hales®

Suppliers to the Tooling & Plastic Industry

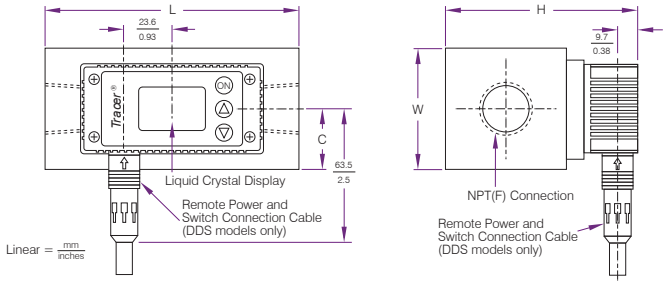
COOLING PRODUCTS

Tracer® Electronic Flowmeter

With FCI (Flow Characteristic Indicator) Technology

Measures liquid flow rate, temperature, calculates BTU's per minute, and Turbulent Flow. The highly-visible display is configured via the sealed push buttons and user-friendly menus.

As a diagnostic tool, engineers and maintenance personnel can quickly spot-check temperature and flow in water lines using the LCD TRACER flowmeter. This portable LCD unit is unmatched as a troubleshooting tool. As a process control tool, the TRACER can be left in place to closely monitor more critical applications. The adjustable, automatic shut-off feature prolongs battery life.
*NIST Traceable Calibration is available



Dimensions (mm/inches)				
Body Size	L	H	W	C
3/8"	87/3.42	58/2.27	42/1.67	21/0.83
2"	140/5.50	118/4.65	76/3.00	38/1.50

COOLING PRODUCTS

Standard Mechanical Flowmeters

F16-A-100 F6-CL-20 F3-D3-25 FP4-A-80
1/4" through 3" NPT Flowmeters

Flow ranges from 0-1.5 gallons/minute through 50-150 gpm. Most ranges are available in liters per minute. Pressure and Temperature Gauges and quck disconnect fittings can be added to most models..
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Click to download mechanical flowmeter catalog

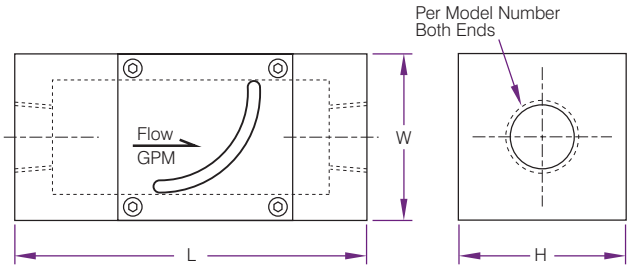
Ideal for monitoring water flow and, when used with control valves, flowmeters permit precise regulation of water flow. Indicating vane visible through sight glass provides continuous flow rate and visual flow verification.

Features and Benefits

- Compact
- Rugged
- 210°F(99°C) temperature rating
- 100 psi pressure rating
- All sizes built to order for quick delivery
- Corrosion-resistant anodized aluminum body or brass end caps
- Polysulfone sight glass
- Can be mounted in any position
- Optional thermometer and pressure gauge
- Liquid-filled pressure gauge also available
- Add quick-disconnect fittings or hose barbs to sizes 1/2" or smaller

Durable, vane-operated devices that provide visual indication of flow rate. The indicator ball is separated from the process by a high temperature gasket and stainless steel plate. A glass window retains the indicator ball. This flowmeter is designed specifically for hot oil or hot water circulating loops in industrial processes.

- Optional Temperature Gauge provides added function.
- Temperature rating to 288˚C
- Pressure rate to 150 psi (10.34 bar)



Model HF4

Stainless steel body with 1/2"NPT connection, suitable for hot oil or pressurized water applications, 2-6gpm scale.

Model HF4		
Product Code	**Temp. Ga.**	**L x W x H**
HF4-A-60	no	3.75 x 1.5 x 1.5
HF4-B-60	yes	3.75 x 1.5 x 1.5

Model HF8

Carbon steel body (black oxide finish) with 1"NPT connection, suitable for hot oil applications, 5-40gpm scale.

Model HF8		
Product Code	**Temp. Ga.**	**L x W x H**
HF8-A-40	no	4.75 x 2.25 x 2.25
HF8-B-40	yes	4.75 x 2.25 x 2.25

Smartflow Flow Regulators provide a unique, leak-free, single-point manual flow control. This regulator incorporates the proven mechanical flowmeter and integral needle valve in a compact design. Very few moving parts improve reliability and leak-free operation. Used singly or in combination with a water manifold, the flow regulator allows manual control of individual cooling water lines.

