



*It is now 40 years since we started producing die casting cores and components.  
 Today we supply 8000 different components with a monthly volume of 30,000 parts.  
 Our customer base is over 1000 companies worldwide and growing.*



## ■ Company Profile

### Main Office Dynamo, Inc.

Capital / 20 million yen

Established / 1990

Representative / CEO Masatoshi Mark Tsujimura

Address / Kyoei-douri 7-107 Seto-City Aichi-Ken Japan

Tel +81-561-88-1076 Fax +81-561-88-1077

URL <http://www.dynamo.co.jp>

Number of Employees / 120 - We provide ourselves to be an equal opportunity employer

E-mail / [info@dynamo.co.jp](mailto:info@dynamo.co.jp)

Sales / 3.2 billion yen / year

Member organizations / NADCA

Japan Die casting Association



### Japan Second Factory

Kyoei-douri 7-110 Seto-City  
Aichi-Ken 489-0809 Japan

CEO / Masatoshi Mark Tsujimura

### Japan Third Factory

2799 Nakashidami Moriyama-ku  
Nagoya-City Aichi-Ken 463-0002  
Japan, C/O Nihon Seiki Co., Ltd.

CEO / Masatoshi Mark Tsujimura

### USA Office Dynamo USA

Tel +1-847-691-0076  
[dynamo@comcast.net](mailto:dynamo@comcast.net)

North America and Europe Sales Manager  
Joseph (Joe) McGrath

### DYNAMO Vietnam Co.,LTD

Lot C3.2, Road D1, Dong An 2  
industry park,  
Thu Dau Mot City, Binh Duong, Viet Nam  
Tel +84-650-351-5277 Fax +84-650-351-5286

CEO / TRUONG TAN PHAT  
Number of Employees / 80

### Mexico Office Dynamo Mexico

Tel +52-442-184-1217  
[sales\\_m@dynamo.co.jp](mailto:sales_m@dynamo.co.jp)

Latin America and Europe Sales Manager  
Mihajlo (Miki) Macko

### DYNAMO Trade Co.,Ltd Dalian China

Tel +81-90-7309-5354  
[yano-t2@dynamo.co.jp](mailto:yano-t2@dynamo.co.jp)

CEO / Toshiharu Yano

### DYNAMO Vietnam Co.,LTD Second Factory

Lot C3.2, Road D1, Dong An 2  
industry park,  
Thu Dau Mot City, Binh Duong, Viet Nam  
Tel +84-650-351-5277 Fax +84-650-351-5286

CEO / TRUONG TAN PHAT

### DYNAMO Vietnam Co.,LTD Mold Division

consulting / Nihon Seiki Co., Ltd.  
Lot C3.2, Road D1, Dong An 2  
industry park,  
Thu Dau Mot City, Binh Duong, Viet Nam  
Tel +84-650-351-5277 Fax +84-650-351-5286

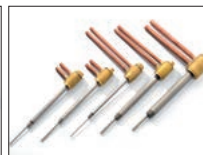
CEO / TRUONG TAN PHAT

# CONTENTS

1	<b>CORE PIN MATERIAL</b>	
2	<b>DRAWING</b>	
3	<b>COOLING CORE PIN EJECTOR SLEEVE</b>	
4	<b>CORE PIN OPTION</b>	
5	<b>BORE CORE</b>	
6	<b>DISTRIBUTOR&amp;RING VALVE UNIT SUPER VENT</b>	
7	<b>INSERTS</b>	
8	<b>ENGINE TRANSMISSION</b>	
9	<b>LINER COOLING TUBES</b>	

10

**DYNACOOOL**  
ST · OT · RT · RS



11

**HARD LOCK SETSCREW**



12

**STREAM**



# CORE PIN MATERIAL



## DIECAST CAVITY PARTS



### Feature

## Custom made CORE PIN

We have over 30 -year- history to produce custom-made core pins. Always we pick up customers offer and keep world standard. We take safe, cost value, and delivery every time.

### Custom limit

- $\phi 300 \times L1000\text{mm}$  at maximum core pin length
- For Water hole:  $\phi 1, \phi 1.8, \phi 2, \phi 2.5, \phi 3, \phi 3.5 \sim$   
(Basically, L600mm at the longest. Please contact us.)



