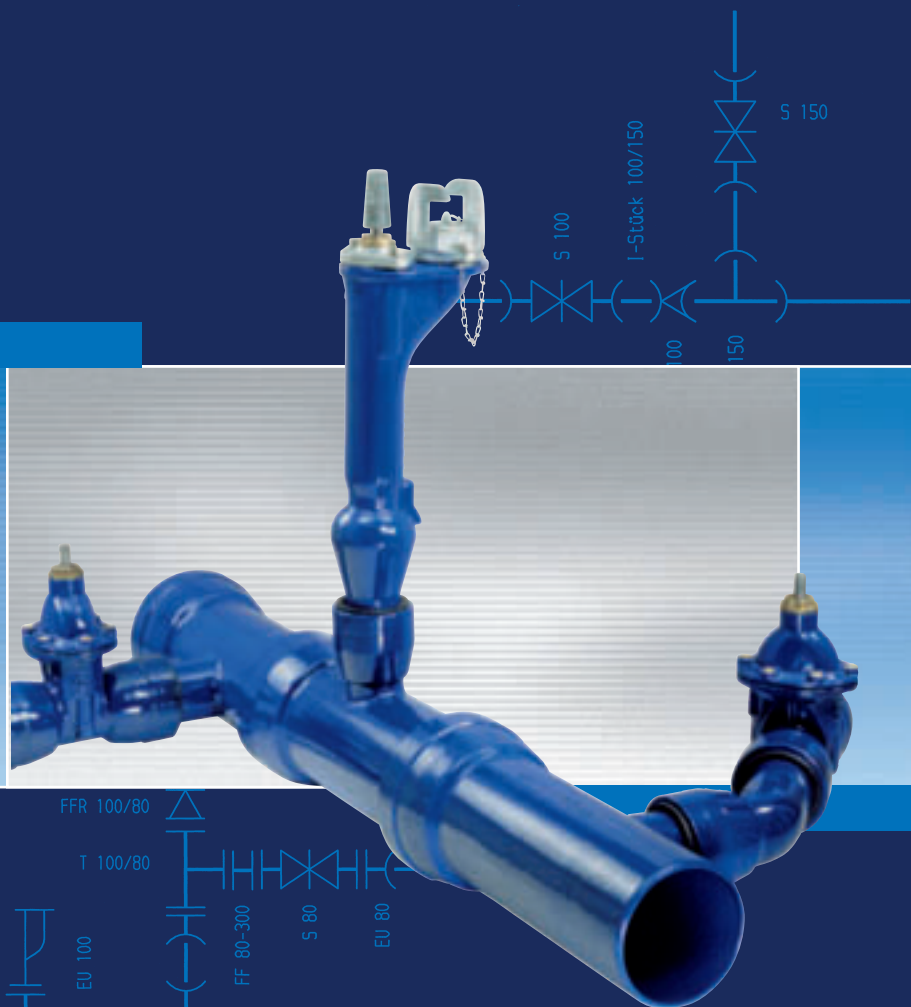


## THRUST-RESISTING JOINTS

PLUGGED-IN –  
THE CLEVER ALTERNATIVE!



# SIMPLY PLUGGED-IN

## EFFICIENT AND SAFE

### THE BASIS OF A CONSTANTLY FURTHER DEVELOPED TECHNOLOGY OF CONNECTION SYSTEMS...

... is the non-flanged installation. There are first of all the lead joint socket, the screwed joint socket and the mechanical joint socket. With the well-known Tyton socket and the integrated thrust-resisting joint system Tyton **SIT**<sup>®</sup> or **TYTON SIT PLUS**<sup>®</sup>, non-flanged plug-in socket joints until a nominal diameter of DN 80 – 600 and a nominal pressure up to 32 bar are possible. For larger pipelines and fittings or for laying within plastic pipelines we recommend – **Novo**.

By extending the Tyton socket with a pre-chamber to separate the sealing and locking function, there is a system to connect valves and fittings until a nominal diameter of DN 80 – 1000 and a nominal pressure up to 40 bar with only one socket geometry within cast iron and plastic pipelines!

With the simultaneous development of thrust-resisting joints such as Novo **SIT**<sup>®</sup> for cast iron pipes and Novo **GRIP**<sup>®</sup> for plastic pipes, the system has been perfected.

The result is a reduction of the socket system variety for different pipe materials and therefore of the stock-keeping of special fittings and valves.



The positive features are obvious:

**Reduced mounting time, handling with less material and expenditure, less stock-keeping and in consequence reduced costs.**

### **HIT THE TARGET WITH LITTLE EXPENSE**

By following exactly the economic principle – in particular the minimum principle – Düker offers secure pipeline connections that save time, cost and material compared to flanged connections.

For secure, but nevertheless movable connections in different application fields, we offer adequate thrust-resisting joints.

