



GLASS INDUSTRY

**CERBERITE<sup>®</sup>**  
SOLUTIONS FOR HOT  
GLASS HANDLING



**Cerberite<sup>®</sup>**

# 01

## CERBERITE® SOLUTIONS FOR CONTAINER GLASS

Looking for production efficiency  
and lower operating costs?

### Million hours of operation

Our know-how has been built over decades through a continuous cooperation between our customers and our R&D center. Cerberite® is the global leading brand representing the specific solutions out of graphite, composite and metallic systems for the glass industry.

### WHY IS IT KEY FOR YOU?

### YOUR BENEFITS

#### LOW THERMAL CONDUCTIVITY

- Reduces or avoids checks and crizzles
- Reduces thermal shock

- Fewer rejects
- Higher productivity
- Improves "melt-to-pack" ratio

#### EXCELLENT FLEXURAL AND COMPRESSIVE STRENGTHS

- Improves wear performance
- High impact resistance
- Handling parts last longer

- Longer life for contact parts
- Fewer unplanned maintenance stops
- Higher productivity / lower operation costs

#### LOW POROSITY

- Reduces contacts checks
- Reduces absorption of contamination

- Fewer rejects
- Higher productivity / operating cost reduction

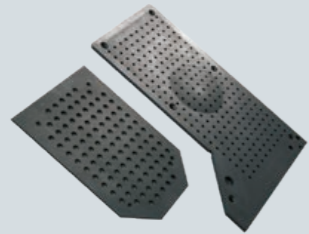
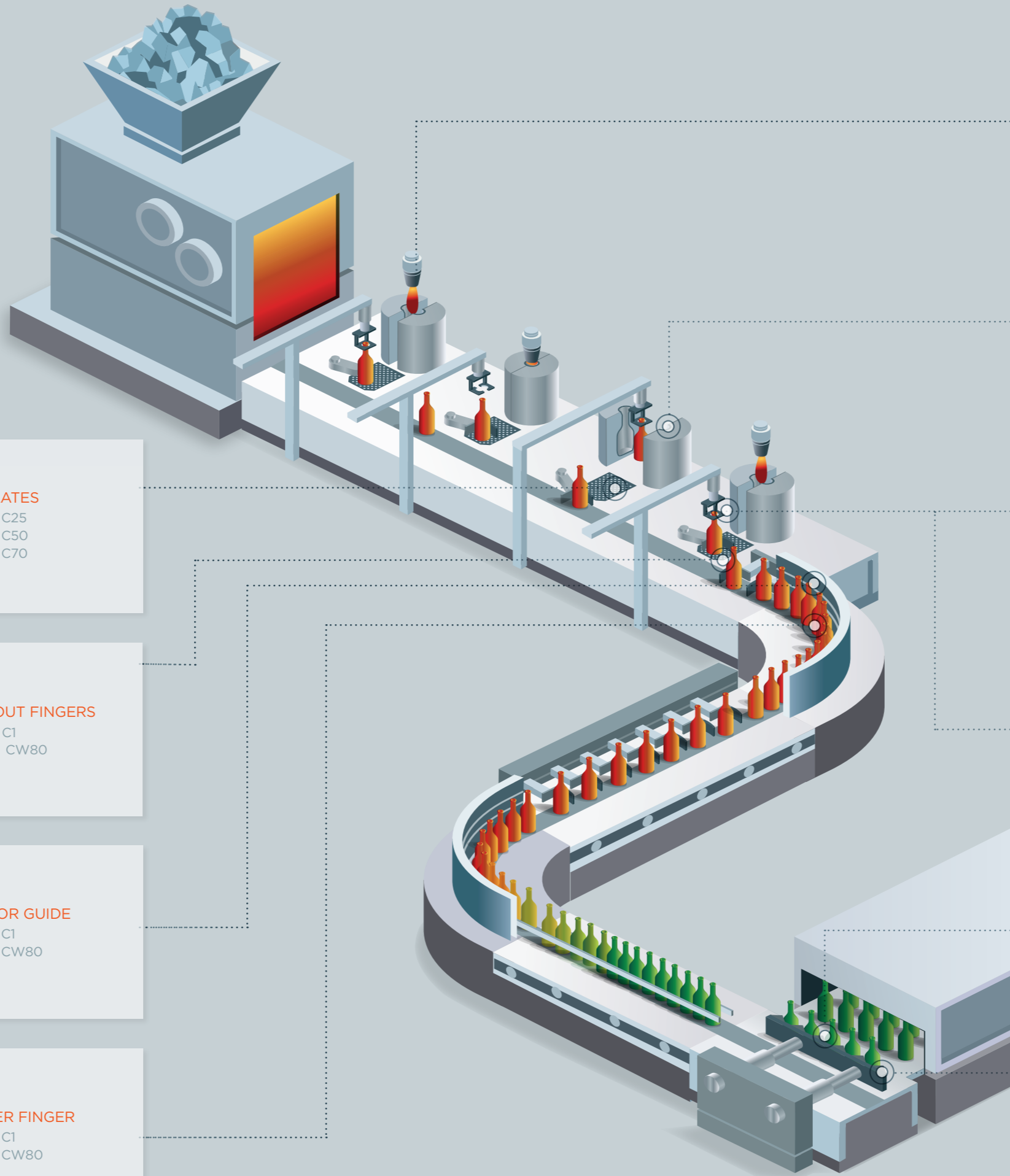
#### ANTI-OXIDATION TREATMENT