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USA Tel : 847-691-0076 Fax : 630-497-8023

# CORE PIN MATERIALS

## List of steel classes

Trade name	Designation	Recommended HRC	Features	Stock
SKD61 (DAC)	A	42 ~ 50	General material for die-casting die.	◎
SKD61	H45	43 ~ 47	2 types of SKD61. Each with different hardness.	◎
SKD61	H48	46 ~ 50		◎
DAC-MAGIC	D-Magic	46 ~ 50	High temperature strength, toughness.	◎
DAC-S	D-S	46 ~ 50	ESR Version for H13. Higher heat check resistance.	○
DIEVAR	DIEVAR	42 ~ 50	High-toughness, High temperature strength High heat resistance.	○
DHA-THERMO	THERMO	42 ~ 50	High thermal conductivity. High degree of hardness.	○
DHA-WORLD	WORLD	42 ~ 50	SKD61	○

FDAC	FDAC	38 ~ 42	Prehardened, Free-cutting Steel for holders etc.	◎
HPM38	HPM38	50 ~ 53	Prehardened, improved SUS420J2, Corrosion resistant.	○
HPM7	HPM7	29 ~ 33	Plastic type steel for prehardening & SCM base.	◎
S45C	S45C	20 ~ 25	Standard material for die-casting die machinism Parts.	◎

※Other materials available on request.

SKH51 (YXM1)	SKH51	55 ~ 60	For High speed tool steel, general cutting tool.	◎
YXR33	YXR33	52 ~ 58	High-toughness. High erosion resistance.	◎
YAG	YAG	45 ~ 53	Very strong steel, Very high-toughness. Can be hardened by aging treatment. (480 ~ 520°C)	○
SKD11 (SLD)	SKD11	58 ~ 62	For cold working tool steel or press type tool.	○

※DAC, DAC-MAGIC, DAC-S, FDAC, HPM38, HPM7, YXM1, YXR33, YAG, SLD Presented by Hitachi.
























※Anvilloy, D2M, Be Cu and other materials available on request.

Copper	CU	—	Thermal conductivity : 389.773 (W/m · K)	◎
Copper 25	BeCU25	—	Thermal conductivity : 108.968 ~ 129.924 (W/m · K)	△
Copper 50	BeCU50	—	Thermal conductivity : 209.556 ~ 238.894 (W/m · K)	△
Brass (BSBM2)	CB3604D	—	Thermal conductivity : 121.542 (W/m · K)	○
SUS303	SUS303	—	Thermal conductivity : 16.345 (W/m · K)	○
SUS304	SUS304	—	Thermal conductivity : 16.345 (W/m · K)	○
ANVILOY	ANVILOY	—	Sintering cemented alloy · Excellent erosion resistance.	○

◎ : Fully equipped   ○ : Partly equipped   △ : Back-order



# List of coating

	Sample	Coating	Color	Feature
Nitriding		Tuffride	Black	Nitrogen on surface will help wear and abrasion resistance, fatigue crack resistance.
		Ion nitride	Gray	Nitrogen on surface will help wear and abrasion resistance, fatigue crack resistance.
		KOSUMO V1	Light gray	Tuned gas nitride for die-casting die.
		KOSUMO V2	Light gray	Anti-heatcrack by controlling compound layer, diffusion zone depth, nitrided hardness control.
		Sursulf	Gray	Nitrogen on surface will help wear, oxidation, heat resistance.
		Kanuc	Brown~Black	For better fatigue crack resistance and abrasion resistance.
		Kanuc OX	Black	For fatigue crack resistance, sticking resistance, parting powder affinity.
Nitride PVD Coating		Dynamo S coat	Purple	Nitriding on base and covered PVD.
		Dynamo X coat	Purlish-red	Based on triple layer nitriding, it has a high adhesion to the base material.
		CMTi	Gold	Hybrid of nitriding and PVD.
PVD Coating		Dynamo coat	Purple gray	Coating thickness(7-10μm). For adrasion resistance, heat resistance.
		CrN	No color	For sliding, heat resistance, corrosion resistance.
		TiN	Gold	For abrasion resistance and sliding.
		TiALN	Purple	For abrasion resistance and heat resistance.
		ALCRONA	Blue gray	For anti-burning on heat generated, heat resistance
		FUTURA NANO	Purple gray	Laminated nano layer. For anti-burning on less parting powder parts.
		LUMENA	Purple gray	Thick film, a laminated nano layer.Laminated nano layer. For anti-burning on less parting powder parts. For erosion, crack.
		LELLYON CL	No color	Cr typed-multilayer coating. This make items improve erosion resistance.
CVD Coating		TD	Metallic gray	Adhesion, Anti-sticking resistance by heat CVD.
		Ti3	Gold	Adhesion by heat CVD, and 3 special layered film.
PCVD Coating		P-CVD(TiN)	Gold	Avoid from erosion, burning, wearability, heat checking crack.
		P-CVD(TiALN)	Purple	Avoid from erosion, burning, wearability, heat checking crack.
		P-CVD(TiALSicNO)	Purple	For parting powder free, or less good for erosion and burning.

