



Thermal Management

Liquid Cooling Solutions for Electronics,
Data Centers, Servers and Supercomputers

November 2023

PDF Update: October 22, 2024



opespare
Fluid Power Solutions & Innovation
ENGINEERING YOUR SUCCESS.

We Developed a Cool Solution!

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

The requirements for quick connect couplings for thermal management are extremely high.

Our systems stand out for their high level of compatibility with the broadest range of liquids 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.

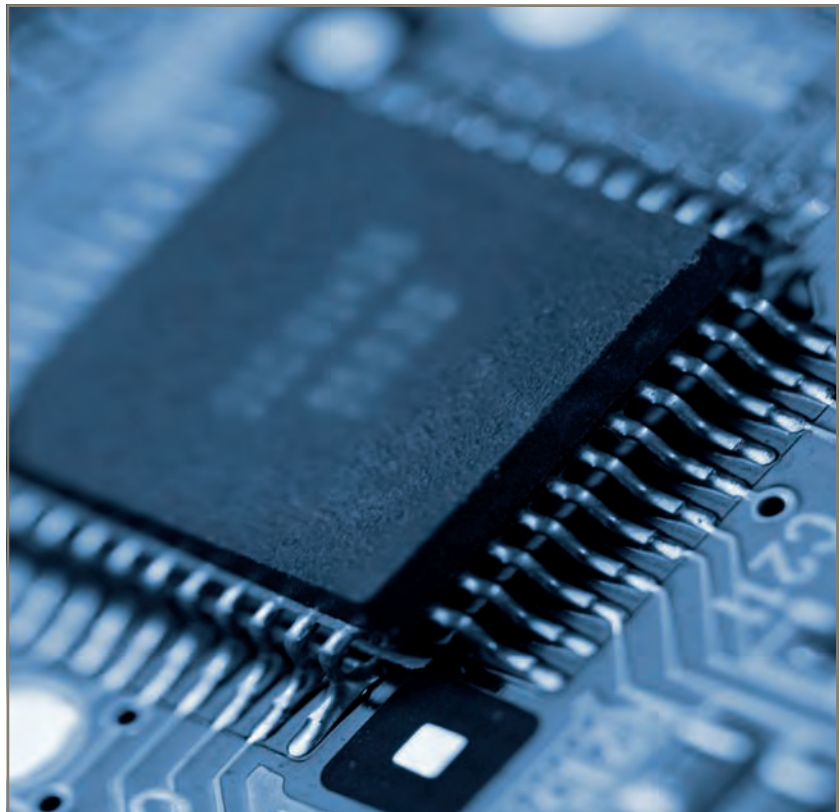
Our Value added:

- Wide experience on various thermal management applications
- A global presence
- Customer engineering intimacy
- In-house engineering and manufacturing



Liquid Cooling Solutions

Leak-Free Connections.
Reliable Performance.



▲ Flat-sealing valve design prevents spillage.

60 Years of Know-How

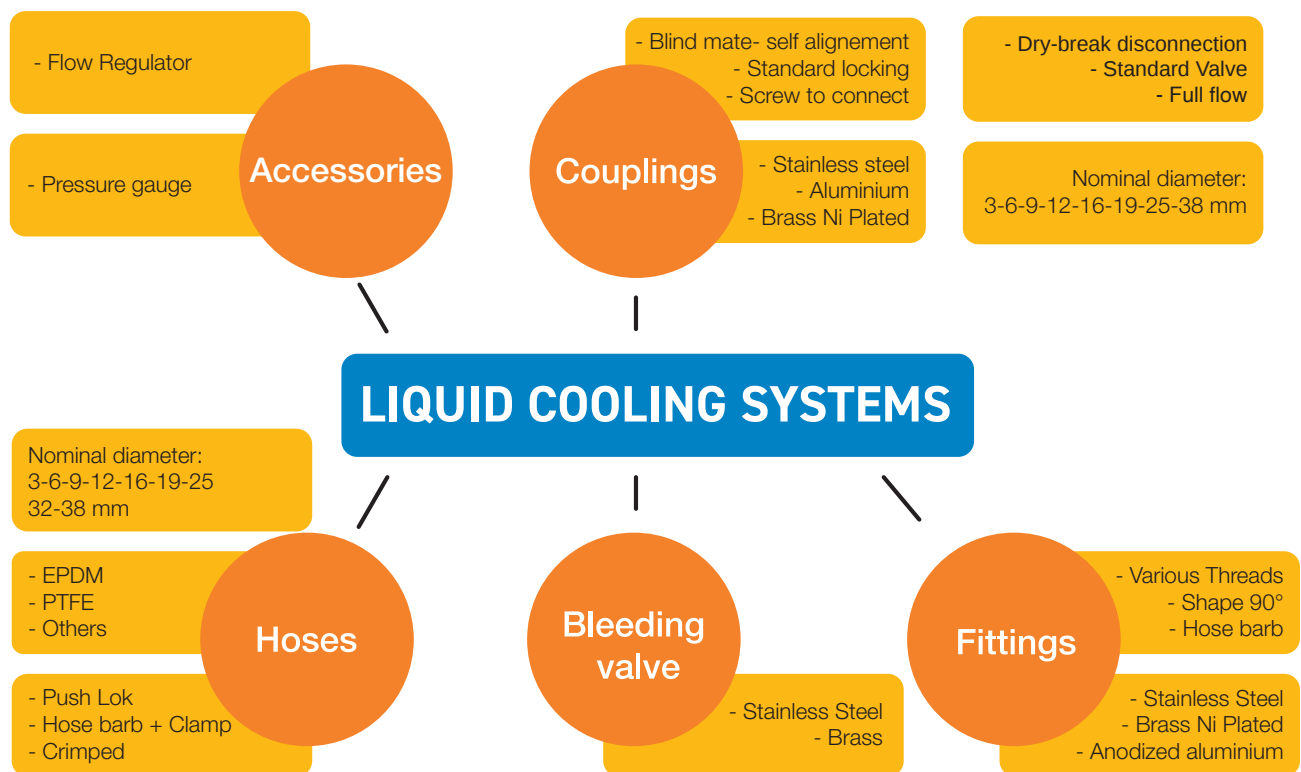
From standard product to customized solution – we meet your requirements

