



Choke Valves
Gate Valves
HIPPS Systems
Wellhead Control Panels
Control Systems
Hydraulic Power Units
Liquid Discharge Valves
Oil & Gas Upstream Equipment



I am QUAM.
I shape the flow

Quam is a **Customer oriented company** specialized in design and manufacturing of special Valves & Control Systems for the Oil & Gas Industry.

We rely on a **hard-working staff** guided by passion, high sense of responsibility and the most positive attitude. Our sectorial experience allows us to be efficient and precise as well as to easily find **custom-made solutions**, even for the most demanding clients.

Thanks to a meticulous selection of suppliers and the use of **100% Made in Italy** raw materials, QUAM guarantees high quality standards for its entire range of products.

All our Departments work in synergy to guarantee the **best possible service** for our Customers. QUAM's number one priority? Fulfilling and even exceeding our Clients' requirements.

Our Organization

Everything you need to know about QUAM

Where everything starts: our Sales Department

Thanks to our qualified sales team, we are able to provide **tailor-made offers** combining suitable product designs, material options and pricing with timely and accurate quotations.

Where everything is designed: our Technical Department

The whole range of products is **100% internally engineered** by our skilled engineers. They can rely on state-of-the-art software applications to design very functional and innovative products.

Where everything is controlled: our Quality Department

QUAM's Quality team is composed of skilled people who allow us to be confident on the **final quality** of our products. Each product is 100% hydrostatically and functionally tested according to EN 10204 3.1 and can be certified in compliance with PED, API 6D and API 6A Standards.

Where everything is bought: our Procurement Department

Our Procurement Department purpose is to **find the best raw materials** on the Italian market, to select the best partner and to plan and control the manufacturing process, in order to maintain or even improve delivery time.

Where everything is made: our Production Department

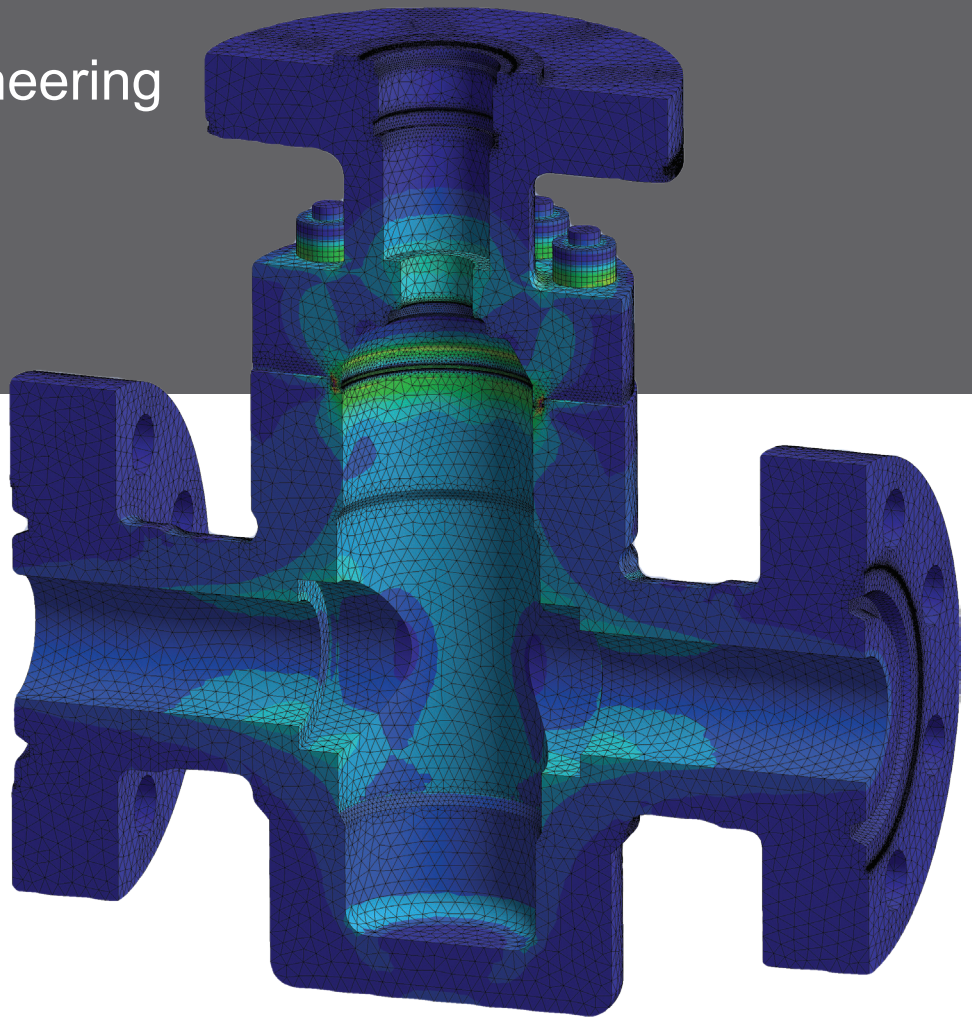
Heart of QUAM production process is the Manufacturing Department: our **unstoppable team** is always up for new challenges. Our people assemble and test our products non-stop and thanks to them, the Company is successful in **maintaining a fast track delivery**.

