# MODEL 1400 & 1400 API MULTI–PURPOSE VALVE TESTING

07 2014 M1400

Designed to clamp and test flanged and/or API valves hydrostatically and pneumatically.



#### **Benefits**

The Model 1400 and 1400 API are designed to be either non-rotating or 90 degree rotating machines mounted on a ridged frame. The seal plate rises vertically which presses against the clamp arms. When the proper load force is attained the load forces are applied to the valve flange instead of the valve body to prevent damage.

Reasons to select the Model 1400

- · Testing of angle pattern valves
- · Testing of valves with large actuators or bonnets that won't fit in a Model 600
- Includes lower entry cost compared to the Model 600
- · Testing one side of a valve at a time
- · Test valve without putting stresses on the valve body





### THE MODEL 1400

These valve testing systems are designed to clamp and test flanged valves one side at a time. It allows the operator to perform air and/or water testing on the same clamping fixture and control console and consist of the following features.

#### **CLAMP FIXTURES**

- Four (4) arm arrangement.
- 100 ton to 165 ton hydraulic clamping.
- One (1) fixed "O" ring seal plate, carbon steel, nickel plated.
- · Safety interlock circuit
- Carbon Steel powder coated for wear resistance.
- Air operated pump with 10,000 psi hydraulic clamp circuit.
- Top mounted pressure gauges with quick disconnect. 0.5% accuracy.
- Fixed vertical or optional 90 degree rotating clamp fixture.
- Built-in hydraulic reservoir.
- Air filter and lubricator assembly for inlet supply air to pumps.
- Hydraulic load chart mounted on control panel, which allows quick reference and includes safety interlock.
- · Skid mounted for portability.

#### HYDROSTATIC CONTROL PANEL

Air operated pump with either -3 Series or -10 Series hydrostatic test circuit.

Top mounted 3,000 psi or 10,000 psi, Glycerin filled, pressure gauge (0.5% accuracy).

Water filter for inlet test water supply.

Air filter and lubricator assembly for inlet supply air to pumps.

Standard auxiliary Port

Console Panel and legs to be carbon steel powder coated.

Console Panel to have holes for anchor bolts.

Panel instrumentation labeled.

Installations, operations and maintenance manual included.

#### MODEL 1400 CLAMPING OPTIONS

**ROTATION OPTION.** Pneumatic Cylinders to rotate clamp fixture 90 degrees from the vertical position to the horizontal position.

#### HYDRAULIC SEAL CIRCUIT FOR MODEL1500 HFS.

This will be installed into the hydraulic clamping fixture to seal

the other side of the flange using the Model 1500 API.

#### PATENTED MODEL 1500 HFS -

When used with our patented Model 1400, full body testing can be performed without removing the valve on the clamp fixture.

- Model 1500-2 Hydraulic Flange Seal.
- Model 1500-4
  Hydraulic Flange Seal.
- Model 1500-6
  Hydraulic Flange Seal
- Model 1500-10 Hydraulic Flange Seal
- Model 1500-14 Hydraulic Flange Seal
- Model 1500-16 Hydraulic Flange Seal



Model 1400 with 1500 HFS Assembly

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1400 SERIES						1400 SERIES									
	inch	CLASS					inch CLASS								
12	3,000 psi	150	300	600	900	1500	2500		10,000 psi	150	300	600	900	1500	2500
	1 inch	•	•	•					1 inch	•	•	•	•	•	•
	2 inch	•	•	•				12	2 inch	•	•	•	•	•	•
00	3 inch	•	•	•				8	3 inch	•	•	•	•	•	•
Model 14	4 inch	•	•	•				del 14	4 inch	•	•	•	•	•	
	6 inch	•	•	•					6 inch	•	•	•	•		
	8 inch	•	•	•				В	8 inch	•	•	•			
	10 inch	•	•						10 inch	•	•				
	12 inch	•	•						12 inch	•	•				
	3,000 psi	150	300	600	900	1500	2500		10,000 psi	150	300	600	900	1500	2500
	1 inch	•	•	•				Model 1400-14	1 inch	•	•	•	•	•	•
	2 inch	•	•	•					2 inch	•	•	•	•	•	•
14	3 inch	•	•	•					3 inch	•	•	•	•	•	•
-00	4 inch	•	•	•					4 inch	•	•	•	•	•	•
114	6 inch	•	•	•					6 inch	•	•	•	•	•	
Model	8 inch	•	•	•					8 inch	•	•	•	•		
	10 inch	•	•	•					10 inch	•	•	•			
	12 inch	•	•						12 inch	•	•				
	14 inch	•							14 inch	•					





## THE MODEL 1400 API

These valve testing systems are designed to clamp and test API valves with RTJ groove. It allows the operator to perform air and/or water testing on the same clamping fixture and control console and consist of the following features.