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.

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.



Thermal Management Range at a Glance

Find the ideal product for your application



	NSG Series	NSI Series	NSP1 Series	UQD Series
Working Pressure	150 psi / 10.3 bar	290 psi / 20 bar	150 psi / 10.3 bar	150 psi / 10.3 bar
Working Temperature	0°C to 70°C	-40°C to 70°C -20°C to 200°C (FKM)	0°C to 70°C	0°C to 70°C
Storage Temperature	-40°C to 120°C		-40°C to 120°C	-40°C to 120°C
Nominal Diameter	3mm	3/6/9/12mm	6mm	02/04/06/08in
Materials	Body: Stainless Steel Seals: EPDM	Body: Brass, Stainless Steel Seals: FKM/EPDM	Body: Stainless Steel Seals: EPDM	Body: Stainless Steel Seals: EPDM
Functionality	Two-hand operation	Two-hand operation	Push to connect	- Push to connect - Fully interchangeable with other Intel-approved UQD suppliers



UQDB Series	ORV Series	CDT Series	NSE Series
150 psi / 10.3 bar	50 psi / 3.4 bar	174 psi / 12 bar	217 psi / 15 bar
0°C to 70°C	0°C to 60°C	10°C to 60°C	-20°C to 200°C (FKM)
-40°C to 120°C	-40°C to 120°C	-40°C to 120°C	
02/04/06/08in	5mm	25mm	16/19/25mm
Body: Stainless Steel, Zinc Plated Steel Seals: EPDM	Body: Stainless Steel Seals: EPDM	Body: Stainless Steel Seals: EPDM	Body: Stainless Steel Seals: FKM/EPDM
• Blind connection • Fully interchangeable with other Intel-approved UQDB suppliers	• Blind connection • ± 5mm misalignment allowed • 2.7° angular misalignment allowed	• Two-hand operation • Screw-to-Connect	• Two-hand operation • Reduced dimensions compared to flow capacities



Dry-Break

Max. Working Pressure

150 psi / 10.3 bar

Working Temperature

0°C to 70°C (Extended temperature range is possible, contact Parker for more information.)

Material

Socket: Stainless Steel
Plug: Stainless Steel
Seals: EPDM

Connect Force

14 psi = 15 lbs
100 psi = 19 lbs

CV Values

Socket to Plug - .363
Plug to Socket - .414
Average - .392

Spillage/Air Inclusion

.002 mL

Technical Description

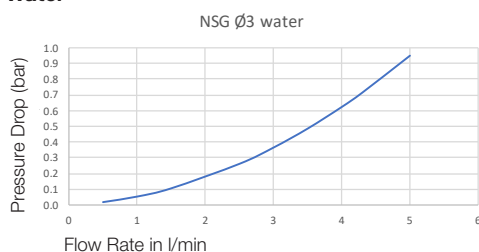
The NSG are dry-break couplings with flat face valves. The compact design makes them suitable for reduced spaces. Coupling system with two-hand operation, i.e. both hands are required when connect/disconnect.

Advantages

- No spillage during connection/disconnection
- Low pressure drop
- Advanced internal design for cooling applications

Flow diagrams

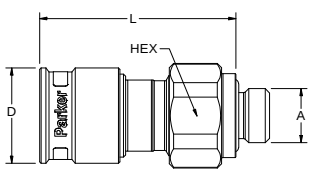
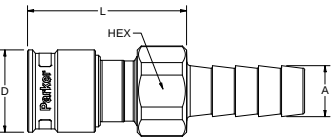
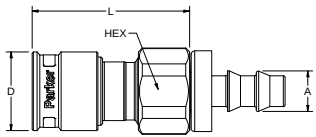
Water





Sockets

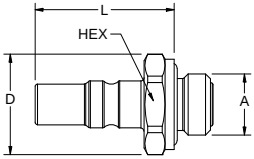
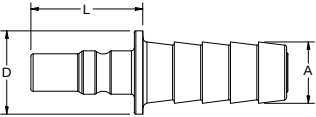
Series NSG