Where everything is shipped: our Administration & Logistics Department

Our Administration and Logistics Department is composed of capable people who are able to follow Customers' needs after the purchase of our products. They also manage **logistics and the shipment** of our products worldwide, allowing us to be able to do business everywhere.

How everybody is assisted: our After-Sales Service

QUAM's After-Sales Service supports our Customers to meet their commissioning & start up, maintenance, testing and upgrading needs. We work **close to our Clients** to have a mutual exchange of information regarding our products and we are glad to debate on any eventual improvements with them.

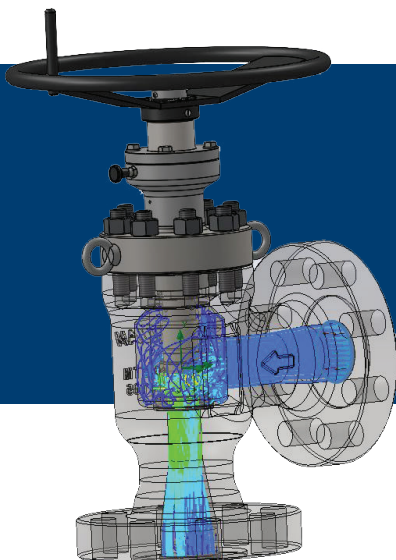


QUAM technological tools are constantly updated.

We can rely on state-of-the-art software such as CAD, SolidWorks, SolidWorks Simulation and SolidWorks Flow Simulation. Thanks to them, we have been successful in obtaining important insights and innovations to the development of our products, which are designed to meet our Customers' most specific requirements.

We carry out intense research and development in order to study, **design and test prototypes of new series.**

Determined to succeed in heavy-duty design and easy maintenance, we are able to guarantee **reliability and long-life service** for our Oil&Gas products.



Our R&D technicians and engineering team make use of an **advanced internal software for valve sizing**, based on ISA S75.01 formulae and SolidWorks Flow Simulation to verify valve components and their functioning.

Choke Valves

Benefits

Safe and reliable products
Short delivery times
Easy maintenance

Application Fields

Wellheads, heater bypass, gas lift, water injection, drilling, water blowdown

Choke valves can be installed on Christmas trees, choke and kill Oil & Gas production and are used to control gas pressure as well rates.

Features

Available types: **positive, needle & seat, rotating disk, internal plug & cage, external sleeve & cage**

Wear resistant trim
Extensive range of body/trim materials and options
Customizable end to end dimension