※Please contact us about the other coating.



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# COOLING CORE PIN



## DIECAST CAVITY PARTS



### Feature

#### Dynamo's Stable Production

Our strong point is the cooling processing. We have more than 14 gun drills in our factory, and over 20,000 pieces of cooling core pins are produced per month. Every item is certified that the quality and concentricity is within 0.3mm T.I.R.



Concentricity Tester

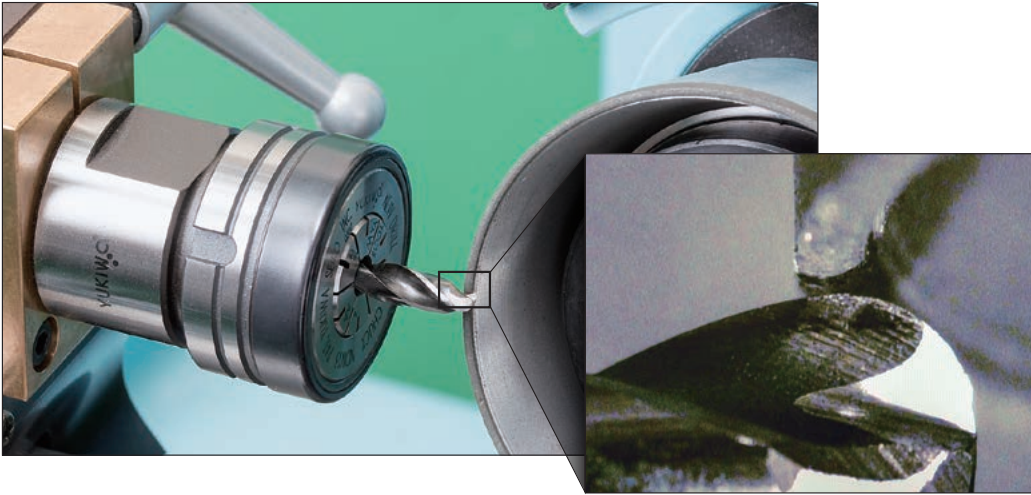


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# COOLING CORE PIN

## DIECAST CAVITY PARTS



Grind for SR drill

### Keep Quality

The level of Quality for hole is higher than before.

Now the hole of die cast core pin is very important. We use gun drill machine which uses only SR-drill. We of course have special grinding machine for gun drill. This is necessary for accurate regrind.

Now we can produce a  $\phi 3 \times L=600$ mm hole with good finish and concentricity and good finish by SR-drill.



We also use an Endoscope to check the finish inside the gun drilled hole.

The minimum size is  $\phi 2$ mm.