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	3mm	G 1/8	17.5	34.8	17.0	NSG-121-2MB
 Hose Barb	3mm	3/8" Hose Barb	17.5	33.3	17.0	NSG-121-6HB
 Parker Push-Lok	3mm	1/4" Pushlok	17.5	34.1	17.0	NSG-121-4PL



Plugs

Series NSG

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	3mm	G 1/8	14.3	22.7	15.9	NSG-122-2MB
 Hose Barb	3mm	3/8 Barb	N/A	19.3	14.3	NSG-122-6HB

All parts available in Red (-RD) or Blue (-BU)



Max. Working Pressure*

290 psi / 20 bar

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

Working Temperature

-40°C to 70°C

-20°C to 200°C (FKM)

Material

Socket: Brass/Stainless Steel

Plug: Brass/Stainless Steel

Seals: FKM

Other materials available on request

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

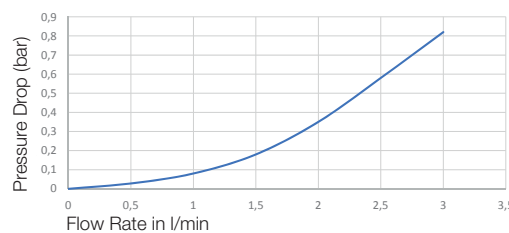
Advantages

- 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.

Flow diagrams

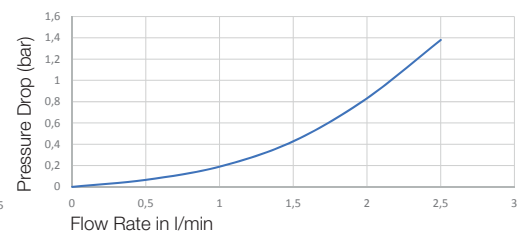
Water

NSI Ø3 water



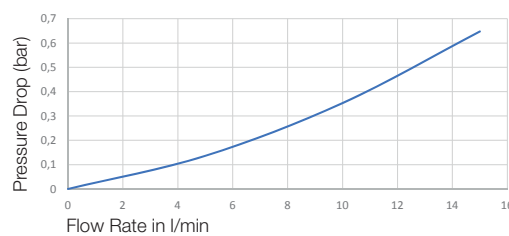
Oil

NSI Ø3 oil (32 cSt)



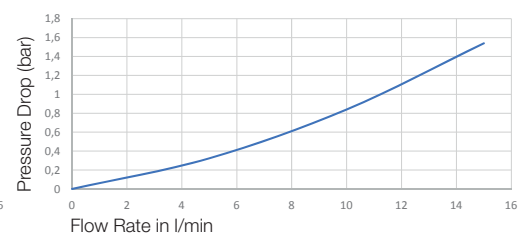
Water

NSI Ø6 water



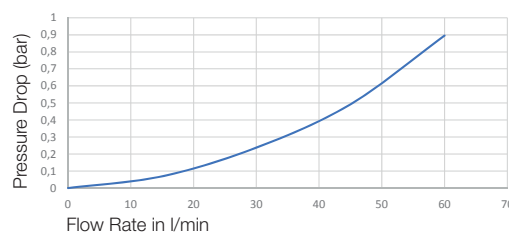
Oil

NSI Ø6 oil (32 cSt)



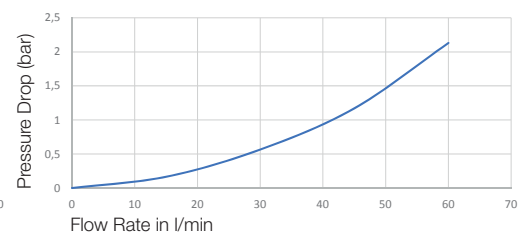
Water

NSI Ø9 (water)



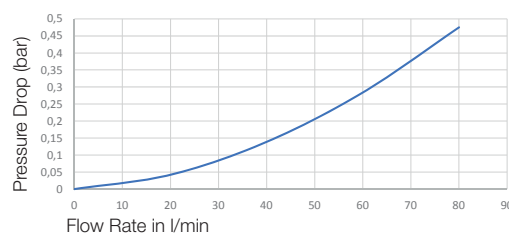
Oil

NSI Ø9 oil (32 cSt)



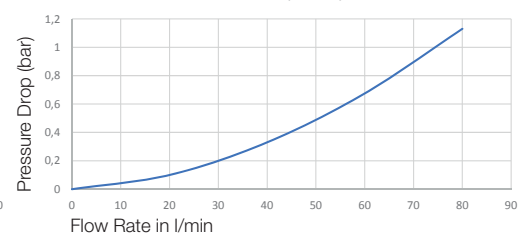
Water

NSI Ø12 water



Oil

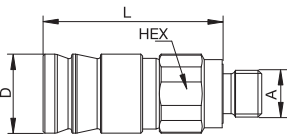
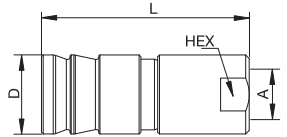
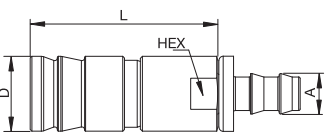
NSI Ø12 oil (32 cSt)