Size Range

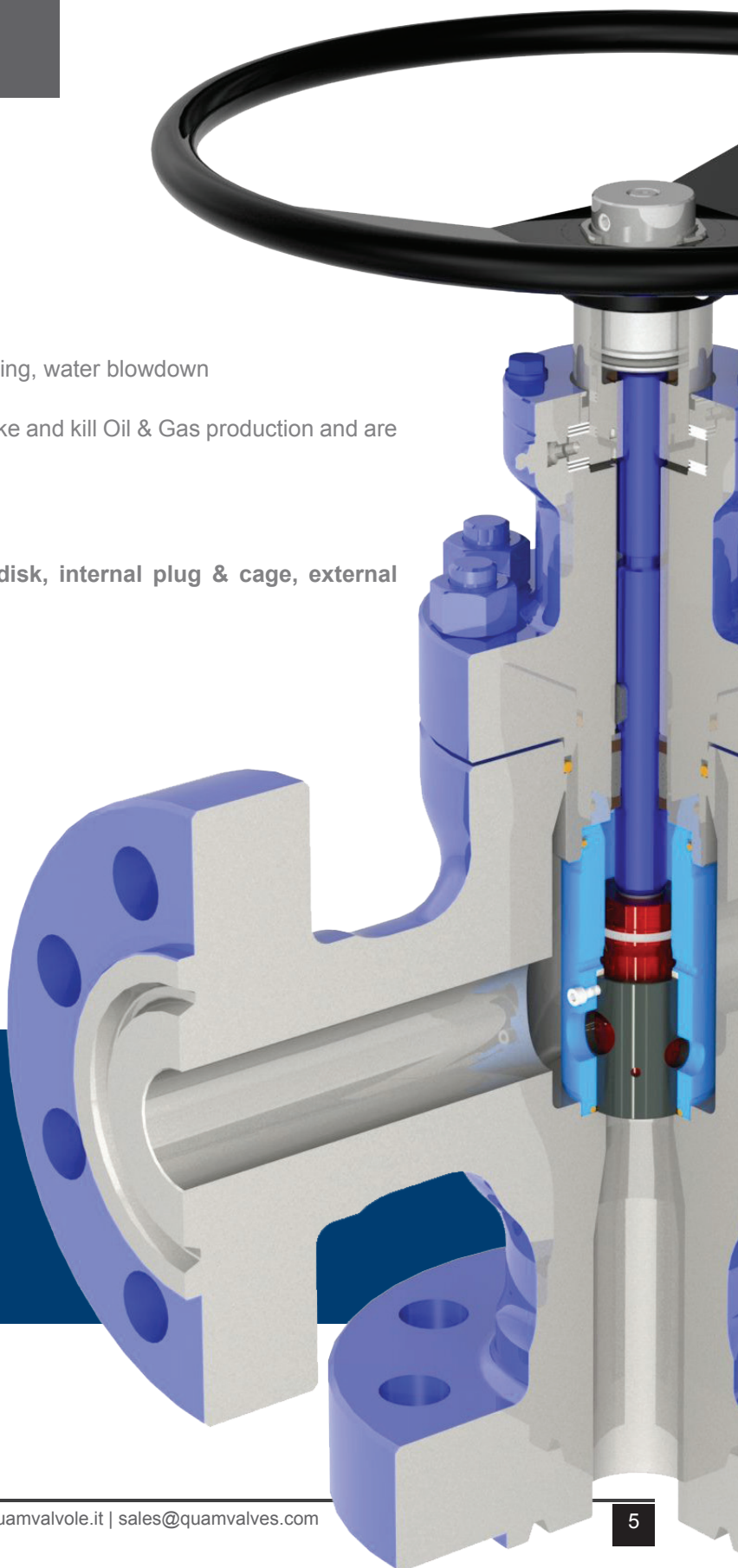
API 6A from 1 13/16" through 11"
ANSI from 2" through 12"

Pressure Ratings

API 6A from 2000 through 20000 PSI
ANSI from 150 through 2500 lbs

Actuation options

Manual override
Pneumatic / Hydraulic - single acting
Pneumatic / Hydraulic - double acting
Pneumatic / Hydraulic - stepping
Electro-hydraulic
Electric



Choke Valves



Positive

Dissipation of well energy in hardened replaceable beans to meet downstream pressure limitation
Available in various sizes and materials

Needle & Seat

A tapered movable plug allows precise regulation of the orifice size and adjustment to the required bean size
Such valves are most suitable where gradual stopping of flow is required or a small flow rate is needed
Besides, while complying with a range of production requirements, they keep the well flowing safely and economically

Rotating Disk

Two disks with multiple ported holes
Top plate rotating to vary the orifice size and regulate the well fluid, resistant to sand and well debris
Near linear flow characteristics, ideal for control applications

Internal Plug & Cage

Guided plug inside the solid cage to guarantee high capacity
Noise and vibration control
Reduction of flashing effects and high speed
Trim enclosed in a cartridge allowing maintenance and replacement of worn parts as well as trim change with maximum ease

External Sleeve & Cage

Flow is addressed to the center of the flow cage, where it deviates from the body, protecting valve from erosion
A sealing surface is located on the outside on the cage, lowering the erosion potential

Choke Valves



Pneumatic actuated

Single acting spring return or double acting pneumatic actuator directly installed on the valve
Fail safe design upon customer's requirements

Electric motor driven/actuated

Electric Actuator is out of QUAM's product range, but it is available upon request

