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# Hydraulic Pilot Control Joysticks

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[www.QPhydraulics.com](http://www.QPhydraulics.com)



QP Hydraulics. Precision Control.



View Applications »

QP 液压提供多种先导控制解决方案以及定制服务，确保您的所有应用轻松获得最佳的先导控制。我们的先导阀内部均为精密操控的插装阀，阀套均经过热处理。热处理的阀套不仅能提供精确控制，而且品质卓越，寿命长久。

只须按三个步骤选型，就能为您的应用找到最佳的先导控制方案：1) 插装阀型号，2) 阀体油口规格，3) 手柄样式。这些步骤非常简单。

QP Hydraulics offers a variety of pilot control joystick solutions and customized services which ensure you an easy way to obtain the best Joystick control for all your applications. Inside all of our pilot valves are precision control cartridges which means all our joysticks have heat treated cages. The heat treated cage not only provides precise control, but also high quality and long durability.

To find the best pilot control for your application just follow these three simple selection steps: 1) cartridge model and 2) body port size and 3) handle style. It's as easy as selecting: One Two Three.



第一步：插装阀型号：**PRV46**，或PRV5，或PRVC5

Selection One: Cartridge Model: **PRV46**, or PRV5 or PRVC5



插装阀型号：**PRV46**

额定流量：20 lpm

阀套内孔：阶梯式 4-6 mm

**PRV46**：减压阀PRV46 拥有“阶梯孔形技术”，即内径从 4mm到 6mm。小端 4mm部分降低杠杆力，孔形的 6mm部分增大流量响应。采用PRV46 型插装阀，你不会再在低操作力与快速响应之间难以取舍，相反你两者兼得！

**PRV46** : Pressure Reducing Valve 46 has our “stepped bore technology” that is 4mm to 6mm in diameter. The small 4mm portion of the bore reduces the lever efforts. The 6mm portion of the bore increases the flow response. With this PRV46 model cartridge you no longer compromise between low operating lever efforts and quick response... you get both!

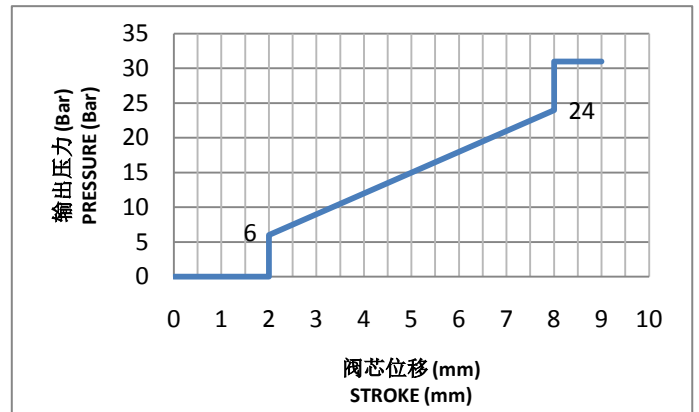
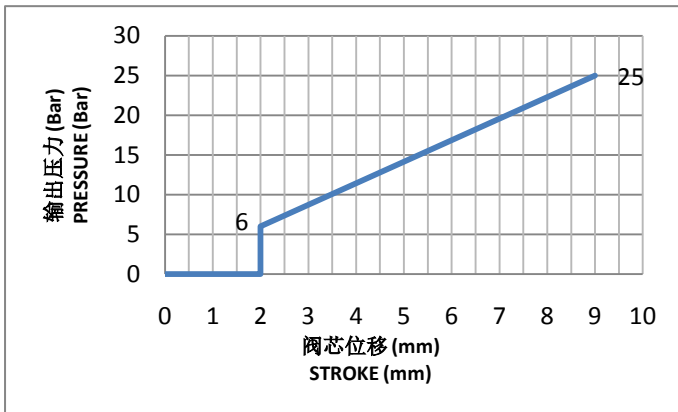
Cartridge Model: **PRV46**

Nominal Flow: 20 lpm

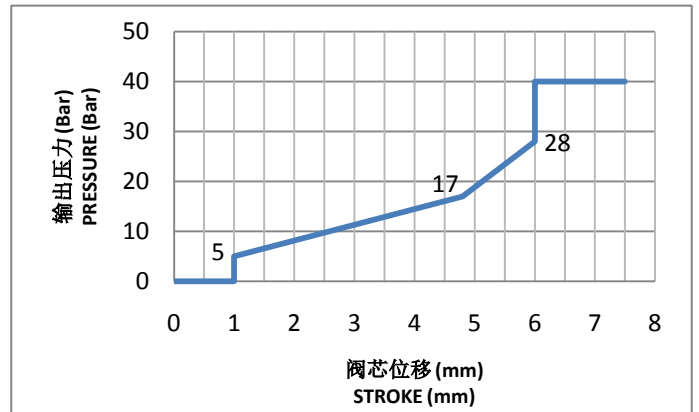
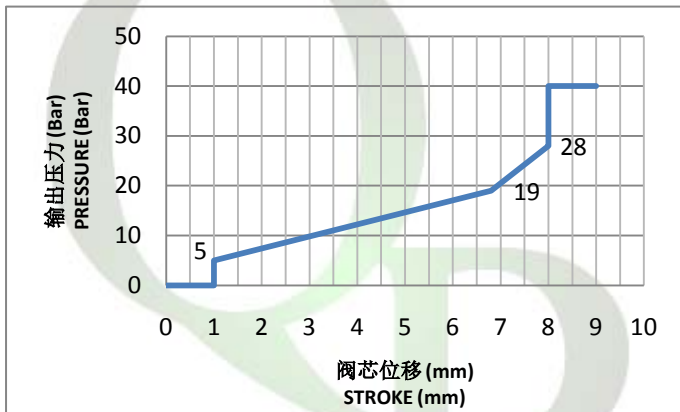
Cage Bore: Stepped 4 to 6mm

下页展示插装阀型号 PRV46 的多种可供选择的压力行程曲线：

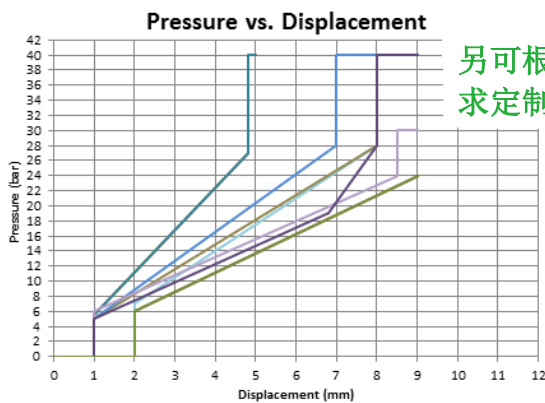
The next page shows the various pressure versus stroke curves available for this PRV46 cartridge model.



典型应用: 起重机, 旋挖钻机  
 Typical application: Crane, Rotary drilling rig



典型应用: 挖掘机  
 Typical application: Excavator



另可根据需求定制曲线

可根据任何应用需求定制曲线  
 Customized curves are available based on any application requirement

第一步 (继续) : 插装阀型号: PRV46, 或PRV5, 或PRVC5

Selection One (continued): Cartridge Model: PRV46, or PRV5 or PRVC5



插装阀型号: **PRV5**

额定流量: 15 lpm

阀套内孔: 直孔 5mm

**PRV5** : 减压阀PRV5 拥有 5mm直径, 对于小流量应用, 5mm直孔提供适合的杠杆力和操作响应与之相匹配。该插装阀结构紧凑, 并且体积小巧。广泛应用于挖掘机的堆土铲控制。请注意我们的单片式先导阀和和十字阀均可采用这三种规格的插装阀。

**PRV5** : Pressure Reducing Valve 5 has a simple straight 5mm diameter. This is for lower flow applications where the straight 5mm bore is a good match for adequate lever efforts and operation response. This cartridge is simpler and also thinner. This makes this cartridge a popular choice on blade control of excavators. Please note that Single Lever (SL) pilot controls as well as Joystick (JS) pilot controls are available for all three of our cartridges models.

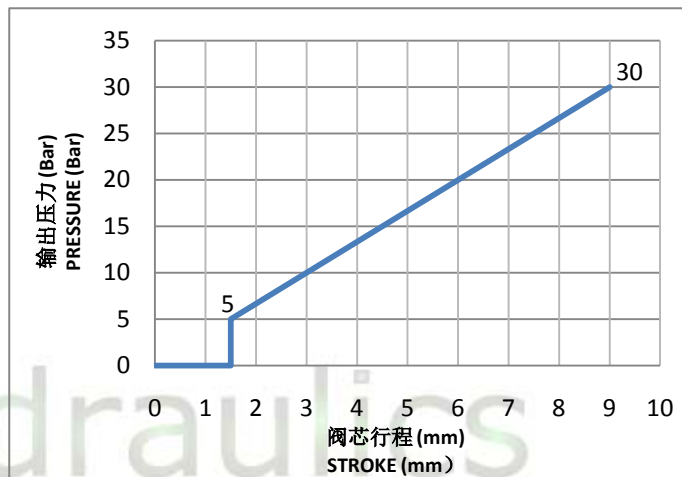
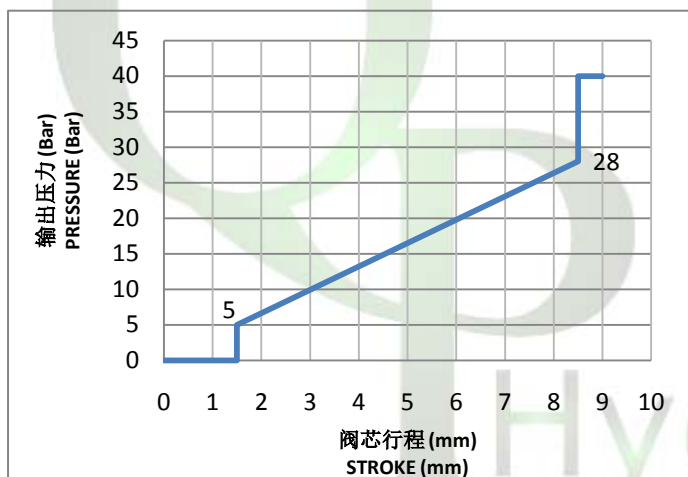
Cartridge Model: **PRV5**

Nominal Flow: 15 lpm

Cage Bore: Straight 5mm bore

QP 提供的压力曲线:

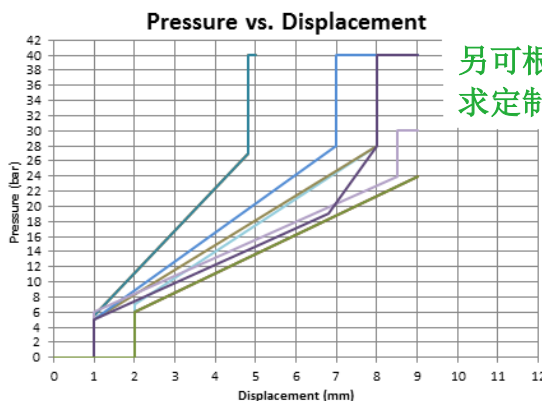
The curves QP provided:



典型应用: 挖掘机推土阀

Typical application: Blade control of Excavator

Make Your Hydraulic Solutions Easy



另可根据需求定制曲线

可根据任何应用需求定制曲线

Customized curves are available based on any application requirement

第一步 (继续) : 插装阀型号: PRV46, 或PRV5, 或PRVC5

Selection One (continued): Cartridge Model: PRV46, or PRV5 or PRVC5



插装阀型号: **PRVC5**

额定流量: 15 lpm

阀套内孔: 直孔 5mm

**PRVC5**: 减压阀PRVC5 是世界上体积最小的, 结构最精简的 5mm先导阀插装阀。具有体积小, 结构简单, 成本低, 精度高, 寿命长等特点, 由QP液压设计并经过 400 多万次耐久性测试。主要目标是经济型市场, 让挖掘机、滑移装载机和其它小型工程机械从中受益。

**PRVC5** : Pressure Reducing Valve Compact 5 is the world's smallest and simplest 5mm pilot valve cartridge. This compact cartridge offers: small size, simple structure, low cost, high precision, and long durability. QP Hydraulics designed and endurance tested this cartridge to over 4 million cycles. This compact cartridge aims at the economical markets , benefiting excavator, skid steer loaders and other small size construction machinery.

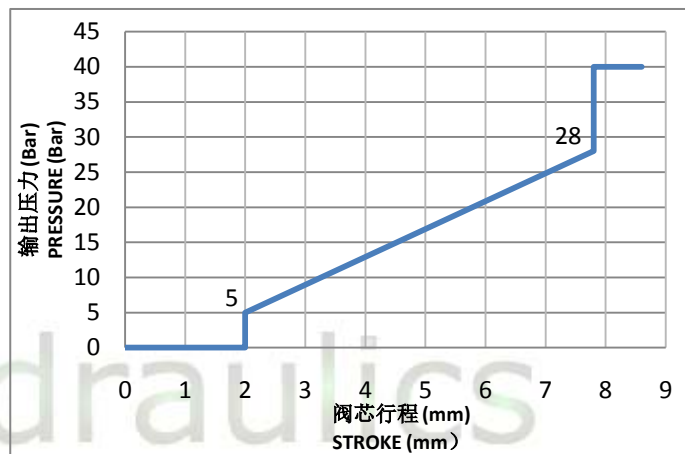
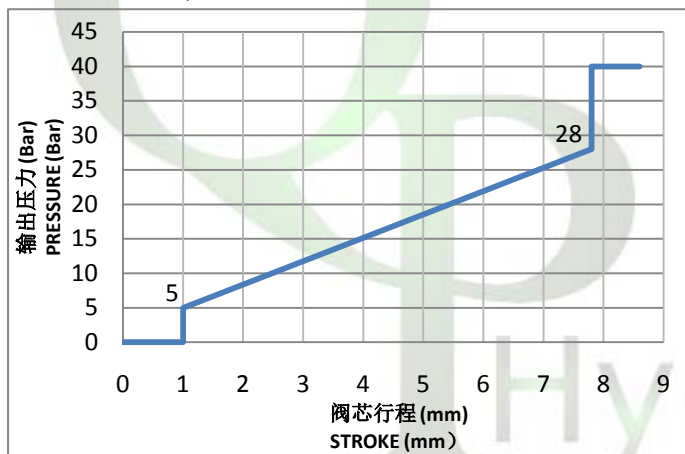
Cartridge Model: **PRVC5**

Nominal Flow: 15 lpm

Cage Bore: Straight 5mm bore

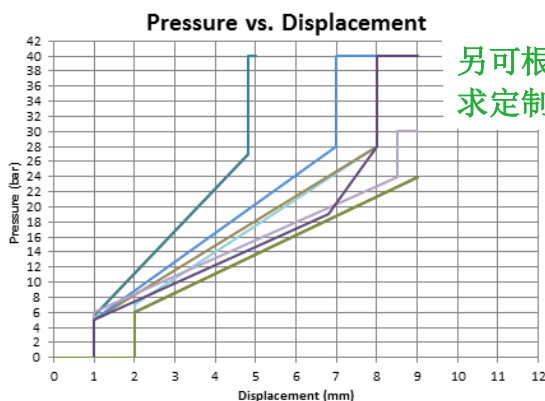
QP 提供的压力曲线:

The curves QP provided:



典型应用: 小型挖掘机, 滑移装载机

Typical application: Mini Excavator, Skid Steer loader



另可根据需求定制曲线

可根据任何应用需求定制曲线

Customized curves are available based on any application requirement

**第二步：阀体油口规格：G1/4, G1/4 斜面, SAE STOR-06 及特殊规格**

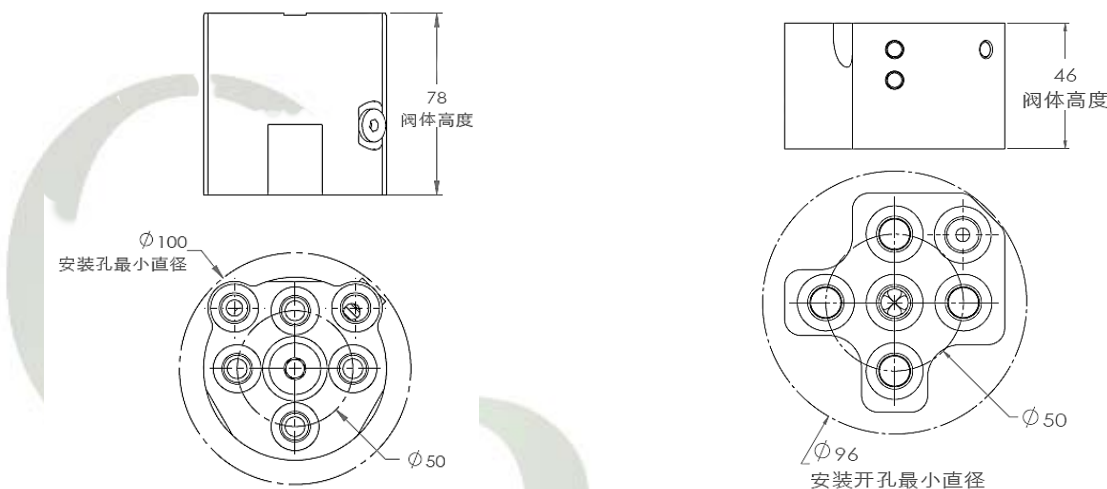
**Selection Two: Body port size: G1/4, G1/4 Chamfer, SAE STOR-06 and Special**

**阀体基本尺寸：**

JS系列十字先导阀体的安装尺寸可采用PRV46、PRV5、和PRVC5 中任意一种插装阀。QP液压同样提供SL系列单片式先导阀，同样可采用这三种插装阀。请参见 [www.qphydraulics.com](http://www.qphydraulics.com) 并联系我们。

**Body Size Basic Dimensions:**

These installation dimensions are for Joystick (JS) pilot controls for each of the cartridge models: PRV46, PRV5 and PRVC5. QP Hydraulics also offers Single Lever (SL) pilot controls for all three of our cartridge models. Just contact us as [www.qphydraulics.com](http://www.qphydraulics.com).

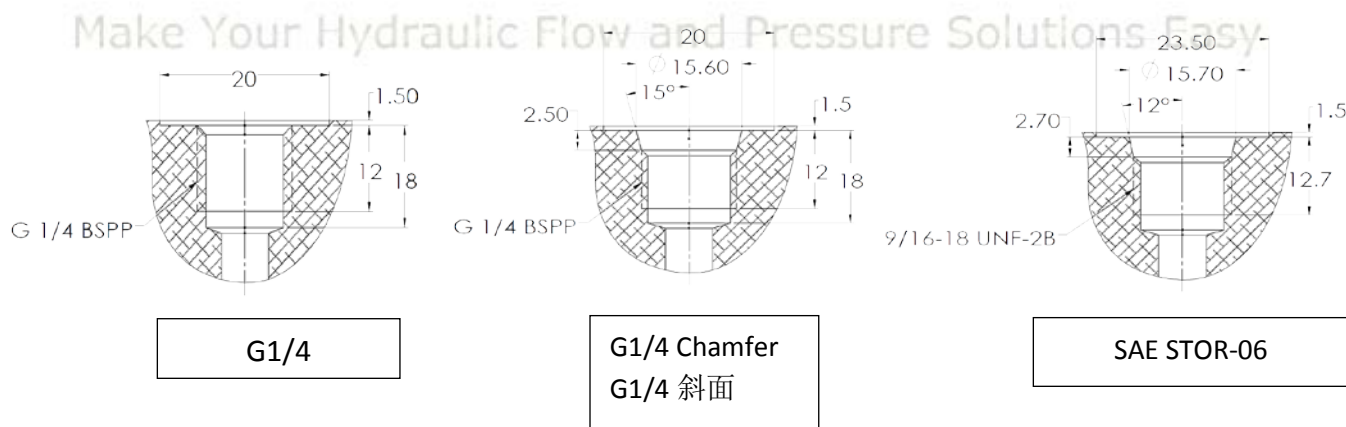


**选择油口规格：G1/4, G1/4 斜面, SAE STOR-06 及特殊规格**

QP液压先导控制阀，包括所有插装阀类型都有这三种标准化的油口：G1/4, G1/4 斜面, SAE STOR-06。参见油口尺寸视图。对于特殊规格油口，请参见 [www.qphydraulics.com](http://www.qphydraulics.com) 并联系我们。

**Select Port Size: G1/4, G1/4 Chamfer, SAE STOR-06 and Special**

QP Hydraulics pilot controls for all the cartridge styles have these three standardized port size choices: G1/4, G1/4 Chamfer and SAE STOR-06. See the views for the port dimensions. For a special port size, please contact us as [www.qphydraulics.com](http://www.qphydraulics.com).



**第三步：手柄类型：起重机/装载机/推土机，挖掘机长手柄，挖掘机短手柄或特殊类型**
**Selection Three: Handle style: Crane/Loader/Dozer, Excavator Long, Excavator Short or Special**

QP 液压为所有客户采用符合人体工程学原理的手柄，用料上乘，手感合适。选配的开关和扳机按钮使用舒适，分布合理，同样符合人体工程学要求。手柄，开关及扳机按钮连同低操作力的插装阀使 QP 液压先导阀极其高效易用。装载机上通常使用 3 个线圈定位及预感缓冲机构。推土机通常使用 1 个线圈定位及预感缓冲机构。线圈定位机构能够实现手柄在全行程时电气化的自锁及松开控制。加装预感缓冲机构可以让操作者在靠近全行程位置时避免被吸入锁定位置。加装线圈的手柄高度与图示相同，但护套尺寸略大以便于安装吸合线圈。

QP Hydraulics joysticks have ergonomic handles for all customers. These handles are all made from quality materials and have hand grip feel to match the low operation lever efforts. The switch and trigger options are also low effort and ergonomically located on the handles. Ergonomic Handles, Buttons, Triggers combine with low effort cartridges to make our QP Hydraulic joystick pilot controls very productive and easy to operate. Wheel loaders typically use 3 hold coil detents and have forewarning feel bumper. Dozer applications typically have one hold coil detent with a forewarning feel bumper. The hold coil detents allow the handle to be electrically latched and on-latched at full stroke. The forewarning feel bumper is set so that the operator can get near full stroke without going into hold coil latched position. The handle height for the hold coils is the same as shown. The boot dimensions are larger to allow room for the hold coils.

手柄类型：起重机、装载机、推土机

上端按钮：0-4

扳机按钮：0-1

防护等级：IP 65

最大电流：2 A

最大电压：36 V

安装尺寸：见安装图

线圈个数：0-4 可选（注意护套稍大）


**Handle Style: Crane/Loader/Dozer**

Top Buttons: 0 to 4

Front Trigger: 0 to 1

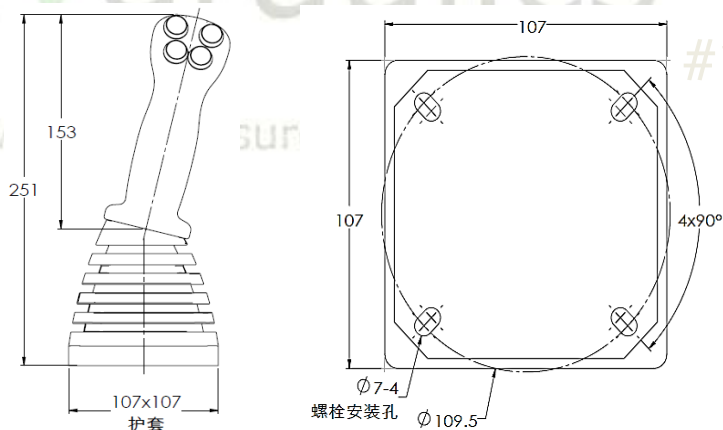
Protective grade: IP65

Current Max: 2 Amps

Voltage Max: 36 Volts

Dimensions: see installation drawings

Hold Coils: 0 to 4 available (note boot is larger)



**第三步（继续）：手柄类型：起重机/装载机/推土机，挖掘机长手柄，挖掘机短手柄或特殊类型**  
**Selection Three: Handle style: Crane/Loader/Dozer, Excavator Long, Excavator Short or Special**

这一类型手柄分为长和短两种规格，广泛应用在挖掘机、两头忙、滑移装载机及其它小型机器。  
 This handle comes in a long and short lengths. This Excavator style handle is used on many excavators, backhoes, skid steer loaders and other small machines.