**OUR THRUST-RESISTING JOINTS FOR CAST IRON CONNECTIONS ARE COMPLETELY TYPE-CERTIFICATED ACCORDING TO DVGW WORKSHEET GW 368 / VP 545 AND VP 637.**

The thrust-resisting joints **SMU** and Düker **SPEZIAL** are most suitable for connections of grey cast iron pipes with modern pipe materials and are therefore often the only solution for repair works. In contrast, the advantage of Tyton **SIT**<sup>®</sup> and **TYTON SIT PLUS**<sup>®</sup> is the simple handling with only one ring that combines the sealing and locking function. The basis is a special gasket with retaining segments made of corrosion-free chromium steel vulcanized into the ring.

For larger nominal diameters we recommend the socket system **Novo** with the thrust-resisting joint **Novo SIT**<sup>®</sup> for laying of metal pipe materials and **Novo GRIP II** for PE-HD pipelines.

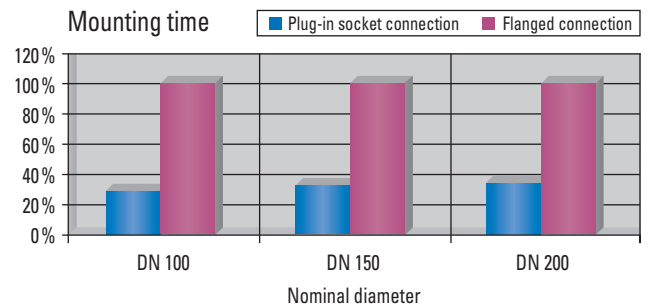
The plug-in socket joint is secured with special thrust-resisting rings, adapted to the particular pipe material. Similar to Tyton **SIT**<sup>®</sup> there are retaining segments made of corrosion-free chromium steel vulcanized into the locking ring of the system **Novo SIT**<sup>®</sup>. Besides the sealing gasket, a specially developed plastic ring for the locking function is needed when mounting PE-HD pipelines.

**ABSOLUTE ADVANTAGE: A PERFECT SYSTEM FOR MANY APPLICATION FIELDS!**

# THE ECONOMIC ALTERNATIVE

## EXPENDITURE, TIME AND COSTS – SAVED!

For building owners, planner and layer.



Düker thrust-resisting joints facilitate a cost and time-saving as well as a rational laying of pipeline systems. For example, the pressure test can take place immediately after laying and no screw causes a problem!

**SMU** and Düker **SPEZIAL** are suitable best for repair works. Tyton **SIT**®, **TYTON SIT PLUS**® and Novo **SIT**® facilitate the installation of culverts or similar no-dig laying techniques. The thrust-resisting joint can also be deflected after installation and it remains movable even after taking into operation.

**In addition the installation time is substantially reduced, because of the elimination of concrete blocks.**

Please observe our laying instructions!

For further questions please contact our service team.



Example:  
Novo **SIT**® connection

Gate valve with  
screwed socket

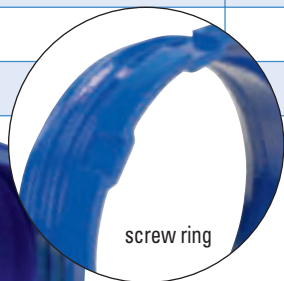
Compared to conventional flanged systems, Düker thrust-resisting joints offer convincing technical and economical advantages.



Novo socket with Tyton ring and Novo SIT® ring

**FURTHER ADVANTAGES AT A GLANCE:**

SMU/ Düker SPEZIAL	Tyton SIT®	TYTON SIT PLUS®	Novo SIT®	Novo GRIP® II
no additional corrosion problems	fast installation	fast installation	fast installation	fast installation
dismantling possible	dismantling possible	dismantling possible	dismantling possible	dismantling possible
pipeline systems completely thrust-secured in town areas and for overland pipelines	fewer fittings for the same length of line	fewer fittings for the same length of line	fewer fittings for the same length of line	no special fittings or valves required
elimination of outside locking devices for pipeline systems up to PN 16	post-isolation of better quality realisable	post-isolation of better quality realisable	post-isolation of better quality realisable	post-isolation of better quality realisable
movability of the screwed connection is entirely maintained	valves and fittings remain free of bending stress	valves and fittings remain free of bending stress	valves and fittings remain free of bending stress	valves and fittings remain free of bending stress
locking ring works also as contact ring	applicable for narrow ditches	applicable for narrow ditches	applicable for narrow ditches	applicable for narrow ditches
		suitable for non-ditched laying	suitable for non-ditched laying	independent of the weather
			electrical separation possible	no special staff with welding licence necessary
				no cooling required
				fewer tools



screw ring

**THE COMPLETE PROGRAM**

In addition, a complete fitting and valve program with individual coatings for the application in drinking, raw, industrial and waste water is available from DÜKER. Our coating program includes cement mortar, epoxy and in particular **ENAMEL** – the best surface protection! **ENAMEL** is a compound material, which forms an inseparable chemical bond with the cast iron. With enamelled surfaces, corrosion, incrustation, abrasion and wear have no chance!