(CERBERITE® C50  
AND C70)

- Extends life of material
- Improves wear properties

- Fewer insert changes
- Reduces unplanned maintenance stops
- Higher productivity

# GLASS PROCESS PRODUCT SOLUTIONS



**DEAD-PLATES**  
Cerberite® C25  
Cerberite® C50  
Cerberite® C70



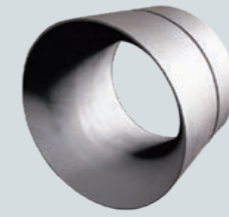
**SWEEP-OUT FINGERS**  
Cerberite® C1  
Cerberite® CW80



**CONVEYOR GUIDE**  
Cerberite® C1  
Cerberite® CW80



**TRANSFER FINGER**  
Cerberite® C1  
Cerberite® CW80



**GUIDE GOB**  
Cerberite® C15  
Cerberite® C25



**TOP PLATE + INSERTS**  
Cerberite® C50



**TAKE-OUT TONGS WITH INSERTS**  
Cerberite® C25  
Cerberite® C50  
Cerberite® C55  
Cerberite® C70



**ROUND STYLE TAKE-OUT TONGS WITH INSERTS**  
Cerberite® C25  
Cerberite® C50  
Cerberite® C55  
Cerberite® C70



**UNIVERSAL FITTING STACKER BAR WITH SPACER INSULATORS**  
Cerberite® CW80



**STACKER BAR BLOCK WITH INSULATORS**  
Cerberite® CW80

# BEST IN CLASS MATERIALS & MACHINING EXPERTISE FOR YOUR PERFORMANCE

Mersen has developed an extensive global network to be able to serve our customers wherever they are, with the quality that they can expect from the market leader.

+ Mersen machine shop close to your plant



## QUICK DELIVERIES

we have the material on stock. You save time.



## EASY

your local contact at Mersen speaks the same language as you.



## EFFICIENCY

Mersen also does the machining of your spares based on your requirement. It's direct, no third parties and who else better than Mersen knows how to machine our material?

