

Anson Ultra High-Pressure Flowline Equipment

Figure 2002—20,000 psi





Figure 2002

Pup joints

Our unique manufacturing process produces an inherently stronger product. Smooth uninterrupted bores and no welds eliminate the need for post-weld heat treatment and reduce routine inspection time. Used as interconnecting pipework between equipment, these come standard with integral non-welded hammer union ends and in lengths up to 10 ft.



Material.....Low alloy carbon steel, high strength

2-in. 2002 M x F		3-in. 2002 M x F		4-in. 2002 M x F	
Length	Approx. weight	Length	Approx. weight	Length	Approx. weight
2 ft	20 kg	2 ft	48 kg	2 ft	76 kg
4 ft	31 kg	4 ft	82 kg	4 ft	130 kg
6 ft	43 kg	6 ft	116 kg	6 ft	186 kg
8 ft	57 kg	8 ft	144 kg	8 ft	240 kg
10 ft	69 kg	10 ft	172 kg	10 ft	295 kg

NOTE: Not limited to lengths shown

Decades of trusted and field-proven valves and flowline

The Anson™ brand has been synonymous with quality well-service products for over 35 years. Our original values—quality and a true customer focus— remain at the forefront of the company ethos. With a global network, we are able to provide our customers with technical, sales, and service outlets close to their operations. We have been supplying top-quality 20,000-psi into the oilfield for over 15 years.

The primary manufacturing facility, located in Gateshead, UK, houses state-of-the-art machining tools and highly skilled operators that allow our facility to remain competitive in today’s market. Our highly engineered products with the required quality assurance associated with well-service operations, has been at the heart of the facilities continued growth and development.

This facility works to Quality Management Systems in accordance with; ISO 9001, ISO 14001 and ISO 45001. The facility is PED certified to module H, an API 6A license holder (6A-0313) and members of AWHEM (Association of Well Head Equipment Manufacturers) and NOF (Northern Offshore Federation).

We offer Anson figure 2002 standard service flowline equipment in 2-, 3-, and 4-in. nominal pipe sizes with 1.25-, 2-, and 3-in. bores. The Anson flowline range is not limited to the items shown. Please speak to your local NOV sales representative for further details on any of our other offerings.



Swivel elbow/straight material.....Fully forged alloy steel, heat treat process to give superior case hardness and toughness (European supply)

Swivel joints

Anson swivel joints provide freedom of movement when making up temporary pipework. Designed using materials and processes to last longer in the harshest environments, our full range of swivel joints—in both journal and ball-bearing designs—allows low-torque rotation within a high-pressure flowline setup.

Long-life journal bearing—Designed for smaller bore sizes, the patented journal bearing swivel is a long radius design that increases swivel life and greatly reduces maintenance time. The swivel elbows are a forged, one-piece construction.

Quad Race ball bearing swivel joint—Designed for larger sizes (4 to 8 in.), the Quad Race swivel joint incorporates four ball bearing filled tracks for smooth rotation throughout service life. The design is ideally suited for the increased vibration seen in fracturing service.

2-in. 2002 M x F		3-in. 2002 M x F		4-in. 2002 M x F	
Config.	Approx. weight	Config.	Approx. weight	Config.	Approx. weight
Style 10 M x F	36 kg	Style 10 M x F	92 kg	Style 10 M x F	200 kg
Style 50 M x F	30 kg	Style 50 M x F	77 kg	Style 50 M x F	165 kg

Anson Figure 2002 Design and Specifications

Specification	
Service conditions	Standard service
Max. working pressure	20,000 psi (138 MPa)
Test pressure	30,000 psi (207 MPa)
Temperature rating	-20° to 250° F (-29° to 121° C)*
Lip seal material	Proprietary design. NBR grade with stainless steel anti-extrusion ring.

Anson Figure 2002 Identification

Nominal pipe size	Anson connection
2-in. nominal (1.25-in. bore)	2-in. 2002
3-in. nominal (2.00in. bore)	3-in. 2002
4-in. nominal (3.00-in. bore)	4-in. 2002

*Low-temperature arctic service equipment available upon request.