**手柄类型：挖掘机长手柄，挖掘机短手柄或特殊类型**

长度：长（296mm）或短（273mm）

上端按钮：0-1

防护等级：IP 65

最大电流：6 A

最大电压：24 V

安装尺寸：见安装图

特殊手柄，请访问 [www.qphydraulics.com](http://www.qphydraulics.com) 并联系我们

**Handle Style: Excavator Long, Excavator Short and Special.**

Length: long (296mm) or short (273mm)

Top Button: 0 to 1

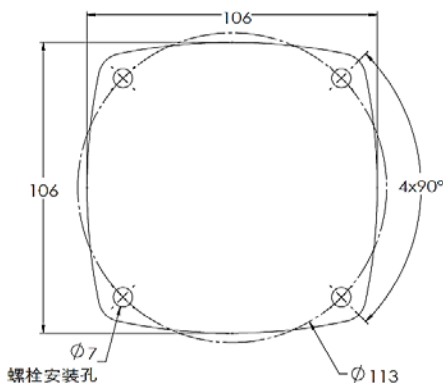
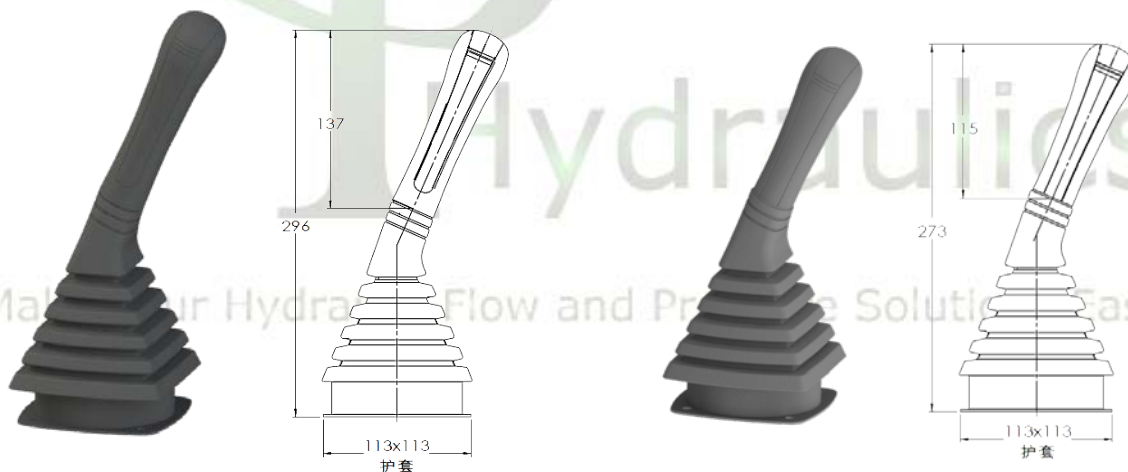
Protective grade: IP65

Current Max: 6 Amps

Voltage Max: 24 Volts

Dimensions: see installation drawings

For a special style handle, please contact us as [www.qphydraulics.com](http://www.qphydraulics.com).



**安装尺寸图和报价需求:**

为您的应用选择最佳先导阀, 通过三个步骤就可以轻松完成。

- 1) 插装阀型号: **PRV46, PRV5, 或 PRVC5**
- 2) 阀体油口规格: **G ¼, G ¼ 斜面密封, SAE STOR-06 或特殊规格**
- 3) 手柄类型: **起重机/装载机/推土机, 挖掘机长手柄, 挖掘机短手柄或特殊类型**

您的先导控制手柄安装图和报价就可以发给您了。请访问

[www.qphydraulics.com](http://www.qphydraulics.com) 并告知您的选择及预估年用量。

以下是一些典型安装尺寸图示例:

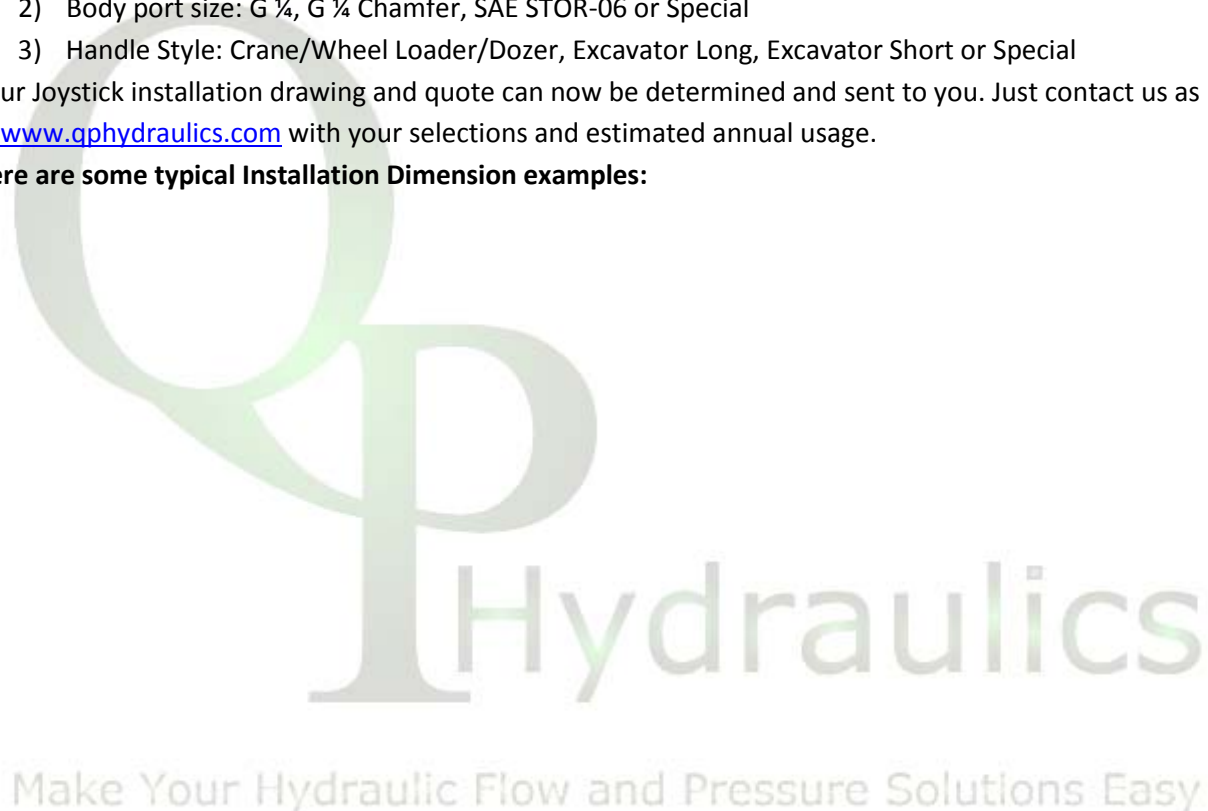
**Installation Dimensions and Quote Request:**

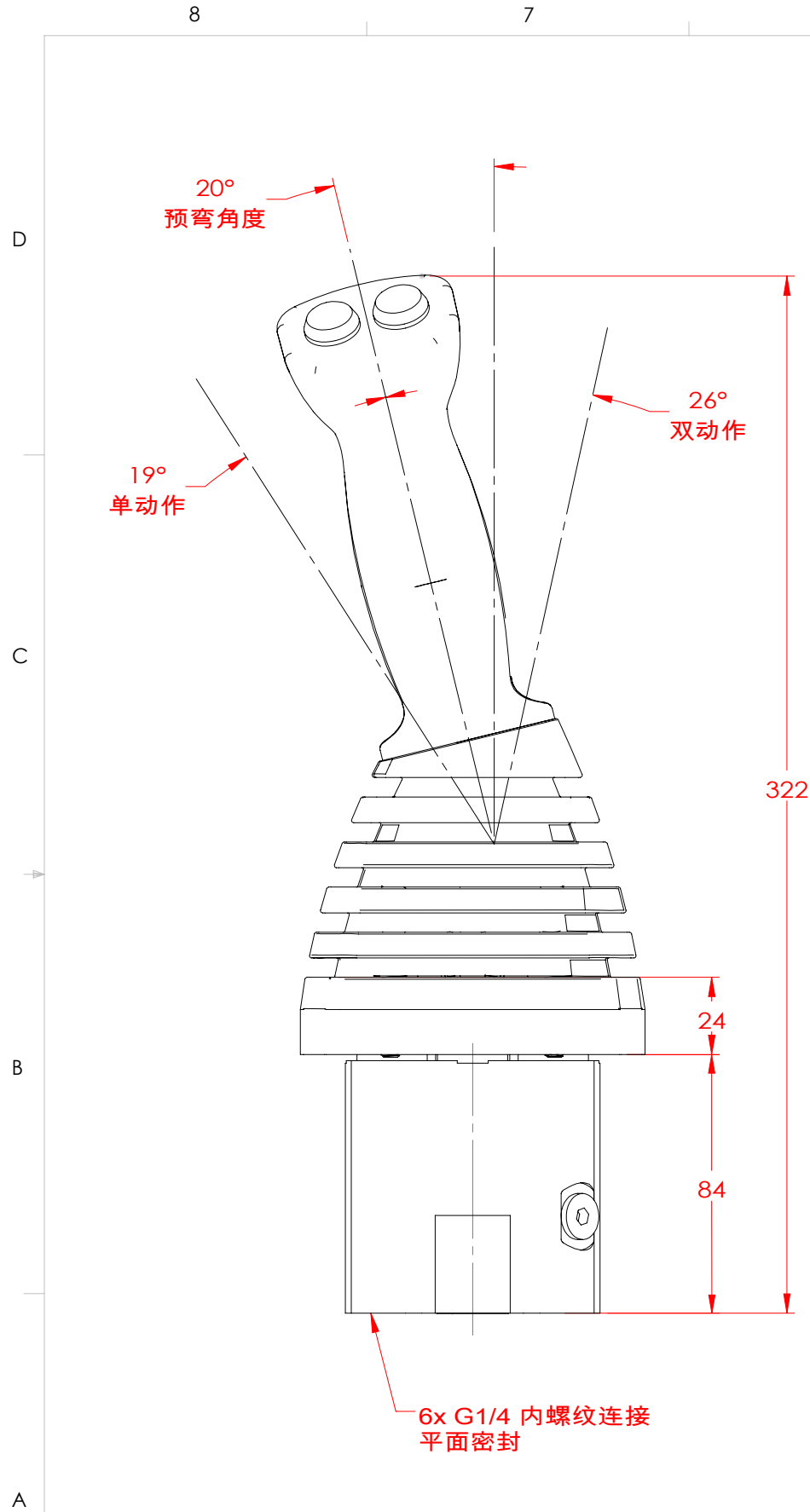
Choosing the best joystick for your application is as easy as selecting: one two three and you are done:

- 1) Cartridge Model: PRV46, PRV5, or PRVC5
- 2) Body port size: G ¼, G ¼ Chamfer, SAE STOR-06 or Special
- 3) Handle Style: Crane/Wheel Loader/Dozer, Excavator Long, Excavator Short or Special

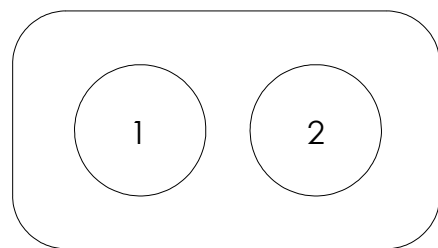
Your Joystick installation drawing and quote can now be determined and sent to you. Just contact us as at [www.qphydraulics.com](http://www.qphydraulics.com) with your selections and estimated annual usage.

**Here are some typical Installation Dimension examples:**





电线连接

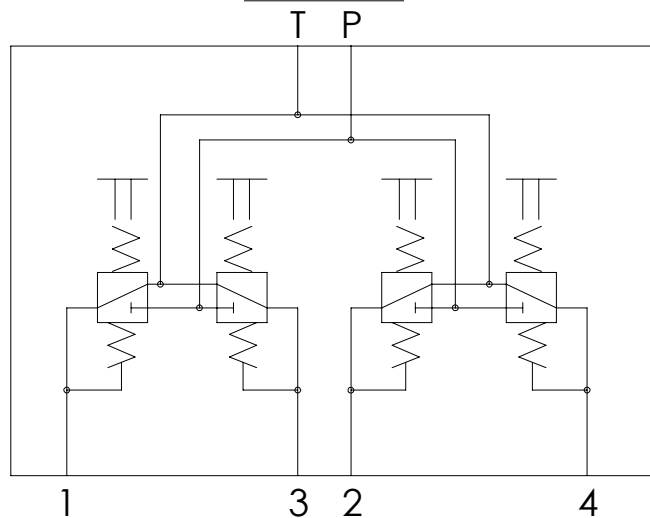


开关 1 : V+ (绿色), V- (黄色)  
开关 2 : V+ (蓝色), V- (白色)  
安全开关: V+ (红色), V- (黑色)

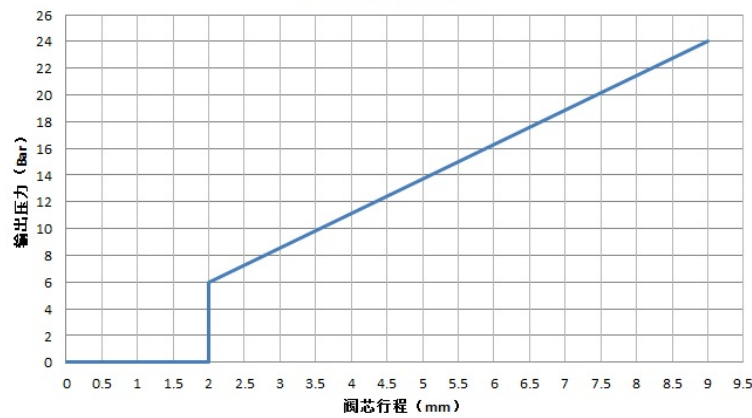
开关最大电压/电流: 36V/2A

规格 AWG	额定 温度	额定 电压	导体	导体 根数	导体直径 mm	绝缘厚度 mm	绝缘外径 mm
20	105°C	300 V	裸铜丝	26	0.16	0.42	1.8 <sup>0.1</sup>

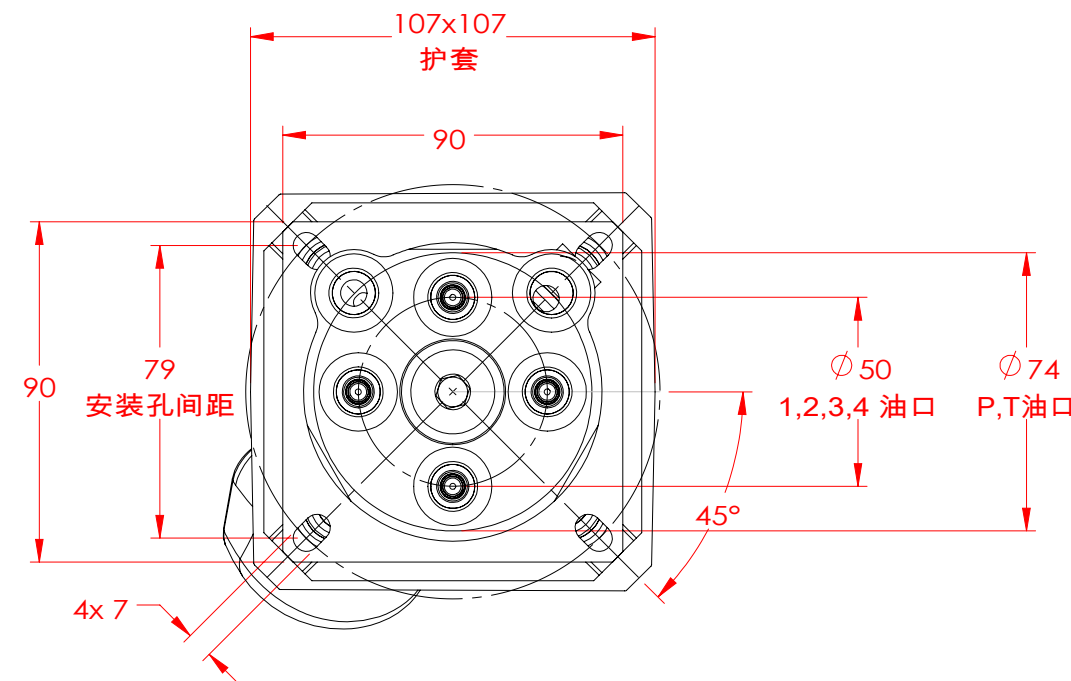
液压原理图



压力输出曲线



REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	INITIAL PROTOTYPE RELEASE	12/20/2012	RYao



注意事项:

- 1) 最大输入压力: 10MPa
- 2) 额定压力: 3.1MPa
- 3) 输出压力: 看图表
- 4) 中位最大泄漏量: 48mL/MIN
- 5) 换位最大泄漏量: 35mL/MIN/插装阀
- 6) 最大限定安装扭矩: 40Nm
- 7) 液压油: 矿物液压油(推荐10W)
- 8) 额定流量: 20 L/min
- 9) 温度范围: -20° ~ 90°

SOLIDWORKS / ENTERPRISE PDM CONTROLLED DOCUMENT. ALL COPIES ARE REFERENCE

UNLESS OTHERWISE SPECIFIED  
TOLERANCES ARE:  
SURF. FINISH  $\sqrt{3.2}$   
.X ±0.25  
.XX ±0.13  
ANGLES ±1°  
CORNERS/EDGES C/R 0.4 MAX

METRIC	NAME	DATE
DRAWN	RYao	12/20/2012
CHECKED	CXia	12/20/2012
APPROVED		

MATERIALS:

FINISH:

THIRD ANGLE  
PROJECTION

ITEM  
QTY

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
JS446-SY-R PLATELESS NO FINAL  
JUMP  
DESCRIPTION CODE:

PV-JS-446-QZ-R-1

PART NO

12-00962

REV

A

Make Your Hydraulic  
Flow and Pressure  
Solutions Easy  
**QP Hydraulics**

WEIGHT: g

SCALE: 1:2

SOLIDWORKS

SHEET 1 OF 1

B METRIC

8

7

6

5

4

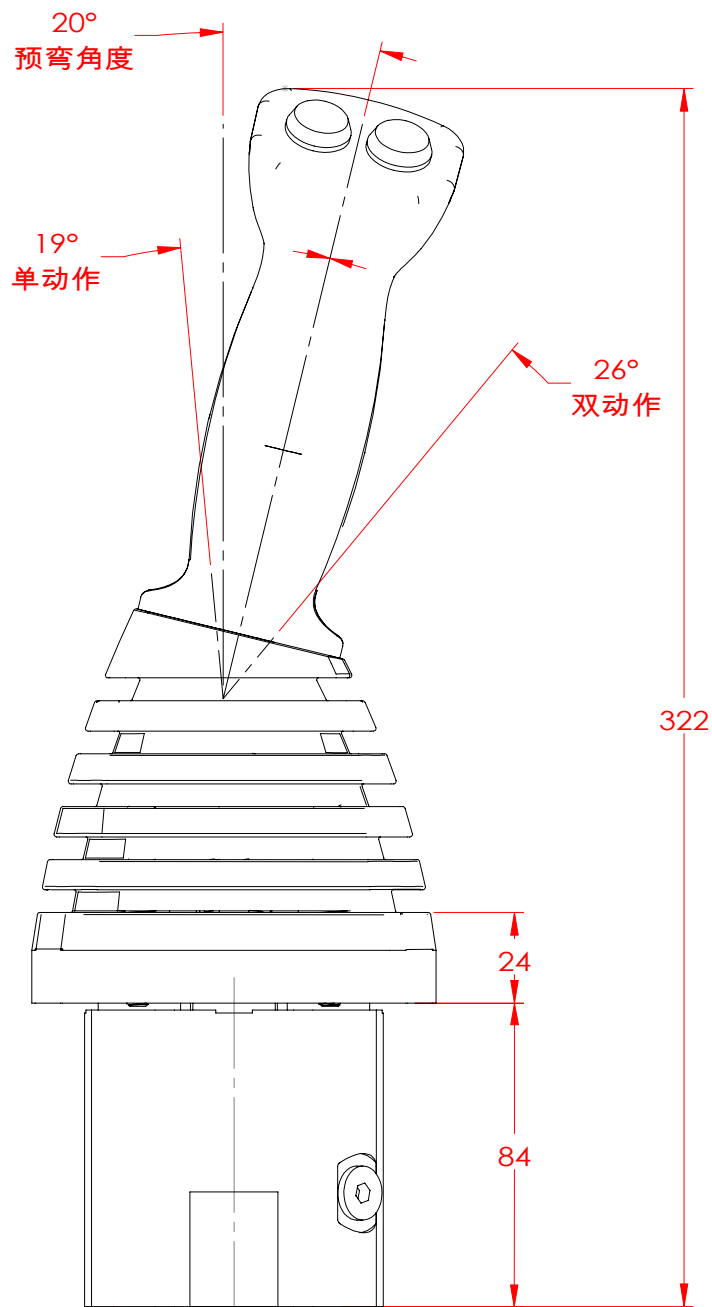
3

2

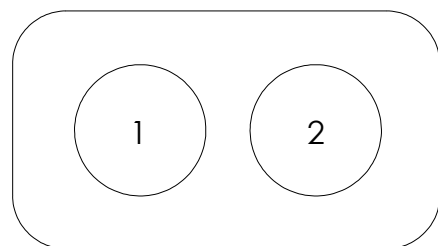
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### REVISIONS

REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	INITIAL PROTOTYPE RELEASE	12/20/2012	RYao



### 电线连接

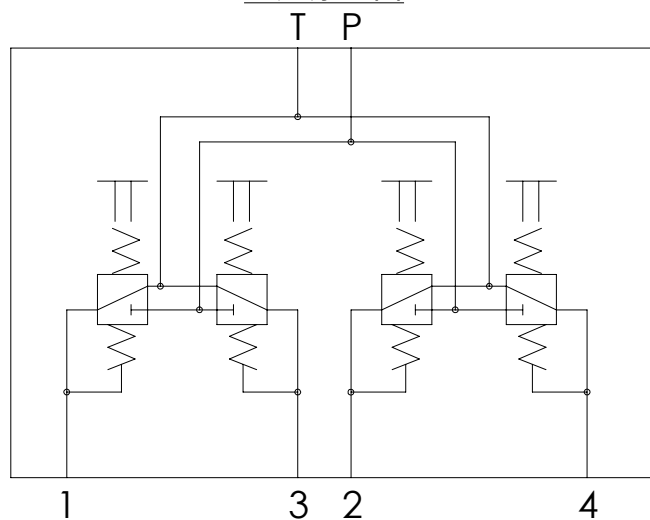


开关 1 : V+ (绿色), V- (黄色)  
 开关 2 : V+ (蓝色), V- (白色)  
 安全开关: V+ (红色), V- (黑色)

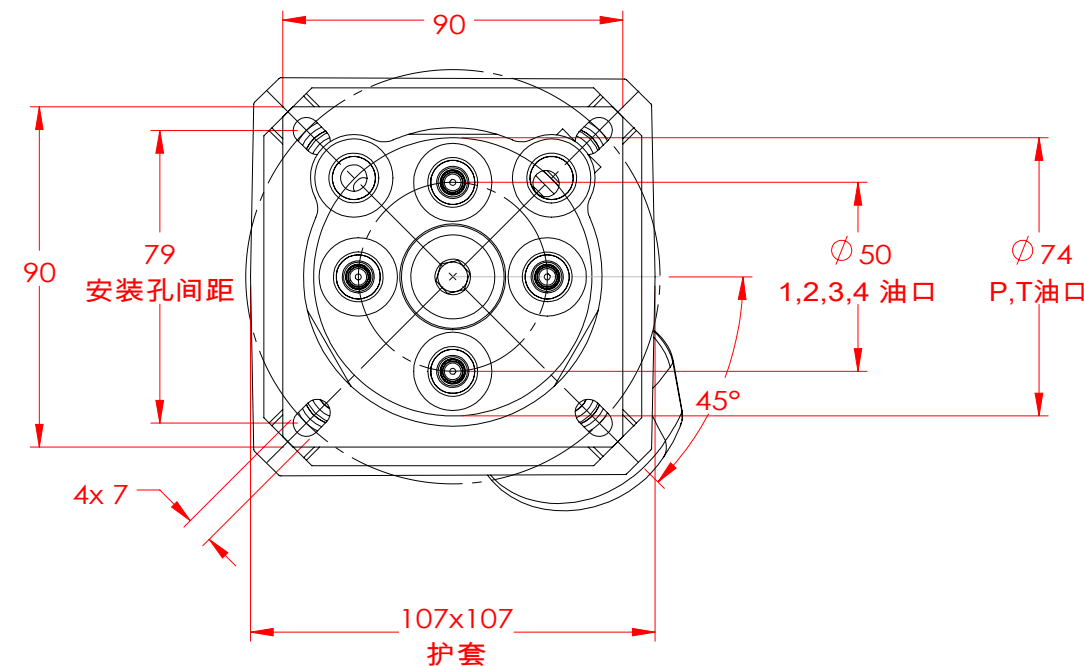
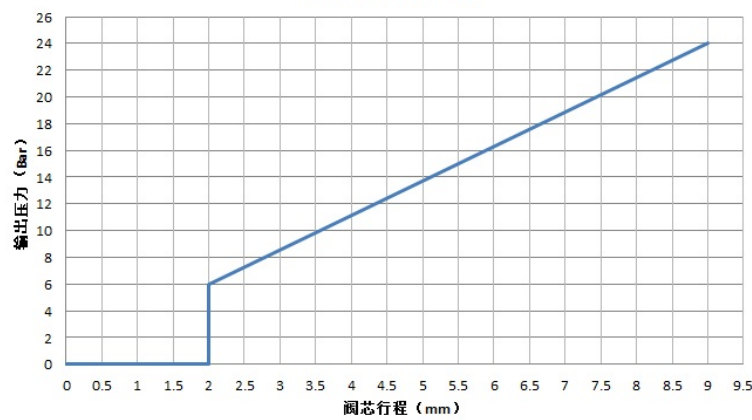
开关最大电压/电流: 36V/2A

规格 AWG	额定 温度	额定 电压	导体	导体 根数	导体直径 mm	绝缘厚度 mm	绝缘外径 mm
20	105°C	300 V	裸铜丝	26	0.16	0.42	1.8 <sup>0-0.1</sup>

### 液压原理图



### 压力输出曲线



### 注意事项:

- 1) 最大输入压力 : 10MPa
- 2) 额定压力 : 3.1MPa
- 3) 输出压力 : 看图表
- 4) 中位最大泄漏量 : 48mL/MIN
- 5) 换位最大泄漏量 : 35mL/MIN/插装阀
- 6) 最大限定安装扭矩 : 40Nm
- 7) 液压油 : 矿物液压油(推荐10W )
- 8) 额定流量 : 20 L/min
- 9) 温度范围 : -20° ~ 90°

