

NORMA

*the connecting
professionals*

NORMA® Product Range



Your Partner for Innovative Connections

www.normagroup.com

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Introduction

NORMA Group.

Perfect connections worldwide

Two well-known global players, ABA and NORMA, have merged to form the new NORMA Group. When it comes to technically superior connecting and retaining elements as well as complete fluid systems the new Group stands for "doubled expertise". Be it automotive or industry and trade, the NORMA Group sets the standard in innovative solutions worldwide. And, not to forget, our portfolio comprises a vast product range of some

35,000 products. Thus our customers are on the safe side with innovative, high-quality and cost efficient products – NORMA products are first choice.

Today, the new Group operates subsidiaries in Sweden, Germany, Australia, Belgium, the Czech Republic, the Netherlands, China, England, France, Italy, Poland, Spain, in the USA and Singapore. No matter where you are you will find us nearby.



About NORMA®



Versatile and perfect connections

Products

As one of the world's leaders in the design and manufacture of hose and pipe sealing and clamping technology we have established a unique range of products, under the brand name NORMA®, which are applied today in all areas of industry.

This success, and subsequent growth of our range, is partly based on our attitude of continuous development: – working with customers to satisfy their increasingly tough demands.

Versatility

In addition to our traditional clamping and connecting products in metal and plastic materials, we have in recent years introduced a programme of plug-in connectors and smooth and corrugated tube systems for the transfer of fluids and air.

Based on areas of application, and to aid understanding of our extensive product range, we have created six product groups:

- NORMACLAMP® Schlauchschellen
- NORMACONNECT® Rohrverbindungen
- NORMAFIX® Befestigungselemente
- NORMAQUICK® Steckverbindungen
- NORMAFLEX® Fluidsysteme
- NORMAPLAST® Schlauchverbinder

Versatility

About NORMA®



Know-How and Innovations for the Future

Partnership

It is the respect and commitment we put into understanding our customer's requirements and high expectations that creates the best possible customer relations based on trust.

Experience

We have more than 50 years experience in the training and progress of engineers and toolmakers and now have the most competent research and development operation in the world working on, and testing, clamping and connection projects for our worldwide customer base.

Performance

Our in-depth co-operation with customers and suppliers, and readiness to experiment and invest, give us a culture that constantly puts us at the forefront of new developments in our field. We see each new challenge as the next opportunity to prove our performance capability.

Experience

About NORMA®



Confidence based on constantly high standards

Training

The satisfaction of our customers and the quality of our products demand mature thinking and actions from our employees. Therefore, we feel a special responsibility to support them in providing a continual programme of further education and training.

Trust

The quality, reliability and service life of each product we produce must correspond to the high standards our customers expect. From raw materials inspection via production to the delivered product, we ensure with comprehensive analysis and test procedures that the NORMA® brand name can be trusted in every way.

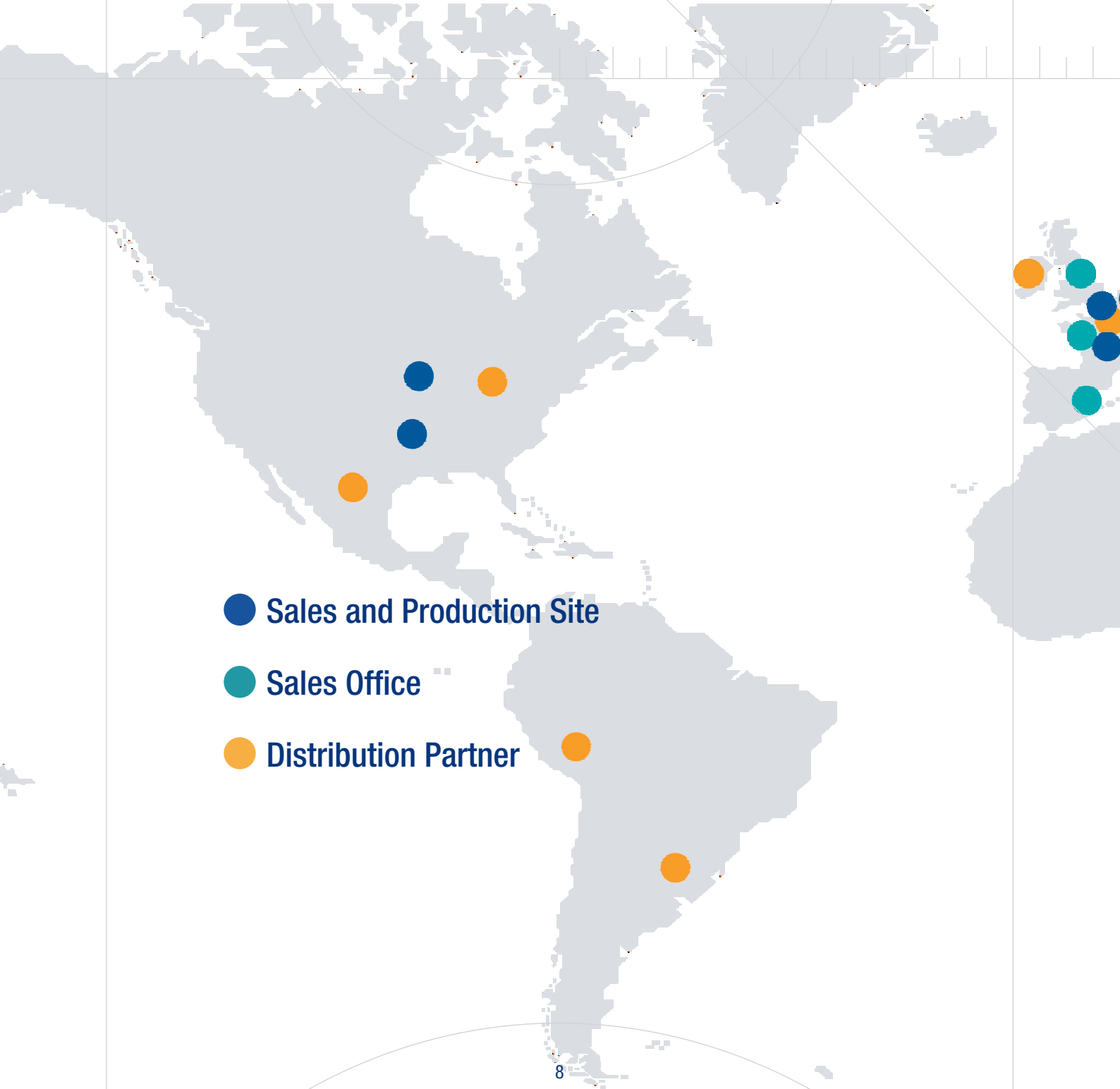
Economic efficiency

To secure our competitiveness in the international market place we are constantly striving to improve our efficiency at all levels. The quality of our employees, the inhouse design and manufacture of our own machine tools, and reliable high volume production machinery, ensures this.