- Leak free design
- Solid Brass Body
- Needle valve vontrol
- Optional Temperature gauge

HOW TO ORDER

FR3 - B - 25

Inlet Sizes

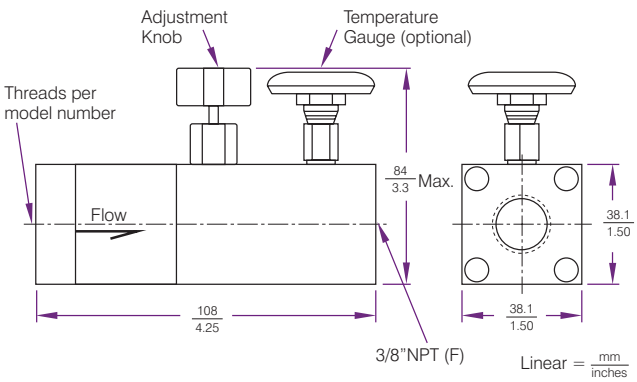
1/4"NPT(F)	FR2
1/4"BSPP(F)	FR2B
3/8"NPT(F)	FR3
3/8"BSPP(F)	FR3B
1/2"NPT (F)	FR4
1/2"BSPP(F)	FR4B

Flow Rate (Max)

15	1.5 gpm (gallons per minute)
25	2.5 gpm
80	8.0 gpm
100	10 lpm (litres per minute)
300	30 lpm

Accessories

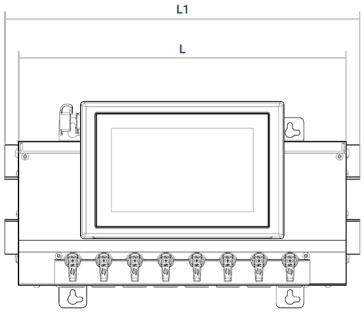
A	Flow Regulator Only
B	Thermometer (standard)
E	Thermometer and quick change socket and plug

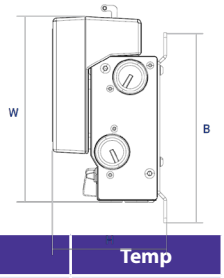


Flosense® Monitor Provides visibility of key cooling circuit metrics, improves efficiency, enhances productivity and profitability.

Product Code	Input	Size	Readability	Voltage	Alarm Output
FS-7100	4	7,1"	OPC-UA	12V	yes

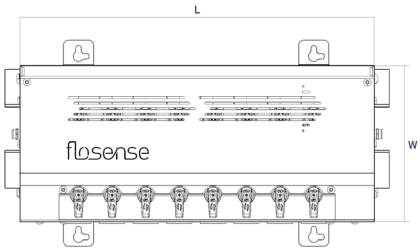
Flosense® Flow Regulator.





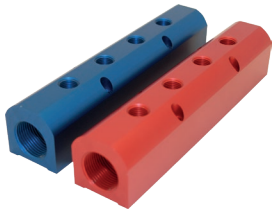
Product Code	Main Thread	Flow Capacity	BSPP In.	Port	L1	B	Temp
FFRM4-1-20	1"G	1-20 l/m	1/2"G	4	250 mm	205 mm	120°
FFRM4-2-40	1"G	2-40 l/m	1/2"G	4	250 mm	205 mm	120°
FFRM6-1-20	1"G	1-20 l/m	1/2"G	6	317 mm	205 mm	120°
FFRM6-2-40	1"G	2-40 l/m	1/2"G	6	317 mm	205 mm	120°
FFRM8-1-20	1"G	1-20 l/m	1/2"G	8	384 mm	205 mm	120°
FFRM8-2-40	1"G	2-40 l/m	1/2"G	8	384 mm	205 mm	120°
FFRM10-1-20	1"G	1-20 l/m	1/2"G	10	451 mm	205 mm	120°
FFRM10-2-40	1"G	2-40 l/m	1/2"G	10	451 mm	205 mm	120°
FFRM12-1-20	1"G	1-20 l/m	1/2"G	12	518 mm	205 mm	120°
FFRM12-2-40	1"G	2-40 l/m	1/2"G	12	518 mm	205 mm	120°

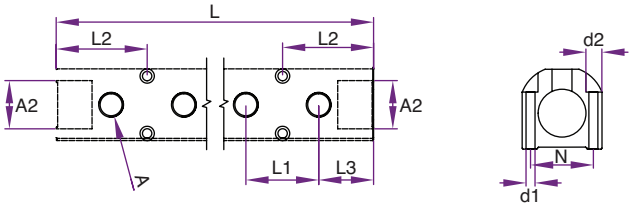
Flosense® Manifold.