Stepping actuated

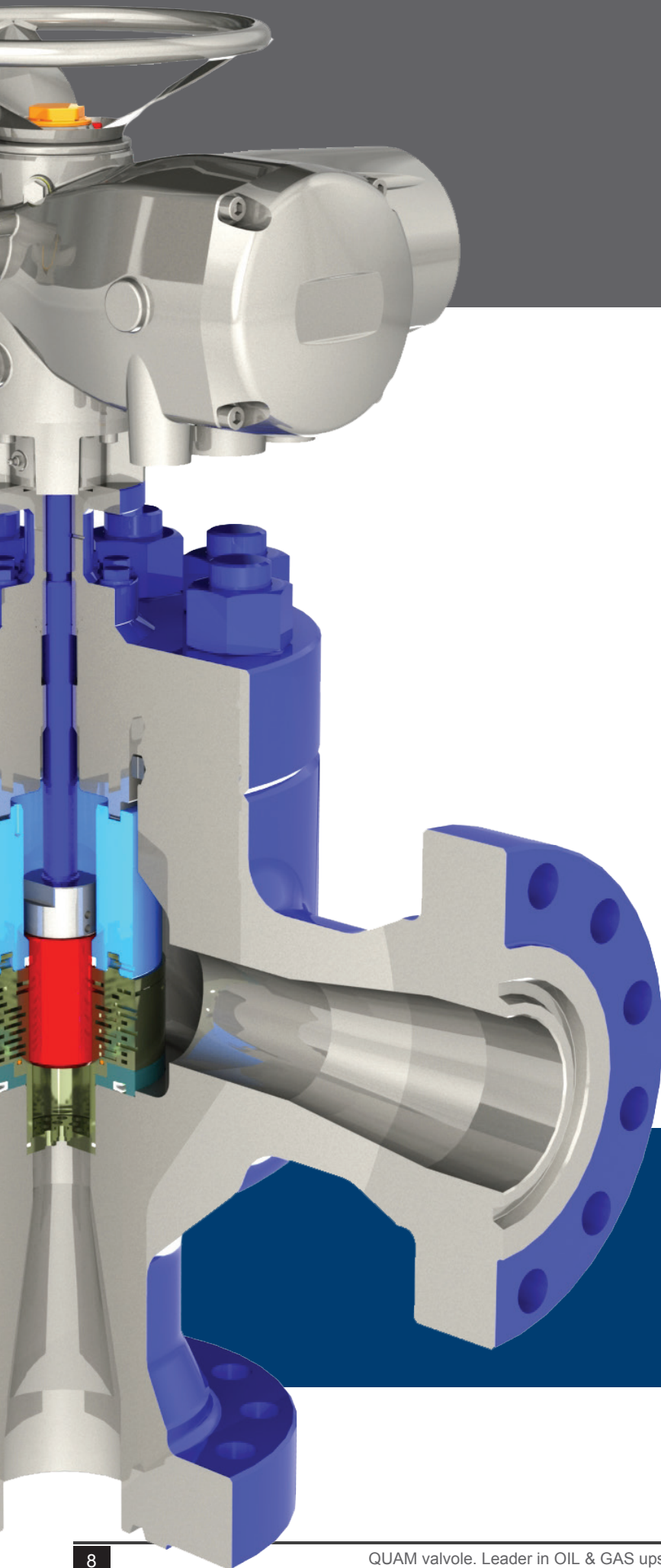
Stepping actuator, pneumatically or hydraulically driven by two separate cylinders and two dedicated solenoids (for the opening and closing)

Hydraulic actuated

Hydraulic power linear actuators (single or double acting) driven by hydraulic powered control system aimed to accurate control and fast action

Drilling choke

Large orifice bore to avoid plugging during operation
Double acting hydraulic actuator with position feedback



Choke Valves

Critical Applications

Internal Plug & Cage Multi-stage Choke Valves

The **QUAM Multistage Choke Valves Series** is composed of **Internal Plug & Cage Choke Valves (manual and actuated)** specifically designed with a fully-customized multistage trim.

These Valves are suitable for installation on Christmas Trees, Choke & Kill or Production/ Water injection Manifolds specifically **designed to handle the most critical process data and severe conditions** in particular applications. They are used where high pressure drops and high fluid velocity might cause cavitation issues, high noise levels, excessive vibrations, etc.

Ported Cage with Internal Plug trim design is available with customized characteristics. The flow passing across the cage impinges on itself and so turbulence and throttling wear are dissipated in the centre of the valve and not on valve outlet. The valve is provided with spacer. **Valve Trim is always fully-customized** in order to perfectly comply to the given process conditions

Without soft parts, sealing performance with any process fluid is improved and erosion resistance is guaranteed.

