Valves for vehicle-mounted cylinder hydrogen supply system

35MPa cylinder port valve

Technical characteristics：

① 3D modeling is adopted for strength design of the valve body, and with reliable calculations plus professional finite element analysis, whether overall structure, flow paths, and materials of the valve body meet the performance requirements is verified.

② For valve body raw materials, we signed technical agreements with domestic famous manufacturers to customize materials with better mechanical properties and elongation than those of national standard machines.

③ With external waterproof design, external water vapor is prevented from entering the valve body to damage the electrical components.

④ Each seal is made of imported hydrogenated nitrile rubber, which has better and more stable sealing effect for hydrogen medium.

⑤ Spring material with high strength and high hardness, fatigue resistance and good corrosion resistance are selected, and professional software is used to conduct finite element analysis of the spring in the design stage of the cylinder port valve to ensure spring compression rate, stability and reasonable fatigue design.

⑥ FEP cable line of domestic famous brand is selected, with rated voltage of 600V, and applicable temperature of -60~+200℃.

(7) The same types of electrical connectors and circuit protector components as imported brands are selected to improve product stability and ensure electrical over-voltage protection.

⑧ The valve flap gasket is made of PEEK material with excellent performance from the internationally known brand of high performance plastics.

The 35MPa high-pressure hydrogen cylinder valve for vehicles is specially designed for the vehicle-mounted hydrogen supply system, with a power supply voltage of 12/24VDC. It integrates electromagnetic actuators, manual shut-off valves, combined pressure relief devices, temperature sensors and other components to control the output of hydrogen in high-pressure gas cylinders and ensure the safety of the system.

Model	QPK-A	Remark

Explosion-proof protection level	ExdIICT6 IP65		
Work pressure	15℃下 35MPa		
Max-pressure	43.75MPa		
Min-pressure	0.5MPa		
Min burst pressure	140MPa		
Opening time	＜0.35s		
Closing time	＜0.15s		
Temperature range	-40℃~+85℃		
PRD melting temperature	110℃±5℃		
Quality	1000g		
Requirements for driving solenoid coils	DC coil voltage	24V	12V
	DC coil power	8.5W	
	Coil working status	Continuous	
	Transient protection voltage	48V	48V (Adjustable)
	Coil dielectric strength	≥10MΩ (Under 1000V voltage)	
Temperature sensor	Range -50℃~+150℃（NTC）		
Other import and export minimum diameter	Φ6.3mm		
Working medium	Hydrogen according to ISO14687		
Leak rate (inside and out)	<10Ncc/h		
Reference standard	GB/T 35544		

70MPa cylinder port valve

Technical characteristics：

① 3D modeling is adopted for strength design of the valve body, and with reliable calculations plu s professional finite element analysis, whether overall structure, flow paths, and materials of the va lve body meet the performance requirements is verified.

② For valve body raw materials, we signed technical agreements with domestic famous manufact urers to customize materials with better mechanical properties and elongation than those of nation al standard machines.

③ With external waterproof design, external water vapor is prevented from entering the valve body to damage the electrical components.
④ Each seal is made of imported hydrogenated nitrile rubber, which has better and more stable sealing effect for hydrogen medium.
⑤ Spring material with high strength and high hardness, fatigue resistance and good corrosion resistance are selected, and professional software is used to conduct finite element analysis of the spring in the design stage of the cylinder port valve to ensure spring compression rate, stability and reasonable fatigue design.
⑥ FEP cable line of domestic famous brand is selected, with rated voltage of 600V, and applicable temperature of -60~+200℃.
(7) The same types of electrical connectors and circuit protector components as imported brands are selected to improve product stability and ensure electrical over-voltage protection.
⑧ The valve flap gasket is made of PEEK material with excellent performance from the internationally known brand of high performance plastics.

