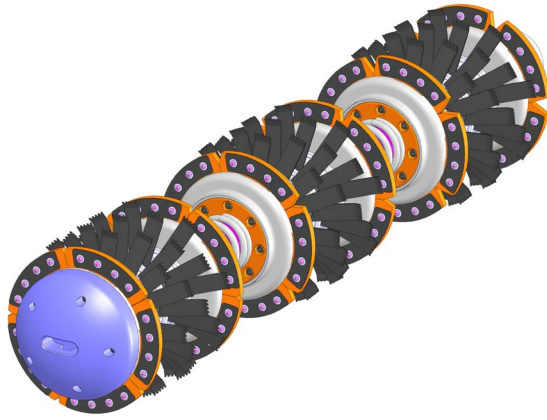




## SCRAPING-TOOL



### Tool Data

Reinhart Mechanical Cleaning Tools (**MCT**) are tailor made.

*Following pipe conditions, not related to each other, have already been cleaned.*

Actual performed Ø range	mm min.	35mm
	mm max.	987mm
	inch min.	2"
	inch max.	40"
Bend size	min.	1.5D
Flow speed	min.	0.02m/s
	max.	3.00m/s
Optimal flow speed	approx.	1.00m/s

### Descaling

6" wet natural gas pipeline bariumsulfate descaling.



### Description

Developed in the 1980s, the **SCRAPING-TOOL** enhanced the Reinhart Cleaning Technology (**RCT**) by providing cleaning back to a 'bare metal' polished surface finish for subsequent surface treatment.

The **SCRAPING-TOOL** was originally designed to clean to a bare metal standard comparable to SA 3 removing mill scale, corrosion and foreign particles for the pre-commissioning of pure gas pipelines, typically oxygen.

In the 1990s its effectiveness quickly brought **SCRAPING-TOOL** into the oil fields for dewaxing operations.

The variation of materials and scraper designs also allow the use in cleaning of flexible hoses, clad pipelines as well as non-metallic materials.

### Field of Application

Reinhart Cleaning Technology (**RCT**) adapts to the pipe material as well as to the propulsion medium.

*Following materials or flow natures, not related to each other, have already been cleaned.*

#### Pipeline Material

- Carbon steel
- Cast iron
- Stainless steel
- PVC
- CRA
- Flexible
- Fiberglass
- HDPE, PTFE, PE

#### Propulsion Medium

- Water
- Crude oil
- Light fuel
- Multiphase
- Gas
- Brine
- Industrial product

### Dewaxing

16" crude oil export pipeline dewaxing.





## Company Presentation

**Reinhart Hydrocleaning SA (RHC SA)** is a family business based in Switzerland that has been providing a range of innovative, hydromechanical pipeline cleaning tools since 1952.

Designed and manufactured in house, the unique **Reinhart Cleaning Technology (RCT)** for pipeline cleaning can be applied to a broad range of industries onshore and offshore such as water, industry, natural gas or oil pipelines.

Besides cleaning various oil or industry pipelines with difficult to remove debris and or hard deposit build-up, **RHC SA** is often selected when pipeline requires internal metal loss inspection.



In addition to the mechanical cleaning of different kinds of pipelines, **RHC SA** is 100% autonomous when it comes to the design and approx. 95% autonomous when it comes to the fabrication of their **Mechanical Cleaning Tools (MCT)**.

With several 4 and 5 axis drilling and milling machines, **RHC SA** is able to push the internal R&D and to construct different cleaning tool designs to comply with client requirements and lead time.

**RHC SA** operates worldwide and has experience in working in Australia, Europe, Russia, South and North America as well as Middle East.

**RHC SA** adapts itself to the particular condition of the project and aims for a close relationship and short communication channel in order to maximize the effectiveness of the project and by the same time reducing the costs.



## Reinhart Cleaning Technology

### Adapted Cleaning Forces

**RHC SA** with its **RCT** provides adapted cleaning forces regarding:

- Pipeline geometry
- Flow specifications
- Scale nature

### Integrated Bypass

Since 1952 **RHC SA** uses bypass in its **RCT** to clean pipelines.

The bypass creates continuous flow across the tool and flushes removed deposits in front of the cleaning tool.

### Progressive Cleaning Tool Design

**RCT** was developed and fine-tuned over the years with several tool designs for progressive dewaxing or descaling cleaning operations.

### Efficient Cleaning Technology

**RCT** maximises the effectiveness of each cleaning run with a tailored cleaning solution.

## RCT vs. Pigging

### No Standard Tool Type Catalog

Customized tools according to pipe specifications:

- Deposit, cleaning medium, flow, etc.
- Pipe geometry (internal  $\varnothing$ 's, bends, etc.)

### No Standard Sizes

- Optimized cleaning forces to internal pipe  $\varnothing$
- Adapted propulsion to internal pipe  $\varnothing$
- Optimized tool length to pipe specification

### No Static Cleaning

- Dynamic cleaning with optimized bypass
- Flush effect is a standard in **RCT**
- Deposit floating in front of the tool

### Cost Saving Solution

**RCT** effectiveness is a long term cost saving solution:

- Effective cleaning tools
- Less cleaning runs
- Shorter cleaning schedule
- Less operational costs