Sockets

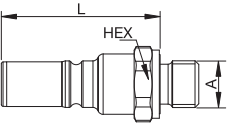
Series NSI

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	3mm	G 1/8	14	38	17	NSI-121-2MBE ¹
	6mm	M 16 x 1.5	20	44.8	22	NSI-251-16MCL-2 ²
	9mm	G 3/8	27	63	30	NSI-371-6MBO
	12mm	G 1/2	35	90.4	42	NSI-501-8MBO
 Female Thread	6mm	G 1/4	20	57.9	22	NSI-251-4FB
	9mm	G 3/8	27	72	30	NSI-371-6FB
	12mm	G 1/2	35	99.4	42	NSI-501-8FB
 Parker Push-Lok	6mm	10 mm	20	55.2	22	NSI-251-6PL



Plugs

Series NSI

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	3mm	G 1/8	14	36.5		NSI-122-2MBE ¹
	6mm	G 1/4	19	44		NSI-252-4MBE ¹
	6mm	9/16-18 UNF	20.6	72		NSP-252-6MO
	9mm	G 3/8	24	60.2		NSI-372-6MBO
	12mm	G 1/2	32	79.1		NSI-502-8MBO

¹ End connection according to ISO1179-2 ED seal

² End connection according to DIN 2353 24°cone

All parts available in Red (-RD) or Blue (-BU)



Dry-Break

Max. Working Pressure*

150 psi / 10.3 bar

Working Temperature

0°C to 70°C

Material

Socket: Stainless Steel
Plug: Stainless Steel
Seals: EPDM

Connect Force

0 psi = 25 lbs
100 psi = 45 lbs

CV Values

Socket to Plug - 1.11
Plug to Socket - 1.22
Average - 1.16

Spillage

.01 mL

Technical Description

The NSP1 are dry-break couplings with flat face valves. The compact design make them suitable for reduced spaces. NSP1 features a push-to-connect design for ease of operation, and is offered in red and blue colors for system identification.

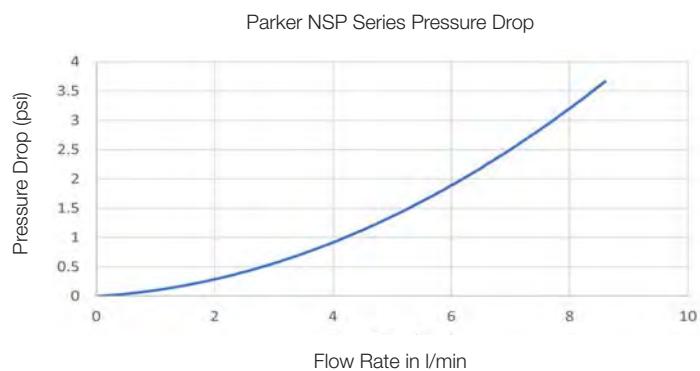
NSP (Parker HPCE) and NSP1 (Parker QCD) are fully interchangeable.

Advantages

- No spillage during connection/disconnection.
- Low pressure drop.
- Push-to-connect design for one-handed operation.
- Advanced internal design for cooling applications.

Flow diagrams

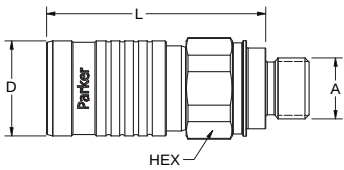
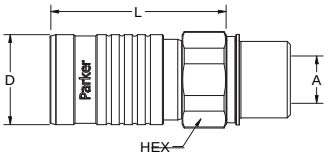
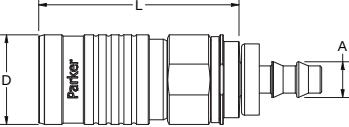
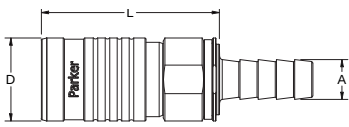
Water





Sockets

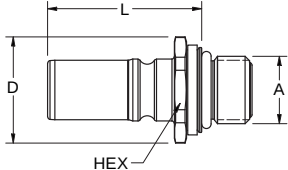
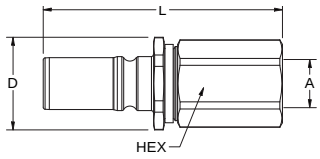
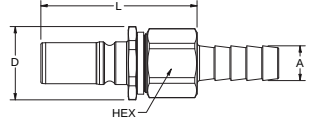
Series NSP1

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	6mm	1/4-18 NPT	22.2	48.3	22	NSP1-251-4MP
	6mm	9/16-18 UNF-2A	22.2	50.7	22	NSP1-251-6MO
 Female Thread	6mm	1/4-18 NPTF	22.2	58.5	22	NSP1-251-4FP
 Parker Push-Lok	6mm	1/4" Hose Barb	N/A	50.2	22	NSP1-251-4PL
 Hosebarb	6mm	3/8" Hose Barb	N/A	47.1	22	NSP1-251-6HB



Plugs

Series NSP1

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	6mm	G 1/4-19-A BSPP	20.6	50.9	22.2	NSP1-252-4MB
	6mm	1/4-18 NPTF	19.1	52.2	22.2	NSP1-252-4MP
	6mm	9/16-18 UNF - 2A	20.6	32.3	22.2	NSP1-252-6MO
 Female Thread	6mm	1/4-18 NPT	20.6	57.4	22.2	NSP1-252-4FP
 Hosebarb	6mm	3/8" Hose Barb	20.6	47.4	22.2	NSP1-252-6HB

To request custom port configuration please contact qcd.support@support.parker.com.

