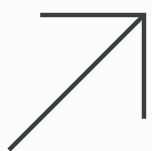




PRECISION ENGINEERED

**PRESSURE VESSEL CLAMPING TECHNOLOGY
DEFINED SEALING FORCE. RELIABLE CONNECTIONS**



Engineered screw-clamp solutions for demanding pressure equipment, process vessels and special applications.

YOUR APPLICATION. OUR ENGINEERING CONNECTION



**HAFLINGER
TECHNOLOGIES**

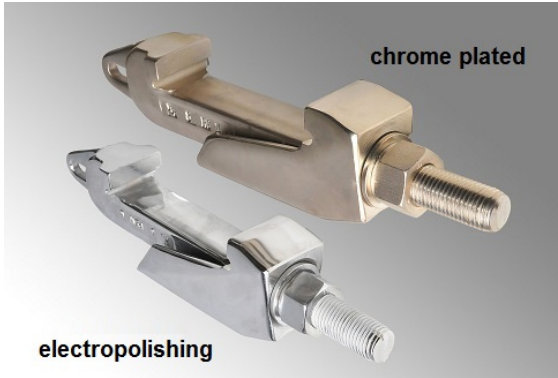


RATHMANN
pressure vessel clamps

Three Clamp Families. One Engineering Principle

The decisive design variable is the clamp contact surface and its geometry matched to the intended flange connection

WGR-Rathmann screw clamps are designed to create defined or application-specific sealing forces for connecting parts. The appropriate family depends on contact geometry, protected surfaces, dimensions and operating conditions.



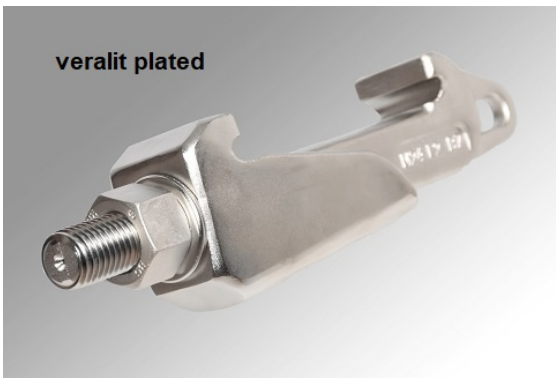
SEGMENT SCREW CLAMPS

Produce defined sealing forces for connecting parts. The contact surface and geometry distinguish the segment design from the Wulst design

APPLICATION FOCUS

- Pressure equipment
- Process vessels
- Engineered flange connection

Defined sealing force



WULST SCREW CLAMPS

Create custom sealing forces with surface-protected connected parts, e.g. enameled flanges

APPLICATION FOCUS

- Protected / enameled flanges
- Process equipment

Protected surfaces



DIN 28152 SCREW CLAMPS

Create custom sealing forces with surface-protected connected parts. WGR-Rathmann states the DIN 28152 design is mainly used in the chemical sector

APPLICATION FOCUS

- Pressure equipment
- Process vessels
- Engineered flange connection

DIN 28152

PRODUCT & CONFIGURATION OPTIONS

Materials	AD 2000: 42CrMo4, X6CrNiMoTi17-12-2, C35E • ASME: B7, B8M Class 1
Surface treatments	Blue galvanizing • electro-polishing • pickling & passivation • chemical nickel • hard chrome • Veralit • other options
Nuts / accessories	Hexagon nuts • cap nuts • wing nuts • toggle nuts / fixtures (as applicable)
Selection identifiers	Examples in WGR inquiry sheet: M20-L-B7 • WU-M20-L-B7 • DIN-M20-60-85-B7

Where WGR-Rathmann® Clamping Technology Fits

From Application Challenge to the Right Clamp Family

Engineered clamping solutions for pressure equipment, process vessels and protected flange connections

The right clamping solution starts with the equipment and flange design.

WGR-RATHMANN® screw clamps are available in different geometries to match the connection requirement. The principal distinction between the clamp families is the contact surface and its geometry, allowing the clamping solution to be selected according to the flange arrangement and application

01 | CHEMICAL PROCESSING

Reactors • Process Vessels • Special Flange Connections

Chemical-processing equipment combines demanding operating conditions with the need for dependable, controlled flange connections.

WGR-RATHMANN® screw clamps are particularly relevant where the equipment design calls for an engineered clamping arrangement rather than a conventional bolted flange assembly.

