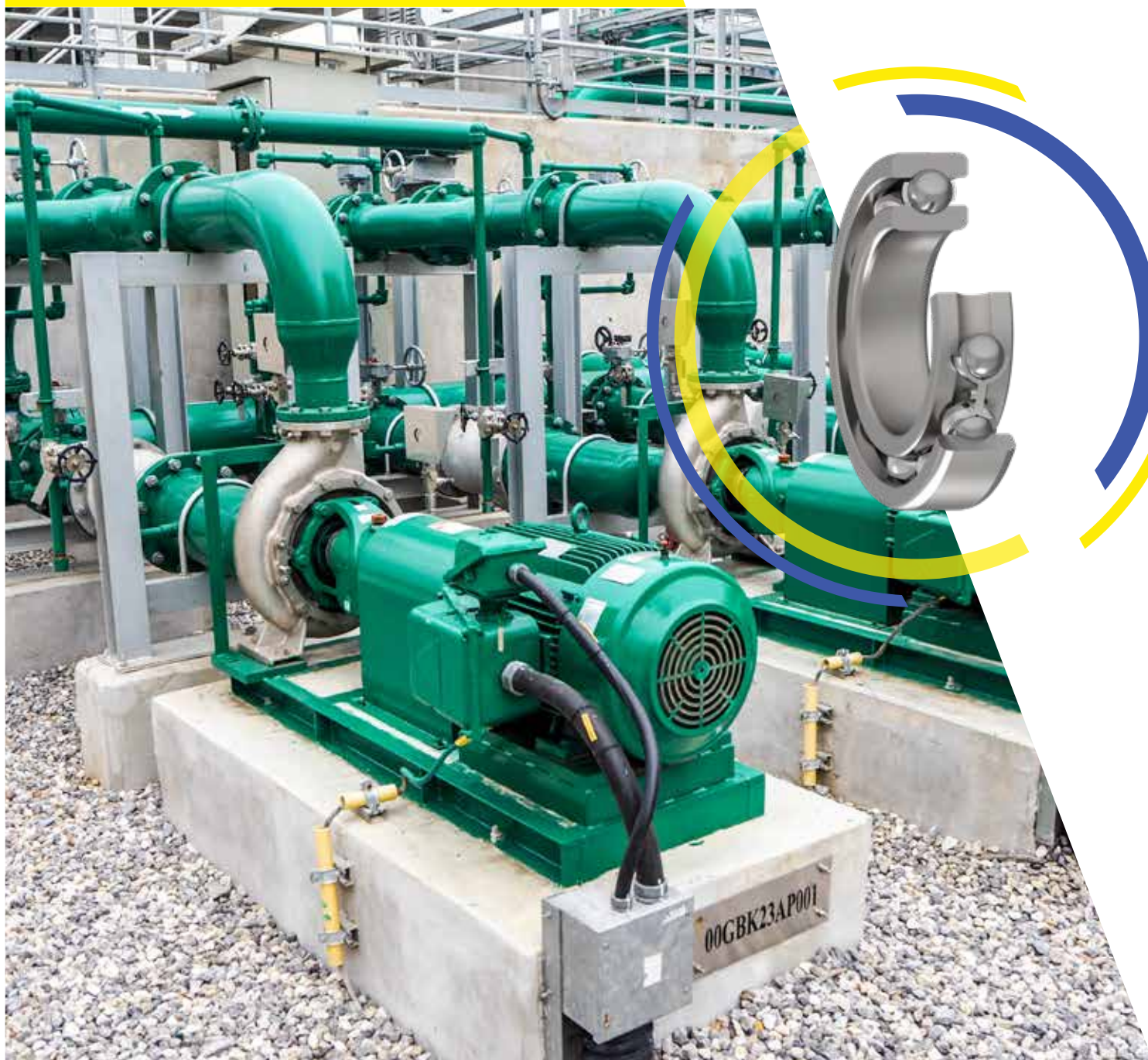




## Beyond Rotation: Bearing's role in Industrial Pumps



**Bearing solutions for the pump industry**

# WHO IS NBC



Founded in 1946, NBC is India's first bearings manufacturer and the last word in quality and durability. In 2020, the company acquired leading European manufacturer, Kinex Bearings to further boost its expertise.