All parts available in Red (-RD) or Blue (-BU)



Max. Working Pressure

150 psi / 10.3 bar

Working Temperature

0°C to 70°C (Extended temperature range is possible, contact Parker for more information.)

Material

Socket: Stainless Steel
Plug: Stainless Steel
Seals: EPDM

Connect Force

UQD02: 0 psi=14 lbs; 14 psi=15 lbs; 100 psi=20 lbs
UQD04: 0 psi=20 lbs; 14 psi=22 lbs; 100 psi=35 lbs
UQD06: Coming Soon
UQD08: Coming Soon

CV Values

	Plug-Socket	Socket-Plug
UQD02:	0.34	0.30
UQD04:	1.25	1.13
UQD06:	2.60	2.25
UQD08:	4.78	4.33

Spillage/Air Inclusion

UQD02: .002mL / .011mL
UQD04: .004mL / .08mL
UQD06: Coming Soon
UQD08: Coming Soon

Technical Description

Universal Quick Disconnect (UQD) based on an Intel inspired open specification. Developed in collaboration with Intel Corporation.

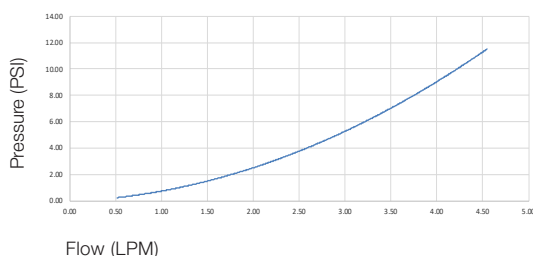
Advantages

- Fully interchangeable with other Intel-approved UQD suppliers
- No spillage during connection/disconnection
- Low pressure drop
- Advanced internal design for cooling applications

Flow Diagrams

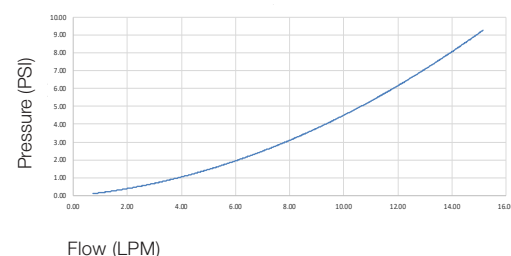
Water

UQD02



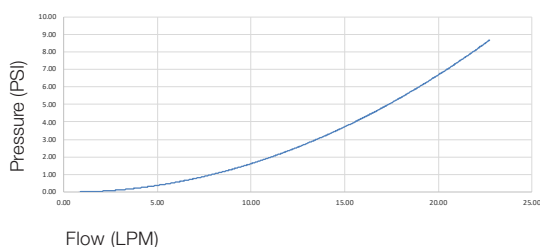
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UQD04



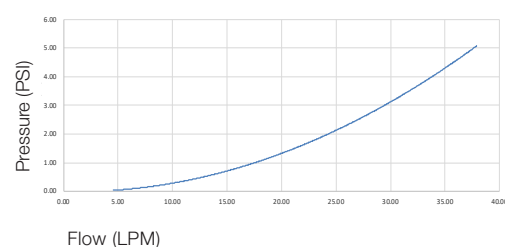
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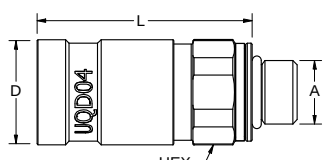
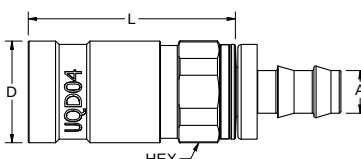
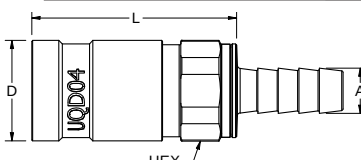
UQD06

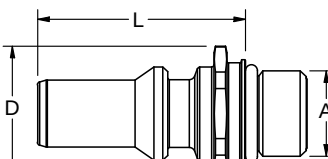
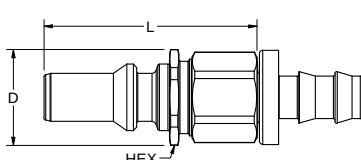
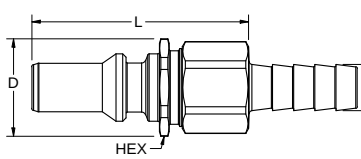


