

DIE CASTING PRODUCT CATALOGUE





Table of Contents

04

About HTS

08

Conformal Cooling

10

iTherm®

48

innoSleeve

60

Plungers

88

Case Studies



About HTS



HTS Technology Group

HTS Technology Group was created by merging 14 perspective companies with a unique combination of experience, technology and know-how into the only fully vertically integrated industrial component producer in the market.

Together, we design, develop and produce innovative components and solutions for productivity increase, used in mass manufacturing industries, all this by utilizing completely integrated in-house production and R&D.

Group Overview



The HTS Difference

INNOVATIVE TECHNOLOGIES



We utilize four different additive manufacturing technologies, including our proprietary MFT technology. Based on the advanced capabilities of MFT, we produce components with conformal cooling and flow design, achieving mechanical properties comparable to those of a forged tool steel block.

SUPERIOR PERFORMANCE



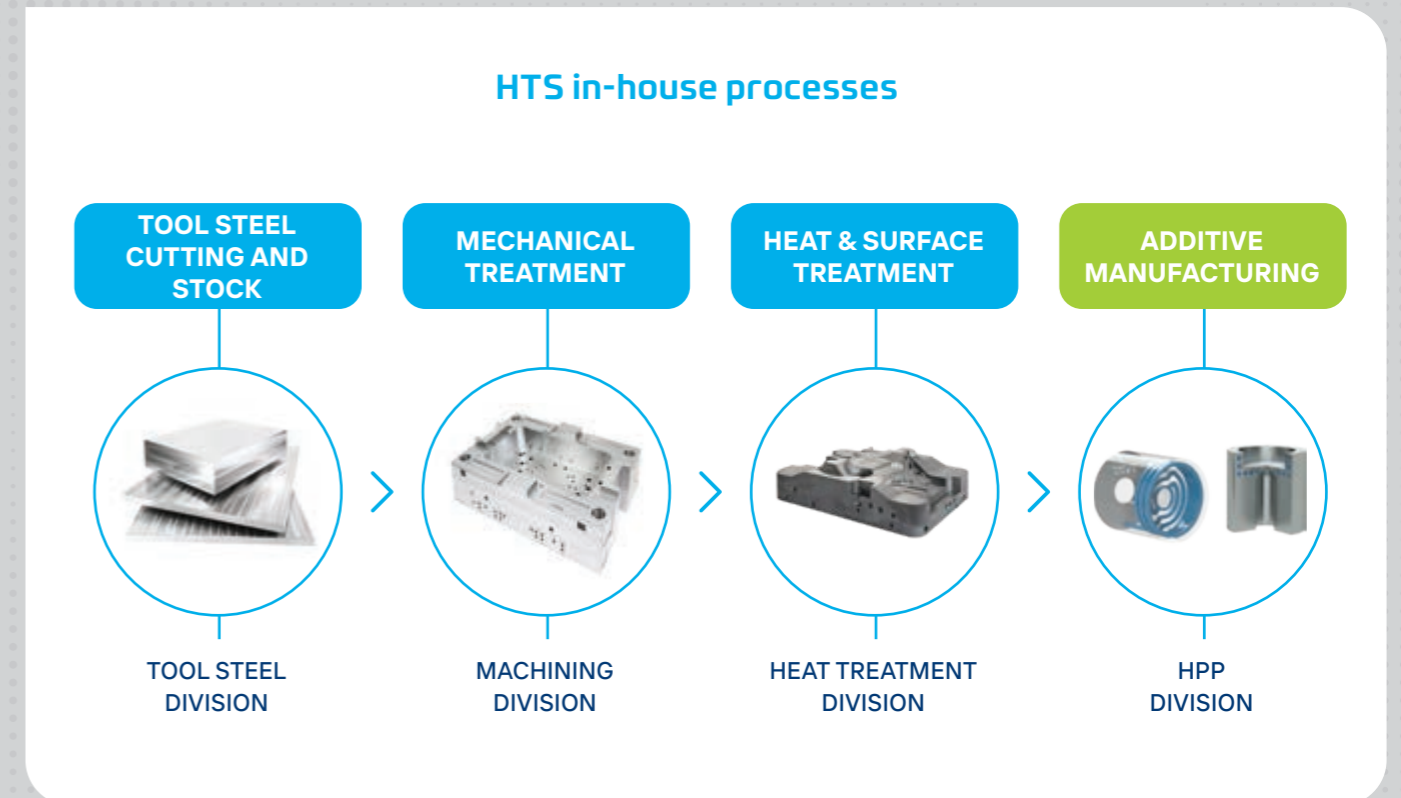
iTherm® - our proprietary conformal cooling components have a substantial impact on cooling and material flow, resulting in shorter cycle times, higher cast part quality and subsequently also productivity.

SOLUTION ORIENTED



Years of experience and R&D of HTS Group companies in combination with leading OEM customer collaboration gives us knowledge and capacity to help you improve your productivity.

Total process control – from steel to final component



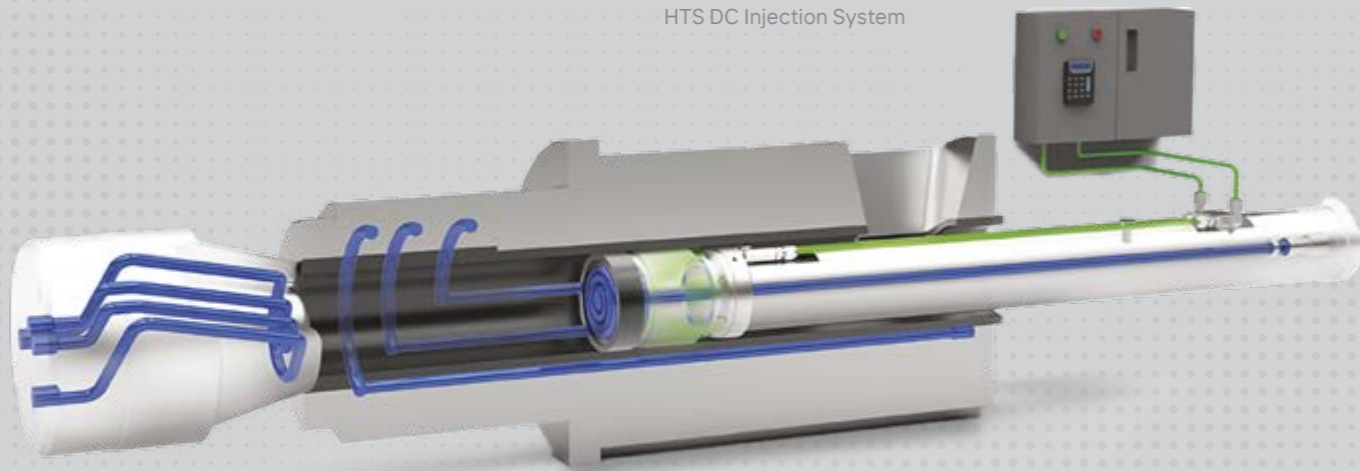
HTS Die Casting Range of Products



HTS offers the most comprehensive solutions for die casting to the market, from innovative shot sleeves, plungers, and lubrications to the most advanced iTherm® conformally cooled components. iTherm® die casting solutions are based on our proprietary Additive Manufacturing technology, MFT, that made possible the introduction of Conformal Cooling to Die-Casting Injection System and Tooling, with a series of benefits in productivity, quality of products, process stability, and environmental footprint. These solutions stem from our dedicated engineering expertise and extensive R&D initiatives.

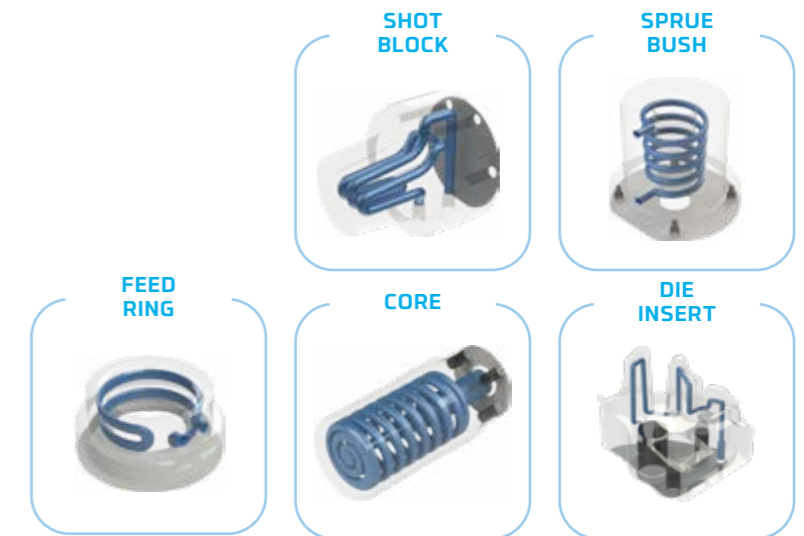
Additionally, we provide our customers with advanced simulation support, precise installation of components, and comprehensive training programs to ensure optimal performance and seamless integration. HTS die casting solutions are used by leading automotive manufacturers and manufacturers of original components.

HTS DC Injection System



iTherm®

iTherm® brand stands for ultimate productivity solutions, based on principles of conformal cooling. iTherm® components are made using different additive manufacturing technologies, among which also MFT, our proprietary metal fusion technology.



innoSleeve

The innoSleeve brand, our cost-efficient, environmentally friendlier shot sleeve manifests our commitment to reduce the CO₂ footprint generated during the shot sleeve production process.



Plunger

The brand Plunger by HTS is recognized as the most comprehensive in the industry, encompassing the widest range on the market, from steel and copper to advanced conformally cooled plungers. Additionally, we produce innovative rings and spring bushes.



Conformal Cooling



Conformal Cooling is the design and implementation of cooling channels that closely follow the contours of the die or mold cavity. Unlike traditional cooling channels, which are typically straight and drilled into the mold, conformal cooling channels are created using advanced additive manufacturing technologies. This allows the channels to be precisely placed in optimal locations, resulting in more efficient and uniform cooling.



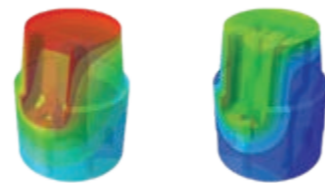
CHANNELS FREELY DESIGNED

Cooling channels are freely designed based on the cooling/heating requirements of the product, without being constrained by the limitations of conventional drilling methods.



MORE UNIFORM HEAT DISTRIBUTION

Conformally cooled components enable more even heat distribution over the working surface, resulting in more uniform and rapid cooling.



ZERO LEAKAGE

Conformally cooled components usually feature just two cooling water connectors (IN and OUT), ensuring a leak-proof design.



UP 40% cycle time TO reduction

Conformal cooling reduces cycle time by enhancing heat dissipation, leading to faster and more uniform cooling of dies. This results in quicker solidification of materials, thereby shortening the overall production cycle.

UP 200% component TO lifespan extension

Shorter spraying time and consequently reduced thermal loads and thermally induced stress increase the number of shots before the crack initiation and propagation, hence prolonging the component lifespan.

Porosity elimination

Customized channel design and uniform temperature distribution across the surface enable the improvement of cooling power in critical hot spot areas, decreasing the porosity in the cast.

ADVANTAGES

Taking conformal cooling to the next level

iTherm[®] by HTS sets a new standard in conformal cooling, taking it to the next level with cutting-edge additive manufacturing technologies and advanced engineering capabilities.

Our proprietary Metal Fusion Technology (MFT), along with other methods like LMD, WAAM and SLM, ensure that iTherm[®] components deliver superior thermal management and optimized performance.

As the only global producer with four in-house additive manufacturing technologies, HTS Technology Group provides top-of-the-line iTherm[®] conformally cooled components, that meet even the most stringent application requirements.

With iTherm[®] by HTS, you benefit from:

- Innovative technologies
- Advanced engineering
- Installation and usage support



HTS Innovative Technologies



HTS Additive Technologies

HTS is the leading additive manufacturing solution provider that offers the most comprehensive range of additive manufacturing approaches for tooling & implementation of conformal cooling, enabling the selection of the best technology for any geometry, size, complexity, or material requirement.

TECHNOLOGY

MATERIAL INPUT

MFT
METAL FUSION TECHNOLOGY

FORGED PLATES & BARS



DED

LMD
LASER METAL DEPOSITION

WAAM
WIRE ARC AM

WIRE



SLM
SELECTIVE LASER MELTING

POWDER



Available steels:

1.2343 / H11,
1.2344 / H13,
1.2367, Dievar,
SITHERM S353R,
1.2709/MS1, L40,
Corrax, and more.

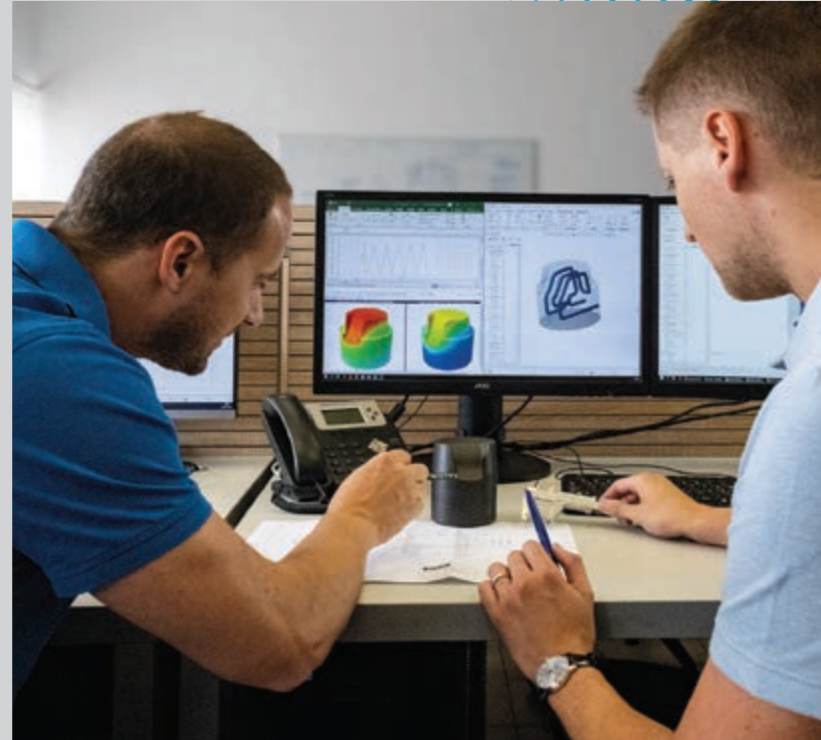
Available dimensions:

from 20 × 20 × 20 mm to
1.500 × 1.200 × 1.000 mm

Advanced Engineering

EXPERT ENGINEERING TEAM

Our engineering office, staffed with a team of **10 experienced engineers**, provides the optimal solutions for your die casting needs



Installation and Usage Support



DEDICATED EXPERT ONSITE SUPPORT

HTS acts as an integral part of your team, providing dedicated, expert onsite support and collaboration throughout the entire lifespan of your project. At HTS, we ensure you receive comprehensive support and guidance to maximize both the performance of our products and your production performance through each phase of the project, starting before your purchase to installation and setup of components and performance.



TRAINING PROGRAM

Our training program spans the entire die-casting process, encompassing everything from fundamental principles to the operation and maintenance of components, as well as specialized knowledge in casting processes and technologies.



Consider us an extension of your team.

01 Advanced Simulation and Analysis

We analyze thermal and structural behaviors and predict component performance under varying conditions using **Magma** simulation software



02 Material Selection and Testing

We evaluate different steel grades to determine the best fit for your application, considering factors such as thermal conductivity, wear resistance, and mechanical properties.

03 Process Optimization

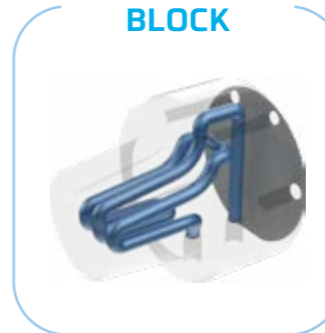
Our engineers are experts in process optimization, focusing on reducing cycle times, minimizing downtime, and enhancing overall productivity for our customers.



iTherm[®]

iTherm[®] brand stands for ultimate productivity solutions, based on principles of conformal cooling. iTherm[®] components are made using different additive manufacturing technologies, among which also MFT, our proprietary metal fusion technology.

SHOT BLOCK



SPRUE BUSH



FEED RING



CORE



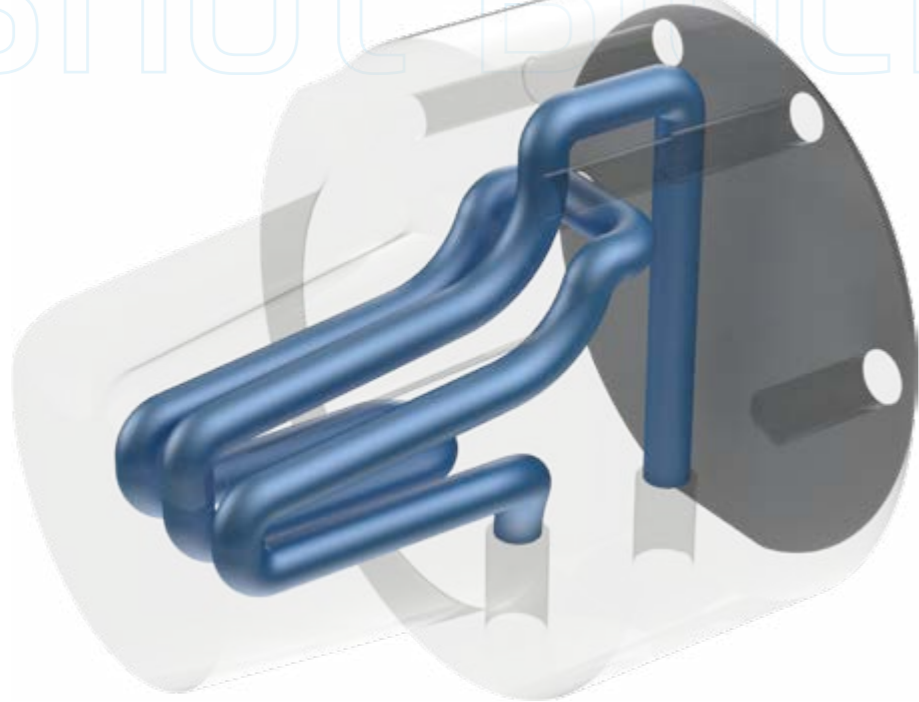
DIE INSERT



Shot Block



Shot Block



Conformally Cooled



Uniform Heat Distribution



Tool steel Material



Single Body Component



Cycle Time Reduction



Lifespan Extension

iTherm® Shot Block

Engineered with additive manufacturing technology, the conformally cooled iTherm® Shot Block enhances die casting performance by reducing the required spraying and the biscuit solidification time.

Designed to optimize heat dissipation iTherm® Shot Block ensures uniform heat distribution, accelerates biscuit solidification, and reduces cycle times by up to 20%, significantly enhancing efficiency and minimizing downtime.

Technical Specifications

01 Material

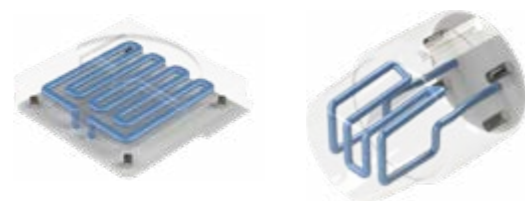
- iTerm® shot blocks are made using forged or rolled tool steel blocks produced in the EU.
- Most often used grades are 1.2343/H11, 1.2344/H13, 1.2367, Dievar or SITHEM S353R
- Based on specific customer need, other steel grades can be used (such as 1.2709, MS1, L40, M390).

02 Delivery condition

- Heat treated
- Hardness between 42 and 48 HRC
- Machined to final dimension
- Nitrided

03 Types

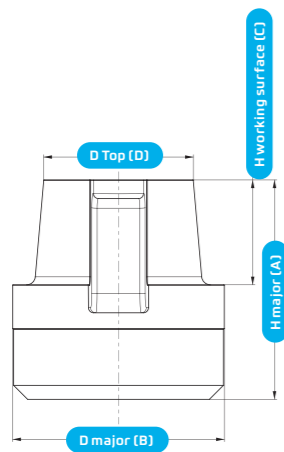
We produce flat or round shot blocks, depending on the injection system and die geometry.