77 years since its beginning, NBC remains India's leading bearings manufacturer and exporter. NBC is also the world's only bearings manufacturer to receive the prestigious Deming Grand Prize for Total Quality Management.



1946 India's  
first bearing  
manufacturer



250+ million  
bearings  
manufacturing  
capacity



3100+variants  
of bearings  
offered



5 manufacturing  
locations



Leading  
exporter



Happy customers  
in 30+ countries



R&D and  
Innovation  
Centre



2800+People



Automotive



Industrial



Railway



Aerospace



# WHY NBC BEARINGS ARE IMPORTANT FOR PUMP INDUSTRY

Pumps have immense significance in Industrial settings. They are indispensable for efficiently moving fluids and gases, process control, cooling and lubrication, and manufacturing processes. Their reliable and efficient functioning is essential for various industries, facilitating smooth processes and the production of goods and services.



Bearings have a crucial role in the operation of pumps, providing support to the rotating shaft and enabling smooth performance. These components are specifically designed to minimize friction between the shaft and stationary parts, ensuring efficient and reliable operation.

The bearings play an important role in pumps and compressors, as they:

- Carry the weight of the rotating shaft in pumps. Furthermore, it carries both radial (perpendicular to the shaft) and axial (parallel to the shaft) loads during operation.
- Create a smooth interface, by allowing the shaft to rotate with minimal resistance, enhancing efficiency and preventing overheating and premature wear.
- Maintain axial stability, in case of significant thrust loads, ensuring the shaft remains aligned during operation.

In a nutshell, bearings in pumps provide load support, minimize friction, maintain axial stability, reduce vibrations, and noise, and contribute to their longevity and reliability. Furthermore, proper selection, lubrication, and maintenance of bearings are essential for ensuring efficient and trouble-free operation of pumps.

# NBC BEARING SOLUTIONS FOR PUMPS EQUIPMENTS

## CENTRIFUGAL PUMPS (RADIAL FLOW, AXIAL FLOW, AND MIXED FLOW)

### Bearings used:

- Cylindrical Roller Bearing
- Angular Contact Ball Bearing
- Double Row Angular Ball Bearing
- Deep Groove Ball Bearing



## PISTON PUMPS

### Bearings used:

- Cylindrical Roller Bearing
- Angular Contact Ball Bearing
- Double Row Angular Ball Bearing
- Deep Groove Ball Bearing



## VERTICAL PUMPS

### Bearings used:

- Cylindrical Roller Bearing
- Angular Contact Ball Bearing
- Double Row Angular Ball Bearing
- Deep Groove Ball Bearing
- Thrust Spherical Roller Bearing



# NBC BEARING SOLUTIONS FOR PUMPS EQUIPMENTS

## SUBMERSIBLE PUMP

### **Bearings used:**

- Deep Groove Ball Bearing
- Angular Contact Ball Bearing



## SCREW PUMP

### **Bearings used:**

- Angular Contact Ball Bearing
- Deep Groove Ball Bearing



# NBC BEARING SOLUTIONS FOR PUMPS EQUIPMENTS

## CYLINDRICAL ROLLER BEARING



### NBC Bearings features

- Optimized internal geometry
- Superior surface finish
- Modified crowning on rollers/raceways
- Modified cage design

## DEEP GROOVE BALL BEARING



### NBC Bearings features

- Superfinished balls and races
- Precisely controlled ball and race geometries
- Optimized ball and race contact
- Enhanced cage design

## ANGULAR CONTACT BALL BEARING



### NBC Bearings features

- Superfinished balls and races
- Modified ball and race contact
- Optimized geometry of raceway and rolling elements
- Improved cage design

# NBC BEARING SOLUTIONS FOR PUMPS EQUIPMENTS

## SPHERICAL ROLLER BEARING



### NBC Bearings features

- Two-piece cage design
- Improved and robust cage design
- Central Guide Ring/Flange
- Maximum and Larger Rollers

## NEEDLE ROLLER BEARING



### NBC Bearings features

- Compact design
- Greater load-bearings capacity
- Special heat treatment for contaminated environment
- Non-ferrous metallic coating on cages to avoid friction

## TAPERED ROLLER BEARING



### NBC Bearings features

- Optimized geometries of raceway and rolling elements
- Precise cage play for enhanced bearing life
- Superior surface finish on raceways
- Improved design of large cone flange



# SPECIAL SOLUTIONS

## HCR WEAR RESISTANT BEARINGS

Wear resistance coating on rolling elements helps avoid metal to metal contact in low film thickness and protects against adhesive and abrasive wear.