# CERBERITE® SOLUTIONS FOR THE GLASS CONTAINER MANUFACTURING PROCESS

	CERBERITE® C1	CERBERITE® C15	CERBERITE® C25	CERBERITE® C50	CERBERITE® C55	CERBERITE® C65	CERBERITE® C70	CERBERITE® CW80
TUBE DRIVE				✓				
LOADING FUNNEL		✓						
GOB DEFLECTOR			✓	✓				✓
TOP PLATE INSERTS				✓				
BLOW-HEAD DISCS			✓	✓				
TAKE-OUT TONG	✓		✓	✓	✓	✓	✓	
DEAD-PLATE			✓	✓			✓	
DEAD-PLATE GUIDE	✓							
SWEEP-OUT	✓							
CONVEYOR GUIDE	✓							
TRANSFER MECHANISM	✓	✓						
HANGING GUIDE	✓		✓					
LEHR STACKER BAR								✓

This table represents standard recommendations made by our experts for the glass container manufacturing process. This does not prevent an analysis of your specific process by our technicians to propose the right solutions for you

# 02

## CERBERITE® SOLUTIONS FOR PHARMA GLASS

Get the purity of the end product with Cerberite® carbon based products.



### LOW THERMAL CONDUCTIVITY

- Graphite sees its thermal conductivity decrease as temperature increases, becoming radically lower than that of metal.

- No thermal stress generated at contact points between forming tools and the glass for an improved quality and higher productivity

### HIGH DENSITY

- Capable to withstand high loads
- Great resistance to high temperatures

- Longer life for contact parts
- Fewer unplanned maintenance stops
- Higher productivity / lower operation costs

### HIGH ABRASION RESISTANCE

- Capable to withstand high load and high temperature
- Mersen Cerberite® solutions will generate no dust or other debris

- Glass quality improved in reaching the standards of purity of pharmaceutical hardwares

### CONTAMINATION FREE

- Avoids aggregation / precipitation of the API ie protein aggregation caused by the dissolution of tungsten from glass syringes

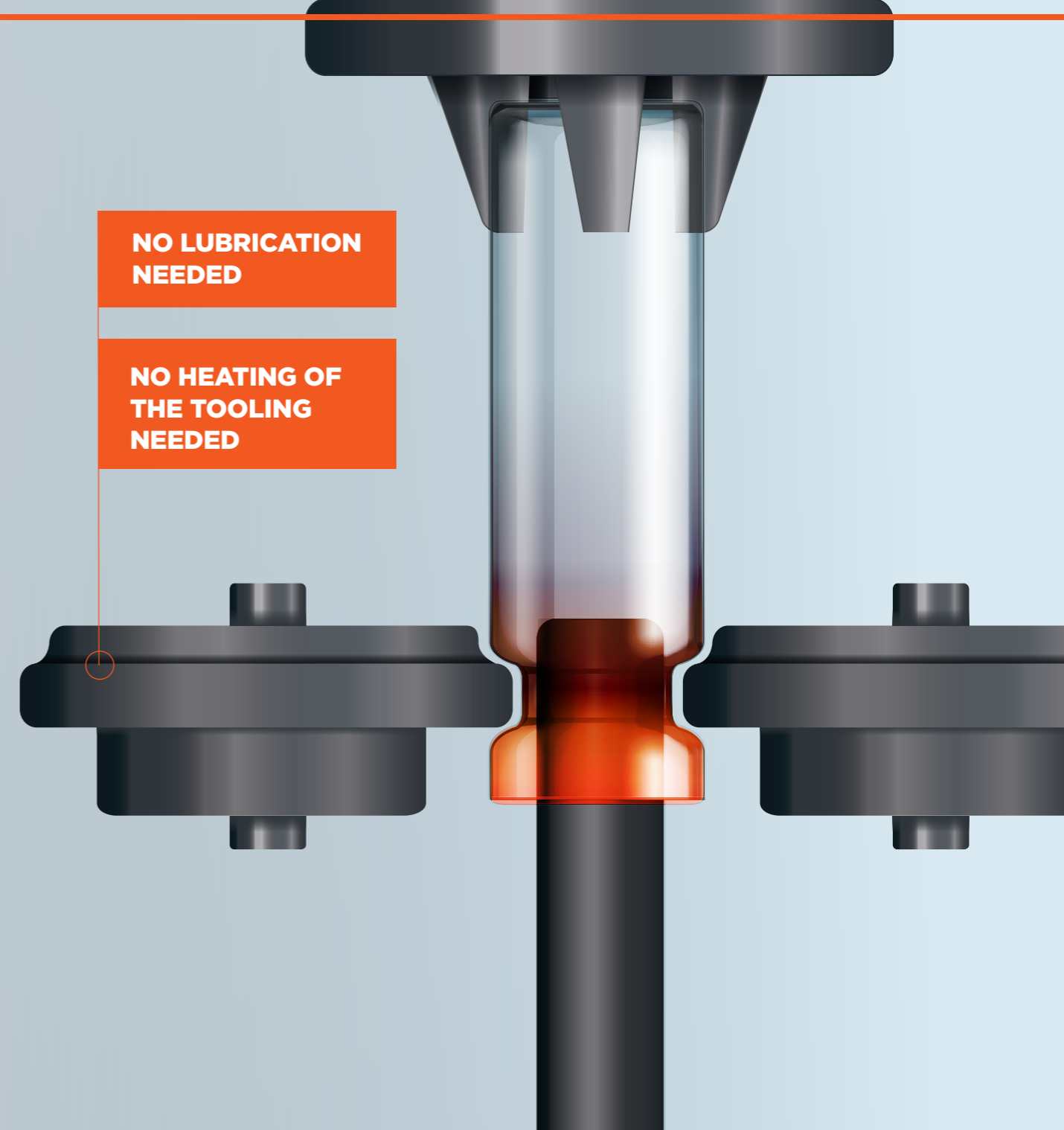
- Reinforce your contamination control strategy (CCS)
- Avoid recalls due to particulate contamination in parenteral products