For detailed information about our program and coating facilities please look at our website <http://www.dueker.de>. Or contact our service team for expert advice.



Tyton socket with TYTON SIT PLUS® ring and marking ring

# DÜKER PLUG-IN JOINTS – COST- /TIME-SAVING AND SECURE

## SMU / DÜKER SPEZIAL THRUST-RESISTING JOINTS FOR SCREWED CONNECTIONS

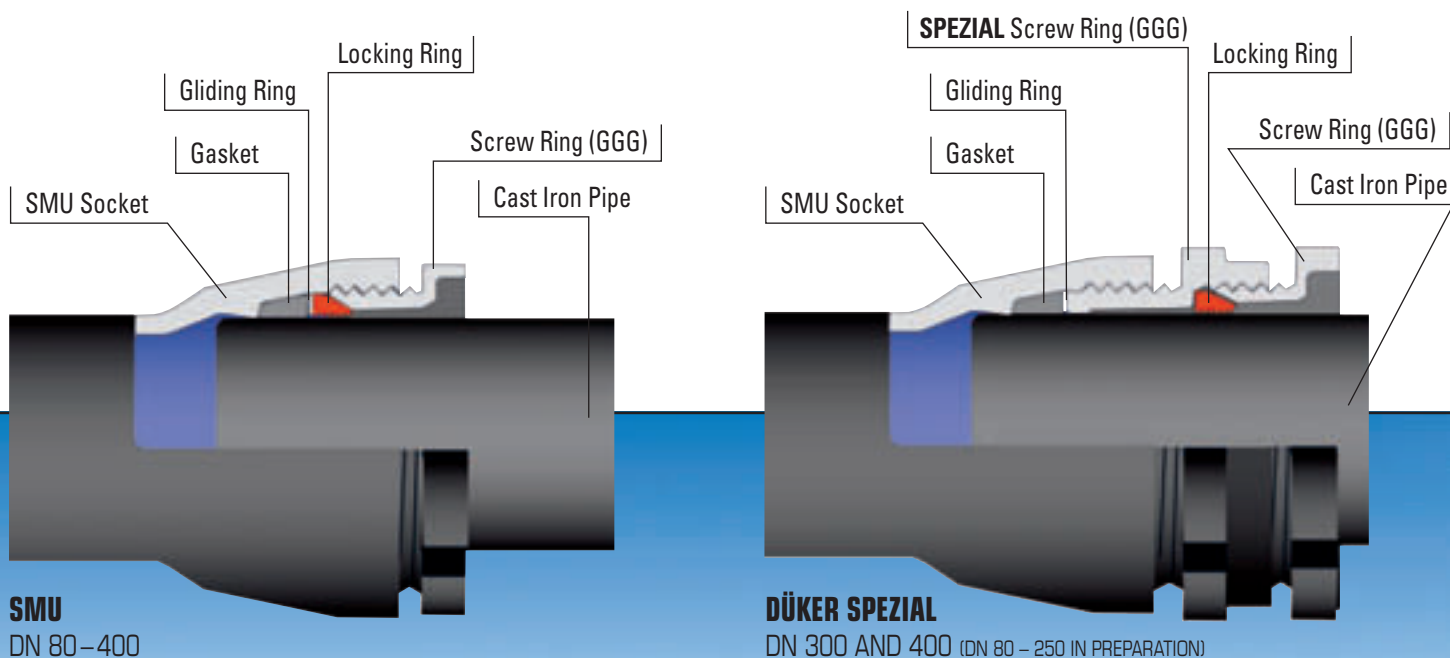
SUITABLE BEST FOR THE CONNECTION OF GREY CAST IRON WITH MODERN PIPE MATERIALS

The basis of the Düker thrust-resisting joint **SMU** for screwed connections is the locking ring with locking teeth. This locking ring takes up the thrust forces.

With the sliding bevel at the screwed ring, a radial force is produced with the locking ring, which results in a secure locking with the spigot end. At the same time an axial force is caused, which is transmitted unreduced to the sealing ring. At this place the necessary sealing effect is induced.

Düker **SPEZIAL** makes the thrust resisting end connection of flanged sockets and collars possible. For the installation of double socket collars, only the first side can be installed with the DÜKER thrust-resisting joint **SMU**. For the other side the thrust-resisting joint Düker **SPEZIAL** is needed, because in this case it has to be sealed first and locked afterwards.

While laying, please observe our laying instructions!