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UNLESS OTHERWISE SPECIFIED  
 TOLERANCES ARE:  
 SURF. FINISH  $\sqrt{3.2}$   
 .X ±0.25  
 .XX ±0.13  
 ANGLES ±1°  
 CORNERS/EDGES C/R 0.4 MAX

METRIC	NAME	DATE
DRAWN	RYao	12/20/2012
CHECKED	CXia	12/20/2012
APPROVED	KBrown	01/24/2013

MATERIALS:

FINISH:

THIRD ANGLE  
 PROJECTION

ITEM  
 QTY

**QP Hydraulics**  
 DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**JS446-SY-L PLATELESS NO FINAL JUMP**  
 DESCRIPTION CODE:

PV-JS-446-QZ-L-1

PART NO

12-00960

REV

A

Make Your Hydraulic  
 Flow and Pressure  
 Solutions Easy  
**QP Hydraulics**

WEIGHT: g

SCALE: 1:2

SOLIDWORKS

SHEET 1 OF 1

8

7

6

5

4

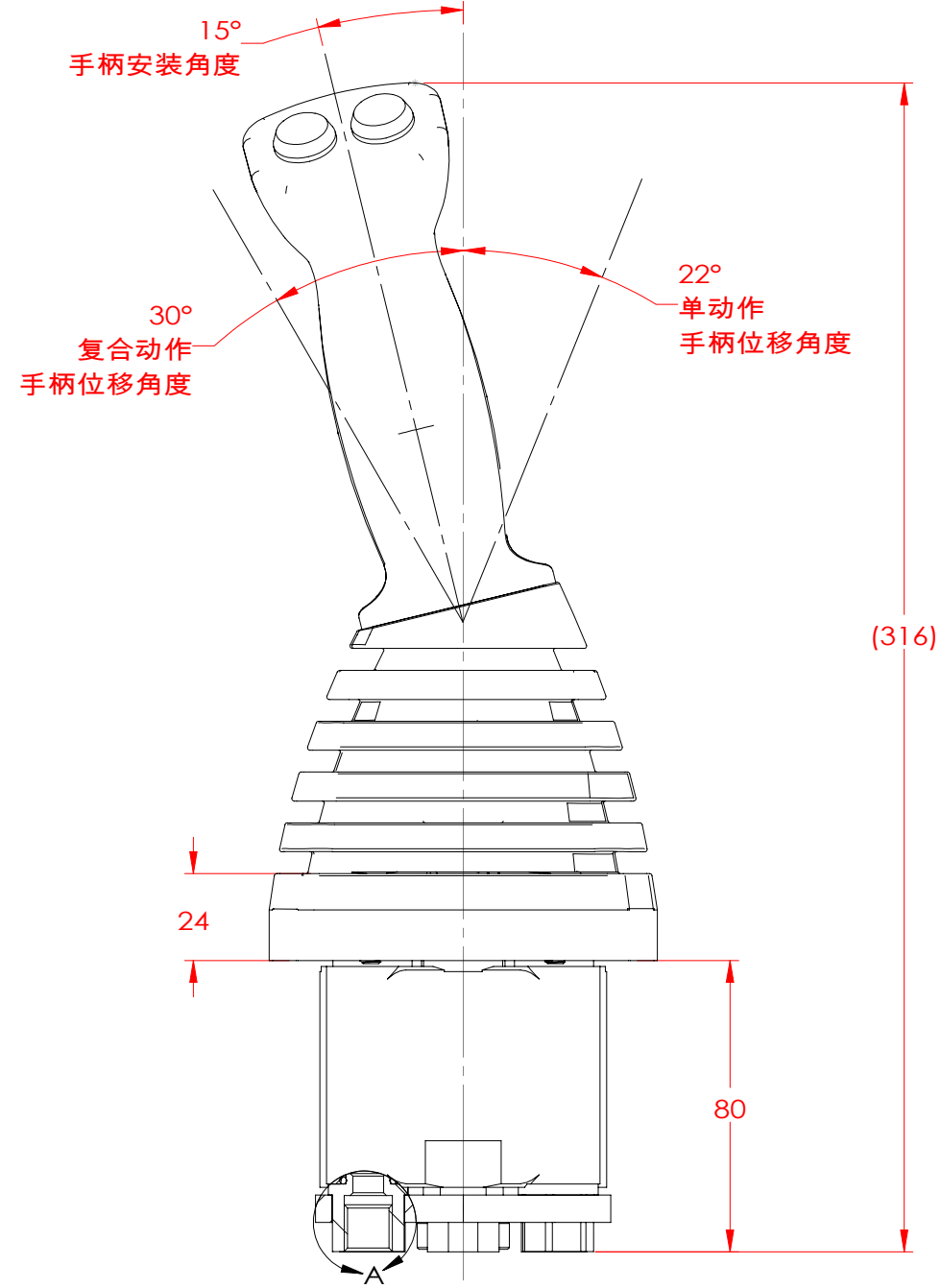
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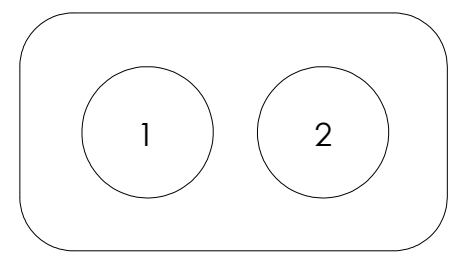
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B METRIC

REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
01	CANCEL FINAL JUMP UP REMOVE SCREEN	11/22/2012	NBo



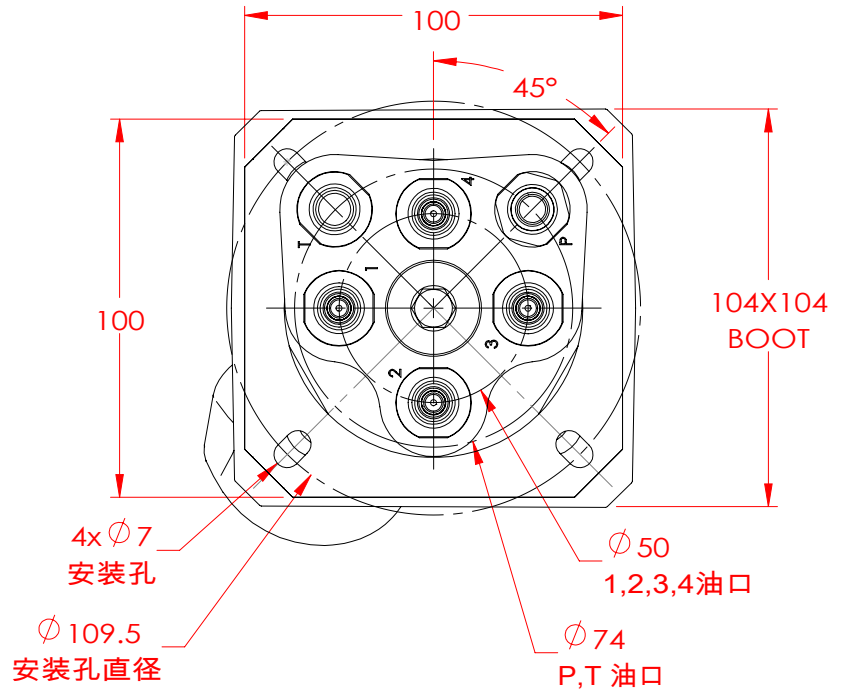
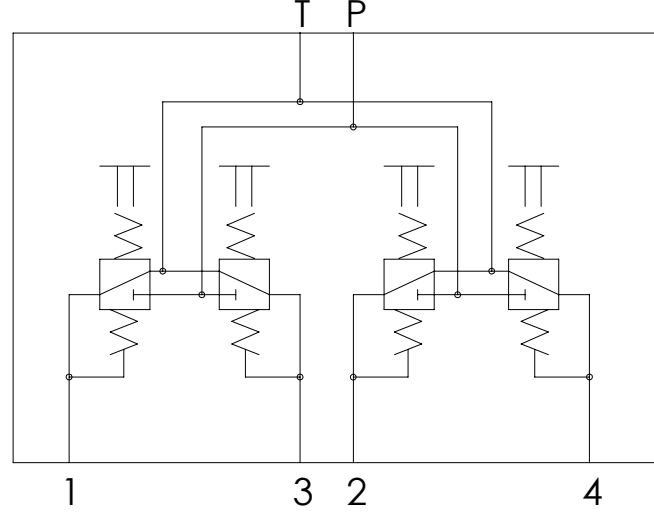
电线连接



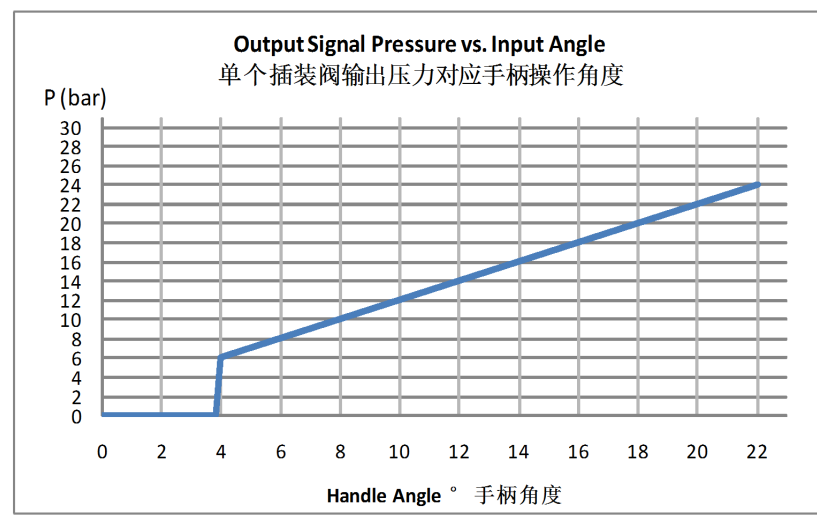
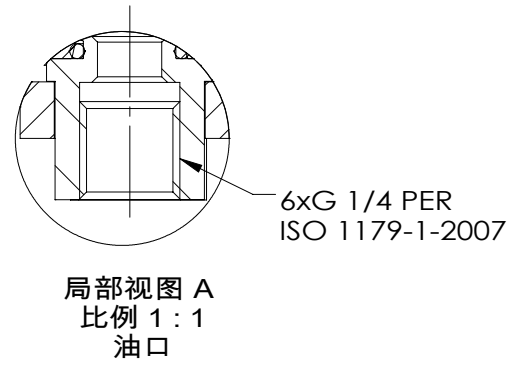
开关 1 : V+ (绿色), V- (黄色)  
 开关 2 : V+ (蓝色), V- (白色)  
 安全开关: V+ (红色), V- (黑色)  
 开关最大电压/电流: 36V/2A  
 电线尺寸: Ø0.5mm

规格 AWG	额定 温度	额定 电压	导体	导体 根数	导体直径 mm	绝缘厚度 mm	绝缘外径 mm
20	105°C	300 V	裸铜丝	26	0.16	0.42	1.8 <sup>0</sup> <sub>-0.1</sub>

液压原理图



- 技术参数:
- 1) 最大输入压力: 100 BAR
  - 2) 额定压力: 31 BAR
  - 3) 输出压力: 看图表
  - 4) 中位最大泄漏量: 48 mL/MIN
  - 5) 换位最大泄漏量: 35 mL/MIN/插装阀
  - 6) 最大限定安装扭矩: 40 Nm
  - 7) 液压油: 矿物液压油
  - 8) 额定流量: 20 LPM
  - 9) 温度范围: -20° ~ 90°



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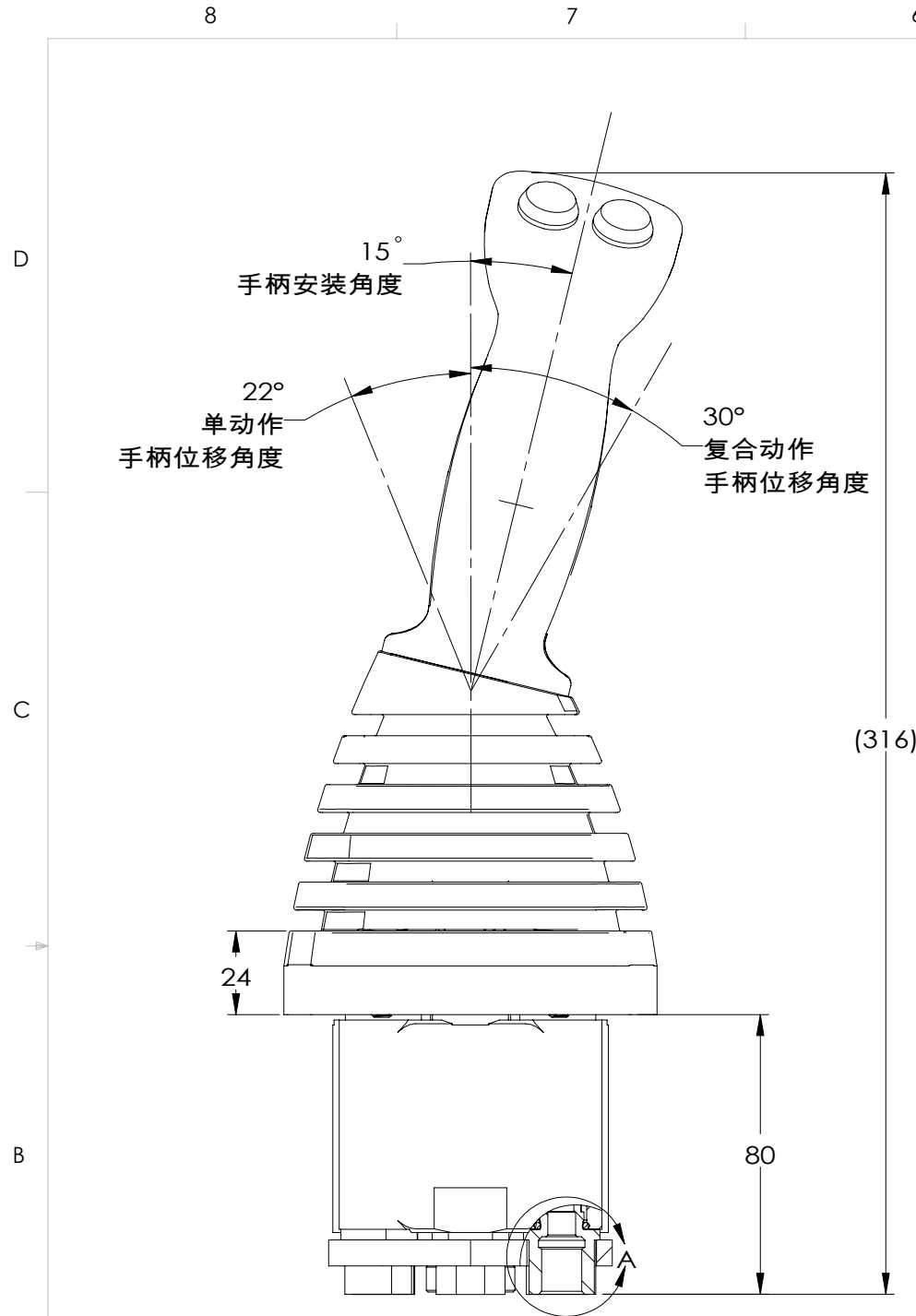
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 SURF. FINISH 3.2/  
 .X ±0.25  
 .XX ±0.13  
 ANGLES ±1°  
 CORNERS/EDGES C/R 0.4 MAX

METRIC	NAME	DATE
DRAWN	RYao	11/21/2012
CHECKED	RYao	12/04/2012
APPROVED		

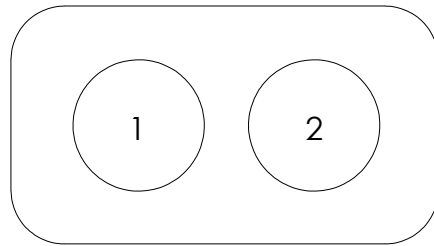
MATERIALS:

FINISH:

PRINCE INDUSTRIES INC.  
 DIVISION OF PRINCE INDUSTRIES, INC.  
 DESCRIPTION  
 JOYSTICK VALVE (was ZYXJS-C6L-2)  
 DESCRIPTION CODE:  
 PV-JS-446-QZ-R-1  
 PART NO  
 12-00410  
 REV  
 01  
 WEIGHT: g  
 SCALE: 1:2  
 SOLIDWORKS SHEET 1 OF 1



电线连接

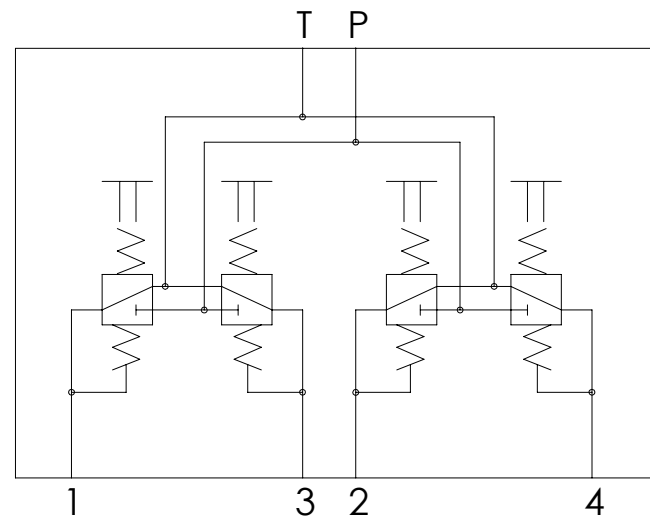


开关 1: V+ (绿色), V- (黄色)  
 开关 2: V+ (蓝色), V- (白色)  
 安全开关: V+ (红色), V- (黑色)

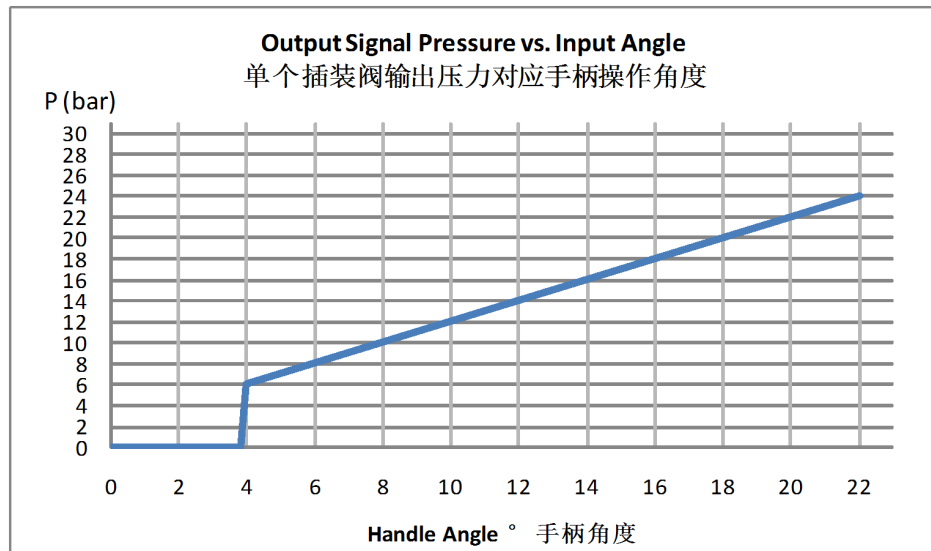
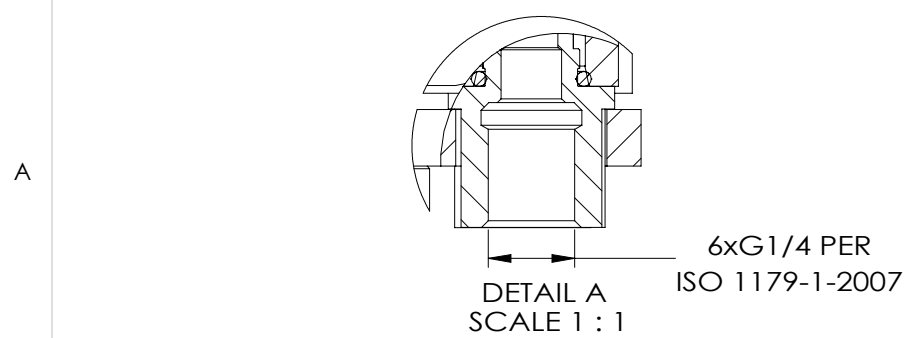
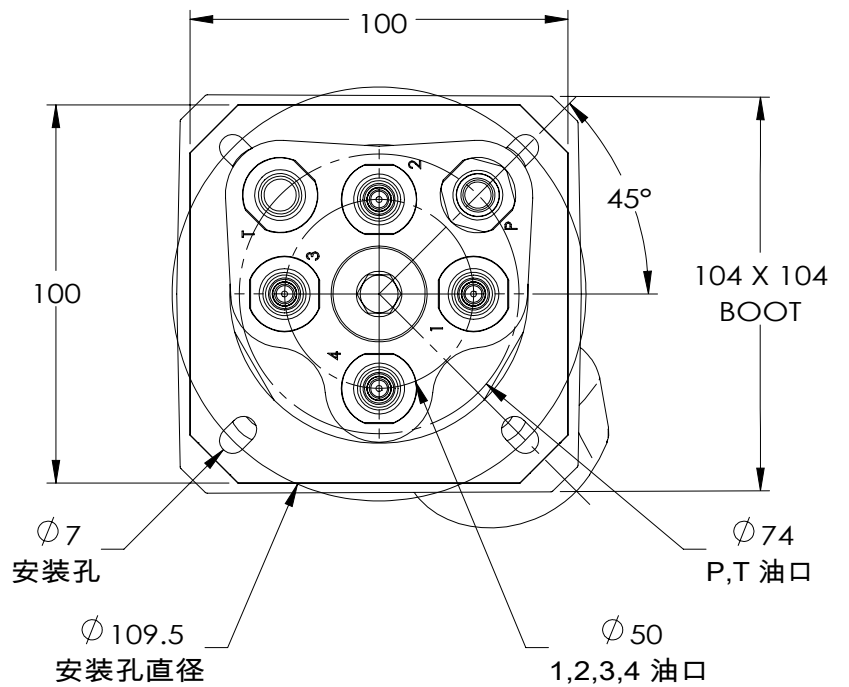
开关最大电压/电流: 36V/2A  
 电线尺寸: Ø0.5mm

规格 AWG	额定 温度	额定 电压	导体	导体 根数	导体直径 mm	绝缘厚度 mm	绝缘外径 mm
20	105°C	300 V	裸铜丝	26	0.16	0.42	1.8 <sup>0</sup> <sub>-0.1</sub>

液压原理图



REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
01	REPLACE #2 12-00246 TO 12-00930, CANCEL FINAL JUMP UP ON CARTRIDGE. REMOVE 12-00378 SCREEN.	11/22/2012	NBo



- 技术参数:
- 1) 最大输入压力: 100 BAR
  - 2) 额定压力: 31 BAR
  - 3) 输出压力: 看图表
  - 4) 中位最大泄漏量: 48 mL/MIN
  - 5) 换位最大泄漏量: 35 mL/MIN/插装阀
  - 6) 最大限定安装扭矩: 40 Nm
  - 7) 液压油: 矿物液压油
  - 8) 额定流量: 20 LPM
  - 9) 温度范围: -20° ~ 90°

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

SURF. FINISH	3.2/√
.X ±0.25	
.XX ±0.13	
ANGLES ±1°	
CORNERS/EDGES C/R 0.4 MAX	

METRIC	NAME	DATE
DRAWN	NBo	11/20/2012
CHECKED	RYao	12/04/2012
APPROVED		

DESCRIPTION: QP Hydraulics DIVISION OF PRINCE INDUSTRIES, INC. JOYSTICK VALVE (was ZYXJS-C6L-1)

