

# Thermal Management

Quick Connect Solutions for Tempering  
and Cooling



ENGINEERING YOUR SUCCESS.

# We are Developing a Cool Solution!

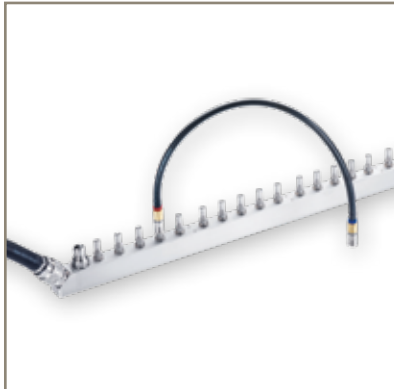
Quick connect coupling system – efficient components in the area of thermal management

The requirements for quick connect couplings for tempering and thermal management are extremely high. Whether for applications in the area of renewable energies, for computer cooling, in transport or for industrial applications the coupling systems from Parker offer optimally tailored solutions.

Our systems stand out for their high level of compatibility with the broadest range of liquids (for example water or heat exchange oils) and the application environment.

Likewise, their resistance to mechanical stresses is vital. One of the most important requirements in the cooling of

electronic systems is the avoidance of any fluid loss, as this is the only way to guarantee fault-free function of the installation.



- ▲ Manifolds as a customized solution.
- ▲ Flat-sealing valve design prevents spillage.



# 60 Years of Know-How

From standard product to customized solution – we meet your requirements

Energy efficiency and compact design play a major role in thermal management applications. As a result of the low pressure drop of our coupling systems, we take energy saving into account at the same time as optimal performance. Reducing the sizes of our couplings allows their use in the most confined spaces.

The flat-sealing valve design reliably prevents any fluid loss during the coupling and uncoupling process, thereby protecting the sensitive electronics and all electrical connections. For switchboards, we have developed a special coupling system (RNS series), which makes coupling and locking the cooling circuits on the racks considerably easier. Highly resistant materials and surface finishes equip our

products for use under high mechanical loads.

You can be sure that the know-how we have acquired from over 60 years in the development and production of quick connect couplings guarantees a reliable and efficient solution for your requirement.

## Maximum Precision and Reliability

The product advantages at a glance:

- **Maximum safety for operator and environment when coupling and uncoupling, due to the FlatFace design – giving optimum protection of the electronics and electrical connections.**
- **Low pressure drop for maximum energy efficiency.**
- **Various sizes (3, 6, 9, 12, 16, 19 and 25 mm) for optimal adjustment to the liquid circuits.**
- **Compact design for installation in applications where little space is available.**
- **Materials in nickel-plated brass or stainless steel for extreme durability in use with the broadest range of liquids (no corrosion).**
- **Broad selection of sealing materials for optimal co-ordination with temperature and fluids.**
- **High resistance to vibrations and rotation.**
- **No leakage when disconnected due to the advanced internal design – even after a long time and pressurisation.**
- **Push-pull function – Allows easy connection/disconnection and locking without touching the couplings. (RNS)**
- **Self alignment of coupling and plug during the connection – even if both are fitted on rigid devices. Time-saving. (RNS)**

# The Right Solution for Every Sector

Complex tasks demand suitable and efficient solutions – not least in the area of quick connect coupling systems

The topic of cooling is a critical factor in a lot of industries today. It is responsible for adequate temperatures in computers, in the electronic racks, on the tool or on the machine itself. All production and the product lifecycle of elements and machines are based on how effectively the cooling process is configured and ensures ideal operating temperatures.

In these cooling circuits, it comes down not least to the efficient performance of all components. Companies demand maximum reliability and maximum efficiency coupled with durability and compact design. At first glance, these are often contradictory objectives, which demand solutions that include modern materials and innovative design.

Therefore we employ the knowledge we acquired in the area of thermal management during the last decades to meet the requirements of our customers.



## Information Technologies

Processors (microprocessors) generate waste heat during operation. This results in overheating of the unit, which can cause malfunction even to the point of destruction of components.

A cooling system is, then, mandatory to guarantee the rapid dissipation of the waste heat.

Small dissipation areas and high temperatures demand optimized and highly efficient solutions. As water is 10 times more efficient than air, we provide support to our customers to build complete systems for water cooling for High Performance Computers, Data centers, microelectronics and telecommunication applications.