**A modern pipeline system with plug-in socket joints is at present state of the art a cost and time-saving and in particular secure alternative to flanged connections.**

## **TYTON SIT® / TYTON SIT PLUS® THRUST-RESISTING AND HIGHLY STRESS-ABSORBING**

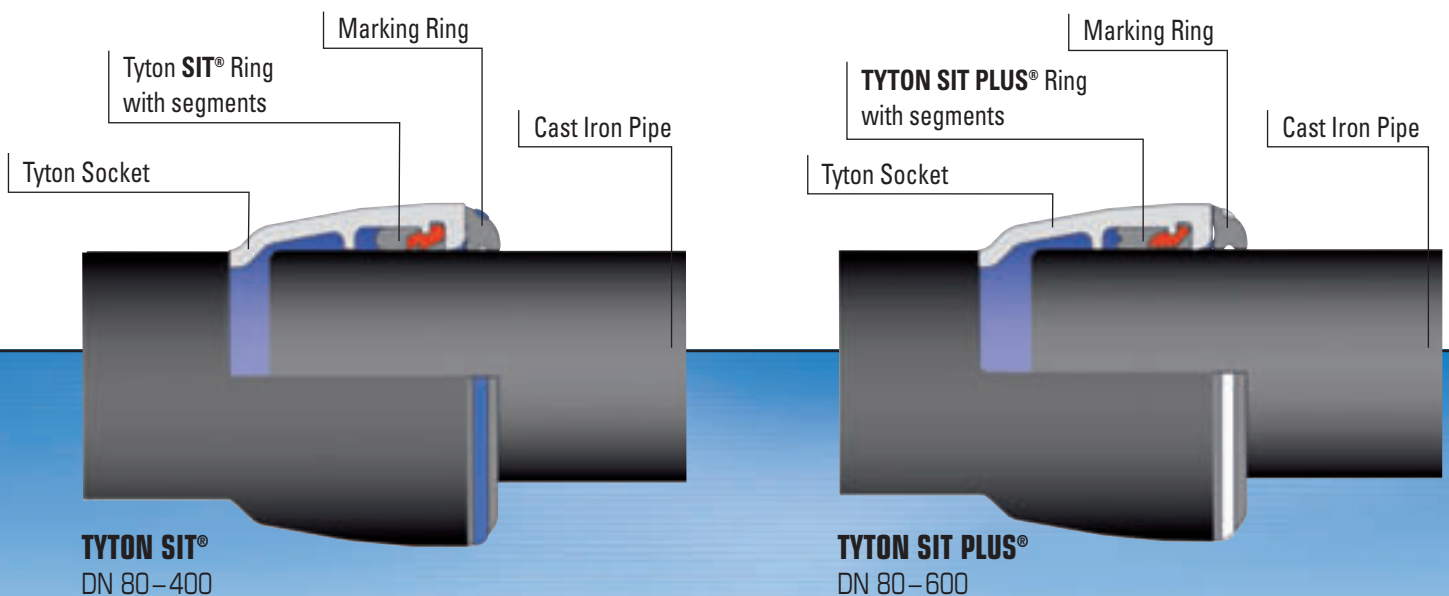
USED WORLD WIDE AND PROVED MILLION TIMES

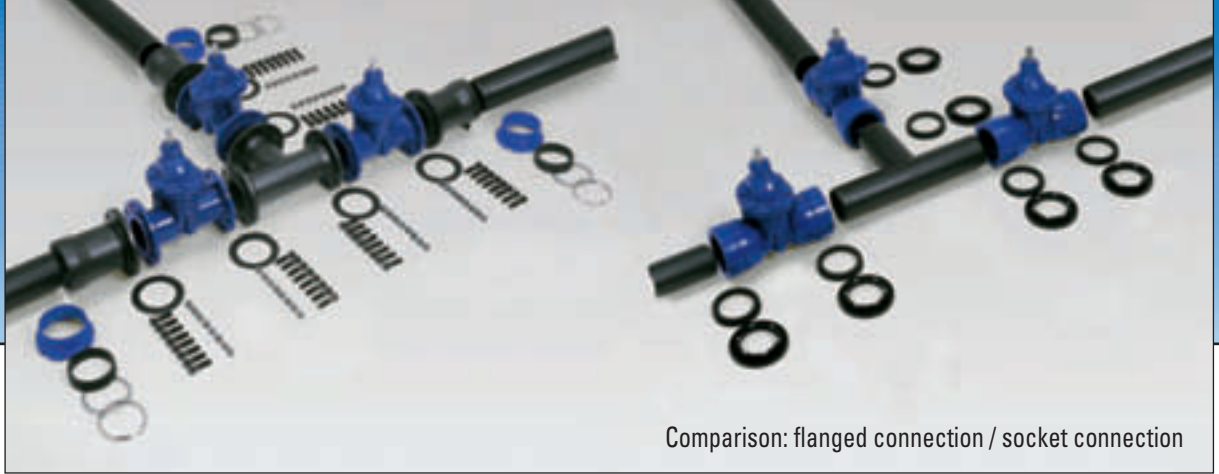
The systems Tyton **SIT**® and **TYTON SIT PLUS**® secure an economical laying of pipeline systems, particularly for town areas as well as for cross-country pipelines.

