



BSI 5200

THE NEW CAST 60° FITTINGS
AN EASY ASSEMBLY
A KNOWN PRODUCT, SAFE AND RELIABLE

AVAILABLE IN CARBON AND STAINLESS STEEL

THEORY OF OPERATION

The CAST S.p.A. fitting according to the norms BSI 5200, is a mechanical fitting adapter traditionally used for high pressure oleo-dynamic systems.

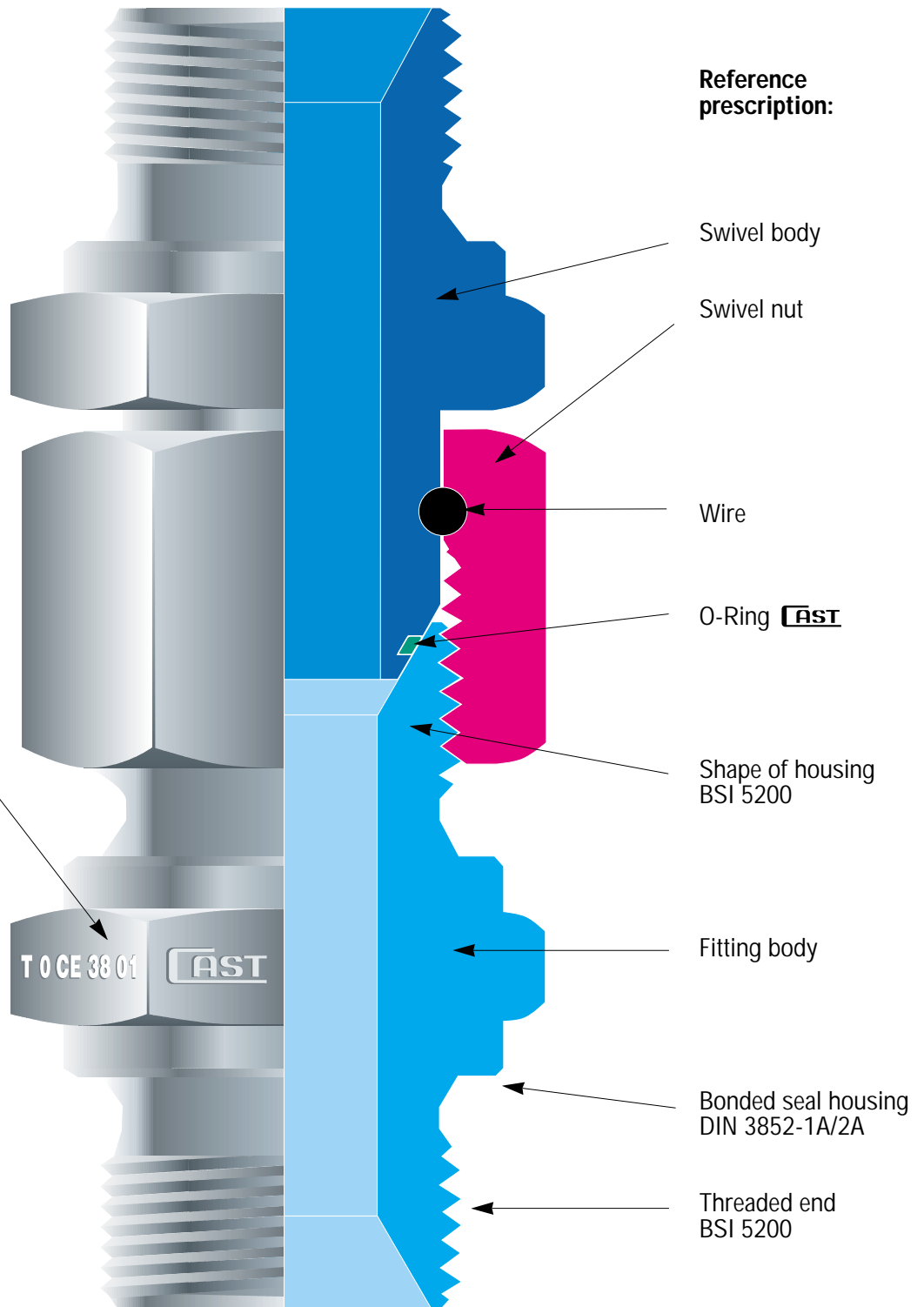
The sealing is made by the contact between two metal surfaces, with no deformation of the single components, plus an elastomeric sealing placed into a groove on the 60° cone.