## Energy Management

Our knowledge in the use of quick connect couplings in the area of solar and wind energy allows the development of bespoke solutions for everything to do with the subject of efficient cooling circuits. For example, intelligent solutions are vital because of the constantly improving performance of the new generation of energy produc-

tion plants based on high-performance cooling circuits with liquid.

Here, our systems are optimally geared to the parameters of pressure, flow and temperature. As the systems are often used in salty sea air, corrosion-resistant materials are essential.



## Mobile & Transportation

Rapidly increasing flows of goods and further increases in mobility demand extremely reliable and efficient vehicle concepts.

Here, the cooling of diesel-powered and electrically driven rail vehicles is highly important, and we provide light weight couplings and connection products adapted

to this application. More recently the environmental care drives more and more to the usage of electrical vehicles and ships and our products are part of the systems built for the liquid cooling of the batteries.



## Industrial Applications

From the individual machine to production lines and high-performance lasers, cooling is present in different industries.

Quick connect couplings are used in liquid cooling systems both for cooling tools in the production process and for the machine itself. Therefore, Parker provides solu-

tions for liquid cooling and tempering for all types of industries, as Semiconductors, Laser projectors, plastic industry, electronics (inverters, converters), etc.



## Others...

Based on more than 60 years experience, our products are designed to operate for all kind of Thermal Management applications. We will be happy to support for the development of your system whatever would be the sector of industry and design the future together.

# Thermal Management Range at a Glance

Find the ideal product for your application



	NSI-Series	NSA-Series
<b>Valves Dry Break</b>		
<b>Working Pressure</b>	60 bar	20 bar
<b>Nominal Diameter (mm)</b>	3/6/9/12	10/12
<b>Technical Description</b>	<ul style="list-style-type: none"> <li>• Two-hand operation</li> <li>• Push to connect version available on request</li> </ul>	<ul style="list-style-type: none"> <li>• Extreme lightweight (Aluminium)</li> </ul>
<b>Material (Coupling Body)</b>	Brass/Stainless Steel	Anodized Aluminium
<b>Seals</b> (other seal variants on request)	FKM/EPDM	Flourosilicone
<b>Working Temperature</b>	-20°C up to +200°C (FKM)	-50°C up to +175°C (Flourosilicone)



NSE-Series	Customized Solution
15 bar	up to 15 bar
16/19/25	
<ul style="list-style-type: none"> <li>• Two-hand operation</li> <li>• Reduced dimensions compared to flow capacities</li> </ul>	Parker offers manifolds using RNS or Cartridge couplings
Stainless Steel	on request
FKM/EPDM	on request
-20°C up to +200°C (FKM)	following seals material requested

**Technical Description**

The NSI are dry-break couplings with flat face valves. The compact design make them suitable for reduced spaces. Coupling system with two-hand operation, i.e. both hands are required when connect/disconnect.

Push to connect version available on request: NSP series

**Working Temperature**

-20°C up to +200°C (FKM) depending on the medium.  
Other seals materials are available on request.

**Dry-Break****Max. Working Pressure\***

60 bar

\* maximum static working pressure  
with design factor 4 to 1.

**Advantages**

- No spillage during connection/disconnection.
- Low pressure drop.
- Advanced internal design for cooling applications.
- Can be used either with water and heat transfer oils.
- Excellent resistance to vibrations and mechanical stresses.

**Material**

**Coupling:** Brass/Stainless Steel

**Plug:** Brass/Stainless Steel

**Seals:** FKM

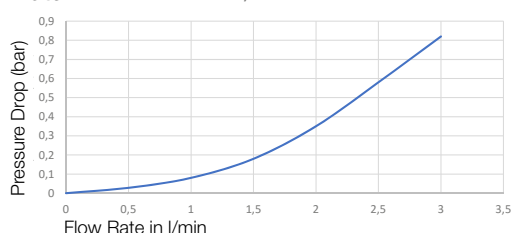
Other materials available on request.