With the system Tyton **SIT**®, developed by DÜKER, the non-secured Tyton joint is converted into a tight, anti-thrust Tyton joint. A system indispensable for underground pipeline construction!

For higher nominal pressures and larger nominal diameters we improved this system. The result: **TYTON SIT PLUS**®.

This thrust-resisting joint is internally equipped with a special gasket armed with corrosion-free chromium steel retaining segments vulcanized into the ring. By using this **TYTON SIT PLUS**® ring the thrust forces are absorbed inside the joint. The system enables the different segments to turn in the region of the shoulder and adapt themselves to the given pipe tolerances. The wedge-shaped segments lock themselves into the surface of the pipe and transmit the thrust forces into the socket.





Comparison: flanged connection / socket connection

**NOVO SIT®  
THRUST-RESISTING JOINT FOR CAST IRON PIPES, FITTINGS AND VALVES**

FOR NOMINAL DIMENSIONS UP TO DN 1000

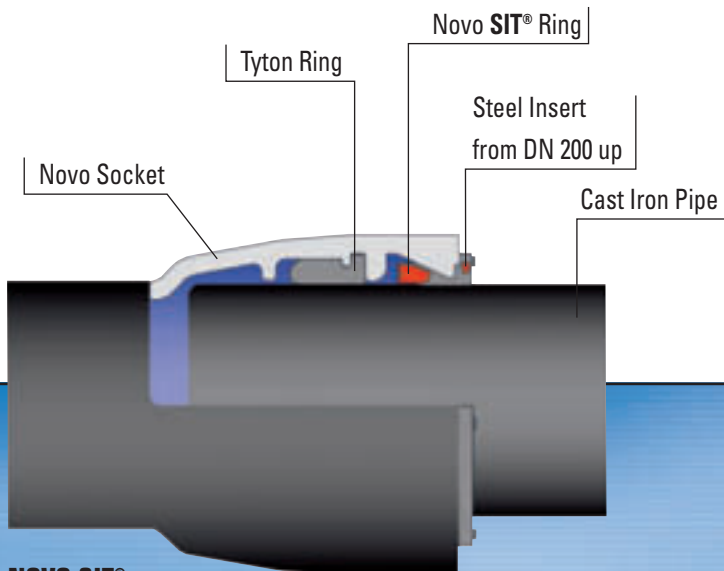
The patented thrust-resisting plug-in socket connection Novo **SIT**® is a further development of the world wide installed and proved thrust-resisting joint system Tyton **SIT**®. A new dimension for thrust-resisting cast iron pipe connections – for larger nominal dimensions and higher pressures!

The pre-condition for this system is the extension of the Tyton socket with a pre-chamber. With this innovative idea to separate the sealing and locking functions, DÜKER developed a system which creates new perspectives! One universally applicable socket geometry for different pipe materials!

So cast iron connections as well as plastic connections are possible with only one socket – the Novo socket.

And this is how it works:

The Tyton ring guarantees sealing. The Novo **SIT**® ring, in which corrosion-free segments made of chromium steel are vulcanized, secures the anti-thrust function.



**NOVO SIT®**  
DN 80 – 1000



Novo socket



## NOVO GRIP® II THRUST-RESISTING JOINT FOR PE-HD PIPES

Further to Novo **SIT**®, an efficient laying of fittings and valves in PE-HD pipelines is possible with the thrust-resisting joint Novo **GRIP**® II.

The basis of Novo **GRIP**® II is also the Novo socket technology, which separates the sealing and locking functions by a two-chamber system.

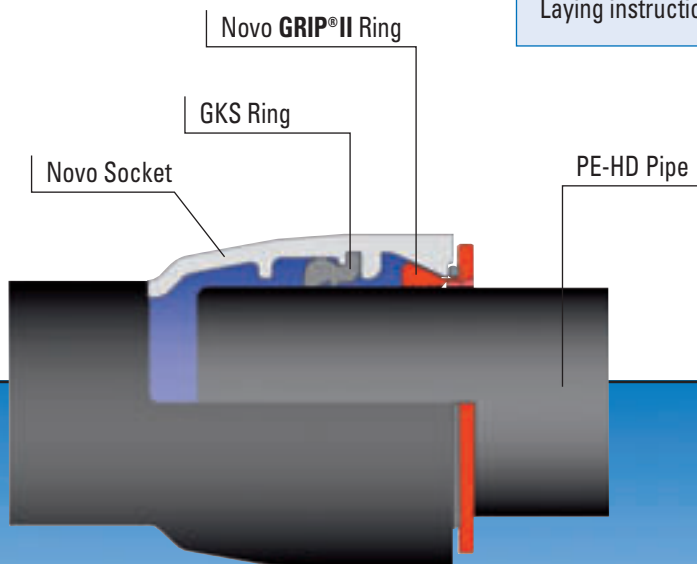
For laying Novo **GRIP**® II a special sealing ring (GKS) has to be inserted into the Tyton-chamber to compensate different pipe outside diameters. A specially designed locking ring, made of plastics, has to be inserted into the pre-chamber. This ring consists of plastic segments placed close together, which grab in the outside surface of the PE-HD pipe to produce the anti-thrust effect.

