

## Contractor's Material and Test Certificate for Fire Pump Systems

**PROCEDURE** Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.

PROPERTY NAME	DATE
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PROPERTY ADDRESS

	ACCEPTED BY APPROVING AUTHORITIES (NAMES)
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	ADDRESS
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PLANS	INSTALLATION CONFORMS TO ACCEPTED PLANS	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	ALL EQUIPMENT USED IS APPROVED FOR FIRE SYSTEM SERVICE IF NO, STATE DEVIATIONS	<input type="checkbox"/> YES	<input type="checkbox"/> NO

INSTRUCTIONS	HAS PERSON IN CHARGE OF FIRE PUMP EQUIPMENT BEEN INSTRUCTED AS TO LOCATION OF SYSTEM CONTROL VALVES AND CARE AND MAINTENANCE OF THIS NEW EQUIPMENT? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
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	HAVE COPIES OF APPROPRIATE INSTRUCTIONS AND CARE AND MAINTENANCE CHARTS BEEN LEFT ON PREMISES? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
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LOCATION	SUPPLIES BUILDING(S) (CAMPUS, WAREHOUSE, HIGH RISE) EXPLAIN
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PUMP ROOM EQUIPMENT	IS THE PUMP ROOM EQUIPMENT PER THE PLANS AND SPECS?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE FIRE PUMP PROPERLY MOUNTED AND ANCHORED TO THE FOUNDATION? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE FIRE PUMP BASE PROPERLY GROUTED? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	DOES THE PUMP ROOM HAVE THE PROPER FLOOR DRAINS? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE SUCTION AND DISCHARGE PIPING PROPERLY SUPPORTED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE PUMP ROOM HEATED AND VENTILATED PER NFPA 20?	<input type="checkbox"/> YES	<input type="checkbox"/> NO

PIPES AND FITTINGS	PIPE TYPES AND CLASS		
	PIPE CONFORMS TO _____ STANDARD	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	FITTINGS CONFORM TO _____ STANDARD IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	SUCTION AND DISCHARGE PIPING ANCHORED OR RESTRAINED?:	<input type="checkbox"/> YES	<input type="checkbox"/> NO

PRE-PACKAGED PUMP HOUSE	IS THIS A PACKAGE OR SKID MOUNTED PUMP?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE PACKAGE/SKID PROPERLY ANCHORED TO A CONCRETE FOUNDATION? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE STRUCTURAL FOUNDATION FRAME FILLED WITH CONCRETE TO FORM A FINISHED FLOOR?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THERE A FLOOR DRAIN INSTALLED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO

TEST DESCRIPTION	HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.8 bar) for 2 hours or 50 psi (3.4 bar) above static pressure in excess of 200 psi (13.8 bar) for 2 hours.	
	HYDROSTATIC TEST: ALL NEW PIPING HYDROSTATICALLY TESTED AT: _____ PSI/BAR FOR _____ HOURS	NO LEAKAGE ALLOWED