**Applications**

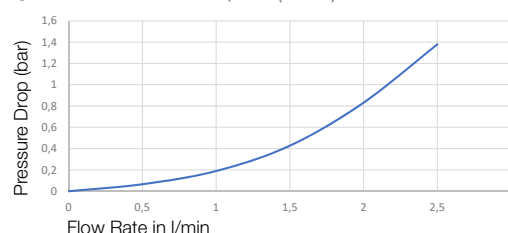
- Molding
- Electronic cabinets
- Laser
- Converters
- Radar, etc.
- Computers and telecommunications

**Flow diagrams****Water**

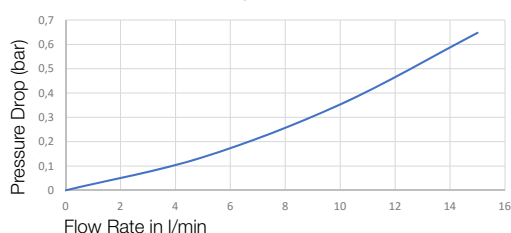
NSI Ø3 water

**Oil**

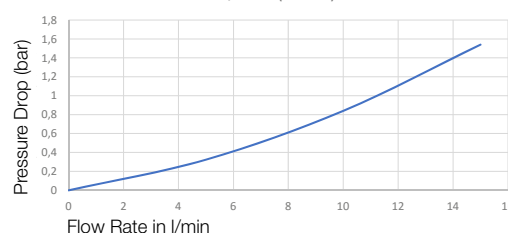
NSI Ø3 oil (32 cSt)

**Water**

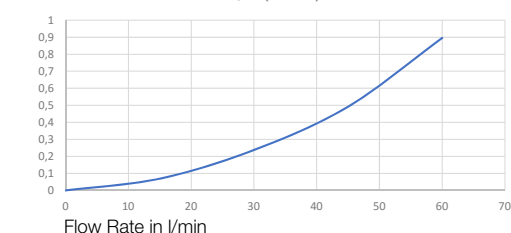
NSI Ø6 water

**Oil**

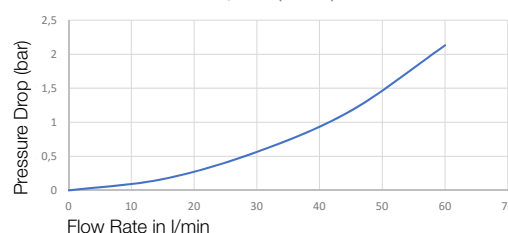
NSI Ø6 oil (32 cSt)

**Water**

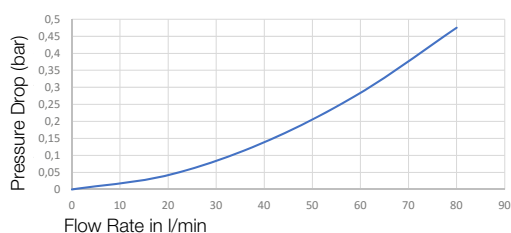
NSI Ø9 (water)

**Oil**

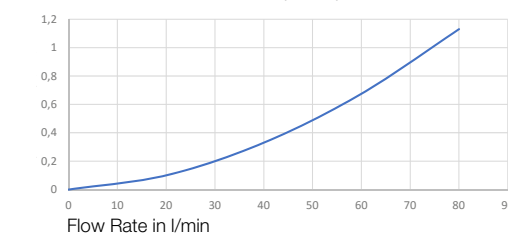
NSI Ø9 oil (32 cSt)

**Water**

NSI Ø12 water

**Oil**

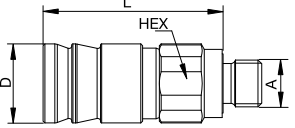
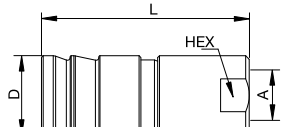
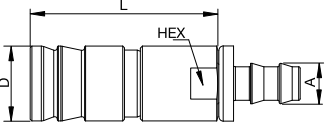
NSI Ø12 oil (32 cSt)





## Couplings

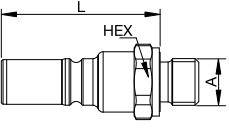
## Series NSI

	DN	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	3	G 1/8	14	38	17	NSI-121-2MBE <sup>1</sup>
	6	M 16 x 1,5	20	44,8	22	NSI-251-16MCL-2 <sup>2</sup>
	9	G 3/8	27	63	30	NSI-371-6MBO
	12	G 1/2	35	90,4	42	NSI-501-8MBO
 Female Thread	6	G 1/4	20	57,9	22	NSI-251-4FB
	9	G 3/8	27	72	30	NSI-371-6FB
	12	G 1/2	35	99,4	42	NSI-501-8FB
 Parker Push-Lok	6	10 mm	20	55,2	22	NSI-251-6PL



