

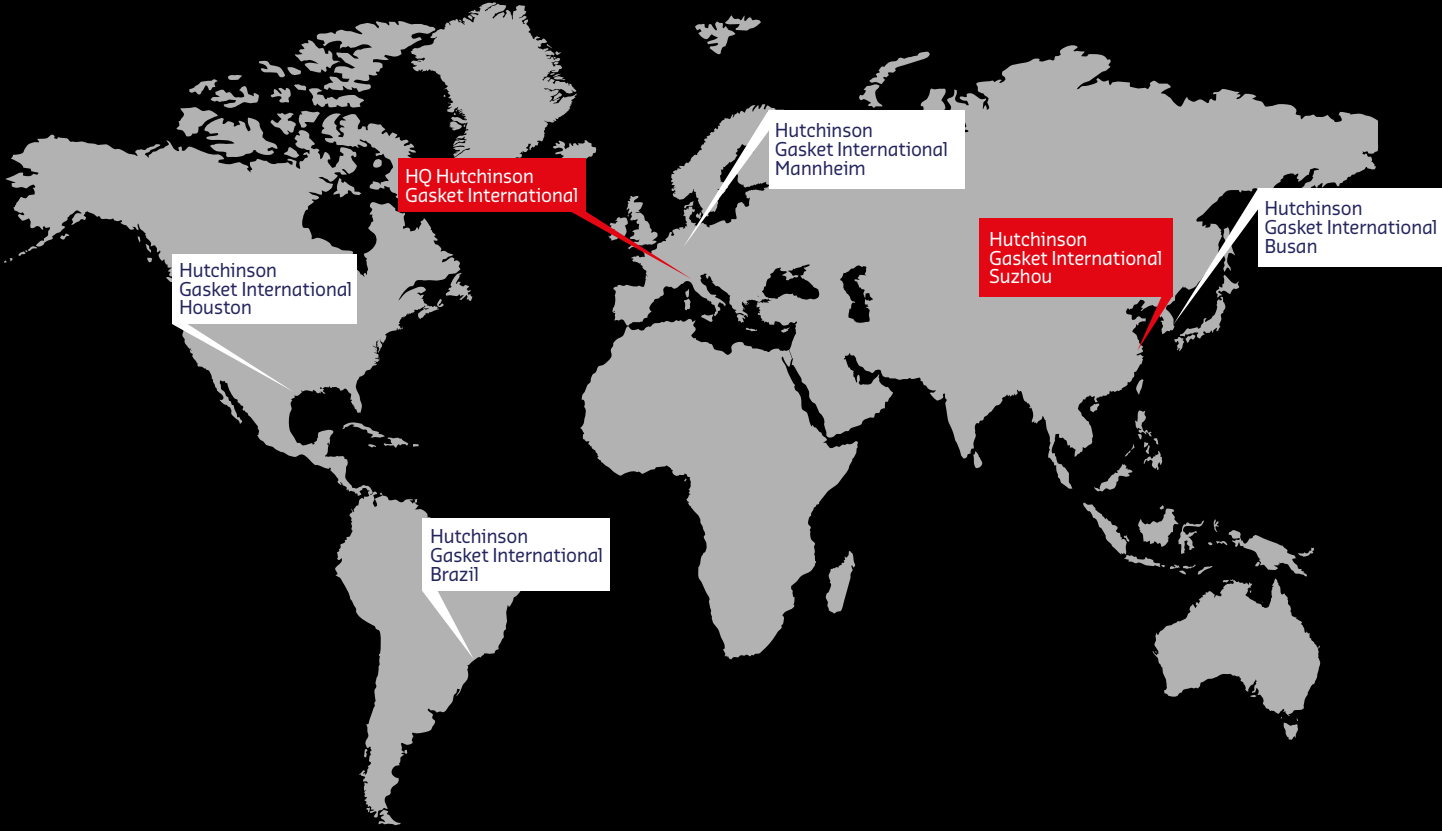
# SEALING SOLUTIONS FOR BALL & GATE VALVES

We make it *possible*



**HUTCHINSON**<sup>®</sup>  
GASKET INTERNATIONAL

# GLOBAL FOOTPRINT



## HUTCHINSON GASKET INTERNATIONAL

(Cividino di Castelli Calepio - Bergamo) Italy,  
Headquarters - Manufacturing plant

(Houston - Texas) U.S.A.,  
Sales office

(Busan) South Korea,  
Sales office

(SIP - Suzhou) China,  
Manufacturing plant

(Mannheim) Germany,  
Sales office

(Monte Alto - San Paolo) Brazil,  
Sales office

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**HUTCHINSON®**  
**GASKET INTERNATIONAL**

# GASKET INTERNATIONAL

## INTRODUCTION

**G**asket International was created in 1971 and **is the world leading engineer and manufacturer of steel seats, balls, slabs, and valve components.**

With ultra-modern manufacturing plants in Italy and China, Gasket International exports in all 5 continents.

Born by the incorporation of three companies with excellent expertise in rubber, thermoplastic and steel machining technologies, Gasket International has a unique know how in sealing systems for industrial valves, particularly in the Oil & Gas and petrochemical industries.

In 2013, Gasket International joined Hutchinson S.A., the global leader of Precision Sealing Systems (PSS), becoming the Valve Components Division within the PSS activity.

Hutchinson is a subsidiary of the group Total.

In accordance with the group strategy and with full support of the parent company, Gasket International intends to pursue its international expansion and invest in R&D making quality and innovation the cornerstone of the company.

## INTRODUZIONE

**G**asket International è nata nel 1971 ed è oggi il **leader mondiale nella progettazione e realizzazione di soluzioni di tenuta per valvole a sfera e a saracinesca del settore petrolchimico.**

Con i suoi stabilimenti in Italia ed in Cina, Gasket International esporta i propri prodotti in tutto il mondo.

Nata dalla fusione di tre aziende di eccellenza nella produzione di prodotti in gomma, in plastica e nella lavorazione meccanica, Gasket International ha acquisito nel tempo un know how unico per la realizzazione dei propri prodotti.

Nel 2013 Gasket International è stata acquisita dal Gruppo Hutchinson S.A. entrando nella Business Unit delle Guarnizioni di Precisione (PSS), con il nome di Valve Components Division.

Hutchinson è una compagnia di Total

In linea con il pensiero strategico e con il pieno supporto della casamadre, Gasket International persegue il suo piano di espansione internazionale attraverso la differenziazione tecnologica di progetto, prodotto e materiali.



**COMPONENTS FOR TRUNNION MOUNTED BALL VALVES**  
**COMPONENTI PER VALVOLE SFERA TRUNNION**

**COMPONENTS FOR GATE VALVES**  
**COMPONENTI PER VALVOLE SARACINESCA**



**COMPONENTS FOR FLOATING BALL VALVES**  
**COMPONENTI PER VALVOLE SFERA FLOATING**

# OUR MISSION LA NOSTRA MISSIONE

## COMPETENCE AND RELIABILITY

**G**asket International is committed to **providing customers with turn-key sealing solutions**, taking care of designing and manufacturing, selection of material, reliability and **traceability** of components, even in the most technically challenging situations.

Our seats, ball and slabs contribute to ensuring the full functionality of the valve. When designed as a kit, they guarantee a perfect sealing.

**Our solutions** can either match customer's request or be engineered according to customers' global project. **They are designed and manufactured in house, from steel machining to technopolymers molding**, in order to ensure complete control of the designing and manufacturing process, meeting all quality and **traceability** requirements.

Our R&D program is supported by the Hutchinson Research Center, with particular focus on designs validation, technopolymers and coating technologies.

## COMPETENZA E AFFIDABILITÀ

**G**asket International si propone di **liberare i produttori di valvole dalle complicazioni** legate alla progettazione e realizzazione dei sistemi interni di tenuta delle valvole a sfera e a saracinesca, prendendosi cura e responsabilità delle scelte progettuali, della selezione dei materiali, della garanzia di totale affidabilità e **rintracciabilità** dei componenti anche nelle situazioni tecnicamente più complesse.

I nostri seggi, le sfere e gli otturatori contribuiscono ad assicurare la funzionalità della valvola e i kit garantiscono il risultato atteso.

