

GGQ 型 套管刮削器
Casing Scraper Type GGQ
使 用 说 明 书
INSTRUCTION MANUAL

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GGQ 型 套管刮削器

1. 概述

套管刮削器是一种结构简单、性能可靠、常用的修井工具。

套管刮削器（以下简称刮削器）主要用于清除残留在套管内壁上的水泥块、水泥环、硬蜡、各种盐类结晶或沉积物、射孔毛刺以及套管锈蚀所产生的氧化铁等脏物，以便畅通无阻地下入各种井下工具，提高工具下入和完成作业的成功率。

2. 结构和工作原理

2.1 基本结构

见图 1，刮削器主要由心轴、刀体、限位块、压块、弹簧和螺钉等零件组成。

心轴上承装全部零件。上端和下端有与钻杆，钻头等工具相连接的内、外螺纹。周向上各刀体刮削面总体构成一个包容 360° 的整圆。

2.2 工作原理

刮削器连接在管柱的下端，刮削器未入井时，刀体的最大安装尺寸比套管内径大，入井后刀体压下弹簧内缩，对套管内径上的粘附物进行刮切。刮削器的刮切作用如同机械加工中的圆柱形铰刀，弹簧提供刀刃径向进给力，上下移动管柱既是提供刀刃的轴向进给力。从而套管内壁上的附着物被刮削器刀刃切除并修光整。

3. 使用

3.1 操作

3.1.1 根据套管内径选定合适的刮削器，并确定刮削深度。

3.1.2 拧紧各螺纹后，刮削器直接下至刮削部位上端开泵循环。

3.1.3 待循环正常后，慢慢旋转下放工具，然后上提工具如此反复进行。

3.1.4 直到指重表无任何显示，即下放悬重不降、上提悬重不升，表明已刮削干净。

3.2 注意事项

3.2.1 工具与管柱的连接扣必须拧紧。

3.2.2 刀体上的安装豁口方向应朝下。

3.2.3 刮削器在下井过程中如遇阻，应慢慢旋转几圈后再下放。

3.2.4 刮削过程中，必须始终保持循环畅通。

3.3 维护保养

3.3.1 出井后应清洗干净，并检查各零件。如弹簧失效必须更换。

3.3.2 各螺纹涂螺纹脂，各零件涂油，放阴干处保存。

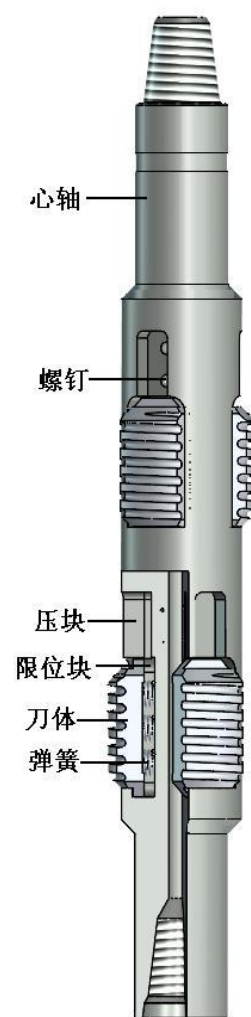


图1 套管刮削器

4.规格与性能参数

表 1 套管刮削器结构参数

型号	水眼 mm	接头螺纹 API	工具总长 mm	适用套管内径 mm
GGQ114	25.4	2 3/8REG	906	97.2~103.9
GGQ127	25.4	NC26	1000	108.6~115.8
GGQ140	25.4	NC26	1000	118.6~125.7
GGQ178	30	3 1/2REG	1105	136.56~163.98
GGQ245	57	4 1/2REG	1340	204.02~228.66
GGQ273	57	4 1/2REG	1340	GGQ273-2:240~245.4 GGQ245-2A:247.9~252.7 GGQ340-4A:255.3~258.9

注：本产品同时适用于页岩气的开采。

Casing Scraper Type GGQ

1. SUMMARY

Casing scraper is a kind of workover tools in common use with simple structure and reliable performance.

Casing scraper (or scraper in follows) is mainly used for cleaning crystals and sedimentation of cement residues, circular scales of cement, hard wax, various salts or sedimentations, barbs of perforation and ferro-oxide dirt produced from the casing rust corrosion, remained in the inner wall of casings, so as to put various down hole tools unblockedly into underground and promote the successful rate of putting down the tools and finishing up the operation.

2. STRUCTURE AND WORKING PRINCIPLE

2.1 Basic Structure

Referring to Fig.1, the scraper is mainly composed of mandrel, knife body, limiting block, pressing block, spring and screws.