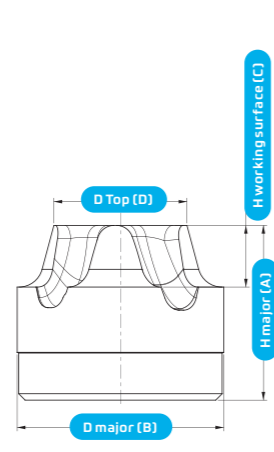
Technical Specifications

CONUS SHAPED SHOT BLOCKS

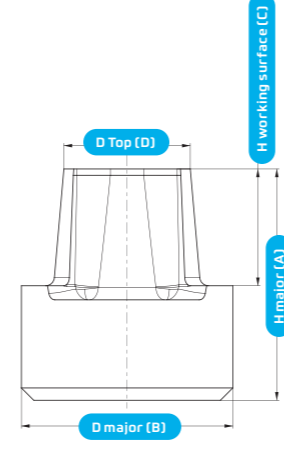
01 Dimensional parameters



Round Conus Single Runner



Round Conus Double Runner



Round Conus Open Runner

CONUS SHAPED SHOT BLOCKS

Dimensional parameters

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
100	90	20	70	90
100	90	30	70	90
100	90	40	70	90
100	100	20	70	90
100	100	30	70	90
100	100	40	70	90
100	110	20	70	90
100	110	30	70	90
100	110	40	70	90
100	120	20	70	90
100	120	30	70	90
100	120	40	70	90
110	90	20	80	100
110	90	30	80	100
110	90	40	80	100
110	100	20	80	100
110	100	30	80	100
110	100	40	80	100
110	110	20	80	100
110	110	30	80	100
110	110	40	80	100
110	120	20	80	100
110	120	30	80	100
110	120	40	80	100
120	100	30	90	110
120	100	40	90	110
120	100	50	90	110
120	110	30	90	110
120	110	40	90	110
120	110	50	90	110
120	120	30	90	110
120	120	40	90	110
120	120	50	90	110
120	130	30	90	110
120	130	40	90	110
120	130	50	90	110
120	140	30	90	110
120	140	40	90	110
120	140	50	90	110
120	150	30	90	110
120	150	40	90	110
120	150	50	90	110
120	160	30	90	110
120	160	40	90	110
120	160	50	90	110
120	170	30	90	110
120	170	40	90	110
120	170	50	90	110

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
130	90	40	90	110
130	90	50	90	110
130	90	60	90	110
130	100	40	90	110
130	100	50	90	110
130	100	60	90	110
130	110	40	90	110
130	110	50	90	110
130	110	60	90	110
130	120	40	90	110
130	120	50	90	110
130	120	60	90	110
130	130	40	90	110
130	130	50	90	110
130	130	60	90	110
130	140	40	90	110
130	140	50	90	110
130	140	60	90	110
130	150	40	90	110
130	150	50	90	110
130	150	60	90	110
130	160	40	90	110
130	160	50	90	110
130	160	60	90	110
130	170	40	90	110
130	170	50	90	110
130	170	60	90	110
140	120	50	100	120
140	120	60	100	120
140	120	70	100	120
140	130	50	100	120
140	130	60	100	120
140	130	70	100	120
140	140	50	100	120
140	140	60	100	120
140	140	70	100	120
140	150	50	100	120
140	150	60	100	120
140	150	70	100	120
140	160	50	100	120
140	160	60	100	120
140	160	70	100	120
140	170	50	100	120
140	170	60	100	120
140	170	70	100	120
140	180	50	100	120
140	180	60	100	120
140	180	70	100	120

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
140	190	50	100	120
140	190	60	100	120
140	190	70	100	120
150	130	50	110	130
150	130	60	110	130
150	130	70	110	130
150	140	50	110	130
150	140	60	110	130
150	140	70	110	130
150	150	50	110	130
150	150	60	110	130
150	150	70	110	130
150	160	50	110	130
150	160	60	110	130
150	160	70	110	130
150	170	50	110	130
150	170	60	110	130
150	170	70	110	130
150	180	50	110	130
150	180	60	110	130
150	180	70	110	130
150	190	50	110	130
150	190	60	110	130
150	190	70	110	130
160	150	60	120	150
160	150	70	120	150
160	150	80	120	150
160	160	60	120	150
160	160	70	120	150
160	160	80	120	150
160	170	60	120	150
160	170	70	120	150
160	170	80	120	150
160	180	60	120	150
160	180	70	120	150
160	180	80	120	150
160	190	60	120	150
160	190	70	120	150
160	190	80	120	150
160	200	60	120	150
160	200	70	120	150
160	200	80	120	150
160	210	60	120	150
160	210	70	120	150
160	210	80	120	150
170	150	70	130	150
170	150	80	130	150

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
170	150	90	130	150
170	160	70	130	150
170	160	80	130	150
170	160	90	130	150
170	170	70	130	150
170	170	80	130	150
170	170	90	130	150
170	180	70	130	150
170	180	80	130	150
170	180	90	130	150
170	190	70	130	150
170	190	80	130	150
170	190	90	130	150
170	200	70	130	150
170	200	80	130	150
170	200	90	130	150
170	210	70	130	150
170	210	80	130	150
170	210	90	130	150
170	220	70	130	150
170	220	80	130	150
170	220	90	130	150
170	230	70	130	150
170	230	80	130	150
170	230	90	130	150
170	240	70	130	150
170	240	80	130	150
170	240	90	130	150
170	250	70	130	150
170	250	80	130	150
170	250	90	130	150
180	180	70	140	160
180	180	80	140	160
180	180	90	140	160
180	190	70	140	160
180	190	80	140	160
180	190	90	140	160
180	200	70	140	160
180	200	80	140	160
180	200	90	140	160
180	210	70	140	160
180	210	80	140	160
180	210	90	140	160
180	220	70	140	160
180	220	80	140	160
180	220	90	140	160
180	230	70	140	160

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
180	230	80	140	160
180	230	90	140	160
180	240	70	140	160
180	240	80	140	160
180	240	90	140	160
180	250	70	140	160
180	250	80	140	160
180	250	90	140	160
190	190	70	150	170
190	190	80	150	170
190	190	90	150	170
190	200	70	150	170
190	200	80	150	170
190	200	90	150	170
190	210	70	150	170
190	210	80	150	170
190	210	90	150	170
190	220	70	150	170
190	220	80	150	170
190	220	90	150	170
190	230	70	150	170
190	230	80	150	170
190	230	90	150	170
190	240	70	150	170
190	240	80	150	170
190	240	90	150	170
190	250	70	150	170
190	250	80	150	170
190	250	90	150	170
190	260	70	150	170
190	260	80	150	170
190	260	90	150	170
200	200	70	160	180
200	200	80	160	180
200	200	90	160	180
200	210	70	160	180
200	210	80	160	180
200	210	90	160	180
200	220	70	160	180
200	220	80	160	180
200	220	90	160	180
200	230	70	160	180
200	230	80	160	180
200	230	90	160	180
200	240	70	160	180
200	240	80	160	180
200	240	90	160	180

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
200	250	70	160	180
200	250	80	160	180
200	250	90	160	180
200	260	70	160	180
200	260	80	160	180
200	260	90	160	180
210	210	80	170	190
210	210	90	170	190
210	210	100	170	190
210	220	80	170	190
210	220	90	170	190
210	220	100	170	190
210	230	80	170	190
210	230	90	170	190
210	230	100	170	190
210	240	80	170	190
210	240	90	170	190
210	240	100	170	190
210	250	80	170	190
210	250	90	170	190
210	250	100	170	190
210	260	80	170	190
210	260	90	170	190
210	260	100	170	190
210	270	80	170	190
210	270	90	170	190
210	270	100	170	190
220	220	90	180	200
220	220	100	180	200
220	220	110	180	200
220	230	90	180	200
220	230	100	180	200
220	230	110	180	200
220	240	90	180	200
220	240	100	180	200
220	240	110	180	200
220	250	90	180	200
220	250	100	180	200
220	250	110	180	200
220	260	90	180	200
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220	260	110	180	200
220	270	90	180	200
220	270	100	180	200
220	270	110	180	200



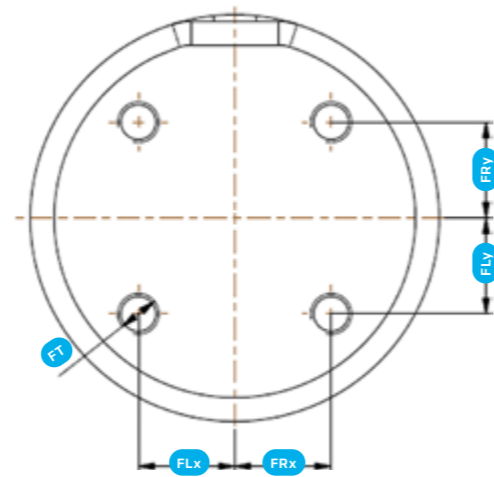
Technical Specifications



STRAIGHT SHAPED SHOT BLOCKS

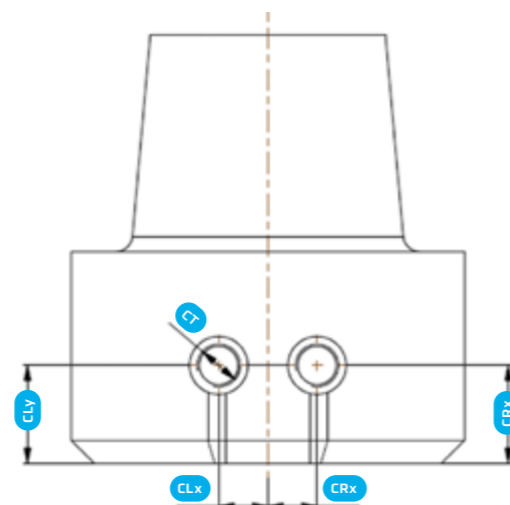
02 Fastening holes

Parameter	Dimensions
FLx	20-100
FRx	20-100
FLy	20-100
FRy	20-100
FT	M8-M16
All dimensions are in mm	

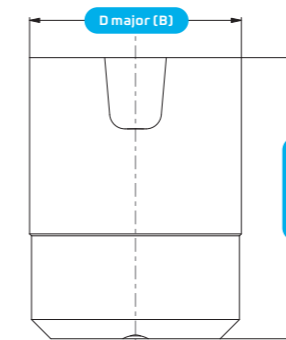


03 Connection holes

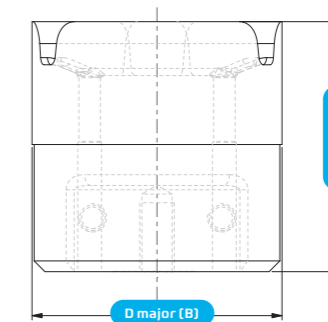
Parameter	Dimensions
CLx	20-100
CRx	20-100
CLy	20-100
CRy	20-100
CT	G1/4"-G1"
All dimensions are in mm	



01 Dimensional parameters



Straight single runner



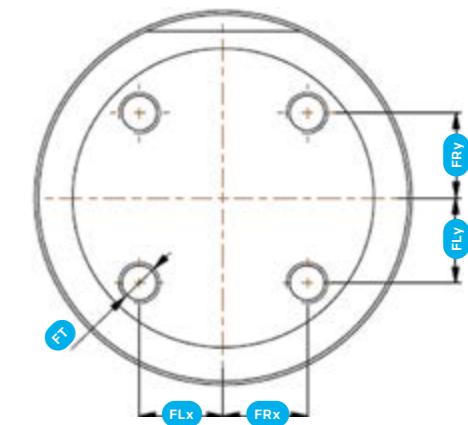
Straight double runner

Dimensional parameters

D major (B)	H major (A)
100	90
100	100
100	110
100	120
110	90
110	100
110	110
110	120
120	100
120	110
120	120
120	130
120	140
120	150
120	160
120	170
130	90
130	100
130	110
130	120
130	130
130	140
130	150
130	160
130	170
140	120
140	130
140	140
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150	130
150	140
150	150
150	160
150	170
150	180
150	190

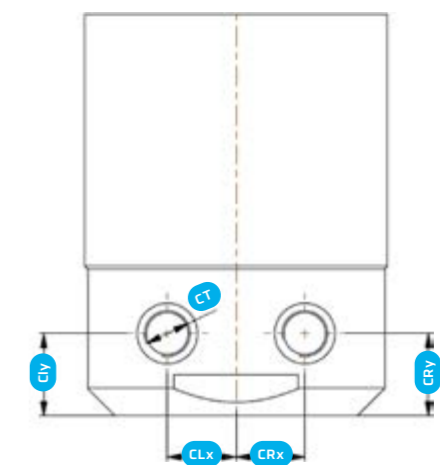
02 Fastening holes

Parameter	Dimensions
FLx	20-100
FRx	20-100
FLy	20-100
FRy	20-100
FT	M8-M16
All dimensions are in mm	



03 Connection holes

Parameter	Dimensions
CLx	20-100
CRx	20-100
CLy	20-100
CRy	20-100
CT	G1/4"-G1"
All dimensions are in mm	



Feed Ring



Feed Ring



Conformally Cooled



Uniform Heat Distribution



Tool steel Material



Single Body Component



Cycle Time Reduction



Lifespan Extension

iTherm® Feed Ring

The feed ring in the die casting process plays a crucial role in controlling the flow and solidification of molten metal, ensuring efficient filling of the mold and minimizing defects.

Engineered with additive manufacturing technology, the conformally cooled iTherm® Feed Ring further enhances die casting performance through optimized heat dissipation and enhanced component quality. It improves gating, ensures efficient metal flow into the mold, and maintains uniform temperature distribution. Additionally, the iTherm® Feed Ring helps control the solidification process, reducing defects and improving the overall strength and integrity of the cast components.

Technical Specifications



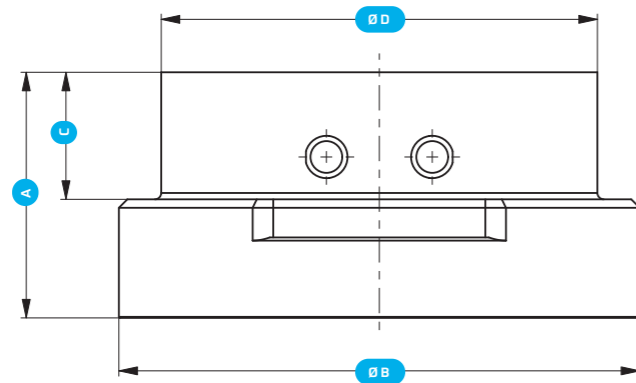
01 Material

- Material iTherm® feed rings are made using forged or rolled tool steel blocks produced in EU..
- Most often used grades are 1.2343/H11, 1.2344/H13, 1.2367, Dievar or SITHEM S353R
- Based on specific customer need, other steel grades can be used (such as 1.2709, MS1, L40, M390).

02 Delivery condition

- Heat treated
- Hardness between 42 and 48 HRC
- Machined to final dimension
- Nitrided

03 Dimensional parameters

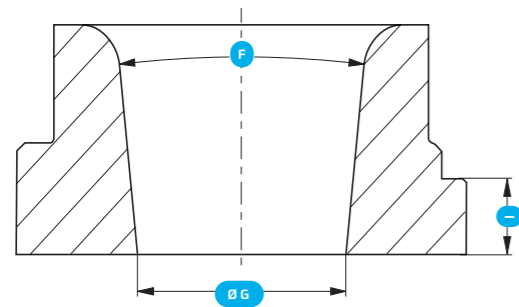


Dimensional parameters

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
130	40	10	90	120
130	40	20	90	120
130	40	30	90	120
130	50	20	90	120
130	50	30	90	120
130	50	40	90	120
130	60	30	90	120
130	60	40	90	120
130	60	50	90	120
140	40	10	100	130
140	40	20	100	130
140	40	30	100	130
140	50	20	100	130
140	50	30	100	130
140	50	40	100	130
140	60	30	100	130
140	60	40	100	130
140	60	50	100	130
150	50	20	110	140
150	50	30	110	140
150	50	40	110	140
150	60	30	110	140
150	60	40	110	140
150	60	50	110	140
150	70	40	110	140
150	70	50	110	140
150	70	60	110	140
160	50	20	120	150
160	50	30	120	150
160	50	40	120	150
160	60	30	120	150
160	60	40	120	150
160	60	50	120	150
160	70	40	120	150
160	70	50	120	150
160	70	60	120	150
170	50	20	130	160
170	50	30	130	160
170	50	40	130	160
170	60	30	130	160
170	60	40	130	160
170	60	50	130	160
170	70	40	130	160
170	70	50	130	160
170	70	60	130	160
180	60	30	140	170
180	60	40	140	170
180	60	50	140	170
180	70	40	140	170
180	70	50	140	170

D major (B)	H major (A)	H working surface (C)	D Top (D) MIN	D Top (D) MAX
180	70	60	140	170
180	80	50	140	170
180	80	60	140	170
180	80	70	140	170
190	60	30	150	180
190	60	40	150	180
190	60	50	150	180
190	70	40	150	180
190	70	50	150	180
190	70	60	150	180
190	80	50	150	180
190	80	60	150	180
190	80	70	150	180
200	60	30	160	190
200	60	40	160	190
200	60	50	160	190
200	70	40	160	190
200	70	50	160	190
200	70	60	160	190
200	80	50	160	190
200	80	60	160	190
200	80	70	160	190
210	60	30	170	200
210	60	40	170	200
210	60	50	170	200
210	70	40	170	200
210	70	50	170	200
210	70	60	170	200
210	80	50	170	200
210	80	60	170	200
210	80	70	170	200
220	60	30	180	210
220	60	40	180	210
220	60	50	180	210
220	70	40	180	210
220	70	50	180	210
220	70	60	180	210
220	80	50	180	210
220	80	60	180	210
220	80	70	180	210
230	60	30	190	220
230	60	40	190	220
230	60	50	190	220
230	70	40	190	220
230	70	50	190	220
230	70	60	190	220
230	80	40	190	220
230	80	60	190	220
230	80	70	190	220

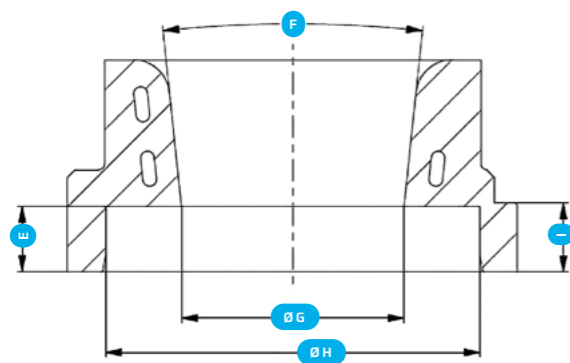
04 Dimensional parameters



iTherm® Feed Ring Without Step

D major (B)	G
130-190	70-110
190-230	110-140

All dimensions are in mm



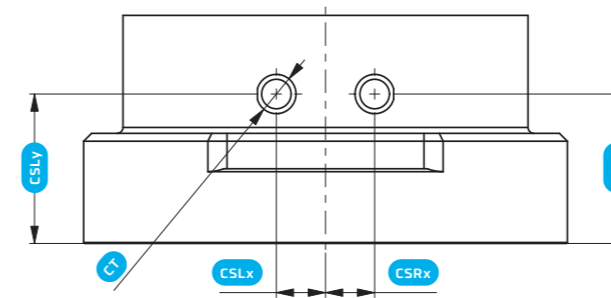
iTherm® Feed Ring With Step

D major (B)	G	H	E
130-190	70-110	110-150	20-60
190-230	110-140	120-170	20-60

All dimensions are in mm

05 Connection holes

Type Side for IN/OUT



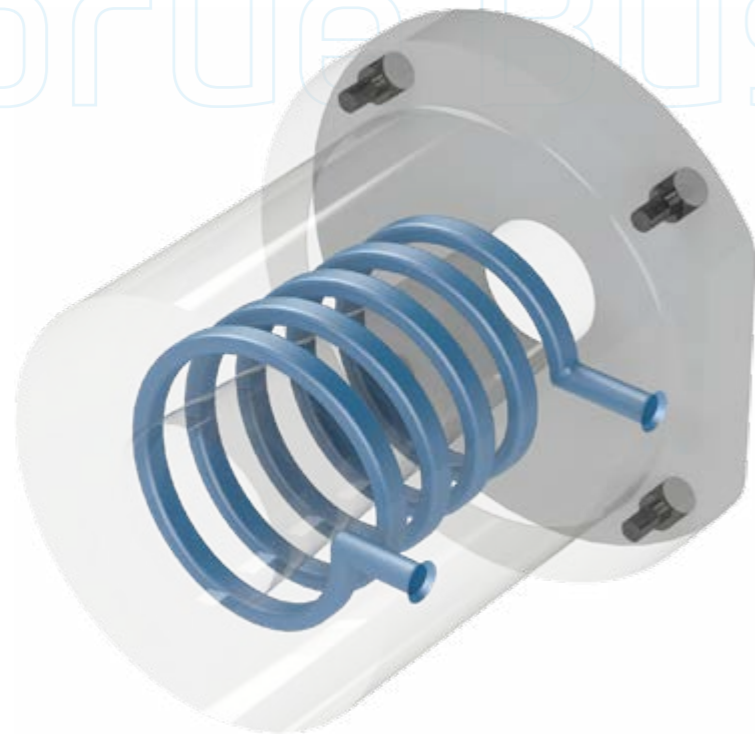
Parameter	Dimensions
CSLx	20-45
CSRx	20-45
CSLy	20-65
CSRy	20-65
CT	1/4" NPT- 5/8" NPT or G 1/4" - G1"

All dimensions are in mm

Sprue Bush



Sprue Bush



Conformally Cooled



Uniform Heat Distribution



Tool steel Material



Single Body Component



Cycle Time Reduction



Lifespan Extension

iTherm® Sprue Bush

iTherm® Sprue Bush enhances die casting efficiency with strategically engineered cooling channels. Essential for efficient gating and minimizing turbulence, this component accelerates solidification rates, optimizes metal flow, and reduces cycle times.

The iTherm® Sprue Bush sets the standard for conformal cooling of the sprue, proven to reduce cycle times by up to 25%+ on dies limited by sprue cooling.

Technical Specifications

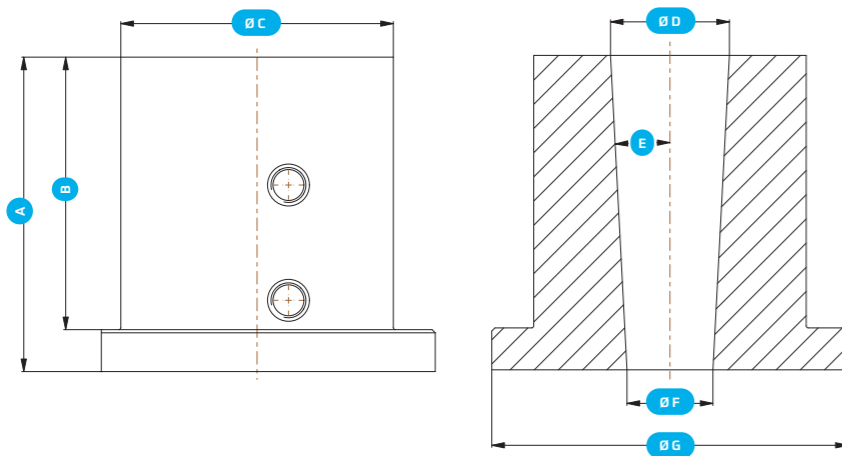
01 Material

- A selection of material and material hardness is possible. Customers can choose between different types of hot work tool steel and material hardness.
- Additionally selection of surface nitriding is an option.
- Made with forged or rolled tool steel blocks produced in the EU.
- Most often used grades are 1.2343/H11, 1.2344/H13, 1.2367, Dievar or SITHEM S353R
- Based on specific customer needs, other steel grades can be used (such as 1.2709, MS1, L40, M390).