### Features

- Optimized coating with metal-containing amorphous carbon with a multilamellar structure
- No columnar structure provides high adhesion strength
- High dimensional accuracies

### Benefits

- Low coefficient of friction even in dry condition:  
Resistant to adhesive wear and micro pitting
- Enhanced fatigue life in insufficient lubrication condition
- Debris tolerance: removes dents created in the contaminated application

## SEALED SPHERICAL ROLLER BEARINGS

Sealed Spherical Roller bearings are like conventional spherical roller bearing in design and features, however for extra protection of bearing and lubricant from any external agents it has contact seals in the recesses of the outer ring.



### Features

- Effective and high-performance contact seals
- Different seal materials to suit different operating temperatures

### Benefits

- Reduced lubricant consumption
- Lower operating and maintenance costs
- Excellent protection against water splashes and contamination

# SPECIAL SOLUTIONS

## INSULATED BEARINGS

Electrical insulation coating prevents electrical pitting in the bearings and improves bearing life in motor application.



### Features

- Aluminium oxide coating using plasma spraying technology
- Current insulation
- High thermal stability

### Benefits

- Extending bearing service life by avoiding damage caused by electric current flow.
- Higher operational reliability of electrical machinery

## HIGH TEMPERATURE BEARINGS

NBC has developed unique heat treatment solutions for high temperature applications to provide superior dimensional stability for operating temperatures as high as 250°C.



### Features

- Special heat treatment
- Excellent performance under hot environments

### Benefits

- Dimensional stability at high temperatures.
- Enhanced bearing service life at elevated temperatures

# SPECIAL SOLUTIONS

## HYBRID BALL BEARINGS

Hybrid bearing also known as anti-friction ball bearing consists of rolling element made of Silicon nitride in place of steel. Silicon nitride rolling elements perform exceptionally well in high-speed operating conditions.



### Features

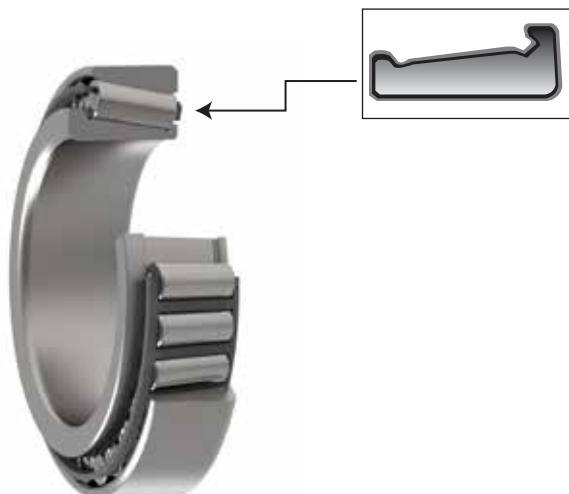
- Lower friction
- Reduced weight
- Current insulation
- Higher hardness

### Benefits

- High speed capability
- Less wear under slippage
- Extended bearing service life
- Higher operational reliability

## CASE CARBURIZED BEARINGS

Case carburized bearings have a tough ductile core and a hard wear-resistant outer surface.



### Features

- Made of ultra clean low carbon steel
- Ductile core helps enduring heavy shock loads
- Compressive residual surface stresses

### Benefits

- Reduced possibility of catastrophic damage due to surface cracks
- Better performance in boundary lubrication condition
- Ability to handle/manage some level of debris
- Sustains higher level of hoop stress

## CONDITION MONITORING SERVICES FROM NBC



NBC provides intelligent solutions for Condition Monitoring in order to improve the reliability of your assets.

Our expertise in various streams of Condition Monitoring helps industries maintain their machinery failure-free.

With a result-oriented approach towards avoiding machinery failure, the scope of CMS largely consists of Vibration Analysis and Lube Oil Analysis.