The elastomeric seal is according to a CAST S.p.A. project.

The coupling between the body of the fitting and the adapter is guaranteed by the swivel tightening nut. This allow to realize a fast assembling-disassembling tube making the easiest realization of complex oleo-dynamic systems.

**COUPLING SYSTEM
BSI 5200**

Reference prescription:



Traceability decoding

CAST =
Manufacturer

• T =
Production plant

• 0 =
Year manufactured

• CE =
Made in EEC

• 38 =
Type of steel used

• 01 =
Heat number of the steel used

TECHNICAL CHARACTERISTICS

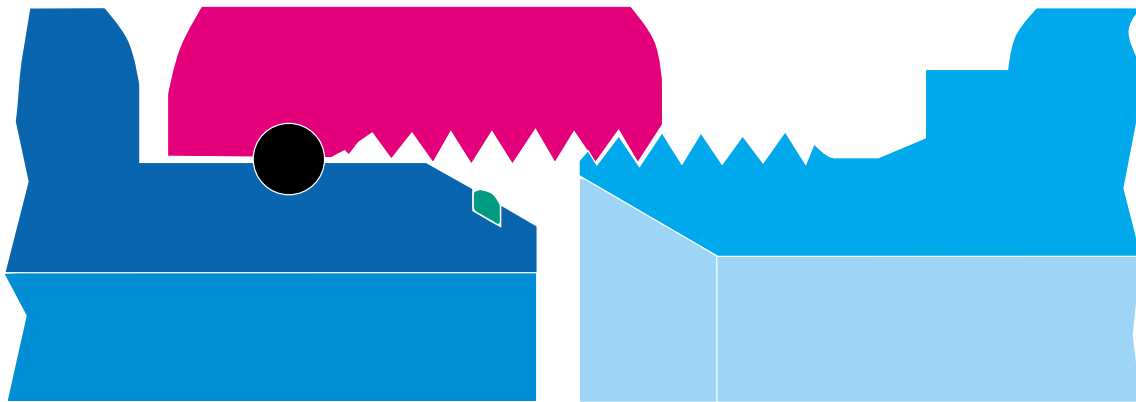
The CAST S.p.A. 60° adapter fitting grants a perfect sealing of the system independently from the fluid utilized, as long as corrosive fluids are not used and all the specific prescription for this type of fitting are complied with.

These fittings are manufactured in a single series defined "UNIVERSAL" since are designed as union between different international fitting norms as DIN 2353 and SAE J514.

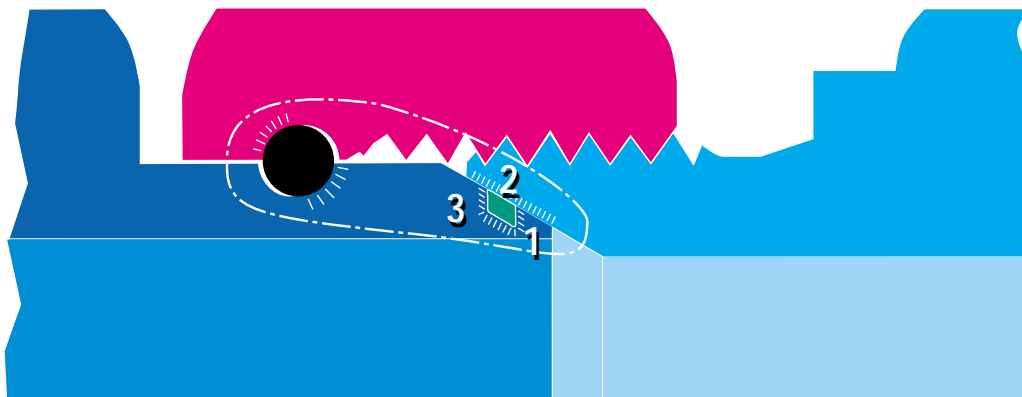
Vibrations, in the norm, do not alter the functionality of this type of fitting, also at the top level of the quoted values, and therefore keeps the best characteristics of absolute guarantee, safety and reliability. For these specific reasons this fitting may be used in hard working conditions.