Figure 2002

Plug valves

Anson Premier plug valves are a low-torque, quarter-turn valve used to isolate sections of flowline. They are the valve of choice when space is limited and a quick shut off is required.

Our plug valves have a robust and low-maintenance compact design. They have been used globally in many severe service applications for the last 30 years.

Our Premier plug valve is a tapered (wipe clean) design, preventing contaminants from entering the cavity. The tapered housing closes the gaps between sealing surfaces preventing ingress of solids during operation. In operation, the sealing surface on the plug is wiped clean on rotation from being in constant contact with the valve inserts, making it ideally suited for fracturing service.

Available from 1- to 4-in. full-bore for pressures up to 20,000 psi, all Anson plug valves are pressure-balanced type and have replaceable inserts between the body and plug.

Anson plug valves are supplied as standard with manual actuation—either a handle or hand wheel with gearbox. They can also be fitted with hydraulic, pneumatic, or electric actuators upon request.



Valve body material.....Low alloy carbon steel, high strength
 Valve design.....Tapered housing (wipe clean) design to prevent contaminants from entering the cavity

2-in. 2002 M x F		3-in. 2002 M x F		4-in. 2002 M x F	
Face-to-face length	Approx. weight	Face-to-face length	Approx. weight	Face-to-face length	Approx. weight
15.26 in.	60 kg	18.88 in.	135 kg	24.78 in.	210 kg



Valve body material.....Low alloy carbon steel, high strength
 Flapper material.....Stainless steel with bonded rubber (HNBR)

Check valves

Our high-quality Anson™ check valves are preferred by many service companies due to their dependability in today's harsh environments. Allowing flow in one direction, when the flow stops or reverses direction the valve shuts, blocking fluid or pressure from travelling back over.

The swing type check valve uses a flapper style closing mechanism. A hinged flapper assembly is seated in the valve. When fluid flows through the inlet it moves the flapper into the open position and passes through to the outlet. When flow stops the flapper closes against the seat and prevents back flow towards the inlet.

2-in. 2002 M x F		3-in. 2002 M x F		4-in. 2002 M x F	
Face-to-face length	Approx. weight	Face-to-face length	Approx. weight	Face-to-face length	Approx. weight
15 in.	34 kg	20 in.	70 kg	24.5 in.	188 kg



Union fittings

From elbows and tees to crosses and laterals, we have a complete range of integral figure 2002 union fittings to integrate into your flowline assembly including elbows, tees, crosses, laterals, wyes, and crossovers—all with Anson hammer union connections across the size range. Full material traceability is supplied as standard.

Pressure relief valve

A pressure relief valve (PRV), sometimes referred to as a 'pop off valve', is a safety valve designed to protect against over pressure from pump supply in the flowline and is set to open at a preset pressure. Hydraulic pressure in the system acts directly on the ball and seat arrangement of the valve. When the system is at or below the set pressure, the ball will remain seated checking flow. Once the line pressure becomes greater than the set pressure, the ball will begin to unseat and relieve pressure through the outlet. The valve is self-resetting and the disc-spring arrangement provides a fast reseating action once normal operating conditions resume.

NOTE: The required set pressure must be stipulated at time of order, otherwise it will be the responsibility of the user to set the desired relief pressure.



Valve body material.....Low alloy carbon steel, high strength
 Approx. weight.....32 kg
 Set pressure.....Between 2,000 and 20,000 psi



Maintaining your Anson Products

Anson flowline equipment has been designed and manufactured to perform consistently over several applications. To achieve optimal performance and life of product, we recommend that you follow the below advice.

Operation

Anson equipment will clearly state the figure number and working pressure limit. Do not rely on colour coding alone. Never exceed the maximum working pressure of equipment. Choose the correct specification of valve to suit your operations, and always use the valve for the purpose it is intended for. Plug valves and swivels require greasing prior to operation and frequently. For plug valves, the grease acts as a corrosion-resistant barrier as well as a sealant and lubricant. Regular greasing is key to successful operation of equipment. Use grease recommended by Anson. When using equipment in severe service (e.g. with hydrochloric acid), ensure that inhibitors are included, and that equipment is flushed with clean water after use.