DESCRIPTION CODE: PV-JS-446-QZ-L-1

PART NO: 12-00409

REV: 01

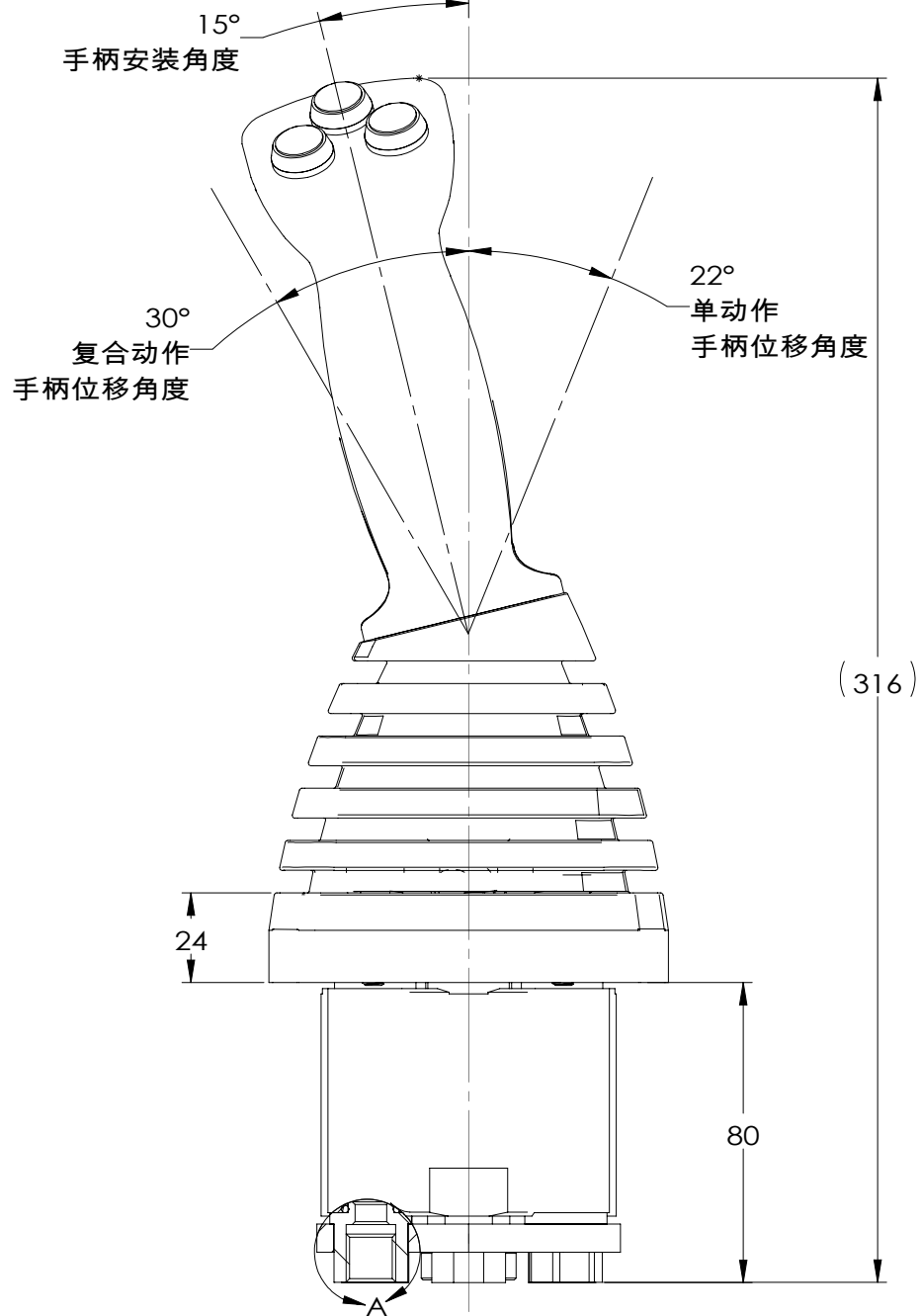
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SCALE: 1:2

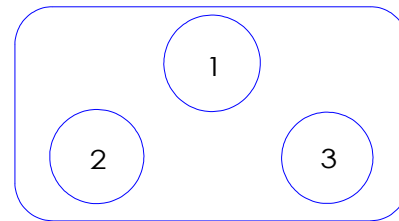
SOLIDWORKS SHEET 1 OF 1

REVISIONS

REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Prototype Release	12/04/2012	NBo



电线连接

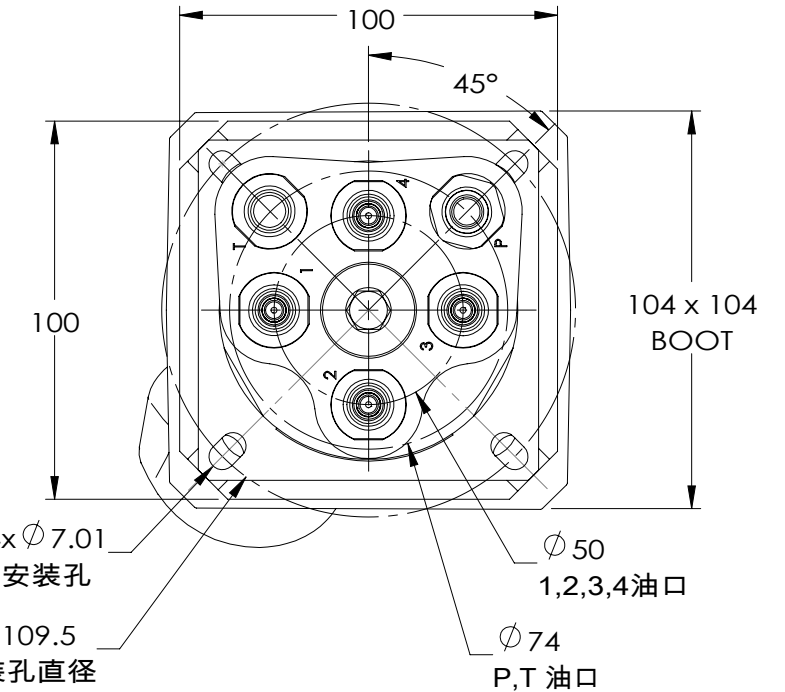
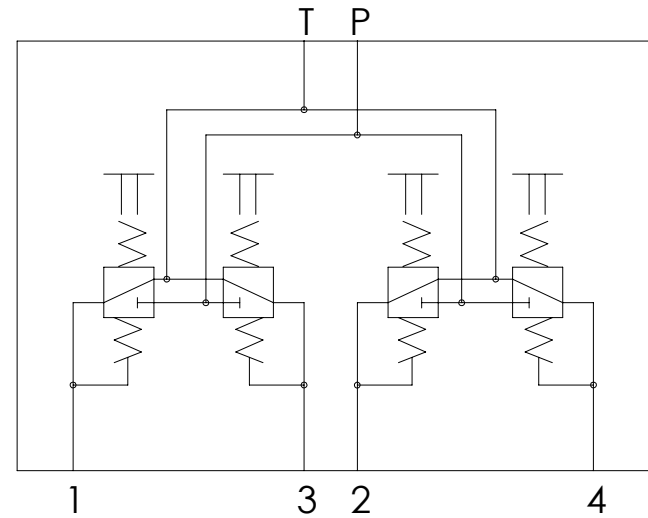


开关 1: V+ (黑色), V- (红色)  
 开关 2: V+ (黄色), V- (绿色)  
 开关 3: V+ (蓝色), V- (白色)  
 安全开关: V+ (黑色), V- (红色)

开关最大电压/电流: 36V/2A  
 电线尺寸: Ø0.5mm

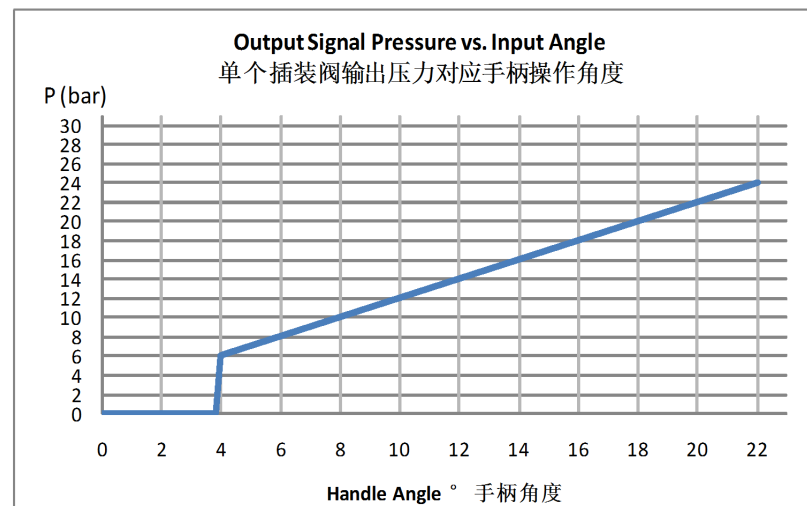
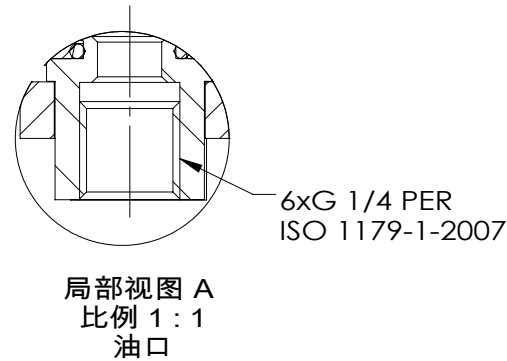
规格 AWG	额定 温度	额定 电压	导体	导体 根数	导体直径 mm	绝缘厚度 mm	绝缘外径 mm
20	105°C	300 V	裸铜丝	26	0.16	0.42	1.8 <sup>0</sup> <sub>-0.1</sub>

液压原理图



技术参数:

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- 2) 额定压力: 31 BAR
- 3) 输出压力: 看图表
- 4) 中位最大泄漏量: 48 mL/MIN
- 5) 换位最大泄漏量: 35 mL/MIN/插装阀
- 6) 最大限定安装扭矩: 40 Nm
- 7) 液压油: 矿物液压油
- 8) 额定流量: 20 LPM
- 9) 温度范围: -20° ~ 90°



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 SURF. FINISH 3.2/  
 .X ±0.25  
 .XX ±0.13  
 ANGLES ±1°  
 CORNERS/EDGES C/R 0.4 MAX

METRIC

NAME	DATE
DRAWN NBo	12/04/2012
CHECKED	
APPROVED	

QP Hydraulics

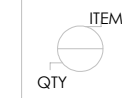
DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
 JS446 for SUNWARD (WAS JS446-R-SW)

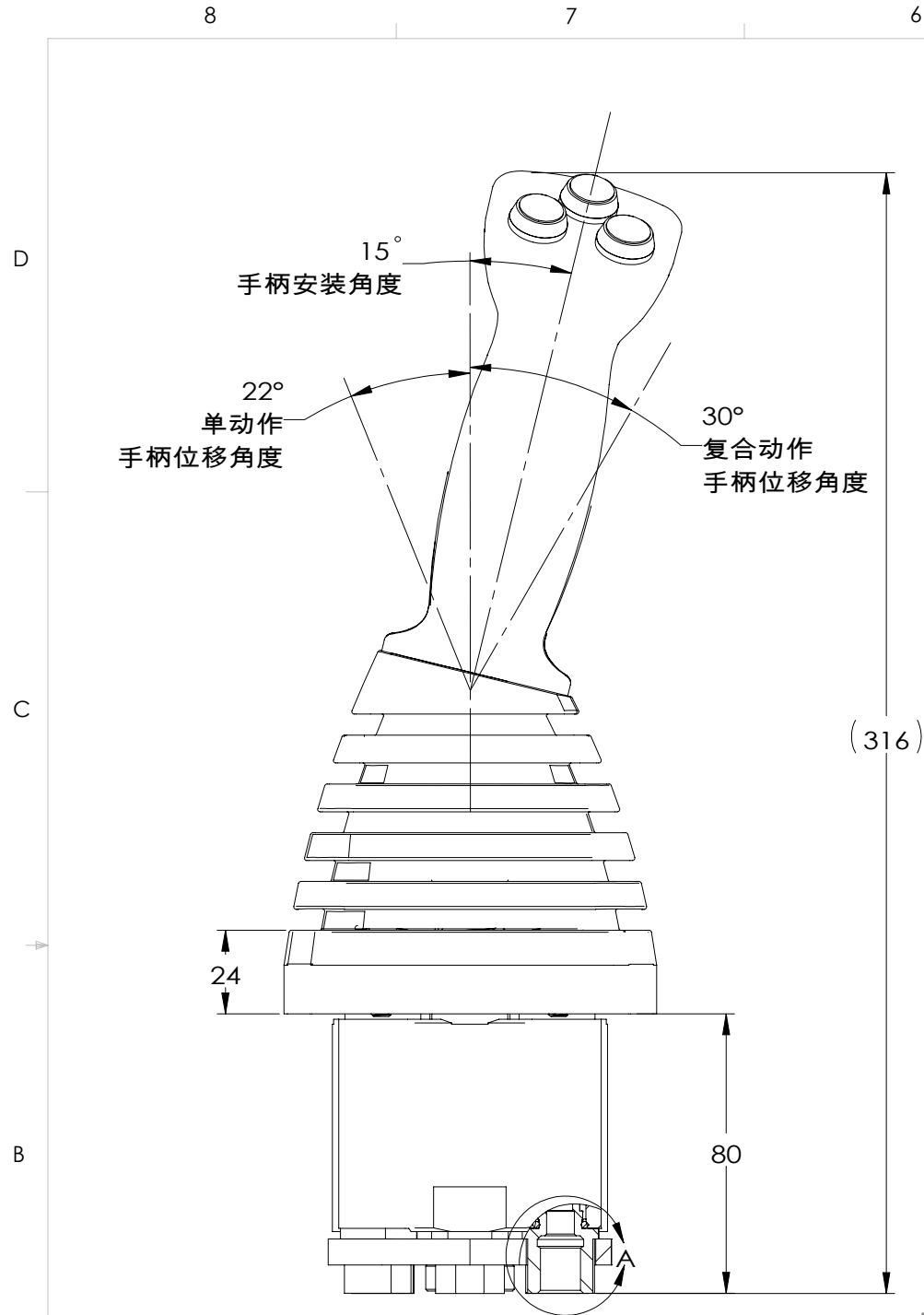
DESCRIPTION CODE:  
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PART NO  
 12-00529

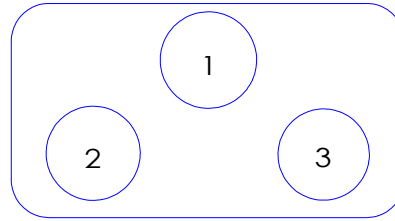
REV  
 A



WEIGHT: g  
 SOLIDWORKS  
 SCALE: 1:2  
 SHEET 1 OF 1



电线连接

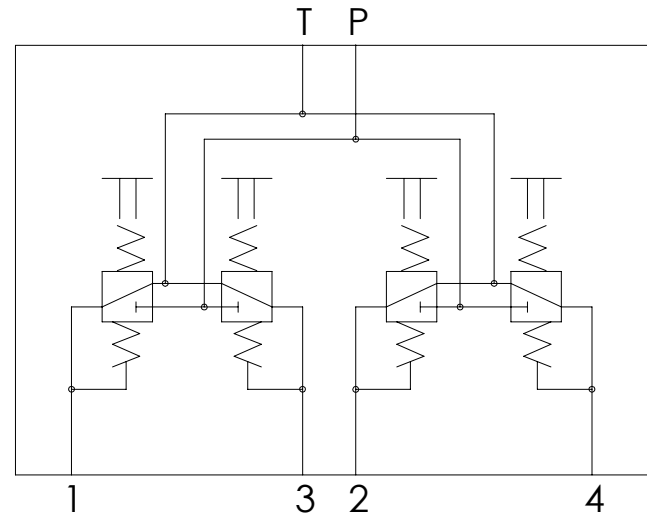


开关 1: V+ (黑色), V- (红色)  
 开关 2: V+ (黄色), V- (绿色)  
 开关 3: V+ (蓝色), V- (白色)  
 安全开关: V+ (黑色), V- (红色)

开关最大电压/电流: 36V/2A  
 电线尺寸: Ø0.5mm

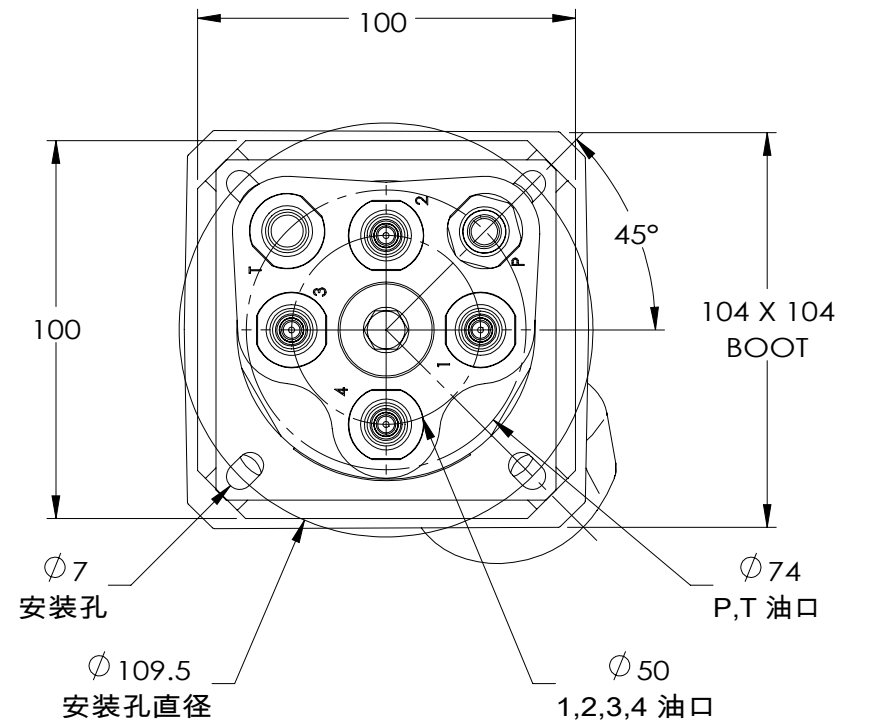
规格 AWG	额定 温度	额定 电压	导体	导体 根数	导体直径 mm	绝缘厚度 mm	绝缘外径 mm
20	105°C	300 V	裸铜丝	26	0.16	0.42	1.8 <sup>0</sup> -0.1

液压原理图



REVISIONS

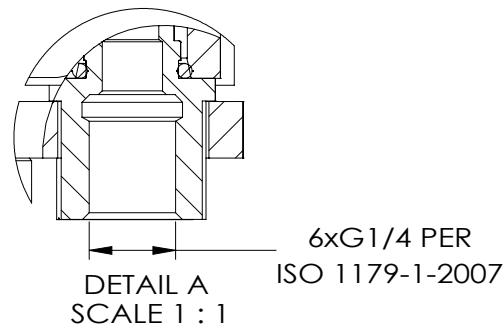
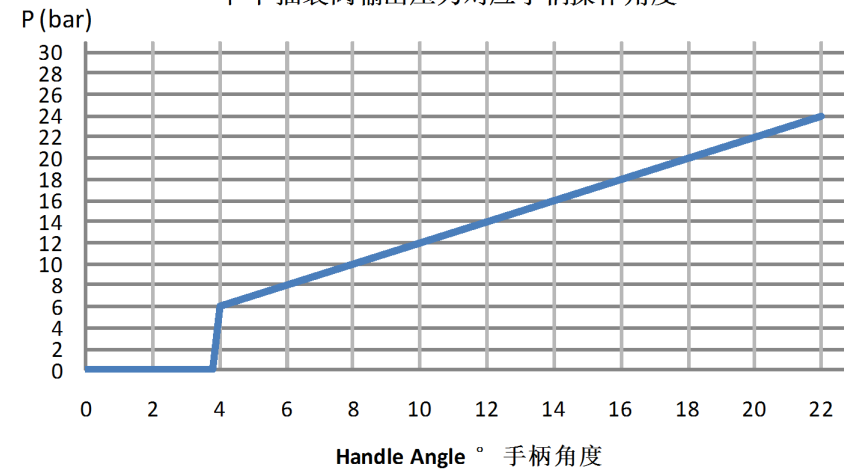
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Prototype Release	12/04/2012	NBo



技术参数:

- 1) 最大输入压力: 100 BAR
- 2) 额定压力: 31 BAR
- 3) 输出压力: 看图表
- 4) 中位最大泄漏量: 48 mL/MIN
- 5) 换位最大泄漏量: 35 mL/MIN/插装阀
- 6) 最大限定安装扭矩: 40 Nm
- 7) 液压油: 矿物液压油
- 8) 额定流量: 20 LPM
- 9) 温度范围: -20° ~ 90°

Output Signal Pressure vs. Input Angle  
 单个插装阀输出压力对应手柄操作角度



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SURF. FINISH 3.2/  
 .X ±0.25  
 .XX ±0.13  
 ANGLES ±1°  
 CORNERS/EDGES C/R 0.4 MAX

METRIC	NAME	DATE
DRAWN	NBo	12/04/2012
CHECKED	RYao	12/04/2012
APPROVED	CXia	12/04/2012

**QP Hydraulics**  
 DIVISION OF PRINCE INDUSTRIES, INC.  
 DESCRIPTION  
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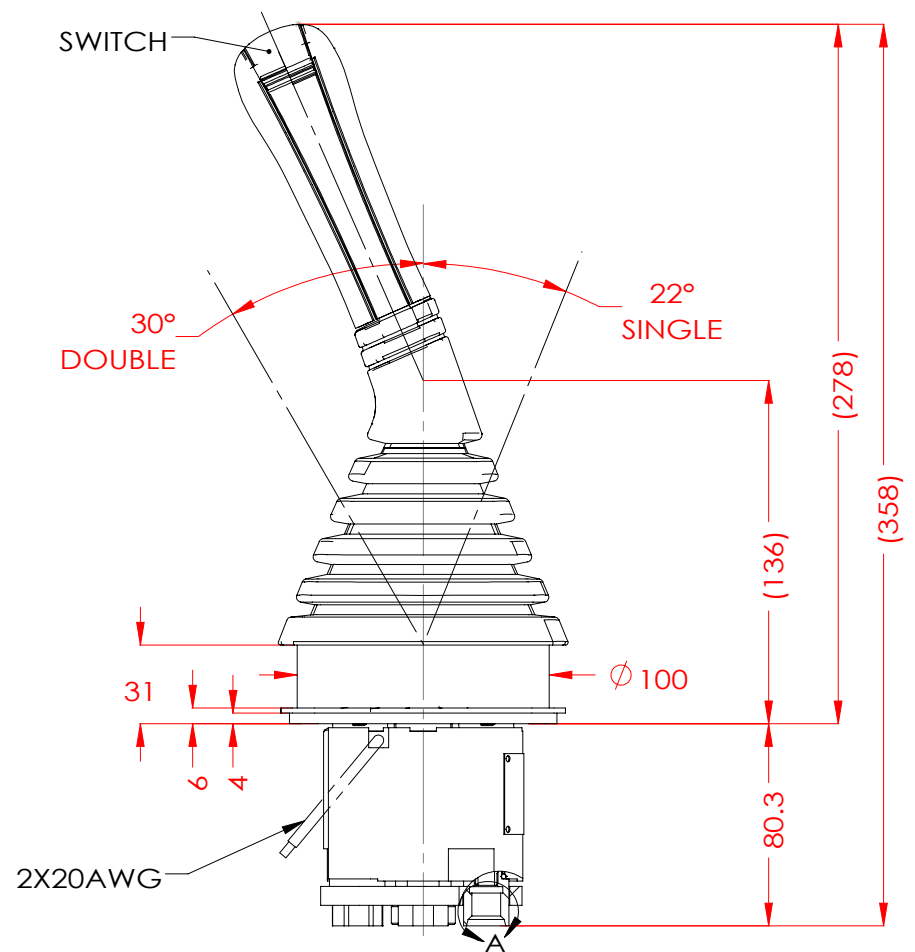
MATERIALS:

FINISH:

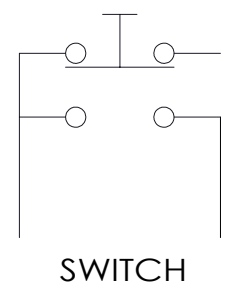
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PART NO 12-00528		SCALE: 1:2
WEIGHT: g	SHEET 1 OF 1	
SOLIDWORKS	QTY	

B METRIC

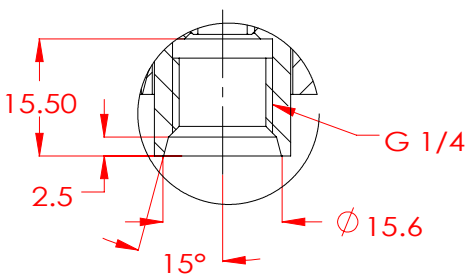
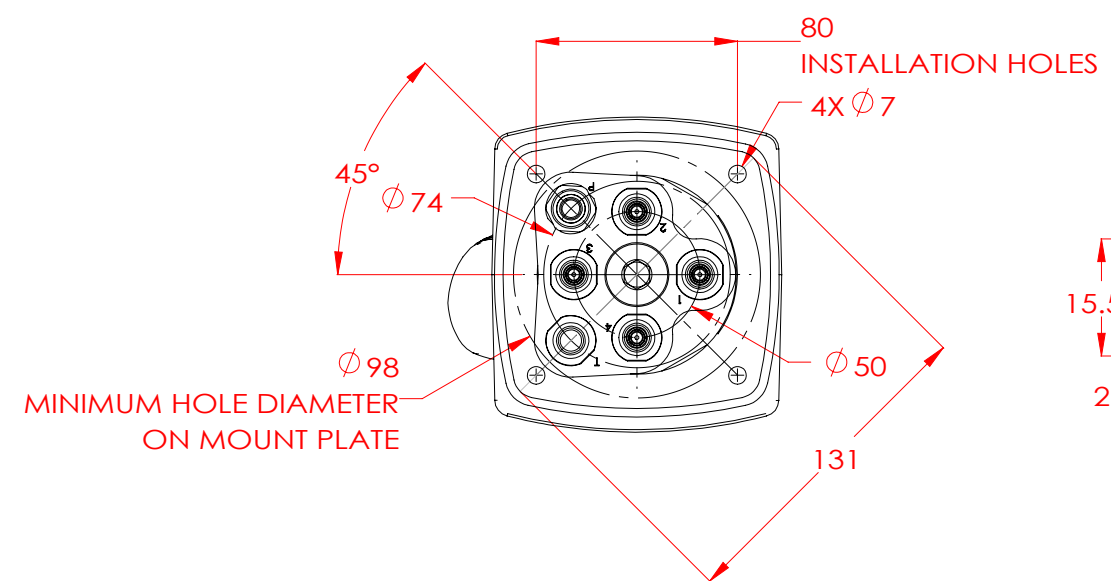
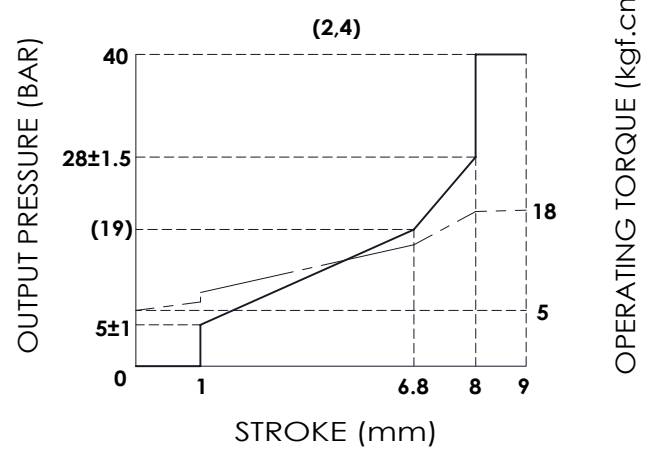
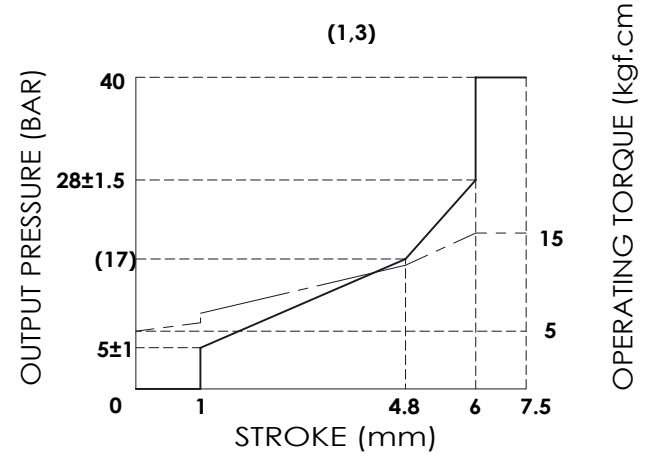
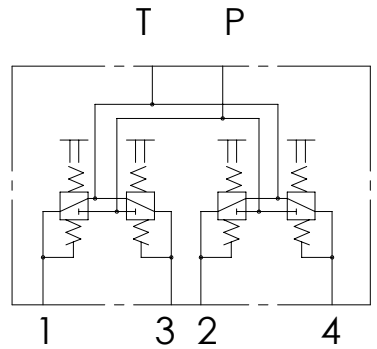
REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Prototype Release	12/04/2012	RYao