Quality

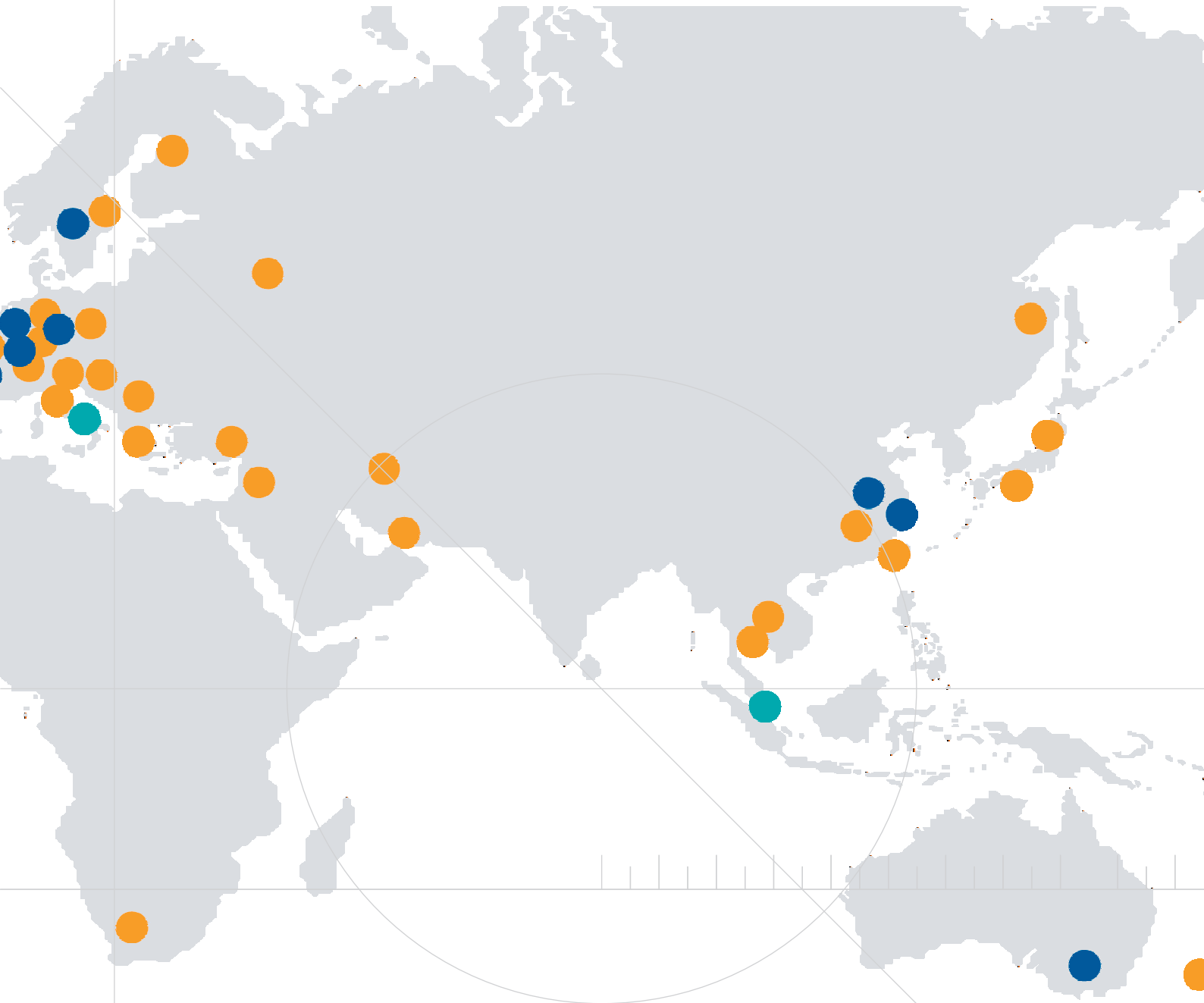


Ideas and technology, ecology and economy

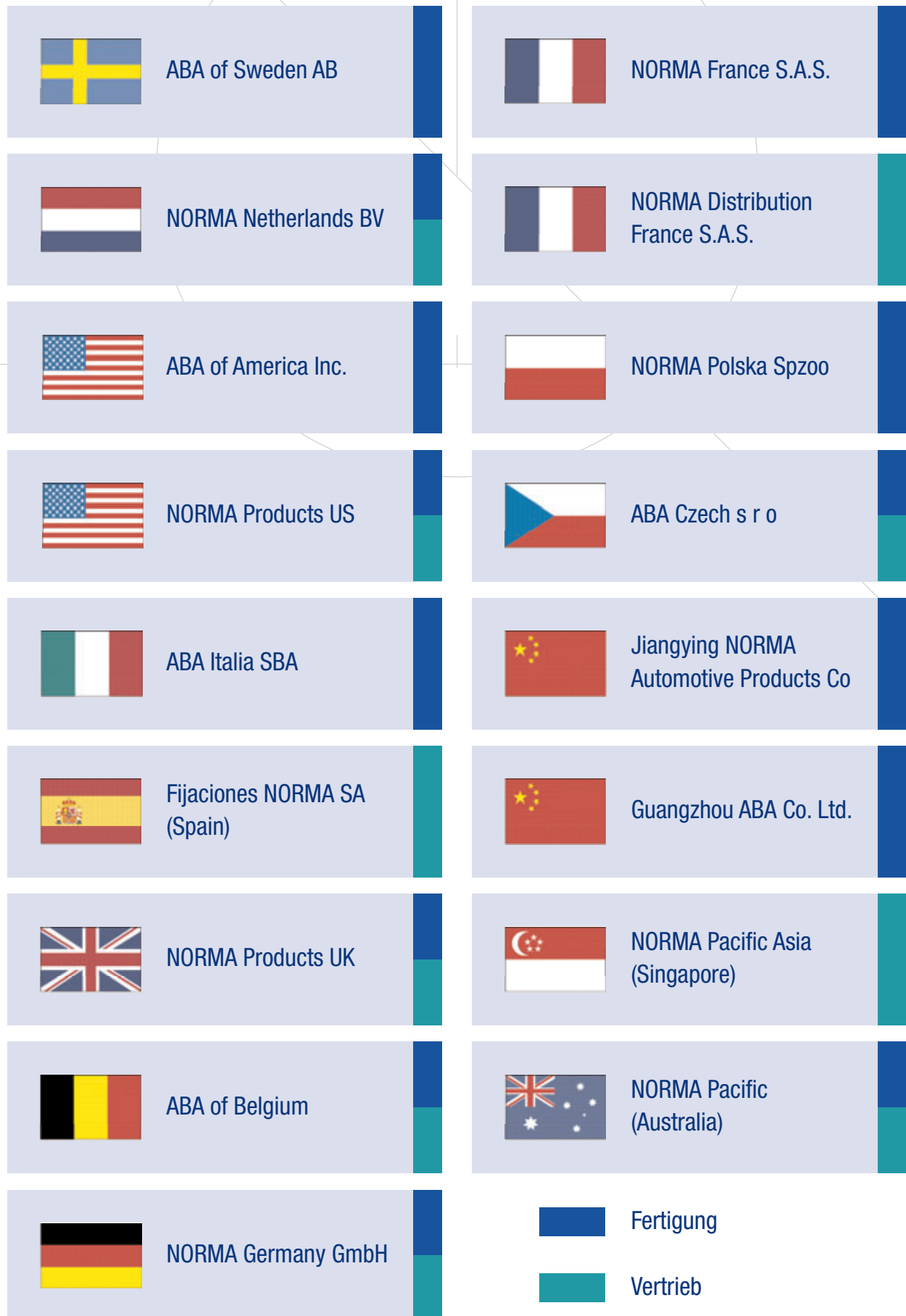




Group subsidiaries, Distributors and Representatives Worldwide



NORMA® Group at a glance – ABA® and NORMA®



NORMA® – Representatives Worldwide

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NORMA® – Quality assurance / approvals

Our Research and Development engineers and our Quality Assurance Department, in fact everybody within the Rasmussen Group, are constantly striving for perfection in meeting the demands of our customers and those of the safety and environmental authorities within the industries we operate.

These are some of our accreditations, which are being added to on a regular basis:

- QS 9000
- DIN EN ISO 9001
- DIN EN ISO 14001
- IQ Net
- EAQF
- DQS
- Ford Q1
- VW
- Audi
- Bureau Veritas (BV)
- Nippon Kaiji Kyokai (Class NK)
- Det Norske Veritas (DNV)
- Lloyd's Register of Shipping (LRS)
- NSF International



Certified and/or approved in compliance with:

TS 16949

DIN EN ISO 9001

EAQF ■ FORD Q1

DIN EN ISO 14001

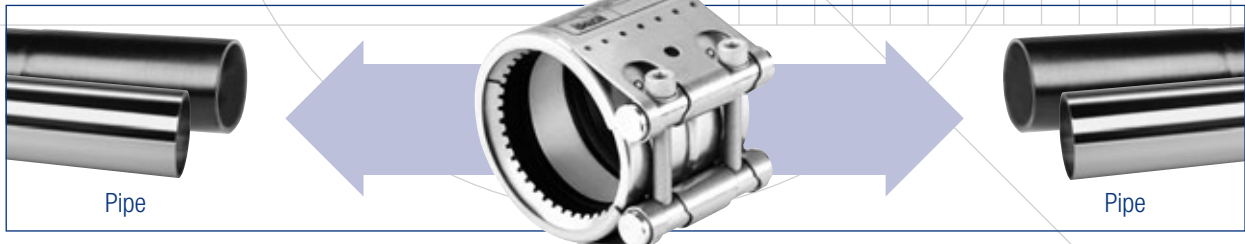


NORMA® Product Selection Guide

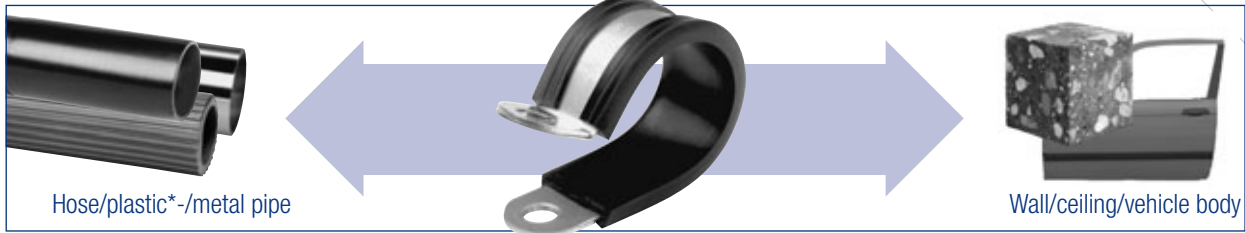
NORMACLAMP® – Hose Clamps



NORMACONNECT® – Pipe Connections



NORMAFIX® – Retaining Products



NORMAFLEX® – Fluid Systems



NORMAPLAST® – Hose Connectors**



* = Can be designed into a complete system in conjunction with NORMAFLEX® smooth and/or corrugated tube.

** = Several of the NORMACLAMP® products can be used to secure a hose/tube over a NORMAPLAST® connector.

NORMA® – Applications