#### **CLAMP FIXTURES**

- Four (4) arm arrangement.
- 165 to 400 U.S. ton hydraulic clamping.
- One(1) seal plate, adapter carbon steel, nickel plated for RTJ groove seal plates (sold separately).

RTJ seal plates to vary in thickness for clamping clearances.

- · Safety interlock circuit.
- Carbon Steel powder coated for wear resistance.
- Air operated pump with 10,000 psi hydraulic clamp circuit.
- Top mounted pressure gauges with quick disconnect. 0.5% accuracy.

- Fixed vertical or optional 90 degree rotating clamp fixture.
- Built-in hydraulic reservoir.
- Air filter and lubricator assembly for inlet supply air to pumps
- Hydraulic load chart mounted on control panel, which allows quick reference and includes safety interlock.
- · Skid mounted for portability.

#### HYDROSTATIC CONTROL PANEL

Air operated pump with either 10, 15 or 22,500 psi hydrostatic test circuit.

Top mounted Glycerin filled, pressure gauge rated accordingly (0.5% accuracy).

Water filter for inlet test water supply.

Air filter and lubricator assembly for inlet supply air to pumps.

Gauge Calibration Port

Console Panel and legs to be carbon steel powder coated.

Console Panel to have holes for anchor bolts.

Panel instrumentation labeled.

Installations, operations and maintenance manual included.

#### MODEL 1400 API CLAMPING OPTIONS

**ROTATION OPTION.** Pneumatic Cylinders to rotate clamp fixture 90 degrees from the vertical position to the horizontal position.

**MODEL 1500 API HFS** - When used with our patented Model 1400 API, full body testing can be performed without removing the valve on the clamp fixture.

- Model 1500-216-API-100T Hydraulic Flange Seal
- Model 1500-316-API-150T Hydraulic Flange Seal

#### HYDRAULIC SEAL CIRCUIT FOR MODEL1500 API HFS.

This will be installed into the hydraulic clamping fixture to seal the other side of the flange using the Model 1500 API.

**SEAL PLATES for API – RTJ – Type Flanged Valves** – Seal plates for each RTJ groove is required for each valve size and API Class each for the Model No. 1400- API- RTJ Valve Test System and Model 1500-API RTJ Hydraulic Flange Seals.

		API CLASS								
		2,000	3,000	5,000	10,000	15,000				
		API PRESSURES (PSI)								
		4,000	3,000 10,000		15,000 22,50					
	2-1/16 inch	R23	R	24	BX152					
bize	2-9/16 inch	R26	R27		BX153					
ve S	3-1/16 inch				BX	154				
Val	3-1/8 inch	R	31	R35						
	4-1/16 inch	R	37	R39	BX	155				

NOTE: For all valves using these seal plates (sealing on I.D., thread chamfer or weld bevel), the tolerance requirements are: Round and true within .010" TIR (true indicator run-out).

- I.D. tolerance to be +/- .010".
- Female NPT (seal on chamfer), 45 degree X 1/4" minimum chamfer, no sharp corners.
- Weld bevel angle tolerance +/- 1/4 degree.
- Face to face non-flanged ends to have 125 Micro inch finish or better.

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1400 API SERIES										
	inch	CLASS								
	10,000 psi		2000	3000	5000	10000	15000			
ν	2-1/16 inch		•	•	•					
00	2-9/16 inch		•	•	•					
14(	3-1/8 inch		•	•	•					
del	4-1/16 inch		•							
Ň										
	22,500 psi		2000	3000	5000	10000	15000			
۲	2-1/16 inch		•	•	•	•	•			
A O	2-9/16 inch		•	•	•	•	•			
odel140	3-1/16 inch					•	•			
	3-1/8 inch		•	•	•					
Ĕ	4-1/16 inch		•	•	•	•	•			

1400 API SERIES										
	inch	CLASS								
	15,000 psi		2000	3000	5000	10000	15000			
del 1400 API	2-1/16 inch		•	•	•	•				
	2-9/16 inch		•	•	•	•				
	3-1/8 inch		•	•	•					
	4-1/16 inch		•	•	•					
ž										



1400-API-RTJ Valve Testing System



#### WATER TEST LEAK DETECTION

**DRIP TUBE** - for seat testing with water. When water is introduced from one side of the valve seat and the seat leaks, water will form on the tube end and drip showing visible signs of the leak that can be counted in drops per minute.

