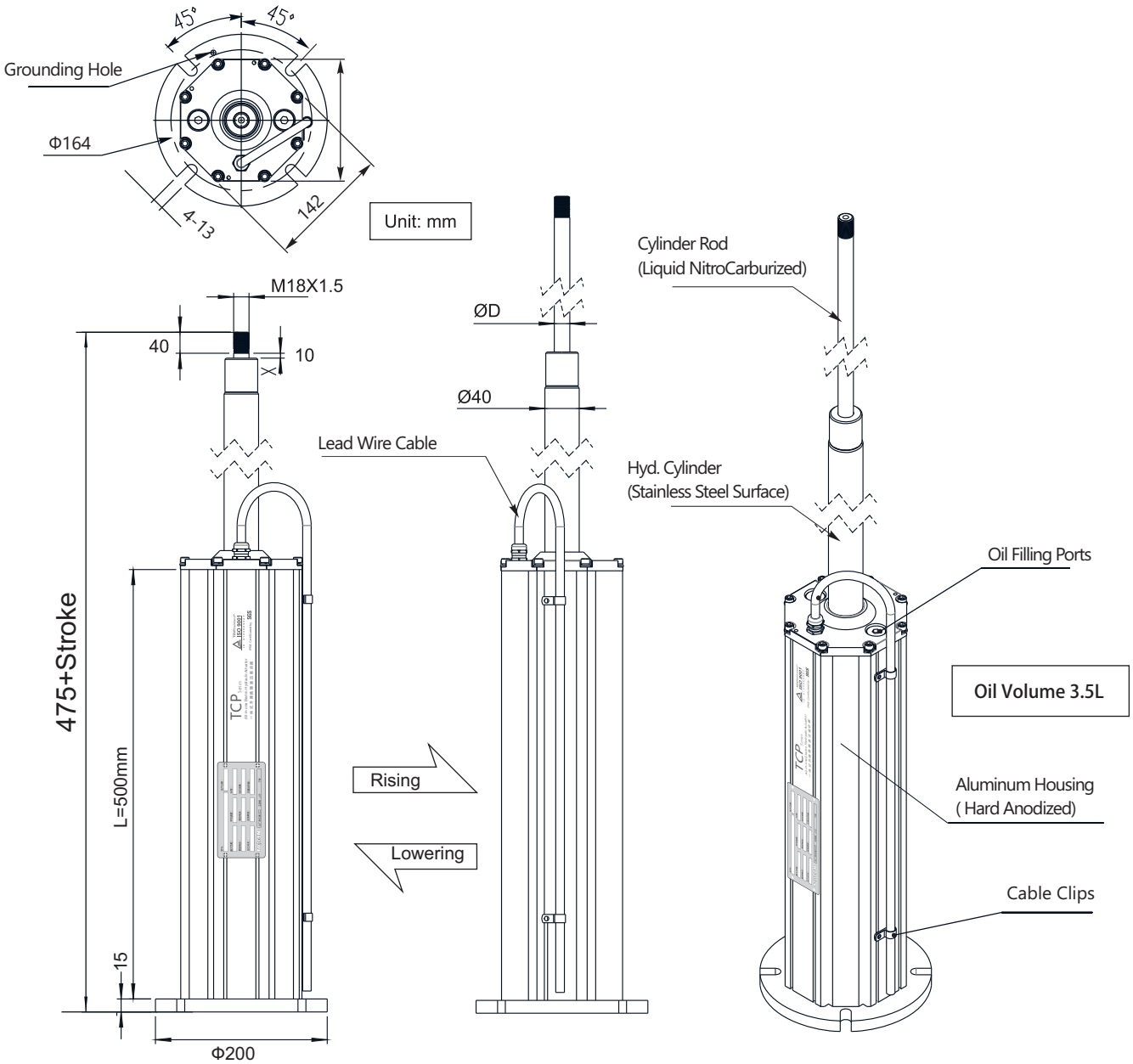
TCP Series

Standard Duty & Heavy Duty

Housing Length "L"

The standard size of L is 500mm, with oil capacity 3.8L maximum. Filling more oil is helping increasing the cycling frequency .

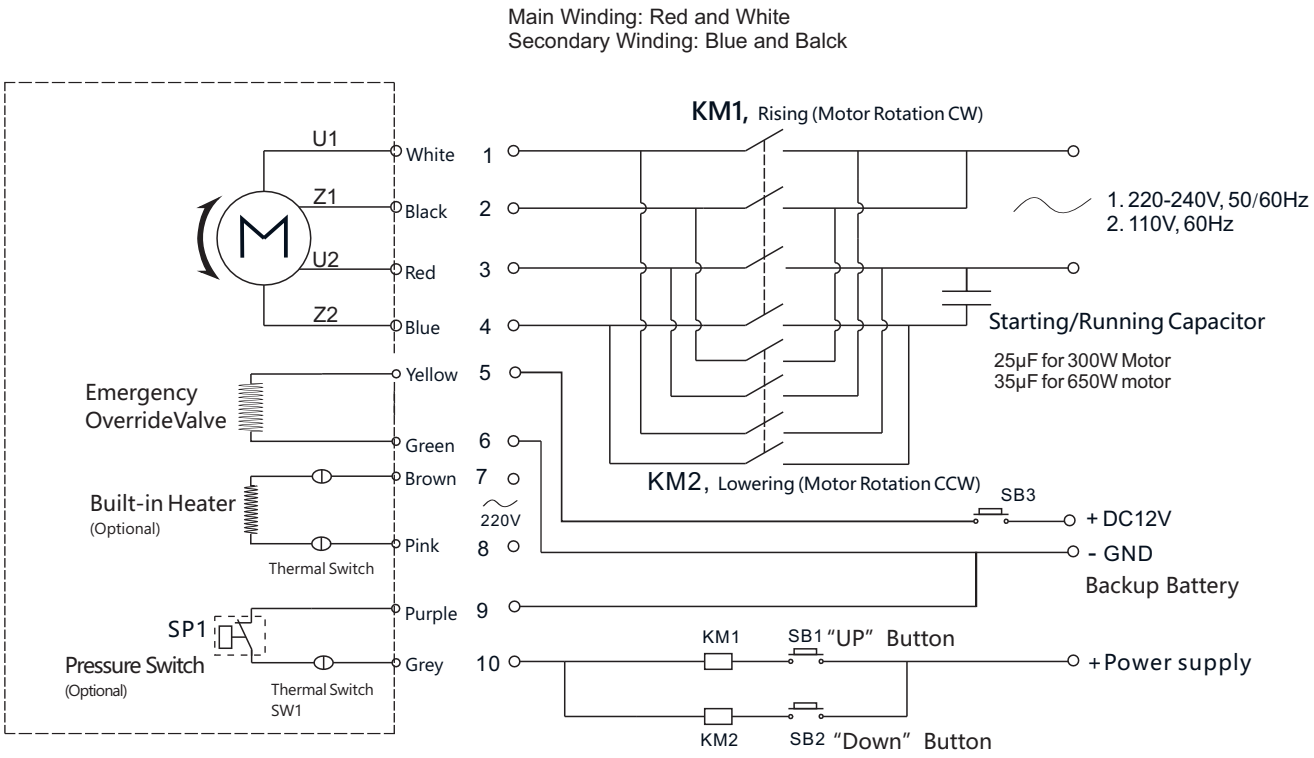
Longer "L" size will let you have higher oil capacity. Changes of size "L" will not affect overall length.



Wiring Diagram

TCP Series

Single Phase



* The optional Pressure switch SP1 is Normally Closed, to cutoff the power supply to motor when cylinder extended or retracted to end.