Under the mechanical strength given by the tightening of the nut on the fitting body, the 60° conical male part couples with the 60° conical female part of the fitting body giving birth to a metal to metal seal supported by the elastomeric seal as well.

Before assembly



After assembly



Field of force after assembly



Pressure surfaces after assembly



Sealing points

1 - 2 - 3

DETAIL 60° CONE SEALING POINTS

Thread: G 3/4

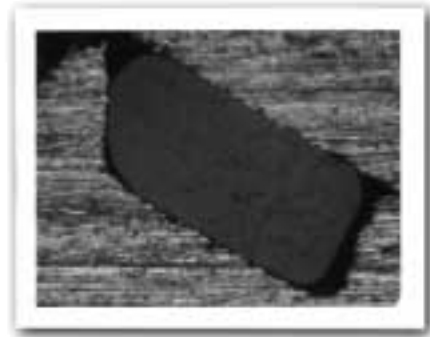
Assembly: as per tightening torque indicated on this catalogue (260Nm)

Magnifying: Microscope x5

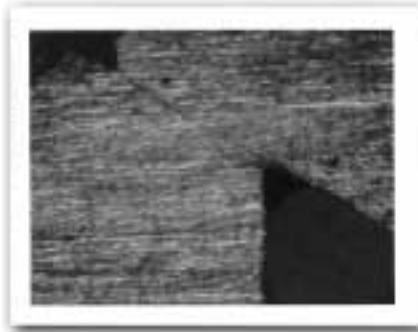
Detail scale: 0,5



SEALING POINT 1 – 60° CONE



SEALING POINT 2 – O-RING



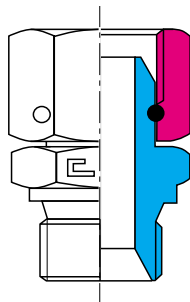
SEALING POINT 3 – 60° CONE

TECHNICAL INNOVATION

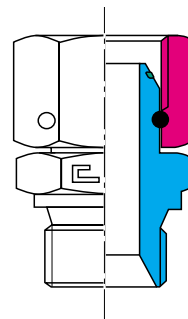
Since many years the market has been asking, with increasing strength, for oleo-dynamic components that would join in a single piece the characteristics of safety of blocking, functionality of the assembly and perfect sealing. These elements are now a must for the safety of the environment (Law 626/94) as well as the responsibility of the products (D.P.R. 224 - CEE 85/374), so this has pushed us into the field of research and led us into the realization of this new 37° fitting that solves once and for all the above mentioned problems. ci hanno portato alla realizzazione del nuovo adattatore a 60°, che risolve alla fonte i problemi sopra indicati.

PRODUCT CONCEPT

- The idea has been to use the standard structure of the SAE J514 fitting and to place an additional sealing in the 37° cone (O-ring) so to obtain a safer product.
- The new 37° fitting with elastomeric seal solve the problem of small leakages, typical of a metal to metal sealing system on high pressure fittings.
- However the introduction of the new sealing point has not altered the sealing requirements both, with or without the O-ring, nor limited the performances.



*Standard 60° adapter
without elastomeric seal
Available on scheduled orders only.*



*Product ready on stock.
New 60° adapter with elastomeric seal
designed by Cast.*

SEALING

The new adapter solve the total sealing problem in the following way:

- On the outside diameter of the 60° cone has been realized a groove as insert place for an O-ring. This elastomeric seal guarantees a perfect sealing at all times.
- The realization of the groove has allowed us to improve the sealing characteristics of the adapter also on the metal to metal sealing, dividing in two different sealing points the metal surface.
- Strenuous tests carried out in our technical laboratory in Volpiano have made clear, beyond any doubt the reliability of the sealing with or without the O-ring itself.
- Because of that we can affirm that this new type of fitting, used with the additional elastomeric seal will grant a sealing system as dry as the dust.
- If, by any chance, due to high temperatures or particularly hazardous fluids, the O-ring may not be employed, the fitting guarantee as well the perfect sealing with the metal to metal seal.