#### WHY IS IT KEY FOR YOU?

#### YOUR BENEFITS

## WHY IS THERMAL STRESS SO CRITICAL FOR THE QUALITY OF PHARMACEUTICAL GLASS ?

During the production process, pharma glass hardware are subjected to intense and uneven temperature changes. Forming tools in metal are highly conductive and generate thermal stress on the glass. This thermal stress reduces the strength and thermal stability of the end product and generates non-quality.



Forming wheels made of Mersen Cerberite® material avoid :

- the heating of the tools to reduce thermal stress
- lubrication as the material has self-lubrication properties



THANKS TO CARBON BASED MATERIAL MERSEN CERBERITE® TOOLS, THERMAL STRESS IS AVOIDED ON THE GLASS AT THE CONTACT POINT FOR A CONSISTENT QUALITY OF THE PHARMACEUTICAL HARDWARES.

# GLASS TUBE PRODUCTION

# TRANSFORMATION OF GLASS TUBES INTO AMPOULES, VIALS, CARTRIDGES AND SYRINGES.



## ROLLS/ DIABOLO

### LIGHTER

Graphite is 4 times lighter than metal, hence reducing frictive forces at the diablo/glass tubing interface.

### NO OIL NEEDED

On the contrary of metal tools that need to be lubricated when in contact with the hot glass, Cerberite® graphite based solutions are self lubricated. No oil is needed, reducing production costs and improving production conditions.

### NO THERMAL STRESS

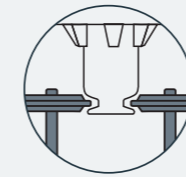
Graphite being less conductive than metal, thermal stress is significantly reduced for an improved quality of the end product.

### PURITY

A unique advantage of our carbon-based components is their very high abrasion resistance, causing no dust or other debris that could challenge the desired purity of your glass.

#### RECOMMENDED GRADES

**Cerberite® C25**  
**Cerberite® C50**  
**Cerberite® C70**

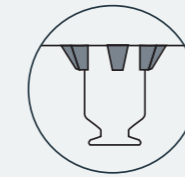


## FORMING WHEELS

Forming syringe cones / vials threads or ampoules necks are all using forming wheels. Each forming wheels, with its specific design will shape the end product.