## Plugs

## Series NSI

	DN	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	3	G 1/8	14	36,5		NSI-122-2MBE <sup>1</sup>
	6	G 1/4	19	44		NSI-252-4MBE <sup>1</sup>
	9	G 3/8	24	60,2		NSI-372-6MBO
	12	G 1/2	32	79,1		NSI-502-8MBO

<sup>1</sup> End connection according to ISO1179-2 ED seal

<sup>2</sup> End connection according to DIN 2353 24°cone

**Technical Description**

Minimal fluid loss during disconnection. NSA couplings have minimal pressure drop and no inclusion of air or dust during connection.

**Working Temperature**

-50°C up to +175°C (Fluorosilicone)  
depending on the medium.

Other seals materials are available on request.

**Advantages**

- No spillage during connection/disconnection.
- Light weight due to aluminium construction.
- Push-Lok connection for fast assembly.

**Max. Working Pressure**

20 bar

**Material**

**Coupling:** Anodized Aluminium

**Plug:** Anodized Aluminium

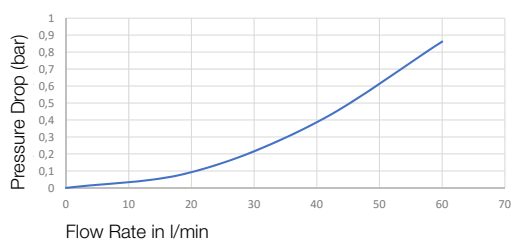
**Seals:** Fluorosilicone

**Applications**

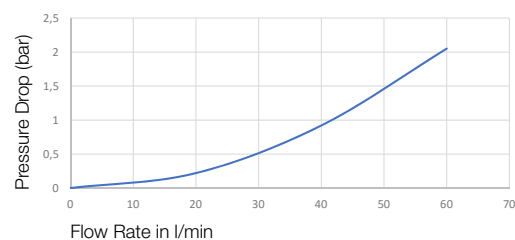
- Cooling of onboard electronic equipment, engines and batteries
- Cooling for converters, data centers, military equipment and medical imaging equipment.

**Flow diagrams****Water**

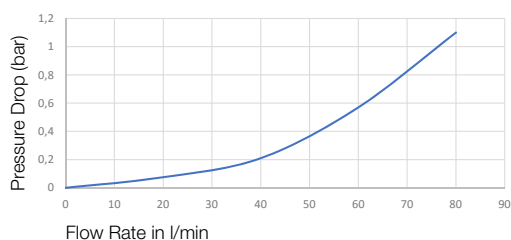
NSA Ø10 water

**Oil**

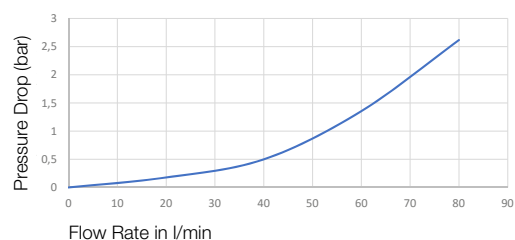
NSA Ø10 Oil

**Water**

NSA Ø12 water

**Oil**

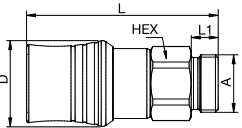
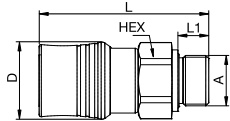
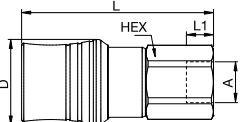
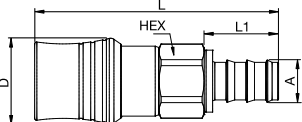
NSA Ø12 Oil





## Couplings

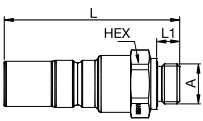
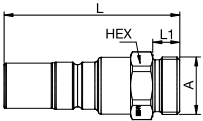
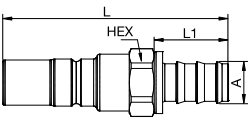
## Series NSA

