

#### RAGA ENGINEERS

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# RAGA JET COOLER

Facilitates high pressure water & air into thin channels and slender holes of core pins during casting processs

Important part of the Jet cool system to reduce shrinkage porosities

Easy to Install & long life

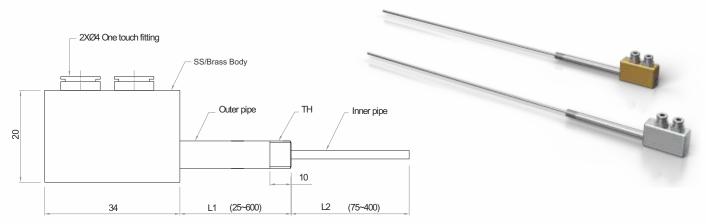
Improved material and design gives higher life

Available in 4 variants & with quick delivery

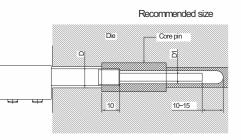


# RAGA JET COOLER

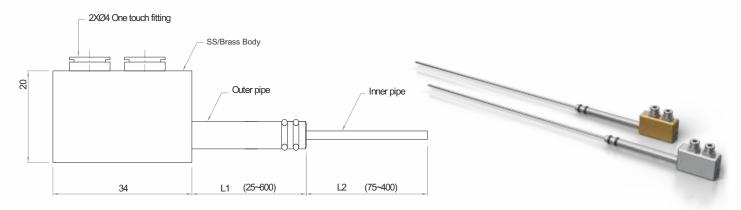
### Thread Type (JCT)



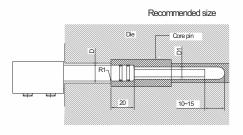
Oute	Pipe	Inner Pipe		Die Hole   Pin Hole		JCT Outer Pipe Thread	
OD	ID	OD	ID	D	D1	TH	
4	2	1.2	0.85	8	~2	M4X0.7	
6	3	1.2	0.85	10	~3	M6X1	
Ü		1.8	1.35			WOXT	
8	4	1.8	1.35	12	~4.5	1/16 PT	
Ü	·	2.3	1.8			1/10 F 1	
		1.8	1.35				
10	5	2.3	1.8	13	~6	1/8 PT	
		2.8	2.3				



### O-Ring Type (JCO)



Oute	r Pipe	Inner Pipe		Die Hole Pin Hole		JCO O Ring		
OD	ID	OD	ID	D	D1	Used	Dia	
4	2	1.2	0.85	8	~2	N	A	
6	3	1.2	0.85	0	~3	S4	6.3	
O		1.8	1.35				0.0	
8	4	1.8	1.35	2	~4.5	S6	8.2	
Ü	·	2.3	1.8					
		1.8	1.8					
10	5	2.3	1.8	13	~6	P7	10.2	
		2.8	2.3					

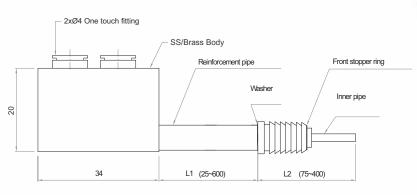


#### ORDERING CODE

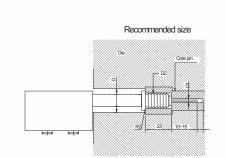
Part Type	Outer Pipe (OD)	Inner Pipe (OD)	L1	L
JCT/JCO	6	1.8	50	2

# RAGA JET COOLER

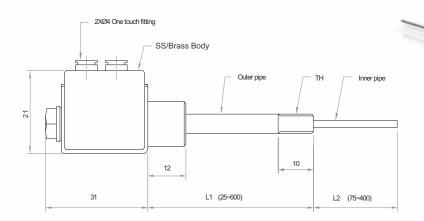
### Sleeve Type (JCS)



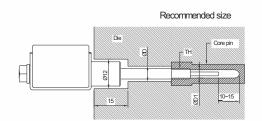
ı	Outer	r Pipe	Inner Pipe		Reinforcement	Hole for	Die Hole	Pin Hole	
	OD	ID	OD	ID	Pipe (ID)	Packing (D2)	D	D1	
	6	3	1.2	0.85	6.4	10	14	~3	
			1.8	1.35					
	6	3	1.2	0.85	6.4	13	17	0	
	6	0	1.8	1.35	0.4	10	17	~3	
	8	4	1.8	1.35	11	13	17	~45	
		4	2.3	1.88	- ' '			.0	



### Roto Type (JCR)



Outer	Pipe	Inner Pipe		JCR Outer Pipe	Die Hole	Hole Dia	
OD	ID	OD	ID	Thread TH	D	D1	
4	2	1.2	0.85	M4X0.7	8	2	
6	6 3	0.85	M6X1	10	3.5		
O		1.8	1.35	IVIOXI	10	0.0	
		1.2	0.85				
8	4	1.8	0.35	Rc1/16	12	4.5	
		2.3	1.8				
10	5	2.3	1.8	Rc1/8	12	4.5	