02 Delivery condition

- Heat treated
- Hardness between 42 and 48 HRC
- Machined to final dimension and nitrided
- Based on customer requirements

03 Dimensional parameters



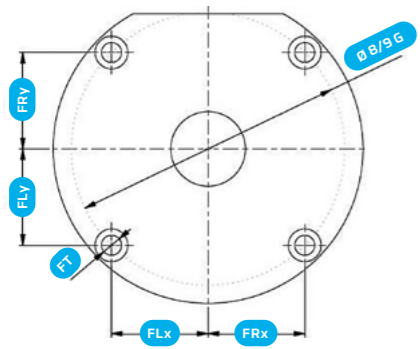
D major (B)	D	F	E
130-190	40-60	30-60	1°-10°
190-230	60-110	60-110	1°-10°

Dimensional parameters

D major (G)	H major (A)	H working surface (B)	"D Top (D) MIN"	"D Top (D) MAX"
130	140	100	70	100
130	140	110	70	100
130	140	120	70	100
130	180	140	70	100
130	180	150	70	100
130	180	160	70	100
130	220	180	70	100
130	220	190	70	100
130	220	200	70	100
140	140	100	70	100
140	140	110	70	100
140	140	120	70	100
140	180	140	70	100
140	180	150	70	100
140	180	160	70	100
140	220	180	70	100
140	220	190	70	100
140	220	200	70	100
150	140	100	80	110
150	140	110	80	110
150	140	120	80	110
150	180	140	80	110
150	180	150	80	110
150	180	160	80	110
150	220	180	80	110
150	220	190	80	110
150	220	200	80	110
160	140	100	80	110
160	140	110	80	110
160	140	120	80	110
160	180	140	80	110
160	180	150	80	110
160	180	160	80	110
160	220	180	80	110
160	220	190	80	110
160	220	200	80	110
170	140	100	80	110
170	140	110	80	110
170	140	120	80	110
170	180	140	80	110
170	180	150	80	110
170	180	160	80	110
170	220	180	80	110
170	220	190	80	110
170	220	200	80	110
180	180	140	120	150
180	180	150	120	150
180	180	160	120	150
180	220	180	120	150
180	220	190	120	150
180	220	200	120	150

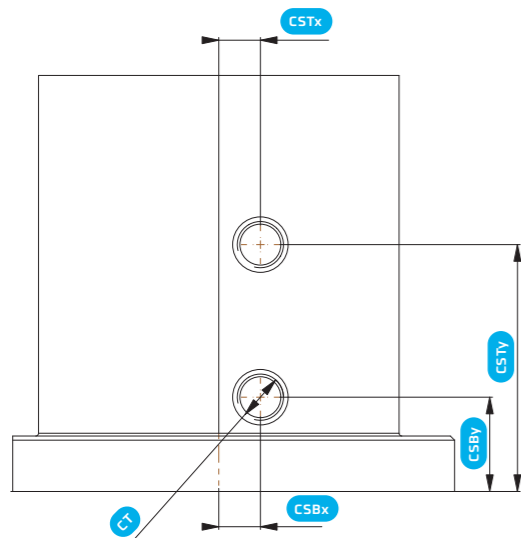
D major (G)	H major (A)	H working surface (B)	"D Top (D) MIN"	"D Top (D) MAX"
180	260	220	120	150
180	260	230	120	150
180	260	240	120	150
190	180	140	120	150
190	180	150	120	150
190	180	160	120	150
190	220	180	120	150
190	220	190	120	150
190	220	200	120	150
190	260	220	120	150
190	260	230	120	150
190	260	240	120	150
200	180	140	120	150
200	180	150	120	150
200	180	160	120	150
200	220	180	120	150
200	220	190	120	150
200	220	200	120	150
200	260	220	120	150
200	260	230	120	150
200	260	240	120	150
210	180	140	130	200
210	180	150	130	200
210	180	160	130	200
210	220	180	130	200
210	220	190	130	200
210	220	200	130	200
210	260	220	130	200
210	260	230	130	200
210	260	240	130	200
220	180	140	180	210
220	180	150	180	210
220	180	160	180	210
220	220	180	180	210
220	220	190	180	210
220	220	200	180	210
220	260	220	180	210
220	260	230	180	210
220	260	240	180	210
230	180	140	190	220
230	180	150	190	220
230	180	160	190	220
230	220	180	190	220
230	220	190	190	220
230	220	200	190	220
230	260	220	190	220
230	260	230	190	220
230	260	240	190	220

04 Fastening holes

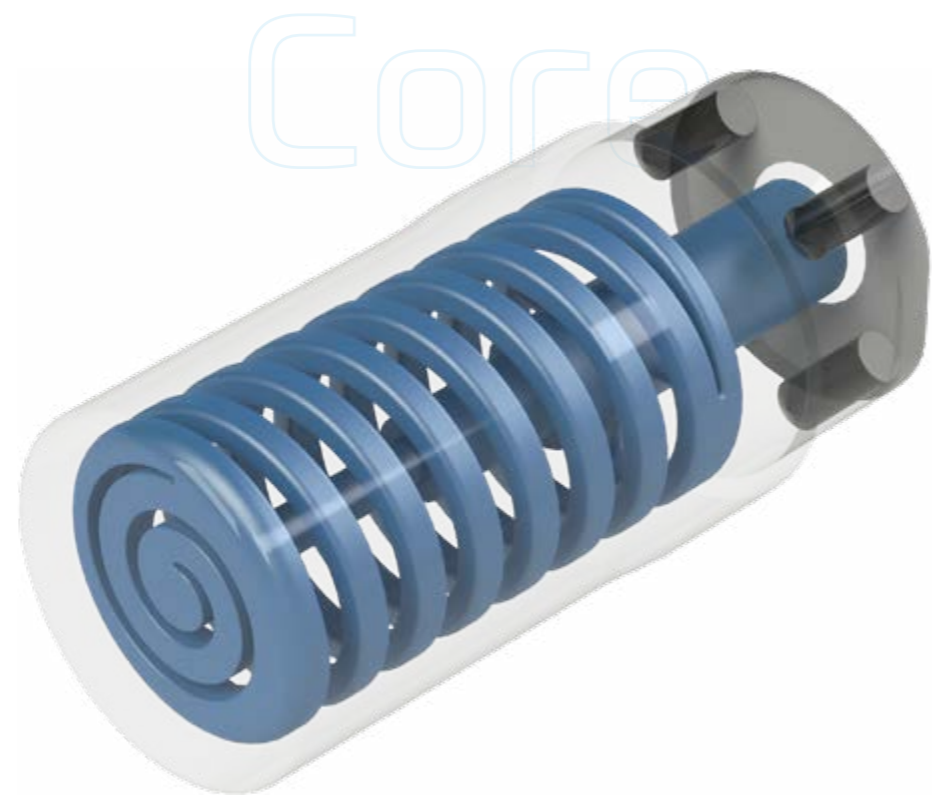


Parameter	Dimensions
FLx	20-100
FRx	20-100
FLy	20-100
FRy	20-100
FT	M8-M16
All dimensions are in mm	

05 Connection holes



Parameter	Dimensions
CSTx	20-60
CSBx	20-60
CSTy	6 - 67mm
CSBy	6 - 67mm
CT	1/4" NPT- 5/8" NPT or G 1/4" - G1"
All dimensions are in mm	




Conformally Cooled


Uniform Heat Distribution


Tool steel Material

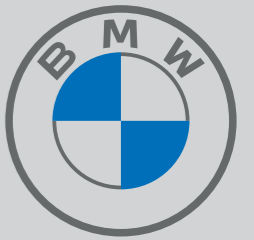

Single Body Component


Cycle Time Reduction


Lifespan Extension



Customer statement



“ We are happy with iTherm® Core. Cooling power and service lifetime are its main advantages.

We tested HTS concept of iTherm® Core. The cooling power and service lifetime of iTherm® Cores convinced us to use it in serial production.”

iTherm® Core

By supporting structural integrity and efficiently managing heat dissipation with integrated cooling channels, the iTherm® Core accelerates solidification rates, maintains uniform heat distribution, and reduces cycle times by up to 20%. Most often it is used in applications such as engine block casting.

Technical Specifications

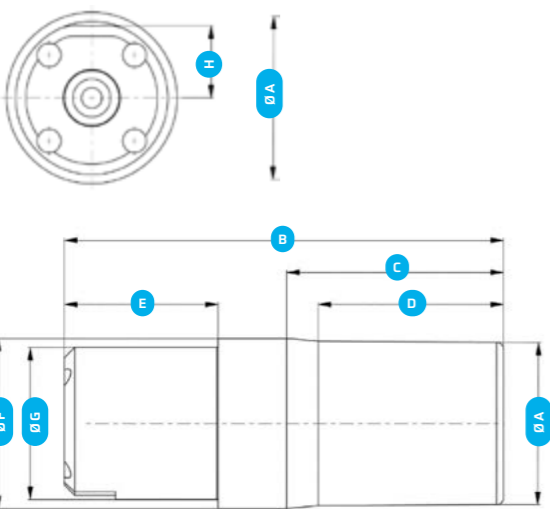
01 Material

- iTherm® Cores are made using forged or rolled tool steel blocks produced in the EU.
- Most often used grades are 1.2343/H11, 1.2344/H13, 1.2367, Dievar or SITHEM S353R
- Based on specific customer need, other steel grades can be used (such as 1.2709, MS1, L40, M390, Corrax).

02 Delivery condition

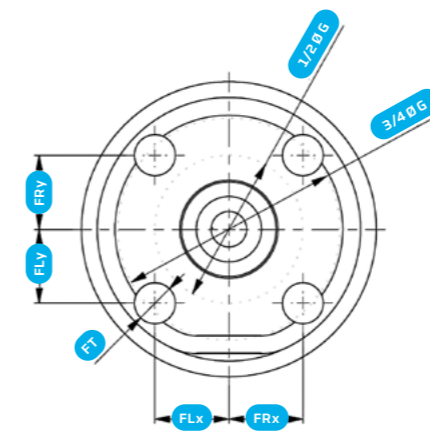
- Heat treated
- Hardness between 42 and 48 HRC
- Machined to final dimension and nitrided
- Based on customer requirements

03 Dimensional parameters



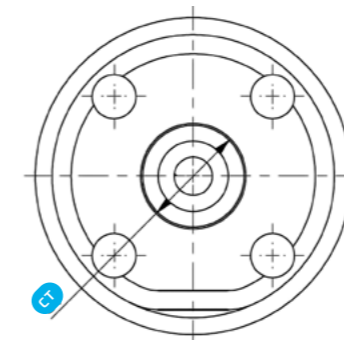
Parameter	Limit
ØA	55 - 135
B	150 - 295
C	60 - 160
D	60 - 160
E	40 - 130
ØF	40 - 130
ØG	55 - 135
H	(ØG-5) - ØG

04 Fastening holes



Parameter	Dimensions
FLx	20-100
FRx	20-100
FLy	20-100
FRy	20-100
FT	M8-M16
All dimensions are in mm	

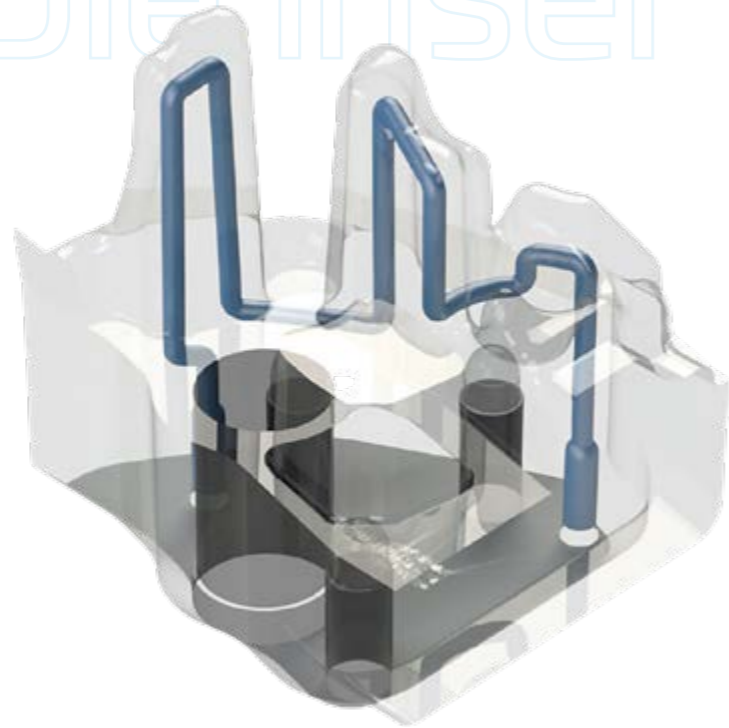
05 Connection holes



Parameter	Dimensions
CT	1/4" NPT- 5/8" NPT or G 1/4" - G1"
All dimensions are in mm	

Die Insert

Die insert



Conformally Cooled



Uniform Heat Distribution



Tool steel Material



Single Body Component



Cycle Time Reduction

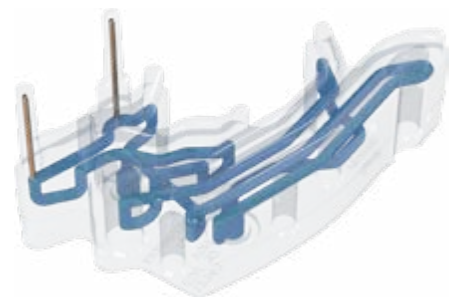


Lifespan Extension

iTherm® Die Insert

HTS die inserts are meticulously designed to meet your unique requirements with precision and reliability. Using state-of-the-art technology and materials selected for optimal performance, we engineer inserts that integrate seamlessly into your manufacturing processes. Whether you need inserts for intricate geometries, specialized features, or specific material properties, our expert engineering team ensures each insert is tailored to enhance efficiency and quality.

Examples of Die Inserts engineered by HTS



168 × 110 × 102 mm
Material: SITHERM 353R



296 × 241 × 127 mm
Material: SITHERM 353R



262 × 178 × 288 mm
Material: SITHERM 353R



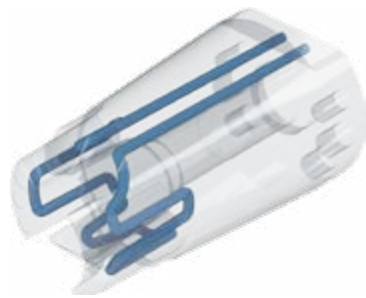
50 × 40 × 124 mm
Material: Stavax



40 × 37 × 113 mm
Material: 1.2083



∅ 200 × 357 mm
Material: Dievar



∅ 65 × 114 mm
Material: Stavax



∅ 26 × 107 mm
Material: Stavax

Technical Specifications



01 Material

- iTherm® die inserts are made using forged or rolled tool steel blocks produced in the EU.
- Most often used grades are 1.2343/H11, 1.2344/H13, 1.2367, Dievar or SITHERM S353R.
- Based on specific customer need, other steel grades can be used (such as 1.2709, MS1, L40, M390, Corrax).

02 Delivery condition

- Heat treated
- Hardness between 42 and 48 HRC
- Machined to final dimension
- Nitrided

03 Dimensional parameters

Dimensions	
Round:	from D25 x 50 up to D450 x 500 (mm)
Flat:	40x40x40 up to 700 x 700 x 400 (mm)



innoSleeve is a cutting-edge and environmentally friendly shot sleeve solution designed to reduce sleeve expenditures by up to 40%, minimize production downtimes, and ensure your casting process runs smoothly and efficiently.

Longer sleeve lifespan

Up to **40%**

lower sleeve expenditures

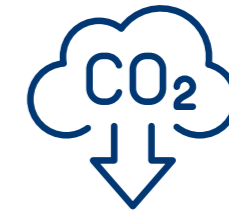


Minimized warpage, erosion, and wear, ultimately extending the average lifespan of sleeves, resulting in fewer sleeve replacements and lower overall shot sleeve expenditures.

Decreased environmental impact

Up to **70%**

lower CO₂ emissions



innoSleeve generates up to 70% less CO₂. This way we are supporting our die-casting customers' efforts to decrease their environmental footprint.

Less production downtime

Up to **20%**

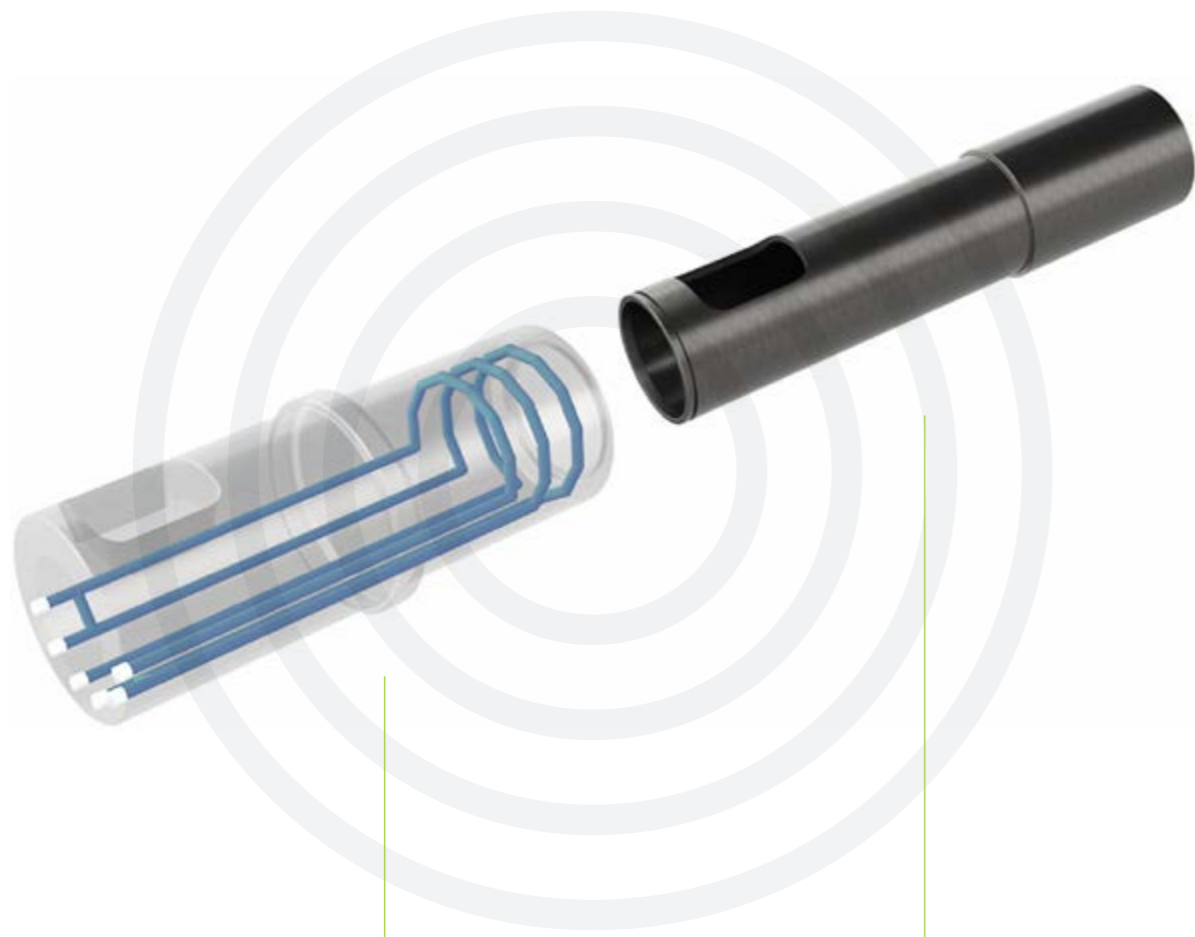
quicker sleeve replacement



innoSleeve insert can be replaced in the machine. The time saved on replacement ensures substantially shorter production stoppages.

ADVANTAGES

The innoSleeve solution includes an insert that shields the sleeve across the complete diameter and length.



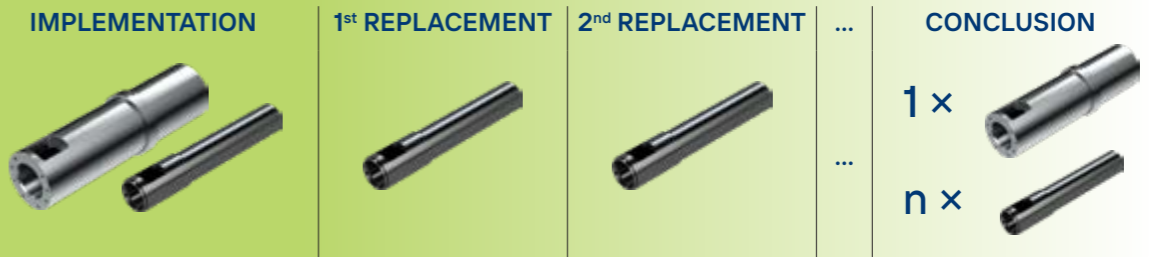
innoSleeve envelope

innoSleeve insert



innoSleeve usage logic

innoSleeve

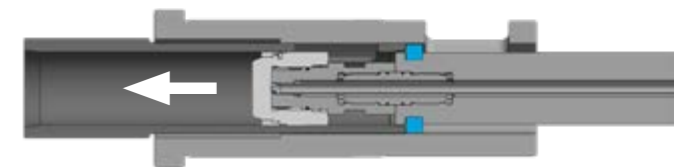


CONVENTIONAL SLEEVE

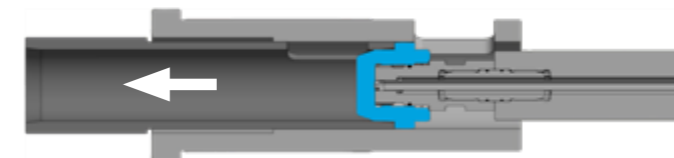


innoSleeve replacement options

1.
Extraction with special plunger



2.
Extraction with a center ring

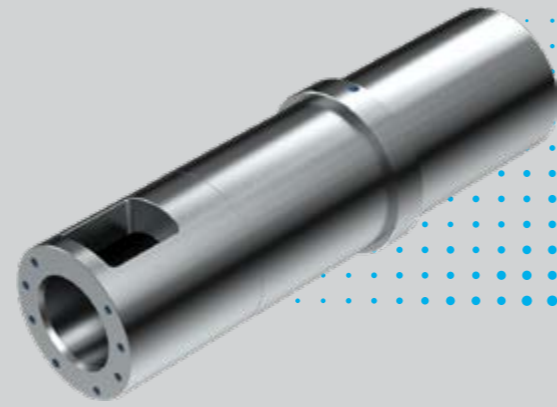


3.
Extraction with a special tool



For larger machines, there is a specially designed tool, that enables quick replacement of the insert, but the envelope has to be dismantled from the casting machine first.

Technical Specifications



innoSleeve envelope

01 Material

innoSleeve envelopes are made using forged or rolled tool steel blocks produced in the EU.