Typical equipment

Chemical Reactors

Process Vessels

Glass-Lined Reactors

Special Process Equipment

Protected Flange Connections

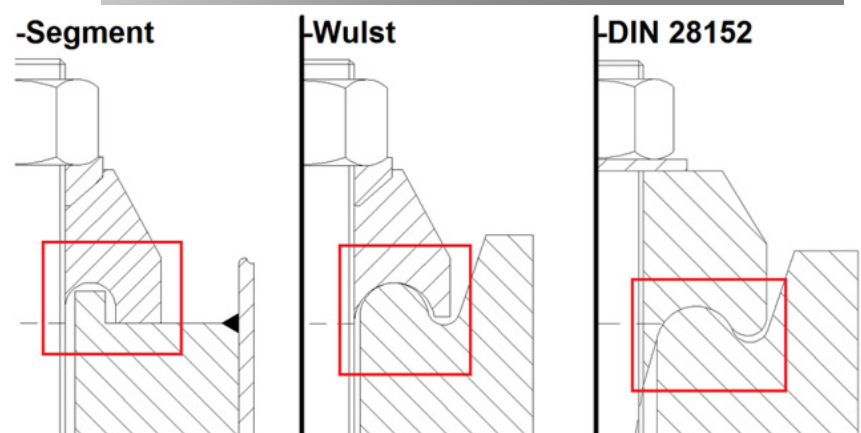
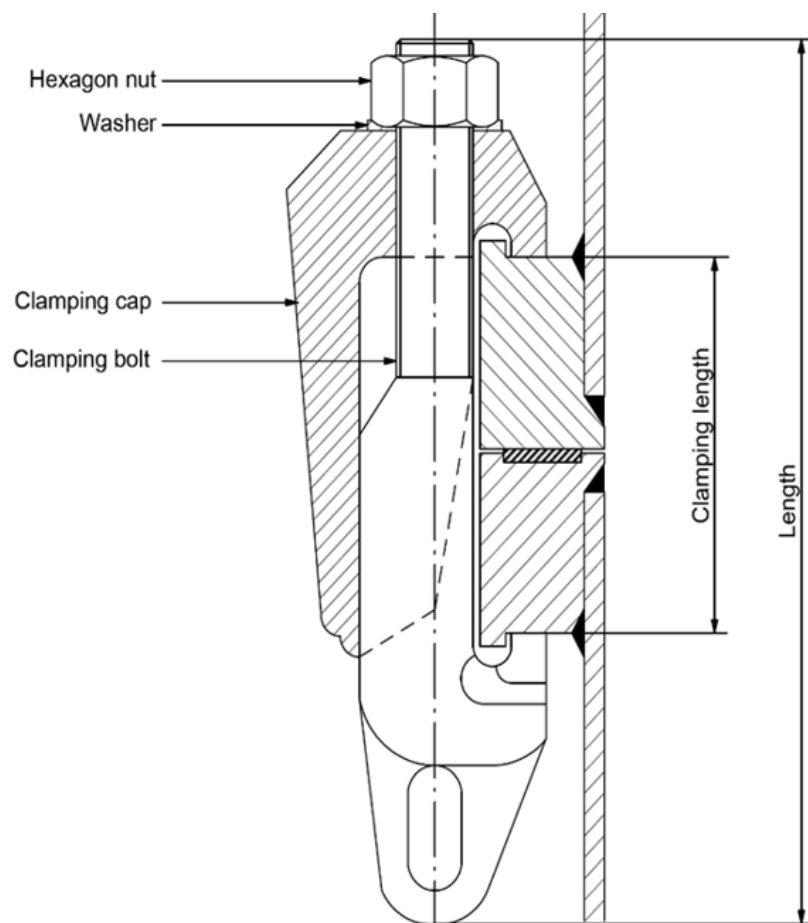
Recommended clamp family

DIN 28152 / Wulst Screw Clamps

For surface-protected flange connections such as enamelled flanges, WGR identifies the Wulst and DIN 28152 designs as suitable solutions. WGR specifically notes that DIN 28152 clamps are mainly used in the chemical sector.

Application message

When the process equipment uses protected flange surfaces, clamp geometry becomes a critical part of the connection design.



02 | GLASS-LINED EQUIPMENT

Enamelled / Protected Flange Interfaces

Glass-lined and enamelled process equipment requires particular attention to the flange interface and sealing arrangement.

RATHMANN® Wulst and DIN 28152 screw clamps are designed around the contact geometry required for surface-protected components, including enamelled flange connections.