#### ORDERING CODE

Part Type	Outer Pipe (OD)	Inner Pipe (OD)	L1	L2
JCS/JCR	6	1.8	50	210

### RAGA COREPIN

Reduce breakdown by use of long life RAGA core pin

Core pins used to create holes in die casting are fitted & part of a die casting mold

Precisely machined and ground custom pins are made from high quality DIN 1.2344/AISI H-13

Vacuum Heat treatment, nitriding & coating enhances life of the core pins



# JET COOLED CORE PIN

Jet cooled (JC) core pins are an integral & most important part of the jet cool system

Casters prefer RAGA JC Core pins for their life and deep hole concentricity

Custom made pins go through stringent quality checks to ensure straightness of holes & dimensions

Surface treatments like Nitriding & coating ensures higher life

#### FEATURES

Hole: Min Dia 2.5mm & Max length 600mm, Casting Dia: Min 4.5mm, Coating options available











### JET RAGA COOLER Application





Jet Cooler JCP with Insert

# RAGA SPOT COOLER

Minimise mold breakdown and maintenance time using RAGA SPOT COOLERS

Standard options for customised needs keeps mold thermally balanced

Stainless steel option gives high life against poor water quality

Easy installation for both thread type & O-ring types

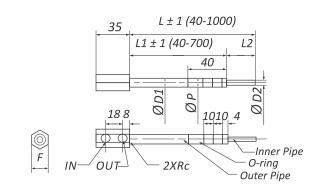
Design ensures strength against breakage or bending

Options for rotatable head & hose connection gives flexibility to use



### RAGA SPOT COOLER

O-Ring Type SCO



#### **Characteristics**

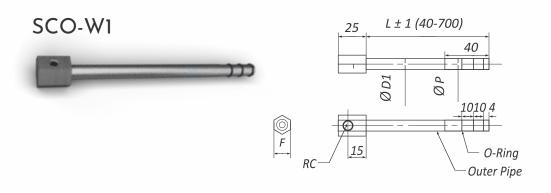
·W1 is 1-way and W2 is 2-ways. ·O2 is 2-O rings and 03 is 3-O rings. ·For W1 only O3 available. ·All units are in MM.

#### **Working Condition**

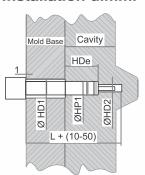
·Pressure- Max. 2MPA ·Fluid Temp.- > 150°C

#### Material

Code	Head	Outer Pipe	Inner Pipe
M1	MS	MS	Copper
M2	SS	SS	SS







Size No.	Нє	ad	Outer Pipe		Inner Pipe		Hole Dimension										
	RC Thread	RC Thread	D 1 (ø Inner)	d 1 (ø Inner)	P (ø Inner)	D 2 (ø Inner)	d 2 (ø Inner)	HP1	H1D	HD2	HDe						
1A	17	1/8	10 F	5.7	4.0	2.4	2.4	11 +0.05	15	6							
1B	24	1/4	10.5	10.5	10.5	10.5	10.5	10.5	10.5	5.7	4.0	2.4	2.4	11	15	Ö	
2A	19	1/8	10.0	7.0	0.0	4.0	4.0	13 +0.05	17	0							
2B	24	1/4	13.8	7.8	6.0	4.0	4.0	10	17	8	30						
3A	21	1/8	47.0	40.0	0.0	0.0	0.0	18 <sup>+0.05</sup>	00	40	30						
3B	29	1/4	17.3	10.9	8.0	6.0	6.0	18	22	10							
4A	24	1/8	0.1 =		40.0												
4B	29	1/4	21.7	16.1	10.0	8.0	8.0	22 +0.05	26	12							

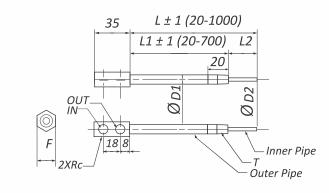
#### ORDERING CODE

SCO-W2

Part Type	Outer Pipe (OD)	Inner Pipe (OD)	L	L1
SCO-03-W2	M2	2A	378	32
SCO-03-W1	M1	3B	377	

# RAGA SPOT COOLER

Thread Type SCT



L ± 1 (20-700)

Outer Pipe

Ø D1

#### Characteristics

·W1 is 1-way and W2 is 2-ways. ·All units are in MM.