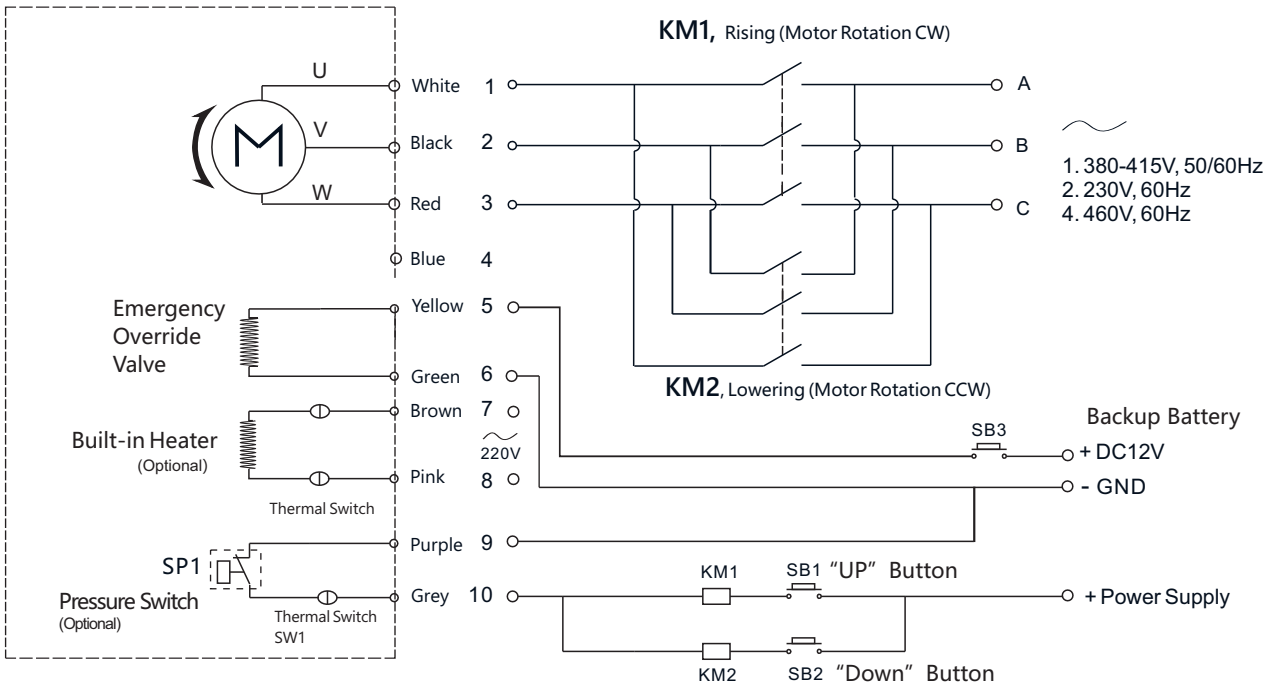
Operation:

1. Push the button SB1, motor run in CW, cylinder extending.
2. The pressure switch SP1 (if installed) will be triggered to open when cylinder extended to end.
3. Push the button SB2, motor run in CCW, cylinder retracting.
4. The pressure switch SP1 (if installed) will be triggered to open when cylinder retracted to end.
5. Energize the Emergency Override Valve with a DC12V battery in case of blackout or motor failed.
6. Turn on the built-in heater (optional, if installed) in extremely cold weather, to reach better performance.
7. Thermal Switch Sw1 is Normally Closed, it will be triggered to OPEN

Wiring Diagram

TCP Series

Three Phase

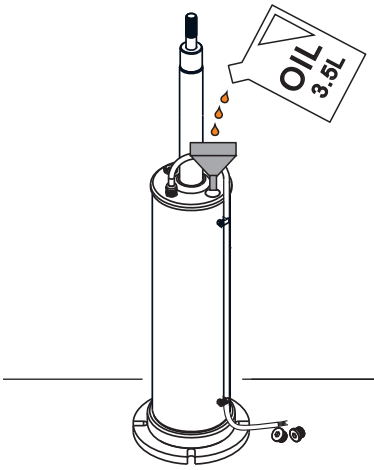


Pressure switch SP1 is Normally Closed, for power cutoff to motor when cylinder extended or retracted to end.

Operation:

1. Push the button SB1, motor run in CW, cylinder extending.
2. The pressure switch SP1 (if installed) will be triggered to open when cylinder extended to end.
3. Push the button SB2, motor run in CCW, cylinder retracting.
4. The pressure switch SP1 (if installed) will be triggered to open when cylinder retracted to end.
5. Energize the Emergency Override Valve with a DC12V battery in case of blackout or motor failed.
6. Turn on the built-in heater (optional, if installed) in extremely cold weather, to reach better performance.

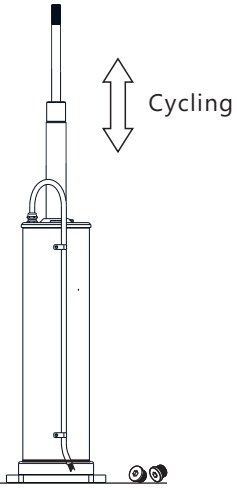
Oil Filling Instruction
for TCP Series



1, Filling

Removing the both filling port plugs with a 8mm hex wrench, then fill appropriate hydraulic fluid thru one filling port.

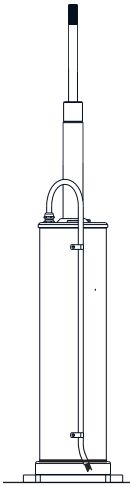
Please don't excess the volume limit and fill up the tank.



2, Venting

Please leave the filling port open and wire up the unit.

Running the unit 10-20 cycles to vent the air inside the cylinder, till it's acting smoothly.



3, Sealing

Extending the cylinder to the end, plug both filling ports with 8mm hex wrench with 5N.M torque.

Hydraulic Power Unit

for Vehicle Barrier/Bollard

TS Series

Light Duty

Mini Size

Miniature Size with Aluminum Housing

The oil-emmersed ac motor was built inside a hard anodized aluminum housing with pump and pressure switch.

IP68 Protection

Benefit from its structure, the TS unit is capable of IP68 protection grade. It will be running well in any harsh working condition.

All-Weather Capacity

TS unit is capable of working in extremely cold area because of it's self-heating capability

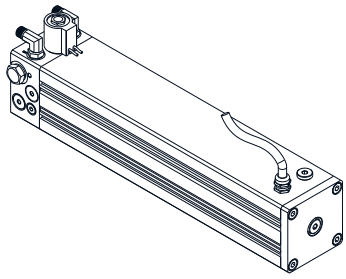
TS series

Light Duty

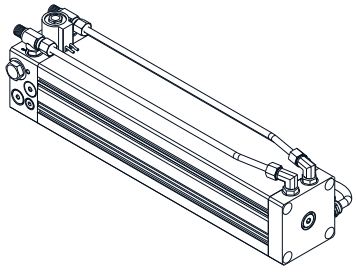
Code	Voltage	Amps	Flow Rate	*Rising Speed	Max Pressure	*Max Load	** Duty Cycle
TS30S*	220-240V,50Hz, Single Phase	2.7- 3.1A	4.8LPM	150±10mm	5MPa	100kg	20 cycles/hour
TS30T*	380-415V,50Hz, Three Phase	1.7-1.9A	5.0LPM	165±10mm	6MPa	130kg	30 cycles/hour

* The max rising speed and max load is calculated based on a 25mm bore cylinder (with 18mm rod diameter). Please do your calculation based on max pressure and flow rate if your cylinder is different size.

** Duty Cycle is tested at 25°C, with load 75kg, is for your reference only. It may be slight different in your actual working condition.



Standard Version



Pressure Switch Built-in

Function:

Either Double Acting (power up, and power down), or Single Acting(power up, gravity down)

Hydraulic Fluid:

HV22 or HV32 (ISO VG22 or VG32)
Tank Capacity 1.5- 3.5L

Overheat Protection

Yes, at 75°C

Mounting:

Recommend to do VERTICAL mounting for best performance.