Product Code	Port	Flow	Height	Length	Width	Max Temp
F4M4-1-20	4	1-20 l/m	72	220	155	120°
F4M4HT-1-20	4	1-20 l/m	72	220	155	160°
F4M4-2-40	4	2-40 l/m	72	220	155	120°
F4M4HT-2-40	4	2-40 l/m	72	220	155	160°
F4M6-1-20	6	1-20 l/m	72	287	155	120°
F4M6HT-1-20	6	1-20 l/m	72	287	155	160°
F4M6-2-40	6	2-40 l/m		287	155	120°
F4M6HT-2-40	6	2-40 l/m	72	287	155	160°
F4M8-1-20	8	1-20 l/m	72	354	155	120°
F4M8HT-1-20	8	1-20 l/m	72	354	155	160°
F4M8-2-40	8	2-40 l/m	72	354	155	120°
F4M8HT-2-40	8	2-40 l/m	72	354	155	160°
F4M10-1-20	10	1-20 l/m	72	421	155	120°
F4M10HT-1-20	10	1-20 l/m	72	421	155	160°
F4M10-2-40	10	2-40 l/m	72	421	155	120°
F4M10HT-2-40	10	2-40 l/m	72	421	155	160°
F4M12-1-20	12	1-20 l/m	72	488	155	120°
F4M12HT-1-20	12	1-20 l/m	72	488	155	160°
F4M12-2-40	12	2-40 l/m	72	488	155	120°
F4M12HT-2-40	12	2-40 l/m	72	488	155	160°

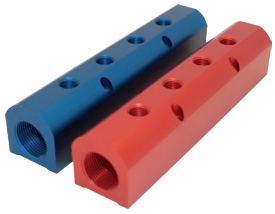
3/4" Inline Anodised Manifold

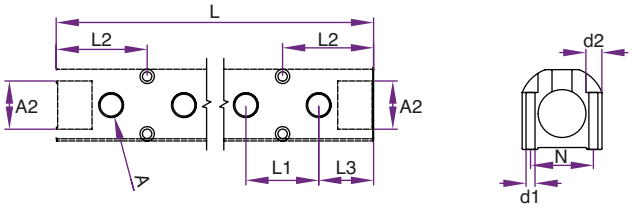




Part No.	Colour	Ports	A(BSPP)	A2(BSPP)	L2	L3	L1	d1	d2	N	L
IM3-4-1/4-R		4	1/4"	3/4"	57,2	38,1	38,1	4,5	8	31	109,5
IM3-4-1/4-B		4	1/4"	3/4"	57,2	38,1	38,1	4,5	8	31	190,5
IM3-6-1/4-R		6	1/4"	3/4"	57,2	38,1	38,1	4,5	8	31	266,7
IM3-6-1/4-B		6	1/4"	3/4"	57,2	38,1	38,1	4,5	8	31	266,7
IM3-8-1/4-R		8	1/4"	3/4"	57,2	38,1	38,1	4,5	8	31	342,9
IM3-8-1/4-B		8	1/4"	3/4"	57,2	38,1	38,1	4,5	8	31	342,9

