

Absolute Pressure Firing Head

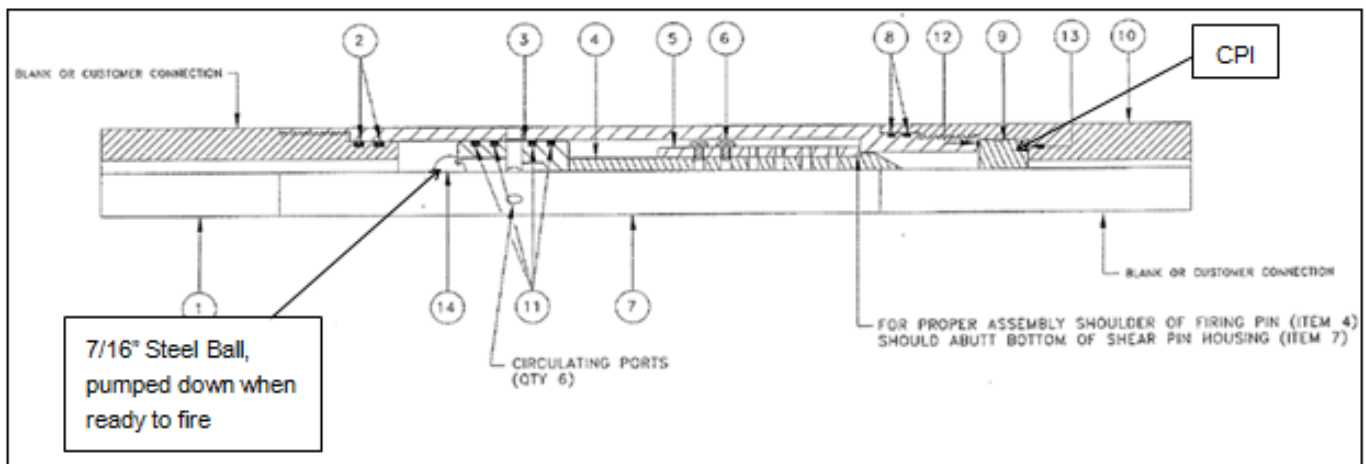
The SPEX Absolute Pressure Firing Head (APFH) is a mechanical firing head deployed on coiled tubing and drillpipe, which negates the use of electrical initiation systems. The APFH can be used to initiate a wide range of explosive and pyrotechnic assemblies.

Principle of Operation

The APFH can be run on coiled tubing or jointed pipe and employs a conventional tubing crossover to suit the connection, the top connection on the firing head is 1-1/4" AMMT box. For enhanced safety, a stainless steel ball must be circulated downhole onto the piston, before pressure can be applied to the tubing string, forcing the piston into the firing pin. This impact causes the pin to strike the explosive 'CP' initiator.

The correct number of shear pins is inserted into the firing head according to the wellbore pressure and temperature, a safety margin of at least 1500 psi is incorporated into the shear pin calculation. When the piston is forced downwards, it drops below the previously closed circulation ports in the body of the tool, allowing circulation after firing. Each port is 0.113" diameter and the flow area through the tool is 0.68 in².

After firing, fluid flow is not permitted past seals on the CP initiator therefore preventing fluid flow to/ from the tools below the firing head. Once recovered, the APFH can be redressed and is reusable.



| Qty | Part Number | Description |
|-----|-------------|--------------------------------------|
| 1 | 801-169-26 | TOP SUB, APFH (BLANK) |
| 2 | 103-213-95 | O-RING SIZE 213 |
| 1 | 801-169-71 | PISTON BALL DROP CIRCULATING APFH |
| 1 | 801-169-23 | FIRING PIN APFH (HP) |
| 1 | 801-169-25 | SHEAR HOUSING (HP) |
| 1 | 801-169-14 | 50PK OF 053-0425-2038HT SHEAR SCREWS |
| 1 | 801-169-30 | PRESSURE HOUSING CIRCULATING |
| 2 | 103-123-95 | O-RING SIZE 123 |
| 1 | 51-6956-3 | CP PERCUSSION DETONATOR |
| 1 | 801-169-27 | BOTTOM SUB APFH (BLANK) |
| 4 | 103-120-95 | O-RING SIZE 120 |
| 1 | 103-118-95 | O-RING SIZE 118 |
| 1 | 113-95 | O-RING SIZE 113 |
| 1 | 052-438-01 | 7/16" STAINLESS STEEL BALL |

Drop Ball Circulating Absolute Pressure Firing Head (APFH)

| Description | Metric | Imperial |
|-----------------------------|----------------------------|------------------------------|
| OD | 42.8 mm | 1-11/16" (1.687") |
| Maximum Operating Pressure* | 827 bar | 12,000 psi |
| Number of Ports | 6 | 6 |
| Ports Flow Area | 438 mm ² | 0.68 in ² |
| Tensile Strength | 12,700 kg | 28,000 lb |
| Burst Pressure | 1,379 bar | 20,000 psi |
| Top Connection | 1.25" AMMT Box | 1-1/4" AMMT Box |
| Bottom Connection | 1.5" - 10 2G Stub Acme Pin | 1-1/2" - 10 2G Stub Acme Pin |

Temperature Rating

| | | |
|----------------|----------------------------|----------------|
| 171 °C 100 hrs | DET-3050-134A CP Initiator | 340 °F 100 hrs |
| 149 °C 200 hrs | | 300 °F 200 hrs |
| 232 °C 100 hrs | DET-3050-133CP Initiator | 450 °F 100 hrs |
| 224 °C 200 hrs | | 435 °F 200hrs |

* APFH with 20,000 psi operating pressure available on request.

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