Model	**QPK-B**		**Remark**
Explosion-proof protection level	ExdIICT6 IP65		
Work pressure	15℃下 70MPa		
Greatest pressure	87.5MPa		
Minimum pressure	0.5MPa		
Minimum burst pressure	175MPa		
Opening time	＜0.35s		
Closing time	＜0.15s		
Temperature range	-40℃~+85℃		
PRD melting temperature	110℃±5℃		
Quality	3000g		
Requirements for Driving Solenoid Coils	DC coil voltage 24V 12V	24V	12V
	DC coil power	Optional PWM control	
	Coil working status	Continuous	
	Transient protection voltage	48V	48V（adjustable）
	Coil Dielectric Strength	≥10MΩ(under 1000V voltage)	
Temperature Sensor	Range -50℃~+150℃（NTC）		
Other import and export minimum diameter	Φ5mm		
Working medium	Hydrogen according to ISO14687		
Leak rate (inside and out)	<10Ncc/h		
Reference standard	GB/T 35544		

35MPa hydrogen port

The hydrogen port is a specially designed hydrogen filling seat for fuel cell vehicles; the flow chann el is smooth and noiseless; the built-in filter element filters dust particles and provides sealing perf ormance; the interface size is designed according to GB/T26779 standard, with more precise size control and better cooperation with the hydrogen filling gun; it is qualified by the special inspection institute for 30,000 times life test, reducing product maintenance and downtime.

Basic parameters：

Nominal diameter：DN08
Nominal pressure：PN350
Applicable temperature：-40~+85℃
Applicable media：hydrogen
Structure length: 88.5mm
Interface size: 3/8 ferrule

Features of FURUI hydrogen port:

① Filling with low noise
② With filtering device (precision of 40um)
③ Integrated with check function valve
④ Good sealing performance

70MPa hydrogen port

The hydrogen port is a specially designed hydrogen filling seat for fuel cell vehicles; the flow chann el is smooth and noiseless; the built-in filter element filters dust particles and provides sealing perf ormance; the interface size is designed according to GB/T26779 standard, with more precise size control and better cooperation with the hydrogen filling gun; it is qualified by the special inspection institute for 30,000 times life test, reducing product maintenance and downtime.

Basic parameters：

Nominal diameter：DN08
Nominal pressure：PN350
Applicable temperature：-40~+85℃
Applicable media：hydrogen
Structure length: 86.7mm
Interface size: Usui, O-LOK

Features of FURUI hydrogen port：

① Filling with low noise
② With filtering device (precision of 40um)
③ Integrated with check function valve
④ Good sealing performance

35MPa pressure reducing valve

The pressure reducing valve is the key component of the vehicle-mounted hydrogen supply syste m, which is in the long-term working condition of high pressure to low pressure. Once the sealing f ails, the pressure of the pipeline can be continuously boosted, then the safety valve is opened, and the hydrogen supply system works abnormally.

Basic parameters：

Nominal diameter: DN08
Nominal pressure: PN350
Applicable temperature: -40 ~ +85℃
Applicable media：hydrogen
Structure length: 133.5mm
Interface size: in SAE 9/16-18, out SAE 3/4-16

Technical characteristics：

The spring material with high strength and high hardness, fatigue resistance and good corrosion re sistance is selected, and the finite element analysis of the spring is carried out by using profession al software in the design stage of the cylinder port valve to ensure spring compression rate, stabilit y and reasonable fatigue design. The reliability of valve pressure regulation is ensured.

70MPa pressure reducing valve

The pressure reducing valve is the key component of the vehicle-mounted hydrogen supply syste m, which is in the long-term working condition of high pressure to low pressure. Once the sealing f ails, the pressure of the pipeline can be continuously boosted, then the safety valve is opened, and the hydrogen supply system works abnormally.

Basic parameters：

Nominal diameter：DN08
Nominal pressure：PN350/700
Applicable temperature：-40~+85℃
Applicable media：hydrogen
Structure length：130mm
Interface size: in SAE 9/16-18, out SAE 3/4-16

Technical characteristics：

1. Containing two pressure reducing bins, and with high pressure endurance on both left and right stages, the structure can keep stable pressure of the gas supply system, with pressure supply imp act of about 5%, and better safety performance.