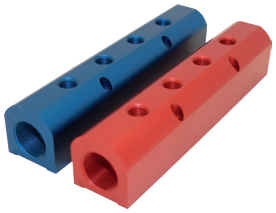
1" Inline Anodised Manifold

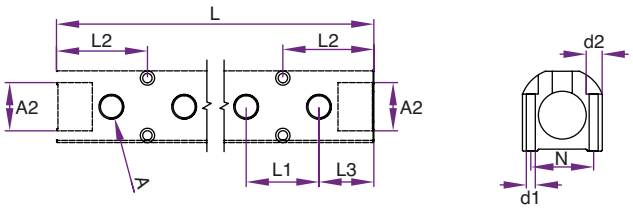




Part No.	Colour	Ports	A(BSPP)	A2(BSPP)	L2	L3	L1	d1	d2	N	L
IM4-4-1/4-R		4	1/4"	1"	63,5	38,1	38,1	7	10,5	40,6	190,5
IM4-4-1/4-B		4	1/4"	1"	63,5	38,1	38,1	7	10,5	40,6	190,5
IM4-4-3/8-R		4	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	228,6
IM4-4-3/8-B		4	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	228,6
IM4-6-1/4-R		6	1/4"	1"	63,5	38,1	38,1	7	10,5	40,6	226,7
IM4-6-1/4-B		6	1/4"	1"	63,5	38,1	38,1	7	10,5	40,6	226,7
IM4-6-3/8-R		6	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	330,2
IM4-6-3/8-B		6	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	330,2
IM4-8-1/4-R		8	1/4"	1"	63,5	38,1	38,1	7	10,5	40,6	342,9
IM4-8-1/4-B		8	1/4"	1"	63,5	38,1	38,1	7	10,5	40,6	342,9
IM4-8-3/8-R		8	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	431,8
IM4-8-3/8-B		8	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	431,8
IM4-10-3/8-R		10	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	533,4
IM4-10-3/8-B		10	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	533,4
IM4-12-3/8-R		12	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	635
IM4-12-3/8-B		12	3/8"	1"	63,5	38,1	38,1	7	10,5	40,6	635

1-1/2" Inline Anodised Manifold

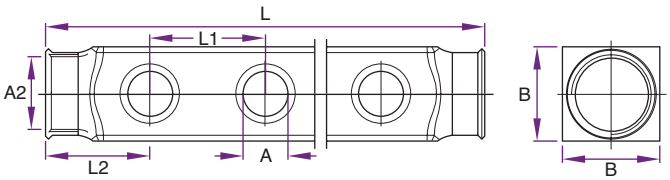




Part No.	Colour	Ports	A(BSPP)	A2(BSPP)	L2	L3	L1	d1	d2	N	L
IM6-4-1/2-R		4	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	254
IM6-4-1/2-B		4	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	254
IM6-6-1/2-R		6	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	355,6
IM6-6-1/2-B		6	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	355,6
IM6-8-1/2-R		8	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	457,2
IM6-8-1/2-B		8	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	457,2
IM6-10-1/2-R		10	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	558,8
IM6-10-1/2-B		10	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	558,8
IM6-12-1/2-R		12	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	660,4
IM6-12-1/2-B		12	1/2"	1-1/2"	76,2	50,8	50,8	7	10,5	57	660,4

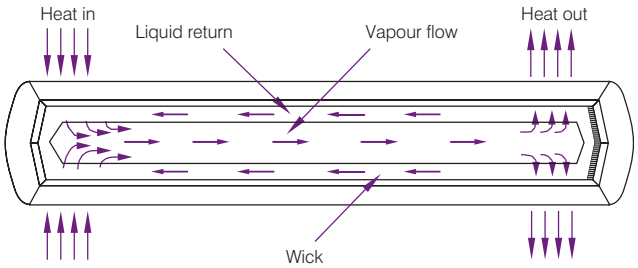
COOLING PRODUCTS

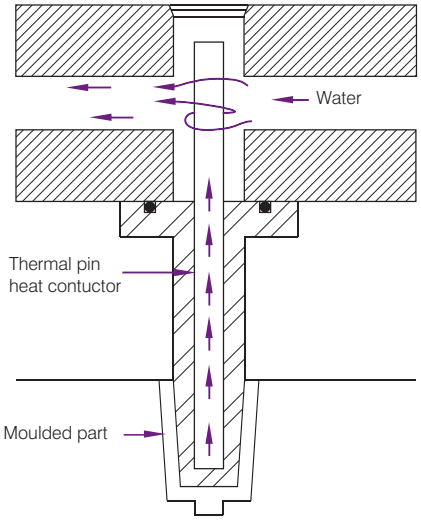
Stainless Steel Manifolds



Part No.	Ports	A (BSPP)	A2 (BSPP)	L	L1	L2	B
SSIM4-4-1/2	4	1/2"	1"	240	50	45	40
SSIM4-6-1/2	6	1/2"	1"	340	50	45	40
SSIM4-8-1/2	8	1/2"	1"	440	50	45	40
SSIM4-10-1/2	10	1/2"	1"	540	50	45	40
SSIM4-12-1/2	12	1/2"	1"	640	50	45	40
SSIM5-4-1/2	4	1/2"	1-1/4"	240	50	45	50
SSIM5-6-1/2	6	1/2"	1-1/4"	340	50	45	50
SSIM5-8-1/2	8	1/2"	1-1/4"	440	50	45	50
SSIM5-10-1/2	10	1/2"	1-1/4"	540	50	45	50
SSIM5-12-1/2	12	1/2"	1-1/4"	640	50	45	50

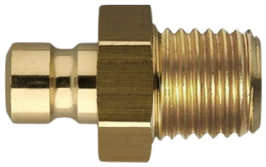
Heat Transfer Rods are designed to heat or cool cones, slides and inserts. Heat Transfer Rods conduct temperature over 10,000 times faster than copper. Heat Transfer Rods operate best when 50% of the overall length is cooled using a water flow. +0.1 to +0.2mm should be up on the rod diameter for the correct fitment. Fitment hole should be drilled.