**Le nostre soluzioni** possono ricalcare i requisiti del Cliente o essere ingegnerizzate in accordo ai requisiti di progetto generale. **Vengono progettate e realizzate internamente nei nostri stabilimenti di lavorazione meccanica e di stampaggio dei tecnopolimeri**, al fine di garantire il controllo totale dei principali processi di progettazione e produzione e la piena rispondenza di tutti i requisiti di **rintracciabilità** e qualità dei materiali.

Il nostro programma di Ricerca e Sviluppo è supportato dal Hutchinson Research & Development Center, con particolare attenzione alla validazione progettuale, ai nuovi tecnopolimeri e ai trattamenti superficiali.



# ENGINEERING ABILITIES CAPACITÀ PROGETTUALE

## ENGINEERING ACTIVITIES ON VALVE COMPONENTS

**G**asket International provides basic to highly engineered sealing solutions. The seats, balls or slabs and sealing components are designed, manufactured and assembled in house by Gasket International, through its ultra-modern plants in Italy and China.

Gasket International projects and patented designs are based on the experience of **skilled technicians and validated by latest technologies such as FEA analysis and test bench** for stress and endurance cycles on products.

## STANDARD DESIGN AND STOCK OF RAW MATERIAL

Thanks to the continuous standardization process (type of steel, size of components), Gasket International ensures a stock of standard raw material, ready for customization according to customer request. Standard projects are available from 1/2" to 60" for all components of the valve (ball, seats and gaskets).

These standard designs combined with **large available stock of material offer competitive advantages in terms of prices and delivery times.**

## INGEGNERIZZAZIONE DEI COMPONENTI PER VALVOLE

**G**asket International realizza sistemi di tenuta, semplici o altamente ingegnerizzati. Secondo i requisiti e le necessità del Cliente, ogni componente o i kit completi sono progettati, realizzati e assemblati internamente, nei modernissimi stabilimenti in Italia e in Cina.

I progetti di Gasket International, alcuni dei quali protetti da brevetti internazionali, sono imperniati sia sulla **esperienza maturata dai tecnici specializzati** nel corso degli anni, sia sulla **validazione analitica e sperimentale** che solo Gasket International è in grado di eseguire.

## STANDARD DESIGN E STOCK MATERIALI

Grazie all'efficace processo di standardizzazione delle soluzioni meno complesse, Gasket International assicura **una rapida e sicura definizione del progetto** che può

essere evasa in **tempi ridotti**, grazie alla **disponibilità di stock di semilavorati**, per dimensioni dai 1/2" to 60".



## FEATURED DESIGN

The **differentiation** of Gasket International relies on its technical and designing skills providing for each project, technical drawings, recommendation for materials and coating technology, features of the components and manufacture full **traceability** of components and materials.

Besides engineering activities on seats, balls and slabs, Gasket International provides complete seal kit redesigned by our engineers: from customers dimensions, Gasket provides tailor made **solutions to get more performance out of the valve in terms of sealing, durability and functionality.**

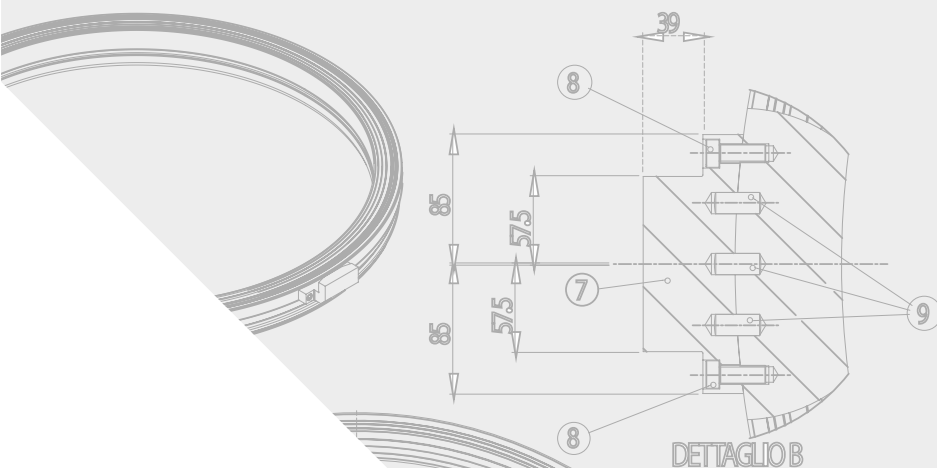
On customers' request, Gasket International also provides technical support and assist you until proper commissioning of the valve.

## ENGINEERED DESIGN

La **differenziazione** di Gasket International risiede nelle sue capacità di affrontare e risolvere le più complesse sfide progettuali fornendo al Cliente il prodotto finito corredato da tutte le informazioni necessarie e sufficienti per la corretta installazione in valvola.

Partendo dai requisiti del Cliente e nel rispetto dei vincoli esistenti, Gasket International costruisce con il Cliente **la migliore soluzione tecnica per performance e costi**, assicurando anche la completa fornitura di tutti i componenti di progetto, garantendone la totale **rintracciabilità** e corretta provenienza.

Gasket International segue le sue forniture fino al superamento dei test di collaudo previsti, ma, per eventuali esigenze del Cliente, può estendere il suo supporto anche alla fase di post vendita ed entrata in esercizio della valvola.





# QUALITY AND CERTIFICATIONS

## STEEL QUALITIES

A large range of raw material, finished and semi-finished standard components are available in stock, ensuring competitive delivery time (seats, balls, thermoplastic inserts, Delta-Ring, O-Ring, energized collars, graphite rings, anti-extrusion rings, etc). Special components are available on request.

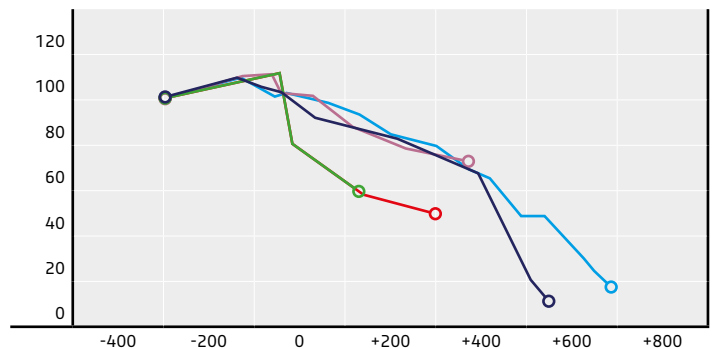
Steel grades are used to classify the different types of steels according to their composition and physical properties. **Gasket International's technical team recommends the best materials as required by customer's projects.**

## STEEL QUALIFICATION

CARBON STEELS		MARTENSITIC/AUSTENITICS		DUPLEX		NICKEL ALLOYS		OTHERS	
GRADE	NOME	GRADE	NOME	GRADE	NOME	GRADE	NOME	GRADE	NOME
A105/A105N	ASTM A105	17.4PH	ASTM A564	GR 4A	ASTM A995	INCOLOY 825	ASTM B564	TITANIUM F12	ASTM B381
F60	ASTM A694	F304/F304L	ASTM A182	F51	ASTM A182	INCONEL 625	ASTMB564	TITANIUM F2	ASTM B381
LF2 C11	ASTM A350	F316/F316L	ASTM A182	F53	ASTM A182	INCONEL 725	ASTM B637	TITANIUM F3	ASTM B381
LF3	ASTM A350	F316LN	ASTM A182	F55	ASTM A182	MONEL K500	ASTM B564	TITANIUM F5	ASTM B381
		F44	ASTM A182	F59	ASTM A182				
		F6A C12	ASTM A182	F60	ASTM A182				

- CARBON STEEL
- F304L/F316L
- 17.4PH/F6A C12
- DUPLEX/F44/F316/F304/FXM-19
- NICKEL ALLOYS

### PRESSURE



WORKING TEMPERATURE (°C) >< TEMPERATURA DI ESERCIZIO (°C)



## CERTIFICATIONS

- Certified Quality system management: ISO 9001: 2008
- Certified Environmental management: ISO 14 001
- Certified health and safety work environment: OHSAS 18 001
- Certified welding process: ISO 3834
- Thermoplastics test certificates:
  - > Norsok and TCO M710 for PEEK, PEEK FC30, PTFE, PTFE + CG
- O-Rings test certificates:
  - > Norsok M170
  - > Total GS EP PVV 142, Appendix 8
  - > DIN EN 682 & DVGW VP 406-A 7



# RESEARCH & INNOVATION RICERCA E SVILUPPO

**G**asket International is committed to continuously improving and developing new sealing solutions and made quality and innovation the cornerstone of the company. Proof of that commitment, **5% of Hutchinson global turnover is invested in R&D** each year.