02 Delivery condition

- Heat treated
- Hardness between 42 and 50 HRC
- Machined to final dimension
- Nitrided

03 Dimensional range

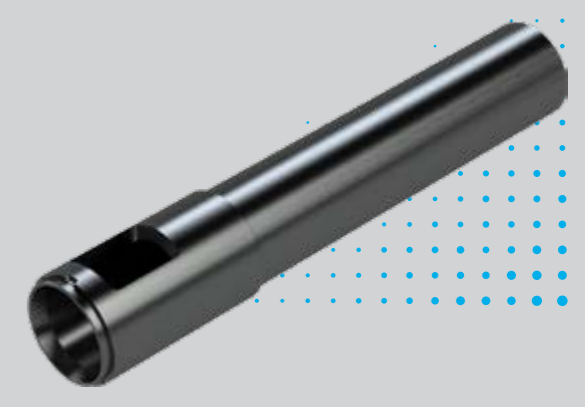
- Inner diameter 60 - 210 mm
- Length 200 - 1.600 mm

04 Lubrication

Depending on operation requirements, envelope can be adjusted for various lubrication options

- Lube drop
- Combi lube
- Tube lube
- Groove lube

Technical Specifications



innoSleeve insert

01 Material

innoSleeve inserts can be made of three different material choices, 1.2343 / 1.2344 or by using one of the two specially developed tool steel grades, that ensure longer insert lifespan.

02 Delivery condition

- Heat treated
- Hardness between 42 and 50 HRC
- Machined to final dimension
- Nitrided

03 Dimensional range

- Inner diameter 70 - 210 mm
- Length 200 - 1.600 mm

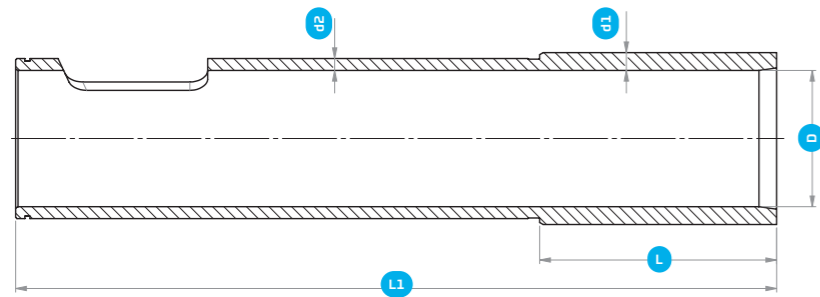
Technical Specifications

04 Fixation options

Insert type: Complete length insert
Dismantable from the front

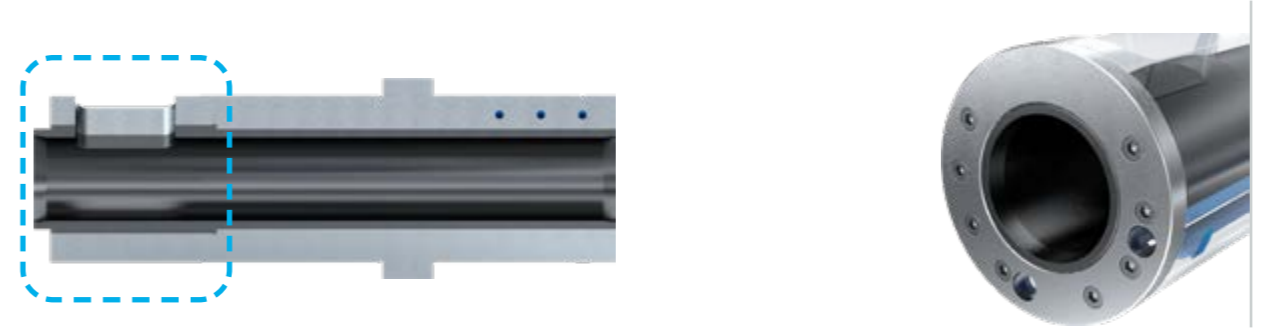


Seeger ring

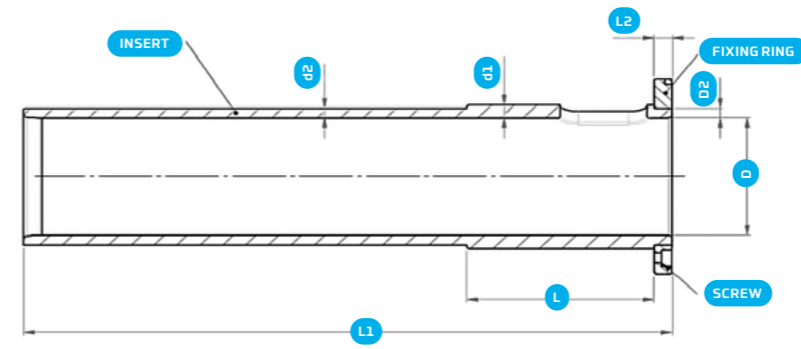


INSERT WITH SEEGER RING	L1<1000(mm)		L1=1000-1200(mm)		L1>1200(mm)	
	d1	d2	d1	d2	d1	d2
50-140	15	10	15	10	20	15
140-160	20	15	20	15	25	20
160-280	20	15	25	20	25	20

Insert type: Complete length insert
Dismantable from the back



Cap



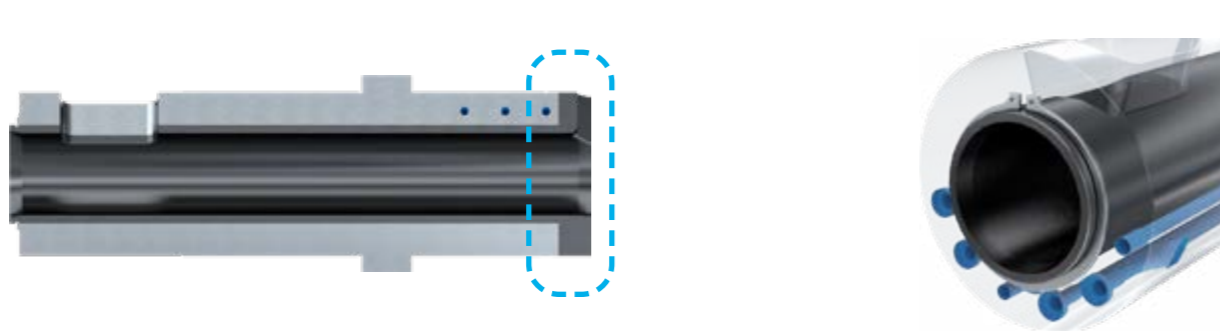
INSERT WITH CAP	L1<1000(mm)		L1=1000-1200(mm)		L1>1200(mm)		L=(mm)
	d1	d2	d1	d2	d1	d2	
50-140	15	10	15	10	20	15	200
140-160	20	15	20	15	25	20	250
160-280	20	15	25	20	25	20	300

FIXING RING	L2	SCREW
	50-140	8_20
140-160	15_25	M14-M16
160-280	>20	>M16

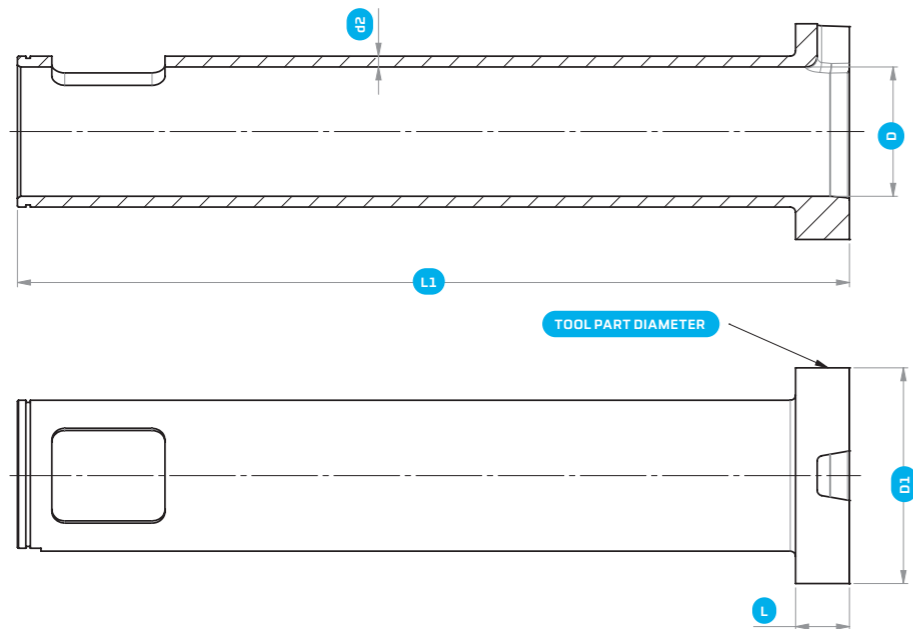
Technical Specifications

Insert type: Complete length insert with 3D shape

Dismantable from the front



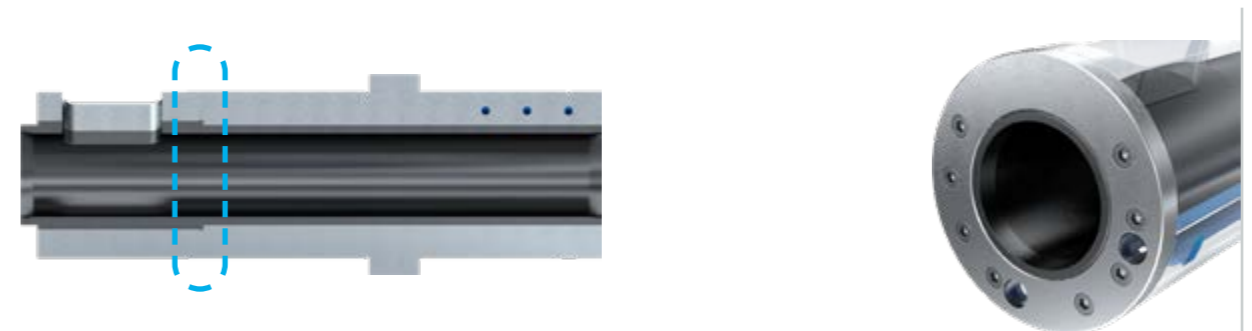
Seeger ring



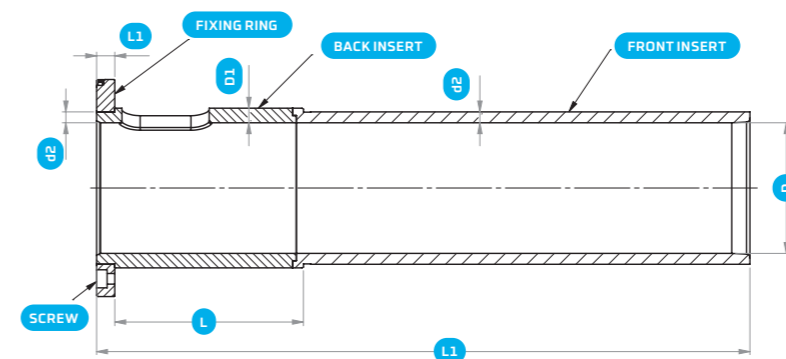
INSERT WITH 3D SHAPE AND SEEGER RING	L1<1000(mm)	L1=1000-1200(mm)	L1>1200(mm)
D	d2	d2	d2
50-140	10	10	15
140-160	15	15	20
160-280	15	20	20

Insert type: 2 parts insert

Longer front insert, dismantlable from the front
Pour hole insert, dismantlable from the back



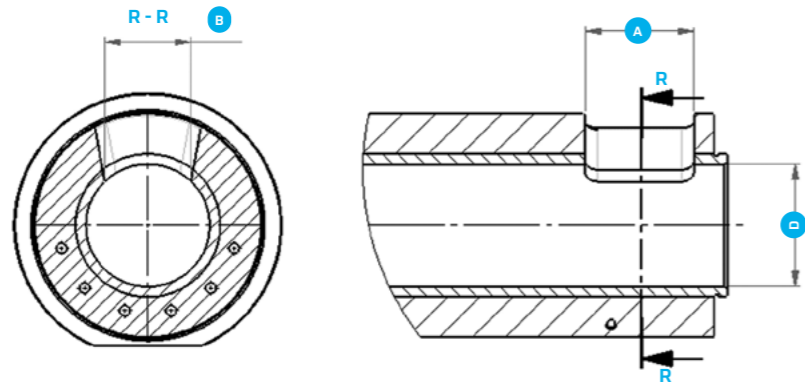
Cap



TWO PART INSERT CAP	L1<1000(mm)		L1=1000-1200(mm)		L1>1200(mm)		L=(mm)
D	d1	d2	d1	d2	d1	d2	
50-140	15	10	15	10	20	15	200
140-160	20	15	20	15	25	20	250
160-280	20	15	25	20	25	20	300

FIXING RING	L2	SCREW
50-140	8_20	M8-M14
140-160	15_25	M14-M16
160-280	>20	>M16

06 Pour hole (applies to all innoSleeve types)



POUR HOLE		
D	A	B
45-55	42	38
55-65	48	42
65-75	56	50
75-85	64	56
85-95	70	64
95-105	77	71
105-115	83	77
115-125	92	84
125-135	98	92
135-145	105	99
145-155	113	105
155-165	120	112
165-175	126	120
175-185	134	126
185-195	141	133



Plunger BY HTS



- Plunger PERFORMA
- Plunger CONDUCTA
- Plunger ENDURA



Performa



PERFORMA T-R

PERFORMA T-RS

PERFORMA T-R/BN

Technical Specifications



STEEL RING (optional)

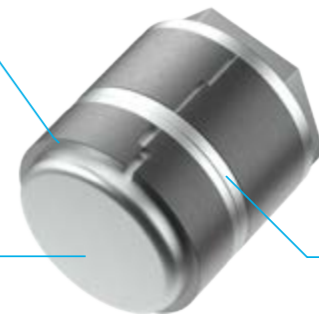
Opens during injection due to its own elasticity and due to aluminium penetrating between ring and plunger.

HOT WORK STEEL BODY

The plunger is made with supreme hot worktool steel, using HTS proprietary additive manufacturing technology that allows the implementation of the conformal cooling. Excellent combination of high toughness and resistance to thermal fatigue cracking (also known as heat checking) results in high cooling power >> reduction of cycle time and highest lifetime on the market.

STEEL SPRING BUSH

Ensures contact plunger/sleeve at the back of the plunger due to its own elasticity.



Range Ø40 to Ø260



Performa

Ring Plunger is an evolution of the steel thread plunger with a better thermal effectiveness and increased durability.



Vacuum and gliding effect

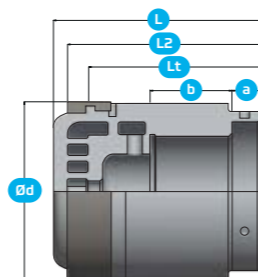
PERFORMA T-RS version includes a spring bush (back ring) which has been specially designed for vacuum systems. Made with softer steel, the spring bush slides easily and doesn't damage the inner surface of the sleeve.



Advanced thermal effectiveness and increased durability

Dimensional parameters

01 Performa T-R: with Ring



REFERENCE

TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Performa T-R		2,75"		short	KIIR003607001651	RIUS007000501671			
Performa T-R		3"		short	KIIR003607501651	RIUS007500551671			
Performa T-R		3,25"		short	KIIR004808501651	RIUS008500551671			
Performa T-R		3,50"		short	KIIR005809001651	RIUS009000651671			
Performa T-R		3,75"		short	KIIR005809501651	RIUS009500651671			
Performa T-R		4"		short	KIIR006210501651	RIUS010500651671			
Performa T-R		4,25"		short	KIIR007211001651	RIUS011000651671			
Performa T-R		4,50"		short	KIIR007211501651	RIUS011500701671			
Performa T-R		4,75"		short	KIIR007612001651	RIUS012000751671			
Performa T-R		5"		short	KIIR007612501651	RIUS012500751671			
Performa T-R		5,25"		short	KIIR008513501651	RIUS013500751671			
Performa T-R		5,50"		short	KIIR008514001651	RIUS014000751671			
Performa T-R		6"		short	KIIR010515001651	RIUS015000851671			
Performa T-R		7"		short	KIIRS12018001651	RIUS018001001671			
Performa T-R		7,50"		short	KIIRS12019001651	RIUS019001001671			
Performa T-R		9"		short	KIIRS13023001651	RIUS023001001671			
Performa T-R		70		wide	KIUR003607001651	REUS007000501671			
Performa T-R		75		wide	KIUR003607501651	REUS007500551671			
Performa T-R		80		wide	KIUR004808001651	REUS008000551671			
Performa T-R		85		wide	KIUR004808501651	REUS008500551671			
Performa T-R		90		wide	KIUR005809001651	REUS009000651671			
Performa T-R		95		wide	KIUR005809501651	REUS009500651671			
Performa T-R		100		wide	KIUR006210001651	REUS010000651671			
Performa T-R		105		wide	KIUR006210501651	REUS010500651671			
Performa T-R		110		wide	KIUR007211001651	REUS011000651671			
Performa T-R		115		wide	KIUR007211501651	REUS011500701671			
Performa T-R		120		wide	KIUR007612001651	REUS012000751671			
Performa T-R		125		wide	KIUR007612501651	REUS012500751671			
Performa T-R		130		wide	KIUR008513001651	REUS013000751671			
Performa T-R		135		wide	KIUR008513501651	REUS013500751671			
Performa T-R		140		wide	KIUR008514001651	REUS014000751671			
Performa T-R		150		wide	KIUR010515001651	REUS015000851671			
Performa T-R		160		wide	KIUR010516001651	REUS016000851671			

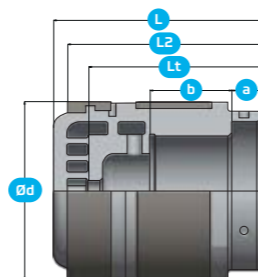
Plunger PERFORMA

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Performa T-R	120	49x20	M36x2 x 35	102	12	Ø70/60 x 17			92.50	120
Performa T-R	120	49x20	M36x2 x 35	102	12	Ø75/64 x 17,5			92.50	120
Performa T-R	120	57x20	M48x2 x 35	102	12	Ø85/74 x 17,5			92.50	120
Performa T-R	120	67x20	M58x2 x 35	102	12	Ø90/77 x 18,5			92.50	120
Performa T-R	120	67x20	M58x2 x 35	102	12	Ø95/82 x 18,5			92.50	120
Performa T-R	125	77x20	M62x2 x 35	102	16	Ø105/92 x 20			92.50	125
Performa T-R	130	84x20	M72x2 x 45	107	16	Ø110/97 x 20			117.50	130
Performa T-R	135	84x20	M72x2 x 50	112	16	Ø115/101 x 22			117.50	135
Performa T-R	140	94x20	M76x2 x 55	116	16	Ø120/105 x 22			130.70	140
Performa T-R	145	94x20	M76x2 x 55	116	16	Ø125/110 x 22			143.00	145
Performa T-R	150	99x20	M85x2 x 55	126	16	Ø135/120 x 24			143.50	150
Performa T-R	160	99x20	M85x2 x 55	136	16	Ø140/125 x 24			143.50	160
Performa T-R	170	116x20	M105x2 x 75	146	16	Ø150/133 x 26			170.00	170
Performa T-R	200	129x22	M120x2 x 85	170	18	Ø180/160 x 32			194.00	200
Performa T-R	210	129x22	M120x2 x 85	170	20	Ø190/168 x 32			201.00	210
Performa T-R	250	139x24	M130x2 x 85	190	20	Ø230/210 x 33			241.00	250
Performa T-R	120	49x20	M36x2 x 35	120	12	Ø70/60 x 23			111.00	120
Performa T-R	120	49x20	M36x2 x 35	120	12	Ø75/64 x 23,5			111.00	120
Performa T-R	120	57x20	M48x2 x 35	120	12	Ø80/69 x 23,5			111.00	120
Performa T-R	120	57x20	M48x2 x 35	120	12	Ø85/74 x 23,5			111.00	120
Performa T-R	120	67x20	M58x2 x 35	120	12	Ø90/77 x 25			111.00	120
Performa T-R	120	67x20	M58x2 x 35	120	12	Ø95/82 x 25			111.00	120
Performa T-R	120	77x20	M62x2 x 35	120	12	Ø100/87 x 27			111.00	120
Performa T-R	125	77x20	M62x2 x 35	125	16	Ø105/92 x 27			116.00	125
Performa T-R	130	84x20	M72x2 x 45	130	16	Ø110/97 x 27			121.00	130
Performa T-R	136	84x20	M72x2 x 50	136	16	Ø115/101 x 29,5			126.00	136
Performa T-R	140	94x20	M76x2 x 55	140	16	Ø120/105 x 29,5			130.50	140
Performa T-R	145	94x20	M76x2 x 55	145	16	Ø125/110 x 29,5			130.50	145
Performa T-R	150	99x20	M85x2 x 55	150	16	Ø130/115 x 32			140.50	150
Performa T-R	155	99x20	M85x2 x 55	150	16	Ø135/120 x 32			140.50	150
Performa T-R	160	99x20	M85x2 x 55	160	16	Ø140/125 x 32			152.00	160
Performa T-R	170	116x20	M105x2 x75	170	16	Ø150/133 x 35			162.00	170
Performa T-R	180	116x22	M105x2 x75	180	16	Ø160/143 x 37,5			171.00	180

Dimensional parameters

02 Performa T-RS: with Ring and Spring Bush



REFERENCE

TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Performa T-RS		70	Vac	wide	KIURS03607001651	REUS007000501671	DRUF0700644012021		
Performa T-RS		75	Vac	wide	KIURS03607501651	REUS007500551671	DRUF0750694012021		
Performa T-RS		80	Vac	wide	KIURS04808001651	REUS008000551671	DRUF0800074012021		
Performa T-RS		85	Vac	wide	KIURS04808501651	REUS008500551671	DRUF0850794012021		
Performa T-RS		90	Vac	wide	KIURS05809001651	REUS009000651671	DRUF0900844012021		
Performa T-RS		95	Vac	wide	KIURS05809501651	REUS009500651671	DRUF0950894012021		
Performa T-RS		100	Vac	wide	KIURS06210001651	REUS010000651671	DRUF100925012021		
Performa T-RS		105	Vac	wide	KIURS06210501651	REUS010500651671	DRUF105097012021		
Performa T-RS		110	Vac	wide	KIURS07211001651	REUS011000651671	DRUF0110102012021		
Performa T-RS		115	Vac	wide	KIURS07211501651	REUS011500701671	DRUF0115107012021		
Performa T-RS		120	Vac	wide	KIURS07612001651	REUS012000751671	DRUF0120112012021		
Performa T-RS		125	Vac	wide	KIURS07612501651	REUS012500751671	DRUF0125117012021		
Performa T-RS		130	Vac	wide	KIURS08513001651	REUS013000751671	DRUF0130122012021		
Performa T-RS		135	Vac	wide	KIURS08513501651	REUS013500751671	DRUF0135122012021		
Performa T-RS		140	Vac	wide	KIURS08514001651	REUS014000751671	DRUF0135125012021		
Performa T-RS		150	Vac	wide	KIURS10515001651	REUS015000851671	DRUF0150140012021		
Performa T-RS		160	Vac	wide	KIURS10516001651	REUS016000851671	DRUF0160150012021		
Performa T-RS		170	Vac	wide	KIURS12017001651	REUS017001001671	DRUF0170158012021		
Performa T-RS		180	Vac	wide	KIURS12018001651	REUS018001001671	DRUF0180168012021		
Performa T-RS		190	Vac	wide	KIURS12019001651	REUS019001001671	DRUF0190178012021		
Performa T-RS		200	Vac	wide	KIURS13020001651	REUS020001001671	DRUF0200188012021		
Performa T-RS		210	Vac	wide	KIURS13021001651	REUS021001001671	DRUF0210188012021		
Performa T-RS		220	Vac	wide	KIURS14022001651	REUS022001001671	DRUF220208090201		
Performa T-RS		230	Vac	wide	KIURS14023001651	REUS023001001671	DRUF230216100201		
Performa T-RS		240	Vac	wide	KIURS15021001651	REUS024001001671	DRUF240226100201		
Performa T-RS		250	Vac	wide	KIURS15022001651	REUS025001101671	DRUF250236110201		
Performa T-RS		260	Vac	wide	KIURS15023001651	REUS026001101671	DRUF260246110201		