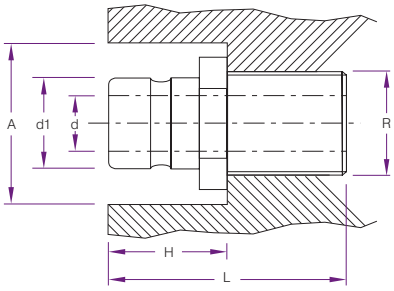
Length in mm	Diameters and Catalogue Numbers					
	2mm	3mm	4mm	5mm	6mm	8mm
50	HTR2x50	HTR3x50	HTR4x50	HTR5x50	HTR6x50	HTR8x50
55	HTR2x55	HTR3x55	HTR4x55	HTR5x55	HTR6x55	
60	HTR2x60	HTR3x60	HTR4x60	HTR5x60	HTR6x60	HTR8x60
65	HTR2x65	HTR3x65	HTR4x65	HTR5x65	HTR6x65	
70	HTR2x70	HTR3x70	HTR4x70	HTR5x70	HTR6x70	HTR8x70
75	HTR2x75	HTR3x75	HTR4x75	HTR5x75	HTR6x75	HTR8x75
80	HTR2x80	HTR3x80	HTR4x80	HTR5x80	HTR6x80	
85	HTR2x85	HTR3x85	HTR4x85	HTR5x85	HTR6x85	HTR8x85
90	HTR2x90	HTR3x90	HTR4x90	HTR5x90	HTR6x90	
95	HTR2x95	HTR3x95	HTR4x95	HTR5x95	HTR6x95	HTR8x95
100	HTR2x100	HTR3x100	HTR4x100	HTR5x100	HTR6x100	
105	HTR2x105	HTR3x105	HTR4x105	HTR5x105	HTR6x105	HTR8x105
110	HTR2x110	HTR3x110	HTR4x110	HTR5x110	HTR6x110	
115	HTR2x115	HTR3x115	HTR4x115	HTR5x115	HTR6x115	HTR8x115
120	HTR2x120	HTR3x120	HTR4x120	HTR5x120	HTR6x120	
125	HTR2x125	HTR3x125	HTR4x125	HTR5x125	HTR6x125	HTR8x125
135	HTR2x135	HTR3x135	HTR4x135	HTR5x135	HTR6x135	
145	HTR2x145	HTR3x145	HTR4x145	HTR5x145	HTR6x145	HTR8x145
155	HTR2x155	HTR3x155	HTR4x155	HTR5x155	HTR6x155	
165		HTR3x165	HTR4x165	HTR5x165	HTR6x165	HTR8x165
185		HTR3x185	HTR4x185	HTR5x185	HTR6x185	HTR8x185
205		HTR3x205	HTR4x205	HTR5x205	HTR6x205	HTR8x205

Male Brass Connectors



200 Series plugs are also available with an internal shut-off valve.

300 Series plugs are also available with an internal shut-off valve.

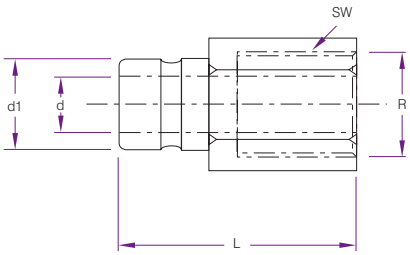


Product Code	Series	R (BSPT)	D1	H	A	L
CM251 (20NR1/8)	200 Series 1/4 Flow	1/8	9	17	22	25
CM252 (20NR1/4)		1/4	9	19	26	29
CM253 (20NR3/8)		3/8	9	19	30	30
CM351 (30NR1/8)	300 Series 3/8 Flow	1/8	13	25	26	35
CM352* (30NR1/4)		1/4	13	25	26	35
CM353* (30NR3/8)		3/8	13	26	30	38
CM354 (30NR1/2)		1/2	13	28	37	42
CM552 (50NR1/4)	500 Series 1/2 Flow	1/4	20	37	30	41
CM553 (50NR3/8)		3/8	20	37	32	41
CM554 (50NR1/2)		1/2	20	38	32	39
CM556 (50NR3/4)		3/4	20	38	38	45