All the parts are mounted on the mandrel. At the upper and lower ends, there are inner and outer screw threads connecting the drill rod, drilling bit, etc. At the peripheral direction, the assembled scraper surface of the knife bodies forms a circular surface covering 360°.

2.2 Working Principle

Before the scraper puts into the well hole, the maximum installing dimension of the knife body is larger than the inner diameter of the casing. As soon as it puts into the well hole, the knife body presses the spring to make it compressed and scrape the sedimentations stuck on the inner wall of the casing. The scraping action of the scraper is just like that of the cylindrical reamer in machinery processing. The spring will provide a feeding force in the radial direction of the knife-edge. The scraper is connected at the lower end of the casing column. When the column moves up and down, it will provide a feeding force in the axial direction of the knife-edge. Thus, the edge of the knife will cut off the material remained and smooth down the surface which was cut.

3. APPLICATION

3.1 Operation

- 3.1.1 Selecting a suitable scraper in accordance with the inner diameter of the casing and defining the scraping depth.
- 3.1.2 After tightening all the screws, the scraper is put down directly to the upper end of the scraped position and the pumping cycle is made.
- 3.1.3 After the cycle goes normal, the tool is rotated down slowly and then up, repeatedly.
- 3.1.4 As the weight indicator has no display, that means the downward suspending weight does not drop down and

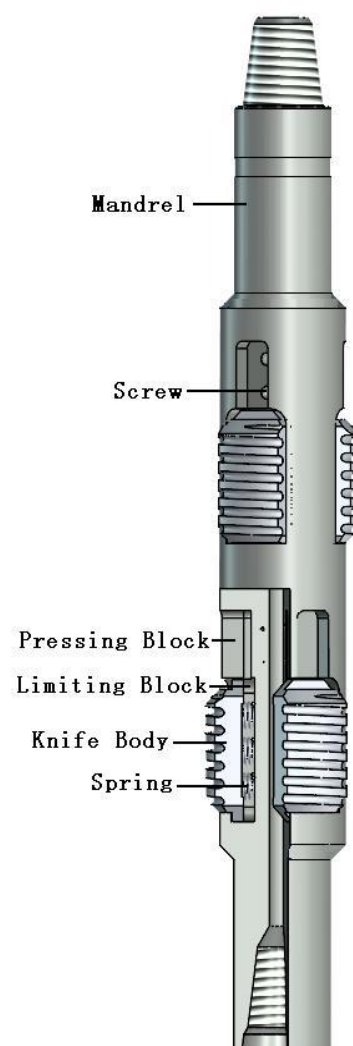


Fig.1 Casing Scraper

the upward suspending weight does not go up, it shows that the sediment is scraped off thoroughly.

3.2 Points for Attention

3.2.1 Buckles connected tools with casing column must be twisted tightly.

3.2.2 The installing opening of the knife body must be faced downwards.

3.2.3 During the scraper goes down the well hole, when it happens blocked, it should be slowly rotated several turns, and then goes down again.

3.2.4 In the scraping process, the cycle must be kept unblocked all along.

3.3 Maintenance

3.3.1 After finishing the operation, the scraper must be cleaned and the parts must be checked over. If the spring loses efficiency, it must be replaced.

3.3.2 The connections must be greased and all parts must be lubricated and kept dry in the shade.

4. SPECIFICATIONS AND PARAMETERS

See table.

Table 1 SPECIFICATIONS AND PARAMETERS

Type	Water hole mm(in)	Connection API	Total length mm(in)	I.D of suitable casing mm(in)
GGQ114	25.4 (1)	2 3/8REG	906 (35 43/64)	97.2~103.9 (3 53/64~4 3/32)
GGQ127	25.4 (1)	NC26	1000 (39 3/8)	108.6~115.8 (4 9/32~4 9/16)
GGQ140	25.4 (1)	NC26	1000 (39 3/8)	118.6~125.7 (4 43/64~4 61/64)
GGQ178	30 (1 3/16)	3 1/2REG	1105 (43 1/2)	136.56~163.98 (5 3/8~6 29/64)
GGQ245	57 (2 1/4)	4 1/2REG	1340 (52 3/4)	204.02~228.66 (8 1/32~9)
GGQ273	57 (2 1/4)	4 1/2REG	1340 (52 3/4)	GGQ273-2:240~245.4(9.45~9.66) GGQ245-2A:247.9~252.7(9.76~9.95) GGQ340-4A:255.3~258.9(10.05~10.19)

Note: The product is suitable for the exploitation of the shale gas.