Gate Valves

Benefits

- Short delivery times
- Long life service
- Easy maintenance
- Fully customizable in actuation & controls

Application Fields

Wellheads, production/oil extraction, drilling, water injection, gas lift, blowdown
Gate valves can be installed on Christmas trees as well as on choke and kill manifolds.
API-6D design available for pipeline applications

Features

- Available types: **slab or double expanding through conduit design**
- Wear resistant trim
- Extensive range of body/trim materials and options

Size Range

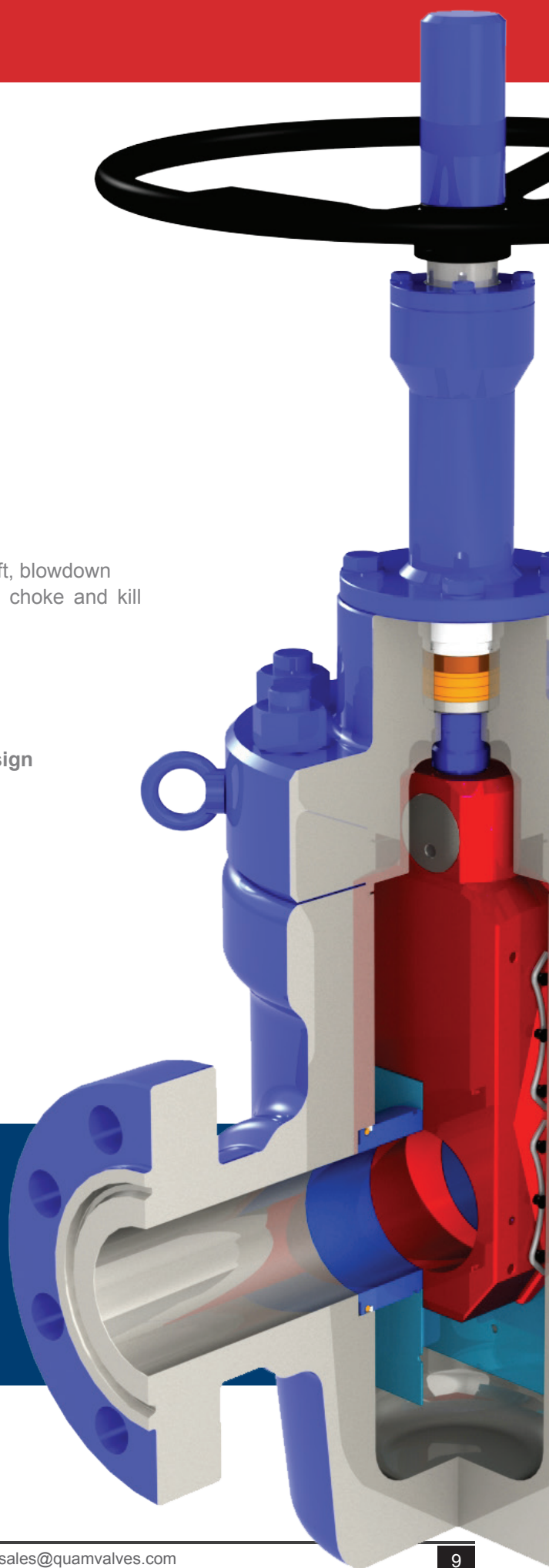
- API 6A from 1 13/16" through 13 5/8"
- API 6D from 2" through 24"

Pressure Ratings

- API 6A from 2000 through 20000 PSI
- API 6D from 150 through 2500 lbs

Actuation options

- Manual override
- Pneumatic / Hydraulic - single acting
- Pneumatic / Hydraulic - double acting
- Electro-hydraulic
- Electric
- SSV Surface Safety Valve



Gate Valves



Slab Rising

API-6A or API-6D through conduit slab gate valve, rising stem, with a metal to metal seal (gate-to-seat and seat-to-body)
Bidirectional design for flow direction versatility
Manually operated or (pneumatically, hydraulically or electrically) actuated
Complete range of materials and connections available on customer's request

Slab No Rising

API-6A through conduit slab gate valve, no rising stem, with a metal-to metal seal, ideal for both low- and high-pressure sealing situations
Bidirectional flow & full bore for versatility
Compact dimensions suitable for wellhead applications

Expanding Rising

API-6A or API-6D through conduit expanding gate valve, rising stem, with a metal-to-metal seal covering an extensive range of pressures
Bidirectional sealing & full bore for versatility
Manually operated or (pneumatically, hydraulically or electrically) actuated