This sustained effort has enabled our teams to be pioneers in many markets through a **scientific knowledge of materials and their functionalities**.

The Hutchinson Research Center is dedicated to research and innovation in our field, and specifically in rubber, plastics and coating technologies.

The diagnostic & experimental center of Grumello allows our engineers to test project designs in actual valve, and calibrate linear and nonlinear numerical analysis.

**L**o straordinario impegno nello sviluppo e nel miglioramento di nuovi sistemi di tenuta è il primario elemento di distinzione di Gasket International, all'interno di un gruppo, Hutchinson, che reinveste annualmente il **5% del proprio fatturato mondiale in attività di Ricerca & Sviluppo**.

Questo sforzo continuo permette ai nostri tecnici di essere all'avanguardia in diversi settori, grazie alle nostre **uniche conoscenze sui prodotti, i materiali e le loro funzioni**.

Hutchinson Research Center è dedicato alla ricerca e all'innovazione nel nostro settore e, segnatamente, negli elastomeri, nei termoplastici e nei rivestimenti speciali.

Il centro diagnostico/sperimentale permette ai nostri progettisti di verificare il risultato della progettazione in valvola e di calibrare i sistemi lineari e non lineari di analisi numerica.





# FEA: FINITE ELEMENTS ANALYSIS

## FEA: ANALISI ELEMENTI FINITI

**G**asket International benefits from Finite Elements Analysis software specially designed and developed by the Hutchinson Research Center, thanks to decades of experience in aerospace.

**G**asket International utilizza per le analisi preliminari agli elementi finiti alcuni software appositamente sviluppati dal Hutchinson Research Center e provenienti dalla pluridecennale esperienza maturata in campo aerospaziale.

- **Proprietary numerical simulation software** Arpack® customized for sealing solutions.
- Software "Hutchinson CDR O-Rings seal" dedicated to technopolymers
- Proprietary parametric interface 2D NUMEA CODE®, dedicated to our project configurations.
- Software calibration through **test bench verification**.
- Pacchetto **software proprietario** Arpack® sviluppato per soluzioni di tenuta.
- Software "Hutchinson CDR O-Rings seal" dedicato alla simulazione dei tecnopolimeri
- Interfaccia parametrica proprietaria 2D NUMEA CODE®, dedicata alle nostre configurazioni di progetto.
- Calibrazione strumenti di analisi mediante **verifica al banco**.





# TEST BENCH BANCO DI PROVA

The advanced study diagnostic test bench is dedicated **to the validation of our master designs** and the **calibration of the proprietary FEA software.**

## ADDED VALUE OF THE TEST BENCH

- To validate sealing solutions internally and provide quality controlled products
- To validate Finite Elements Analysis through a proprietary diagnostic tool
- To minimize risks of failure
- To reduce cost and time

## PERFORMANCE AUDIT

- Leak testing (hydraulic and gas)
- Torque measurement

## PRODUCT KNOWLEDGE IMPROVEMENT

- Materials validation (steel/rubber/thermoplastic)
- Project for cryogenic and high temperature test
- Coupling with FEA and numerical simulation

## VALORE AGGIUNTO DEL BANCO PROVA

- Verifica e validazione di nuove soluzioni di tenuta non precedentemente sperimentate
- Calibrazione dei software di analisi numerica agli elementi finiti per incrementarne il livello di affidabilità predittiva
- Drastica riduzione dei rischi di malfunzionamento attraverso la verifica in condizioni di campo
- Riduzione dei costi e dei tempi di sviluppo progetti

## VERIFICHE DI PERFORMANCE

- Verifica tenuta a liquido e a gas
- Misurazione coppia di azionamento

## SVILUPPO DEI PRODOTTI

- Validazione dei materiali (tecnopolimeri e acciai)
- Validazioni applicazioni in alte e basse (criogenia) temperature
- Verifica delle simulazioni numeriche su master design per estensione FEA in scala

## DIAGNOSTIC

- Temperature and pressure detection
- Collecting structural data regarding components valve behavior (deformation, stress, rigid / non-rigid displacement, etc.)

## TEST BENCH CAPACITY

Test bench pressure range up to API 20000

- 2100 bar for hydraulic tests
- 1400 bar for gas test with Nitrogen

## Bunker area

- Steel structure with an area of 23 m<sup>2</sup>
- Structure with explosive resistance up to 11500 KN

## DIAGNOSTICA

- Rilevamento campo di pressioni e temperature
- Rilevamento dati relative al comportamento strutturale (deformazioni elastiche e plastiche, dislocazioni, stress)

## RANGE DI PROVA

Pressione di prova fino a 20000 API

- 2100 bar per tests idraulici
- 1400 bar per tests a gas (azoto)

## Bunker area

- Strutture d'acciaio con un'area di 23 m<sup>2</sup>
- Struttura con resistenza esplosiva fino a 11500 KN

Il banco di prova è dedicato alla **validazione dei nostri progetti-master** e alla **calibrazione dei software** di analisi numerica.





# RGD TEST BENCH BANCO PROVA PER DECOMPRESSIONE ESPLOSIVA

Hutchinson has developed its own qualification RGD equipment to deal with ever higher pressure and temperature levels, and demonstrate the robustness and efficiency of our elastomeric solutions, even for the most severe conditions.

**With this new equipment, Hutchinson meets the requirements of the Oil & Gas market regarding Rapid Gas Decompression resistance.**

The developed compounds are tested according to international standards:

- NACE specifications
- Total-Fina, Statoil and Shell requirements
- Det Norske Veritas (DNV) certified
- NORSOK M 710 verified
- ISO 23936-2:2011 verified

Hutchinson ha sviluppato un banco di prova per le qualifiche RGD in regimi sempre maggiori di pressioni e temperature per certificare la resistenza e le prestazioni dei propri elastomeri nelle condizioni più aggressive.

**Con questa nuova attrezzatura, Hutchinson risponde a tutti i requisiti del settore Oil & Gas previsti per la resistenza al fenomeno di Rapid Gas Decompression.**

Il banco di prova dedicato ai test di resistenza al fenomeno di decompressione esplosiva ci permette di verificare le norme:

- NACE
- Total-Fina, Statoil and Shell
- Det Norske Veritas (DNV)
- NORSOK M 710 Annex A
- ISO 23936-2:2011





# K-EL 850®

ALTERNATIVE AND IMPROVED PLATING  
TRATTAMENTO SUPERFICIALE INNOVATIVO

The Nickel Nano Silicon Carbide Plating K-EL 850® is an electroless coating using **nano nickel-silicon carbides**, specially developed for the Oil & Gas market.

Exclusively supplied by Gasket International, K-EL 850® strongly improves:

- Hardness
- Wear resistance
- Corrosion resistance
- Elasticity
- Adhesivity

Thanks to its liquid form, K-EL 850® ensures a **uniform deposit regardless of work-piece geometry**, recovering the entire ball, slab and seat, providing homogeneity of thickness on all wetted parts.

Due to the morphology of particles and specific fluid dynamics, K-EL 850® allows a smoother surface, **improving friction coefficient and chemical inertia**.

Based on nano-particles and leading to smaller thickness, K-EL 850® can be applied directly on the finished balls, slabs and seats **eliminating the need for any final machining**, if not requested by the customer.

## TECH PLUS

- Coating process: Electroless plating
- Minimum hardness guaranteed: >1150 HV
- Maximum service temperature: up to 850°C
- Elasticity: 20000 Kg/mm<sup>2</sup>
- Fast application time
- Corrosion resistance: more than 1000 h in NSS

Il trattamento superficiale K-EL 850® è un rivestimento ad elevate prestazioni formato da **nano particelle di carburo di silicio disperse in una matrice di nickel chimico**, sviluppato appositamente per il settore Oil & Gas da Gasket International in collaborazione con il leader di settore per i trattamenti con nano particelle.