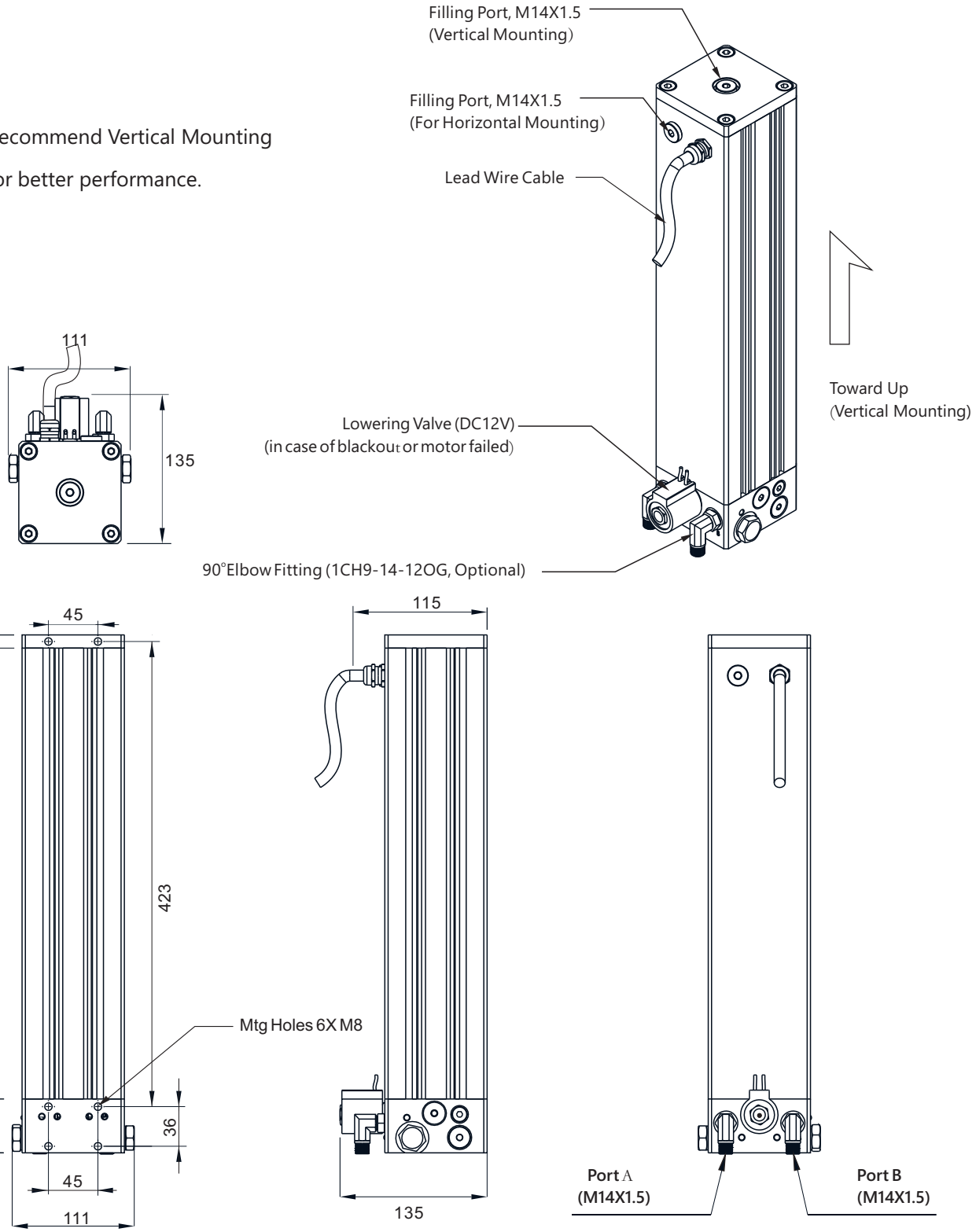
TS	30	T	2	P	E	N	-	01
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)

1	TS	Mini Hydraulic Power Unit
2	Rated Power	Rated Power: 30- 300W， 65 -650W， 70-700
3	Voltage	S - 220/240V Single Phase, 50/60Hz　　T - 380/415V Three Phase, 50/60Hz F - 115V Single Phase, 50/60Hz　　G - 230V Three Phase, 50/60Hz
4	Pump Disp.	1 - 1.5cc， 2 - 2.0cc
5	Pressure Switch	N - None,　P- with Built-in pressure switch
6	Emergency Override	N - None,　E - with 2-Way Solenoid Valve (DC12V),　M - with Manual Override Valve
7	Accumulator **Module**	N - None,　Y - with Accumulator Module
8	Design Code	Assigned by Mocen

TS Series

Standard Version

Recommend Vertical Mounting
for better performance.