Water

UQD08



	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	02in	7/16-20 UNF-2A	15.9	36.2	18.5	UQD-121-4MO
	04in	9/16-18 UNF-2A	22.2	48	23.4	UQD-251-6MO
	04in	G 3/8-19-A BSPP	22.2	49.9	23.4	UQD-251-6MB
	06in	G 3/8-19-A BSPP	25.4	53.9	27.4	UQD-371-6MB
	06in	3/4-16 UNF-2A	25.4	54.9	27.4	UQD-371-8MO
	08in	7/8-14 UNF-2A	28.6	63.3	32.6	UQD-501-10MO
 Parker Push-Lok	02in	1/4"	14.3	35.6	18.5	UQD-121-4PL
	04in	1/4"	22.2	47.7	23.4	UQD-251-4PL
	04in	3/8"	22.2	47.7	23.4	UQD-251-6PL
	06in	1/2"	25.4	52	27.4	UQD-371-8PL
	08in	1/2"	28.6	62.5	32.6	UQD-501-8PL
	08in	5/8"	28.6	62.5	32.6	UQD-501-10PL
 Hosebarb	04in	3/8"	22.2	47.8	23.4	UQD-251-6HB

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	02in	G 1/8-28-A BSPP	12.7	28.5	14.3	UQD-122-2MB
	02in	G 1/4-19-A BSPP	14.3	29.0	18.5	UQD-122-4MB
	02in	7/16-20-20 UNF-2A	14.3	26.7	15.5	UQD-122-4MO
	04in	G 3/8-19-A BSPP	25.4	35.0	28.6	UQD-252-6MB
	04in	9/16-18 UNF-2A	20.6	34.3	22.2	UQD-252-6MO
	06in	G 3/8-19-A BSPP	25.4	65.0	29.3	UQD-372-6MB
	06in	3/4-16 UNF-2A	23.8	40.4	26.7	UQD-372-8MO
	08in	7/8-14 UNF-2A	28.6	43.4	31.4	UQD-502-10MO
 Parker Push-Lok	02in	1/4"	15.9	39.3	17.5	UQD-122-4PL
	04in	1/4"	20.6	49.4	22.2	UQD-252-4PL
	04in	3/8"	20.6	49.4	22.2	UQD-252-6PL
 Hosebarb	02in	1/4"	15.9	40.6	17.3	UQD-122-4HB
	04in	3/8"	20.6	49.4	22.2	UQD-252-6HB

All parts available in Red (-RD) or Blue (-BU)



Max. Working Pressure

150 psi / 10.3 bar

Working Temperature

0° C to 70° C (Extended temperature range is possible, contact Parker for more information.)

Material

Socket: Stainless Steel
Plug: Stainless Steel and Zinc Plated Steel
Seals: EPDM

Connect Force

UQDB02: 0 psi=8 lbs; 14 psi=9 lbs; 100 psi=13 lbs
 UQDB04: 0 psi=14 lbs; 14 psi=16 lbs; 100 psi=29 lbs
 UQDB06: Coming Soon
 UQDB05: Coming Soon

CV Values

	Plug-Socket	Socket-Plug
UQD02:	0.32	0.31
UQD04:	1.18	1.09
UQD06:	2.45	2.26
UQD08:	4.73	4.33

Spillage/Air Inclusion

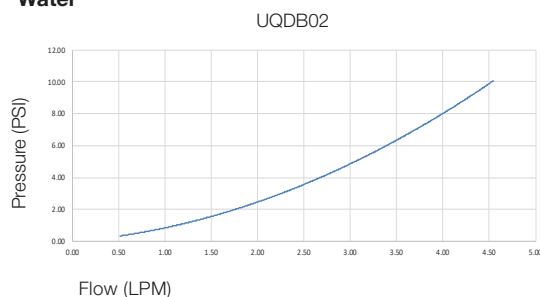
UQDB02: .003mL / .013mL
 UQDB04: .005mL / .08mL
 UQDB06: Coming Soon
 UQDB05: Coming Soon

Technical Description

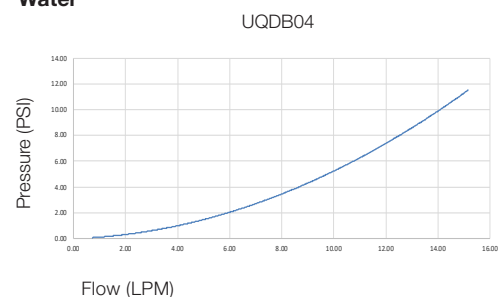
Universal Quick Disconnect Blind Mate (UQDB) based on an Intel inspired open specification. Developed in collaboration with Intel Corporation.