SPRING RETURN



HYDRAULIC SCHEMATIC



- SPECIFICATION:
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 40 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 20 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 30V, 6A AMPS MAXIMUM

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SURF. FINISH	3.2	
.X	±0.25	
.XX	±0.13	
ANGLES	±1°	
CORNERS/EDGES C/R	0.4 MAX	

FINISH:		
ITEM	QTY	

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**EXCAVATOR JOYSTICK (short handle)**  
DESCRIPTION CODE:  
PV-JS-446-EX-R-short

PART NO  
**12-00934**

REV  
**A**

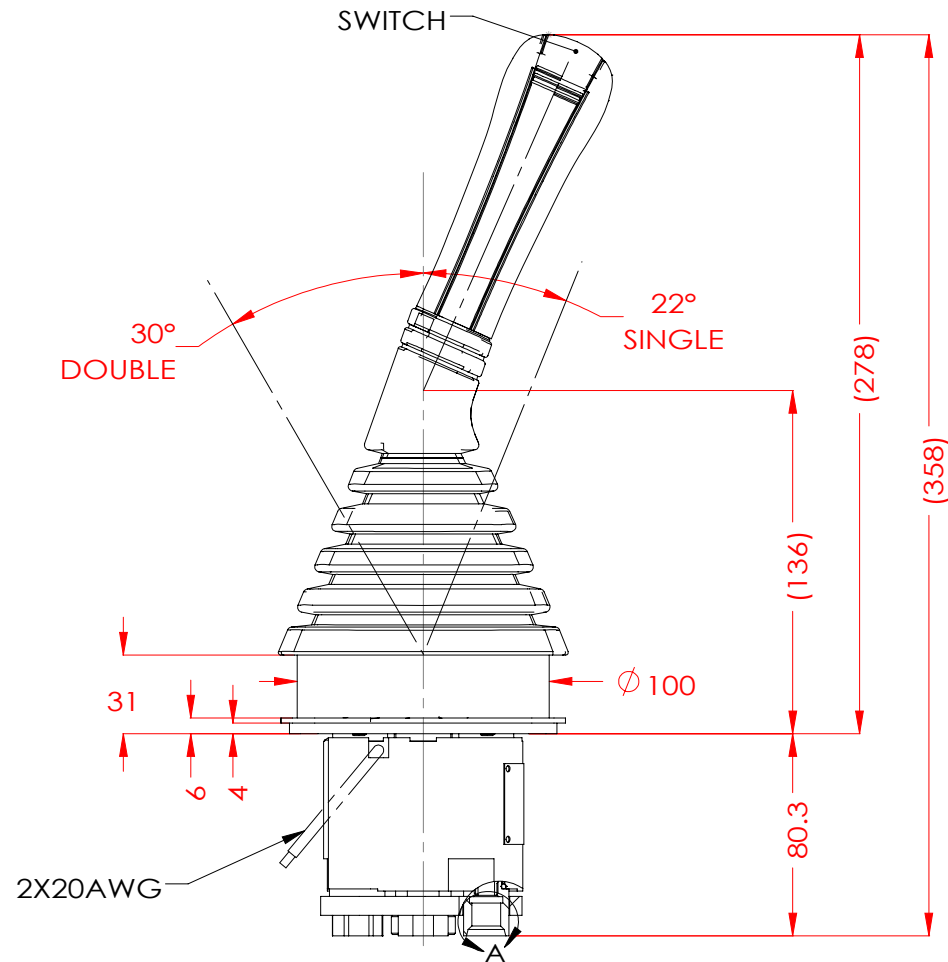
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SCALE: 1:3

SOLIDWORKS SHEET 1 OF 1

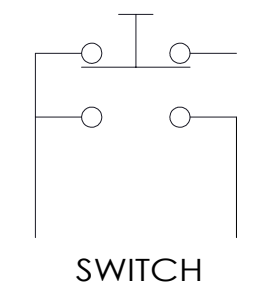
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B METRIC

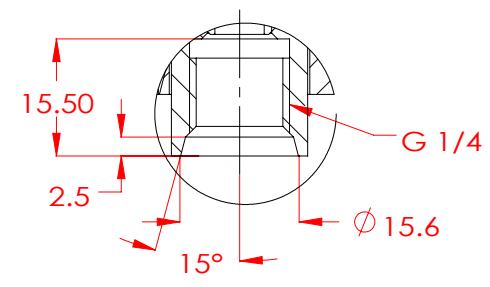
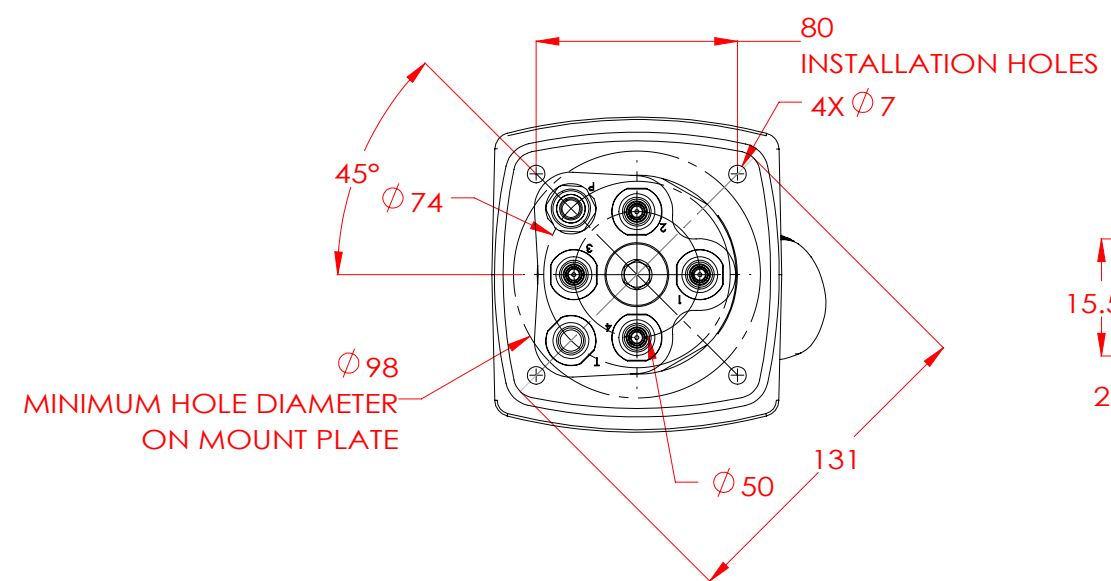
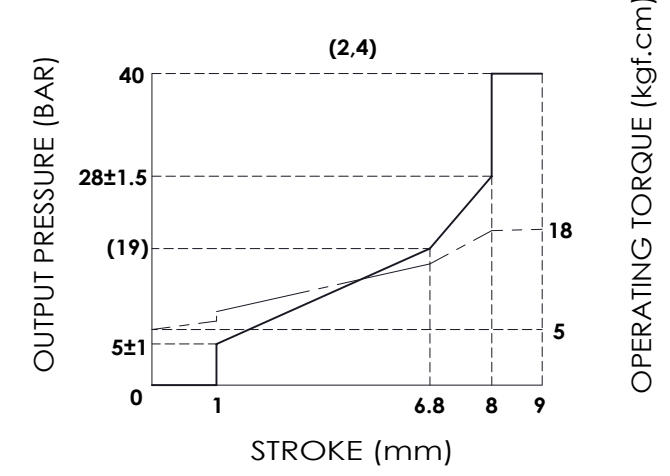
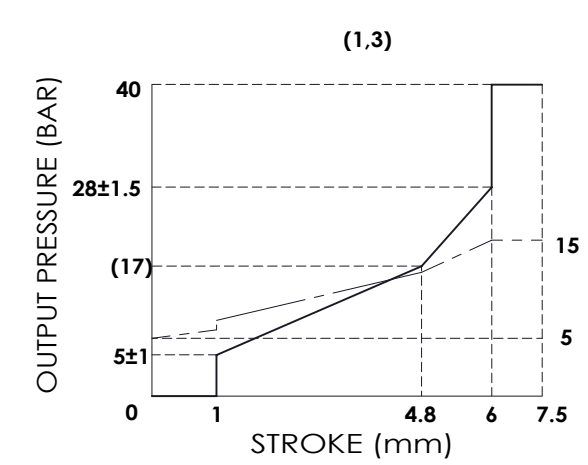
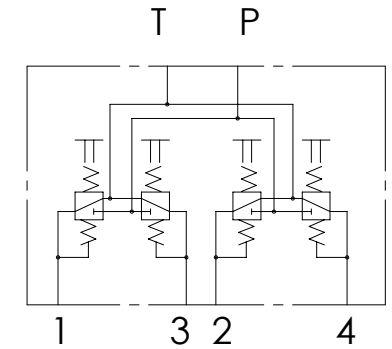
REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Prototype Release	12/04/2012	RYao



SPRING RETURN



HYDRAULIC SCHEMATIC



- SPECIFICATION:
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 40 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 20 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 30V, 6A AMPS MAXIMUM

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METRIC	NAME	DATE
DRAWN	RYao	12/04/2012
CHECKED	DZhang	12/04/2012
APPROVED	KBrown	12/04/2012

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**EXCAVATOR JOYSTICK (short handle)**  
DESCRIPTION CODE:  
PV-JS-446-EX-L-short

PART NO  
**12-00932**

REV  
**A**

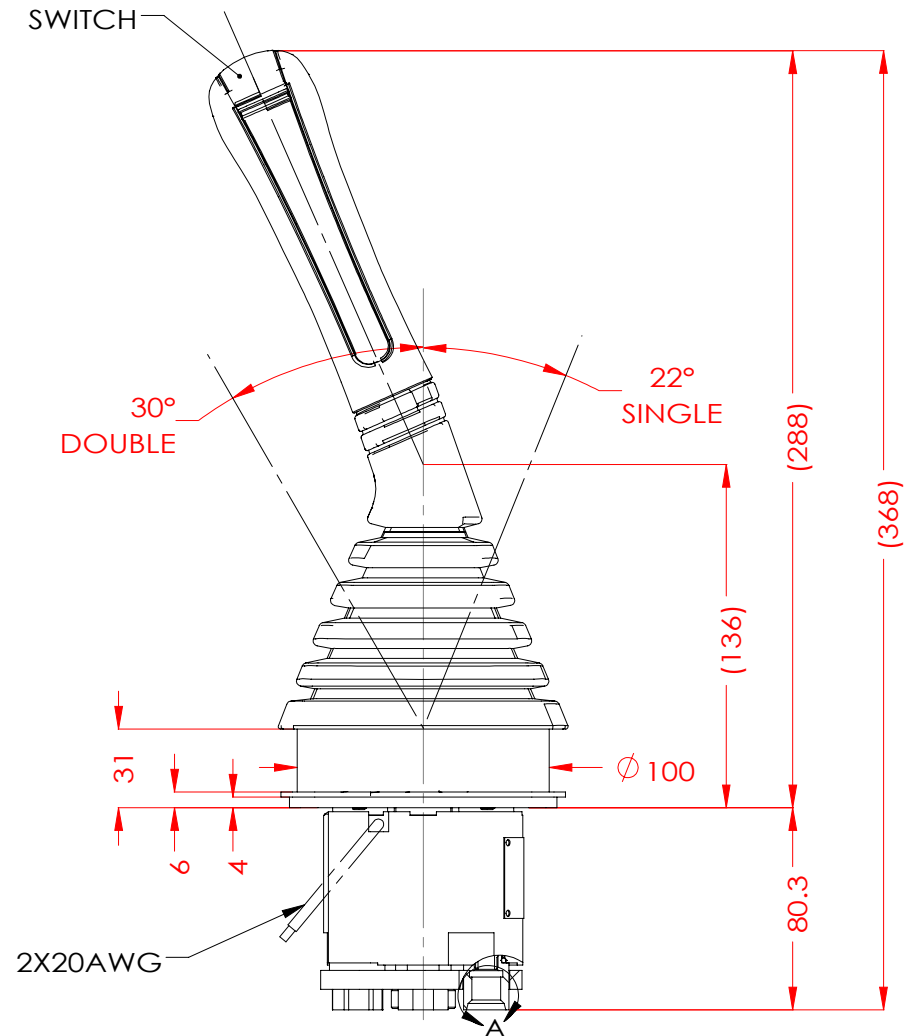
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SOLIDWORKS SHEET 1 OF 1

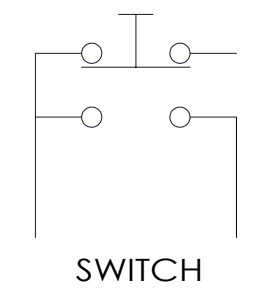
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B METRIC

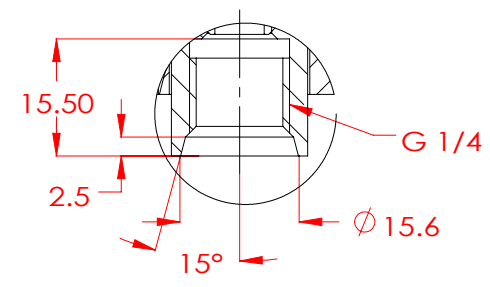
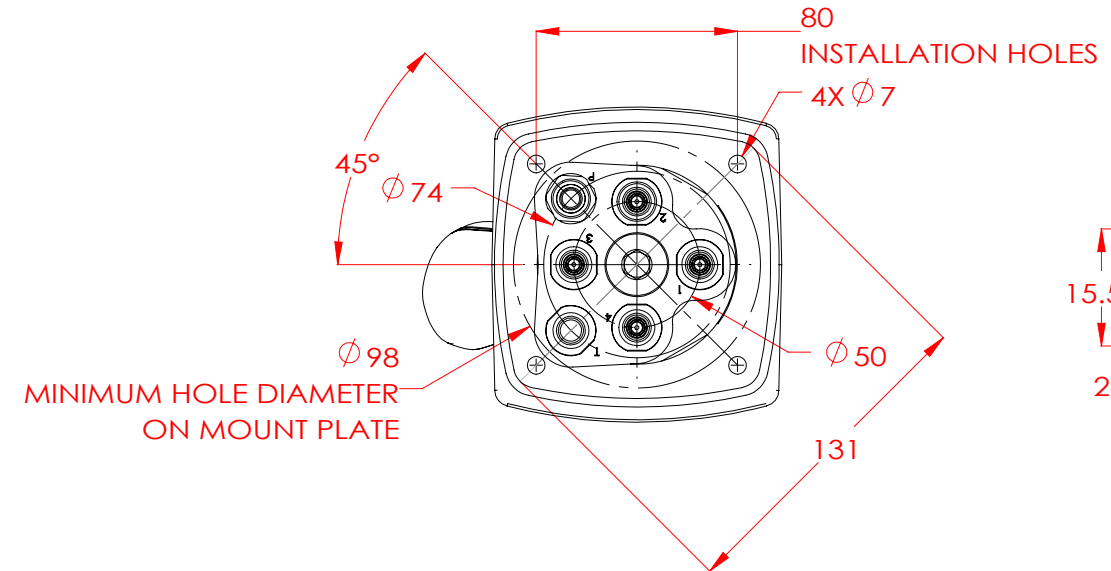
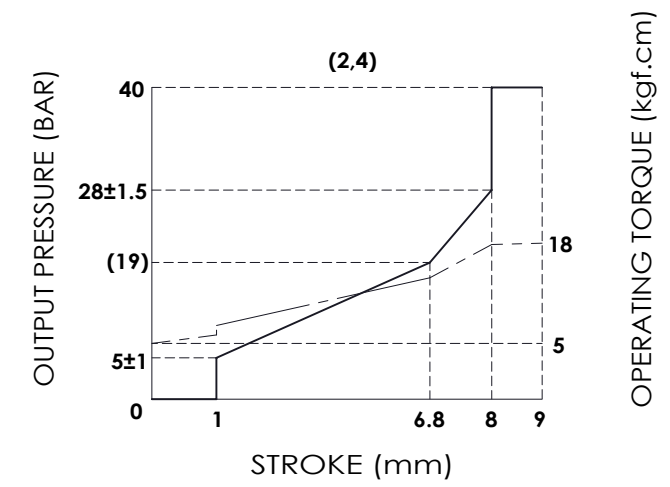
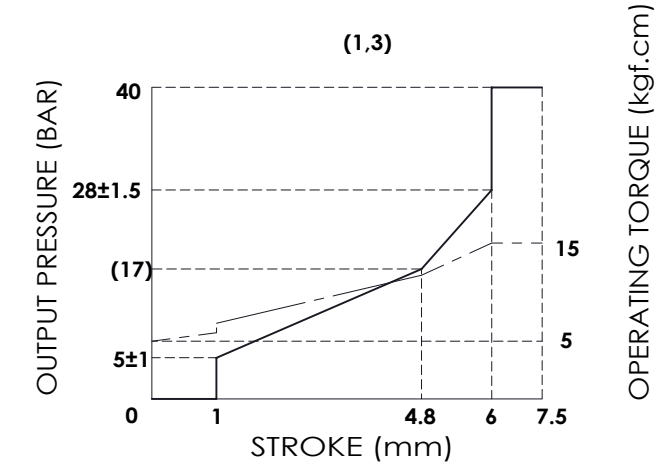
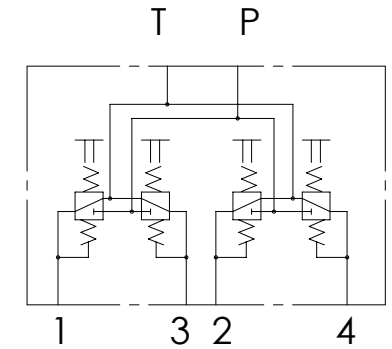
REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
B	Replace 12-00493 to 12-00922, change curve bent point to 6.8 at 19 bar	11/13/2012	RYao



SPRING RETURN



HYDRAULIC SCHEMATIC



- SPECIFICATION:
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 40 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 20 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 30V, 6A AMPS MAXIMUM

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SURF. FINISH	3.2	
.X	±0.25	
.XX	±0.13	
ANGLES	±1°	
CORNERS/EDGES C/R	0.4 MAX	

MATERIALS:	FINISH:

METRIC	NAME	DATE
DRAWN	RYao	11/13/2012
CHECKED	DSmith	11/13/2012
APPROVED	KBrown	11/13/2012

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.

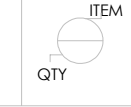
DESCRIPTION  
**PILOT VALVE JOYSTICK (was JS446-R-LK)**

DESCRIPTION CODE:  
PV-JS-446-EX-RC1

PART NO  
**12-00506**

REV  
**B**

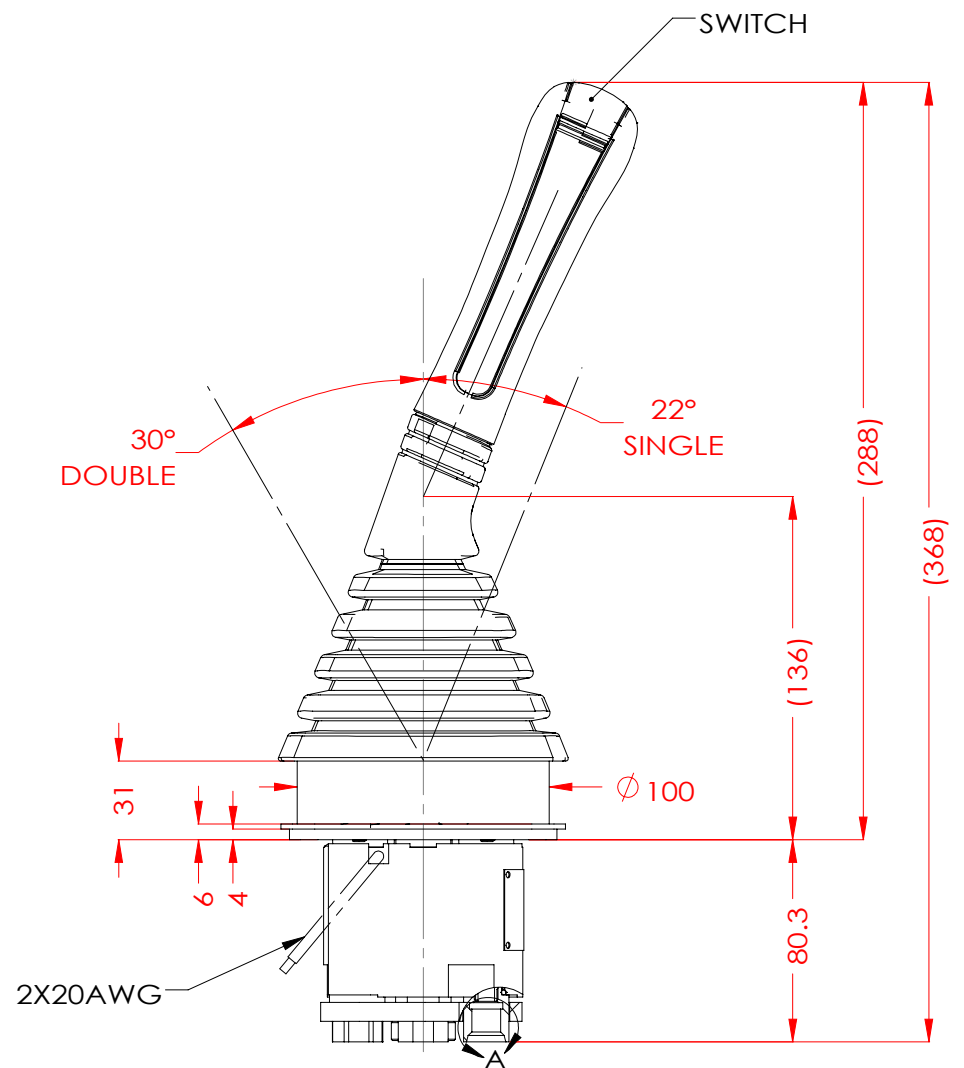
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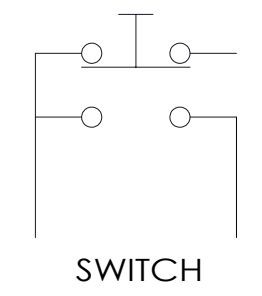
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SOLIDWORKS	SHEET 1 OF 1