Fornito in esclusiva da Gasket International, il K-EL 850® consente di ottenere sorprendenti prestazioni di:

- Durezza
- Resistenza all'abrasione
- Resistenza alla corrosione
- Elasticità
- Adesione

Grazie al processo di deposizione, il K-EL 850® **assicura uno strato uniforme e non dipendente dalla geometria del pezzo**. I componenti trattati beneficiano di una copertura integrale ed omogenea su tutte le parti sottoposte al bagno di applicazione.

Grazie alla specifica morfologia delle nano particelle e al sofisticato processo di fluidodinamica che ne regola la distribuzione, il K-EL 850® permette di ottenere una superficie più liscia e **ridurre il coefficiente di attrito con ottima protezione agli agenti chimici**.

Per la sua peculiarità di applicazione delle nano particelle e della matrice di nickel chimico, il K-EL 850® viene applicato direttamente sui componenti finiti, **eliminando la necessità di rettifica post trattamento**.

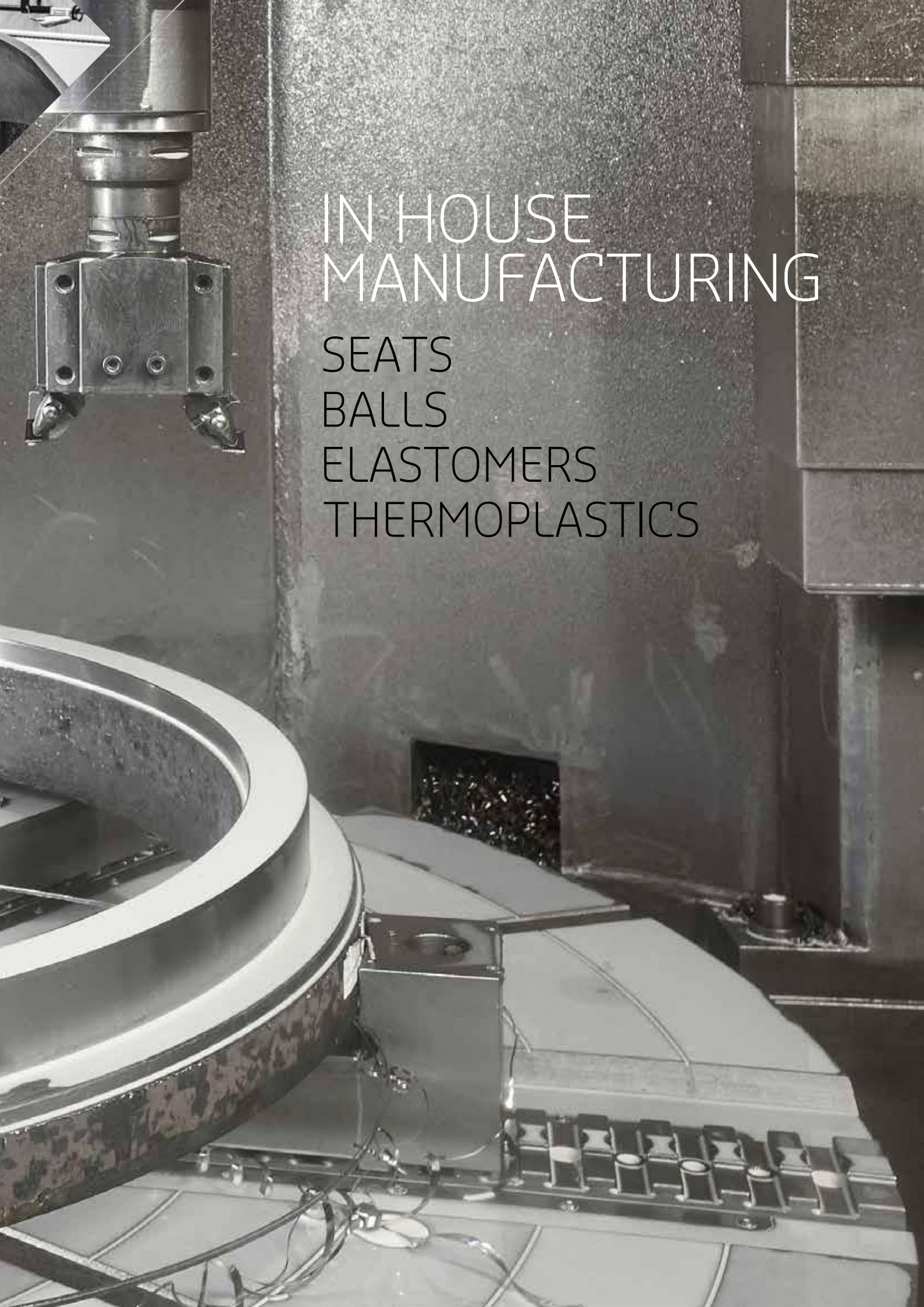
## VANTAGGI TECNICI

- Processo di deposizione: tipo ENP
- Durezza minima garantita: >1150 HV
- Temperatura massima di esercizio: fino a 850°C
- Elasticità: 20.000 Kg/mm<sup>2</sup>
- Rapidità di esecuzione
- Resistenza alla corrosione: più di 1000 h in NSS







A black and white photograph of an industrial manufacturing environment. In the foreground, a large, circular, metallic mold or tray is partially visible, containing some material. To the left, a robotic arm with a gripper mechanism is suspended. The background shows a large, dark, textured wall, possibly a furnace or a large industrial chamber, with a small, dark rectangular opening. The overall scene is industrial and technical.

# IN HOUSE MANUFACTURING

SEATS

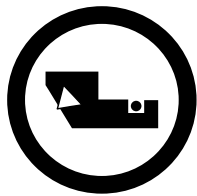
BALLS

ELASTOMERS

THERMOPLASTICS



PRODUCT  
FAMILY:  
SEATS



# ELASTOMERIC INSERT SEATS

The elastomeric insert ring consists **in a Delta Ring** locked inside the seat in order to avoid extrusion during use under pressure conditions.

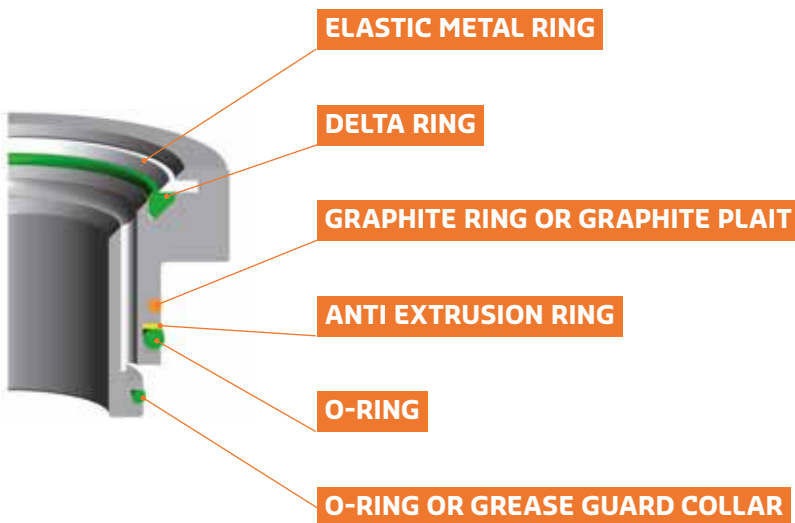
**This type of seats guarantee a sealing with zero leakage thanks to the elastomeric seal.**

The elastomers provided by Gasket International are manufactured in house from proprietary compounds and certified Norsok M170 annex A & Total GS EP PVV 142 for Rapid gas decompression.