	DN	Connection A	HEX mm	L mm	L1 mm	D mm	Weight gr.	Part Number
 Male Thread metric DIN 2353	12	M 30 x 1,5	35	99,4	14	44,5	231	NSA-501-30MCL
 Male Thread BSPP	10	G 1/2	35	91,6	14	40	157	NSA391-8MBO
 Female Thread BSPP	12	G 1/2	35	99,4	14	44,5	249	NSA-501-8FB
 Parker Push-Lok	12	19 mm	35	126,40	38,30	44,5	239	NSA-501-12PL



## Plugs

## Series NSA

	DN	Connection A	HEX mm	L mm	L1 mm	D mm	Weight gr.	Part Number
 Male Thread BSPP with O-ring Seal	10	G 1/2	27	81	12		67	NSA-392-8MBO
	12	G 1/2	32	91,1	12		88	NSA-502-8MBO
 Male Thread Metric	12	M 30 x 2	32	91,1	14		93	NSA-502-30MCL
 Parker Push-Lok	12	19 mm	32	117,1	38,3		97	NSA-502-12PL

**Technical Description**

The NSE are dry-break couplings with flat face valves. The compact design makes it suitable for reduced spaces when high flow is needed. Coupling system with two-hand operation, i.e. both hands are required when connect/disconnect.

**Working Temperature**

-20°C up to +200°C (FKM)  
depending on the medium.

Other seals materials are available on request.

**Advantages**

- High flow with low pressure drop.
- No spillage during connection/disconnection.
- Specific design for cooling applications.
- Reduced dimensions compared to flow capacities.

**Max. Working Pressure\***

15 bar

\* maximum static working pressure  
with safety factor 4 to 1.

**Material**

**Coupling:** Stainless Steel

**Plug:** Stainless Steel

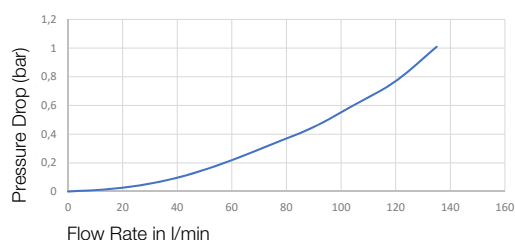
**Seals:** FKM

**Applications**

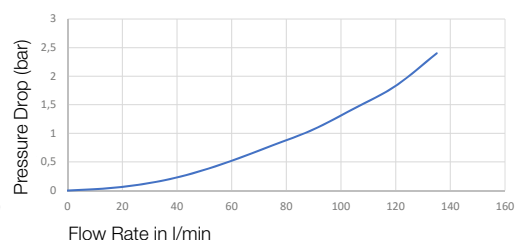
- Molding
- Electronic cabinets
- Laser
- Converters
- Radar, etc.