- **Vibration monitoring & analysis**
- **In-situ dynamic balancing**
- **Laser shaft alignment**
- **Thermography**
- **Annual maintenance contract / On-call service**



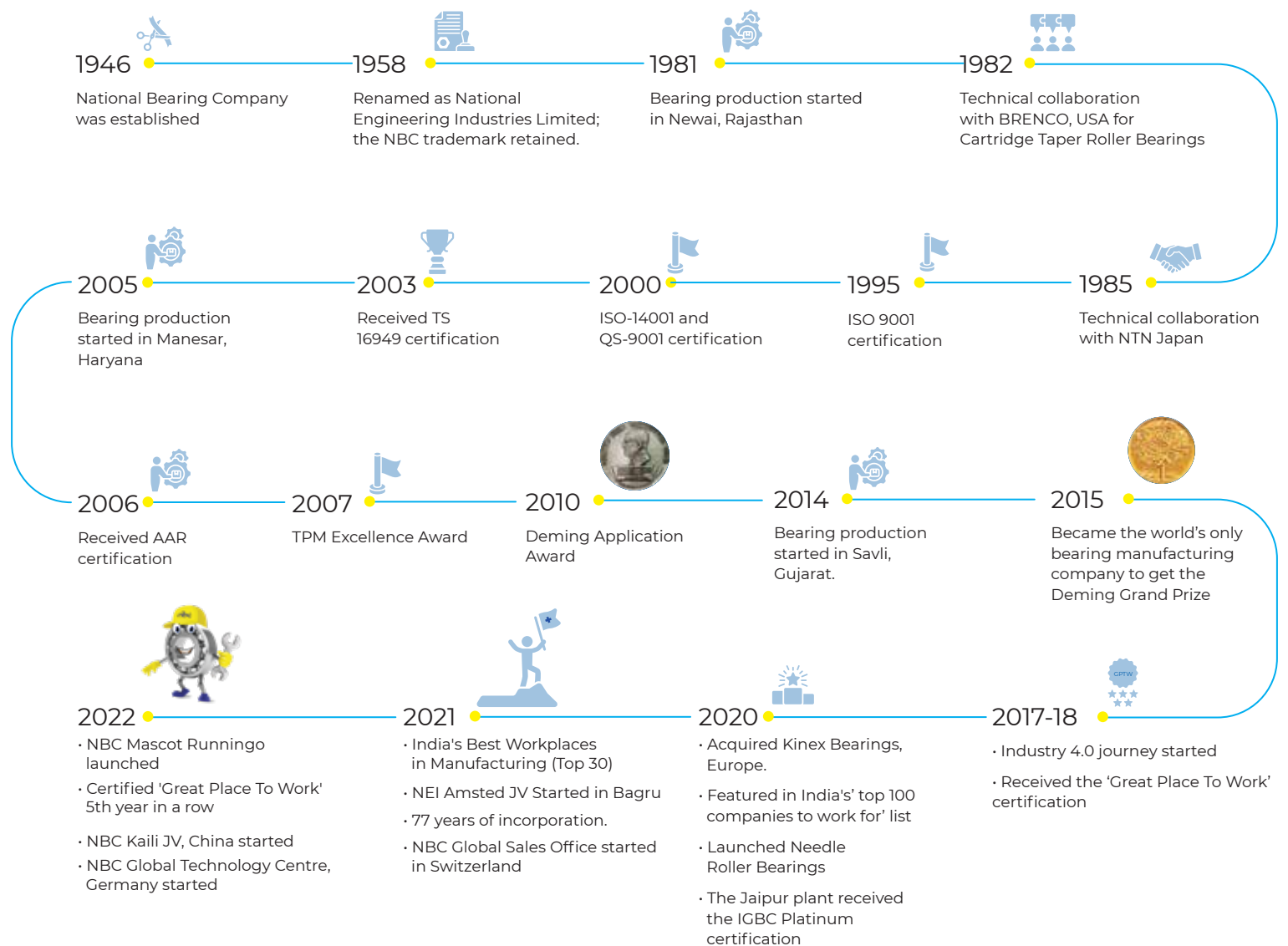
# OTHER PRODUCTS FROM NBC

Since the challenges faced by industry are many, NBC offers a diverse range of exceptional bearings. NBC bearings are available in sizes from 06 mm bore to 2000 mm outer diameter.