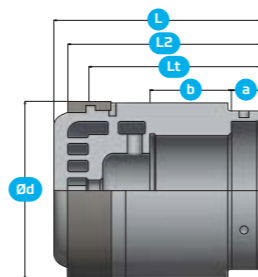
Plunger PERFORMA

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Performa T-RS	120	49x20	M36x2 x 35	102	12	Ø70/60 x 23	Ø70/64 x 30		111.00	120
Performa T-RS	120	49x20	M36x2 x 35	102	12	Ø75/64 x 23,5	Ø75/69 x 40		111.00	120
Performa T-RS	120	57x20	M48x2 x 35	102	12	Ø80/69 x 23,5	Ø80/74 x 40		111.00	120
Performa T-RS	120	57x20	M48x2 x 35	102	12	Ø85/74 x 23,5	Ø85/79 x 40		111.00	120
Performa T-RS	120	67x20	M58x2 x 35	102	12	Ø90/77 x 25	Ø90/84 x 40		111.00	120
Performa T-RS	120	67x20	M58x2 x 35	102	12	Ø95/82 x 25	Ø95/89 x 40		111.00	120
Performa T-RS	120	77x20	M62x2 x 35	102	12	Ø100/87 x 27	Ø100/92 x 50		111.00	120
Performa T-RS	125	77x20	M62x2 x 35	102	16	Ø105/92 x 27	Ø105/97 x 50		116.00	125
Performa T-RS	130	84x20	M72x2 x 45	107	16	Ø110/97 x 27	Ø110/102 x 50		121.00	130
Performa T-RS	135	84x20	M72x2 x 50	112	16	Ø115/101 x 29,5	Ø115/107 x 50		126.00	135
Performa T-RS	140	94x20	M76x2 x 55	116	16	Ø120/105 x 29,5	Ø120/112 x 50		130.50	140
Performa T-RS	145	94x20	M76x2 x 55	116	16	Ø125/110 x 29,5	Ø125/117 x 50		135.50	145
Performa T-RS	150	99x20	M85x2 x 55	126	16	Ø130/115 x 32	Ø130/122 x 50		140.50	150
Performa T-RS	155	99x20	M85x2 x 55	126	16	Ø135/120 x 32	Ø135/125 x 50		140.50	155
Performa T-RS	160	99x20	M85x2 x 55	136	16	Ø140/125 x 32	Ø140/130 x 50		152.00	160
Performa T-RS	170	116x20	M105x2 x 75	146	16	Ø150/133 x 35	Ø150/140 x 50		162.00	170
Performa T-RS	180	116x22	M105x2 x 75	155	16	Ø160/143 x 37,5	Ø160/150 x 50		171.00	180
Performa T-RS	190	129x22	M120x2 x 85	160	18	Ø170/150 x 40	Ø170/158 x 90		180.50	190
Performa T-RS	200	129x22	M120x2 x 85	170	18	Ø180/160 x 43	Ø180/168 x 90		190.50	200
Performa T-RS	210	129x22	M120x2 x 85	174	18	Ø190/170 x 43	Ø190/178 x 90		200.50	210
Performa T-RS	220	139x24	M130x2 x 85	183	18	Ø200/180 x 43	Ø200/188 x 90		210.50	220
Performa T-RS	230	139x24	M130x2 x 85	192	20	Ø210/190 x 43	Ø210/198 x 90		220.50	230
Performa T-RS	240	149x24	M140x2 x 85	201	20	Ø220/200 x 44	Ø220/208 x 90		230.50	240
Performa T-RS	250	149x24	M140x2 x 85	210	22	Ø230/210 x 44	Ø230/216 x 100		240.50	250
Performa T-RS	260	159x24	M150x2 x 85	219	22	Ø240/220 x 44	Ø240/226 x 100		250.50	260
Performa T-RS	270	159x24	M150x2 x 85	228	22	Ø250/228 x 47	Ø250/236 x 110		260.50	270
Performa T-RS	280	159x24	M150x2 x 85	237	22	Ø260/238 x 47	Ø260/246 x 110		270.50	280

Dimensional parameters

03 Performa T-R/BN: with Ring and Bullet Nose



REFERENCE

TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Performa T-R-BN		120		wide	KKUR007612001651	REUS012000751671			
Performa T-R-BN		125		wide	KKUR007612501651	REUS012500751671			
Performa T-R-BN		130		wide	KKUR008513001651	REUS013000751671			
Performa T-R-BN		135		wide	KKUR008513501651	REUS013500751671			
Performa T-R-BN		140		wide	KKUR003614001651	REUS014000751671			
Performa T-R-BN		150		wide	KKUR010515001651	REUS015000851671			
Performa T-R-BN		160		wide	KKUR010516001651	REUS016000851671			
Performa T-R-BN		170		wide	KKUR012017001651	REUS017001001671			
Performa T-R-BN		180		wide	KKUR012018001651	REUS018001001671			
Performa T-R-BN		190		wide	KKUR012019001651	REUS019001001671			
Performa T-R-BN		200		wide	KKUR012020001651	REUS020001001671			
Performa T-R-BN		210		wide	KKUR012021001651	REUS021001001671			
Performa T-R-BN		220		wide	KKUR013022001651	REUS022001001671			
Performa T-R-BN		230		wide	KKUR013023001651	REUS023001001671			
Performa T-R-BN		240		wide	KKUR014024001651	REUS024001001671			
Performa T-R-BN		250		wide	KKUR014025001651	REUS025001101671			
Performa T-R-BN		260		wide	KKUR015026001651	REUS026001101671			

Plunger PERFORMA

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Performa T-R-BN	140	94x20	M76x2 x 55	140	16	Ø120/105 x 29,5			123.00	140
Performa T-R-BN	145	94x20	M76x2 x 55	145	16	Ø125/110 x 29,5			128.00	145
Performa T-R-BN	150	99x20	M85x2 x 55	150	16	Ø130/115 x 32			133.00	150
Performa T-R-BN	150	99x20	M85x2 x 55	155	16	Ø135/120 x 32			133.00	155
Performa T-R-BN	160	99x20	M85x2 x 55	160	16	Ø140/125 x 32			143.00	160
Performa T-R-BN	170	116x20	M105x2 x 75	170	16	Ø150/133 x 35			153.00	170
Performa T-R-BN	180	116x22	M105x2 x 75	180	16	Ø160/143 x 37,5			163.00	180
Performa T-R-BN	190	116x20	M120x2 x 85	190	16	Ø170/150 x 40			153.00	190
Performa T-R-BN	200	116x22	M120x2 x 85	200	16	Ø180/160 x 43			163.00	200
Performa T-R-BN	210	129x22	M120x2 x 85	210	18	Ø190/170 x 43			173.00	210
Performa T-R-BN	220	129x22	M120x2 x 85	220	18	Ø200/180 x 43			183.00	220
Performa T-R-BN	230	129x22	M120x2 x 85	210	18	Ø210/190 x 43			193.00	230
Performa T-R-BN	240	139x24	M130x2 x 85	220	18	Ø220/200 x 44			203.00	240
Performa T-R-BN	250	139x24	M130x2 x 85	230	20	Ø230/210 x 44			213.00	250
Performa T-R-BN	260	149x24	M140x2 x 85	240	20	Ø240/220 x 44			223.00	260
Performa T-R-BN	270	149x24	M140x2 x 85	250	22	Ø250/228 x 47			233.00	270
Performa T-R-BN	280	159x24	M150x2 x 85	260	22	Ø260/238 x 47			243.00	280



Conducta



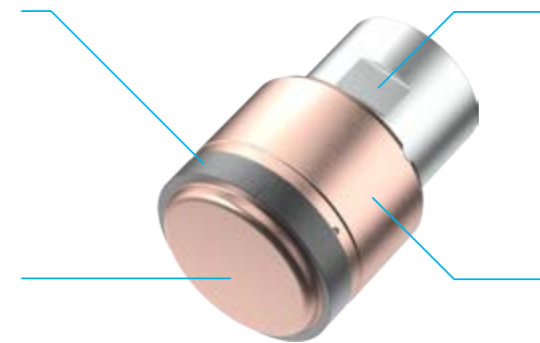
CONDUCTA B CONDUCTA B-R CONDUCTA B-RS

Technical Specifications



STEEL RING (optional)
Opens during injection due to its own elasticity and due to aluminium penetrating between ring and plunger.

CuBe BODY
The plunger is made out of forged CuBe. Excellent combination of toughness and highest values of heat transfer.



STAINLESS STEEL HOLDER
The plunger is fixed to its holder with a special bayonet locking design.

STEEL SPRING BUSH
Ensures contact plunger/sleeve at the back of the plunger due to its own elasticity. Available with the Conducta B-RS model.

Range Ø40 to Ø260



Conducta

Ring Plunger is an evolution of the copper bayonet plunger with a better thermal effectiveness and increased durability.



Vacuum and gliding effect

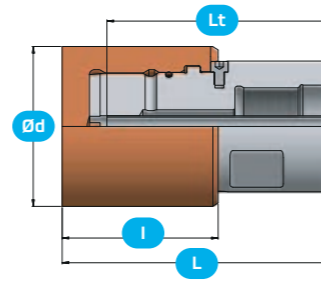
CONDUCTA B-RS version includes a spring bush (back ring) which has been specially designed for vacuum systems. Made with softer steel, the spring bush slides easily and doesn't damage the inner surface of the sleeve.



Good thermal effectiveness and increased durability

Dimensional parameters

01 Conducta B: solid without ring



REFERENCE

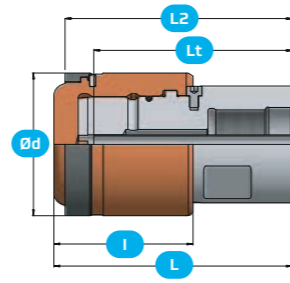
TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Conducta B	1.0	40		short	KBUF001004001251			TBUF001025100251	
Conducta B	1.0	45		short	KBUF001004501251			TBUF001025100251	
Conducta B	1.5	50		short	KBUF001505001251			TBUF001530100301	
Conducta B	1.5	55		short	KBUF001505501251			TBUF001530100301	
Conducta B	2.5	60		short	KBUF002506001251			TBUF002540120301	
Conducta B	2.5	70		short	KBUF002507001251			TBUF002540120301	
Conducta B	2.5	75		short	KBUF002507501251			TBUF002540120301	
Conducta B	3.0	70		short	KBUF003007001251			TBUF003045100301	
Conducta B	3.0	75		short	KBUF003007501251			TBUF003045100301	
Conducta B	3.0	80		short	KBUF003008001251			TBUF003045100301	
Conducta B	3.5	80		short	KBUF003508001251			TBUF003555140351	
Conducta B	3.5	85		short	KBUF003508501251			TBUF003555140351	
Conducta B	3.5	90		short	KBUF003509001251			TBUF003555140351	
Conducta B	3.5	95		short	KBUF003509501251			TBUF003555140351	
Conducta B	3.5	100		short	KBUF003510001251			TBUF003555140351	
Conducta B	4.0	90		short	KBUF004009001251			TBUF004064100421	
Conducta B	4.0	95		short	KBUF004009501251			TBUF004064100421	
Conducta B	4.0	100		short	KBUF004010001251			TBUF004064100421	
Conducta B	4.0	110		short	KBUF004011001251			TBUF004064100421	
Conducta B	4.0	115		short	KBUF004011501251			TBUF004064100421	
Conducta B	4.0	120		short	KBUF004012001251			TBUF004064100421	
Conducta B	4.5	110		short	KBUF004511001251			TBUF004580100601	
Conducta B	4.5	115		short	KBUF004511501251			TBUF004580100601	
Conducta B	4.5	120		short	KBUF004512001251			TBUF004580100601	
Conducta B	4.5	125		short	KBUF004512501251			TBUF004580100601	
Conducta B	4.5	130		short	KBUF004513001251			TBUF004580100601	
Conducta B	4.5	140		short	KBUF004514001251			TBUF004580100601	
Conducta B	5.0	130		short	KBUF005013001251			TBUF005090100601	
Conducta B	5.0	140		short	KBUF005014001251			TBUF005090100601	
Conducta B	5.0	150		short	KBUF005015001251			TBUF005090100601	
Conducta B	6.0	150		short	KBUF006015001251			TBUF060105110651	
Conducta B	6.0	160		short	KBUF006016001251			TBUF060105110651	
Conducta B	6.0	170		short	KBUF006017001251			TBUF060105110651	
Conducta B	7.0	160		short	KBUF007016001251			TBUF070120100651	
Conducta B	7.0	170		short	KBUF007017001251			TBUF070120100651	
Conducta B	7.0	180		short	KBUF007018001251			TBUF070120100651	
Conducta B	7.0	190		short	KBUF007019001251			TBUF070120100651	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt (Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Conducta B	72.5			119	6	Ø40/32,5 x 14		Ø39 x 111	125.00	130
Conducta B	72.5			119	6	Ø40/32,5 x 14		Ø39 x 111	125.00	130
Conducta B	72.5			103	8	Ø50/41,5 x 16		Ø44 x 111	145.00	150
Conducta B	72.5			103	8	Ø50/41,5 x 16		Ø44 x 111	145.00	150
Conducta B	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213

Dimensional parameters

02 Conducta B-R: with ring



REFERENCE

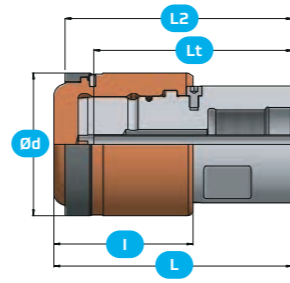
TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Conducta B-R	1.0	40		short	KBUR001004001251	RIUS00403701671		TBUF001025100251	
Conducta B-R	1.0	45		short	KBUR001004501251	RIUS00453701671		TBUF001025100251	
Conducta B-R	1.5	50		short	KBUR001505001251	RIUS00504201671		TBUF001530100301	
Conducta B-R	1.5	55		short	KBUR001505501251	RIUS00554201671		TBUF001530100301	
Conducta B-R	2.5	60		short	KBUR002506001251	RIUS00604501671		TBUF002540120301	
Conducta B-R	2.5	65		short	KBUR002506501251	RIUS00654501671		TBUF002540120301	
Conducta B-R	2.5	70		short	KBUR002507001251	RIUS00705001671		TBUF002540120301	
Conducta B-R	2.5	75		short	KBUR002507501251	RIUS00755501671		TBUF002540120301	
Conducta B-R	3.0	70		short	KBUR003007001251	RIUS00705001671		TBUF003045100301	
Conducta B-R	3.0	75		short	KBUR003007501251	RIUS00755501671		TBUF003045100301	
Conducta B-R	3.0	80		short	KBUR003008001251	RIUS00805501671		TBUF003045100301	
Conducta B-R	3.5	80		short	KBUR003508001251	RIUS00805501671		TBUF003555140351	
Conducta B-R	3.5	85		short	KBUR003508501251	RIUS00855501671		TBUF003555140351	
Conducta B-R	3.5	90		short	KBUR003509001251	RIUS00906501671		TBUF003555140351	
Conducta B-R	3.5	95		short	KBUR003509501251	RIUS00906501671		TBUF003555140351	
Conducta B-R	3.5	100		short	KBUR003510001251	RIUS01006501671		TBUF003555140351	
Conducta B-R	4.0	90		short	KBUR004009001251	RIUS00906501671		TBUF004064100421	
Conducta B-R	4.0	95		short	KBUR004009501251	RIUS00956501671		TBUF004064100421	
Conducta B-R	4.0	100		short	KBUR004010001251	RIUS01006501671		TBUF004064100421	
Conducta B-R	4.0	105		short	KBUR004010501251	RIUS01056501671		TBUF004064100421	
Conducta B-R	4.0	110		short	KBUR004011001251	RIUS01106501671		TBUF004064100421	
Conducta B-R	4.0	115		short	KBUR004011501251	RIUS01157001671		TBUF004064100421	
Conducta B-R	4.5	110		short	KBUR004511001251	RIUS01106501671		TBUF004580100601	
Conducta B-R	4.5	115		short	KBUR004511501251	RIUS01157001671		TBUF004580100601	
Conducta B-R	4.5	120		short	KBUR004512001251	RIUS01207501671		TBUF004580100601	
Conducta B-R	4.5	125		short	KBUR004512501251	RIUS01257501671		TBUF004580100601	
Conducta B-R	4.5	130		short	KBUR004513001251	RIUS01307501671		TBUF004580100601	
Conducta B-R	4.5	140		short	KBUR004514001251	RIUS01407501671		TBUF004580100601	
Conducta B-R	5.0	130		short	KBUR005013001251	RIUS01307501671		TBUF005090100601	
Conducta B-R	5.0	140		short	KBUR005014001251	RIUS01407501671		TBUF005090100601	
Conducta B-R	5.0	150		short	KBUR005015001251	RIUS01508501671		TBUF005090100601	
Conducta B-R	6.0	150		short	KBUR006015001251	RIUS01508501671		TBUF060105110651	
Conducta B-R	6.0	160		short	KBUR006016001251	RIUS01608501671		TBUF060105110651	
Conducta B-R	6.0	170		short	KBUR006017001251	RIUS01701001671		TBUF060105110651	
Conducta B-R	7.0	160		short	KBUR007016001251	RIUS01608501671		TBUF070120100651	
Conducta B-R	7.0	170		short	KBUR007017001251	RIUS01701001671		TBUF070120100651	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Conducta B-R	72.5			119	6	Ø40/32,5 x 14		Ø39 x 111	125.00	130
Conducta B-R	72.5			119	6	Ø45/37,5 x 14		Ø39 x 111	125.00	130
Conducta B-R	72.5			103	8	Ø50/41,5 x 16		Ø44 x 111	145.00	150
Conducta B-R	72.5			103	8	Ø55/46,5 x 16		Ø44 x 111	145.00	150
Conducta B-R	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B-R	73			110	10	Ø65/56 x 17		Ø49 x 118	152.00	157
Conducta B-R	73			110	10	Ø70/60 x 17		Ø49 x 118	152.00	157
Conducta B-R	73			110	10	Ø75/64 x 17,5		Ø49 x 118	152.00	157
Conducta B-R	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B-R	90			127	12	Ø75/64 x 17,5		Ø59 x 135	150.00	159
Conducta B-R	90			127	12	Ø80/69 x 17,5		Ø59 x 135	150.00	159
Conducta B-R	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B-R	90			127	12	Ø85/74 x 17,5		Ø69 x 135	150.00	158
Conducta B-R	90			127	12	Ø90/77 x 18,5		Ø69 x 135	150.00	158
Conducta B-R	90			127	12	Ø95/82 x 18,5		Ø69 x 135	150.00	158
Conducta B-R	90			127	12	Ø100/87 x 20		Ø69 x 135	150.00	158
Conducta B-R	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B-R	102			121	16	Ø95/82 x 18,5		Ø79 x 130	142.00	150
Conducta B-R	102			121	16	Ø100/87 x 20		Ø79 x 130	142.00	150
Conducta B-R	103			121	16	Ø105/92 x 20		Ø79 x 130	142.00	150
Conducta B-R	102			121	16	Ø110/97 x 20		Ø79 x 130	142.00	150
Conducta B-R	102			121	16	Ø115/101 x 22		Ø79 x 130	142.00	150
Conducta B-R	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B-R	117			170	16	Ø115/101 x 22		Ø98 x 180	191.00	200
Conducta B-R	117			170	16	Ø120/105 x 22		Ø98 x 180	191.00	200
Conducta B-R	117			170	16	Ø125/110 x 22		Ø98 x 180	191.00	200
Conducta B-R	117			170	16	Ø130/115 x 24		Ø98 x 180	191.00	200
Conducta B-R	117			170	16	Ø140/125 x 24		Ø98 x 180	191.00	200
Conducta B-R	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B-R	177			170	16	Ø140/125 x 24		Ø108 x 180	191.00	200
Conducta B-R	117			170	16	Ø150/133 x 26		Ø108 x 180	191.00	200
Conducta B-R	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B-R	134			163	18	Ø160/143 x 28		Ø125 x 173	187.00	200
Conducta B-R	134			163	18	Ø170/150 x 30		Ø125 x 173	187.00	200
Conducta B-R	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B-R	149.5			170	20	Ø170/150 x 30		Ø145 x 180	190.00	213

Dimensional parameters

02 Conducta B-R: with ring



REFERENCE

TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Conducta B-R	7.0	180		short	KBUR007018001251	RIUS01801001671		TBUF070120100651	
Conducta B-R	7.0	190		short	KBUR007019001251	RIUS01901001671		TBUF070120100651	
Conducta B-R	8.0	200		short	KBUR008020001251	RIUS02001001671		TBUF080140100651	
Conducta B-R	9.0	210		short	KBUR009021001521	RIUS02101001671		TBUF090145100851	
Conducta B-R	9.0	220		short	KBUR009022001521	RIUS02201001671		TBUF090145100851	
Conducta B-R	10.0	230		short	KBUR010023001521	RIUS02301001671		TBUF100160101001	
Conducta B-R	10.0	240		short	KBUR010024001521	RIUS02401001671		TBUF100160101001	
Conducta B-R	11.0	250		short	KBUR011025001521	RIUS02501001671		TBUF110170101201	
Conducta B-R	11.0	260		short	KBUR011026001521	RIUS02601001671		TBUF110170101201	

