

## Testing Tools

CNPC is the research and development center of Chinese Multi-Flow Evaluator Systems; imported the complete manufacture technology transferred by FLO Patorl Johnston Co. of U.S.; Equipped with requisite facilities for machining all sorts of Multi-Flow Evaluator tools and the biggest constant temperature assembly workshop and testing equipment in China. CNPC can design and manufacture various drill-stem testing tools including multi-flow evaluator (MFE) of 3 1/8", 3 3/4", 4 1/4" and 5" for evaluating the formation of cased and uncased wells, full opening annulus pressure responsive tools of 3 7/8" and 5", and DC 5"CJ2 inflatable testing system for testing uncased wells with irregular bore diameters and sand mudstone formation.



### 1. Pipe Multi-flow Evaluator Systems for Pipe String

#### · MULTI-FLOW EVALUATOR (MFE) SYSTEMS

Multi-flow evaluator (MFE) systems of 3 1/8", 3 3/4", 4 1/4" and 5" in diameter are used to test the formation of cased or uncased wells in single or straddle packing.

Multi-flow evaluator (MFE) systems consist of circulating sub, M.F.E, hydraulic MFE. bias, casing by-Pass valve, T.R. Drilling Jar, safety joint, bobtail packer, bridge plug, running tool, heavy anchor, slotted tail pipe, crossover sub, recorder carrier, sampler, special tool, testing tool, pressure recorder and etc. it is used to test the formation of cased or uncased wells in single or straddle packing.

#### · PRESSURE CONTROLLED TESTER (PCT) SYSTEMS

Pressure controlled tester (PCT) systems operated by the annular pressure are available in two sizes 3-3/4" and 4-3/4". They are used to test directional wells of various sizes, widely used in land and offshore operation.

#### · FULL OPENING PRESSURE CONTROLLED TESTERS

APR is a full opening pressure controlled testers. They have been positively favored by oilfield users.

CNPC produces DC3 7/8GY and DC5 GY APR serial full opening pressure controlled testers. It mostly consists of handling sub, Slip Joint, Circulating Valve, Sampler Circulating Valve, Full Opening Drain Valve, LPR tester, Big John Jar, Crossover Sub, Safety Joint, Crossover Sub, RTTS Packer, Multifunction circulating switch valve, safety Circulating Valve, Heavy screen pipe, pressure meter floating pipe and etc. with different quantity and specification. They are used to test cased directional wells and to perform acidizing, fracturing, through-tubing perforating and classified cementing operations.

## Technical parameter

Dc3-7/8" Pressure Controlled Testers	De5 GY Pressure Responsive Tools
Handling Sub	Handling Sub
Crossover Sub (2 7/8IF.P × 2 7/8UP TBG.P)	Crossover Sub (3 1/2 IF.B × 4 1/2 IF.P)
3-7/8" Slip Joint	5 Slip Joint
3-7/8" Circulating Valve	4 5/8 Hydraulic Circulating Valve
3-7/8" Sampler Circulating Valve	5 Sampler Circulating Valve
3-7/8" Drain Valve	5 Full Opening Drain Valve
3-7/8" LPR Tester Assembly	5 pressure control tester
Crossover Sub (2 7/8 UP TBG.B × 3 1/8-8UN.P)	Crossover Sub(4 1/2IF.B × 3 1/2IF.P)
3-7/8" Big John Jar	4 5/8 Big John Jar
Crossover Sub (3 1/8 -8UN.B × 2 3/8-8UP TBG.P)	Crossover Sub(2 7/8 UP TBG.B × 3 1/2 IF.P)
5 RTTS Circulating Valve	7 5/8 RTTS Circulating Valve
5 1/2 RTTS Circulating Valve	9 5/8 RTTS Circulating Valve
5 RTTS Safety Joint	7 RTTS, 9 5/8 RTTS Safety Joint
5 1/2 RTTS Safety Joint	5 Conventional safety joint
5 RTTS Packer	7 RTTS Packer
5 1/2 RTTS Packer	9 5/8 RTTS Packer
98 multifunction circulating switch valve	127 Multifunction circulating switch valve
98RD Safety Crossover Sub	127RD Safe circulating valve
98RD Circulating Valve	127RD, 5A Circulating Valve
Crossover Sub (2 7/8 UP TBG.B × 2 3/8 IF.P)	Crossover Sub (2 7/8 UP TBG.P × 3 1/2FH.B)
3 3/4 Heavy screen pipe	5 Heavy screen pipe
3 7/8 Pressure meter floating pipe	5 3/8 Full bore pressure meter floating pipe
3 7/8 VR Safety Joint	4 5/8 VR Safety Joint
3 3/4 BT Pressure meter floating pipe	5 External hanging pressure meter floating pipe
Crossover Sub(2 7/8 IF.B × 2 7/8UP TBG.P, 2 3/8 IF.B × 2 3/8UP TBG.P)	Crossover Sub (4 1/2IF.B × 3 1/2FH.P, 3 1/2IF.B × 2 7/8 UP TBG.P, 3 1/2 IF.B × 3 1/2 FH., 2 7/8 UP TBG.B × 3 1/2 FH., 3 1/2 FH.B × 3 1/8-8 UN., 3 1/2 FH.B × 2 7/8 UP TBG.)
	127RD Sampler, 9 5/8 and 7Multifunction testing joint

## 2. DC5GJ2 Inflatable DST System

DC5GJ2 inflatable drill-stem tester (DST) system is used to test the formation of uncased wells larger than 5-1/2" in diameter, especially for wells with the irregular bore test. In straddle packing. They may be used to test the formation in single zone or multi zone during one trip. The system is featured by easy rotating operation and reliable seated seal, so it is an ideal testing system for testing uncased wells.

## 3. DC98(127)J1-70G-BS1 Conventional MFE

DC98(127)J1-70G-BS1 conventional MFE is a new MFE adopted merit of advanced MFE in the world and designed according to real working condition in China.

Its shift switch is smooth and packer is easy to down and lift. Good interchangeable with MFE which is using. It can help customer find the oil quickly.



### Technical parameter

Name	Parameter
Size, mm (in)	98(3 7/8), 127(5)
Bore, mm	20, 25
Pressure resistance working pressure ,MPa	35
Max. Working temperature, °C	180
Max. Packer working differential, MPa	35
Yield tension strength	98 Size-1130 kN, 127 Size- 1850 kN
Suitable bore mm casing well, inch	5, 5 1/2, 7 , 9 5/8, 13 3/8; Naked well : 6, 6 1/4, 8 1/2, 9 5/8 , 12
Connecting thread of testing pipe	98 Size (2 7/8REG.B × P) 2 7/8UP TBG.B × P, 127 Size 3 1/2IF.B × P
Switch model	Hoisting and downing pipe
Instrument	J-200 pressure meter. Storage electron pressure meter GRC P3NCX