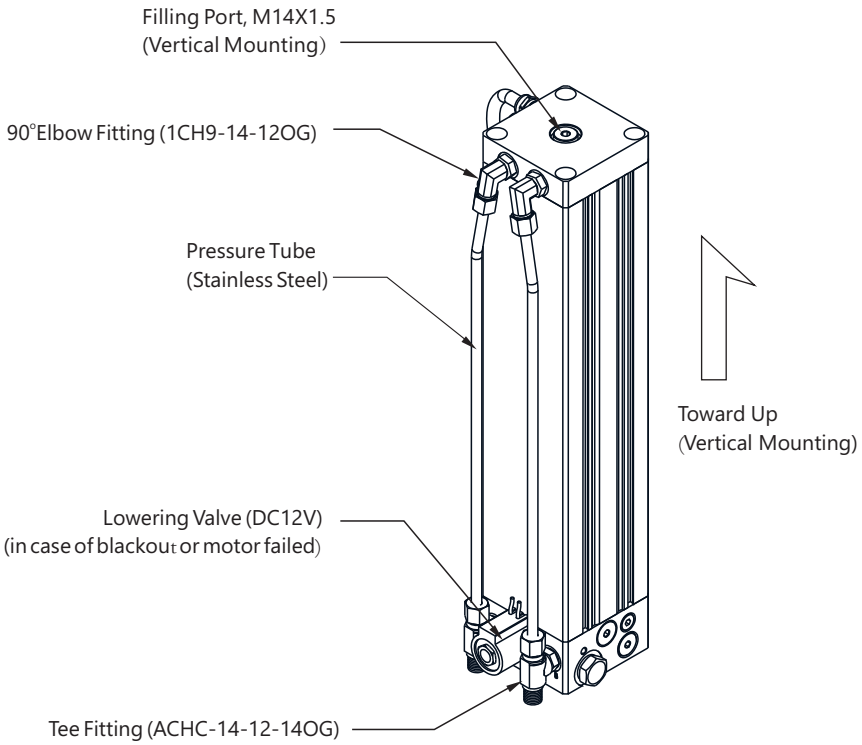


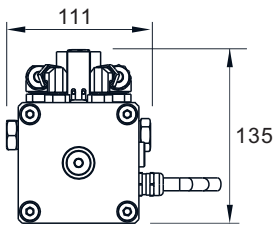
TS Series

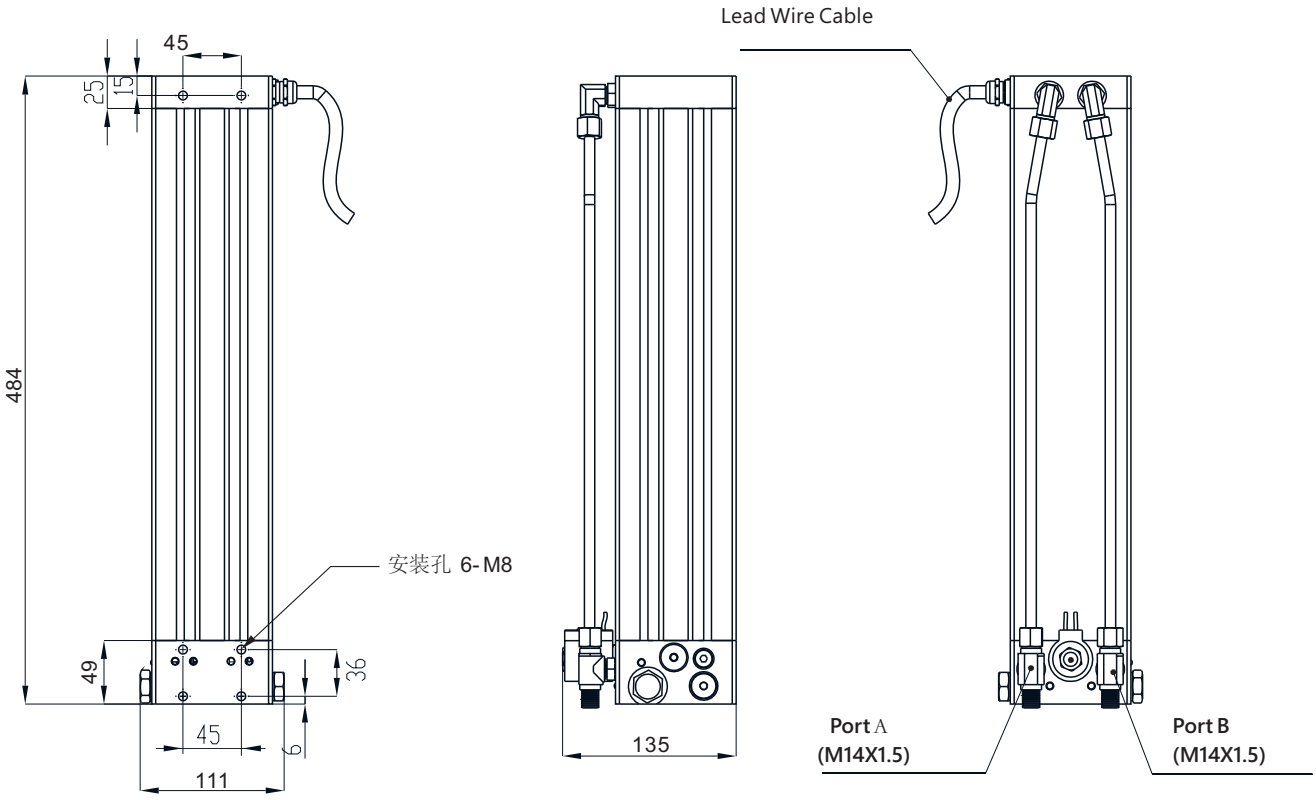
Pressure Switch Built-in

Recommend Vertical Mounting

for better performance.



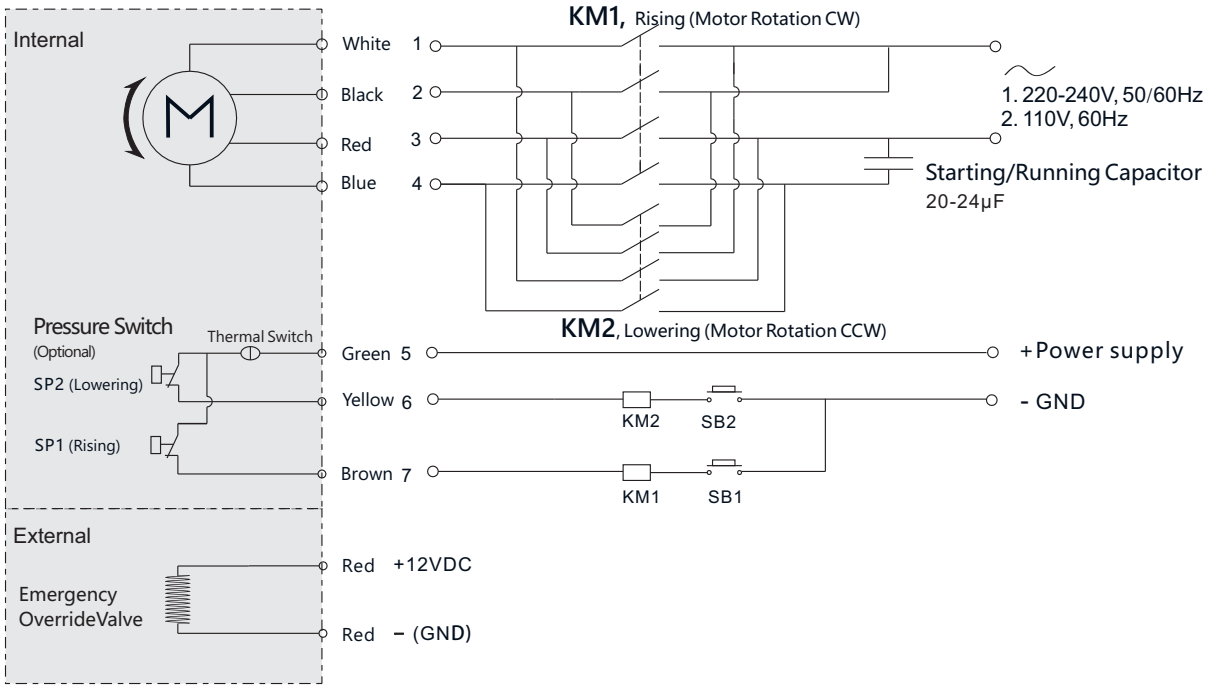




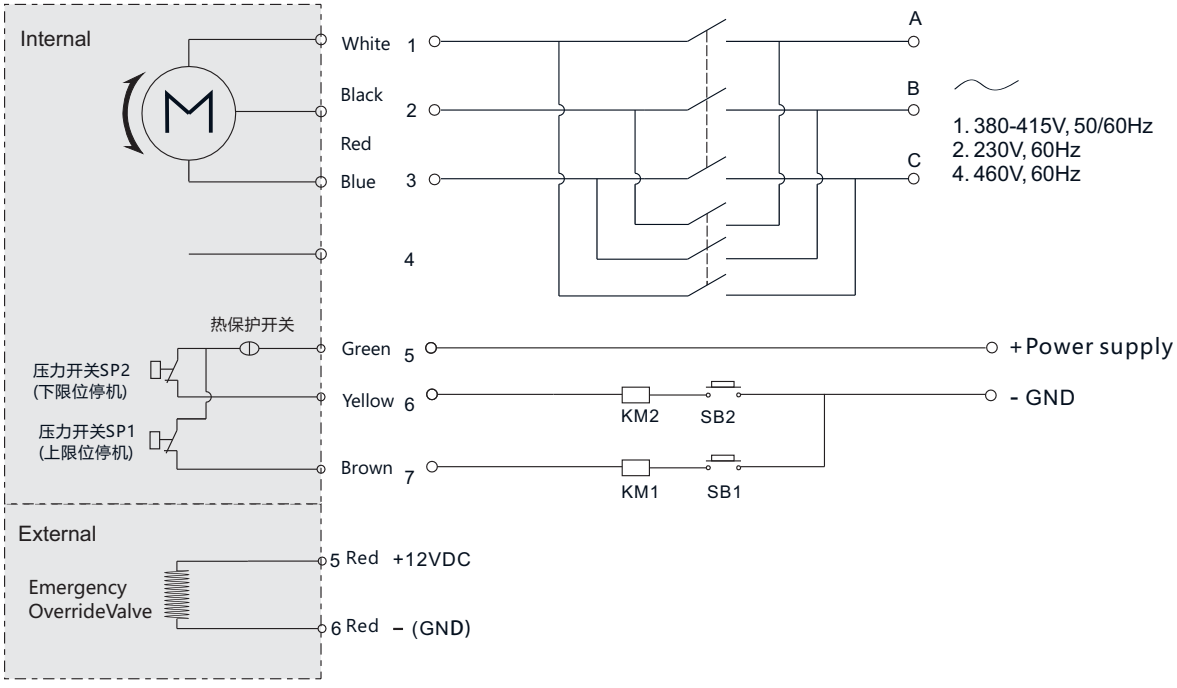
Wiring Diagram

for TS series

Single Phase



Three Phase



Hydraulic Power Unit

for Vehicle Barrier/Bollard

TP series

Compact structure, mini size

Electrical motor, pump, valves are integrated inside a aluminum housing, Mini size, low noise, better heat-sink, strong corrosion resistance.