The choice of elastomer material is suggested according to the working conditions of the valve. The most common are:

- HNBR hydrogenated nitrile/AED
- FKM /AED
- FKM GLT/AED
- FKM GF/AED

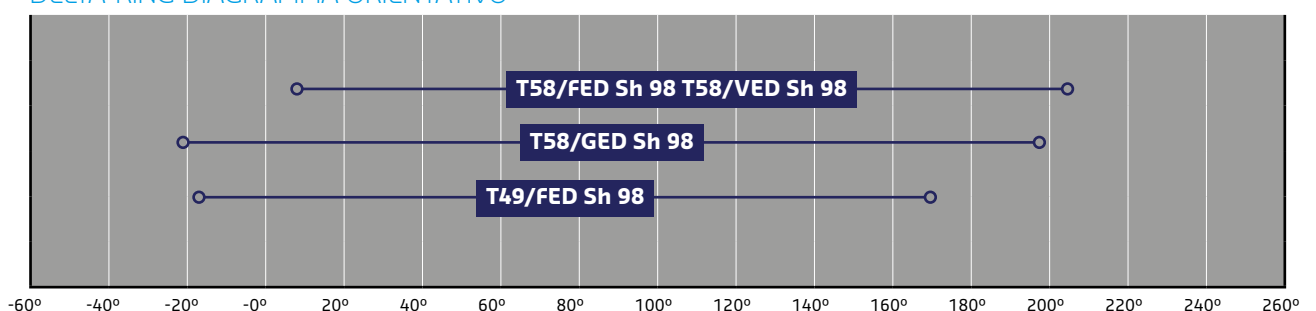
## DESIGN POSSIBILITIES:

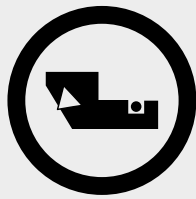


## APPLICATIONS:

- PETROCHEMICAL
- HYDRAULIC (HYDROELECTRIC)
- SUITABLE IN SEVERE ENVIRONMENT WITH SAND AND SOLID PROCESS RESIDUES (WELDING)

DELTA- RING EXAMPLE CHART  
DELTA-RING DIAGRAMMA ORIENTATIVO





# THERMOPLASTIC INSERT SEATS

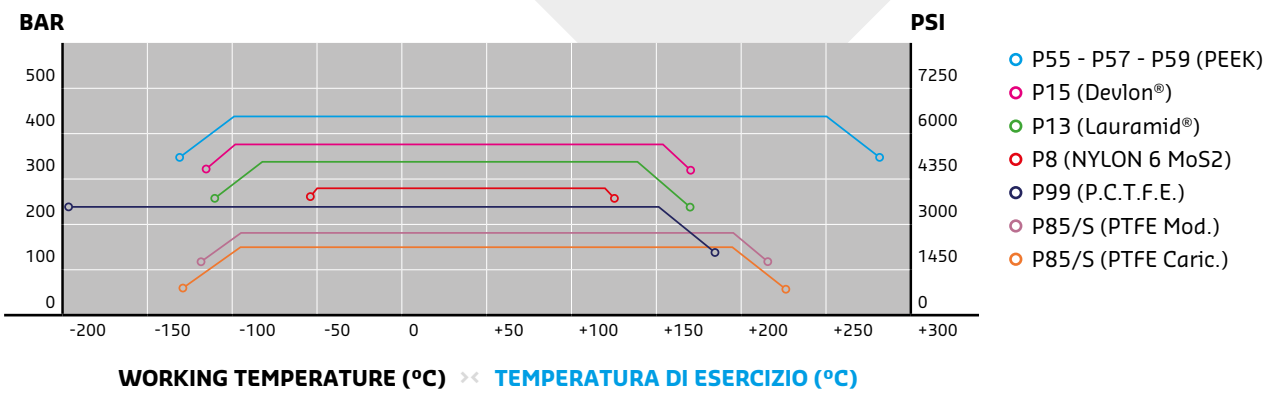
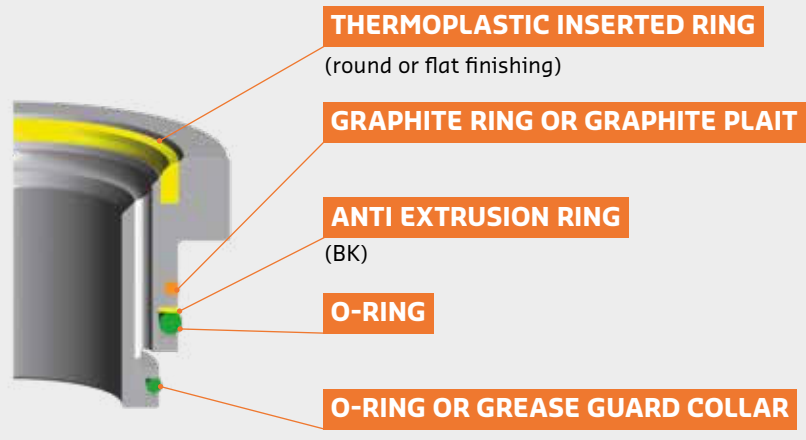
The choice of design and inserts material depends on the valve application: pressure, temperature and type of fluids.

Gasket International's thermoplastics inserts are certified Norsok and TCO M710 for PEEK, PEEK FC30, PEEK + PTFE, PTFE + CG..

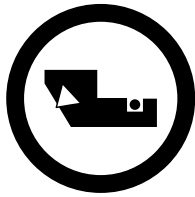
The most common material for the inserts are:

- P.T.F.E. filled (for valves class 150/600 lbs)
- NYLON 6 MoS2 (for valves class 150/2500 lbs)
- DEVLON® (for valves class 150/1500 lbs)
- P.C.T.F.E. (for valves class 150/1500 lbs)
- NYLON 12G (Lauramid®) (for valves class 150/1500 lbs)
- PEEK (Polyether Ether Ketone) (for valves class 150/2500 lbs - API 10000)
- VESPEL® (Polyimide) (for valves class 150/2500 lbs - API 10000)

## DESIGN POSSIBILITIES:



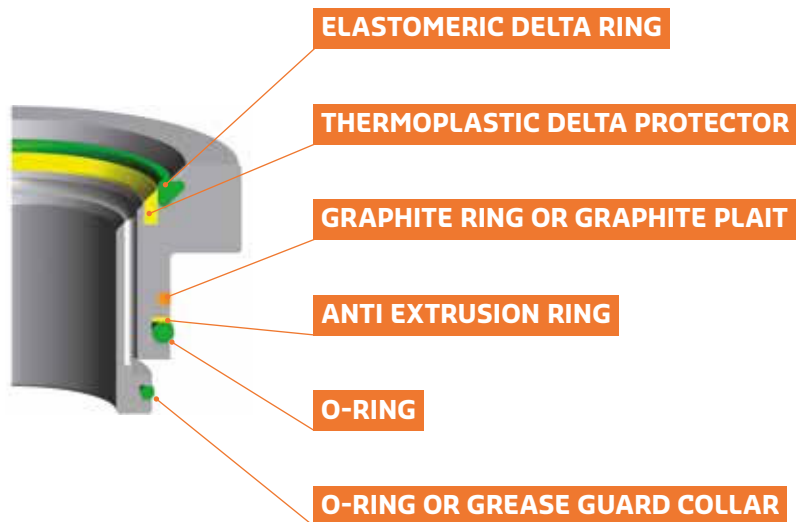
WORKING TEMPERATURE (°C) >> TEMPERATURA DI ESERCIZIO (°C)



# COMBINED INSERT SEATS

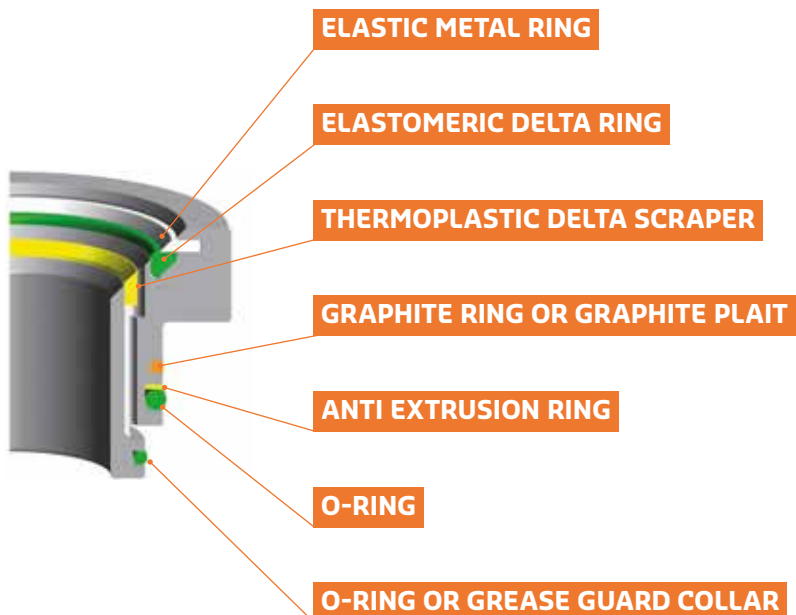
For this type of seats, the addition of frontal elastomeric and thermoplastic seals ensure the best performance in terms of sealing and valve durability.