Product Group	Product	Type	Automobile	Aftermarket	Commercial vehicles		Agriculture	Industry	Drainage and waste water area	Ship-building
					Special vehicles					
NORMACLAMP®	TORRO®	Standard	X	X	X		X	X	-	X
NORMACLAMP®	TORRO®	WF	X	X	X		X	X	-	X
NORMACLAMP®	TORRO®	DMK	X	X	X		X	X	-	X
NORMACLAMP®	TX		X	X	X		X	X	-	X
NORMACLAMP®	HD		-	-	X		X	X	-	X
NORMACLAMP®	S/SP		X	X	X		X	X	-	X
NORMACLAMP®	GBS		-	-	X		X	X	-	X
NORMACLAMP®	COBRA		X	X	-		X	X	-	-
NORMACLAMP®	FBS		X	X	X		X	X	-	-
NORMACONNECT®	DCS		-	-	-		-	-	X	-
NORMACONNECT®	FGR	FLEX	-	-	X		-	X	X	X
NORMACONNECT®	FGR	GRIP	-	-	X		-	X	X	X
NORMACONNECT®	FGR	COMBIGRIP	-	-	-		-	X	X	X
NORMACONNECT®	FGR	PLASTGRIP	-	-	-		-	X	X	X
NORMACONNECT®	FGR	REP E	-	-	-		-	X	X	X
NORMACONNECT®	FGR	GRIP EFP	-	-	-		-	X	X	X
NORMACONNECT®	BRS		-	-	-		-	X	-	-
NORMACONNECT®	ARS		X	X	X		X	-	-	-
NORMACONNECT®	RS/DIN		X	X	X		X	-	-	-
NORMACONNECT®	SEC		X	X	X		X	-	-	-
NORMACONNECT®	V		X	X	X		X	X	-	X
NORMACONNECT®	V PP		X	X	-		-	-	-	-
NORMAFIX®	HMK		-	-	X		X	X	-	X
NORMAFIX®	Brackets		-	-	-		-	X	-	-
NORMAFIX®	RS/RSGU		X	X	X		X	X	-	X
NORMAFIX®	BS		-	-	-		X	X	-	-
NORMAFIX®	NORMETTA®		-	-	-		-	X	-	-
NORMAQUICK®	PS3		X	X	X		-	-	-	-
NORMAQUICK®	V2		X	X	-		X	X	-	-
NORMAQUICK®	S		X	X	-		X	X	-	-
NORMAQUICK®	MK		X	-	X		-	-	-	-
NORMAFLEX®			X	-	X		X	X	-	-
NORMAFLEX®	LET		X	-	X		X	-	-	-
NORMAPLAST®	SV		X	X	X		X	X	-	-

NORMACLAMP® – Hose Clamps



Security and safety - by optimum system components

NORMACLAMP®
Hose Clamps

NORMACLAMP® – Hose Clamps

The NORMACLAMP® range provides the optimum sealing solution for all applications. The range varies from standard products with or without constant tension spring to special usage clips and heavy duty clamps.