#### RECOMMENDED GRADES

**Cerberite® C4**  
**Cerberite® C6**

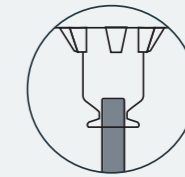


## PIN HOLDER

There are usually 3 pins to hold the glass tube while being processed. Depending on the process, burners can be very close to the graphite pins.

#### RECOMMENDED GRADES

**Cerberite® C5**  
**Cerberite® C8**  
**Cerberite® C25**  
**Cerberite® C50**



## SUPPORT PIN / MANDRIN

The support pin function is to ensure the proper internal diameter of the end product. The flange of the vial (also referred to as the crown, lip, or collar) is a key feature from a "critical to quality" perspective.

#### RECOMMENDED GRADES

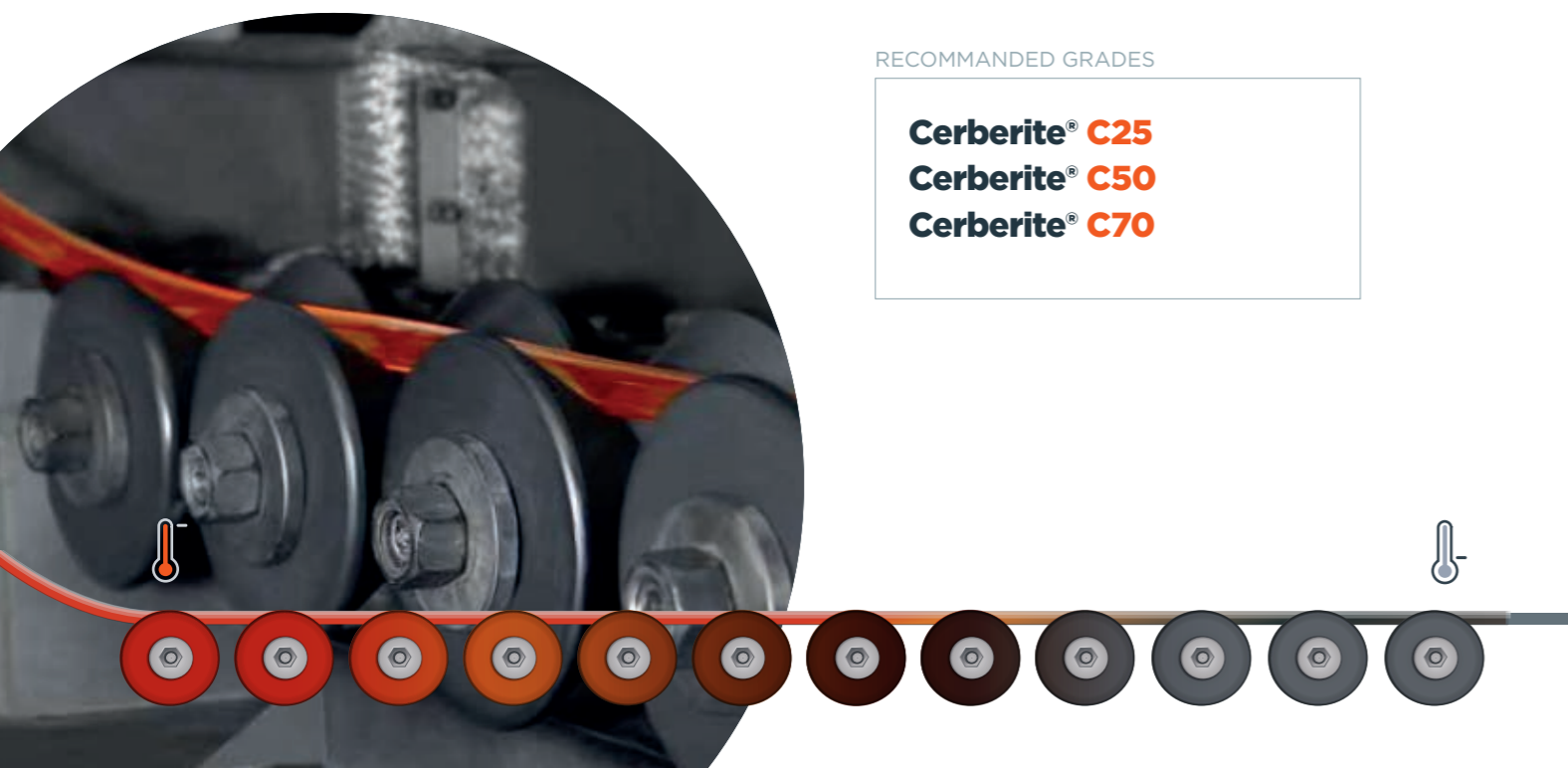
**Cerberite® C4**  
**Cerberite® C75**  
**Cerberite® CW80**