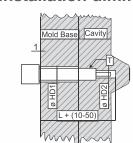
#### **Working Condition**

·Pressure- Max. 2MPA ·Fluid Temp.- > 150°C

#### **Material**

Code	Head	Outer Pipe	Inner Pipe
M1	MS	MS	Copper
M2	SS	SS	SS

#### Installation dimm.



Size No.	Head		Outer Pipe		Inner Pipe		Thread	Hole Dimension	
	F (Acc. Flat)	RC (Thread)	D1 (ø Outer)	D1 (ø Inner)	D2 (ø Outer)	D2 (ø Inner)	Т	HD1	HD2
1A	17	1/8	10.5	5.7	4.0	2.4	1/8	15	6
1B	24	1/4				2.4	1/0		
2A	19	1/8	13.8	7.8	6.0	4.0	1/4	17	8
2B	24	1/4	13.0				1/4		
ЗА	21	1/8	17.0	10.9	8.0	6.0	3/8	22	12
3B	29	1/4	17.3	10.9	0.0	0.0	3/0	22	
4A	24	1/8	01.7	16.1	10.0	8.0	1/2	26	16
4B	29	1/4	21.7						

F

#### ORDERING CODE

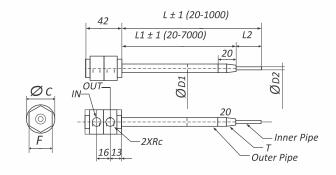
SCT-W2

SCT-W1

Part Type	Material	Size	L	L1*
SCT-W2	M2	2A	378	321
SCT-W1	M1	3B	377	

### RAGA SPOT COOLER

Thread Type Rotating Head SCT-R



#### **Characteristics**

·W1 is 1-way and W2 is 2-ways. ·All units are in MM.

#### **Working Condition**

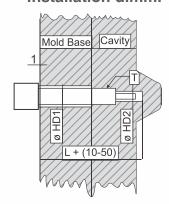
·Pressure- Max. 2MPA

·Fluid Temp.- > 150°C

#### Material

Code	Head	Outer Pipe	Inner Pipe
M1	//1 MS		Copper
M2	SS	SS	SS

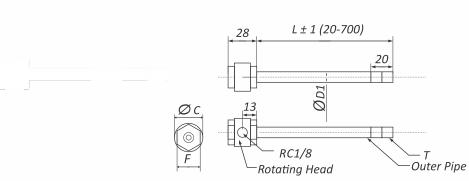
#### Installation dimm.



### SCT-R-W2

SCT-R-W1





Size No.	Head		Outer Pipe		Inner Pipe		Thread	Hole Dimension		
	F (Acc. Flat)	C (ø Head)	RC (Thread)	D1 (ø Outer)	D1 (ø Inner)	D2 (ø Outer)	D2 (ø Inner)	Т	HD1	HD2
1			1/8	10.5	5.7	4.0	2.4	1/8	15	6
2	24	30	1/8	13.8	7.8	6.0	4.0	1/4	17	8
3			1/8	17.3	10.9	8.0	6.0	3/8	22	12

#### ORDERING CODE

Part Type	Material	Size No.	L	L1*
SCT-R-W2	M2	2	385	350
SCT-R-W1	M1	3	413	

### RAGA SPOT COOLER

Roto Type New Design - SCT-R-H

#### • Roto Type head to take hose ar

- Roto Type head give flexibility to take hose any dissection
- All units are in MM.

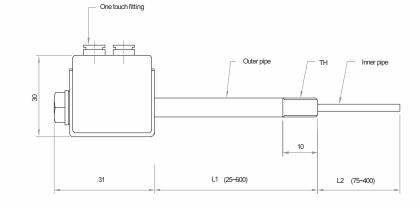
Characteristics

#### **Working Condition**

·Pressure- Max. 2MPA ·Fluid Temp.- > 150°C

#### Material

Head	Outer Pipe	Inner Pipe								
SS	SS	SS								



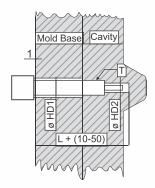
Oute	Pipe	Inne	r Pipe	Outer Pipe Thread	Hole Dimension		
OD	ID	OD	ID	TH(Rc)	HD1	HD2	
10.5	5.7	4	2.4	1X8	15	6	
13.8	7.8	4	2.4	1/4	1//	17	8
13.8	7.8	6	4		17	0	
		4	2.4				
17.3	17.3 10.9 4	2.4	3X8	22	12		
		8	6				
21.7	16.1	10	8	1/2	26	16	

#### **ORDERING CODE**

SCT-R-H

Part Type	Outer Pipe (OD)	Inner Pipe (OD)		L2
SCT-R-H	10.5	4	50	210

#### Installation dimm.



# RAGA CHILLVENT

# End gas evacuation worries with RAGA CHILL VENTS

Efficiently exhaust residual air and/or gas from inside of a die cast mold cavity