Clamping Force

NORMACLAMP® – Hose Clamps



NORMACLAMP® TORRO®

Worm drive hose clips to DIN 3017

TORRO® S worm drive hose clips offer high band tensile forces and maximum resistance against mechanical loads as well as optimum protection to the hose. The smooth band inside of the clip is gentle on the hose surface, even under high tightening torques. Thus they are specially suitable for use in industrial applications.

Features:

- High band tensile force
- Maximum protection against excess loads
- Optimum hose protection
- Optimum sealing
- Band width: 9 mm

Also available in assortments



NORMACLAMP® TORRO®

Worm drive hose clips to DIN 3017

TORRO® worm drive hose clips are – depending on band width – ideal for hose sealing:
– in the automotive industry, in the sanitary sector, in mechanical engineering etc.
– in the commercial vehicle construction and in other sectors which have high mechanical requirements.

Features:

- Patented asymmetrical construction
- Uniform hose sealing
- Wide clamping range
- Multi-range clamp
- Gentle on the hose
- Several different materials
- 12 mm band width



NORMACLAMP® TORRO® WF/DMK

Worm drive hose clips with constant tension spring and/or torque cap to DIN 3017

The radially integrated corrugated spring offers an automatic self adjusting feature and is therefore particularly suitable for cooling and heating hoses, charged air applications as well as tank filling systems. The torque cap, which can be fitted to every TORRO®, cuts off when the permissible torque is reached and thus saves the need for a torque wrench. Even without cap the clip still remains adjustable.

Integrated corrugated spring (WF):

- Automatic re-tensioning effect in the event of hose relaxation
- Increased sealing reliability across a wide temperature range

Torque cap tightening (DMK):

- Defined tightening torque without special tool
- Visual assembly control



NORMACLAMP® TX

Worm drive hose clips to DIN 3017

The TX are high strength worm drive hose clips. They are used in areas where extremely high band tensile forces are required and can thus be recommended e.g. for hose connections subject to stringent demands in the industrial, vehicle and commercial vehicle sectors and generally highly loaded connections, e.g. charge air (with corrugated spring).

Features:

- High band tensile force
- High destructive torque
- Optimum hose protection
- 12 mm band width

NORMACLAMP® – Hose Clamps



NORMACLAMP® HD

Worm drive hose clips

HD are high strength worm drive hose clips. They are suitable for special areas of application where high tightening torques and high contact pressures are required as, for example, for fastening steel reinforced silicon, plastic, and rubber hoses.

Features:

- Extra robust construction
- Very high fracture torque
- Extended bridge prevents hose protruding and being damaged
- Wide clamping range
- 16 mm band width



NORMACLAMP® S/SP

Sealing and retaining clamps

S hose clamps to DIN 3017 are used to seal rubber and plastic hoses and rubber collars to pipe ends or hose connection pieces. SP retaining clamps to DIN 3016 are suitable for clamping containers, generators, pipes, cables etc.

Features:

- Optimal clamping force distribution
- Available with optional rubber sleeve
- Single and multipart design



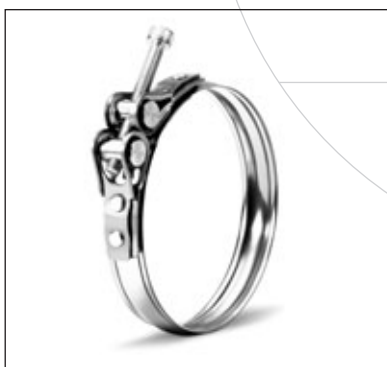
NORMACLAMP® SL

Sealing and retaining clamps

Sealing and retaining clamps type SL are used for fixing and retaining rubber hoses on tube ends or spigots.

Features:

- Optimal clamping force distribution
- Available with optional rubber sleeve
- Single and multi part design
- Light construction



NORMACLAMP® CC

Charge-air clamps

CC charge-air clamps are suitable for use in agricultural and industrial areas as well as on trucks. They are specially suitable to be used on suction and compressed-air hoses that are operated under extreme conditions. They are also made for higher clamping forces and their re-tensioning capacity is extremely strong.

Features:

- High surface pressure over hose circumference
- Increased sealing reliability across a wide temperature range
- Uniform distribution of clamping forces

NORMACLAMP® – Hose Clamps



NORMACLAMP® GBS

Heavy duty clamps to DIN 3017

GBS heavy duty hose clamps are particularly suitable for sealing suction and pressure hoses with plastic or steel reinforcements and high shore hardnesses, e.g. for

- commercial and special vehicles
- agriculture
- mechanical engineering
- plant construction

Features:

- Wide clamping range
- Maximum clamping forces and fracture torques
- Various different materials
- Single and multi-part versions
- W1 version with QRC closure (optional)



NORMACLAMP® COBRA

One-piece hose clips

COBRA hose clips are one-piece, reliable connectors for hose/pipe systems in industry (e.g. “white goods”, suction and low pressure lines). Due to their low profile, COBRA hose clamps are also suitable for fitting bellows on gaiters and steering sleeves.