B METRIC

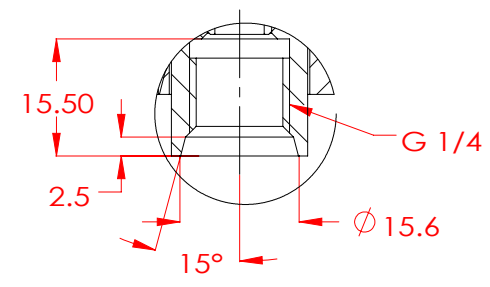
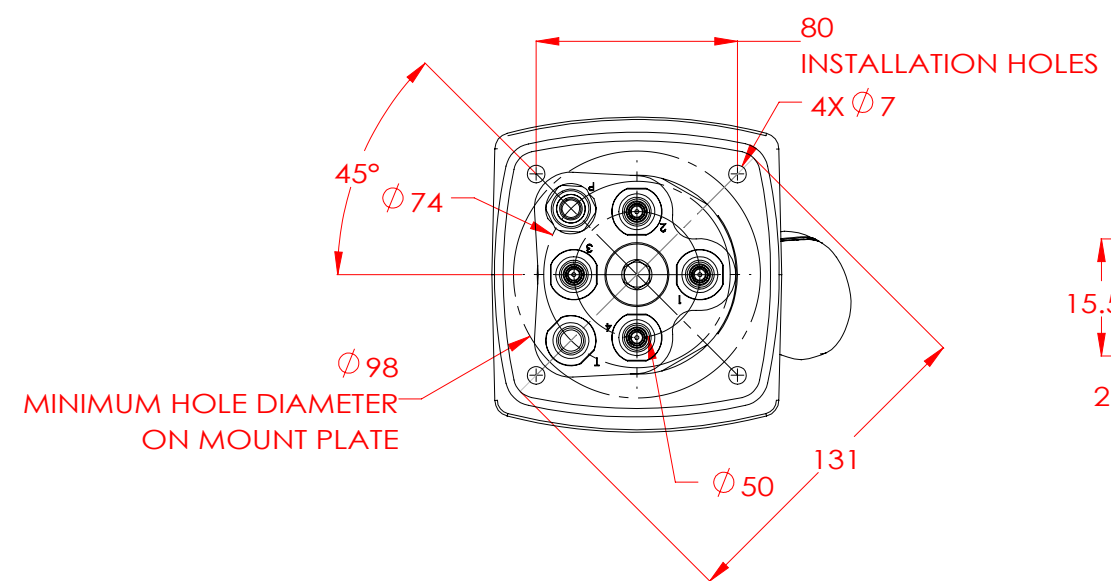
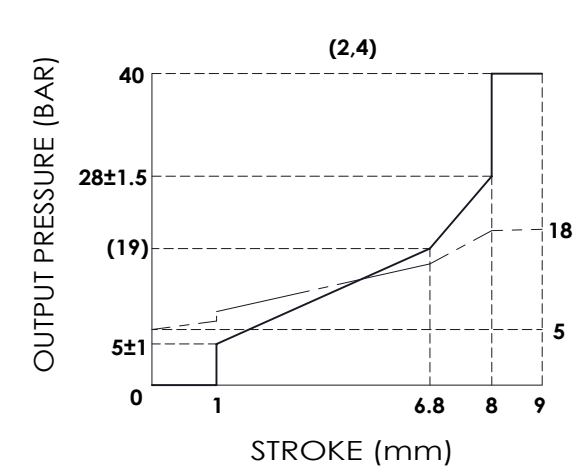
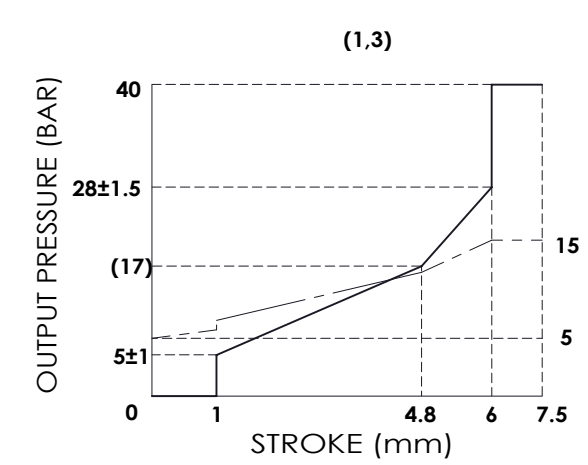
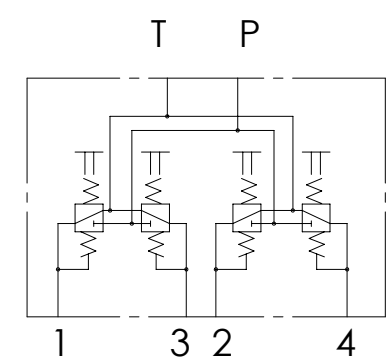
REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
B	Replace 12-00493 to 12-00922, change curve bent point to 6.8 at 19 bar	11/13/2012	RYao



SPRING RETURN



HYDRAULIC SCHEMATIC



- SPECIFICATION:
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 40 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 20 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 30V, 6A AMPS MAXIMUM

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SURF. FINISH	3.2	
.X	±0.25	
.XX	±0.13	
ANGLES	±1°	
CORNERS/EDGES C/R	0.4 MAX	

METRIC	NAME	DATE
DRAWN	RYao	11/13/2012
CHECKED	DSmith	11/13/2012
APPROVED	KBrown	11/13/2012

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**PILOT VALVE JOYSTICK (was JS446-L-LK)**  
DESCRIPTION CODE:  
PV-JS-446-EX-LC1

PART NO  
**12-00505**

REV  
**B**

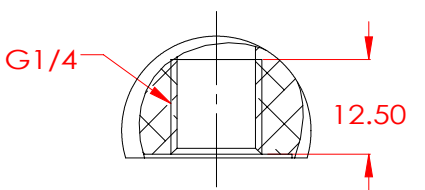
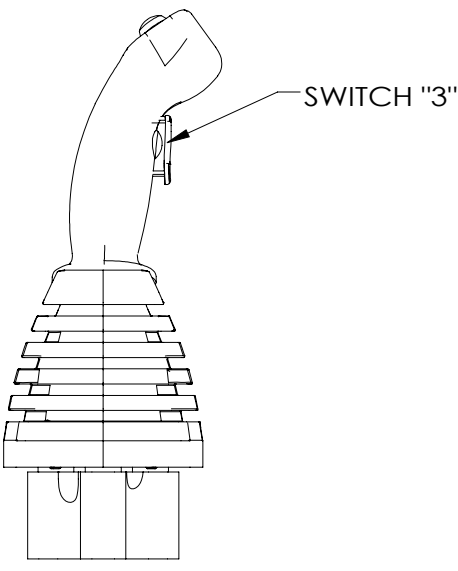
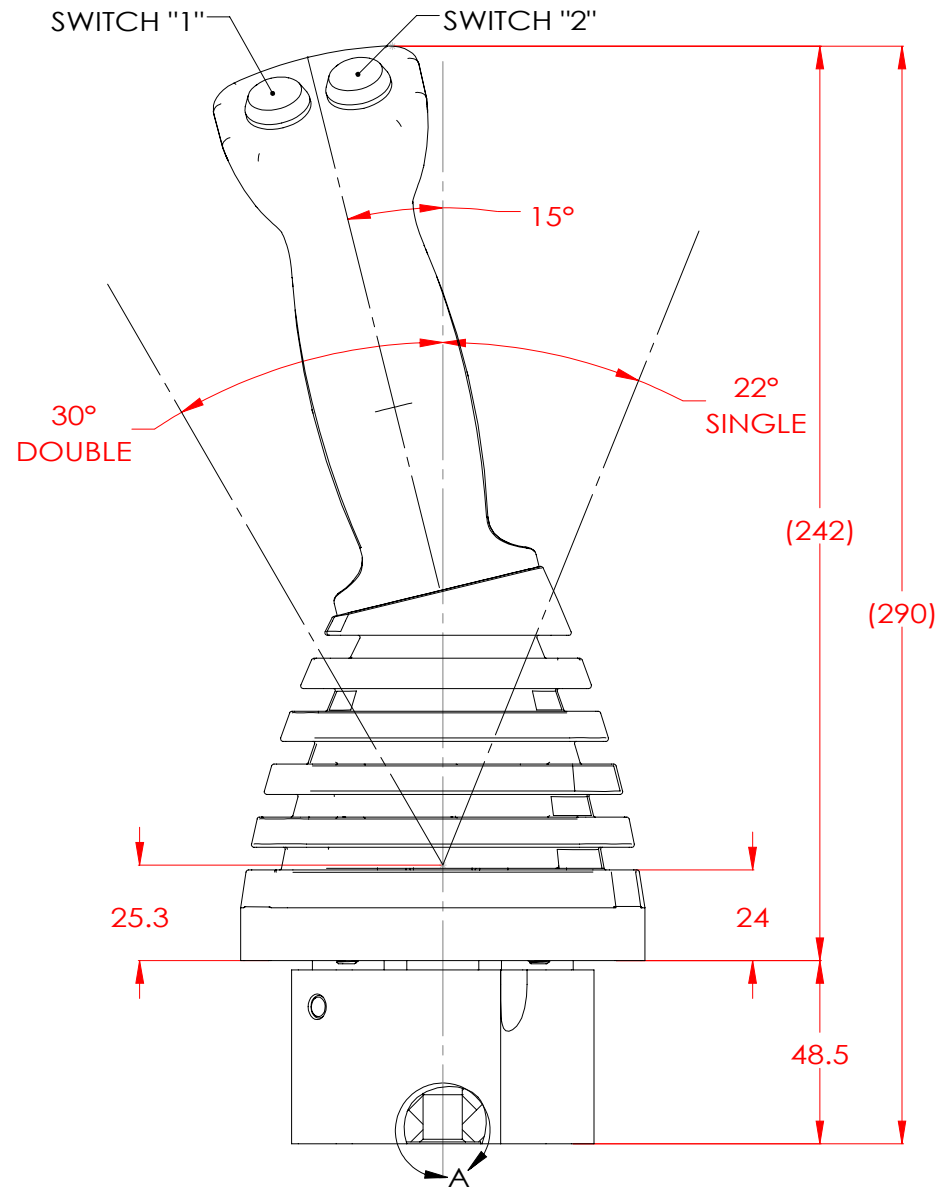
ITEM	QTY	WEIGHT: g	SCALE: 1:3
1	1		

WEIGHT: g  
SCALE: 1:3

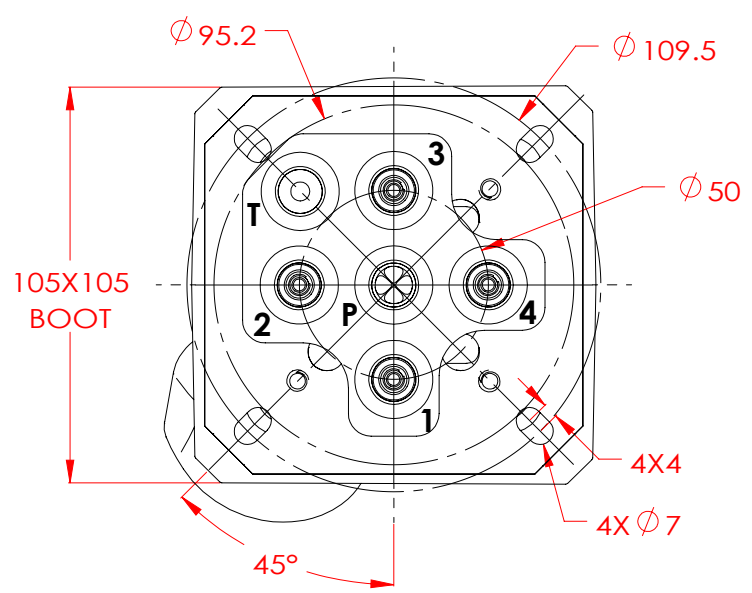
SOLIDWORKS SHEET 1 OF 1

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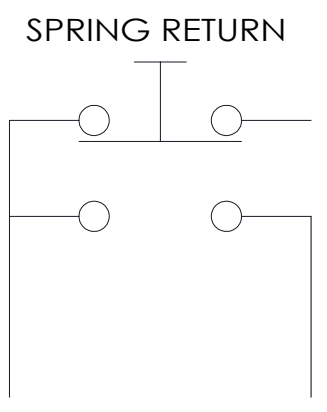
REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	INITIAL PROTOTYPE RELEASE	12/13/2012	RYao



DETAIL A  
SCALE 1 : 1  
PORT PROFILE DETAIL  
6 PLACES

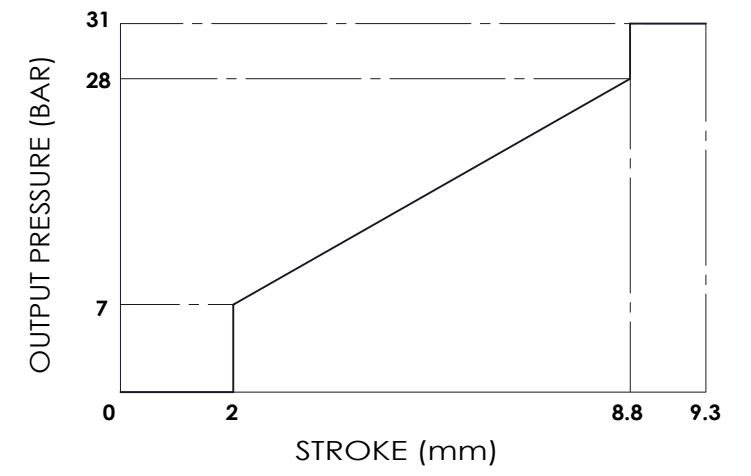
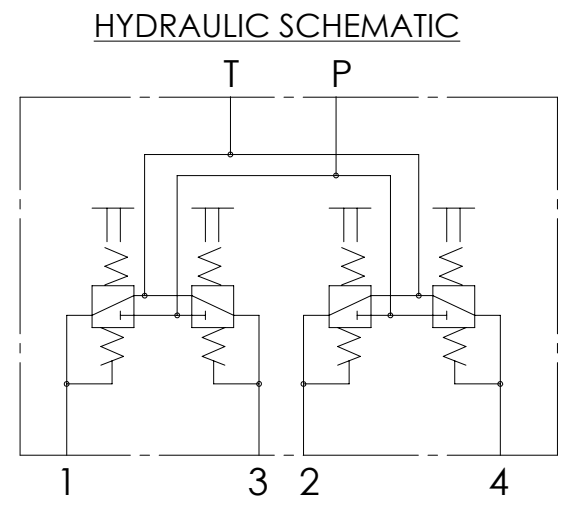


- SPECIFICATION:**
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 31 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 15 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 36V, 2A AMPS MAXIMUM



SWITCH "1" "2" "3"

WIRE COLOR:  
SWITCH "1" : GREEN+, YELLOW-  
SWITCH "2" : BLUE+, WHITE-  
SWITCH "3" : RED+, BLACK-



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SURF. FINISH	3.2	
.X	±0.25	
.XX	±0.13	
ANGLES	±1°	
CORNERS/EDGES	C/R 0.4 MAX	

MATERIALS:	FINISH:

METRIC	NAME	DATE
DRAWN	RYao	12/13/2012
CHECKED	CXia	12/13/2012
APPROVED	KBrown	12/13/2012

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**Pilot Valve JSC45-R; G Ports BSPP**  
thd (ISO 1179-1)

DESCRIPTION CODE:  
PV-JSC-45-QZ-R-1



PART NO  
**12-00955**

REV  
**A**

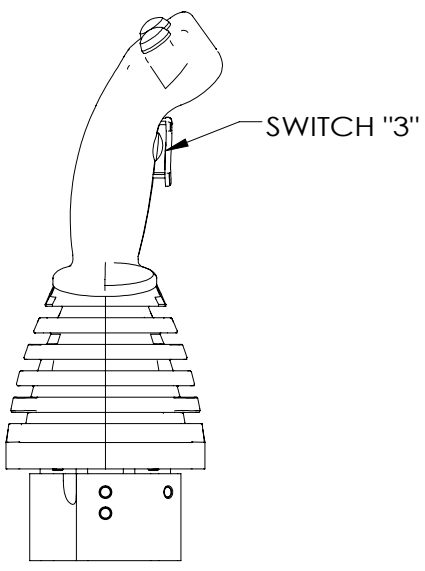
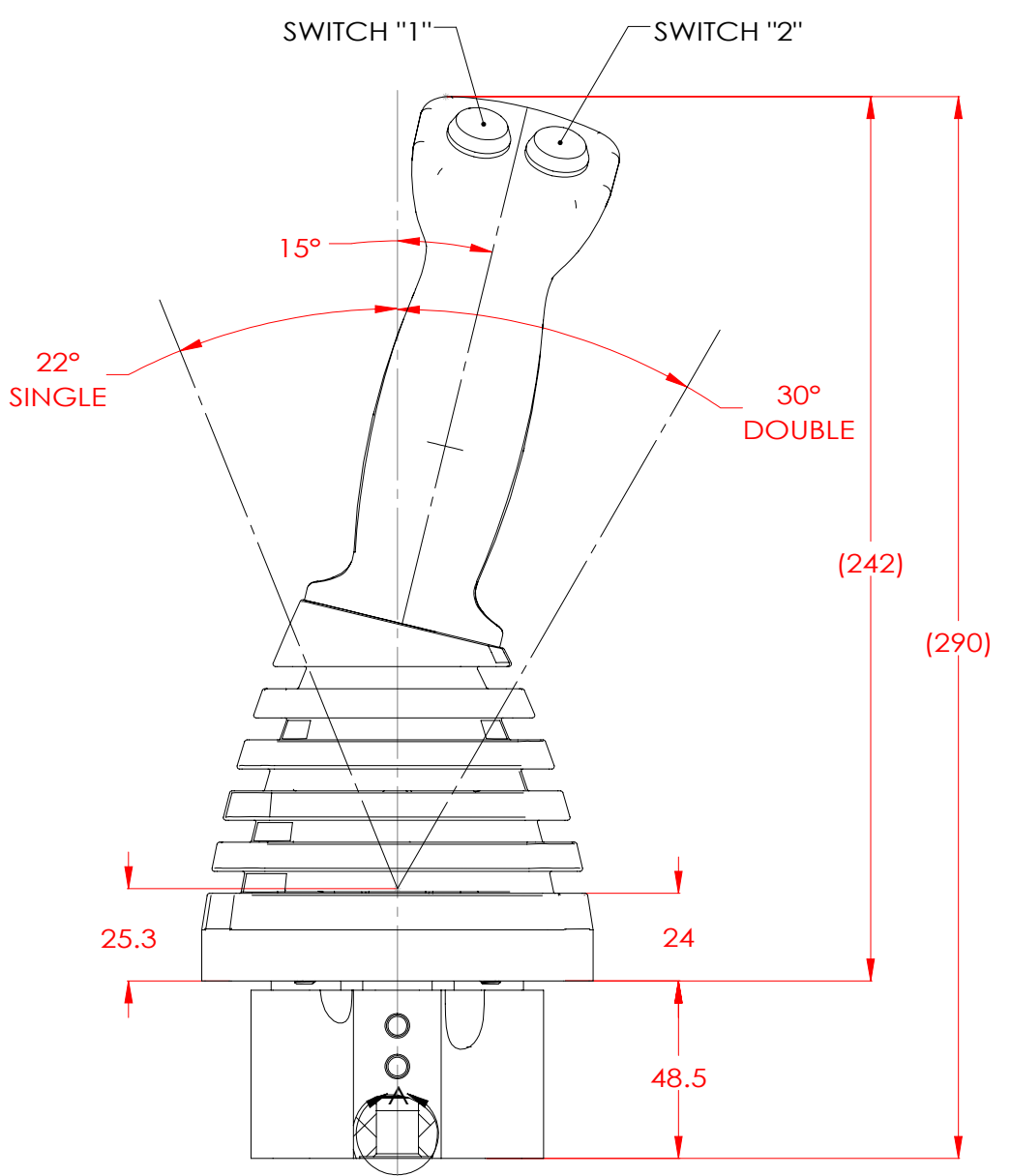


WEIGHT: g  
SOLIDWORKS

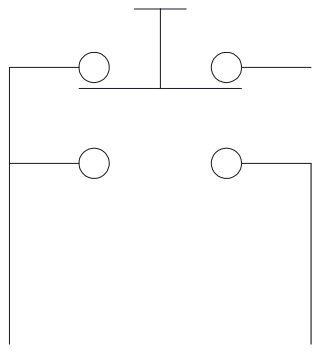
SCALE: 1:2  
SHEET 1 OF 1

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REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	INITIAL PROTOTYPE RELEASE	12/13/2012	RYao



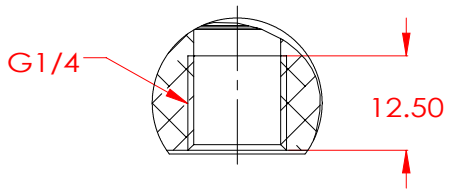
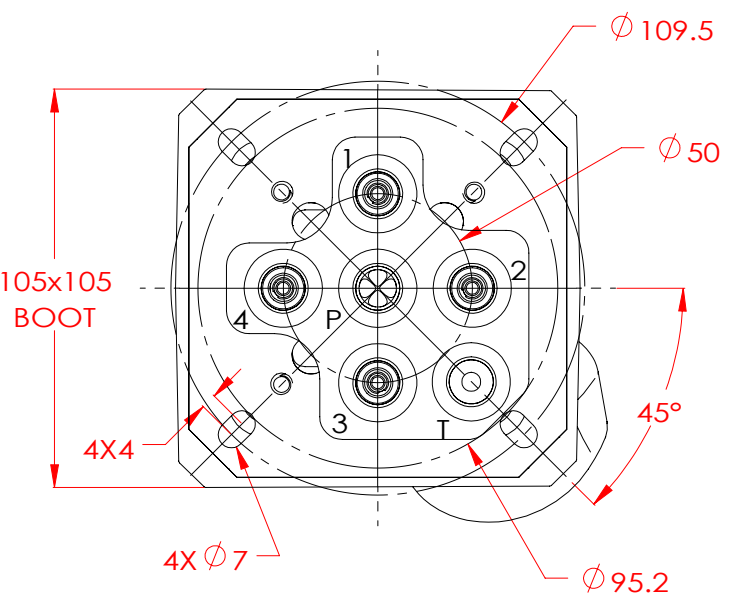
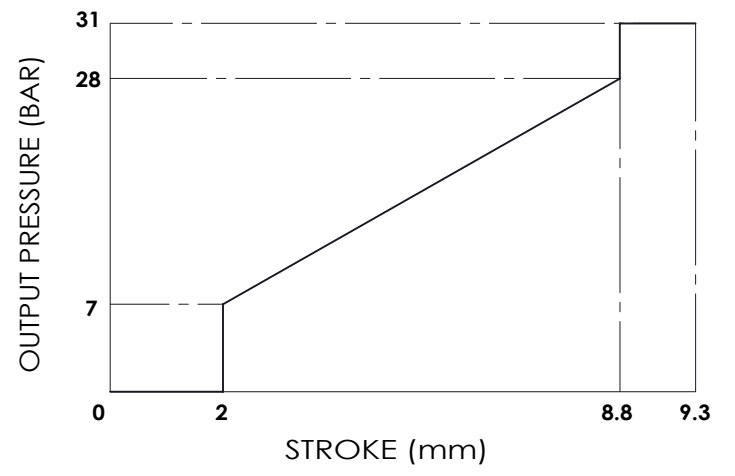
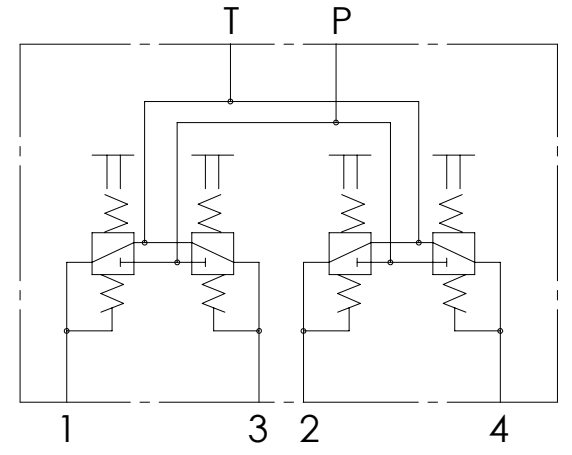
SPRING RETURN



SWITCH "1" "2" "3"

WIRE COLOR:  
 SWITCH "1" : GREEN+, YELLOW-  
 SWITCH "2" : BLUE+, WHITE-  
 SWITCH "3" : RED+, BLACK-

HYDRAULIC SCHEMATIC



DETAIL A  
 SCALE 1 : 1  
 PORT PROFILE DETAIL  
 6 PLACES

- SPECIFICATION:**
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 31 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 15 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 36V, 2A AMPS MAXIMUM

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SURF. FINISH	3.2	DRAWN	RYao		12/13/2012
.X	±0.25	CHECKED	CXia		12/13/2012
.XX	±0.13	APPROVED	KBrown		12/13/2012
ANGLES	±1°	MATERIALS:			
CORNERS/EDGES	C/R 0.4 MAX	FINISH:			

**QP Hydraulics**  
 DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**Pilot Valve JSC45-L; G Ports BSPP**  
 thd (ISO 1179-1)