For the connection of different pipeline materials (cast iron /PE) or PE-HD spigot ends as well as for the post-installation of valves and fittings, we offer you fittings with the specification Novo and screwed socket.

### PIPE LAYING

The laying tool, Type V 300 D or standard laying tools, should be used for assembling thrust-resisting joints.

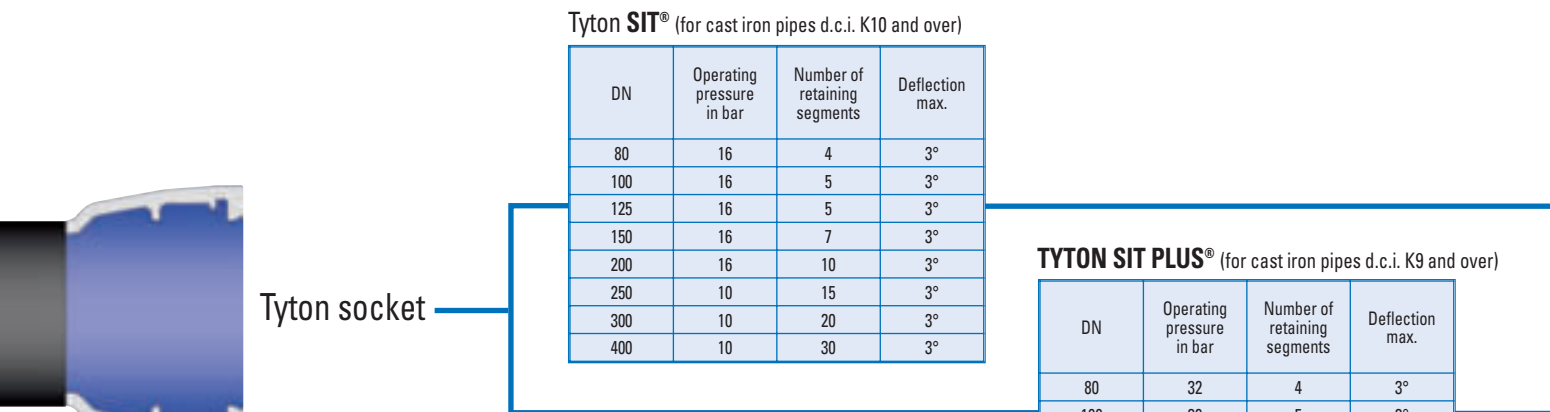
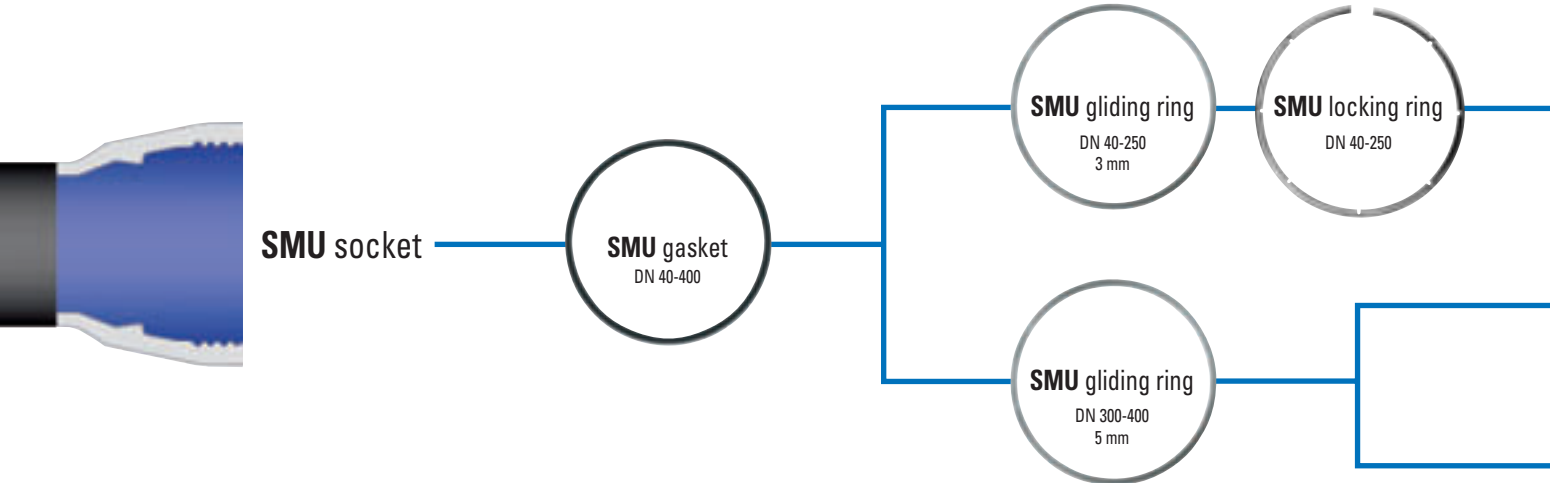
Laying instructions are provided by us.