Features:

- Fast fitting and assembly
- Damage free disassembly
- Maintenance-free fit
- Low profile design
- Made from stainless steel



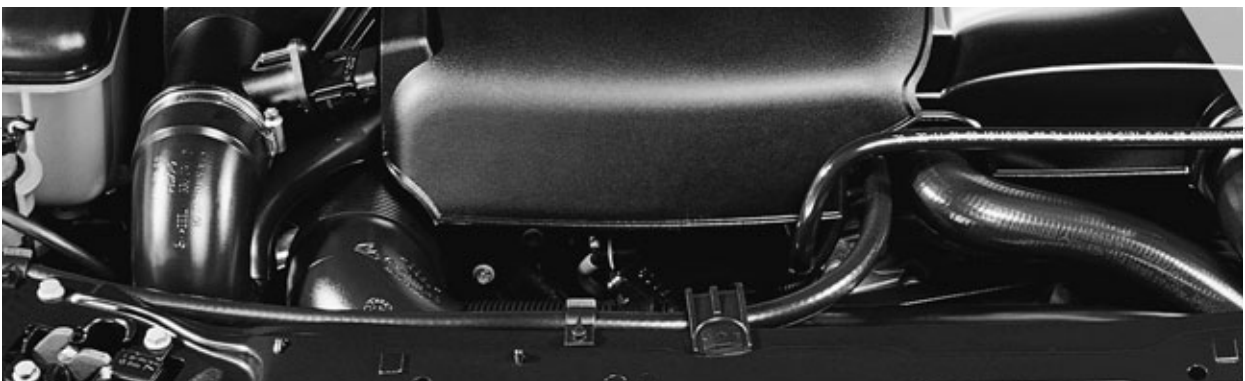
NORMACLAMP® FBS

Springband hose clips to DIN 3021

FBS springband hose clips are particularly suitable for hose connections in cooling, heating and air ducting systems, because of the advantages of their design.

Features:

- Constant tension design allows for temperature changes
- Uniform surface pressure over hose circumference



NORMACONNECT® – Pipe Connections



The perfect connection for pipes

NORMACONNECT® – Pipe Connections

Both industrial and OEM manufacturers rely on NORMACONNECT® pipe connections as a safe means of connecting pipes in various applications that feature different materials and sizes.



Precision

NORMACONNECT® – Pipe Connections



NORMACONNECT® DCS

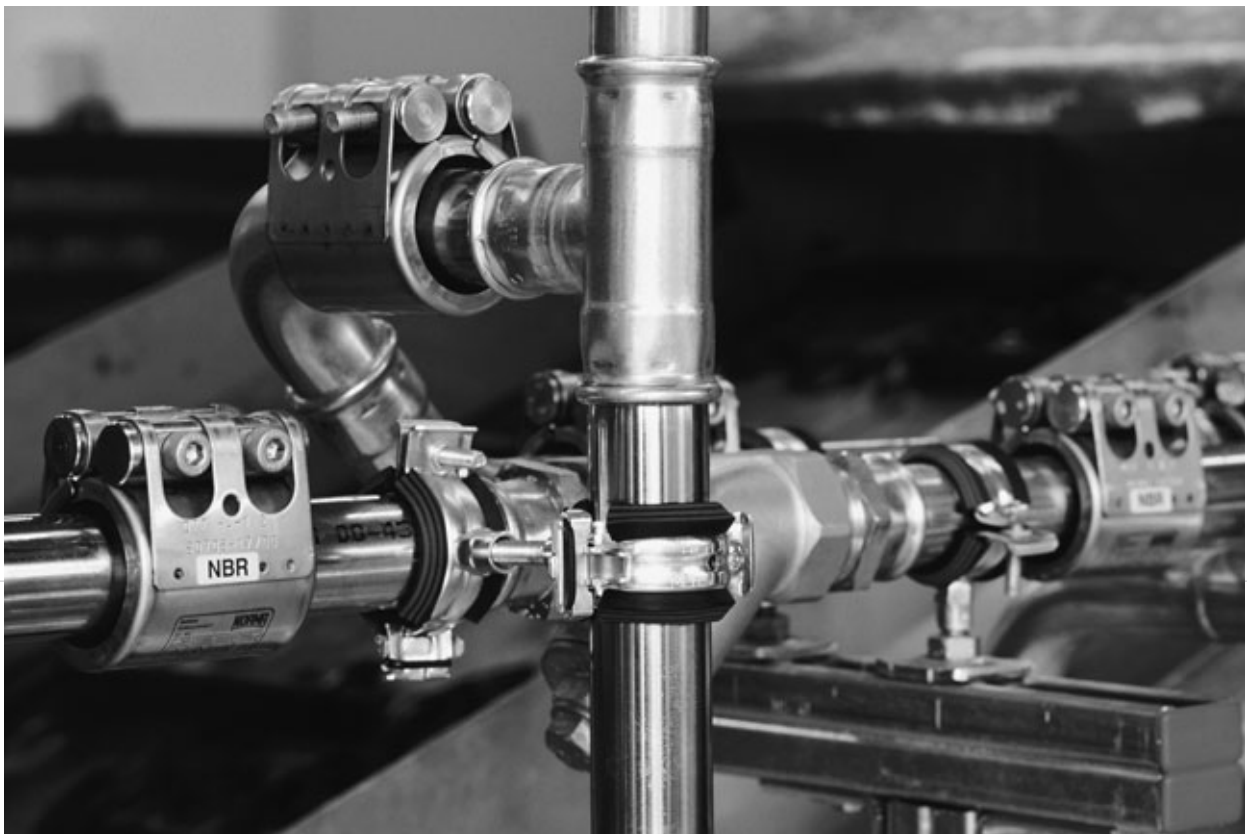
Couplings for drainage pipes

With many years of proven performance in all types of domestic, commercial and industrial drainage system applications the NORMACONNECT® DCS range of specialist couplings has an excellent record for safety and reliability.

There are DCS couplings for both above and below ground applications, and bridge drainage, in size diameters from 40 mm to 600 mm.

Features:

- Simple and quick assembly and disassembly
- Compact design and construction
- Range covers all drainage uses
- Versatility
- Fast, safe, and economical
- Suitable for tensile strength and non-tensile-strength connections
- Complete range of accessories



NORMACONNECT® – Pipe Connections

NORMACONNECT® FGR

Pipe couplings

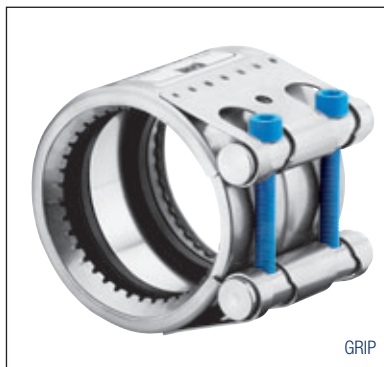
The NORMACONNECT® range offers weld-free connections for plain-end pipes in pipeline construction, shipbuilding, offshore installation, large engine construction, chemical plants, irrigation and waste water plants etc. The current range of pipe couplings comprises 6 types, each with individual features:

Features:

- Easy assembly and disassembly
- Axial tensile-strength (type G)
- Sealing-only (type F)
- Re-usable
- Patented double lip seal
- Standard steel band insert
- Suitable for vacuum and pressure applications
- Connects different pipe materials (type CG)
- Integrated fire protection (type G-FP)