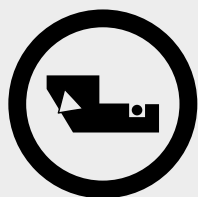
## DESIGN POSSIBILITIES:



## APPLICATIONS:

- PETROCHEMICAL
- HYDRAULIC (HYDROELECTRIC)
- SUITABLE IN SEVERE ENVIRONMENT WITH SAND AND SOLID PROCESS RESIDUES (WELDING)



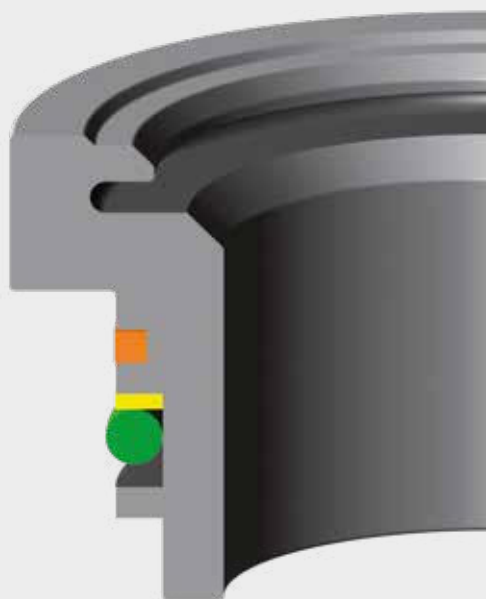


# METAL TO METAL SEATS

**M**etal to metal seats are manufactured in case of applications with abrasive and/or corrosive fluids (such as mud, sand, acid) combined with high pressure and temperature working conditions.

Carbide coating on the metallic sealing surface such as **Nano Nickel silicon K-EL 850®**, Chrome carbide, Tungsten carbide and Stellite are applied depending on the fluid to be handled.

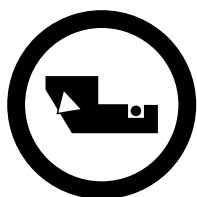
## DESIGN POSSIBILITIES:



SPE DESIGN



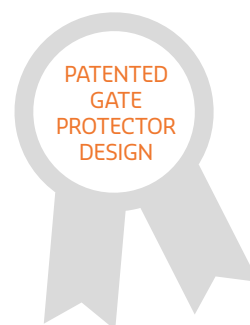
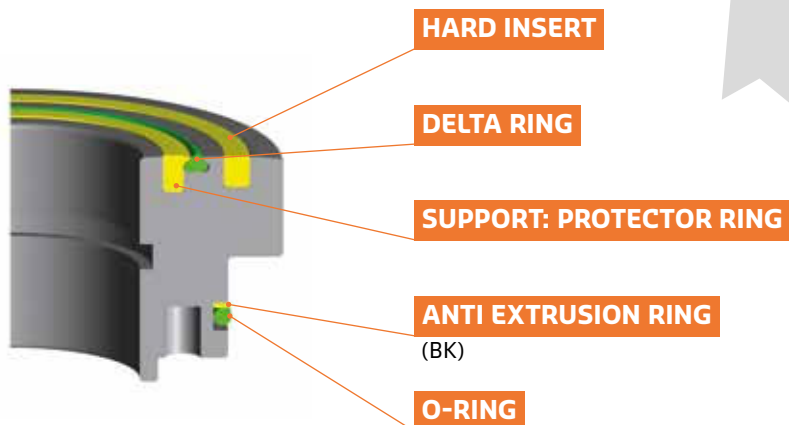
DPE DESIGN



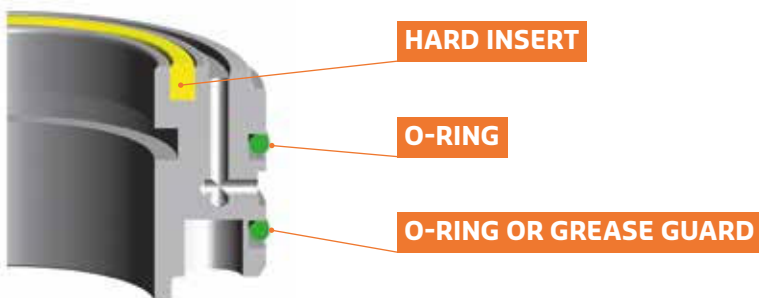
# SEATS FOR GATE VALVE

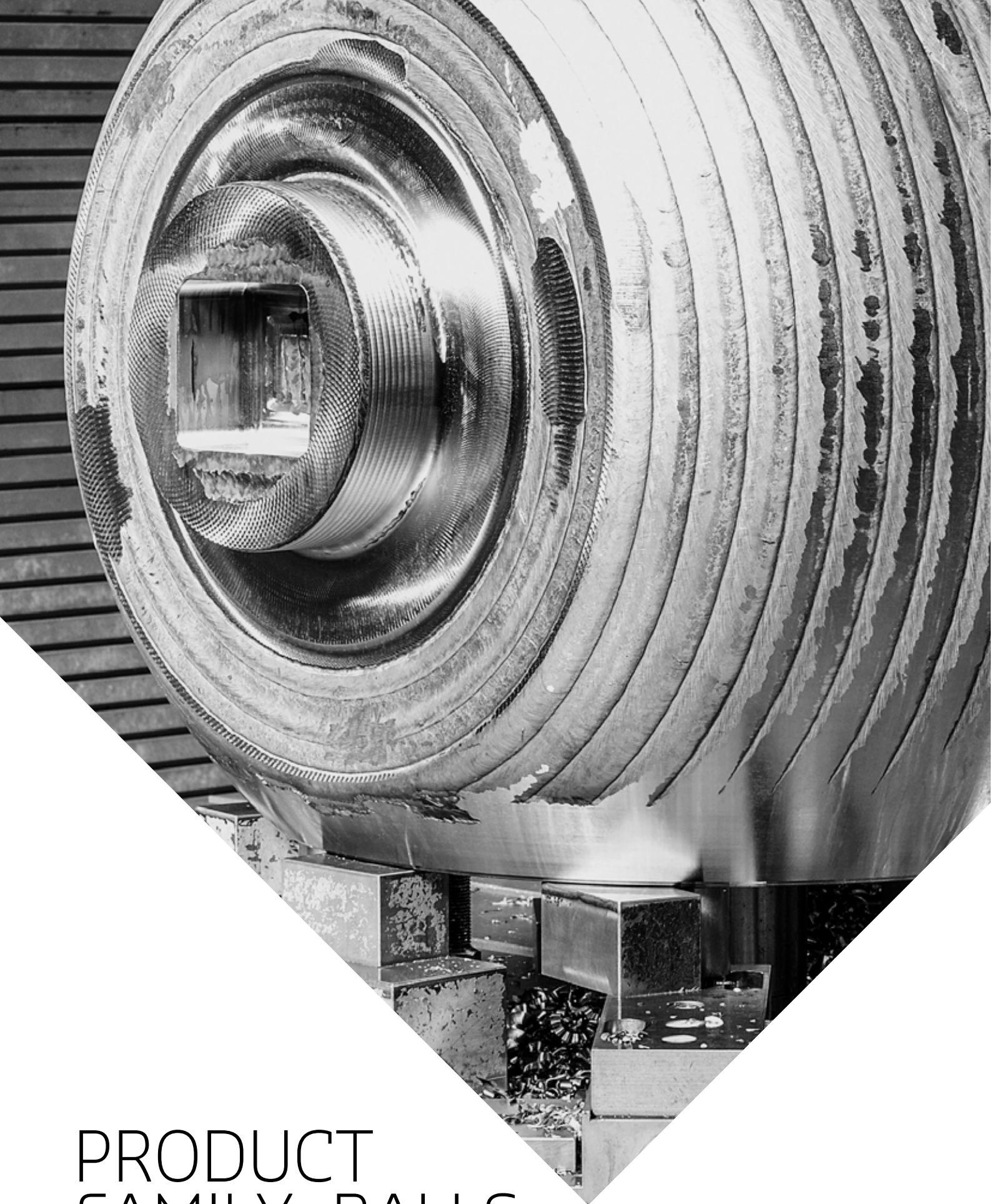
For this type of seats, the addition of frontal elastomeric and thermoplastic seals ensure the best performance in terms of sealing and valve durability.