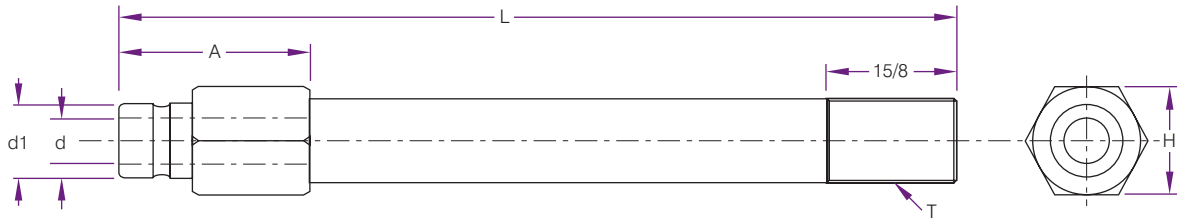
* Also available with internal valve, specify "V"

COOLING PRODUCTS

Female Brass Connectors



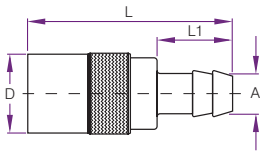
Product Code	Series	R Thread	d	d1	L	SW
CM251F (20NR1/8I)	200 Series	1/8	6	9	28	13
CM252F (20NR1/4I)		1/4	6	9	32	17
CM253F (20NR3/8I)		3/8	6	9	34	19
CM352F (30NR1/4I)	300 Series	1/4	9	13	37	17
CM353F (30NR3/8I)		3/8	9	13	39	19
CM354F (30NR1/2I)		1/2	9	13	46	24



200 Series 1/4 Flow					
Product Code	**L**	**T**	**d**	**d1**	**A**
CM251212	2 1/2	1/8	1/4	3/8	11/16
CM2514	4	1/8	1/4	3/8	1
CM251512	5 1/2	1/8	1/4	3/8	1
CM2517	7	1/8	1/4	3/8	1
CM251812	8 1/2	1/8	1/4	3/8	1
CM252212	2 1/2	1/4	1/4	3/8	7/8
CM2524	4	1/4	1/4	3/8	1 1/4
CM252512	5 1/2	1/4	1/4	3/8	1 1/4
CM2527	7	1/4	1/4	3/8	1 1/4
CM252812	8 1/2	1/4	1/4	3/8	1 1/4
CM253212	2 1/2	3/8	1/4	3/8	1
CM2534	4	3/8	1/4	3/8	1 1/4
CM253512	5 1/2	3/8	1/4	3/8	1 1/4
CM2537	7	3/8	1/4	3/8	1 1/4

300 Series 3/8 Flow					
Product Code	**L**	**T**	**d**	**d1**	**A**
CM351212	2 1/2	1/8	3/8	1/2	7/8
CM3514	4	1/8	3/8	1/2	1
CM351512	5 1/2	1/8	3/8	1/2	1
CM3517	7	1/8	3/8	1/2	1
CM351812	8 1/2	1/8	3/8	1/2	1
CM352212	2 1/2	1/4	3/8	1/2	7/8
CM3524	4	1/4	3/8	1/2	1 1/4
CM352512	5 1/2	1/4	3/8	1/2	1 1/4
CM3527	7	1/4	3/8	1/2	1 1/4
CM352812	8 1/2	1/4	3/8	1/2	1 1/4
CM35210	10	1/4	3/8	1/2	1 1/4
CM3534	4	3/8	3/8	1/2	1
CM353512	5 1/2	3/8	3/8	1/2	1 1/4
CM3537	7	3/8	3/8	1/2	1 1/4
CM35310	10	3/8	3/8	1/2	1 1/4

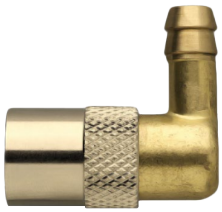
Straight Coupling - International Series

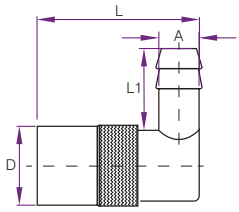


Product Code without Valve	Product Code with Valve	Product Code Valve Seal Only	Hose ID	Flow	L	D	Series
CM206 (20K6)	CM206V (20K6V)	200V	3/8	1/4	51mm	17	200
CM306 (30K10)	CM306V (30K10V)	300V	3/8	1/4	64mm	23	300
CM308 (30K13)	CM308V (30K13V)	300V	1/2	3/8	66.5mm	23	300
CM308SL	CM308VSL	300V	1/2	3/8	73mm	23	300
CM506 (50K19)	CM506V (50K19V)	500V	3/4	5/8	89mm	30	500