Flow diagrams

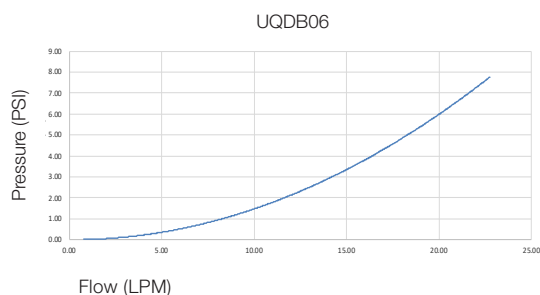
Water



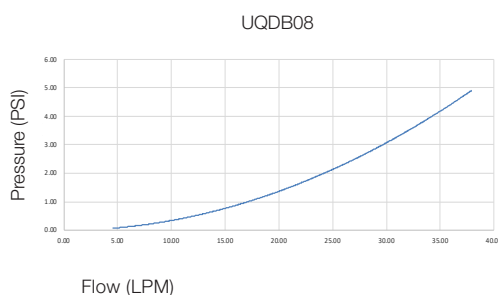
Water



Water



Water



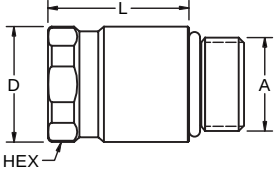
Advantages

- Fully interchangeable with other Intel-approved UQDB suppliers
- No spillage during connection/disconnection
- Low pressure drop
- Advanced internal design for cooling applications
- Excellent resistance to vibrations and mechanical stresses



Sockets

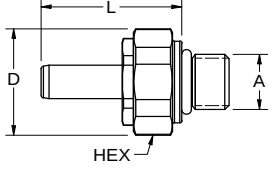
Series UQDB

	Size	Connection A	HEX mm	L mm	D mm	Part Number
	02in	9/16-18 UNF-2A	17	23.6	18	UQDB-121-6MO
	04in	3/4-16 UNF-2A	23.8	28.5	24.7	UQDB-251-8MO
	06in	7/8-14 UNF-2A	27	31.8	28.3	UQDB-371-10MO
	08in	1 1/16-12 UN-2A	28	35.5	31.2	UQDB-501-12MO



Plugs

Series UQDB

	Size	Connection A	HEX mm	L mm	D mm	Part Number
	02in	7/16-20 UNF-2A	20	27	21.2	UQDB-122-4MO
	04in	9/16-18 UNF-2A	24	35.4	25.3	UQDB-252-6MO
	06in	3/4-16 UNF-2A	27	38.9	28.3	UQDB-372-8MO
	08in	7/8-14 UNF-2A	28	42.9	31.2	UQDB-502-10MO



Max. Working Pressure	Working Temperature
50 psi / 3.4 bar	0°C to 60°C
Material	Connect Force
Socket: Stainless Steel Plug: Stainless Steel Seals: EPDM	
CV Values	Spillage/Air Inclusion



Technical Description

ORV Series is based on OCP inspired BMQC open specification currently still under development. For more details, please use the link provided on this page.

Advantages

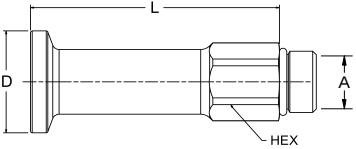
- High flow with low pressure drop.
- No spillage during connection/ disconnection.
- Blind mate connection with high degrees of float to accommodate angular and radial misalignment.
- Self-centering plug to ensure repeatable connection sequences.

For details on the technical guidelines for this product, please visit the OCP document located here:
https://drive.google.com/drive/folders/1-iLF98lebxls3CG2DRA3eAyN1cdc4c7y?usp=drive_link



Sockets

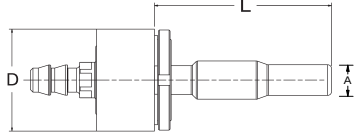
Series ORV

	Size	Connection A	HEX mm	L mm	D mm	Part Number
	04in	3/4-16	22	75	31.5	ORV-251-8MO



Plugs

Series ORV

	Size	Connection A	HEX mm	L mm	D mm	Part Number
	04in	-6 Tube Barb		67.7	40	ORV-252-6TB



Technical Description

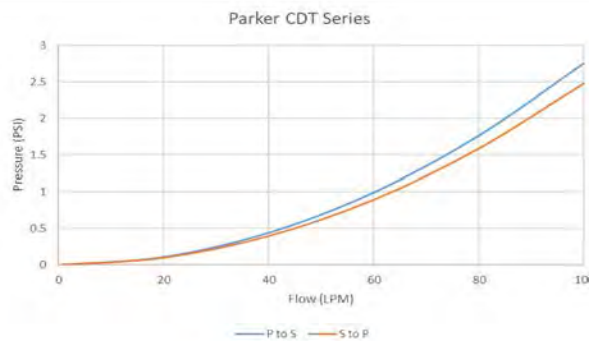
The CDT are dry-break, thread-to-connect quick disconnects for inlets and manifolds in liquid cooling systems. The threaded connection provides a mechanical advantage for safely connecting and disconnecting.

Advantages

- High flow with low pressure drop.
- No spillage during connection/disconnection.
- Threaded connection and disconnection

Max. Working Pressure* 174 psi / 12 bar * maximum static working pressure with safety factor 4 to 1.	Working Temperature 0°C to 60°C
Material Socket: Stainless Steel Plug: Stainless Steel Seals: EPDM	Connect Force 0 psi: 31 in-lbs (3.5 Nm)
CV Values 15.9	Spillage/Air Inclusion 0.10ml / 0.83ml

Flow diagrams





Max. Working Pressure*

217 psi / 15 bar

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

Working Temperature

-20°C up to 200°C (FKM)

depending on the medium.