DESCRIPTION CODE:  
 PV-JSC-45-QZ-L-1

PART NO  
**12-00954**

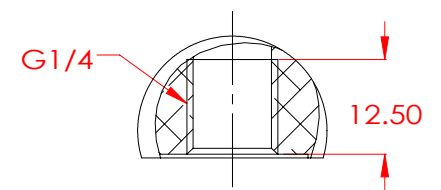
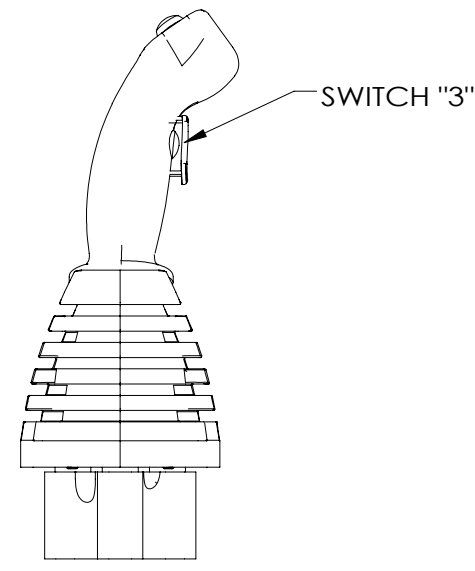
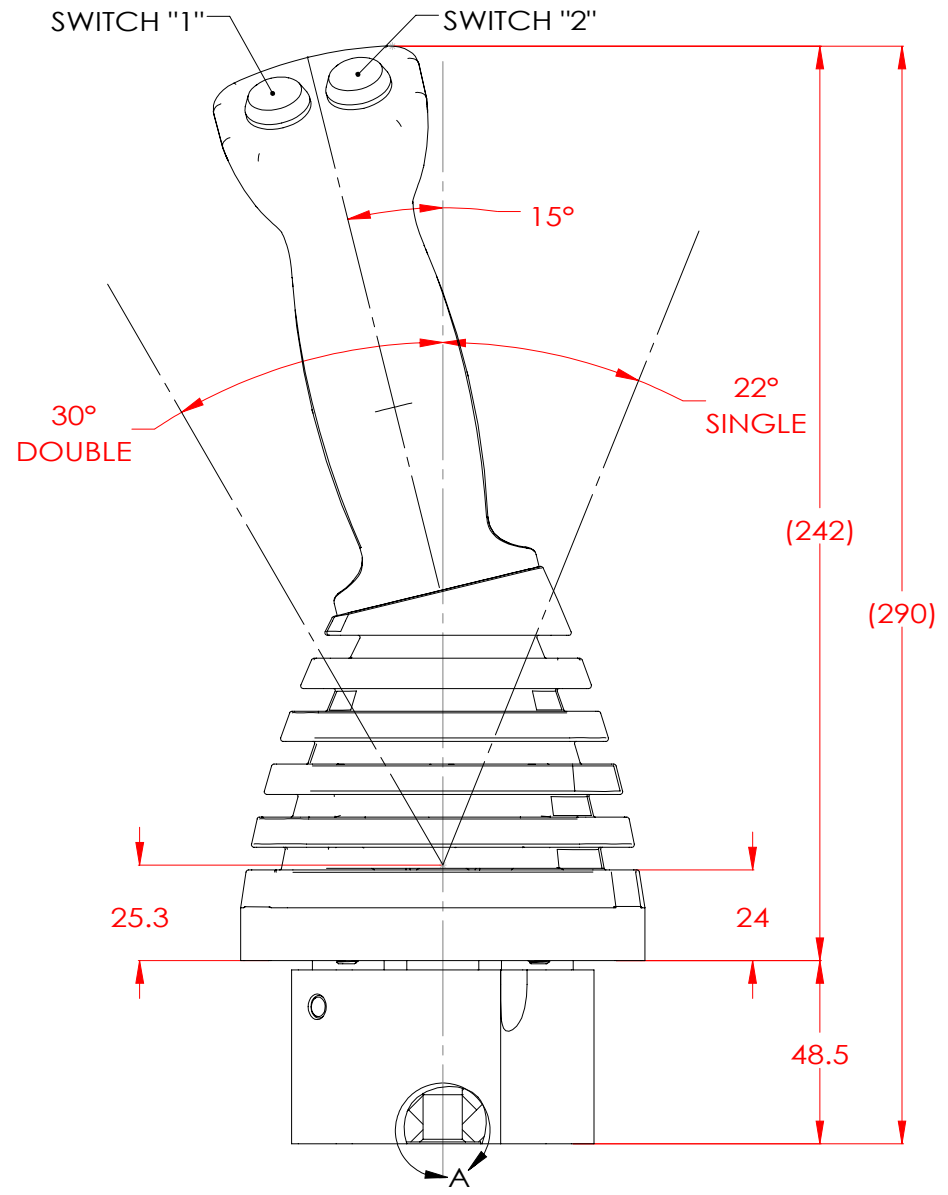
REV  
**A**

WEIGHT: g  
 SOLIDWORKS

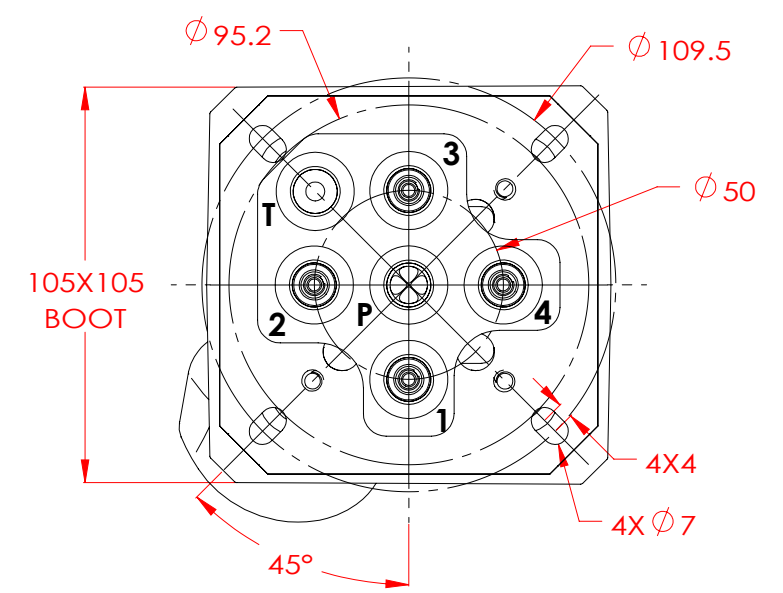
SCALE: 1:2  
 SHEET 1 OF 1

B METRIC

REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Prototype Release	11/19/2012	RYao

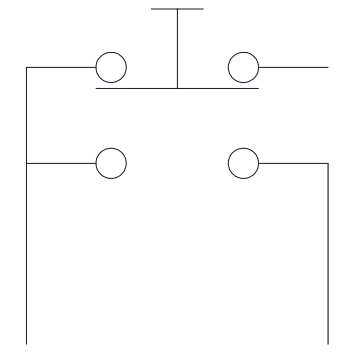


DETAIL A  
SCALE 1 : 1  
PORT PROFILE DETAIL  
6 PLACES



- SPECIFICATION:**
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 40 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 15 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 36V, 2A AMPS MAXIMUM

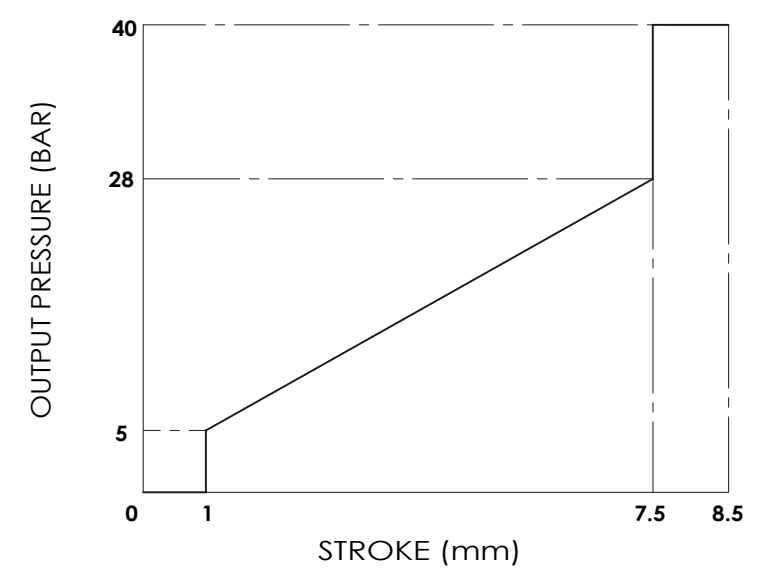
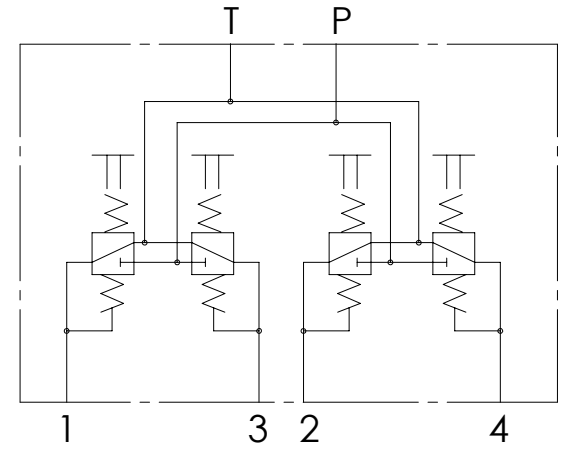
SPRING RETURN



SWITCH "1" "2" "3"

WIRE COLOR:  
SWITCH "1" : GREEN+, YELLOW-  
SWITCH "2" : BLUE+, WHITE-  
SWITCH "3" : RED+, BLACK-

HYDRAULIC SCHEMATIC



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SURF. FINISH	$\sqrt{3.2}$	
.X	$\pm 0.25$	
.XX	$\pm 0.13$	
ANGLES	$\pm 1^\circ$	
CORNERS/EDGES	C/R 0.4 MAX	

MATERIALS:		
FINISH:		

METRIC	NAME	DATE
DRAWN	RYao	11/06/2012
CHECKED	CXia	11/19/2012
APPROVED	KBrown	12/04/2012

**QP Hydraulics**  
DIVISION OF PRINCE INDUSTRIES, INC.  
DESCRIPTION  
**Pilot Valve JSC45-R; G Ports BSPP**  
thd (ISO 1179-1)  
DESCRIPTION CODE:  
PV-JSC-45-EX-R-1C2



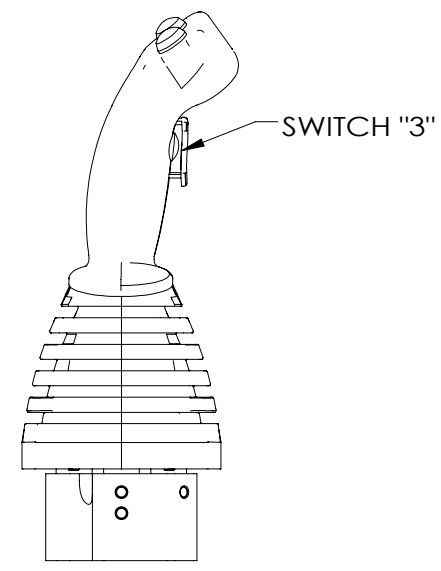
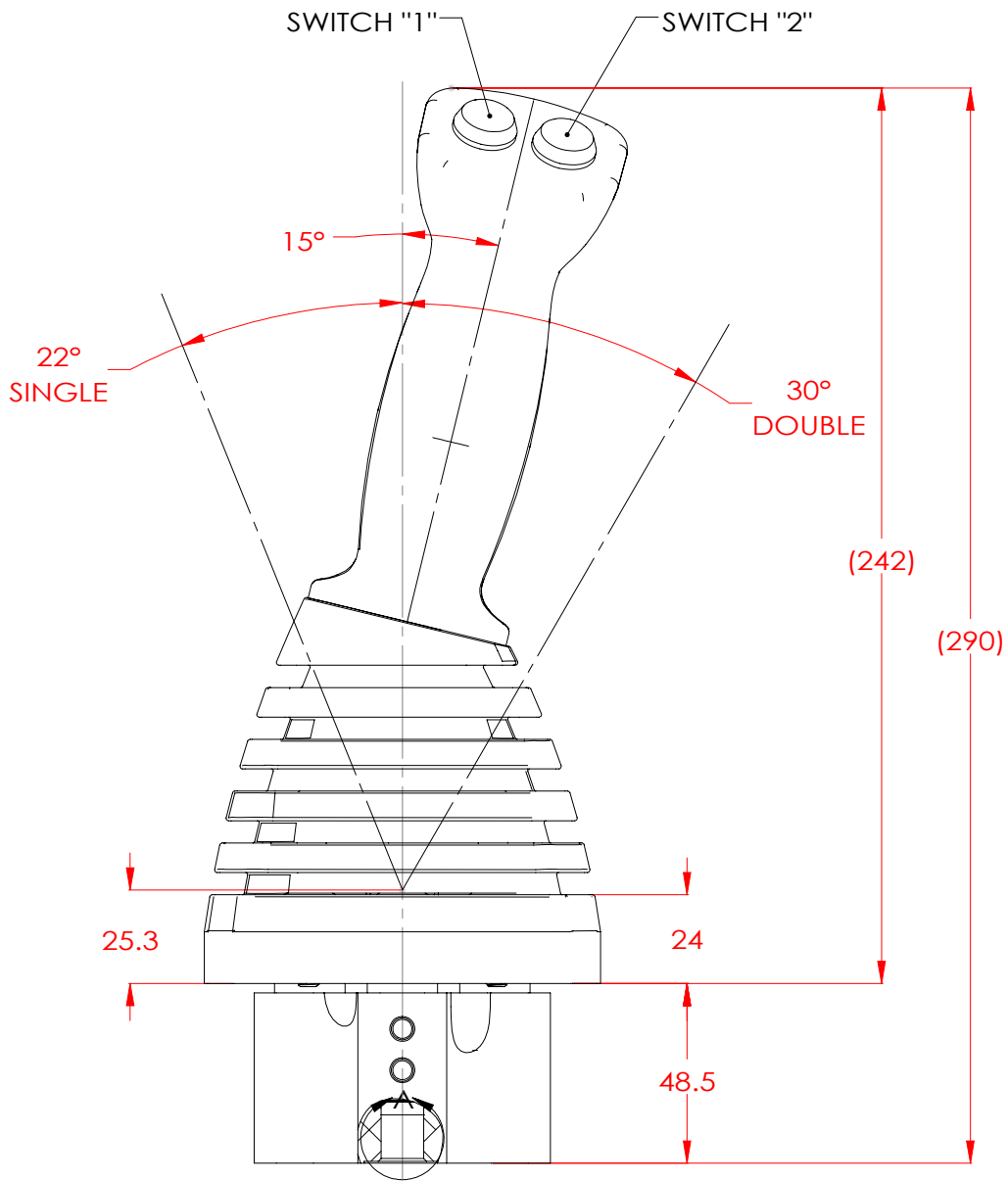
PART NO  
**12-00822**  
REV  
**A**

ITEM	QTY

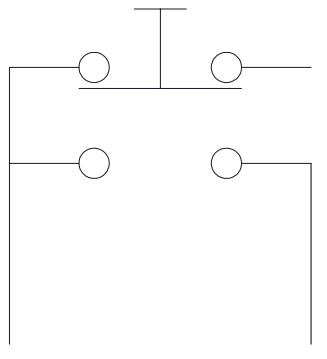
WEIGHT: g  
SCALE: 1:2  
SOLIDWORKS SHEET 1 OF 1

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REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Prototype Release	11/19/2012	RYao



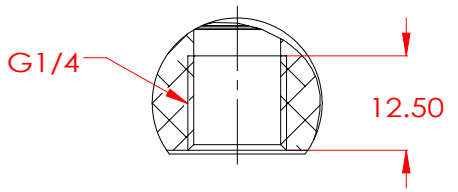
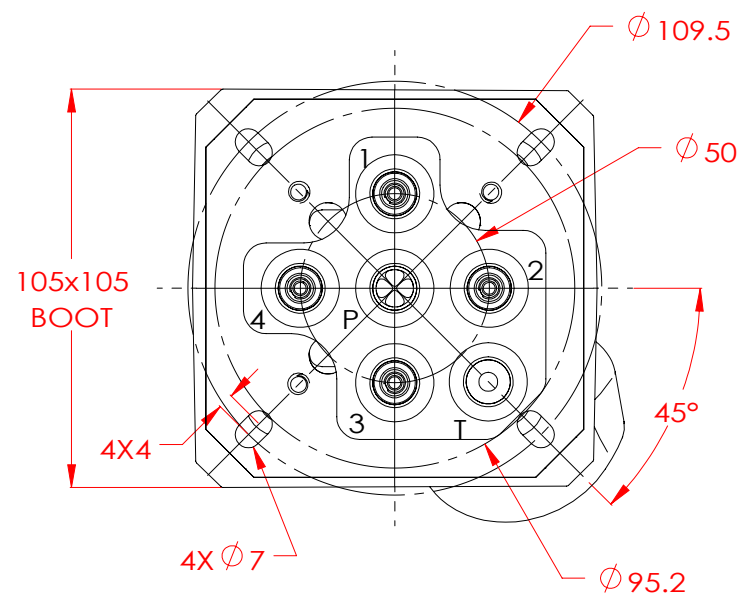
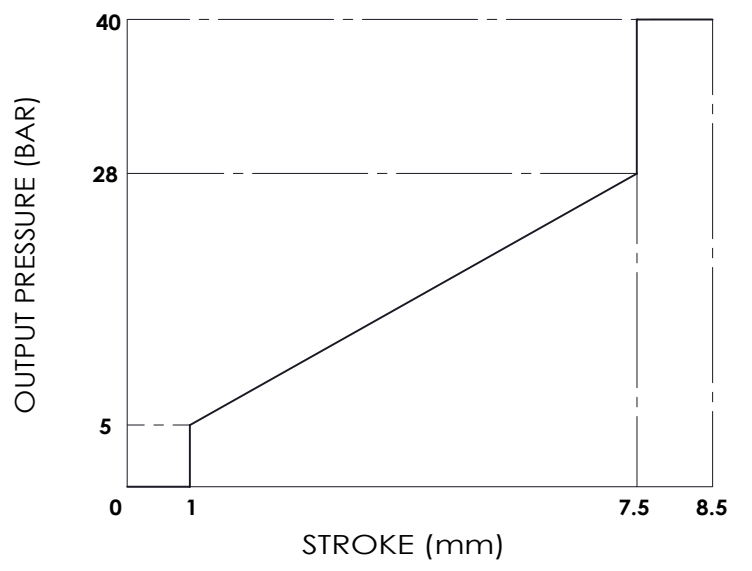
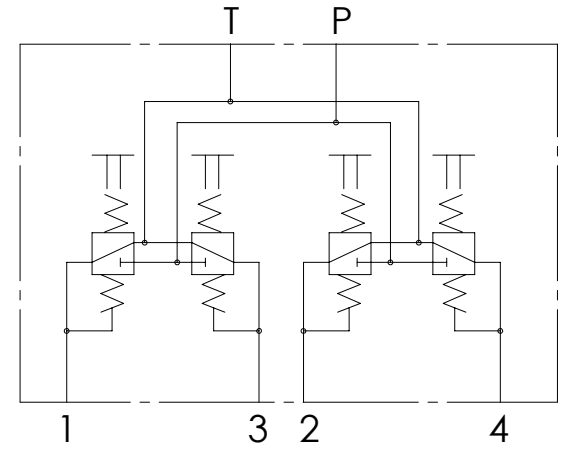
SPRING RETURN



SWITCH "1" "2" "3"

WIRE COLOR:  
 SWITCH "1": GREEN+, YELLOW-  
 SWITCH "2": BLUE+, WHITE-  
 SWITCH "3": RED+, BLACK-

HYDRAULIC SCHEMATIC



DETAIL A  
 SCALE 1 : 1  
 PORT PROFILE DETAIL  
 6 PLACES

- SPECIFICATION:**
- 1) MAXIMUM PRESSURE PROOF: 100 BAR
  - 2) WORKING PRESSURE : 40 BAR
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 40Nm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 15 L/min MAXIMUM
  - 6) TEMPERATURE: -20°C~90°C
  - 7) SWITCH : DC 36V, 2A AMPS MAXIMUM

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SURF. FINISH	3.2	
.X	±0.25	
.XX	±0.13	
ANGLES	±1°	
CORNERS/EDGES	C/R 0.4 MAX	

MATERIALS:	FINISH:

**QP Hydraulics**  
 DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
**Pilot Valve JSC45-L; G Ports BSPP**  
 thd (ISO 1179-1)

DESCRIPTION CODE:  
 PV-JSC-45-EX-L-1C2

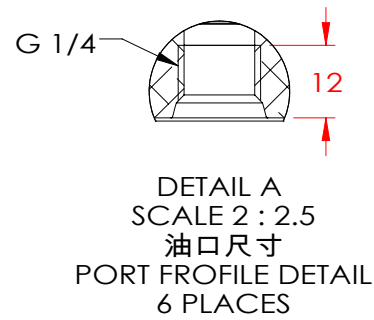
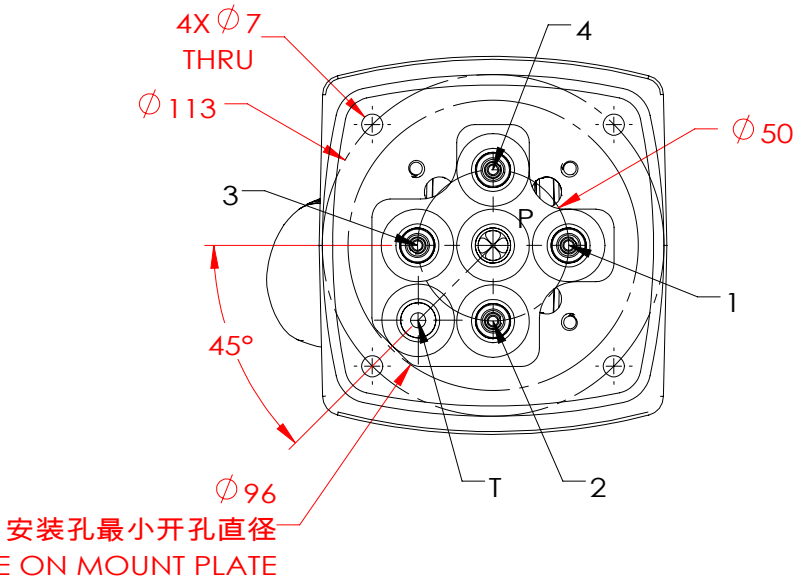
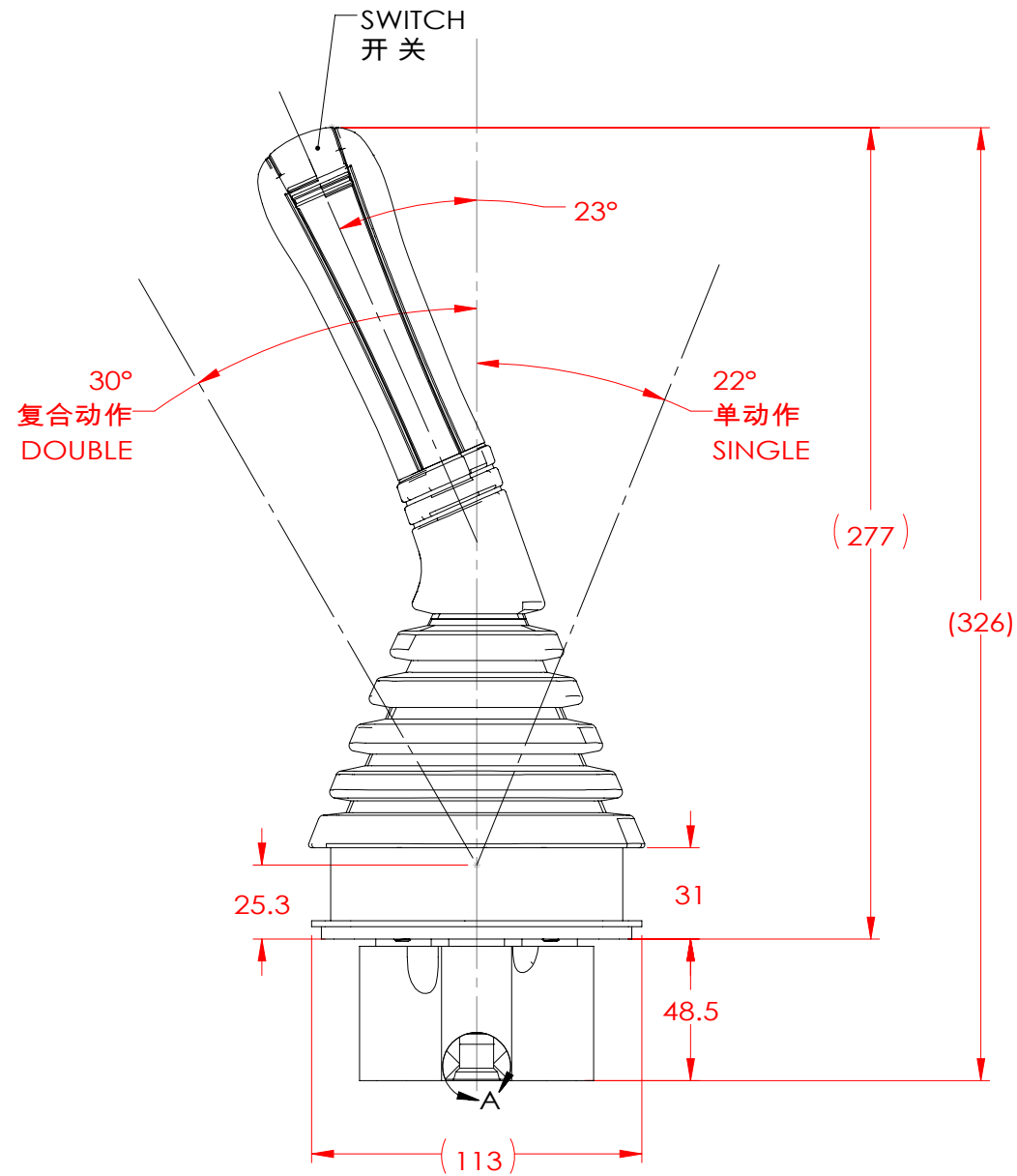
PART NO  
**12-00786**

REV  
**A**

WEIGHT: g  
 SOLIDWORKS

SCALE: 1:2  
 SHEET 1 OF 1

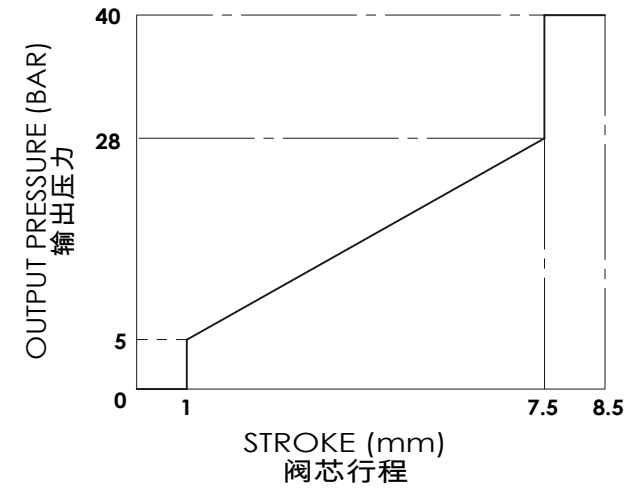
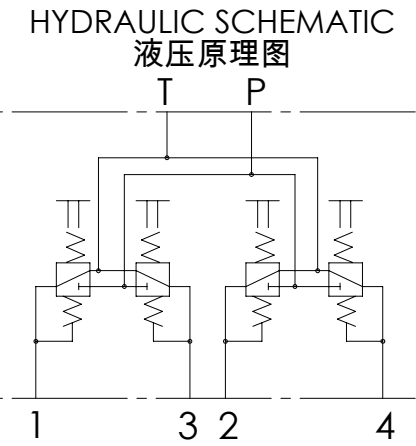
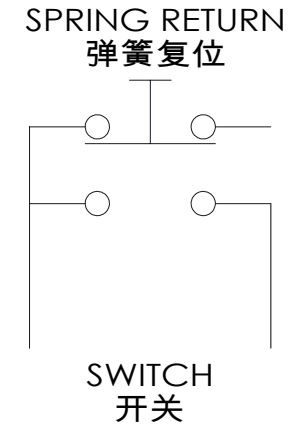
B METRIC



安装孔最小开孔直径  
MIN HOLE ON MOUNT PLATE

### REVISIONS

REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Proto Release	12/11/2012	RYao



#### SPECIFICATION:

- 1) MAXIMUM PRESSURE PROOF: 100 kgf/cm<sup>2</sup>
- 2) WORKING PRESSURE : 40 kgf/cm<sup>2</sup>
- 3) MAXIMUM ADAPTER INSTALL TORQUE: 390kgf·cm
- 4) OIL: MINERAL OIL (10W RECOMMEND)
- 5) FLOW : 15 L/min MAXIMUM
- 6) TEMPERATURE: -20°C~90°C
- 7) SWITCH : DC 30V, 6A AMPS MAXIMUM

#### 技术参数:

- 1) 最大输入压力 : 100 kgf/cm<sup>2</sup>
- 2) 额定压力 : 40 kgf/cm<sup>2</sup>
- 3) 最大限定安装扭矩 : 390kgf·cm
- 4) 液压油 : 矿物液压油(推荐10W)
- 5) 流量 : 15 L/min
- 6) 温度范围 : -20° ~ +90°C
- 7) 开关 : 直流 30V, 电流6A, 最大

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UNLESS OTHERWISE SPECIFIED  
TOLERANCES ARE:  
SURF. FINISH  $\sqrt{3.2}$   
.X ±0.25  
.XX ±0.13  
ANGLES ±1°  
CORNERS/EDGES C/R 0.4 MAX

METRIC	NAME	DATE
DRAWN	NBo	12/07/2012
CHECKED	CXia	12/11/2012
APPROVED	KBrown	12/11/2012

MATERIALS:

FINISH:

THIRD ANGLE  
PROJECTION

ITEM  
QTY

## QP Hydraulics

DIVISION OF PRINCE INDUSTRIES, INC.