FLUSHING TESTS	FLUSHING: Flow the required rate until water is clear as indicated by no collection of foreign material in burlap bags at outlets such as hydrants and blowoffs. Flush at flows not less than 390 gpm (1476 L/min) for 4 in. pipe, 610 gpm (2309 L/min) for 5 in. pipe, 880 gpm (3331 L/min) for 6 in. pipe, 1560 gpm (5905 L/min) for 8 in. pipe, 2440 gpm (9235 L/min) for 10 in. pipe, and 3520 gpm (13,323 L/min) for 12 in. pipe. When supply cannot produce stipulated flow rates, obtain maximum available.
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FLUSHING TESTS (continued)	NEW PIPING FLUSHED ACCORDING TO _____ STANDARD <input type="checkbox"/> YES <input type="checkbox"/> NO BY (COMPANY) _____ IF NO, EXPLAIN _____
	HOW FLUSHING FLOW WAS OBTAINED <input type="checkbox"/> PUBLIC WATER <input type="checkbox"/> TANK OR RESERVOIR <input type="checkbox"/> OTHER (EXPLAIN) _____
	THROUGH WHAT TYPE OPENING <input type="checkbox"/> TEST HEADER <input type="checkbox"/> OPEN PIPE
	LEAD-INS FLUSHED ACCORDING TO _____ STANDARD <input type="checkbox"/> YES <input type="checkbox"/> NO BY (COMPANY) _____ IF NO, EXPLAIN _____
	HOW FLUSHING FLOW WAS OBTAINED <input type="checkbox"/> PUBLIC WATER <input type="checkbox"/> TANK OR RESERVOIR <input type="checkbox"/> OTHER (EXPLAIN) _____
	THROUGH WHAT TYPE OPENING <input type="checkbox"/> Y CONNECTION TO FLANGE & SPIGOT <input type="checkbox"/> OPEN PIPE
FIELD ACCEPTANCE TEST	ALL EQUIPMENT APPROVED? <input type="checkbox"/> YES <input type="checkbox"/> NO
	ALL REQUIRED REPRESENTATIVES PRESENT FOR TEST <input type="checkbox"/> YES <input type="checkbox"/> NO
	AHJ AND OWNER'S REPRESENTATIVE PRESENT FOR TEST <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN _____
	ALL ELECTRICAL WIRING COMPLETE AND PER NFPA 70 AND NFPA 20 <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN _____
	CALIBRATE TEST EQUIPMENT USED <input type="checkbox"/> YES <input type="checkbox"/> NO CALIBRATION DATE _____
	FLOW TESTS PUMP DESIGN _____ GPM _____ PSI
	DOES THE PUMP MEET OR EXCEED THE CERTIFIED CURVE? <input type="checkbox"/> YES <input type="checkbox"/> NO
	PUMP TYPE <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL TURBINE <input type="checkbox"/> OTHER
	PUMP MAKE _____ MODEL # _____ SERIAL # _____
	COMMENTS _____
	ELECTRIC DRIVER OPERATIONAL TEST SATISFACTORY <input type="checkbox"/> YES <input type="checkbox"/> NO ELEC. DRIVER _____ MODEL # _____ SERIAL # _____
	VOLTAGE _____ VAC @ _____ HP _____ RPM _____ FLA
	ENGINE DRIVEN <input type="checkbox"/> YES <input type="checkbox"/> NO ENGINE MAKE _____ MODEL # _____ SERIAL # _____
	_____ HP _____ RPM SPEED
	DIESEL DRIVER OPERATIONAL TEST SATISFACTORY? <input type="checkbox"/> YES <input type="checkbox"/> NO OTHER EXPLAIN _____
CONTROLLER MAKE _____ MODEL # _____ SERIAL # _____	
VARIABLE SPEED PRESSURE LIMITING CONTROL <input type="checkbox"/> YES <input type="checkbox"/> NO	
TESTED AT MINIMUM, RATED, AND PEAK FLOW <input type="checkbox"/> YES <input type="checkbox"/> NO	
CONTROLLER TEST: SIX AUTO STARTS <input type="checkbox"/> YES <input type="checkbox"/> NO	
SIX MANUAL STARTS <input type="checkbox"/> YES <input type="checkbox"/> NO	
PHASE REVERSAL TEST PERFORMED (ELECTRIC ONLY) <input type="checkbox"/> YES <input type="checkbox"/> NO	
ALTERNATE POWER SOURCE TESTED (ELECTRIC ONLY) <input type="checkbox"/> YES <input type="checkbox"/> NO	
ELECTRONIC FUEL MANAGEMENT (ECM) FUNCTION TEST PERFORMED (DIESEL ONLY) <input type="checkbox"/> YES <input type="checkbox"/> NO	
CONTROL VALVES	SYSTEM CONTROL VALVES LEFT WIDE OPEN <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, STATE REASON _____
	HOSE THREADS OF FIRE DEPARTMENT CONNECTIONS AND HYDRANTS INTERCHANGEABLE WITH THOSE OF FIRE DEPARTMENT ANSWERING ALARM <input type="checkbox"/> YES <input type="checkbox"/> NO
REMARKS	DATE LEFT IN SERVICE _____ ADDITIONAL COMMENTS: _____
SIGNATURES	NAME OF INSTALLING CONTRACTOR _____
	TESTS WITNESSED BY FOR PROPERTY OWNER (SIGNED) _____ TITLE _____ DATE _____
	FOR INSTALLING CONTRACTOR (SIGNED) _____ TITLE _____ DATE _____
ADDITIONAL COMMENTS AND NOTES:          	
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# Centrifugal Fire Pump Acceptance Test Form

Information on this form covers the minimum requirements of NFPA 20-2007 for performing acceptance tests on pumps with electric motors or diesel engine drivers. Other forms are available for periodic inspection, testing and maintenance.



Owner: \_\_\_\_\_  
 Owner's Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Property on which pump is installed: \_\_\_\_\_  
 \_\_\_\_\_  
 Property Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Date of Test: \_\_\_\_\_  
 Demand(s) of Fire Protection Systems Supplied By Pump: \_\_\_\_\_