Expanding No Rising

API-6A through conduit double expanding, no rising stem, with a metal to metal seal (gate-to-seat and seat-to-body)
Bidirectional flow & full bore for versatility
Compact dimensions suitable for wellhead applications

Customized gate

The best **design flexibility** to support customers' projects and solve specific field problems

Gate Valves



Self-Contained Surface Safety (SSV)

API-6A surface safety gate valve with top quality reverse acting gate valve and hydraulic actuator
The operating media is hydraulic fluid, supplied by a self-contained control system with manual pump for SSV valve opening and PSHL pressure pilots for emergency safety closing

Hydraulic Actuated

API-6A and API-6D through conduit slab gate valve with fail safe hydraulic actuator
Extensive range of actuator sizes and materials with complete range of accessories and control systems available

Line Pressure Operated Surface Safety (LPO)

API-6A line pressure operated surface safety gate valve with top quality reverse acting gate valve and hydraulic actuator
The operating media is flow-line fluid, supplied by a velocity check valve for SSV valve opening and PSHL pressure pilots for emergency safety closing

Pneumatic Actuated

API-6A and API-6D through conduit slab gate valve with fail safe pneumatic actuator
Extensive range of actuator sizes and materials with complete range of accessories and control systems available

Gate Valves

High Integrity Pressure Protection Systems (HIPPS)

Electronic HIPPS

A **SIL-3-Capable** System used to protect downstream equipment against overpressure or upset conditions coming from the Upstream.

QUAM Electronic HIPPS considerably reduces overpressure process risks and environmental impacts for piping and vessels downstream the system, with lower weight and cost. No need to install relief devices nor a by-pass line. The complete system is fully internally engineered: it is composed of QUAM's Gate Valves, actuator and control system and it is designed to be opened against full differential pressure. Stroking time for safe and fast action: less than 2 seconds

Mechanical HIPPS

A **SIL-3-Capable Self-Contained System** used to protect downstream equipment against overpressure or upset conditions coming from the Upstream.

QUAM Mechanical HIPPS is a Self-Contained Equipment suitable for applications **where no external power sources are available**. No need to install a by-pass line. The complete system is fully internally engineered: it is composed of QUAM's Gate Valves, actuator and control system and it is designed to be opened against full differential pressure. Stroking time for safe and fast action: less than 2 seconds



Other Products



Choke Manifold

QUAM's Choke Manifolds are used for well drilling or testing. They are specifically **designed to precisely check and regulate parameters** and consist of a customized production of choke valves, slab or expanding gate valves, piping and fittings.

Their fields of application include: well kick control, balance pressure adjustment, oil layer pollution avoidance, drilling speed improvement and effective blowout control.

Liquid Discharge Valve

QUAM's Liquid Discharge Valves are issued from a Heavy-Duty Design with easy maintenance, in order to achieve high reliability and long-life Service requested by Oil&Gas applications.

They are generally used on Gas separators, which means they are installed as Heavy-Duty ON/OFF valves for liquid blow-down.

Hydraulic Power Unit

QUAM's HPU's are hydraulic power systems which **supply hydraulic fluid to the valve actuator** and can be used to supply a single/multi valve system or project.

HPU's are **fully customized** according to Customer's specifications, as a simple Power Supply Unit or completed with a Control System for integrated Valve Control.

The construction style of each HPU is designed as required by Clients: skid mounted, free-standing or directly installed on actuator.



Wellhead Control Panels



A WHCP is a Hydraulic Control System that provides control over the topside Christmas Trees.

Wellhead control panels automatically close the well safety valves in response to alarm conditions requiring the shut-off. Valves can be closed either manually or automatically, from the panel or remotely.

WHCPs are **fully customized according to Client's specification** and **available with a wide selection of options** for single or multi-well configurations.

QUAM WHCPs are specifically designed using the most state-of-the-art design technologies and components.



SINGLE-WELL CONTROL PANEL

It is designed to operate one subsurface safety valve and up to two hydraulic or pneumatic actuated surface safety valves for any type of well.

MULTI-WELL CONTROL PANEL

It is designed with the same features of the single-well panel but is able to control safety valves on several wells.

QUAM multi-well control panels can incorporate removable and interchangeable well control modules, each controlling a single well that can be easily isolated and removed.



| Our standards and design codes:

API – American Petroleum Institute

ASME – American Society of Mechanical Engineers

ISO – International Organization for Standardization

DIN – Deutsches Institute für Normung

ANSI – American National Standard Institute

ASTM – American Society of Testing and Material

NACE – National Association of Corrosion Engineers

BSI – British Standard Institution



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