IP68 Protection

High protection grade IP68, benefit from total enclosure structure.

All-weather Capability

It is capable of working in the ambient temperature -40°C to 50°C. Optional built-in heater will help the unit keep normal performance in extremely cold weather.

Flexible Dimension on Length

What ever you want it shorter or longer according to your actual applications, we can built it easily.

Optional Accumulator Module

The optional accumulator module will bring you faster action in case of emergency situations, such as terror attack.

TP Series

Functions & Optionas: ■ Emergency override valve (DC12V) ☐ Pressure Switch (Optional)

☐ Built-in Heater (Optional)

	Code	Rated Power (W)	Voltage (V)	Amp (A)	Flow Rated (LPM)	Max Pressure	Duty Cycle
Standard Duty	**TP30S***	300W	Single Phase 220-240V, 50Hz	2.7- 3.0A	4.8LPM	50Bar	30 cycles/hour
	TP30T*	300W	Three Phase 380-415V, 50Hz	1.7- 1.9A	5.0LPM	60Bar	40 cycles/hour
Heavy Duty	**TP65S***	650W	Single Phase, 220-240V, 50Hz	4.0 - 4.5A	5.0LPM	130Bar	45 cycles/hour
	TP70T*	700W	Three Phase, 380-415V, 50Hz	2.1 - 3.5A	5.0LPM	140Bar	45 cycles/hour

Note: 1. Above data based on ambient temperature oC. t may different in actual working condition.

. t's duty cycle will be effect by ambient temperature very much.

TP +Accumulator Module

With accumulator Module, the TP series power unit is capable of double output flow rate. It is very suitable for High Class vehicle barrier. But, its duty cycle will be lowered 30%-50% .

Code	Voltage	Amps	Power	Flow Rate	Max Pressure	最高工作频度
TP-D	220-240V,50Hz, Single Phase	4.8- 5.5A	650W	10LPM	130Bar	20 cycles/hour
TP-D	380-415V, 50Hz, Three Phase	3.0- 3.5A	700W	10LPM	140Bar	20 cycles/hour

Note: 1. Above data based on ambient temperature oC. t may different in actual working condition.

. t's duty cycle will be effect by ambient temperature very much.

TP	30	T	2	P	E	N	-	01
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)

1	TP	Mini Hydraulic Power Unit
2	Rated Power	Rated Power: 30- 300W, 65 -650W, 70-700
3	Voltage	S - 220/240V Single Phase, 50/60Hz T - 380/415V Three Phase, 50/60Hz F - 115V Single Phase, 50/60Hz G - 230V Three Phase, 50/60Hz
4	Pump Disp.	1 - 1.5cc, 2 - 2.0cc
5	Pressure Switch	N - None, P- with Built-in pressure switch
6	Emergency Override	N - None, E - with 2-Way Solenoid Valve (DC12V), M - with Manual Override Valve
7	Accumulator Module	N - None, Y - with Accumulator Module
8	Design Code	Assigned by Mocen