\* Products with special features like high temperature application, special heat treatment, coated roller/races and cage options are also available across product range.

## NBC MILESTONES



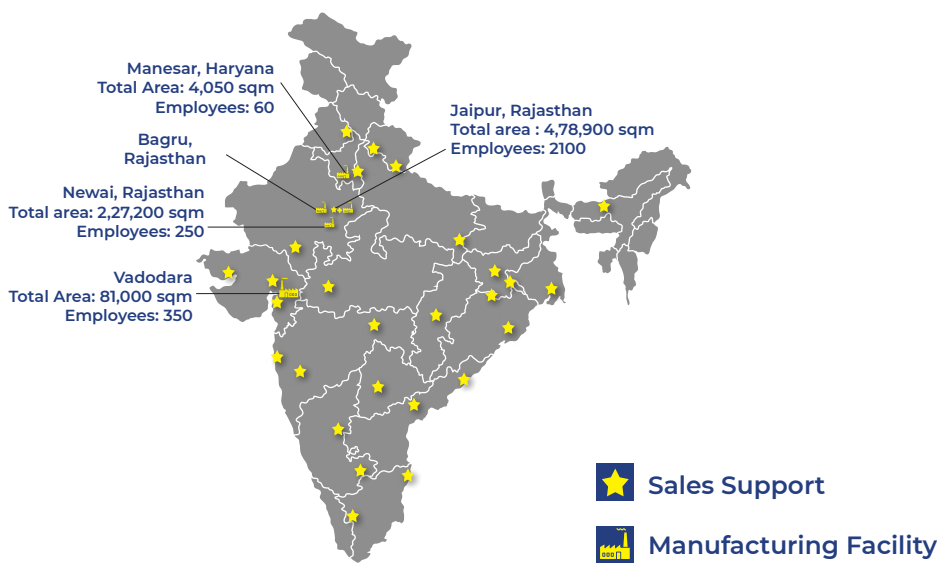
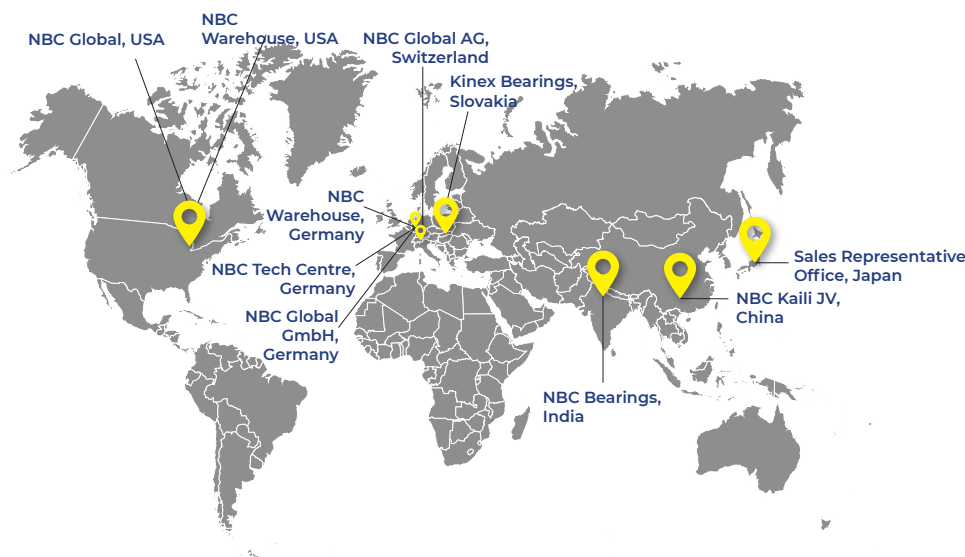


If our bearings had passports,  
they would have stamps  
from 30+ countries.

# OUR GLOBAL REACH

## The NBC Bearings: Product, Technology & Services

NBC provides a wide range of bearings and associated service solutions to diverse industries such as Industrial, Automotive, Railways, and Aerospace. As a company that has been established for over 77 years, NBC Bearings has an international presence with offices and R&D centers across the globe. For us, engineering goes beyond manufacturing; it is the fusion of Product, Technology, and Services that make us different and the most preferred choice of our customers worldwide.



Over 550 stockists and thousand of retailers across India



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