## FINGER FLANGE FORMING

Flange is where the fingers are placed for injection. The cutting, forming, and annealing processes can cause defects that can be dangerous to the user. Cerberite® carbon based solutions can help to minimize defects.

#### RECOMMENDED GRADES

**Cerberite® C50**  
**Cerberite® C70**  
**Cerberite® CW80**



# What makes pharmaceutical glass production so particular ?

The pharmaceutical glass industry can be considered as a high tech segment with demanding expectations :

- + Extremely tight tolerances - no deviation accepted
- + 100% quality controlled with Camera-based inspection technology
- + High volumes / high throughput of the production plants
- + High pressure from the market in terms of volumes and quality



## Mersen Cerberite® carbon-graphite solutions for pharmaceutical glass producers.

OUR MATERIAL CAN HELP THE PRODUCERS TO REACH A HIGH STANDARD OF QUALITY :

- + **No idmensional deviation thanks to the good resistance to wear of our materials;**
- + **Avoid unplanned production stops thanks to the good stability of our materials :**

- What makes the difference is the consistent performance of our materials. With decades of experience in the production of isostatic graphite, we have the know-how to produce high temperature resistant materials with stable specifications that makes us today the global leader in isostatic graphite production.
- Mersen produces and develops graphite, carbon-graphite and carbon-fibre composite materials
- Mersen controls the specifications of its materials supplied to the market

- + **Improve quality of the end-product thanks to appropriate material specifications :**

- Large selection of carbon-graphite Cerberite® grades for the right thermal conductivity selection at each process steps
- High density grades available for abrasion resistance, causing no dust or other debris that could challenge the desired purity of your glass.





GLOBAL EXPERT IN ELECTRICAL  
POWER AND ADVANCED MATERIALS

**AMERICAS**

**MERSEN USA**  
St Marys (PA),  
Bay City (MI),  
Greenville (MI),  
Columbia (TN)

**MERSEN MEXICO**  
Monterrey

**MERSEN ARGENTINA**  
Buenos Aires

**MERSEN CHILE**  
Santiago

**MERSEN COLOMBIA**  
Bogota

**MERSEN BRAZIL**  
Sao Paulo

**EUROPE & AFRICA**

**MERSEN BENELUX**  
Schiedam

**MERSEN GERMANY**  
Suhl & Munich

**MERSEN FRANCE**  
Gennevilliers & Bazet

**MERSEN IBERICA**  
Barcelona

**MERSEN TURKEY**  
Gebze

**MERSEN ITALY**  
Milan & Malonno

**MERSEN NORDIC**  
Kista

**MERSEN UK**  
Teesside & Holytown

**MERSEN SOUTH AFRICA**  
Johannesburg

**ASIA & OCEANIA**

**MERSEN CHINA**  
Chongqing, Kunshan  
& Yantai

**MERSEN INDIA**  
Bangalore & Pune

**MERSEN JAPAN**  
Tokyo

**MERSEN SOUTH KOREA**  
Seoul

**MERSEN OCEANIA**  
Fairfield Victoria

**MERSEN TAIWAN**  
Taipei