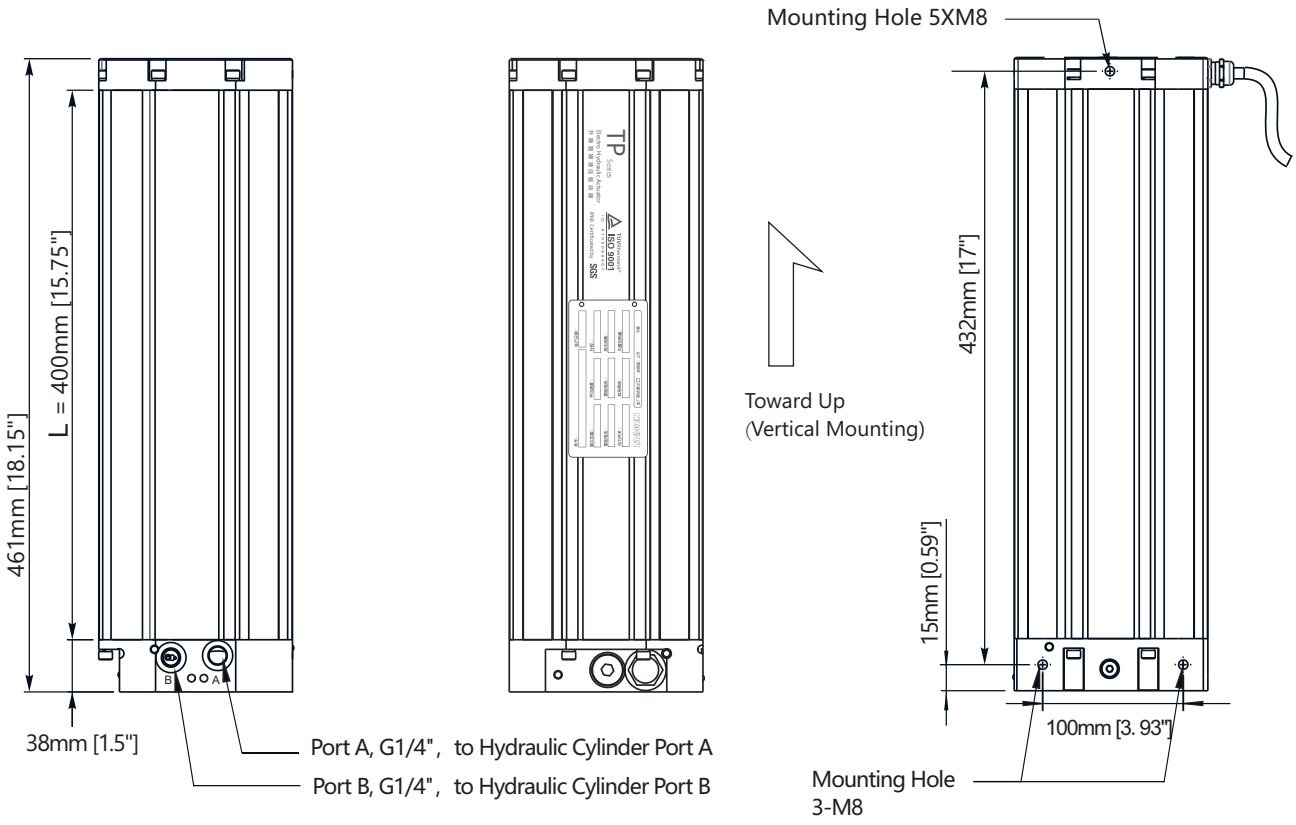
Hydraulic Power Unit

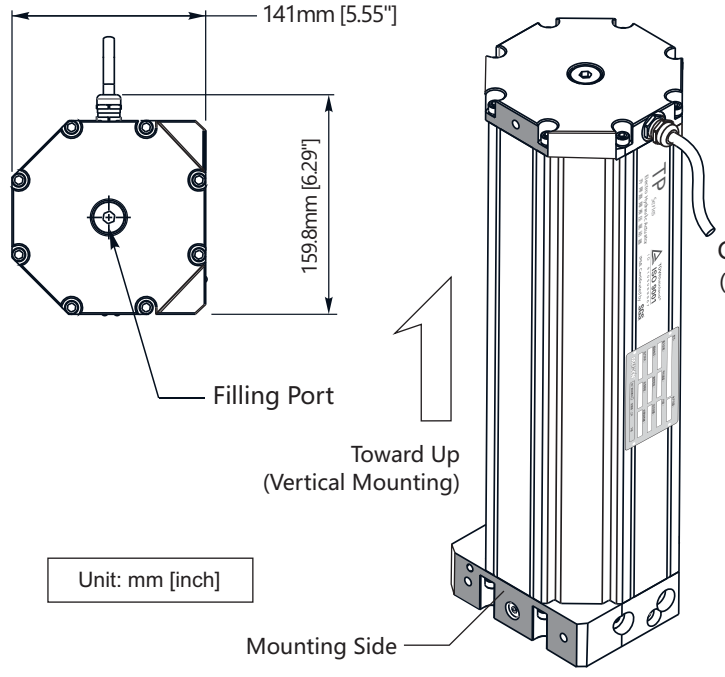
for Vehicle Barrier/Bollard

TP Series

Comparing with TS series, TP series is bigger and better performance

Standard tank size is L=400mm, volume 2.5升. We are able to cutom built this unit accroding to your requirments.





Unit: mm [inch]

Hydraulic Fluid

Recommend Hv22 or HV32
(ISO VG22 or VG32)
Volume 2.5-3.0 L

Protection: Grade IP68

Duty Cycle:

Intermittent, S2=8s, S3=20%,

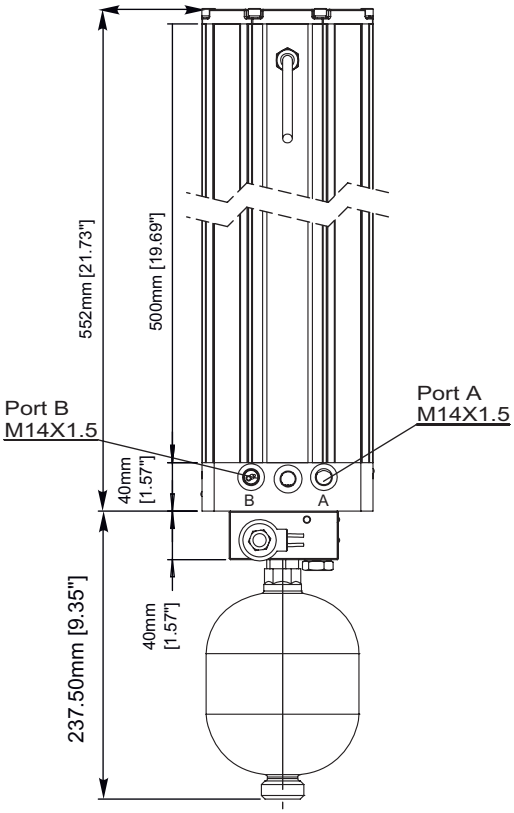
Overheat Thermal Protection at 85°C

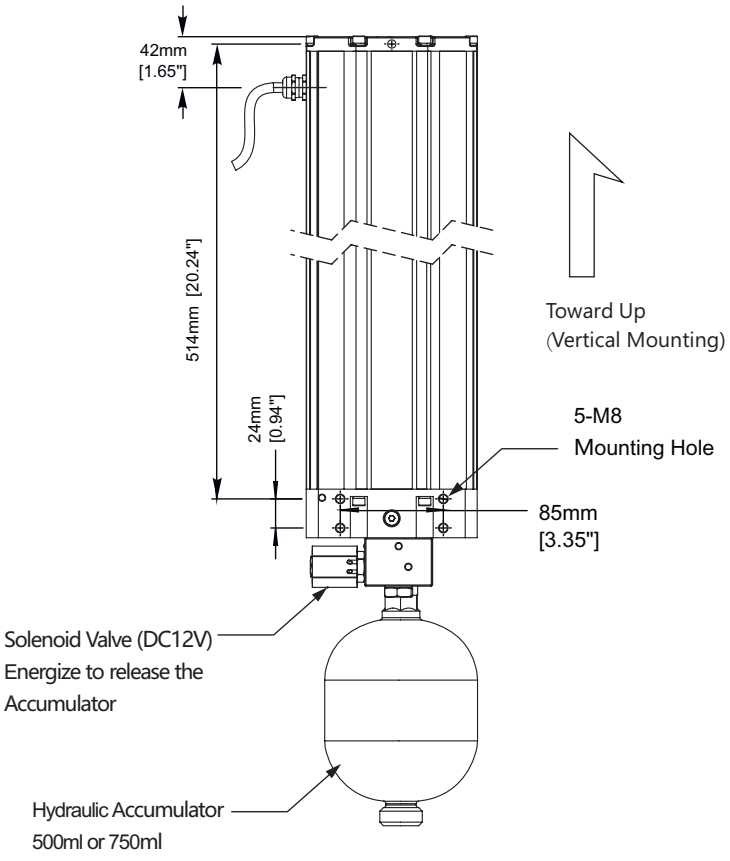
Mounting:

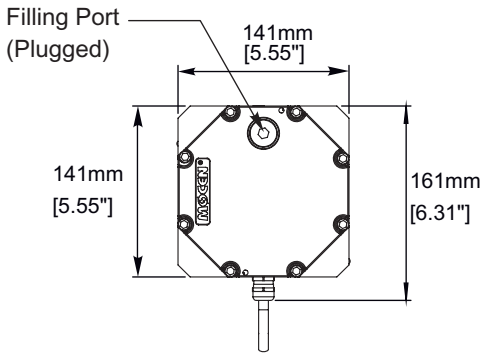
Vertical or Horizontal.

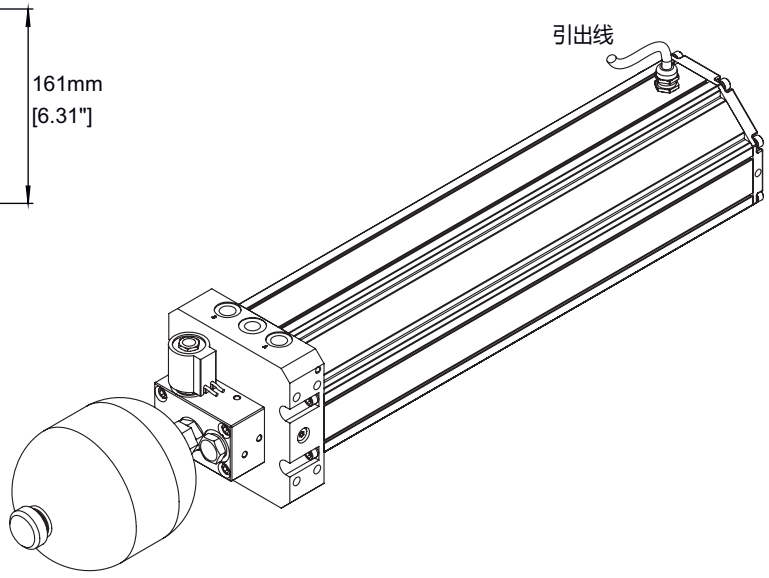
reccomand Vertical for better performance