FLEX



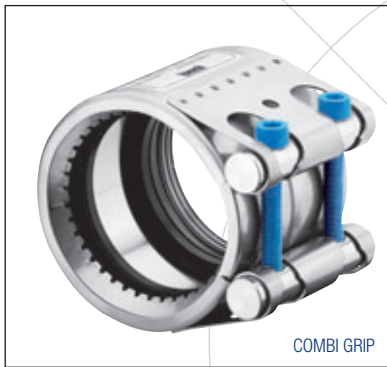
GRIP

NORMACONNECT® FLEX

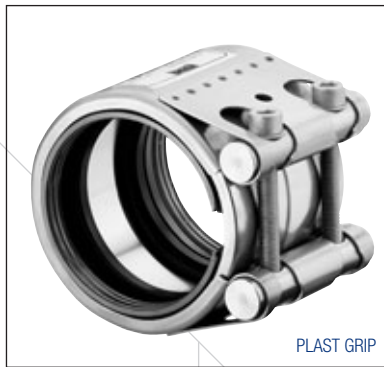
For connecting restrained metal and plastic pipes

NORMACONNECT® GRIP

For connecting unrestrained metal pipes



COMBI GRIP



PLAST GRIP

NORMACONNECT® COMBI GRIP

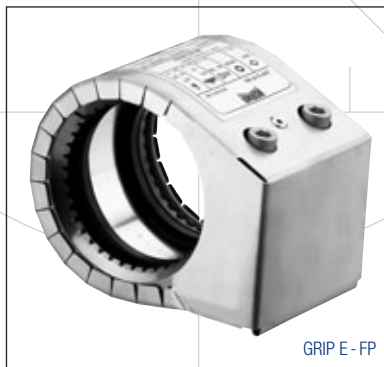
For connecting unrestrained metal with unrestrained plastic pipes

NORMACONNECT® PLAST GRIP

For connecting unrestrained plastic pipes



REP E



GRIP E - FP

NORMACONNECT® REP E

Repair coupling for restrained metal and plastic pipes

NORMACONNECT® GRIP E - FP

(Fire Protection)
Pipe coupling type G with integrated fire protection

NORMACONNECT® – Pipe Connections



NORMACONNECT® BRS

Wide band hose clamps

BRS wide band hose clamps, in combination with a rubber sleeve, are particularly suitable for connecting pipes with smooth ends. BRS/BRSP wide band retaining clamps are the ideal fastening elements for thin-walled glass, plastic, or metal containers.

Features:

- Extra wide band
- Clamping force distribution over wide area
- High transverse rigidity
- Single and multi-part versions



NORMACONNECT® ARS

Exhaust pipe clamps

ARS exhaust pipe clamps connect pipes fitted into each other securely and reliably. They are also used to connect pipes which are subject to wide temperature divergences and therefore, are especially suitable for connecting, for example, exhaust pipes and silencers in the automotive industry.

Features:

- Easy assembly
- 1-bolt lock device
- Uniform contact pressure on the entire pipe circumference
- No pipe damage due to rounded band edges



NORMACONNECT® RS/DIN

Exhaust pipe clamps to DIN 71 555

These clamps offer an alternative to the ARS. Due to its simple design, the clamp can be fitted with an additional bracket, so that the RS/DIN can also be used as a retaining clamp.

Features:

- Easy assembly
- 1-bolt lock
- Simple design
- Also suited as retaining clamp



NORMACONNECT® SEC

Ball zone exhaust gas clamp

The ball zone exhaust gas clamp is the ideal problem solver for connection points in the central and rear exhaust gas area. During assembly, in combination with flange connections there is the option to swivel the exhaust silencer.

Features:

- Angle compensation in the exhaust gas system
- Exhaust gas line does not impact on the body
- Simplified assembly conditions due to the increased flexibility of the entire system

NORMACONNECT® – Pipe Connections

NORMACONNECT® V

Profile clamps

V profile clamps are reliable connection elements for flange pipes and are used in many different industrial applications such as e.g. in container construction for water treatment plants, filter construction, for supply lines,

cooling air, cooling water, exhaust gases, lubricants, air conditioning systems, suction and hydraulic lines, shipping containers but also in the automotive industry, particle filters, exhaust gases, turbo filters etc.

Features:

- Many standard profiles
- Various locking systems
- Several materials
- Single and multi-part design

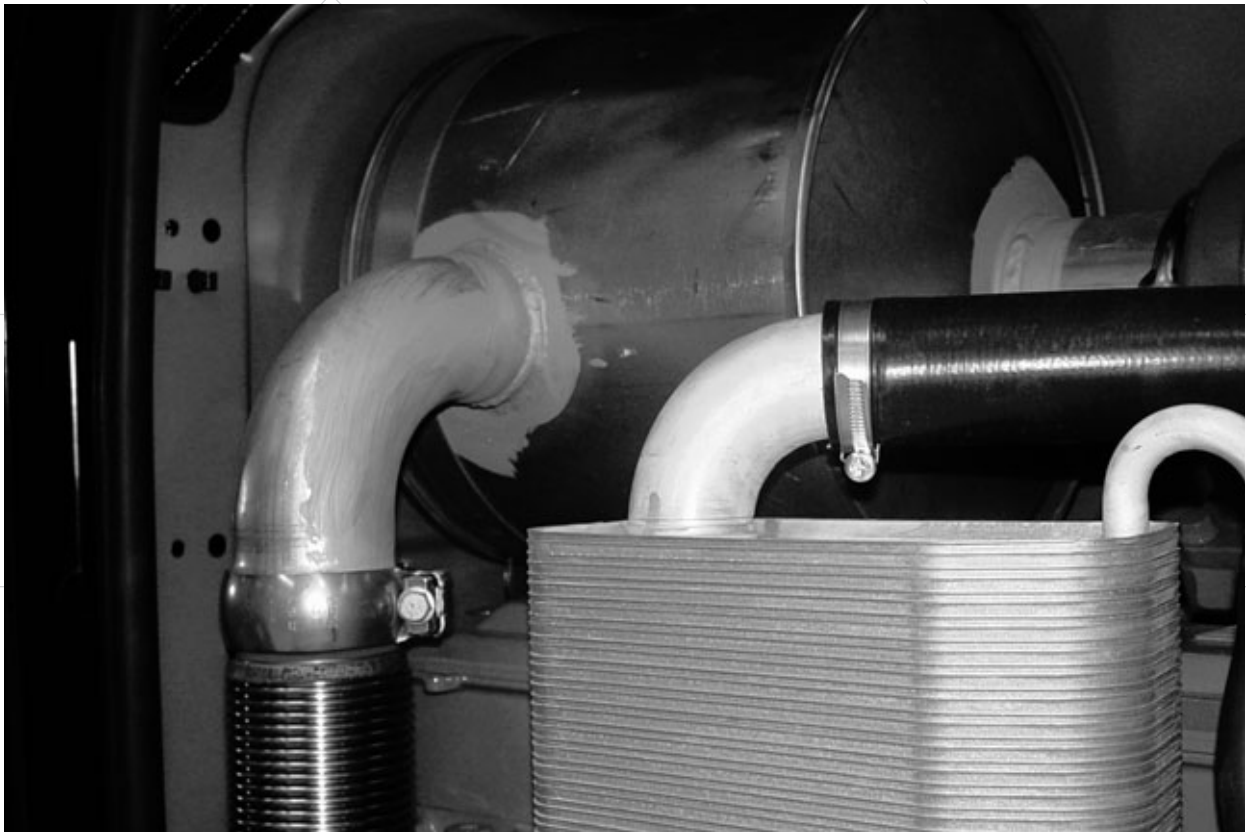


NORMACONNECT® V

Profile clamps with cover band

NORMACONNECT® V PP

Profile clamps with pressed profile





NORMAFIX® – Retaining Products



Versatility in design and application

NORMAFIX® – Retaining Products

The NORMAFIX® range comprises a wide variety of products for the attachment and retaining of pipes, cables, cable harnesses and hoses to walls, ceilings as well as car bodies.



