

Technical proposal No.  
Liner hanger PH -219R1-02

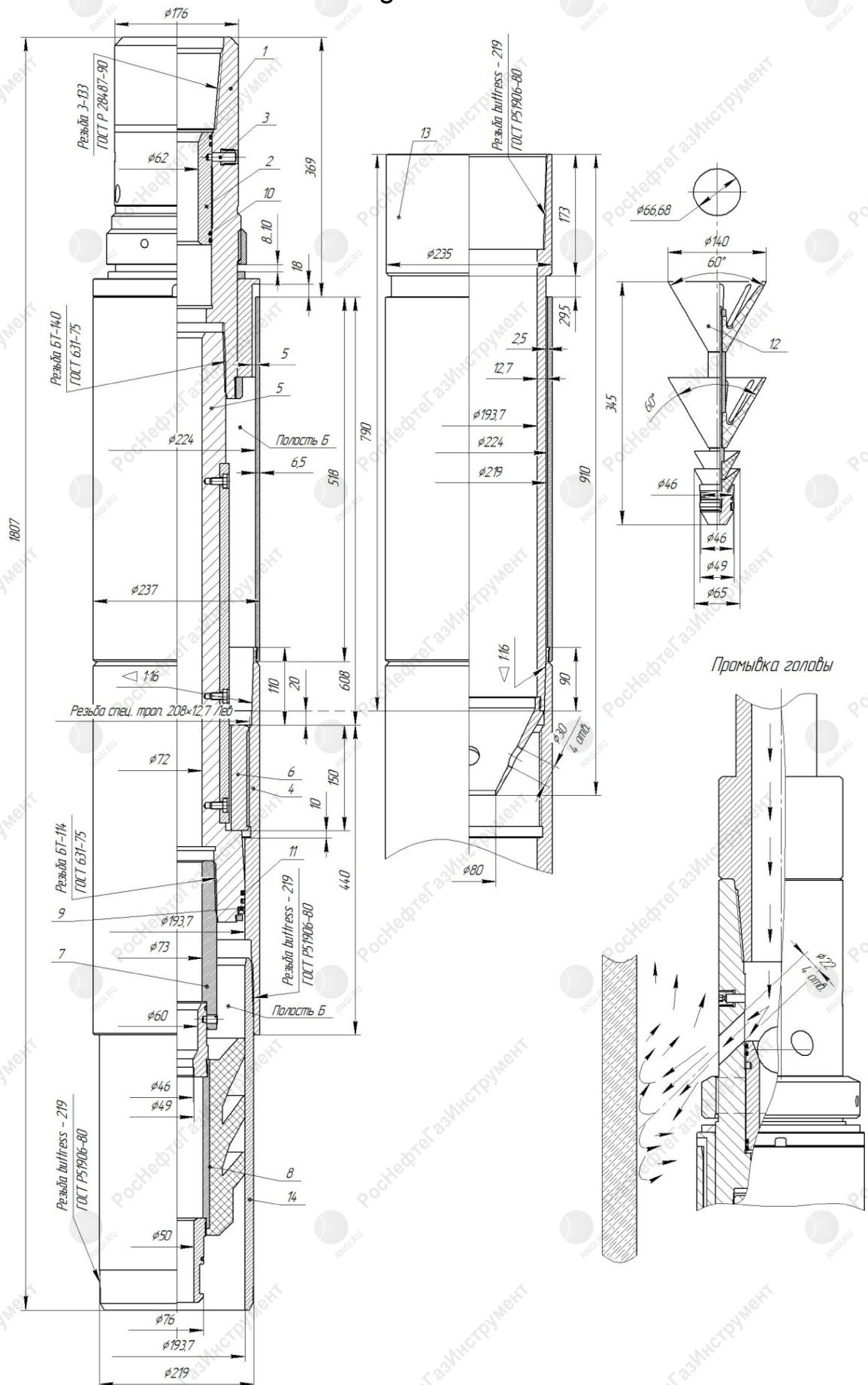


Fig.1



The liner hanger is designed for lowering the "liners" (secret columns) of casing pipes  $\varnothing$  219 mm and their cementing during the construction of oil and gas wells. Back off the hanger with rotation "to the right" 11-12 rotations.

The liner hanger includes (Fig. 1):

1-body; 2-seat bushing; 3-breaking pins, 4-coupling; 5-stem; 6 - slider; 7-subcoupling; 8-displacement plug; 9-sealing cup (made of high-temperature rubber up to  $+200^{\circ}$  C); 10,11 - O-rings GOST 98833-73/GOST 18829-73 (made of high-temperature rubber up to  $+200^{\circ}$  C); 12- discharge plug; 13-male hub, 14 - nozzle.

Materials:

Steel 40X GOST 4543-71, incl. indicated in table 1;

Table 1

| Part name | Pos. in fig. 1 | Material         | HRC hardness, max.      | Yield point, $\sigma_T$ , MPa |
|-----------|----------------|------------------|-------------------------|-------------------------------|
| Body      | 1              | 40X GOST 4543-71 | 32...36HRC <sub>3</sub> | 750                           |
| Coupling  | 4              | 40X GOST 4543-71 | 28...32HRC <sub>3</sub> | 650                           |
| Male hub  | 13             | 40X GOST 4543-71 | 32...36HRC <sub>3</sub> | 750                           |
| Nozzle    | 14             | 40X GOST 4543-71 | 32...36HRC <sub>3</sub> | 750                           |

Aluminum alloy D16;

High-temperature rubber RK-1802;

B cavity, filed with the lubricant TOMFLON SCM 200 ( $0...+200^{\circ}$  C) (TS 0254-012-76643964-05).

**Technical characteristics:**

Working pressure, max. 20 MPa

External excess pressure, max. 53,08 MPa

Internal excess pressure, max. 40,54 MPa

Cargo capacity, max. 150 tons

Working temperature, max.  $+200^{\circ}$  C

Pressure of the discharge plug pin cut: 40-50 atm

Pressure of the cut of pins of the plug for opening the "windows": 80-100 atm