### NOVO GRIP® II

DI 90 / 110 / 160 / 225\* (\* 225 ONLY WITH FITTING OR VALVE)

# CLEAR STRUCTURE – FOR EACH APPLICATION FIELD



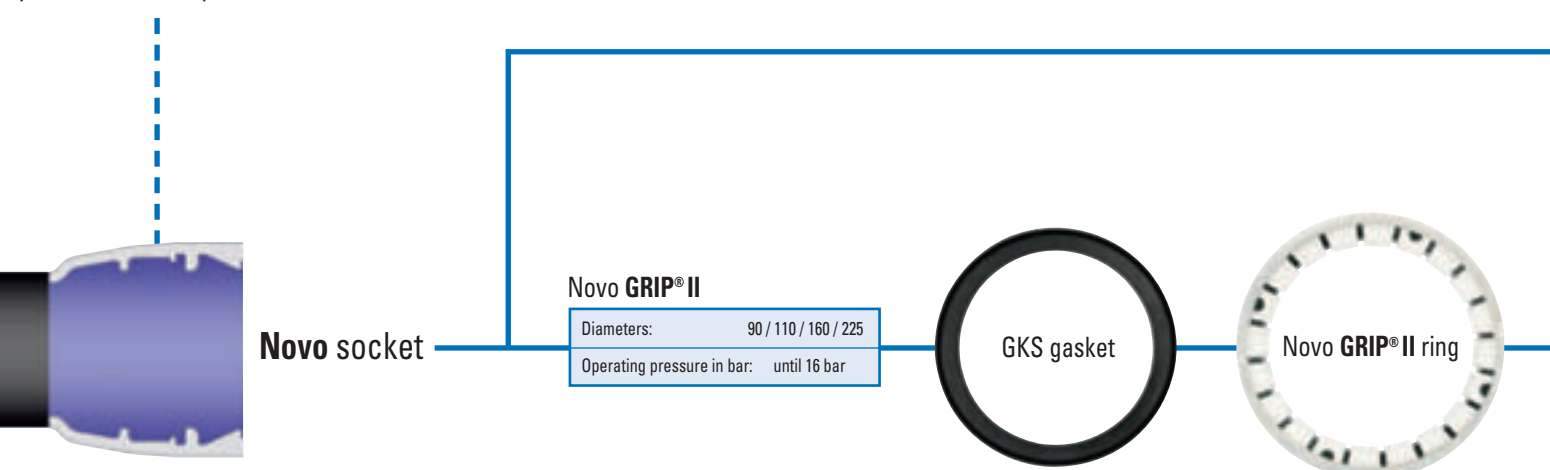
Tyton **SIT**® (for cast iron pipes d.c.i. K10 and over)

DN	Operating pressure in bar	Number of retaining segments	Deflection max.
80	16	4	3°
100	16	5	3°
125	16	5	3°
150	16	7	3°
200	16	10	3°
250	10	15	3°
300	10	20	3°
400	10	30	3°

TYTON **SIT PLUS**® (for cast iron pipes d.c.i. K9 and over)

DN	Operating pressure in bar	Number of retaining segments	Deflection max.
80	32	4	3°
100	32	5	3°
125	25	5	3°
150	25	7	3°
200	25	10	3°
250	25	15	3°
300	25	20	3°
350	16	25	2°
400	16	28	2°
500	16	35	2°
600	10	42	2°