**Flow diagrams****Water**

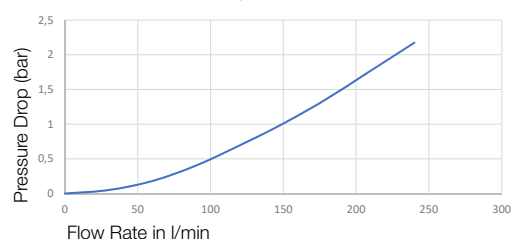
NSE Ø16 Water

**Oil**

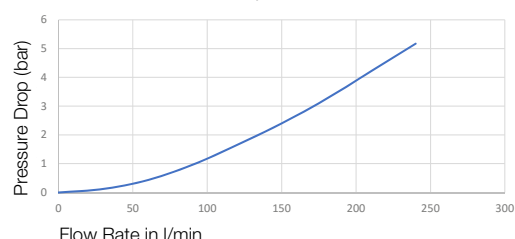
NSE Ø16 Oil

**Water**

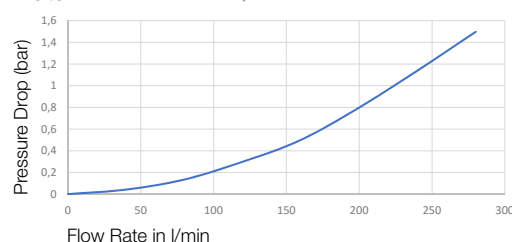
NSE Ø19 Water

**Oil**

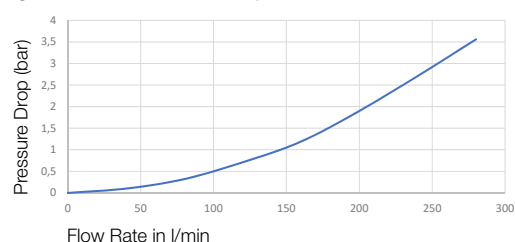
NSE Ø19 Oil

**Water**

NSE Ø25 Water

**Oil**

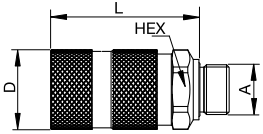
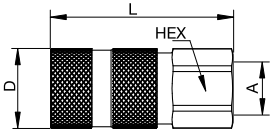
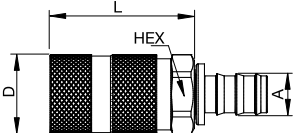
NSE Ø25 Oil





## Couplings

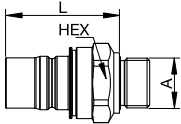
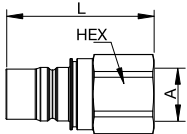
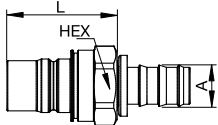
## Series NSE

	DN	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	16	G 3/4	34	68,8	37	NSE-621-12MBO
	19	G 3/4	38	78,5	42	NSE-751-12MBO
 Female Thread	19	G 1	38	96,6	42	NSE-751-16FB
	25	G 1 1/4	50	120,5	53	NSE-1001-20FB
 Parker Push-Lok	19	12,5 mm	38	76,4	42	NSE-751-8PL
	19	19 mm	38	76,4	42	NSE-751-12PL



## Plugs

## Series NSE

	DN	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	16	G 3/4	34	56,5		NSE-622-12MBO
	19	G 3/4	38	60,3		NSE-752-12MBO
 Female Thread	19	G 1	38	78,4		NSE-752-16FB
	25	G 1 1/4	50	96,8		NSE-1002-20FB
 Parker Push-Lok	19	12 mm	38	58,2		NSE-752-8PL
	19	19 mm	38	58,2		NSE-752-12PL

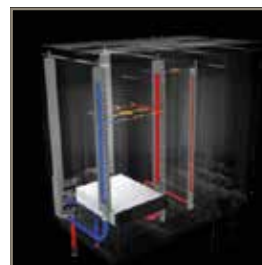
# Customized systems

We offer engineering support to our customers for the co-developpment of the complete cooling installation. A special care is accorded to the pressure drop for energy saving and to assure the optimal temperature management.

We propose a complete 100% tested solution integrating our products, between the chiller to the component to be cooled.

## Our solutions include:

- **Manifolds** – several materials available.
- **Couplings or cartridges** – from 3mm ID to 25 mm ID available in different materials and seals.
- **Hose assemblies** – including Push-lok (hose barb) end connections for an optimal number of components.
- **Bleeding valves, flow regulators, etc.**
- **Pressure and flow sensors.**
- **Others...**



## Advantages

- Push-pull connection/disconnection without touching the couplings
- Advanced internal design for thermal management
- Dry connection/disconnection
- Suitable to blind mate connections due to the floating nipple body (self alignment to the coupling)





#### Technical description

The couplings cartridges are designed to be used on manifolds and sliding racks. They assure a dry connection/disconnection and have an advanced internal design for Thermal management. They are proposed in several materials adapted to the applications.

#### Advantages:

- Dry connection/disconnection
- Suitable to blind mate connections due to the floating nipple body (self alignment to the coupling)
- Specific design to assure 100% dry disconnection at any time



#### Technical Description

The RNS are rigid couplings with flat face valves. They can be mounted on rigid manifolds or tubing and assure connection/disconnection without spillage. Base material is brass and stainless steel.

#### Advantages

- Push-Pull connection/disconnection, break-away function.
- Dry-break connection/disconnection.
- Connection guiding system and compensation of misalignment during connection on rack systems (when both are mounted on rigid devices).
- Specific design for cooling applications.

The other series in this brochure are also suitable to be part of the systems.  
For more information about the characteristics or feasibility please contact us.



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