TP Series + Accumulator Module





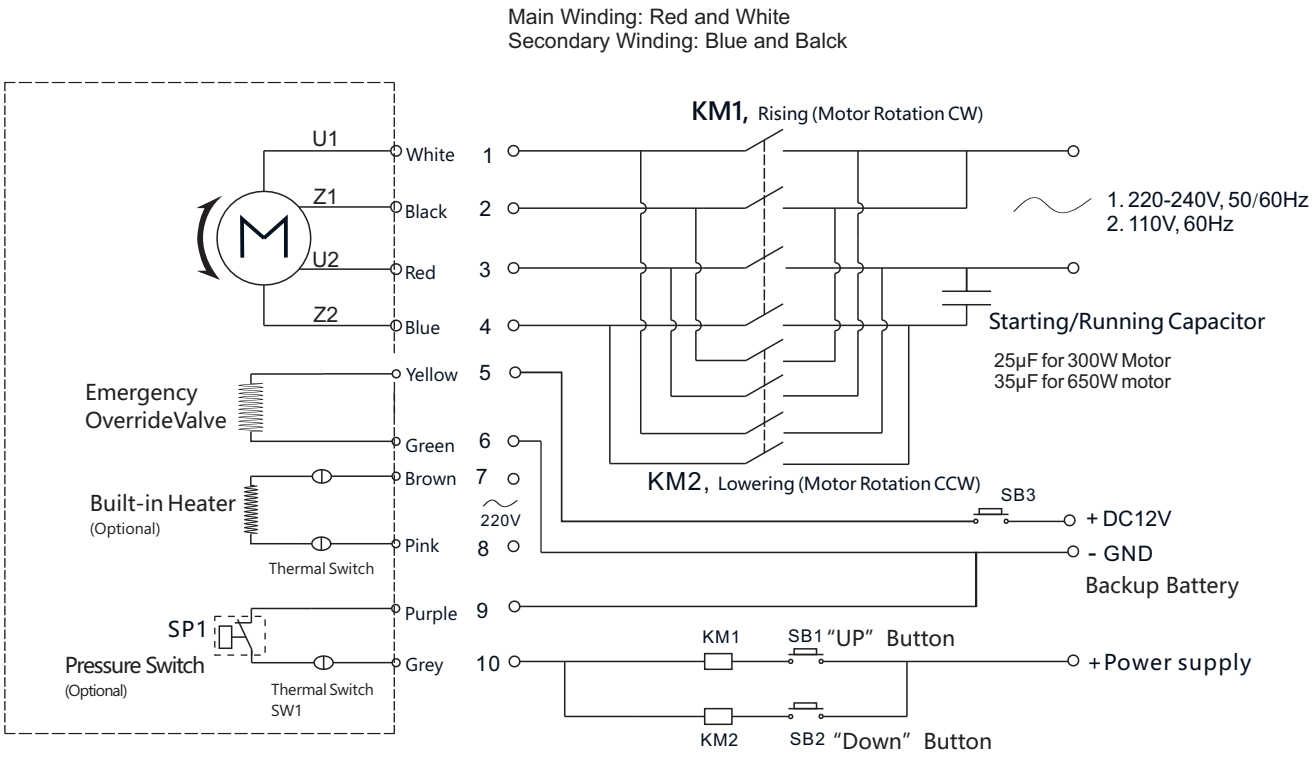




Wiring Diagram

TP Series

Single Phase



* The optional Pressure switch SP1 is Normally Closed, to cutoff the power supply to motor when cylinder extended or retracted to end.

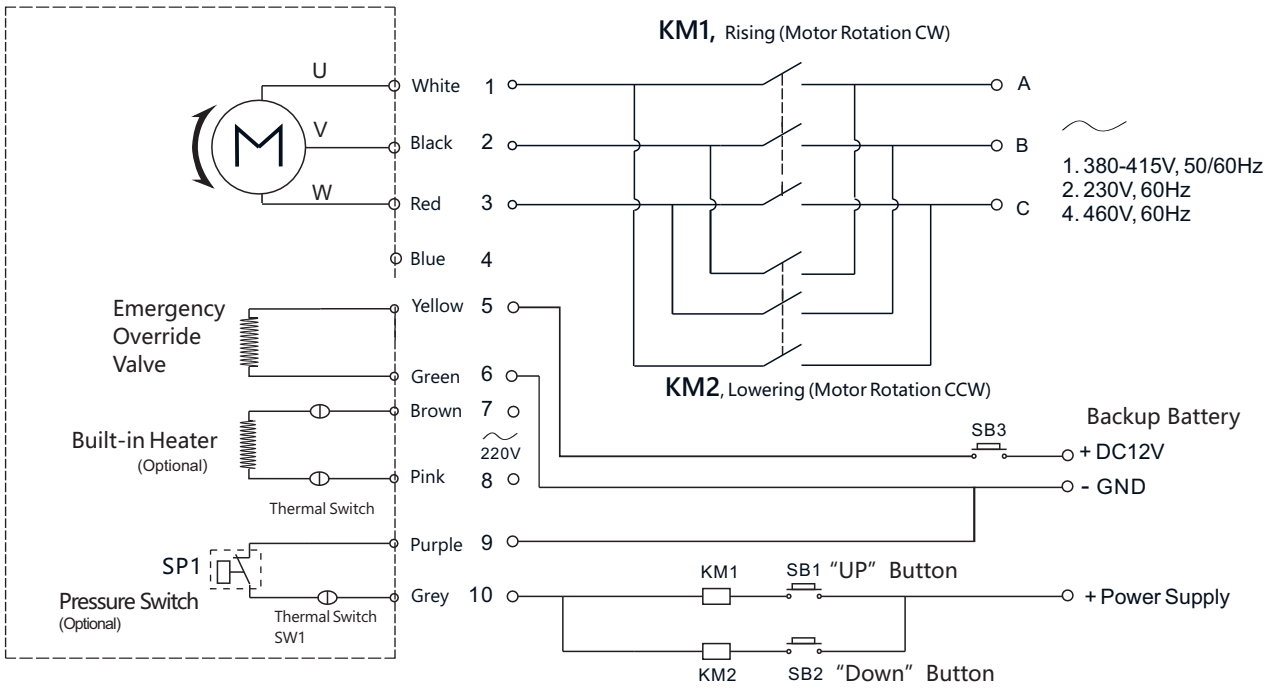
Operation:

1. Push the button SB1, motor run in CW, cylinder extending.
2. The pressure switch SP1 (if installed) will be triggered to open when cylinder extended to end.
3. Push the button SB2, motor run in CCW, cylinder retracting.
4. The pressure switch SP1 (if installed) will be triggered to open when cylinder retracted to end.
5. Energize the Emergency Override Valve with a DC12V battery in case of blackout or motor failed.
6. Turn on the built-in heater (optional, if installed) in extremely cold weather, to reach better performance.
7. Thermal Switch Sw1 is Normally Closed, it will be triggered to OPEN

Wiring Diagram

TP Series

Three Phase



Pressure switch SP1 is Normally Closed, for power cutoff to motor when cylinder extended or retracted to end.