DESCRIPTION  
Pilot Valve JSC45-EX-R; G1/4C  
Ports BSP/ thd (JIS-2351)

DESCRIPTION CODE:  
PV-JSC-45-EX

PART NO

12-00951

REV

A

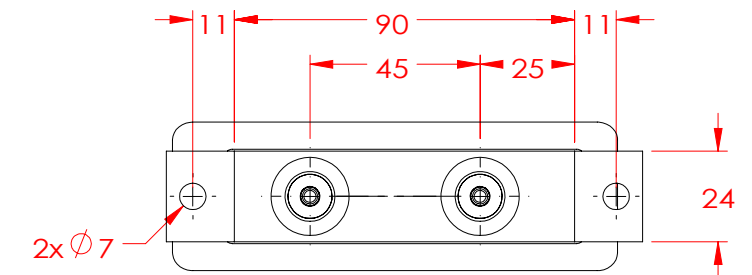
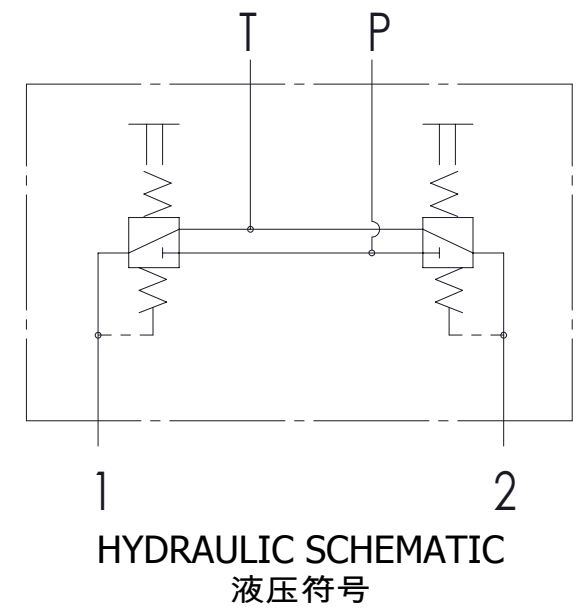
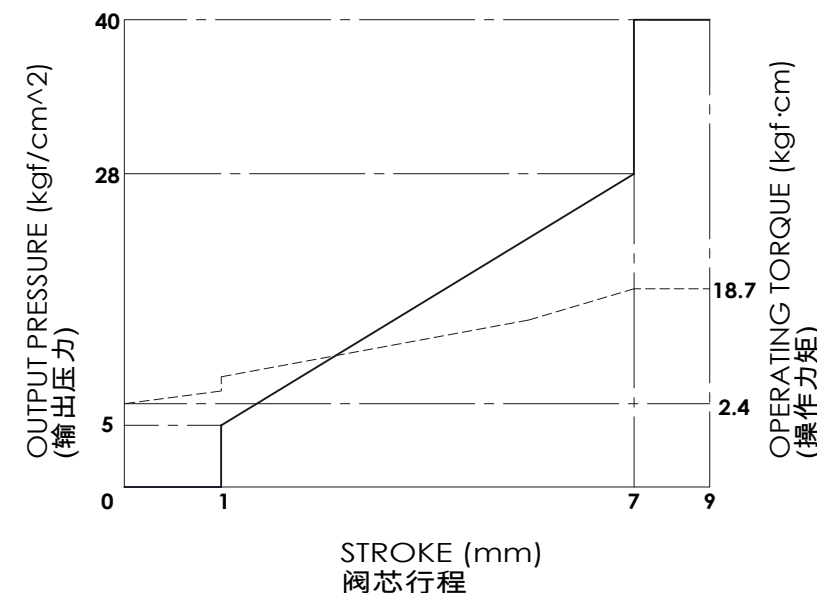
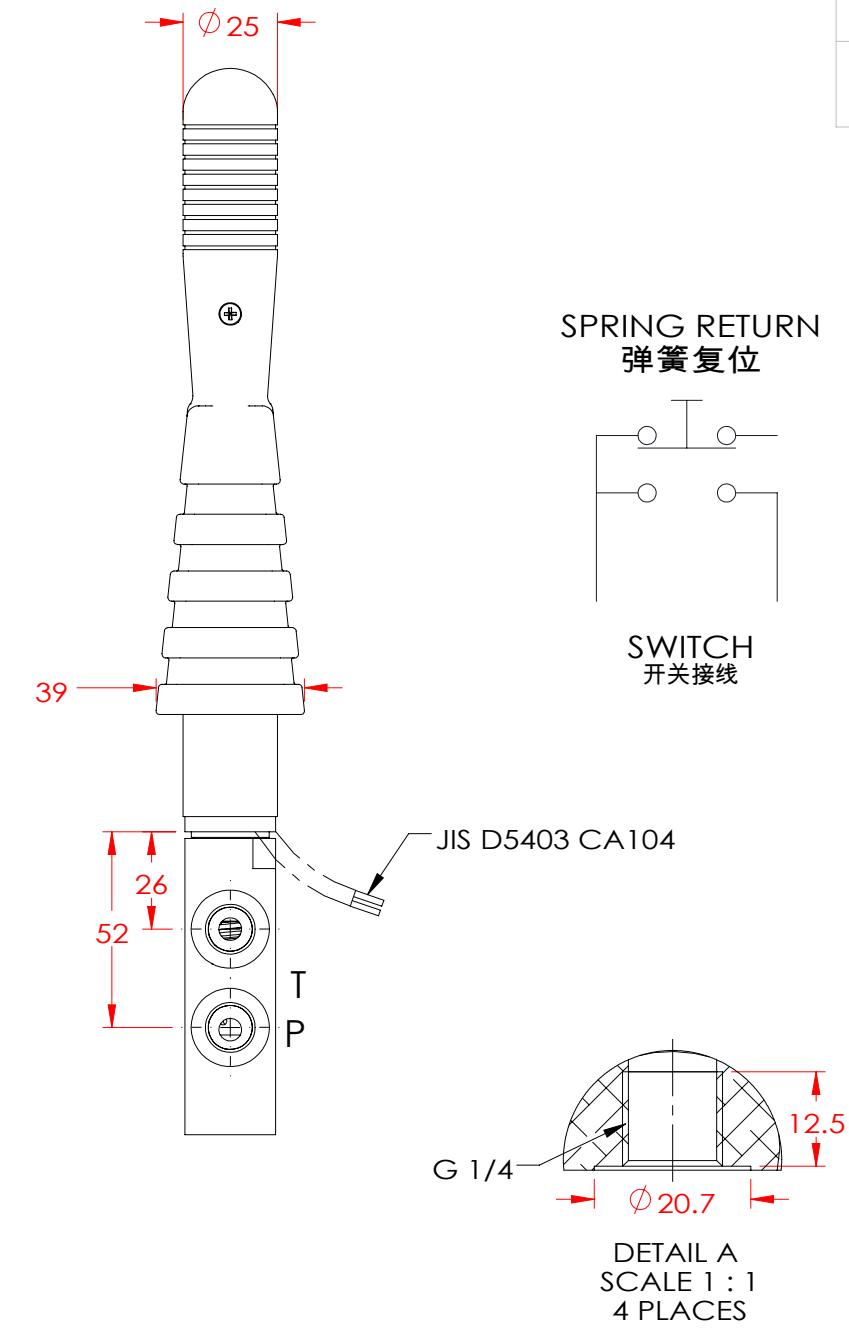
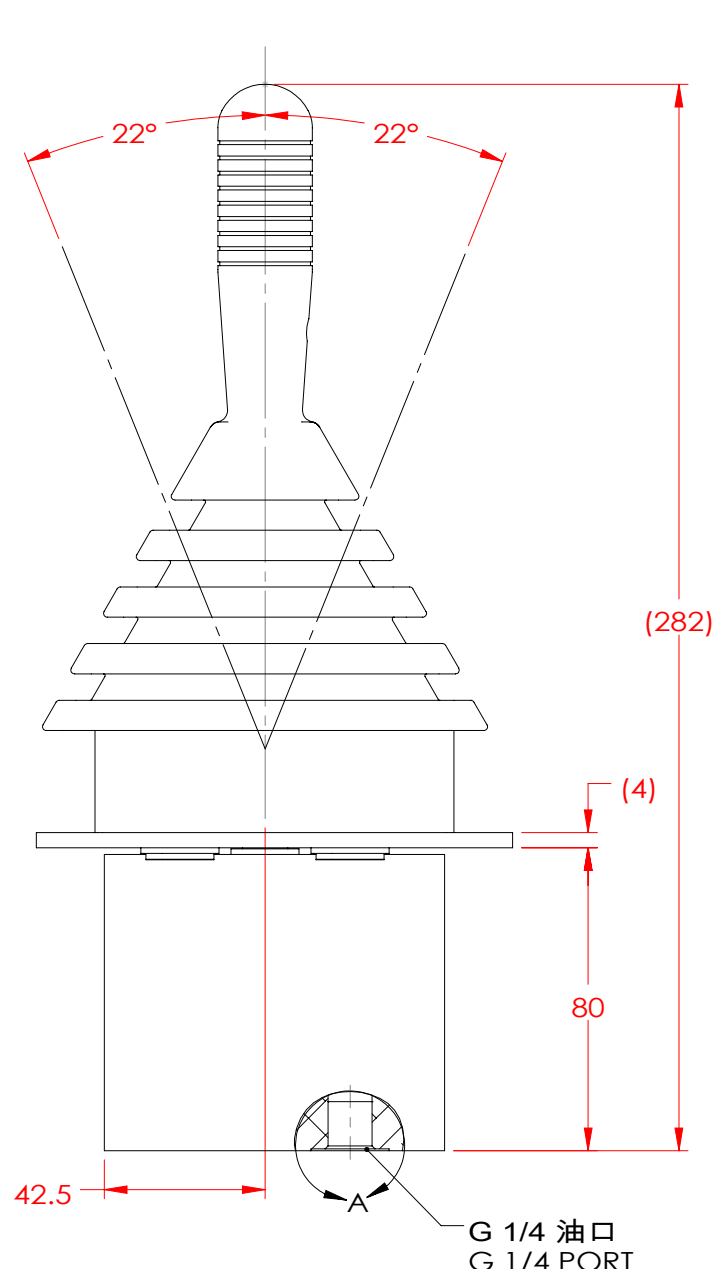
WEIGHT: g  
SOLIDWORKS

SCALE: 1:2.5  
SHEET 1 OF 1

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AUTHORIZED BY PRINCE IND. INC.



REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
A	Initial Prototype Release	12/05/2012	RYao



技术参数:  
 1) 最大输入压力: 100 kgf/cm<sup>2</sup>  
 2) 额定压力: 40 kgf/cm<sup>2</sup>  
 3) 最大限定安装扭矩: 390kgf·cm  
 4) 液压油: 矿物液压油(推荐10W)  
 5) 流量: 15l/min  
 6) 温度范围: -20° ~ +90°C  
 7) 开关: 直流 30V, 1.5A 最大

SPECIFICATION:  
 1) MAXIMUM INPUT PRESSURE: 100 kgf/cm<sup>2</sup>  
 2) WORKING INPUT PRESSURE: 40 kgf/cm<sup>2</sup>  
 3) MAXIMUM ADAPTER INSTALL TORQUE: 390kgf·cm  
 4) OIL: MINERAL OIL (10W RECOMMEND)  
 5) FLOW: 15 l/min  
 6) TEMPERATURE: -20°C~90°C  
 7) SWITCH: 30VDC, 1.5A AMPS MAXIMUM

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 SURF. FINISH  $\sqrt{3.2}$   
 .X  $\pm 0.25$   
 .XX  $\pm 0.13$   
 ANGLES  $\pm 1^\circ$   
 CORNERS/EDGES C/R 0.4 MAX

METRIC	NAME	DATE
DRAWN	RYao	12/05/2012
CHECKED	CXia	12/05/2012
APPROVED	KBrown	12/05/2012

DESCRIPTION  
**QP Hydraulics**  
 DIVISION OF PRINCE INDUSTRIES, INC.  
 SINGLE AXIS PV (SL25 PLATELESS)

DESCRIPTION CODE: PV-SL-25-EX

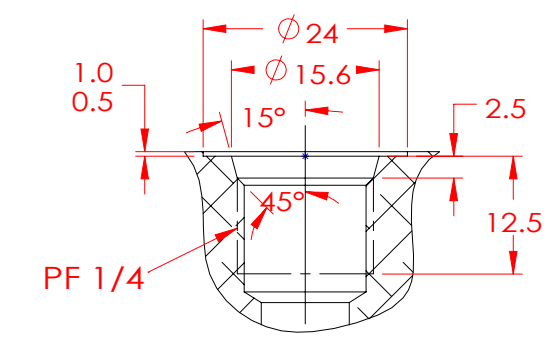
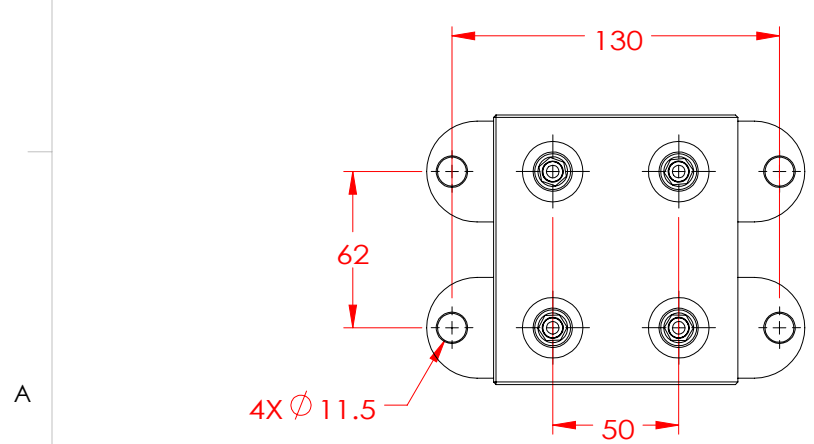
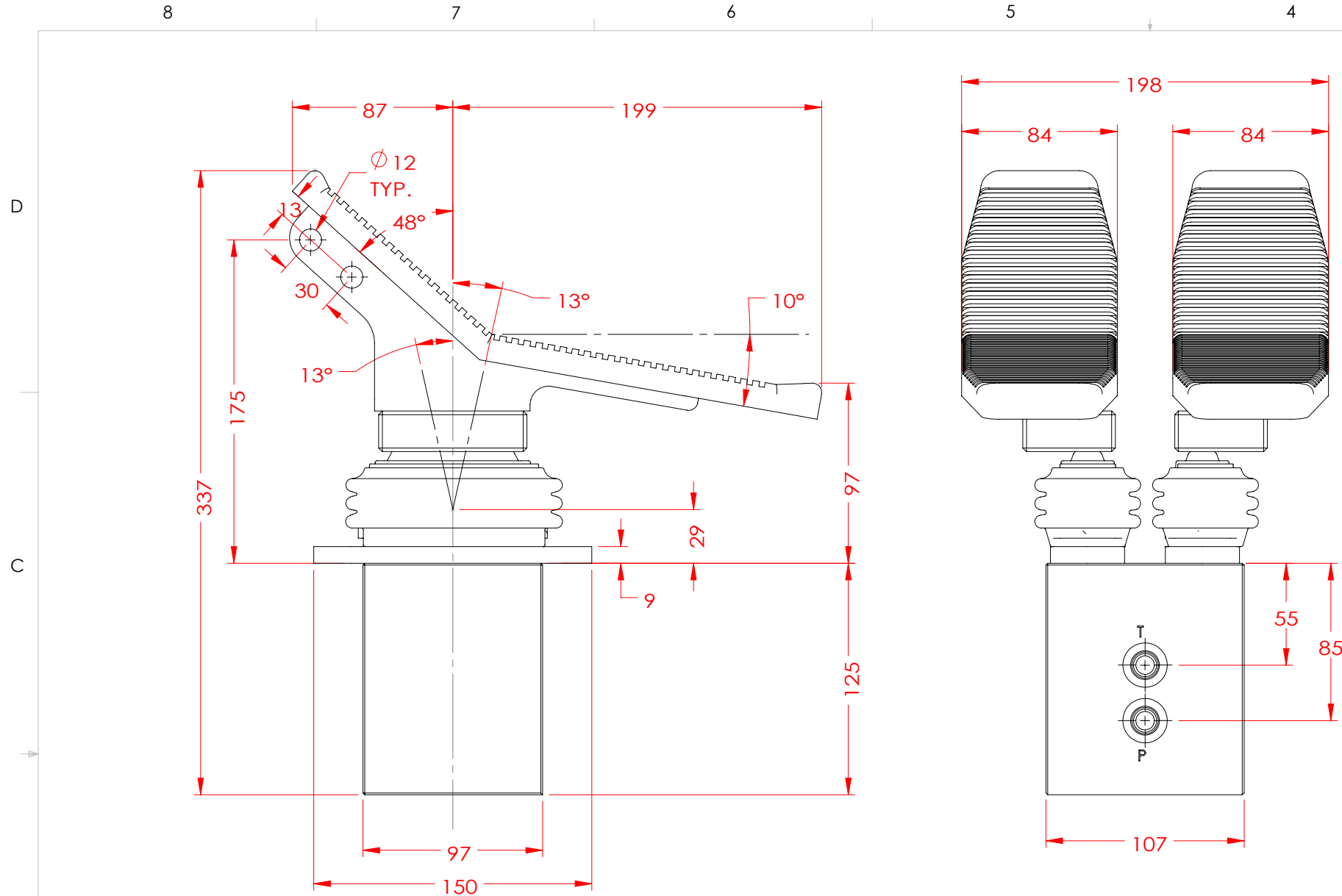
PART NO: 12-00826

REV: A

WEIGHT: g  
 SOLIDWORKS

SCALE: 1:2  
 SHEET 1 OF 1

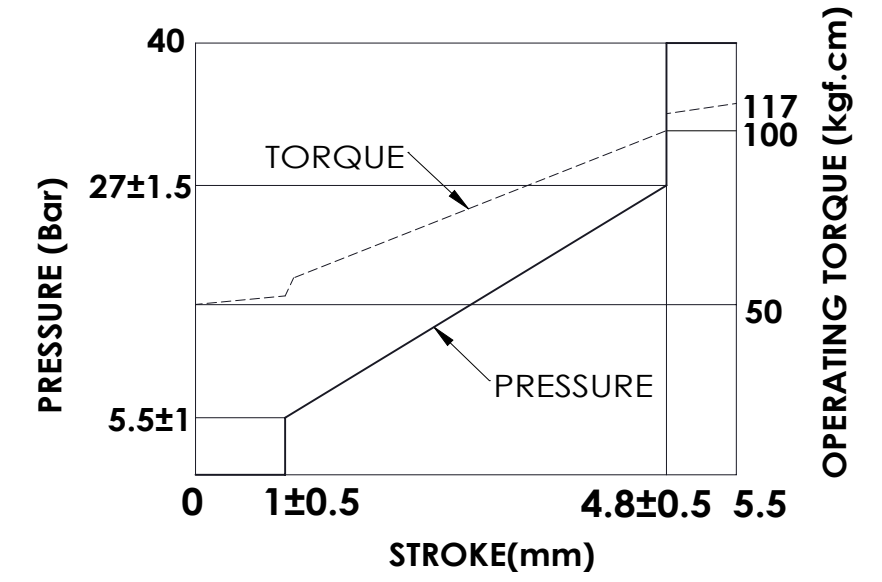
B METRIC



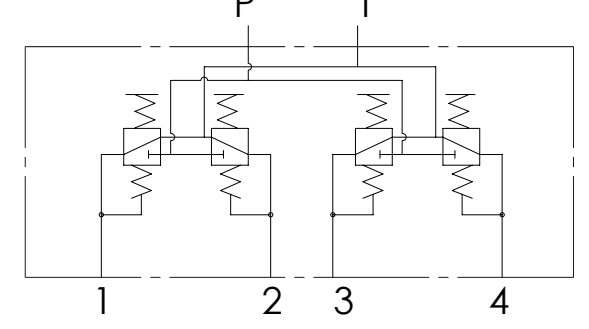
DETAIL A  
PF 1/4 PORT PROFILE  
6 PLACES

REVISIONS			
REV.	REV. DESCRIPTION	REV. DATE	REV. BY
B	Initial Installation Drawing	12/07/2012	RYao

PRESSURE VS. STROKE CURVE



HYDRAULIC SCHEMATIC



- 技术参数:
- 1) 最大输入压力 : 100 kgf/cm<sup>2</sup>
  - 2) 额定压力: 40 kgf/cm<sup>2</sup>
  - 3) 最大限定安装扭矩: 390kgf·cm
  - 4) 液压油: 矿物液压油(推荐10W)
  - 5) 流量 : 20L/min
  - 6) 温度范围: -20° ~ +90°C
- SPECIFICATION:
- 1) MAXIMUM INPUT PRESSURE: 100 kgf/cm<sup>2</sup>
  - 2) WORKING INPUT PRESSURE : 40 kgf/cm<sup>2</sup>
  - 3) MAXIMUM ADAPTER INSTALL TORQUE: 390kgf·cm
  - 4) OIL: MINERAL OIL (10W RECOMMEND)
  - 5) FLOW : 20 L/min
  - 6) TEMPERATURE: -20°C~90°C

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		<b>METRIC</b> NAME DATE		<p><b>QP Hydraulics</b> DIVISION OF PRINCE INDUSTRIES, INC.</p> <p>DESCRIPTION <b>FP48-5.5-27</b></p> <p>DESCRIPTION CODE: PV-FP48EX</p> <p>PART NO <b>12-00644</b></p> <p>REV <b>B</b></p>	
SURF. FINISH $\sqrt{3.2}$		DRAWN RYao	DATE 12/07/2012		
.X ±0.25 .XX ±0.13 ANGLES ±1° CORNERS/EDGES C/R 0.4 MAX		CHECKED CXia	DATE 12/11/2012		
MATERIALS:		APPROVED KBrown	DATE 12/11/2012	WEIGHT: 15.366 g	
FINISH:		THIRD ANGLE PROJECTION		SCALE: 1:3	
ITEM		QTY		SOLIDWORKS SHEET 1 OF 1	

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