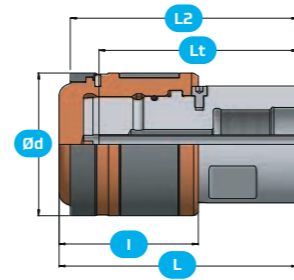
Plunger CONDUCTA

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Conducta B-R	149.5			170	20	Ø180/160 x 32		Ø145 x 180	190.00	213
Conducta B-R	149.5			170	20	Ø190/168 x 32		Ø145 x 180	190.00	213
Conducta B-R	149.5			170	20	Ø200/180 x 32		Ø145 x 180	190.00	213
Conducta B-R	149.5			245	25	Ø210/190 x 32		Ø185 x 262	272.00	295
Conducta B-R	149.5			245	25	Ø220/200 x		Ø185 x 262	272.00	295
Conducta B-R	149.5			245	25	Ø230/210 x 33		Ø200 x 260	272.00	295
Conducta B-R	149.5			245	25	Ø240/220 x 33		Ø200 x 260	272.00	295
Conducta B-R	149.5			265	30	Ø250/228 x 35		Ø220 x 284	296.00	319
Conducta B-R	149.5			265	30	Ø260/238 x 35		Ø220 x 284	296.00	319

Dimensional parameters

03 Conducta B-RS: with Ring and Spring Bush



REFERENCE

TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Conducta B	1.0	40		short	KBUF001004001251			TBUF001025100251	
Conducta B	1.0	45		short	KBUF001004501251			TBUF001025100251	
Conducta B	1.5	50		short	KBUF001505001251			TBUF001530100301	
Conducta B	1.5	55		short	KBUF001505501251			TBUF001530100301	
Conducta B	2.5	60		short	KBUF002506001251			TBUF002540120301	
Conducta B	2.5	70		short	KBUF002507001251			TBUF002540120301	
Conducta B	2.5	75		short	KBUF002507501251			TBUF002540120301	
Conducta B	3.0	70		short	KBUF003007001251			TBUF003045100301	
Conducta B	3.0	75		short	KBUF003007501251			TBUF003045100301	
Conducta B	3.0	80		short	KBUF003008001251			TBUF003045100301	
Conducta B	3.5	80		short	KBUF003508001251			TBUF003555140351	
Conducta B	3.5	85		short	KBUF003508501251			TBUF003555140351	
Conducta B	3.5	90		short	KBUF003509001251			TBUF003555140351	
Conducta B	3.5	95		short	KBUF003509501251			TBUF003555140351	
Conducta B	3.5	100		short	KBUF003510001251			TBUF003555140351	
Conducta B	4.0	90		short	KBUF004009001251			TBUF004064100421	
Conducta B	4.0	95		short	KBUF004009501251			TBUF004064100421	
Conducta B	4.0	100		short	KBUF004010001251			TBUF004064100421	
Conducta B	4.0	110		short	KBUF004011001251			TBUF004064100421	
Conducta B	4.0	115		short	KBUF004011501251			TBUF004064100421	
Conducta B	4.0	120		short	KBUF004012001251			TBUF004064100421	
Conducta B	4.5	110		short	KBUF004511001251			TBUF004580100601	
Conducta B	4.5	115		short	KBUF004511501251			TBUF004580100601	
Conducta B	4.5	120		short	KBUF004512001251			TBUF004580100601	
Conducta B	4.5	125		short	KBUF004512501251			TBUF004580100601	
Conducta B	4.5	130		short	KBUF004513001251			TBUF004580100601	
Conducta B	4.5	140		short	KBUF004514001251			TBUF004580100601	
Conducta B	5.0	130		short	KBUF005013001251			TBUF005090100601	
Conducta B	5.0	140		short	KBUF005014001251			TBUF005090100601	
Conducta B	5.0	150		short	KBUF005015001251			TBUF005090100601	
Conducta B	6.0	150		short	KBUF006015001251			TBUF060105110651	
Conducta B	6.0	160		short	KBUF006016001251			TBUF060105110651	
Conducta B	6.0	170		short	KBUF006017001251			TBUF060105110651	
Conducta B	7.0	160		short	KBUF007016001251			TBUF070120100651	
Conducta B	7.0	170		short	KBUF007017001251			TBUF070120100651	
Conducta B	7.0	180		short	KBUF007018001251			TBUF070120100651	
Conducta B	7.0	190		short	KBUF007019001251			TBUF070120100651	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Conducta B	72.5			119	6	Ø40/32,5 x 14		Ø39 x 111	125.00	130
Conducta B	72.5			119	6	Ø40/32,5 x 14		Ø39 x 111	125.00	130
Conducta B	72.5			103	8	Ø50/41,5 x 16		Ø44 x 111	145.00	150
Conducta B	72.5			103	8	Ø50/41,5 x 16		Ø44 x 111	145.00	150
Conducta B	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B	73			110	10	Ø60/51 x 17		Ø49 x 118	152.00	157
Conducta B	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B	90			127	12	Ø70/60 x 17		Ø59 x 135	150.00	159
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	90			127	12	Ø80/69 x 17,5		Ø69 x 135	150.00	158
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	102			121	16	Ø90/77 x 18,5		Ø79 x 130	142.00	150
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø110/97 x 20		Ø98 x 180	191.00	200
Conducta B	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B	117			170	16	Ø130/115 x 24		Ø108 x 180	191.00	200
Conducta B	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B	134			163	18	Ø150/133 x 26		Ø125 x 173	187.00	200
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213
Conducta B	149.5			170	20	Ø160/143 x 28		Ø145 x 180	190.00	213



ENDURA B-RS ENDURA T ENDURA T-R ENDURA T-RS

Technical Specifications



STEEL RING

The plunger is made using a premium hot work tool steel that is widely used in hot work tooling applications. Excellent combination of high toughness and resistance to thermal fatigue cracking (also known as heat checking).

HOT WORK STEEL BODY

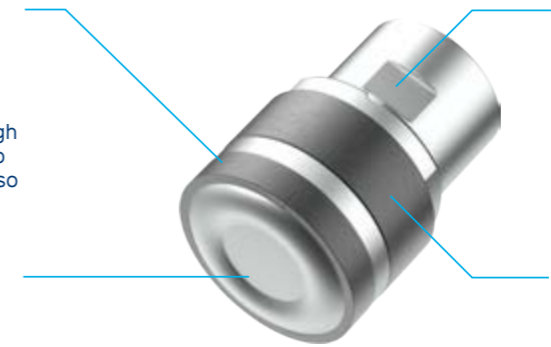
The plunger is made with hot work steel that is widely used in hot work tooling applications. Excellent combination of high toughness and resistance to thermal fatigue cracking (also known as heat checking).

STAINLESS STEEL HOLDER

The plunger is fixed to its holder with a special bayonet locking design.

STEEL SPRING BUSH

Ensures contact plunger/sleeve at the back of the plunger due to its own elasticity.



Range Ø50 to Ø260



Endura

Ring Plunger is an evolution of the copper bayonet plunger with a better thermal effectiveness and increased durability.



Vacuum and gliding effect

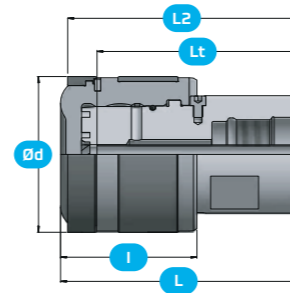
ENDURA B-RS version includes a spring bush (back ring) which has been specially designed for vacuum systems. Made with softer steel, the spring bush slides easily and doesn't damage the inner surface of the sleeve.



Good thermal effectiveness and increased durability

Dimensional parameters

01 Endura B-RS: with Ring and Spring Bush



REFERENCE

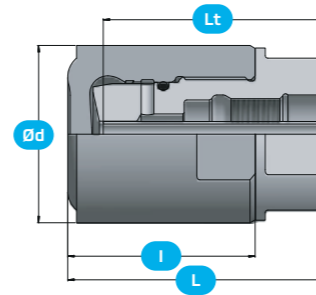
TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Endura B-RS	1.0	45	Vac	short	KDURS01004501471	RIUS004503701671	DRUF045039025201	TDUF010025100251	TGUZ04503517
Endura B-RS	1.5	50	Vac	short	KDURS01505001471	RIUS005004201671	DRUF050044025201	TDUF015030110301	TGUZ05003517
Endura B-RS	1.5	55	Vac	short	KDURS01505501471	RIUS005504201671	DRUF055049025201	TDUF015030110301	TGUZ05003517
Endura B-RS	2.5	60	Vac	short	KDURS02506001471	RIUS006004501671	DRUF060054 03020 1	TDUF025040100301	
Endura B-RS	2.5	65	Vac	short	KDURS02506501471	RIUS006504201671	DRUF065059030201	TDUF025040100301	
Endura B-RS	2.5	70	Vac	short	KDURS02507001471	RIUS007005001671	DRUF070064030201	TDUF025040100301	
Endura B-RS	3.0	75	Vac	short	KDURS03007501471	RIUS007505501671	DRUF075069040201	TDUF030045110351	
Endura B-RS	3.0	80	Vac	short	KDURS03008001471	RIUS008005501671	DRUF080074040201	TDUF030045110351	
Endura B-RS	3.5	85	Vac	short	KDURS03508501471	RIUS008505501671	DRUF085079040201	TDUF035055110351	
Endura B-RS	3.5	90	Vac	short	KDURS03509001471	RIUS009006501671	DRUF090084040201	TDUF035055110351	
Endura B-RS	3.5	95	Vac	short	KDURS03509501471	RIUS009506501671	DRUF095089040201	TDUF035055110351	
Endura B-RS	4.0	100	Vac	short	KDURS04010001471	RIUS010006501671	DRUF100092050201	TDUF040064100421	
Endura B-RS	4.0	105	Vac	short	KDURS04010501471	RIUS010506501671	DRUF105097050201	TDUF040064100421	
Endura B-RS	4.0	110	Vac	short	KDURS04011001471	RIUS011006501671	DRUF110102050201	TDUF040064100421	
Endura B-RS	4.2	100	Vac	short	KDURS04210001471	RIUS010006501671	DRUF100092050201	TDUF042070100481	
Endura B-RS	4.2	105	Vac	short	KDURS04210501471	RIUS010506501671	DRUF105097050201	TDUF042070100481	
Endura B-RS	4.2	110	Vac	short	KDURS04211001471	RIUS011006501671	DRUF110102050201	TDUF042070100481	
Endura B-RS	4.2	115	Vac	short	KDURS04211501471	RIUS011507001671	DRUF115107050201	TDUF042070100481	
Endura B-RS	4.2	120	Vac	short	KDURS04212001471	RIUS012007501671	DRUF120112050201	TDUF042070100481	
Endura B-RS	4.2	125	Vac	short	KDURS04212501471	RIUS012507501671	DRUF125117050201	TDUF042070100481	
Endura B-RS	4.2	130	Vac	short	KDURS04213001471	RIUS013007501671	DRUF130122050201	TDUF042070100481	
Endura B-RS	4.5	115	Vac	short	KDURS04511501471	RIUS011507001671	DRUF115107050201	TDUF045080100601	
Endura B-RS	4.5	120	Vac	short	KDURS04512001471	RIUS012007501671	DRUF120112050201	TDUF045080100601	
Endura B-RS	4.5	125	Vac	short	KDURS04512501471	RIUS012507501671	DRUF125117050201	TDUF045080100601	
Endura B-RS	4.5	130	Vac	short	KDURS04513001471	RIUS013007501671	DRUF130122050201	TDUF045080100601	
Endura B-RS	5.0	135	Vac	short	KDURS05013501471	RIUS013507501671	DRUF135125050201	TDUF050090100601	
Endura B-RS	5.0	140	Vac	short	KDURS05014001471	RIUS014007501671	DRUF140130050201	TDUF050090100601	
Endura B-RS	6.0	150	Vac	short	KDURS06015001471	RIUS015008501671	DRUF150140050201	TDUF060100110651	
Endura B-RS	6.0	160	Vac	short	KDURS06016001471	RIUS016008501671	DRUF160150050201	TDUF060100110651	
Endura B-RS	7.0	170	Vac	short	KDURS07017001471	RIUS017010001671	DRUF170158090201	TDUF070120100721	
Endura B-RS	7.0	180	Vac	short	KDURS07018001471	RIUS018010002671	DRUF180168090201	TDUF070120100721	
Endura B-RS	8.0	190	Vac	short	KDURS08019001471	RIUS019010001671	DRUF190178090201	TDUF080130100721	
Endura B-RS	8.0	200	Vac	short	KDURS08020001471	RIUS020011001671	DRUF200188090201	TDUF080130100721	
Endura B-RS	9.0	210	Vac	short	KDURS09021001471	RIUS021010001671	DRUF210198090201	TBUF090145100851	
Endura B-RS	9.0	220	Vac	short	KDURS09022001471	RIUS022010001671	DRUF220208090201	TBUF090145100851	
Endura B-RS	10.0	230	Vac	short	KDURS10023001471	RIUS023010001671	DRUF230216100201	TBUF100160101001	
Endura B-RS	10.0	240	Vac	short	KDURS10024001471	RIUS024010001671	DRUF240226100201	TBUF100160101001	
Endura B-RS	11.0	250	Vac	short	KDURS11025001471	RIUS025011001671	DRUF250236110201	TBUF110170101201	
Endura B-RS	11.0	260	Vac	short	KDURS11026001471	RIUS026011001671	DRUF260246110201	TBUF110170101201	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt (Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Endura B-RS	60			105	6	045/37,5 x 14	045/39 x 25	042 x 111	116.00	118
Endura B-RS				109	8	050/41,5 x 16	050/44 x 25	048 x 115	121.00	123
Endura B-RS				109	8	055/46,5 x 16	055/49 x 25	048 x 115	121.00	123
Endura B-RS				116	10	060/51 x 17	060/54 x 30	058 x 123	128.00	131
Endura B-RS				116	10	065/56 x 17	065/59 x 30	058 x 123	128.00	131
Endura B-RS				116	12	070/60 x 17	070/64 x 30	058 x 123	128.00	131
Endura B-RS				136	12	075/64 x 17,5	075/69 x 40	070 x 144	149.00	153
Endura B-RS				136	12	080/69 x 17,5	080/74 x 40	070 x 144	149.00	153
Endura B-RS				136	12	085/74 x 17,5	085/79 x 40	079 x 143	149.00	153
Endura B-RS				136	12	090/77 x 18,5	090/84 x 40	079 x 143	149.00	153
Endura B-RS				136	12	095/82 x 18,5	095/89 x 40	079 x 143	149.00	153
Endura B-RS				120	16	0100/87 x 20	0100/92 x 50	079 x 129	137.00	141
Endura B-RS				120	16	0105/92 x 20	0105/97 x 50	079 x 129	137.00	141
Endura B-RS				120	16	0110/97 x 20	0110/102 x 50	079 x 129	137.00	141
Endura B-RS				120	16	0100/87 x 20	0100/92 x 50	089 x 128	137.00	141
Endura B-RS				120	16	0105/92 x 20	0105/97 x 50	089 x 128	137.00	141
Endura B-RS				120	16	0110/97 x 20	0110/102 x 50	089 x 128	137.00	141
Endura B-RS				120	16	0115/101 x 22	0115/107 x 50	089 x 128	137.00	141
Endura B-RS				120	16	0120/105 x 22	0120/112 x 50	089 x 128	137.00	141
Endura B-RS				120	16	0125/110 x 22	0125/117 x 50	089 x 128	137.00	141
Endura B-RS				120	16	0130/115 x 24	0130/122 x 50	089 x 128	137.00	141
Endura B-RS				170	16	0115/101 x 22	0115/107 x 50	098 x 179	189.00	193
Endura B-RS				170	16	0120/105 x 22	0120/112 x 50	098 x 179	189.00	193
Endura B-RS				170	16	0125/110 x 22	0125/117 x 50	098 x 179	189.00	193
Endura B-RS				170	16	0130/115 x 24	0130/122 x 50	098 x 179	189.00	193
Endura B-RS				169	16	0135/120 x 24	0135/125 x 50	0108 x 179	189.00	195
Endura B-RS				169	16	0140/125 x 24	0140/130 x 50	0108 x 179	189.00	195
Endura B-RS				166	18	0150/133 x 26	0150/140 x 50	0125 x 178	188.00	194
Endura B-RS				166	18	0160/143 x 28	0160/150 x 50	0125 x 178	188.00	194
Endura B-RS				200	20	0170/150 x 30	0170/158 x 90	0145 x 214	227.00	233
Endura B-RS				200	20	0180/160 x 32	0180/168 x 90	0145 x 214	227.00	233
Endura B-RS				215	20	0190/168 x 32	0190/178 x 90	0155 x 229	243.00	249
Endura B-RS				215	20	0200/180 x 32	0200/188 x 90	0155 x 229	243.00	249
Endura B-RS	185			245	25	0210/190 x 32	0210/198 x 90	0185 x 262	278.00	284
Endura B-RS	185			245	25	0220/200 x	0220/208 x 90	0+T29+T123-T1+T130-T164	278.00	284
Endura B-RS				245	25	0230/210 x 33	0230/216 x 100	0200 x 260	278.00	284
Endura B-RS				245	25	0240/220 x 33	0240/226 x 100	0200 x 260	278.00	284
Endura B-RS				265	30	0250/228 x 35	0250/236 x 110	0220 x 284	304.00	310
Endura B-RS				265	30	0260/238 x 35	0260/246 x 110	0220 x 284	304.00	310

Dimensional parameters

02 Endura T: without Ring



REFERENCE

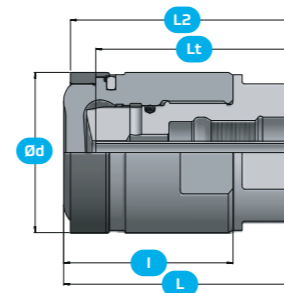
TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Endura T	1.5	50		short	KTUF001505001471			TAUF01530100501	
Endura T	1.5	55		short	KTUF001505501471			TAUF01530100551	
Endura T	2.5	60		short	KTUF002506001471			TAUF02540100601	
Endura T	2.5	65		short	KTUF002506501471			TAUF02540100651	
Endura T	2.5	70		short	KTUF002507001471			TAUF02540100701	
Endura T	3.2	75		short	KTUF003207501471			TAUF03246100751	
Endura T	3.2	80		short	KTUF003208001471			TAUF03246100801	
Endura T	3.2	85		short	KTUF003208501471			TAUF03246100851	
Endura T	3.2	90		short	KTUF003209001471			TAUF03246100901	
Endura T	4.0	95		short	KTUF004009501471			TAUF04065100951	
Endura T	4.0	100		short	KTUF004010001471			TAUF04065101001	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Endura T	63			79	10			Ø49 x 81	87.00	90
Endura T	63			79	10			Ø54 x 81	87.00	90
Endura T	74			88	10			Ø58 x 91	98.00	101
Endura T	74			88	10			Ø63 x 91	98.00	101
Endura T	74			88	10			Ø68 x 91	98.00	101
Endura T	85			102	12			Ø73 x 105	113.00	117
Endura T	85			102	12			Ø78 x 105	113.00	117
Endura T	85			102	12			Ø83 x 105	113.00	117
Endura T	85			102	12			Ø88 x 105	113.00	117
Endura T	97			112	16			Ø93 x 115	125.00	129
Endura T	97			112	16			Ø98 x 115	125.00	129

Dimensional parameters

03 Endura T-R: with Ring



REFERENCE

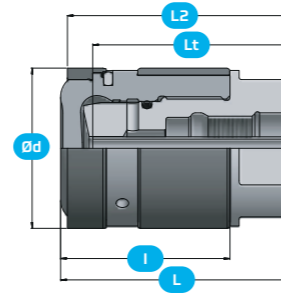
10.343 mm	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Endura T-R	1.5	50		short	KTUR001505001471	RIUS005004201671		TAUF01530100501	
Endura T-R	1.5	55		short	KTUR001505501471	RIUS005504201671		TAUF01530100551	
Endura T-R	2.5	60		short	KTUR002506001471	RIUS006004501671		TAUF02540100601	
Endura T-R	2.5	65		short	KTUR002506501471	RIUS006505501671		TAUF02540100651	
Endura T-R	2.5	70		short	KTUR002507001471	RIUS007005501671		TAUF02540100701	
Endura T-R	3.2	75		short	KTUR003207501471	RIUS007505501671		TAUF03246100751	
Endura T-R	3.2	80		short	KTUR003208001471	RIUS008005501671		TAUF03246100801	
Endura T-R	3.2	85		short	KTUR003208501471	RIUS008506501671		TAUF03246100851	
Endura T-R	3.2	90		short	KTUR003209001471	RIUS009006501671		TAUF03246100901	
Endura T-R	4.0	95		short	KTUR004009501471	RIUS009506501671		TAUF04065100951	
Endura T-R	4.0	100		short	KTUR004010001471	RIUS010006501671		TAUF04065101001	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Endura T-R	63			79	10	Ø50/41,5 x 16		Ø49 x 81	87.00	90
Endura T-R	63			79	10	Ø55/46,5 x 16		Ø54 x 81	87.00	90
Endura T-R	74			88	10	Ø60/51 x 17		Ø58 x 91	98.00	101
Endura T-R	74			88	10	Ø65/56 x 17		Ø63 x 91	98.00	101
Endura T-R	74			88	10	Ø70/60 x 17		Ø68 x 91	98.00	101
Endura T-R	85			102	12	Ø75/64 x 17,5		Ø73 x 105	113.00	117
Endura T-R	85			102	12	Ø80/69 x 17,5		Ø78 x 105	113.00	117
Endura T-R	85			102	12	Ø85/74 x 17,5		Ø83 x 105	113.00	117
Endura T-R	85			102	12	Ø90/77 x 18,5		Ø88 x 105	113.00	117
Endura T-R	97			112	16	Ø95/82 x 18,5		Ø93 x 115	125.00	129
Endura T-R	97			112	16	Ø100/87 x 20		Ø98 x 115	125.00	129