COOLING PRODUCTS

90° Hose Tail Coupling - International Series

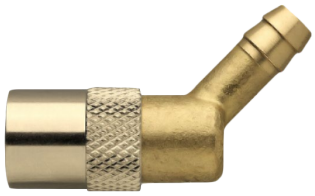


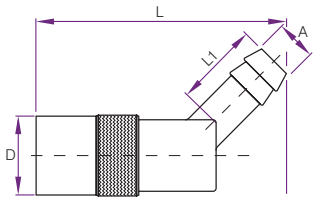


Product Code without Valve	Product Code with Valve	Hose ID	Flow	L	L1	D	Series
CM216 (20K10/90)	CM216V (20K10/19)	3/8	1/4	40mm	22mm	17	200
CM318 (30K13/90)	CM318V	1/2	3/8	56mm	28.5mm	23	300
CM516 (50K19/90)	CM516V	3/4	5/8	77mm	32mm	30	500

COOLING PRODUCTS

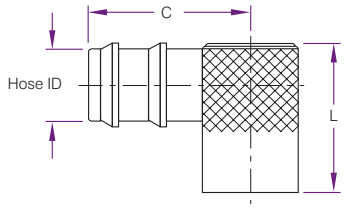
45° Hose Tail Coupling - International Series



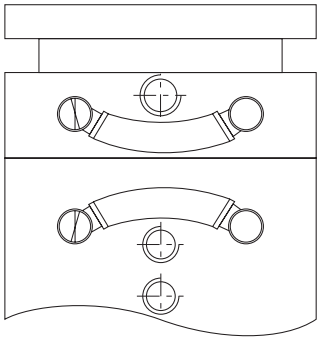


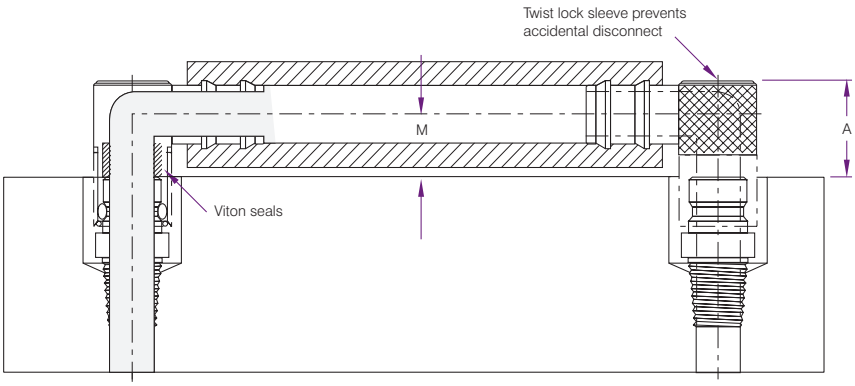
Product Code without Valve	Product Code with Valve	Hose ID	Flow	L	L1	D	Series
CM226 (20K10/45)	CM226V (20K10/45V)	3/8	1/4	55.5mm	22mm	18	200
CM328 (30K13/45)	CM328V (30K13/45V)	1/2	3/8	75mm	25mm	24	300
CM526 (50K19/45)	CM526V (50K19/45V)	3/4	5/8	77mm	30mm	32	500

Quick Connect Water Jumpers



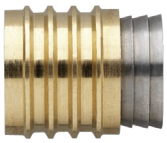
Hales Water Jumpers offer smooth unrestricted flow paths and consistent cooling flow rate, eliminating crimped hoses.





Product Code	FHS Series	Hose ID	L	C	M	A
WJ200-6	200	3/8	1	1 1/4	3/8	5/8
WJ300-6	300	3/8	1 7/16	1 9/16	1/2	7/8
WJ300-8	300	1/2	1 7/16	1 9/16	1/2	7/8