#### DATA ACQUISITION ANALYSIS SYSTEM (DAAS)

- Basic reads and displays printout test pressures.
- Advanced reads, displays, printouts and determines pass/fail test results based on criteria.

#### DATA ACQUISITION AND CONTROL SYSTEM (DACS) reads displays, prints, determines pass/fail based on criteria and control ramping of test pressure.

#### **OPTIONS FOR AIR TESTING**

AIR TEST CIRCUIT with Gauge -Regulates supply air for seat testing up to 160 psi in 125 psi out.

#### **AIR TEST LEAK DETECTION**

**BUBBLE JAR** - Manufactured to ANSI B16.104 for seat testing with air. When air is introduced from one side of the valve seat and the seat leaks, air bubbles will form under the water in the bubble jar showing visible signs of the leak that can be counted in bubbles per minute.

NOTE: MUST HAVE AIR TEST CIRCUIT OPTION TO UTILIZE THIS. **FLOW PANEL** - to provide air/gas leak detection for Class II, III and IV seat leakage testing with (6) Analog flow meters, 0.5, 5, 50, 100, 400 & 1800 SCFH in accordance with American National Standards Institute (ANSI) and Fluid Controls Institute (FCI) ANSI/FCI 70-2-2006, Formerly ASME B16.104.

DIGITAL FLOW PANEL with DIGITAL DISPLAY to provide air/ gas leak detection for Class II, III, IV, V and VI seat leakage testing with 10 SCCM, 50 SCCM, 200 SCCM, 50 SLM and 200 SLM in accordance with American National Standards Institute (ANSI) and Fluid Controls Institute (FCI) ANSI/FCI 70-2-2006, Formerly ASME B16.104.

# DIGITAL FLOW PANEL with DAAS CONNECTION w/o DIGITAL

**DISPLAY.** Connect and read digital Flow meter reading from the power supply or DAAS system. This option requires purchasing our Data Acquisition and Analysis System (DAAS).

#### OPTIONS FOR OTHER VALVE END TYPES

MALE SEAL PLATES (the valve to be tested has Female Threads), carbon steel, nickel plated, Male NPT, adapters for 1/2", 3/4", 1", 1 1/2", 2" and 3"

**FEMALE SEAL PLATES** (the valve to be tested has Male Threads), carbon steel, nickel plated, Female FNPT, adapters for 1/2", 3/4", 1", 1 1/2", 2" and 3

#### OPTIONS FOR PRODUCTIVITY IMPROVEMENT

**QUICK FILL BYPASS** to change to a faster flow from 2 gpm to 6 gpm.

#### RECIRCULATION SYSTEMS with QUICK FILL BYPASS and 25 PSI PUMP:

Recirculation system with quick fill bypass, 30, 50 OR 80 gallon reservoir– increase flow rate from 15 gpm to 17 gpm and allows the testing liquid to be reused.

#### **BI-DIRECTIONAL TEST CIRCUIT**

 built into the control panel which allows operator to change the flow of test medium w/o unclamping the valve being tested. (upstream & downstream for vertical testing and A->B & B <- A for horizontal testing.) NOTE: MUST HAVE ATLEAST ONE MODEL1500 HFS TO UTILIZE THIS OPTION.



CLIMAX has been teaching the fundamentals and fine points of portable machine tool operation for practically as long as we've been inventing and building the tools.

We offer several training facilities across the United States - the Global Learning Center, situated in our corporate headquarters near Portland, Oregon, our New Hampshire Training Facility, and our Houston Training Facility. All facilities offer training for machine tool operators on safety and machine setup and operation. Trainees also receive technical tips and tools to improve operational efficiencies, with the vast majority of every program devoted to handson activities and skill development.



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