Dimensional parameters

04 Endura T-RS: with Ring and Spring Bush



REFERENCE

TYPE	HOLDER	D	VAC	RING WIDTH	PLUNGER	RING	SPRING BUSH	HOLDER	PRESSURE RING
Endura T-RS	1.5	50	Vac	short	KTURS01505001471	RIUS005004201671	DRUF050044030201	TAUF01530100501	
Endura T-RS	1.5	55	Vac	short	KTURS01505501471	RIUS005504201671	DRUF055049030201	TAUF01530100551	
Endura T-RS	2.5	60	Vac	short	KTURS02506001471	RIUS006004501671	DRUF060054040201	TAUF02540100601	
Endura T-RS	2.5	65	Vac	short	KTURS02506501471	RIUS006505501671	DRUF065059040201	TAUF02540100651	
Endura T-RS	2.5	70	Vac	short	KTURS02507001471	RIUS007005501671	DRUF070064040201	TAUF02540100701	
Endura T-RS	3.2	75	Vac	short	KTURS03207501471	RIUS007505501671	DRUF075069040201	TAUF03246100751	
Endura T-RS	3.2	80	Vac	short	KTURS03208001471	RIUS008005501671	DRUF080074040201	TAUF03246100801	
Endura T-RS	3.2	85	Vac	short	KTURS03208501471	RIUS008506501671	DRUF085079040201	TAUF03246100851	
Endura T-RS	3.2	90	Vac	short	KTURS03209001471	RIUS009006501671	DRUF090084040201	TAUF03246100901	
Endura T-RS	4.0	95	Vac	short	KTURS04009501471	RIUS009506501671	DRUF095089050201	TAUF04065100951	
Endura T-RS	4.0	100	Vac	short	KTURS04010001471	RIUS010006501671	DRUF100092050201	TAUF04065101001	

DIMENSION

TYPE	PLUNGER L	PLUNGER T x a	PLUNGER M x B	PLUNGER Lt (Tube) -2mm	PLUNGER Qt Tube)	RING	SPRING BUSH	HOLDER	SYSTEM LENGTH L2	SYSTEM LENGTH total
Endura T-RS	63			79	10	Ø50/41,5 x 16	Ø50/44 x 30	Ø49 x 81	87.00	90
Endura T-RS	63			79	10	Ø55/46,5 x 16	Ø55/49 x 30	Ø54 x 81	87.00	90
Endura T-RS	74			88	10	Ø60/51 x 17	Ø60/54 x 40	Ø58 x 91	98.00	101
Endura T-RS	74			88	10	Ø65/56 x 17	Ø65/59 x 40	Ø63 x 91	98.00	101
Endura T-RS	74			88	10	Ø70/60 x 17	Ø70/64 x 40	Ø68 x 91	98.00	101
Endura T-RS	85			102	12	Ø75/64 x 17,5	Ø75/69 x 40	Ø73 x 105	113.00	117
Endura T-RS	85			102	12	Ø80/69 x 17,5	Ø80/74 x 40	Ø78 x 105	113.00	117
Endura T-RS	85			102	12	Ø85/74 x 17,5	Ø85/79 x 40	Ø83 x 105	113.00	117
Endura T-RS	85			102	12	Ø90/77 x 18,5	Ø90/84 x 40	Ø88 x 105	113.00	117
Endura T-RS	97			112	16	Ø95/82 x 18,5	Ø95/89 x 50	Ø93 x 115	125.00	129
Endura T-RS	97			112	16	Ø100/87 x 20	Ø100/92 x 50	Ø98 x 115	125.00	129

Case Studies

TABLE OF CONTENTS

90

iTherm®
Runner Block

94

iTherm®
Core

98

iTherm®
Insert

102

iTherm®
Insert

106

innoSleeve

110

Performa
Plunger

114

iTherm®
Shot Block



Cycle time reduction with iTherm® runner block

The customer



The challenge

Cycle time reduction

HTS solution

iTherm® conformally cooled runner block

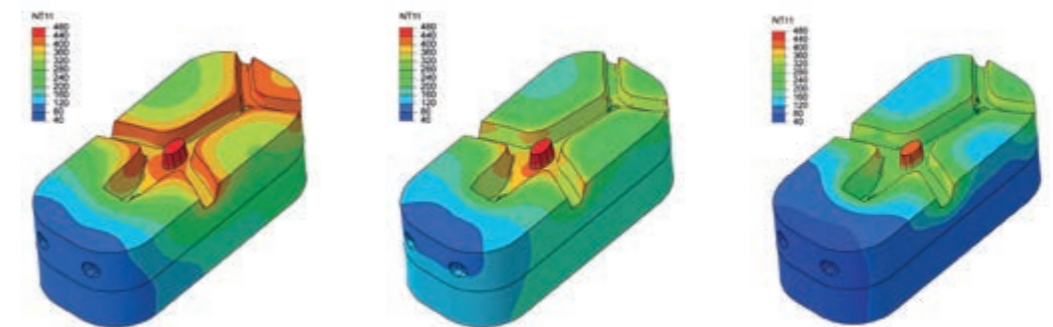
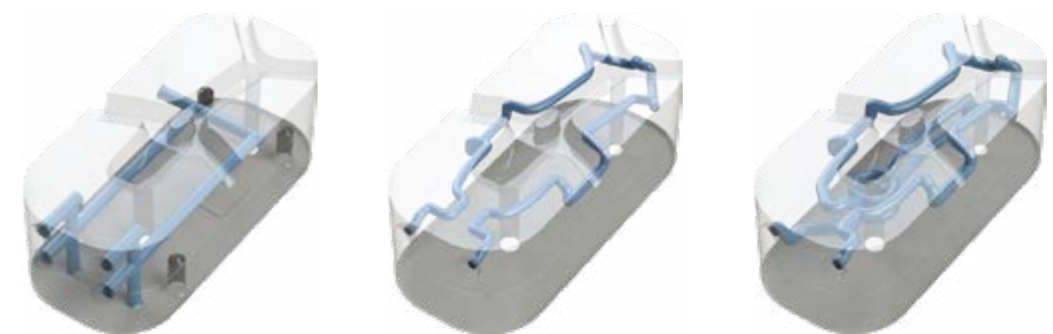
Outcome

19% cycle time reduction

01 Case study overview

AS CASTING is one of the largest aluminum die casting companies in the Czech Republic. Equipped with five casting machines ranging from 400 to 1000 tons, they produce parts up to 13 kg for the electrical and automotive industries, serving both domestic and international customers. The company was using conventionally drilled runner blocks, reaching a 59-second cycle time. To enhance production efficiency and stay competitive, AS CASTING sought to reduce cycle time without compromising die quality or lifespan. AS CASTING collaborated with HTS to transition to iTherm® conformally cooled runner blocks.

The initial implementation of the iTherm® runner block (V1) showed promising results with better cooling speed and more even heat distribution across the working surface. Following this success, a second version, the iTherm® runner block (V2), was developed. This version improved the cooling flow rate by 56% through upgraded conformal cooling arrangements, without changing the fluid velocity.



Conventional Runner Block

Conventional Runner Block. Initial cycle time of 59 seconds

iTherm® Runner Block V1

Improved cooling speed and heat distribution

iTherm® Runner Block V2

Upgraded conformal cooling arrangements (cross-section, shape). Enhanced cooling flow rate by 56%.

02 Results

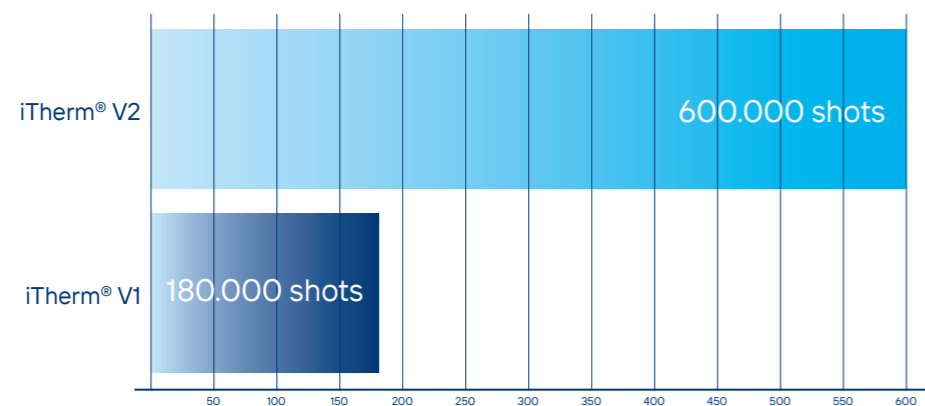
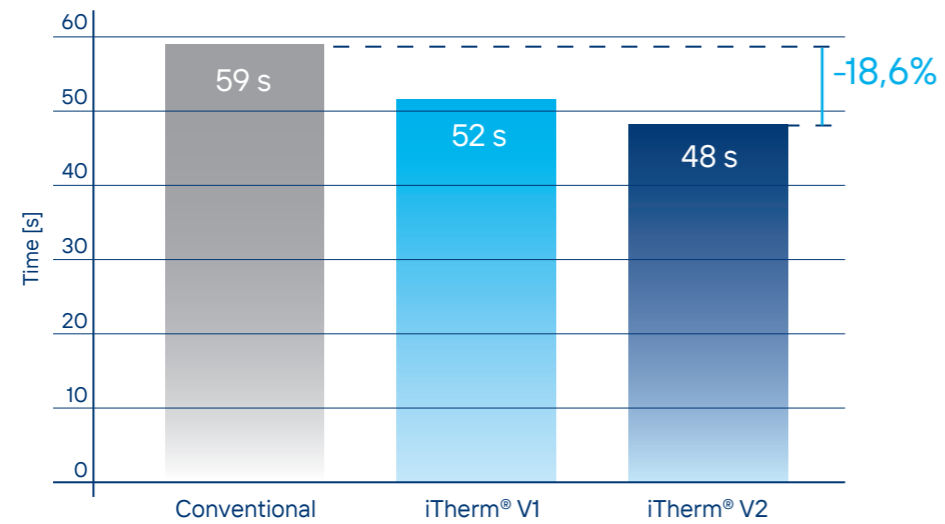
Cycle time comparison

By implementing iTerm® V1 runner block, cycle time decreased by 7s.

The V2 runner block was implemented on the same line as V1 and resulted in an additional 4 seconds reduction in cycle time.

Lifespan comparison

In addition to the cycle time reduction, the runner blocks also substantially surpassed the lifespan of conventional, drilled runner blocks.



03 Conclusions

The implementation of the iTerm® runner blocks resulted in significant improvements in both cycle time and lifespan. The integration of iTerm® conformally cooled runner blocks has allowed AS CASTING to achieve significant improvements in HPDC cycle time, reducing it by **19%**. Cycle time could have been further decreased to 46 seconds, however, the limiting factor is the die casting cell robot.

Customer statement

“ We are very happy with our collaboration with HTS. With our competences put together, and with the help of their iTerm® technology, we have decreased cycle time so dramatically that it led us to discover a bottleneck elsewhere in our production.



Cycle time could further be decreased to 46 seconds, however, now the limiting factor is the die casting cell robot.

Cycle time reduction with iTherm[®] die core

The customer

Slovenian supplier to the automotive sector

The challenge

Cycle time reduction

HTS solution

iTherm[®] conformally cooled core

Outcome

20% cycle time reduction

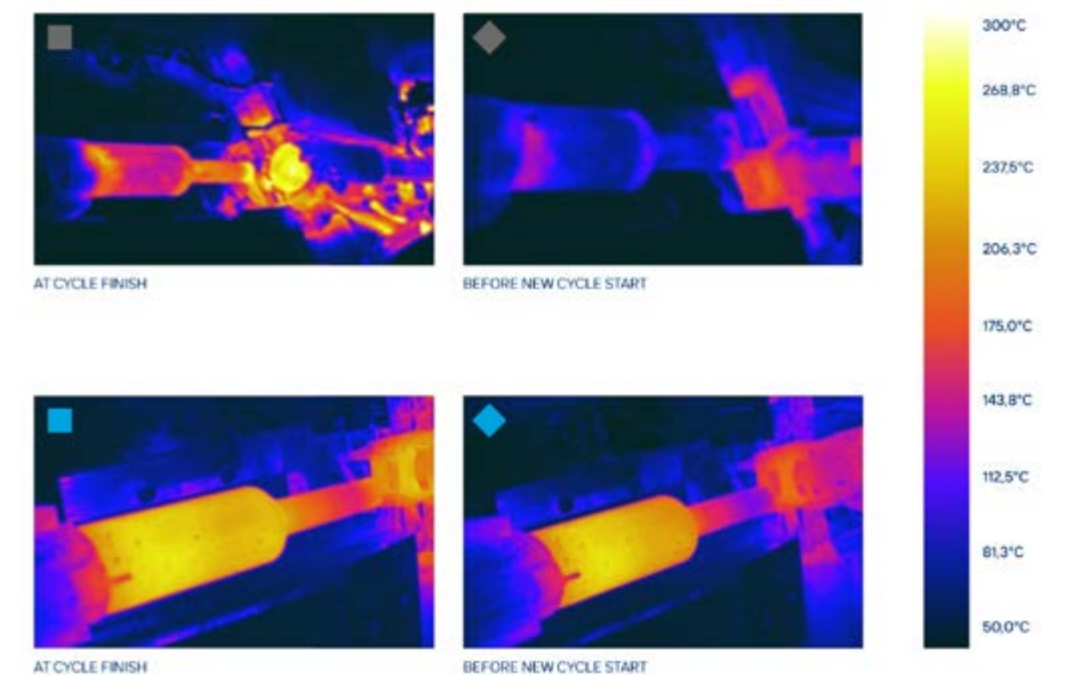
01 Case study overview

A leading Slovenian manufacturer in the automotive industry, known for producing high performance engine components faced a challenge with excessive heat buildup in their steering wheel housing die.

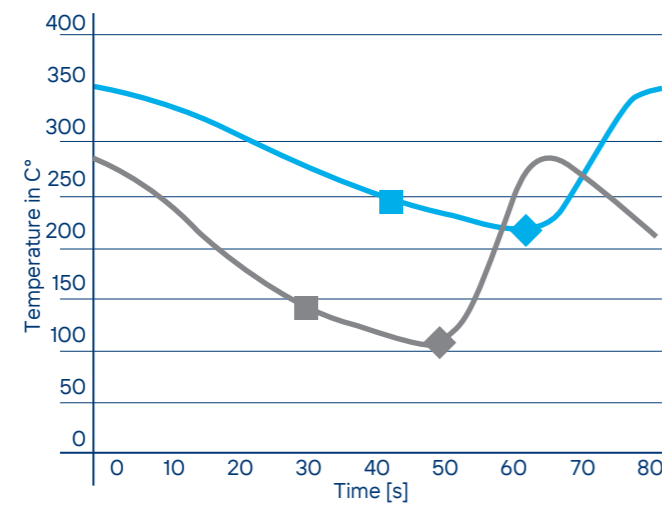
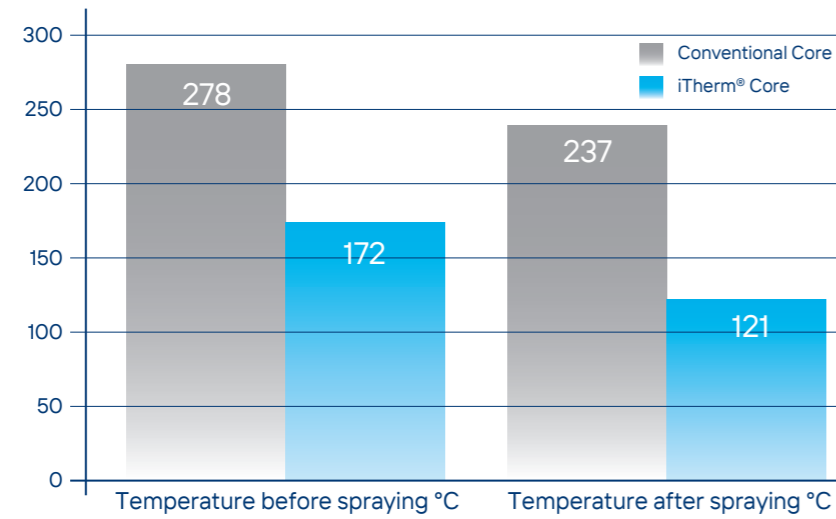
The conventional die cores they were using exhibited high surface temperatures, leading to thermal stress and reduced operational efficiency over successive casting cycles.

Temperature at core surface

Thermal assessment of iTherm[®] Core for automotive steering wheel housing was made during operation using an IR camera. Pictures on the left side show temperature at core surface (a) at cycle finish and (b) before the start of a new cycle.



iTherm® Core surface temperature is around 100 °C lower compared to the surface temperature of conventional die core (IR pictures at the right side).



02 Results

Faster and more uniform surface cooling had a substantial effect on Cycle Time. Replacing conventional core with iTherm® Core resulted in 20% cycle time reduction.

03 Conclusions

The adoption of iTherm® conformally cooled core yielded several key benefits:

- **Enhanced Efficiency:** Reduced core surface temperatures minimized thermal stress on the die casting equipment, leading to improved operational stability and extended equipment lifespan.
- **Quality Improvement:** Lower surface temperatures contributed to better casting quality by reducing the likelihood of thermal defects and ensuring more precise casting dimensions.
- **Cost Savings:** Decreased thermal stress and improved operational efficiency resulted in reduced maintenance costs and increased productivity over the long term.

Eliminating hot spots with iTherm[®] die insert

The customer

Slovenian die caster

The challenge

Hot spot elimination

HTS solution

iTherm[®] conformally cooled die insert

Outcome

13% cycle time reduction

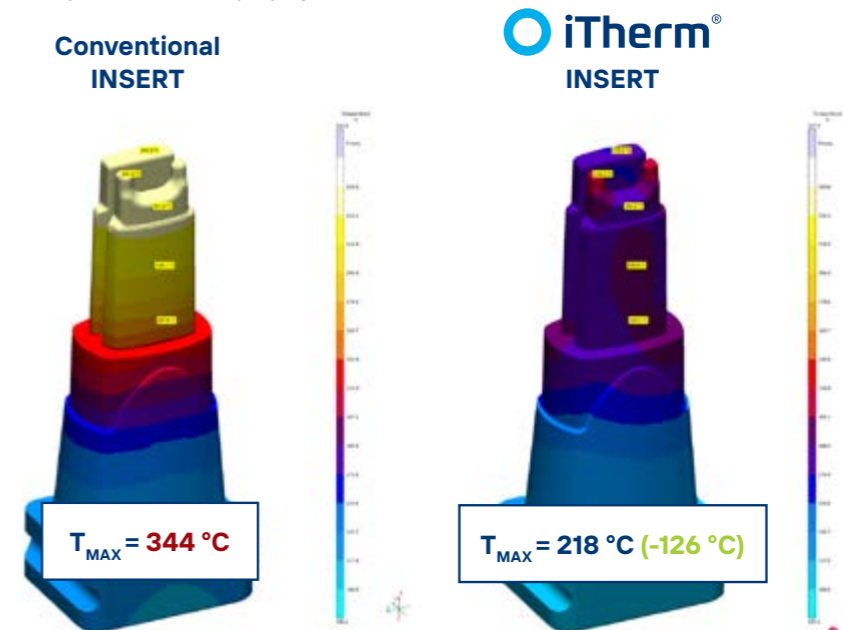
01 Case study overview

Our Slovenia based customer, specializes in the development and production of advanced solutions for OEM to TIER1 and TIER2 suppliers. They faced significant issues with insert overheating. During the solidification phase, insert temperatures exceeded 550°C, and they were around 340°C before spraying. This overheating caused die soldering, prolonged solidification, and increased cycle times.

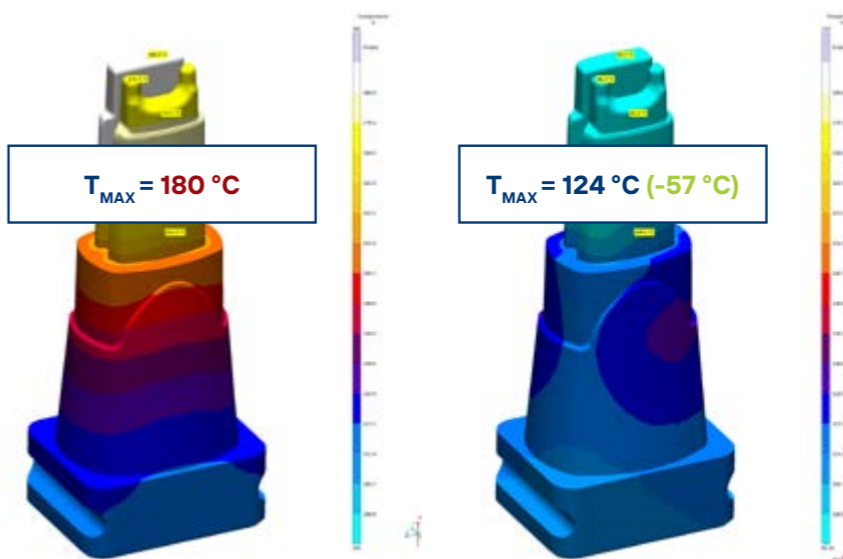
To cool the inserts, an intensive and lengthy spraying phase was required. The customer even switched to high-conductive tool steel inserts, which reduced temperatures, but the need for intensive spraying persisted. This excessive spraying phase shortened die life, resulting in frequent maintenance and replacements. Despite various interventions, the customer faced ongoing inefficiencies and rising operational costs.

Thermal performance comparison

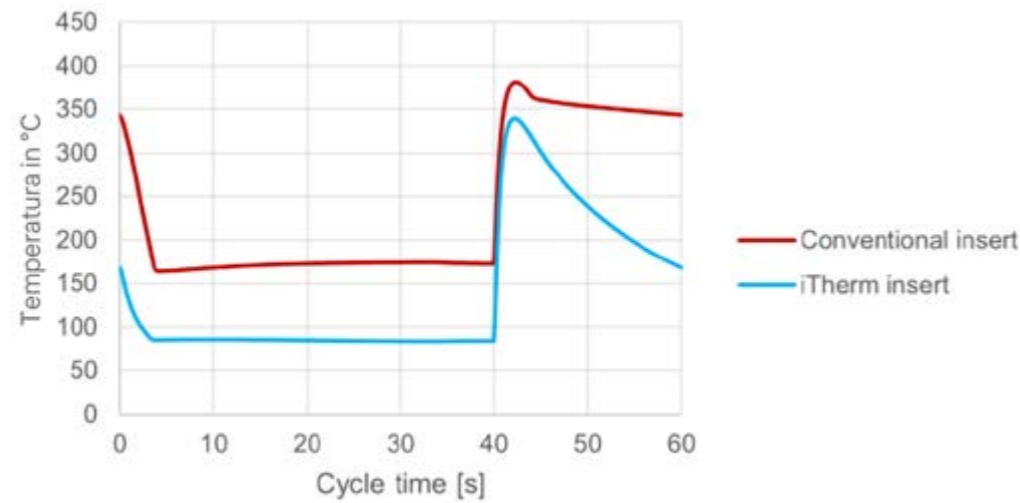
Temperature before spraying



Temperature after spraying

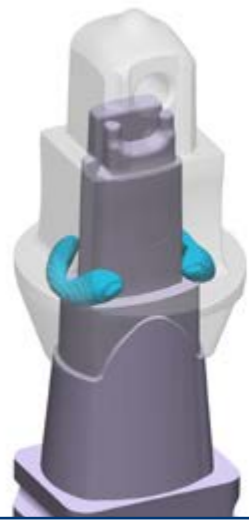


Temperature comparison



Cycle analysis

Conventional INSERT



Biscuit & Runner
PARTIALLY IN LIQUID PHASE

iTherm® INSERT



Biscuit & Runner
FULLY SOLIDIFIED

OPTIMIZATION POTENTIAL
Spraying:
up to -68%**
Solidification:
Up to -23%**

* Both screen shots are taken in the same time frame during solidification, when the iTerm® system already reaches full solidification while conventional design is still in partially liquid state. | **For this part alone.