Novo socket =  
Tyton socket + Novo pre-chamber



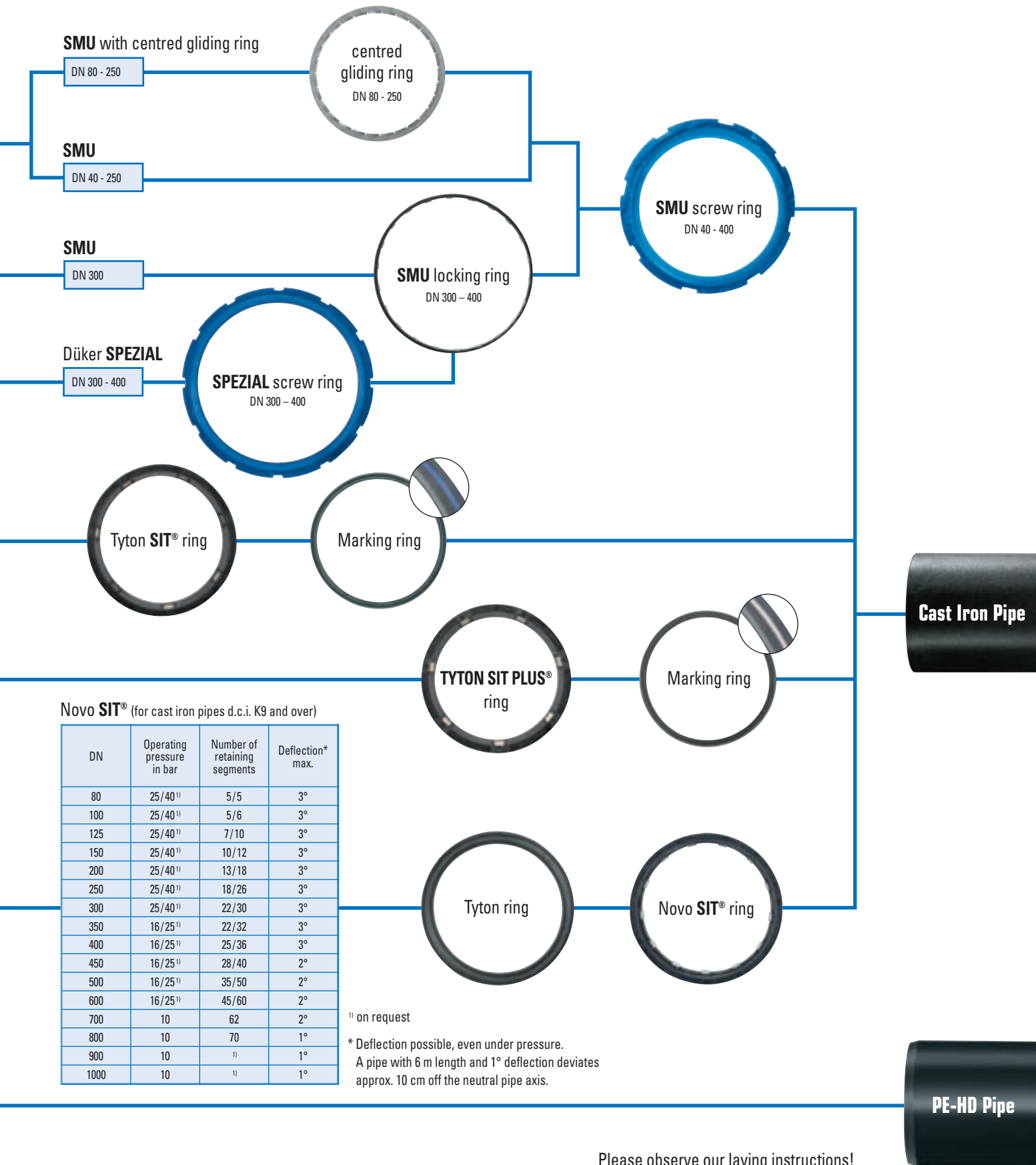
Novo **GRIP**® II

Diameters:	90 / 110 / 160 / 225
Operating pressure in bar:	until 16 bar

GKS gasket

Novo **GRIP**® II ring

For every application field a suitable joint system – with coordinated thrust-resisting joints by Düker.



Please observe our laying instructions!

Eisenwerke Fried. Wilh. Düker GmbH & Co. KGaA  
PO Box 11 20  
D – 63844 Laufach GERMANY

Phone +49 (0) 60 93. 87-0  
Fax +49 (0) 60 03. 87-246

email [info@dueker.de](mailto:info@dueker.de)  
web <http://www.dueker.de>

## TECHNOLOGY – MADE BY DÜKER

Eisenwerke DÜKER develops, designs and manufactures cast iron pressure fittings and valves for water and gas supply. Besides the traditional flange connection we offer you well-engineered socket technologies such as screwed socket, mechanical joint, Tyton – and the universally applicable Novo socket. Simultaneously DÜKER developed the thrust-resisting joints **SMU**, Düker **SPEZIAL**, Tyton **SIT**<sup>®</sup>, **TYTON SIT PLUS**<sup>®</sup>, Novo **SIT**<sup>®</sup> and Novo **GRIP**<sup>®</sup> for these socket technologies. For every application a suitable joint system! Contact our service-team and ask for detailed information free of charge!

**CAST IRON IS OUR MATERIAL** – for more than 500 years we have been proving that tradition and innovation are not contradictory. Due to its outstanding material features such as solidity, toughness, good corrosion resistance, remarkable high pressure resistance and damping capacity, cast iron is an essential component of industrial products. Longevity, safety, good formability and efficiency makes this material unique and indispensable! Talk with us. We *MOULD AND CAST* for you!

**OPTIMAL PROTECTION** – regarding surface protection we conform to the particular situation with professional solutions. Our coating program includes cement mortar, epoxy and in particular **ENAMEL** – the best surface protection! **ENAMEL** is a compound material, which forms an inseparable chemical bond with the cast iron. With enamelled surfaces, corrosion, incrustation, abrasion and wear have no chance!

**PLEASE ASK US** – our engineers and technical consultants will **MOULD** your ideas, questions, wishes and special problems into a competent and practicable solution.