## COMBINED THERMOPLASTIC AND ELASTOMERIC INSERT SEAT



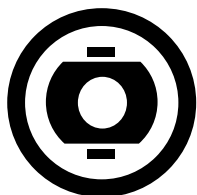
## THERMOPLASTIC INSERT SEAT





# PRODUCT FAMILY: BALLS





# BALL TYPES

## In house manufacturing

**Production capacity: 1/4" to 56"**

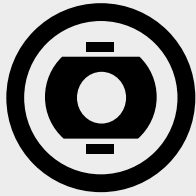
### Ball classification:

- Ball for trunnion valves
- Ball for floating valve
- Cladded ball
- Cartridge ball

## Gasket International is a global provider of "ball & seat" kits:

- Standardization: stock availability of the most common raw material and sizes
- Engineering: in House designing and manufacturing
- Advanced technical solutions: surface treatment **through Nano Nickel Silicon carbide coating K-EL 850®**, nickel plating or surface hardening coating for metal to metal seals such as TCC or CCC.





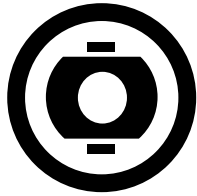
# LAPPING

## Internal lapping department:

**G**asket International executes **in house lapping** of the finished ball in order to obtain a seal surface with roughness up to  $0,1\mu$  and extremely low dimensional error, guaranteeing the perfect matching of the ball and seats.

Committed to superior quality and meeting international standards, Gasket International benefits from **internal quality control department** in each of its plant, including leakage control.





# CERTIFIED AND IN HOUSE WELDING PROCESS

Each welding process is addressed by the appropriate Welding Procedure Specification (WPS), prepared according to customer requirements.

Gasket International's Welding Overlay Procedure is **certified ISO 3834** and meets international welding quality requirements:

- Mig: Metal Inert Gas - pure argon inconel
- Mag: Metal Active Gas - 98% argon / 2% CO<sub>2</sub>
- Tig: Tungsten Inert Gas - for repairing operations

The welding can be applied on carbon steel base materials. The most common are:

- ASTM A350 LF2
- ASTM A182 A105
- ASTM A694 F60
- ASTM A694 F65

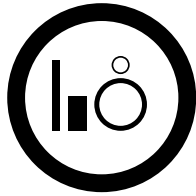
The protective overlay is made from 2 cladding materials:

- Inconel 625: nickel alloy
- F316: stainless steel





# PRODUCT FAMILY: ELASTOMERS



# O-RINGS & DELTA RINGS

**G**lobal leader of Precision Sealing Systems, Gasket International provides National O-Rings and Delta Rings on the Oil & Gas market.

National O-Rings & Delta Rings are manufactured **in house** in order to validate the product's conformity to customer requirements, and assuring **superior quality** and **origin** of the components.

National O-Rings are approved by Total and Norsok international standards.

Applications:

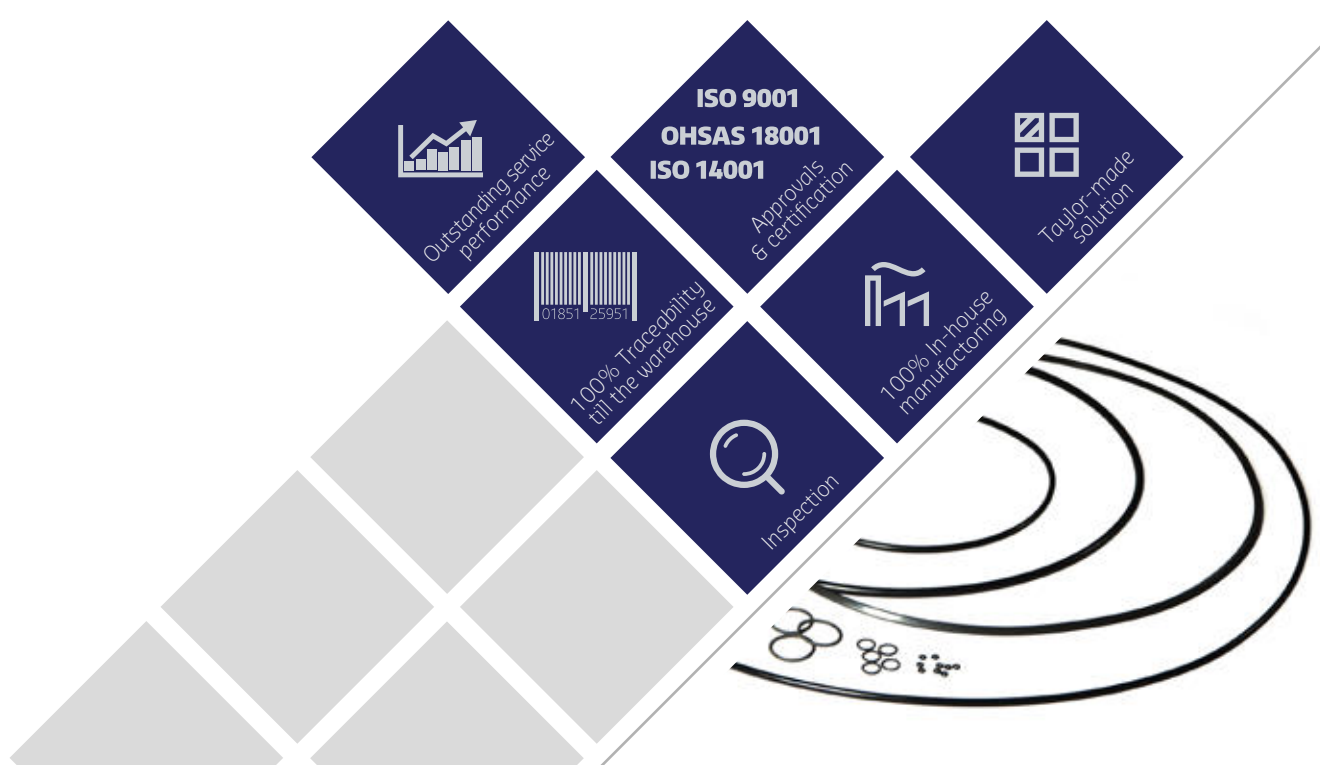
- High pressure: class 2500 – API 10000
- High temperature: up to 240°