2. The second stage is adjustable pressure-reducing bin, which can adjust the pressure according to customer's demand.
3. Simple structure, neat, small size, integrated pressure sensor interface, safety valve interface a nd with drainage function, easy to install, space-saving.

35MPa safety valve

The safety valve is a key component of the vehicle-mounted hydrogen supply system. When the pr essure reducing valve fails, the safety valve opens to prevent the pipeline pressure of the hydroge n supply system from being too high to damage the back-end components.

Basic parameters of safety valve：

Nominal diameter：DN06

Nominal pressure：PN25

Applicable temperature：-40~+85℃

Applicable media：hydrogen

Structure length: 49mm

Interface size: NPT1/4

Technical characteristics：

The spring material with high strength and high hardness, fatigue resistance and good corrosion re sistance is selected, and the finite element analysis of the spring is carried out by using profession al software in the design stage of the cylinder port valve to ensure spring compression rate, stabilit y and reasonable fatigue design. The reliability of valve pressure regulation is ensured.

35MPa overflow valve

The overflow valve is a key component of the vehicle-mounted hydrogen supply system, which pla ys a role in intercepting the flow when the system pipeline is abnormally cut off to prevent tremend ous hydrogen leakage which may cause dangers.

Basic parameters：

Nominal diameter：DN08

Nominal pressure：PN350

Applicable temperature：-40~+85℃

Applicable media：hydrogen

Structure length: 70mm

Interface size: 3/8 ferrule

Technical characteristics：

① High flow rate and high reliability of valve flap.

35MPa filter

The filter valve is a key component of the vehicle-mounted hydrogen supply system, pre venting impurities from entering the back-end valves and components in the pipeline, re ducing the frequency of equipment maintenance, and prolonging the service life.

Basic parameters：

Nominal diameter：DN08、DN10

Nominal pressure：PN420/700

Applicable temperature：-40~+120℃

Applicable media：hydrogen

Structure length: 78mm

Interface size: 3/8 ferrules, 1/2 ferrules

Filtration precision: 7u, 15u

Technical characteristics：

① Online filter element replacement

②High versatility and interchangeability of parts

③ Changed filtration level according to customer requirements

4MPa ball valve

Basic parameters：

Nominal diameter：DN10

Nominal pressure：PN40

Applicable temperature：-40~+85℃

Applicable media：hydrogen

Structure length: 105mm

Interface size: 1/2 ferrules

Technical characteristics：

① Handle is designed according to the ergonomic s, being easy to use

② Mounted with panel or bracket

③ Soft seat seal

35MPa needle cut-off valve

35MPa needle cut-off valve：

Nominal pressure：DN08
Nominal diameter：PN420
Applicable temperature：-40~+85℃
Applicable media：hydrogen
Structure length：80mm
Interface size：3/8卡套

Technical characteristics：
① Handle is designed according to the ergonomic s, being easy to use
② Mounted with panel or bracket
③ Metal seal, soft seat seal

70MPa filter

The filter valve is a key component of the vehicle-mounted hydrogen supply system, pre venting impurities from entering the back-end valves and components in the pipeline, re ducing the frequency of equipment maintenance, and prolonging the service life.
Basic parameters：
Nominal diameter：DN08、DN10
Nominal pressure：PN420/700
Applicable temperature：-40~+120℃
Applicable media：hydrogen
Structure length: 78mm
Interface size: 3/8 ferrules, 1/2 ferrules
Filtration precision: 7u, 15u

Technical characteristics：
① Online filter element replacement
② High versatility and interchangeability of parts
③ Changed filtration level according to customer requirements

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70 **Казахстан** +7(7172)727-132 **Киргизия** +996(312)96-26-47

https://furui.nt-rt.ru/ || fiu@nt-rt.ru