Service and Maintenance

Safety

Prior to installing equipment or performing maintenance, always:

- Isolate energy sources before beginning work.
- Avoid performing maintenance or repairs while equipment is in operation.
- Wear proper protective equipment during equipment installation, maintenance, or repair.

Replacing Components

Some operations may require the use of specialised tools designed for the purpose described. Ensure that these tools are used to avoid causing damage to components or equipment. When using any tool, take care not to damage parts—especially sealing surfaces—as this could cause the equipment to not function correctly. During maintenance or repair, only use OEM parts. Other manufacturers' parts may not be compatible with our Anson design, will jeopardise the integrity of the equipment, and could cause damage to equipment or injury to personnel. When the equipment is stripped down, take the opportunity during service to replace any soft seals.

Storage

When not in use, valves should be left in the open position and ideally stored at an orientation that allows any excess fluid to drain from the bore of the equipment. Exposed sealing surfaces and threads should be protected with suitable rust inhibitors and protect end connections with covering plastic caps (available from NOV).

Maintenance Manuals*

We have a range of operation and maintenance manuals to guide you in using the parts referenced in this document. Below are references for standard manuals. Please contact your local Anson representative for a copy.

M01 – Journal Bearing Swivel

M02 – In-Line Check Valve

M03-M04 – Premier Plug Valve

M41 – Maintenance Periods for Anson Flowline Equipment

M42 – Ball Race Swivels

M82 – Relief Valve

M83 – Journal Swivel – Lubrication Procedure

M95 – Flowline Equipment – Maintenance and Inspection Guideline

*NOTE: Some manuals are part specific and are not shown. Contact your Anson representative for more information.

Product Flow Rates

The below chart shows recommended volumetric flow rates of fluid through Anson hammer union equipment. This is based on maximum recommended flow velocity of 40 ft/second to limit the effects of erosion and the resultant life of equipment. For any non-standard flow bores, consult your NOV representative for recommended flow rates.

Volumetric Flow Rates

Pipe ID (in.)	ft ³ /minute	US GPM	BBL/minute	m ³ /minute
0.60	4.7	35	0.8	0.13
0.75	7.4	55	1.3	0.21
1.25	20	150	3.6	0.58
1.50	30	220	5.2	0.83
1.75	40	300	7.1	1.14
2.00	52	390	9.3	1.48
2.30	70	520	12.3	1.96
2.62	90	670	16.0	2.54
2.75	100	740	17.6	2.80
3.00	118	880	21.0	3.34
3.15	130	970	23.1	3.68
3.50	160	1,200	28.6	4.54
3.75	185	1,375	32.8	5.21

Regional Sales, Rental, and Service Locations:

Gateshead, UK

Seventh Avenue
Team Valley Trading Estate
Gateshead
NE11 0JW

T +44 (0) 191 482 0022

Aberdeen, UK

Kintore
Aberdeen
AB51 0QP

T +44 (0) 1224 740 261

Houston, Texas, USA

8017 Breen Road
Houston, TX
77064

T +1 (346) 223 5000

Canada

9830-45th Avenue
Edmonton, Alberta
T6E 5C5

T +1 (780) 409 1200

Singapore

No.14 Tuas Drive 1
Singapore
638680

T +65 6715 6005

Dubai, UAE

Plot S 50601, Jebel Ali Free Zone
(South)
Dubai, UAE

T +971 4 801 6100

Russia

4A, 2PS, Northern Industrial Area
Nizhnevartovsk, Russia
628600

T: +7 3466 310 340

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Corporate Headquarters

7909 Parkwood Circle Drive
Houston, Texas 77036
USA

Completion and Production Solutions

10353 Richmond Avenue
Houston, Texas 77042
USA

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