GENERAL INSTRUCTIONS

- Before start any operation on the adapters please check that all the tools to be used in the process are conforming to the standards. Check the tools every 30-50 assembly and substitute any non conform.
- Before fastening the components to the machine on-board system, check alignment between the tube and the fitting. Fittings must not be used to correct any misalignment or to support tubes. Long tubes or those liable to high stress must be clamped to avoid excessive vibrations. Misalignment may impair system functioning.
- Correct lubrication of the components to be tightened is indispensable for correct functioning of the system: mineral oil, or torque-tension for carbon steel fittings, nickel-based anti-seizing compound for stainless steel fittings.
- All the fittings and the valves contained in this catalogue may be used only for oleo-dynamic systems only.
- Is not allowed the mixing of different materials.
- The indicated pressures are intended for steel tubes only.

UTILIZATION STANDARDS

CARBON STEEL FITTINGS

- High quality tubes must be employed to assure correct use and related technical performances of carbon steel fittings. Use of tubes without the aforementioned characteristics may seriously impair the efficiency of the adapter. We recommend to use the following tubes only: seamless cold drawn steel tubes as per ST 37.4 complying g with DIN 1630. The maximum allowed hardness on the outside diameter of the tube is 75 HRB.

STAINLESS STEEL FITTINGS

- High quality tubes must be employed to assure correct use and related technical performances of stainless steel fittings. Use of tubes without the aforementioned characteristics may seriously impair the efficiency of the fitting. We recommend to use the following tubes only: cold drawn seamless stainless steel tubes with no welding as per 1.4571 DIN 17458 or ASTM A 269. The maximum allowed hardness on the outside diameter of the tube is 85 HRB.

QUALITY ASSURANCE ACCORDING TO UNI EN ISO 9001

The Quality Assurance System complies with UNI EN ISO 9001, certificate (N°90/94) issued by the RINA certification authority recognized by IQNET at European level.

At the customer's request, our Quality Service will issue certificates of origin for the materials used to manufacture the products delivered.

Our Quality Experts are always ready to provide customers with advice, to guide them around our facilities as to provide documentation of the traceability system applied.

COMPONENT TESTING

In addition to the normal dimensional checks carried out during machining, percentage inspections of the finished product, practical tightness and fatigue tests, coupling tests between the various parts are also carried out on CAST fittings. At the customer's request, our Product Test and Inspection Service issues the certificate of the tests carried out: dimensional and geometrical tests, checking of static seal at low and high pressure, dynamic seal at high pressure (maximum operating pressure + 33% as per ISO 8434-5).

If required by the customer, tests can be carried out by various Third Party Authorities including: RINA – DVGW - Lloyd's Register of Shipping - Det Norske Veritas - Germanischer Lloyd - American Bureau of Shipping (to be specified on the order).

SAFETY FACTORS

- The new 60° adapter solves all the problems of safety since has been carefully designed for that purpose.
- The use of high quality steel tubes in the right wall thickness, make this specific type of fitting particularly safe.
- CAST S.p.A. production is made in compliance with the highest safety standard and for that reason we choose the solution of the swivel nut adapter instead of the crimped fittings.
- CAST S.p.A. production is made in compliance with the reference norm.
 - Nominal working pressures indicated in this catalogue are intended as maximums (including pressure peaks). To use this fitting on higher stresses test must be carried out in accordance with the manufacturer.
 - The safety factor 4:1 is intended as static test with the temperatures within the given range and complying with all the given references. Same safety factor 4:1 for parallel stud ends with elastomeric seal. For studs with taper or parallel ends with metal to metal seal the safety factor lowers to 2,5:1.
- Is understood that the product is guaranteed only if the full connection is made entirely with CAST S.p.A. products and components.



*Destructive testing with 22x2 carbon steel tube
The tube burst at 800 bar without any leaks or sweating from the sealing points.*