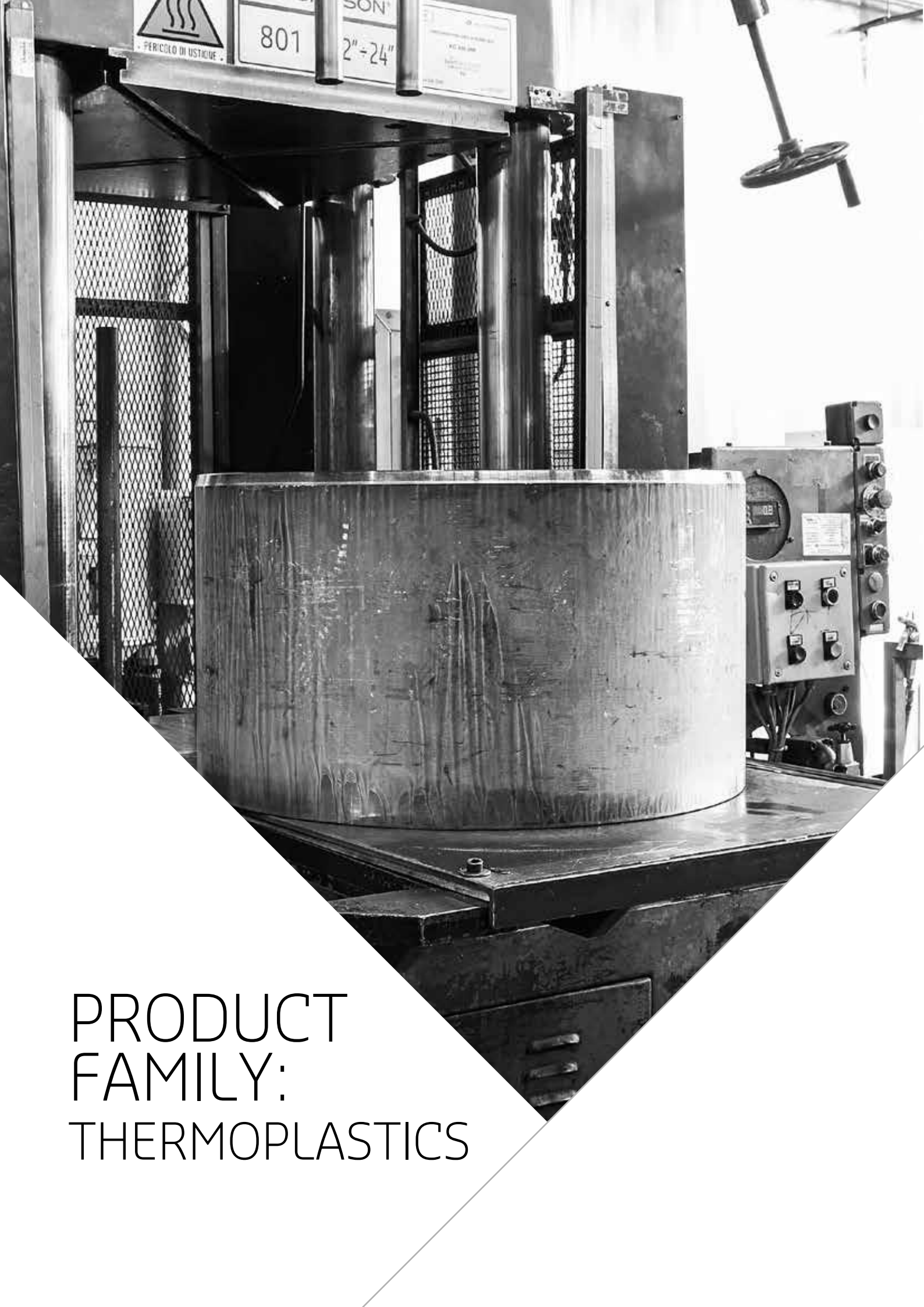
Exclusively developed by Gasket International, Delta Rings allow a wider range of application in terms of pressure (150-900lbs) compared with the traditional O-Rings solution (150-600 lbs).

Delta Rings are certified (CETIM-MERL) and AED (Anti Explosive Decompression).

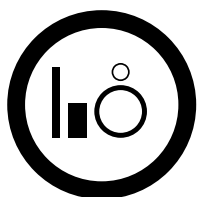


The production of O-Rings & Delta Rings involves **certified** compounds and processes, and can be produced with diameters up to 2000 mm.





PRODUCT  
FAMILY:  
THERMOPLASTICS



# THERMOPLASTICS

The operating conditions of the valve is always considered during engineering activities, taking into consideration:

- Pressure
- Temperature
- Type of fluid

The analysis of these elements determines the choice of thermoplastics.

The thermoplastics components are manufactured **in house** by Gasket International using the best thermoplastic materials (PEEK Virgin, P.T.F.E. filled, Devlon®, Lauramid®, Nylon 6 MoS<sub>2</sub>, P.T.F.E. carbo graphite filled, P.T.F.E. carbo graphite s/ filled, P.C.T.F.E., Vespel®).

Thermoplastic are manufactured in our own plant allowing us to control the entire manufacturing process, thus ensuring product quality and traceability, with dimensions up to 1600 mm (60").

**Test certificates:** Norsok and TCO M710 for PEEK, PEEK FC30, PTFE, PTFE+CG





PRODUCT  
FAMILY:  
SLABS



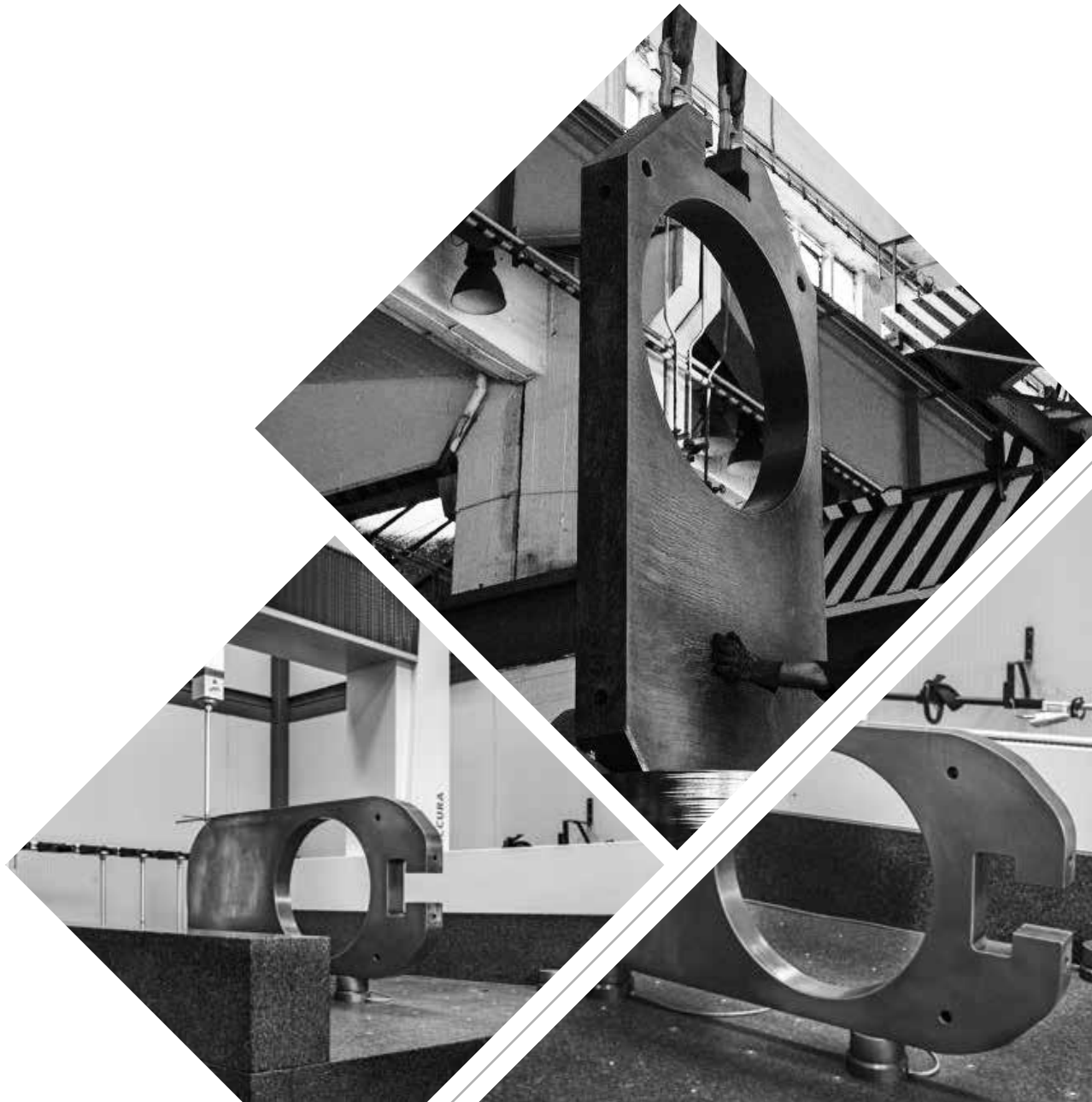


# SLABS

**P**roduction capacity: 4 to 48"

Engineering: in House designing depending on the customers' requirements.

Advanced technical solutions: surface treatment through **Nano Nickel Silicon carbide coating K-EL 850®**, nickel plating or surface hardening coating for metal to metal seals such as TCC or CCC.



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