Plugs



Canal Pressure Plugs
Channel Plug Equivalent

Product Code	D
KN105-8	6mm

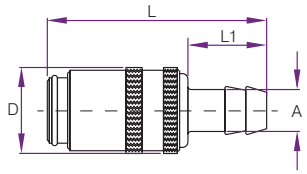
Pressure Plugs
Channel Plug Equivalent

Product Code	D
S10-1	10mm
S6	6mm
S8	8mm

Pressure Plugs Threaded
Conical Plug Equivalent

Product Code	D
R1/4	1/4
R1/8	1/8

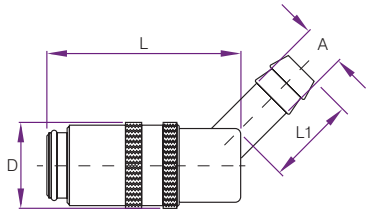
Straight Coupling - European Series



Product Code	A	D	L	L1	Flow	Valve
09K10	10	18	52	22	6	-
09K10V	10	18	52	22	6	+
13K13	13	23	61,5	25	9	-
13K13V	13	23	61,5	25	9	+

COOLING PRODUCTS

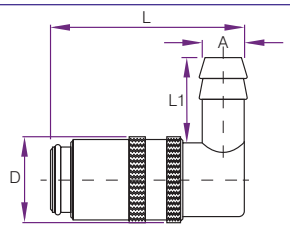
45° Hose Tail Coupling - European Series



Product Code	A	D	L	L1	Flow	Valve
09K10-45	10	18	41	22	6	-
09K10V-45	10	18	41	22	6	+
13K13-45	13	23	51	25	9	-

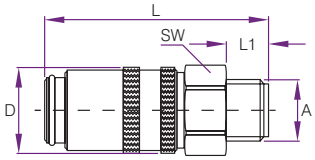
COOLING PRODUCTS

90° Hose Tail Coupling - European Series



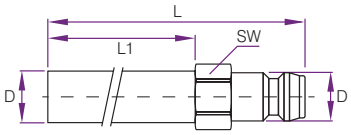
Product Code	A	D	L	L1	Flow	Valve
09K10-90	10	18	41	22	6	-
09K10V-90	10	18	41	22	6	+

Male Thread Coupling - European Series



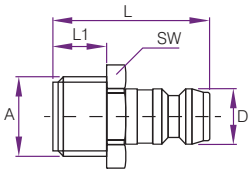
Product Code	A	D	L	L1	SW	Flow	Valve
09KUR1/4	G1/4	18	48	9	17	6	-
09KUR1/4V	G1/4	18	48	9	17	6	+
13KUR3/8	G1/3	23	51,5	9	22	9	-

Extended Connector - European Series



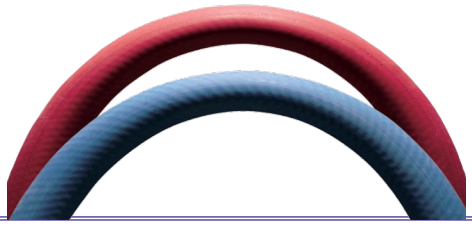
Product Code	A	D	L	L1	SW	Flow	Valve
09N100	8	9	100	79	9	6	-
09N120	10	9	120	100	11	6	-
13N150	14	13,5	150	125	15	9	-

Male Connector - European Series



Product Code	A	D	L	L1	SW	Flow	Valve
09NM10	M10x1	9	24	7	11	6	-
09NR1/4	G1/4	9	26	9	15	6	-
09NR1/8	G1/8	9	24	7	11	6	-
09NR3/8	G3/8	9	30	10	17	6	-
13NR1/4	G1/4	13,5	26	9	15	9	-
13NR1/8	G1/8	13,5	25	8	14	9	-

Hose



Product Code	I.D.	O.D.	Length	Colour	Bend Radius	Max Temp
G13B	13mm	21mm	50m	BLUE	90°	100°
G13R	13mm	21mm	50m	RED	90°	100°
E10B	10mm	16.5mm	50m	BLUE	60°	160°
E10R	10mm	16.5mm	50m	RED	60°	160°
E13B	13mm	21mm	50m	BLUE	90°	160°
E13R	13mm	21mm	50m	RED	90°	160°
G19B	19mm	27mm	30m	BLUE	110°	100°
G19R	19mm	27mm	30m	RED	110°	100°

COOLING PRODUCTS

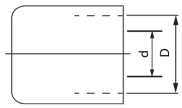
Hand Crimper

Simple to use bench mounted hand crimping machine. Fast effective crimps, Ideal for water circuits. Suitable for up to 3/4" hose, usable with ferrules with an outer diameter of 10 - 36 mm.

Product Code	Crimp Range.
X100	10-36 mm

COOLING PRODUCTS

Ferrules



Stainless Steel Ferrules for use with Hand Crimper.

Product Code	D	d.	Suits Hose
C10/17	17.5mm	10mm	G10/E10
C13/22	22.5mm	13mm	G13/E13
C19/29	29mm	19mm	G19/E19