02 Results

The reduction in die insert temperature effectively solved the aluminum sticking problem. As a result, the customer was able to reduce cycle times and increase productivity significantly.

	Temperature before spraying:	Temperature after spraying:	Spraying time needed to cool the insert:	Blowing time:	Solidification time:	Cycle time:
Conventional INSERT	344 °C	180 °C	from 344°C to 180°C - 3.5s	7.5 s	1.3 s	60s
iTherm® INSERT	344 °C	*124°C	from 218°C to 180°C - 1s	2.5 s	1 s	52.2s -13%

03 Return on investment

As a part of HTS standard procedure, the ROI for the insert was estimated.

	Conventional	iTherm®	Difference
Cycle time	60 sec	52.2 sec	13%
Required machine hours	1.667	1.450	217
Cost of machine*	166.667 €	145.000 €	21.667 €
Saving per shot	0,22 €		
Investment**	2.000 €	5.070 €	3.070 €
Break-even (shots)	14.169		
Break-even (days)***	15		

*The machine hourly rate is estimated at 100€ | ** The price of the conventional distributor is estimated
*** Calculated with 14h casting per day

Efficiency Comparison

The iTerm® insert reduces cycle time by 13% compared to conventional inserts. Completing 100,000 shots takes 69 days with a conventional insert, while the iTerm® insert completes the same number of shots in just 60 days.

Cost Savings

With a machine hourly rate of €100, using the iTerm® insert results in a cost savings of €0.22 per shot.

Break-Even Analysis

To offset the initial price difference between the iTerm® insert and the conventional insert, **14,169 shots** are required. This break-even point is reached in **15 days**.

Case Study

Porosity reduction with iTherm[®] insert

The customer

Turkish HPDC Foundry

The challenge

Porosity elimination

HTS solution

iTherm[®] die insert

Outcome

57% reduction in porosity volume

01 Case study overview

Our Turkey-based customer, a specialist in high-pressure die casting for the automotive industry, was facing issues with overheating in one of their inserts, leading to shrinkage porosity in the castings. Despite trying a conformal cooling insert, they were dissatisfied with its performance and results.

Previous
INSERT DESIGN



Channel surface area: **13352 mm²**
Channel diameter: **6 mm**

iTherm[®]
INSERT

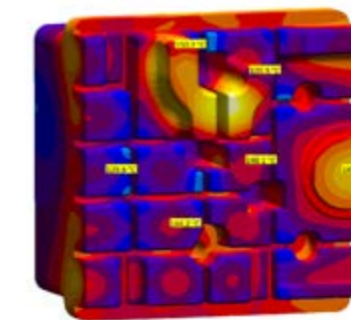


Channel surface area: **20361 mm² (+52%)**
Channel diameter: **4 mm**

Thermal performance comparison

Temperature after spraying [°C]

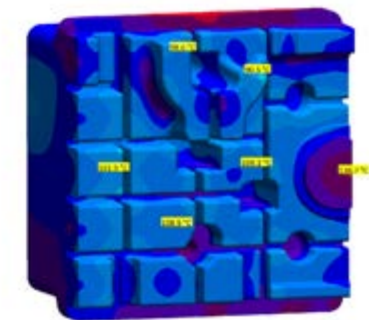
Previous
INSERT DESIGN



T_{MAX} = 216 °C



iTherm[®]
INSERT SLM



T_{MAX} = 159 °C (-57 °C)

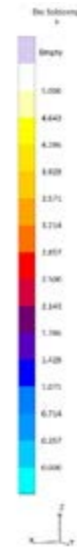
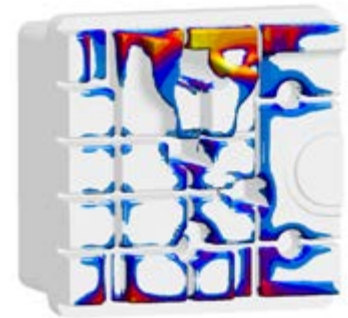


Using iTherm[®], we developed a concept that significantly improved temperature uniformity across the surface. This allowed us to reduce the hotspot temperature by 71°C before spraying and 25°C during the solidification phase.

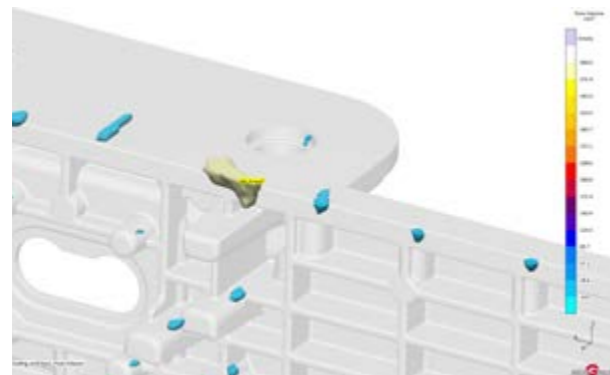
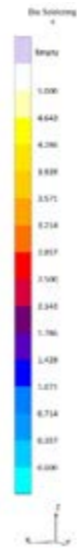
Die soldering analysis

Die soldering effect [°C]

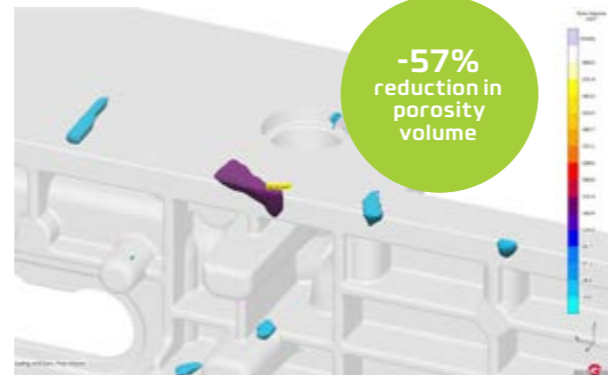
Previous
INSERT DESIGN



iTherm®
INSERT SLM



$V_{\text{PORE}} = 382 \text{ mm}^3$



-57%
reduction in
porosity
volume

$V_{\text{PORE}} = 162 \text{ mm}^3$

02 Conclusion

iTherm® cooling channels configuration ensures **lower operating temperatures**, especially during the solidification phase, where the die surface for the conventional design rises significantly above the **critical temperature**. As a result of lower operating temperatures, the die soldering effect is significantly reduced with the iTherm® insert.

The enhanced cooling and lower temperatures throughout all phases resulted in faster alloy solidification and significantly improved wall formation in the casting. By reducing the solidification time, the iTherm® insert effectively minimized shrinkage voids. Beyond resolving the porosity issue, the customer also achieved a reduction in cycle time by 6 seconds (from 150s to 142s).

Enhancing cost efficiency through longer sleeve lifetime

The customer



The challenge

Extending the shot sleeve lifetime

HTS solution

Replacing conventional shot sleeve with innoSleeve

Outcome

38% longer shot sleeve lifetime

01 Case study overview

With fifty years of experience, ZML Industries SpA is a leader in aluminum high-pressure die casting. Serving major European manufacturers in the household appliance, automotive, and mechanical sectors, ZML operates 17 presses with capacities up to 2,500 tons.

In their quest for constant process improvement, ZML Industries aimed to optimize the cost efficiency of their shot sleeves. Conventional shot sleeves required frequent replacements, leading to production downtime and increased operational costs.

HTS, a long-term partner and supplier to ZML, proposed the use of the HTS innoSleeve Insert. This innovative solution promised a longer lifespan than conventional sleeves and aimed to reduce downtime associated with replacement stoppages.



Based on potential savings and lifetime extension, the ZML production team decided to try the HTS innoSleeve insert on a Ø100mm IDRA OL 1100 line.

Machine	36 e 42 (IDRA OL1100)
Size and type of plunger	Ø100mm, copper plunger with steel ring
Type of alloy	EN AC 46000
Casting metal temperature (°C)	685
Pouring metal weight (gr)	4.580
Lubrication of the plunger (gr/time)	5
Cycle time (sec)	60

Image: Process parameters on the trial production line

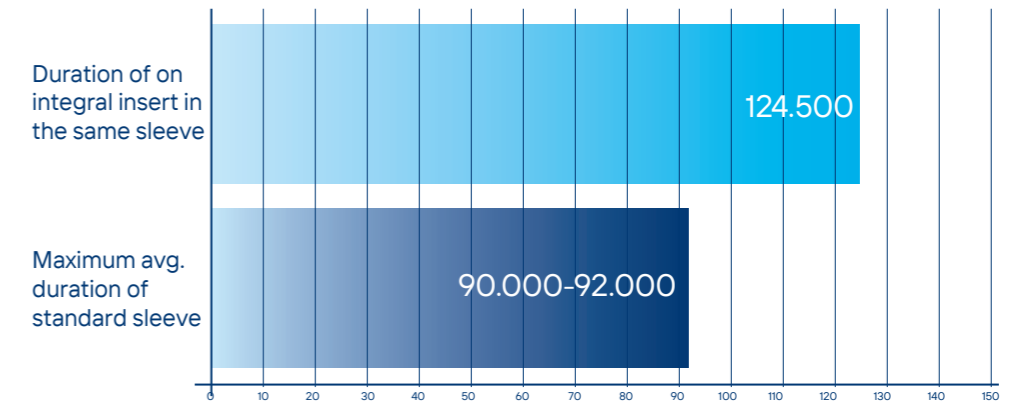
To implement the innoSleeve insert, an existing sleeve without thermoregulation was re-machined. This way it was possible to recover a shot sleeve to be scrapped and further improve the cost-efficiency. As the insert fixing system guarantees the same total length measurement (635mm) as the standard one, it was therefore not necessary to change the machine parameters to use this solution.



Image: innoSleeve after 124.500 shots

innoSleeve has reached a total life of **124.500 shots**. The total number of plungers consumed was 15, resulting in an average plunger life of **8.300 shots**. An increase of 0,25mm on the front diameter was detected, which would have allowed extending the life. However, under the pour hole, worn areas deeper than 1mm were noted. At 124.500 shots innoSleeve insert trial was terminated to avoid a potentially exponential increase in piston wear.

02 Results



The maximum average duration of the standard shot sleeve on the same machine was 90.000 - 92.000 shots.

In conclusion, the average lifetime of plungers remained the same, but the innoSleeve insert lasted 38% longer than the conventional shot sleeve.

Customer statement

Roberto Tomasella - ZML Engineering and tooling department

“ If the result of the second step will be as positive as the first, we have already identified other types of sleeves where to adopt the same solution:

The first type is a sleeve that has a total length of 705mm, with a Ø100mm piston, to be used on 1100-1350 tons machine.

Finally, the same type of sleeve used for the first test could be reused, building an insert with an internal diameter of 95mm.

It would allow us to have different diameters (95mm or 100mm) using the same sleeve.

Enhancing Plunger Longevity

The customer



The challenge

Extend plunger lifespan

HTS solution

Performa plunger and innoSleeve

Outcome

+91% plunger lifespan

01 Case study overview

GMD Eurocast operates multiple die casting facilities across France, utilizing high-capacity 2700-ton machines. The company specializes in high-quality metal castings for various industries and aims to optimize their production processes for greater efficiency and cost-effectiveness.

Eurocast used standard copper plungers with AS9U3 alloy, which had an average lifespan of 9,000 shots, lasting approximately three weeks in operation, requiring 17.3 plungers per machine annually. This led to high maintenance costs and frequent replacements and stoppages.

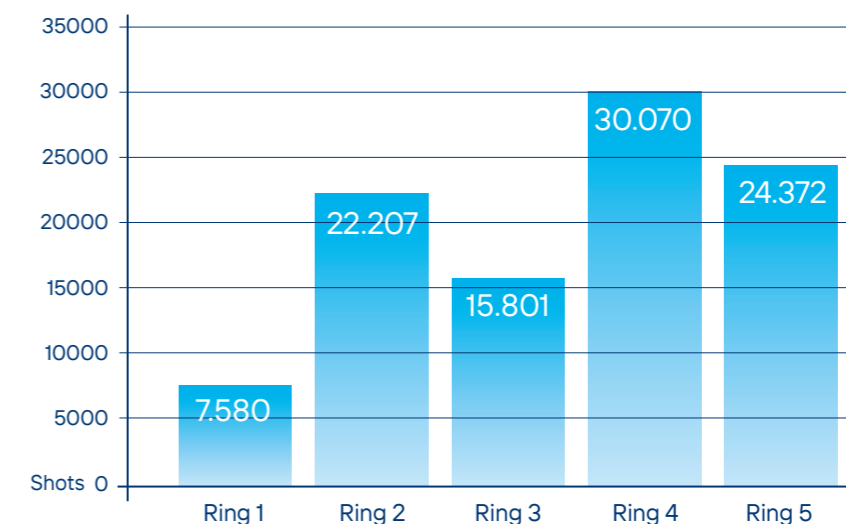
To address these issues, a combination of Performa Plunger and innoSleeve with was proposed. Eurocast tried out the HTS innoSleeve insert on a Ø100mm IDRA OL 1100 line.

Once in production Eurocast team with HTS support was performing regular maintenance and inspection, to assure the optimal operation of the plunger.



Regular inspection of Performa plunger and innoSleeve

By the end of the trial, the Performa Plunger or the innoSleeve insert had no signs of critical wear, no welding was used to repair them during their operation.



Five rings were changed on the Performa plunger during use.

The first ring was used merely to try it out and optimise the machine. The later four rings were used rigorously, reaching the number of shots as presented in the table.

The Performa plunger combined with the innoSleeve insert achieved an impressive lifespan of 100,030 shots, representing a 91% increase in durability. During the trial, about 1.5 Performa plungers were used per machine.

Each Performa plunger's lifespan required around 5 plunger rings, totaling approximately 7.5 rings per year per machine.

The average lifetime of the rings was 20,000 shots.

02 Results

BEFORE:
copper plunger



AFTER: Performa Plungers
with rings, used with innoSleeve



The Performa Plunger, in combination with the innoSleeve insert system, achieved an impressive service life of 100,030 shots, representing a 91% increase in durability. During the test, approximately 1.5 Performa plungers were used per machine. The service life of each Performa Plunger required around 5 plunger rings, totaling approximately 7.5 rings per year and per machine.

The average service life of the rings was 20,000 shots.

Case Study

Elimination of overheating to enable microspraying implementation

The customer

Korean die caster

The challenge

Eliminate shot block overheating

HTS solution

iTherm® conformally cooled shot block

Outcome

40% lower surface temperature and implementation of microspraying

01 Case study overview

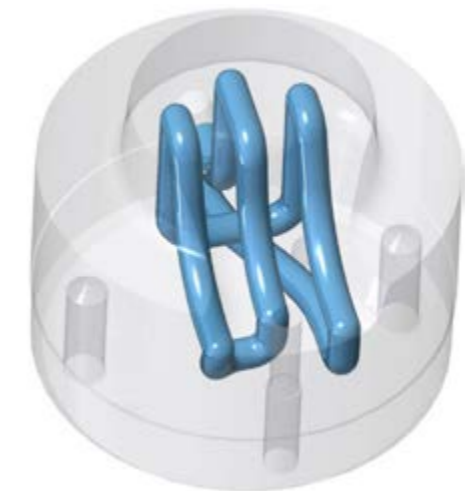
Our customer in Korea, a specialized manufacturer of non-ferrous metal casting and electrical equipment wanted to implement microspraying on one of their dies to enhance the efficiency of their manufacturing process. However, they encountered an issue: the microspraying caused their shot block to overheat because it did not effectively remove heat during this phase. This overheating problem necessitated longer and more intense spraying, which was inefficient and costly. By integrating iTherm® technology, they were able to significantly increase the heat dissipation rate of the system and this eliminated the need for prolonged, high-intensity spraying.

Conventional
SHOT BLOCK



Channel surface area:
6668 mm²

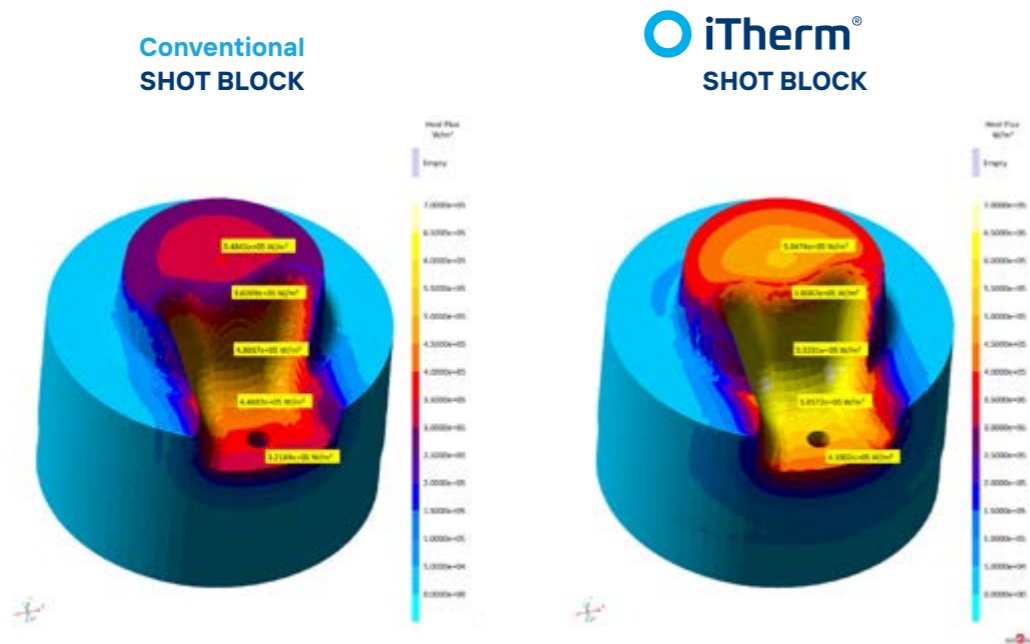
iTherm®
SHOT BLOCK



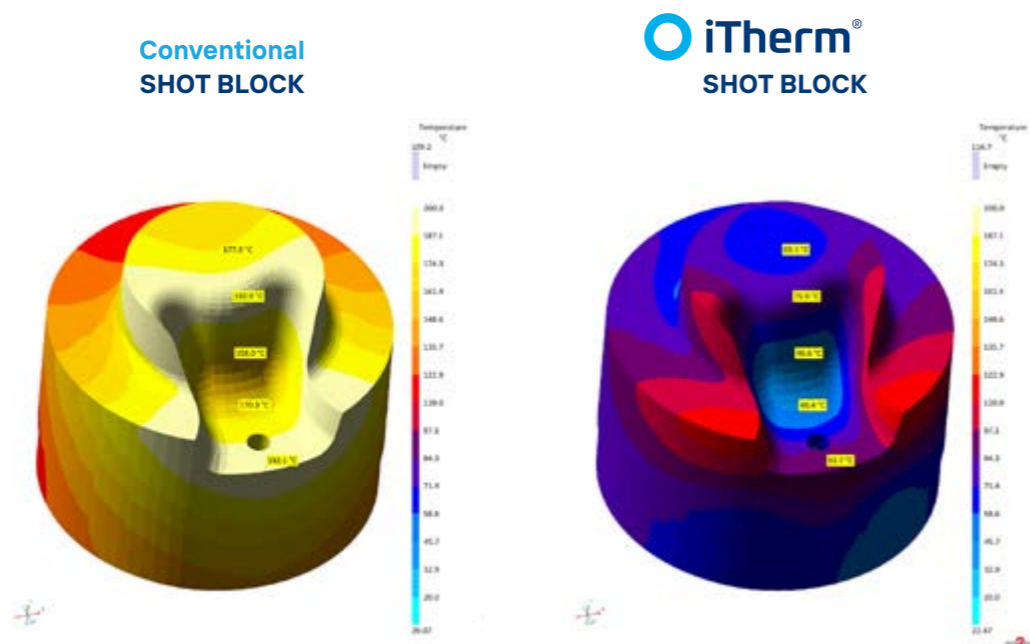
Channel surface area:
23550 mm² (+57%)
Steel grade: SITHERM S353R

With the implementation of the conformal-cooled shot block, the customer successfully incorporated microspraying into their process. This change not only reduced cycle times but also resulted in significant savings on lubrication and water costs. Additionally, the reduced need for high-intensity spraying lowered the tensile stresses on the die surface. This, in turn, improved the die's lifespan, offering a more durable and cost-effective solution. Overall, the integration of iTherm®'s conformal cooling technology provided the customer with an optimized manufacturing process that reduced operational costs including water and lubricant consumption and improved the longevity of their equipment.

Cooling performance comparison

HEAT FLUX [W/m²]

Greater coverage of the cooling channels inside the iTherm® shot block with better HTC and better thermal conductivity of the base material results in much better and more even heat dissipation across the whole shot block.



For the conventional shot block, the time needed to cool it below 200°C is 8s, 4s of spraying + 4s of blowing; and microspraying not possible without significantly prolonged cycle time. Whereas for the iTherm® Shot Block, the time to cool 200°C is 2s, 1s of spraying + 1s of blowing.

03 Results

	Conventional	iTherm® SHOT BLOCK
Spraying & Blowing [s]	4+4	1+1
Solidification time [s]	6,5	5
Cycle time [s]	50	42.5(-15%)

Cycle time
reduction
-15%

With iTherm® shot block we were able to reduce hotspot temperatures. Due to the improved cooling power of the iTherm®, less time is needed to reach the optimal temperatures during die preparation and **less time to solidify the biscuit** and the runner. **Manipulation processes** can also be **significantly shorter** without the risk of overheating the components. To avoid possible component overcooling it is advised to reduce manipulation time where possible. The temperature of the die can also be regulated by adjusting the flow and the type of the coolant.



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