Typical equipment

Glass-Lined Reactors

Enamelled Process Vessels

Agitated Vessels

Chemical Reaction Equipment

Special Protected Flanges

Recommended clamp family

DIN 28152

Why it matters

Defined / controlled clamping behaviour

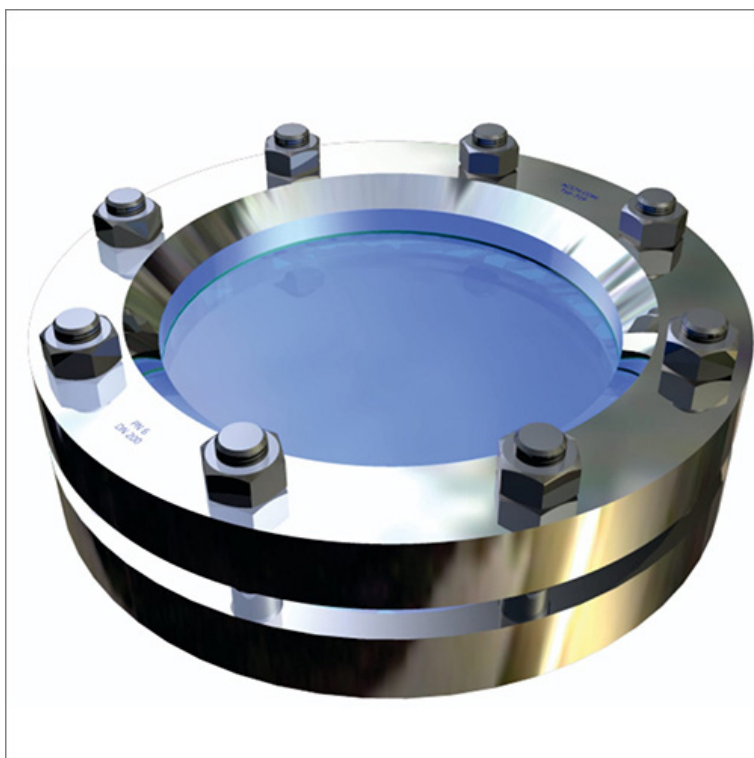
Purpose-designed contact geometry

Compatibility with protected flange interfaces

Established chemical-industry application

Application message

| Protect the integrity of the flange interface while achieving the required sealing force.



0 3 | PRESSURE VESSELS

Engineered Clamping for Pressure Equipment

Pressure equipment requires a connection designed around the applicable load, flange geometry, sealing system, material and operating conditions.

RATHMANN® Segment Screw Clamps produce defined sealing forces for connecting components, while the product range includes different materials and configurations for pressure-equipment requirements.

Typical equipment

Pressure Vessels

Process Vessels

Reactors

Special Pressure Equipment

Engineered Flange Connections

Recommended clamp family

SEGMENT SCREW CLAMPS

Why it matters

Defined sealing force & Defined tightening torque / preload information

Multiple material options

AD 2000 material options

ASME material options

Special configurations &

WGR currently lists materials such as 42CrMo4, X6CrNiMoTi17-12-2 and C35E for relevant AD 2000 configurations, with

ASME material grades including B7 and B8M Class 1

Application message

I For pressure-equipment connections, the clamp is part of the engineering design — not simply a replacement for a bolt.



WHICH RATHMANN® CLAMP FAMILY?

APPLICATION / CONNECTION	RECOMMENDED STARTING POINT
Conventional engineered pressure-equipment connection	Segment Screw Clamp
Surface-protected / enamelled flange	Wulst Screw Clamp
Glass-lined / chemical-process equipment	DIN 28152 Screw Clamp
Special flange / non-standard requirement	Special / Application-Specific Clamp

Every application starts with the connection details.

For technical selection, Haflinger will work with the customer to establish:

- 1 — Equipment Type
 - Pressure vessel / reactor / process vessel / glass-lined equipment
- 2 — Flange Configuration
 - Flange dimensions, geometry and available clamping area
- 3 — Operating Conditions
 - Pressure • temperature • service conditions
- 4 — Sealing Arrangement
 - Gasket type • sealing interface • protected surface
- 5 — Clamp Requirement
 - Quantity • thread size • clamping length • material
- 6 — Documentation
 - AD 2000 • ASME • EN 10204 • inspection requirements

WGR's current inquiry sheet follows this engineering-selection approach and includes clamp family, thread, clamping length, material, certification and surface-treatment requirements.

WHAT TO SHARE WITH HAF LINGER FOR A FAST TECHNICAL RESPONSE

Flange / drawing dimensions

Clamp quantity & required size

Thread / material requirement

Pressure & temperature

Gasket / sealing arrangement

Surface protection / lining

Specification, Documentation & India Support

A strong technical proposition needs the right material, documentation, surface treatment and application coordination.

MATERIALS	TESTING	DOCUMENTATION	SPECIAL DESIGNS
AD 2000 material options include 42CrMo4, X6CrNiMoTi17-12-2 and C35E. ASME options include Grade B7 and B8M Class 1	Rathmann states that impact and tensile testing are carried out together with TÜV Rheinland AG at its plant	Rathmann states that inspection documentation can include DIN EN 10204 certificates; ASME material can be supplied with 3.1 documentation	Development and construction are available for special applications and customer-specific clamp requirements.
AD 2000 / ASME	TEST & VERIFY	TRACEABILITY	APP ENGINEERING

SURFACE TREATMENT OPTIONS

- Blue galvanized
- Electropolished
- Pickled & passivated
- Chemically nickel
- Hard chrome plated
- Veralit plated
- Other / by requirement



HAFLINGER TECHNOLOGIES — YOUR INDIA ENGINEERING INTERFACE

APPLICATION ENGINEERING	Reviewing flange geometry, service conditions and selection requirements	PRODUCT SELECTION	Supporting clamp family, material, size and configuration identification
TECHNICAL COORDINATION	Liaising with WGR Rathmann for standard and special requirements	LOCAL SUPPORT	Commercial and technical interface for Indian OEMs, EPCs and end users

NEED THE RIGHT CLAMP FOR YOUR APPLICATION?
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