NORMAFIX®
Retaining Products

Versatility

NORMAFIX® – Retaining Products



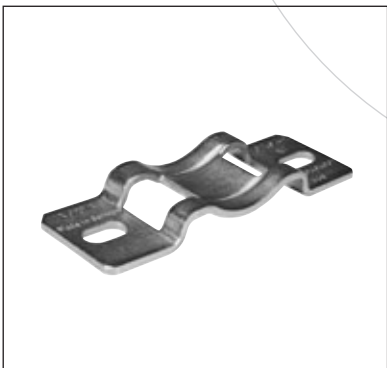
NORMAFIX® HMK

Retaining clamps with brackets

HMK retaining clamps with brackets are used to attach containers or pipes to ceilings and walls. They are also used in mechanical engineering and plant construction.

Features:

- Large choice of diameters
- Various different materials
- Available with rubber sleeve
- Single and multi-part design



NORMAFIX® K

Brackets for standard hose clips

NORMAFIX® K are robust steel brackets that convert any standard hose clip into a retaining clamp in a matter of seconds. The bracket is suitable for all applications where a standard clamp is to be used for fixing.

Features:

- One-piece bracket
- Simple and quick to fit
- Versatile use



NORMAFIX® RS/RSGU

Pipe retaining clips

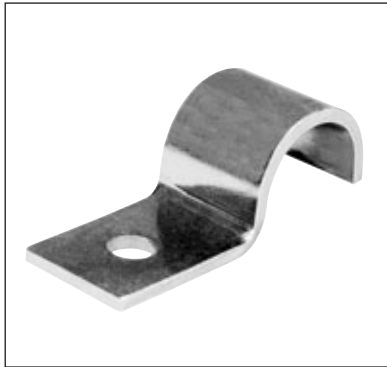
RS/RSGU pipe retaining clips are the ideal retaining elements for pipes, cable, hoses, etc., and are used throughout the automotive and industrial sectors.

Features:

- Meets the high quality requirements of the automotive industry
- Wide selection of types
- Available with rubber sleeve
- Various different materials



NORMAFIX® – Retaining Products



NORMAFIX® BS

Fixing clips

With BS fixing clips, pipes and cables can be fitted fast and easily to any structure. They are suitable for all industrial areas where a low-priced and reliable assembly is required.

Features:

- Wide selection of types
- Various DIN models

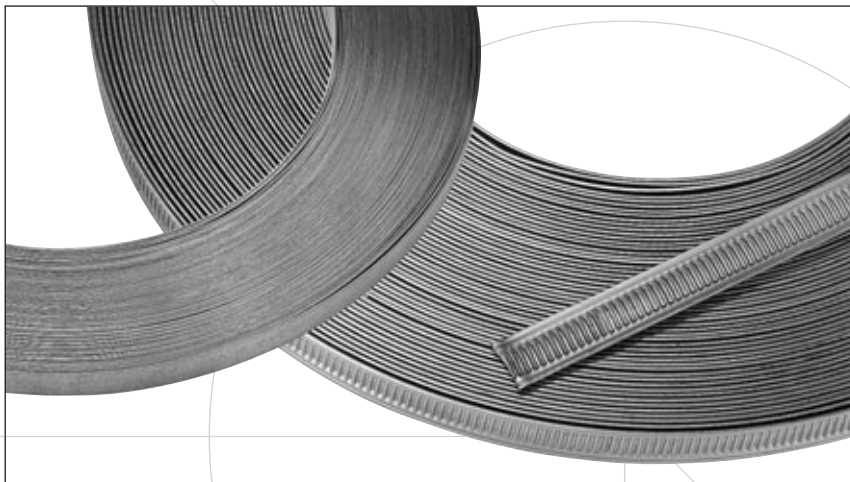
NORMAFIX® NORMETTA®

Continuous band system

This flexible band clamping and retaining system is particularly suitable for fixing and repair purposes under difficult or extraordinary conditions; e.g. mountings, sealing of pipes where repairs are necessary, attachment of signs and containers as well as the integration of hoses etc.

Features:

- Adaptable system
- Fast assembly of articles of the most varied shapes, sizes and diameters
- Various locking systems
- Different band widths



NORMAFIX® CT

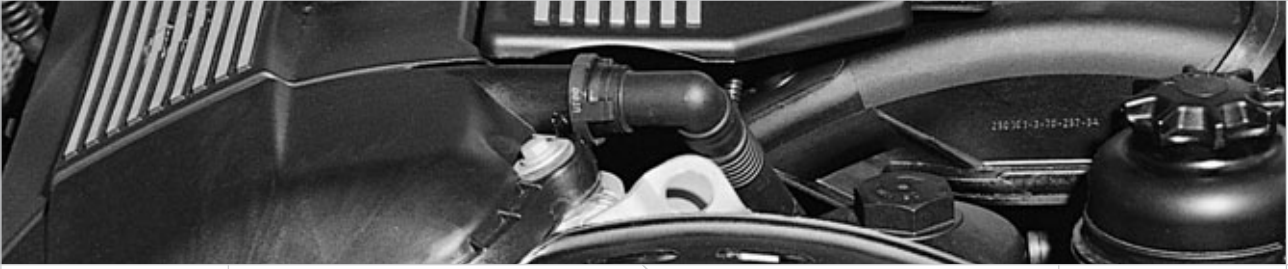
Cable ties

Features:

- Available in two colours: black or white



NORMAQUICK® – Quick Connectors



„Plug and Play“ for permanent peace of mind

NORMAQUICK® – Quick Connectors

Innovative, secure, and „quickfit“ – the NORMAQUICK® range of plug-in connectors made of synthetic material are suitable for most media carrying lines. Be it cooling water, oil, air or fuel carrying lines – NORMAQUICK® quick connectors offer the state-of-the-art means of connection. These quick connectors are specially suited to being matched up with the NORMAFLEX® tube system.