Pump:  Horizontal  Vertical  
 Manufacturer: \_\_\_\_\_ Shop/Serial Number: \_\_\_\_\_  
 Model or Type: \_\_\_\_\_  
 Rated GPM \_\_\_\_\_ Rated Pressure \_\_\_\_\_ Rated RPM \_\_\_\_\_  
 Suction From \_\_\_\_\_ If Tank, Size and Height \_\_\_\_\_  
 Driver:  Electric Motor  Diesel Engine  Steam Turbine  
 Manufacturer: \_\_\_\_\_ Shop/Serial Number: \_\_\_\_\_  
 Model or Type: \_\_\_\_\_  
 Rated Horsepower: \_\_\_\_\_ Rated Speed: \_\_\_\_\_  
 If Electric Motor, Rated Voltage \_\_\_\_\_ Operating Voltage \_\_\_\_\_  
 Rated Amps \_\_\_\_\_ Phase Cycles \_\_\_\_\_ Service Factor \_\_\_\_\_  
 Controller Manufacturer: \_\_\_\_\_  
 Shop/Serial Number: \_\_\_\_\_ Model or Type: \_\_\_\_\_  
 Jockey Pump on System?  Yes  No Settings: On \_\_\_\_\_ Off \_\_\_\_\_

Note: All questions are to be answered Yes, No or Not Applicable. All "No" answers are to be explained in the comments portion of this form.

**I. Flush Test (Conduct before Hydrostatic Test)**  
 Suction piping was flushed at \_\_\_\_\_ gpm?  Yes  No  N/A  
 (See Table 14.1.1.1(a) of NFPA 20.)  
 Certificate presented showing flush test?  Yes  No  N/A

**II. Hydrostatic Test**  
 Piping tested at \_\_\_\_\_ psi for 2 hours?  Yes  No  N/A  
 (Note: NFPA 20 requires 200 psi or 50 psi above maximum system pressure whichever is greater.)  
 Piping passed test?  Yes  No  N/A  
 Certificate presented showing test?  Yes  No  N/A

**III. People Present**  
 Were the following present to witness the test:  
 A. Pump manufacturer/representative  Yes  No  N/A  
 B. Engine manufacturer/representative  Yes  No  N/A  
 C. Controller manufacturer/representative  Yes  No  N/A  
 D. Transfer switch manufacturer/rep.  Yes  No  N/A  
 E. Authority having jurisdiction/rep.  Yes  No  N/A

**IV. Electric Wiring**  
 Was all electric wiring including control interwiring for multiple pumps, emergency power supply, and the jockey pump completed and checked by the electrical contractor prior to the initial start-up and acceptance test?  Yes  No  N/A

**V. Flow Test**  
 Run the pump at no-load, rated load and peak load (usually 150% of rated load) conditions. For variable speed drivers, run the test with the pressure limiting control "on" and then again at rated speed with the pump isolated from the fire protection system and the relief valve closed.

A. Was a copy of the manufacturers' certified pump test characteristic curve available for comparison to the results of the acceptance test?  Yes  No  N/A  
 B. Equipment and gages calibrated?  Yes  No  N/A  
 C. No vibrations that could potentially damage any fire pump component?  Yes  No  N/A  
 D. The fire pump performed at all conditions without objectionable overheating of any component?  Yes  No  N/A

E. For each test, record the following for each load condition:

Test	Driver Speed	Suction Pressure	Discharge Pressure	Nozzle Size	Pitot Readings or Flow					
	rpm	psi	psi	inch	1	2	3	4	5	6
0				N/A						
100%										
150%										

F. For electric motor driven pumps also record:

Test	Voltage	Amperes
0		
100%		
150%		

G. Calculate Net Pressures and Total Flow  
 $P_{Net} = P_{Discharge} - P_{Suction}$        $Q = 29.83 \text{ cd}^2 \sqrt{P}$

Test	Net Pressure	Flow						Total Flow
		1	2	3	4	5	6	
0		0	0	0	0	0	0	0
100%								
150%								

H. For electric motors operating at rated voltage and frequency, is the ampere demand less than or equal to the product of the full load ampere rating times the allowable service factor as stamped on the motor nameplate?  Yes  No  N/A

I. For electric motors operating under varying voltage:  
 1. Was the product of the actual voltage and current demand less than or equal to the product of the rated full load current times the rated voltage times the allowable service factor?  Yes  No  N/A  
 2. Was the voltage always less than 5% below the rated voltage during the test?  Yes  No  N/A  
 3. Was the voltage always less than 10% above the rated voltage during the test?  Yes  No  N/A

J. Did engine-driven units show no signs of overload or stress?  Yes  No  N/A

K. Was the governor set to properly regulate the engine speed at rated pump speed?  Yes  No  N/A

L. Did the gear drive assembly operate without excessive objectionable noise, vibration or heating?  Yes  No  N/A

M. Was the fire pump unit started and brought up to rated speed without interruption under the conditions of a discharge equal to peak load?  Yes  No  N/A

N. Did the fire pump perform equal to the manufacturer's characteristic curve within the accuracy limits of the test equipment?  Yes  No  N/A

O. Electric motor pumps passed phase reversal test on normal and alternate (if provided) power?  Yes  No  N/A