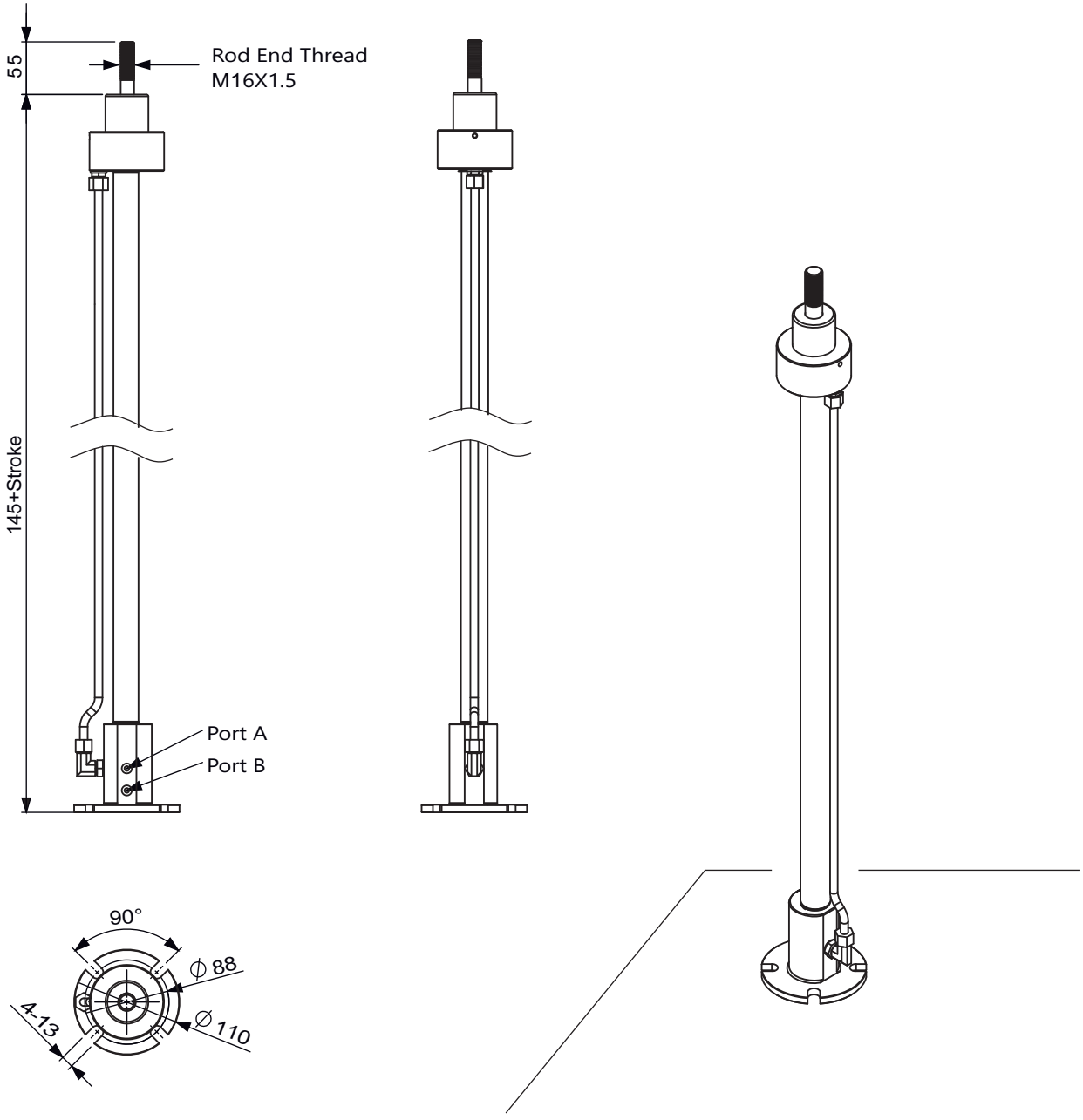
Operation:

1. Push the button SB1, motor run in CW, cylinder extending.
2. The pressure switch SP1 (if installed) will be triggered to open when cylinder extended to end.
3. Push the button SB2, motor run in CCW, cylinder retracting.
4. The pressure switch SP1 (if installed) will be triggered to open when cylinder retracted to end.
5. Energize the Emergency Override Valve with a DC12V battery in case of blackout or motor failed.
6. Turn on the built-in heater (optional, if installed) in extremely cold weather, to reach better performance.

HSG series Type 20

Code	Bore	Rod Dia	Max Stroke	Max Pressure	*Max Load
HSG-20*	20mm	16mm	700mm	15MPa	130kg

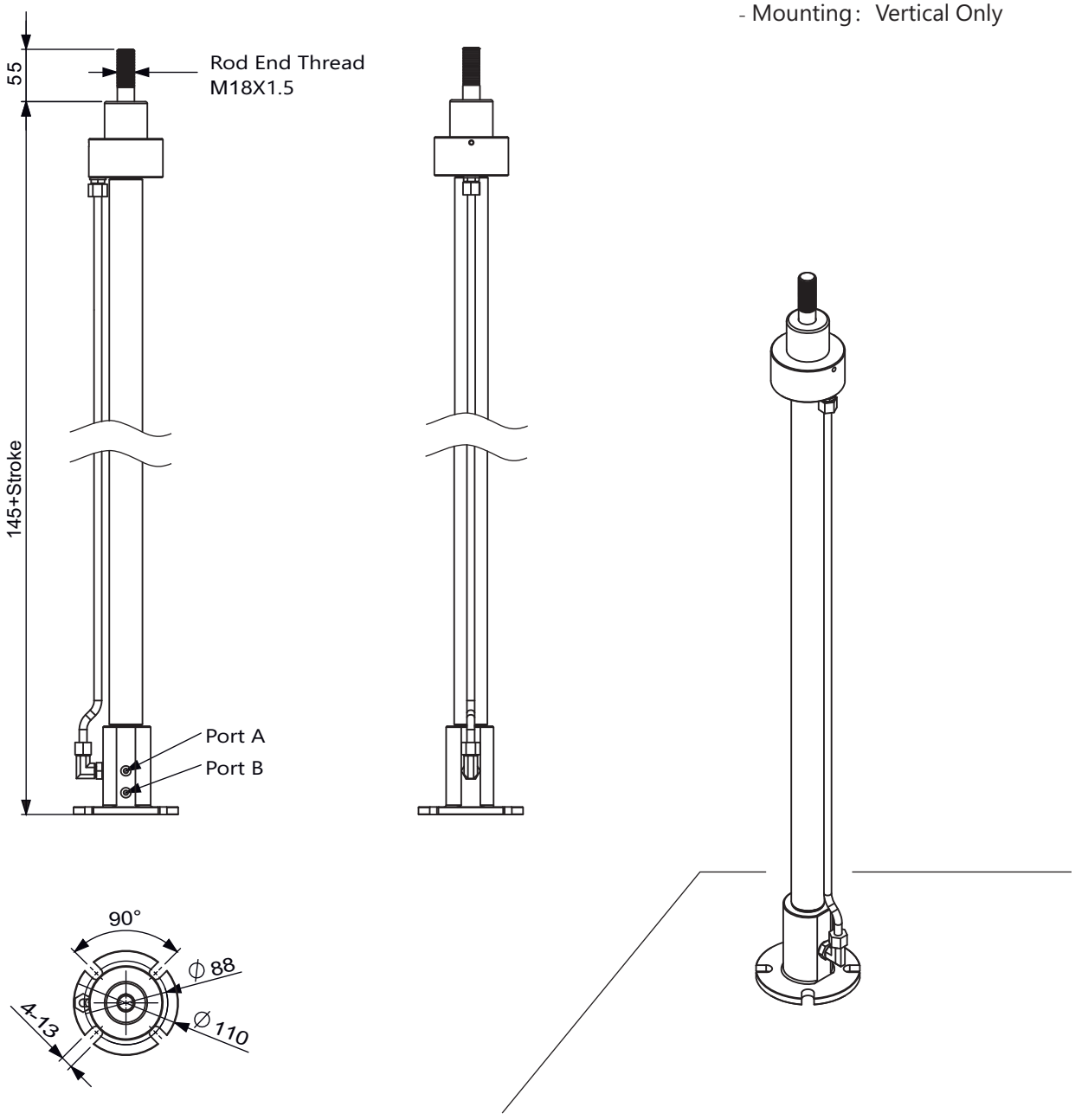
- Mounting: Vertical Only



HSG series Type 25

Code	Bore	Rod Dia	Max Stroke	Max Pressure	*Max Load
HSG-25A*	25mm	18mm	700mm	15MPa	200kg
HSG-25B*	25mm	20mm	1000mm	15MPa	300kg

- Mounting: Vertical Only



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Shanghai Mocen Fluid Power Co., Ltd
388 Sanbang Road Building #8, Shanghai, China
Telephone: (021) 52656330, 52656331,52656332
Fax: (021) 52656331,52656332 ext. 810
Email: biz@mocen.cn
Website: www.mocen.com.cn

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