NORMAQUICK®
Quick Connectors

Speed

NORMAQUICK® – Quick Connectors



NORMAQUICK® PS3

NORMAQUICK® PS, developed for use as automotive original equipment, is a reliable plug-in system for the secure connection of cooling water and heating hoses.

Features:

- Fast assembly
- Compact structural dimensions
- Integrated seal
- Robot assembly possible
- Connecting spigot to VDA standard



NORMAQUICK® V2

V connector systems made of synthetic material provide for a simple and secure connection of media-carrying lines, or lines and units. They are also suitable for use e.g. in fuel, cooling water, ventilation and aeration line and control systems.

Features:

- Fast assembly and dismantling
- Compact structural dimensions
- Integrated seal
- Robot assembly possible
- Connecting spigot to Rasmussen standard



NORMAQUICK® S

This connector system has basically been developed for fuel system applications. The NORMAQUICK® S design prevents accidental opening and cannot be unlocked under pressure.

Features:

- Fast assembly and release
- Compact dimensions
- Integrated seal
- Robot assembly possible
- Connecting spigot to SAE standard



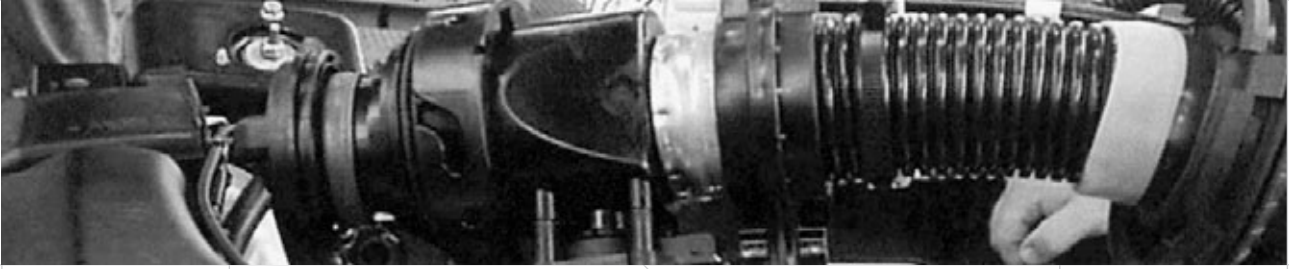
NORMAQUICK® MK

The connector NORMAQUICK® MK has been developed with the aim to create a system component which is successful in reducing permeation to a significant degree. The result is a connector which provides a perfect link between tank and pipe system. NORMAQUICK® MK is designed to match the NORMAFLEX® LET tube.

Features:

- Drastically reduced permeation at the connection by a 2-component material mixture
- Very good physical and chemical properties
- Applicable to connecting spigots to SAE, VDA and Rasmussen standard
- Can be welded on tanks

NORMAFLEX® – Fluid Systems



Getting fluids and air from A to B

NORMAFLEX® – Fluid Systems

This programme comprises smooth and corrugated tubes as well as partially corrugated tubes in mono or co-extruded wall thicknesses which, when used with our NORMAQUICK® quick connectors and NORMACLAMP® hose clamps, will provide a complete transfer system for fluids and air.



Perfection

NORMAFLEX® – Fluidsysteme



NORMAFLEX®

Fluid systems

Depending on the type of material used and the layer construction, NORMAFLEX® fluid systems are suitable for transporting a wide range of different media such as water, air, oil, or fuel.

Three types of tube are available:

- smooth
- corrugated
- combined smooth/corrugated

Features:

- Ready-to-fit systems
- Customized versions
- Adaptable geometries
- Simple and quick assembly
- Light weight
- Perfect system when used with NORMAQUICK® plug-in type connectors

Our current range offers systems for the following areas of application:

1. NORMAFLEX® SAS

Secondary Air Tube Systems



SAS



TVS

2. NORMAFLEX® TVS

Tank Ventilation Systems

3. NORMAFLEX® HCS

Hydraulic Clutch Tube Systems



HCS



CWS

4. NORMAFLEX® CWS

Cooling Water Systems

5. NORMAFLEX® FTS

Fuel Transport Systems



FTS



CVS

6. NORMAFLEX® CVS

Crankcase Ventilation Systems

7. NORMAFLEX® OTS

Oil Transport Systems



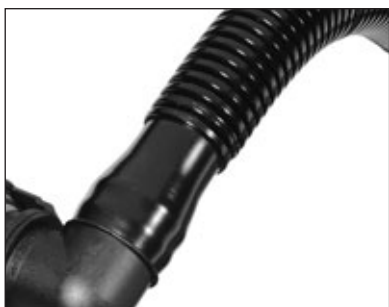
OTS



TOC

8. NORMAFLEX® TOC

Transmission Oil Cooler Tube Systems



NORMAFLEX® LET

Low Emission Tube

The "low emission tube" NORMAFLEX® LET has been developed with the aim to create a system component which is successful in reducing permeation to a significant degree. The result: perfect matching of the pipe with connecting spigot and plug-in type connection to an advanced tank pipe system.

Features:

- Significant reduction in permeation
- Perfectly matched system component

NORMAPLAST® – Plastic Products



The best way to connect hose and tube

NORMAPLAST® – Plastic Products

The NORMA® programme for quickly connecting hoses and tubes. Over the years NORMAPLAST® products have become an indispensable aid to the domestic, commercial, industrial and automotive market sectors.



Strength

NORMAPLAST® – Plastic Products



NORMAPLAST® SV

Plastic hose connectors

These light but high strength plastic connectors are suitable for all kinds of hose connections and are used throughout all industrial sectors.

Features:

- Diverse Gewindegeometrien
- Viele Formgebungen
- Große Auswahl an Abmessungen
- Verschiedene Werkstoffe

Also available in assortments with NORMACLAMP® TORRO hose clips.

NORMA® – Consultation



Solutions for individual requirements

Call us for personal advice

In addition to a large number of standard products, our complete product range comprises solutions and systems for your specific applications.

We provide consultation services, with research and development back-up, led by our application oriented engineers. These processes involve our standard product range, our experiences to date, and our desire to be part of new innovative projects.

If, due to the specific application you have in mind or due to the wide range of possible choices from our NORMA®

product range, you are not sure which NORMA® product would be the best for your specific application, please do not hesitate to contact us.

Use our know-how, and enthusiasm, to your advantage.

www.normagroup.com

Contact

NORMA

*the connecting
professionals*

The NORMA®- Product Range

- **NORMACLAMP®**
= Hose Clamps
- **NORMACONNECT®**
= Pipe Connections
- **NORMAFIX®**
= Retaining Products
- **NORMAQUICK®**
= Quick Connectors
- **NORMAFLEX®**
= Fluid Systems
- **NORMAPLAST®**
= Plastic Products

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