Other seals materials are available on request.

Material

Socket: Stainless Steel

Plug: Stainless Steel

Seals: FKM

Connect Force

CV Values

Spillage/Air Inclusion

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.

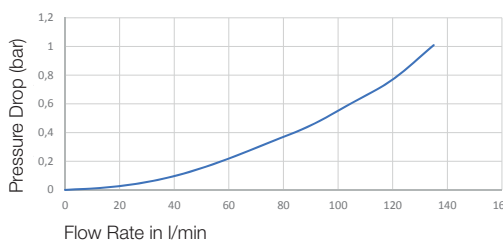
Advantages

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

Flow diagrams

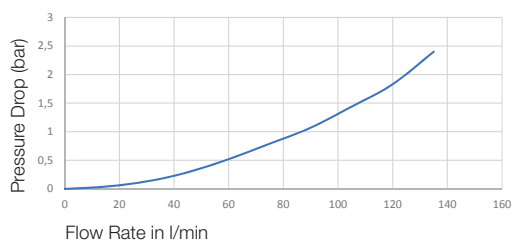
Water

NSE Ø16 Water



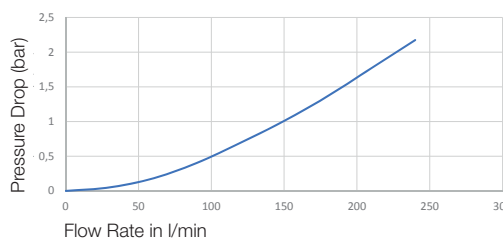
Oil

NSE Ø16 Oil



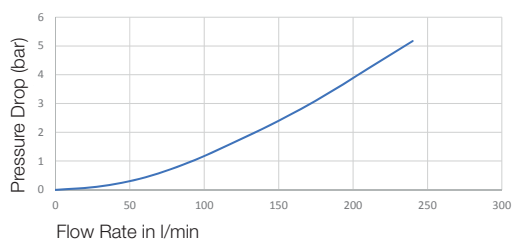
Water

NSE Ø19 Water



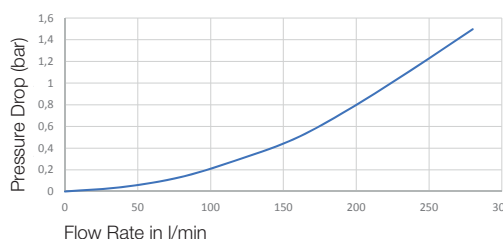
Oil

NSE Ø19 Oil



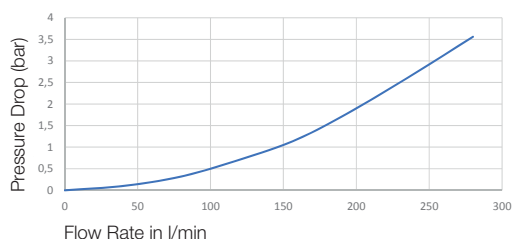
Water

NSE Ø25 Water



Oil

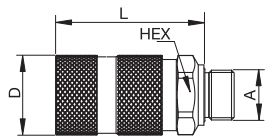
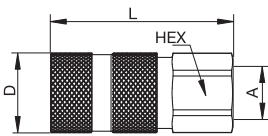
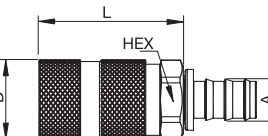
NSE Ø25 Oil





Sockets

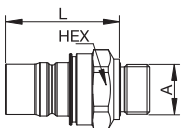
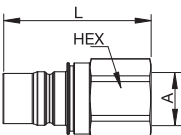
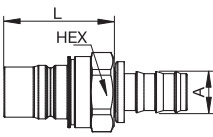
Series NSE

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	16mm	G 3/4	34	68.8	37	NSE-621-12MBO
	19mm	G 3/4	38	78.5	42	NSE-751-12MBO
 Female Thread	19mm	G 1	38	96.6	42	NSE-751-16FB
	25mm	G 1 1/4	50	120.5	53	NSE-1001-20FB
 Parker Push-Lok	19mm	12,5 mm	38	76.4	42	NSE-751-8PL
	19mm	19 mm	38	76.4	42	NSE-751-12PL



Plugs

Series NSE

	Size	Connection A	HEX mm	L mm	D mm	Part Number
 Male Thread	16mm	G 3/4	34	56.5		NSE-622-12MBO
	19mm	G 3/4	38	60.3		NSE-752-12MBO
 Female Thread	19mm	G 1	38	78.4		NSE-752-16FB
	25mm	G 1 1/4	50	96.8		NSE-1002-20FB
 Parker Push-Lok	19mm	12 mm	38	58.2		NSE-752-8PL
	19mm	19 mm	38	58.2		NSE-752-12PL

All parts available in Red (-RD) or Blue (-BU)



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