Zigzag profile ensures gas leaving from chill vent & molten metal chilled

High quality DIN1.2344/AISIH-13 with treatment ensures longer life

	RAGA Chillvent 30		RAGA Chillvent 60		RAGA Chillvent 100		RAGA Chillvent 140	
DCM tonnage (t)	<300		200-800		800-1600		1600-2400	
Mold side	Fix side	Moving side	Fix side	Moving side	Fix side	Moving side	Fix side	Moving side
Width (mm)	63	63	100	100	140	140	150	150
Depth (mm)	50	50	50	50	60	60	80	80
Height (mm)	150	149	250	249	300	299	360	359
Weight (mm)	4.1	3.9	9.4	8.5	18.8	17.2	30.6	32.6



### RAGA CHILL VACCUM BLOCK

Force evacuate gases by installing RAGA CHILL VACUUM BLOCK in the mold and connect it with RAGA VACUUM SYSTEM

The aerodynamic profile ensures fast and compact alloy solidification while the gases are completely sucked

Reduced complication as no cooling system required

Simple & effective

	RAGA Chill Vaccum Block -30		RAGA Chill Vaccum Block -60		RAGA Chill Vaccum Block -100		RAGA Chill Vaccum Block -140	
DCM tonnage (t)	<400		200-1200		800-2800		1600-4500	
Mold side	Fix side	Moving side	Fix side	Moving side	Fix side	Moving side	Fix side	Moving side
Width (mm)	63	63	100	100	140	140	150	150
Depth (mm)	50	50	50	50	60	60	80	80
Height (mm)	150	149	250	249	300	299	360	359
Weight (mm)	4.1	3.9	9.4	8.5	18.8	17.2	30.6	32.6



### RAGA SHOT SLEEVE

Long life RAGA SHOT SLEEVES come in fully or partially cooled with one or two part options

High quality AISIH-13/DIN1.2344 is precisely machined, ground, hardened & Nitrided

Thermally balanced sleeve improves performance and quality of casting

Continual improvements in finishes and treatment work towards giving a caster value for money



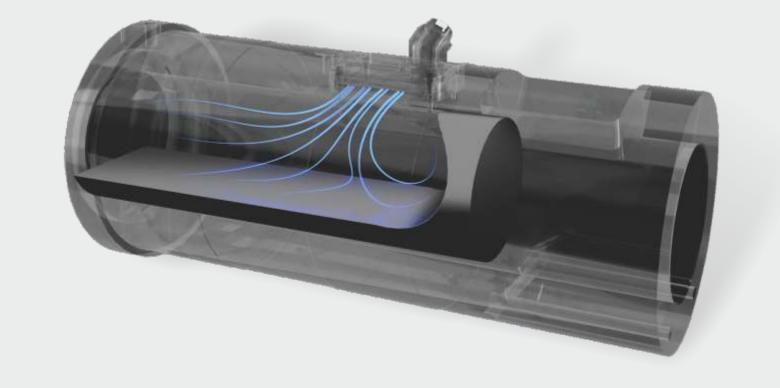
### RAGA VACCUM SHOT SLEEVE

Casters have effectively used RAGA VACUUM SHOT SLEEVE to minimise porosiites around gate area

RAGA's twin stage VACUUM SYSTEM gets connected to this sleeve and the mold

Air is extracted from the shot sleeve via 4 wide cross-section path during the first phase of injection

Simple design, easy to install & maintain



# RAGA PLUNGER TIP

RAGA PLUNGER TIP reduces breakdown time due to plunger tip change

Made with high quality AISIH-13/DIN1.2344, it gives multiple times more life than cast iron

Precisely machined & grounded

Results in higher sleeve life



### RAGA SPRUE BUSH & DIFFUSER

Refined material structure and heat treatment makes SPRUE BUSH & DIFFUSER more durable

High quality AISI H-13/DIN 1.2344 is precisely machined, ground, hardened & Nitrided

With options of integral/jacket/conformal cooling makes it thermally balanced

Diffuser is ground blue matched with thermal clearances



### RAGA LPDC NOZZLE

Custom profiled RAGA LPDC NOZZLES have been used & appreciated by die casters

Nozzles increase mold life & decreases production downtime

Precisely machined and polished surfaces ensures effective flow of molten aluminum into a LPDC mold

High quality AISI H-13/DIN 1.2344 hardened to specifications gives high life



### **GLOBAL PRESENCE**



### RAGA **TECHNOLOGIES**

For Die Casting





RAGA NEX

raga Uno







RAGA TRIO

RAGA VACMAX

RAGA COMBO

### RAGA **ACCESSORIES**









RAGA BLOCK TYPE MANIFOLD

RAGA VISUAL FLOW MANIFOLD

RAGA PIN BREAKAGE DETECTION DEVICE



RAGA FLOW SENSING DEVICE



RAGA FLOW INDICATION DEVICE



RAGA WATER FILTER



RAGA WATER SOFTENER