# EJECTOR SLEEVE

## DIECAST CAVITY PARTS



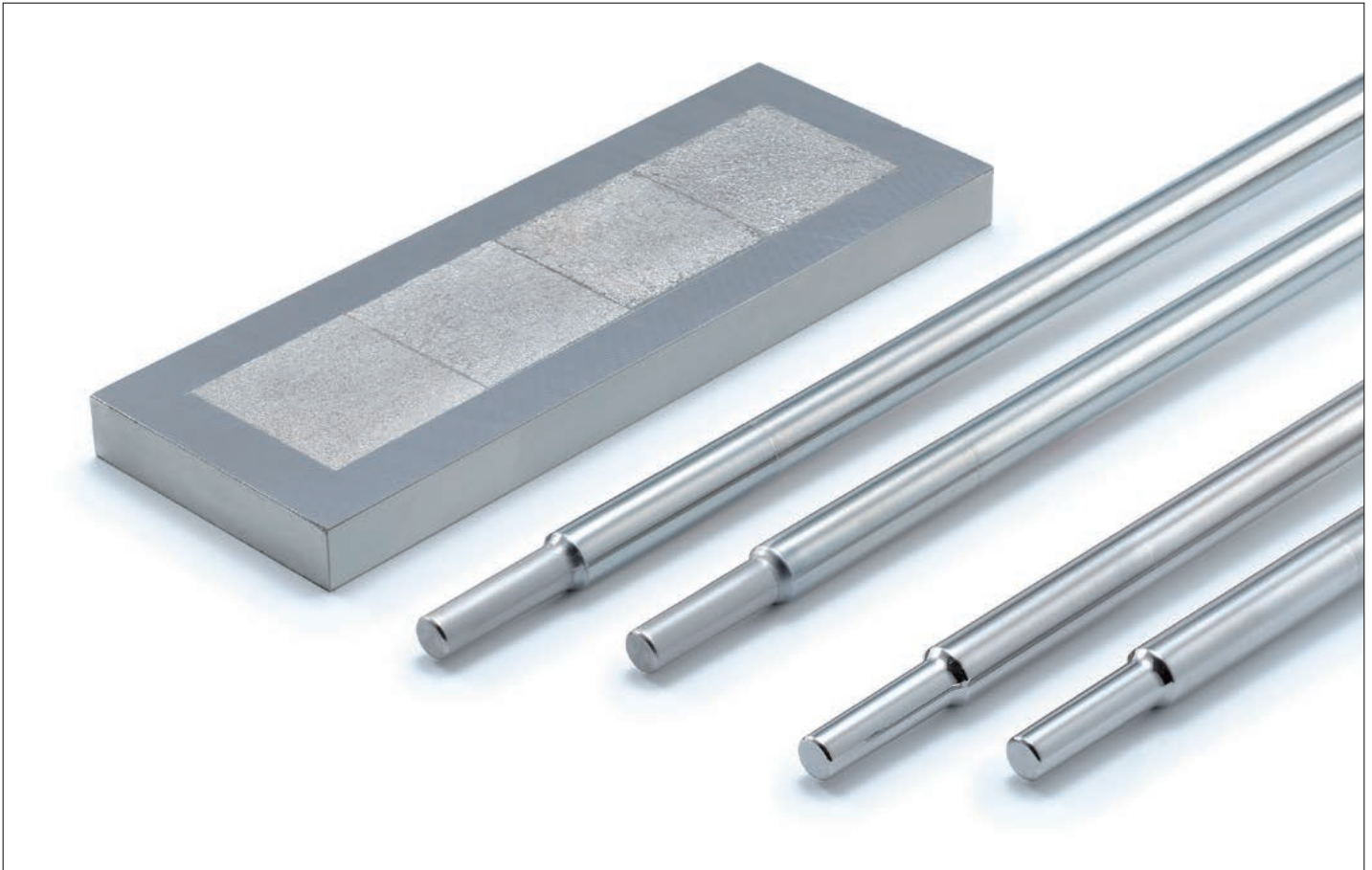
### Record of many years

We have long history to produce ejector pin and Sleeve. Some time, the length of sleeve is over  $L=600$ mm, and some time the diameter of hole has a tol. of 0.01mm. The quantity of sleeves produced is 4000 pcs/month at present.

# CORE PIN OPTION



## DIECAST CAVITY PARTS



### Feature

## Fine Polish/Draw Polish/Spark Depo by DYNAMO, INC.

Most of the die-casting die products have a lot of requirements for surface finish. Our 3 types of surface finish should meet all of your needs. To certify the products quality, we guarantee the surface quality by inspection with electronic surface roughness gauge.



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# CORE PIN OPTION

## DIECAST CAVITY PARTS



- standard JIS2001
- round R
- filter GAUSS
- $\lambda c$  0.8 mm
- $\lambda s$  2.5  $\mu m$
- interval number 5
- pre/back-running ON
- waveform deletion OFF
- results judgment average value

Ra 0.076  $\mu m$   
Rz 0.538  $\mu m$   
RzJIS 0.420  $\mu m$

### Draw Polish

We finish it with polishing of the pin by machine.

It will be made uniform draw polish. It helps pins last longer, and eject part smoothly.



- standard JIS2001
- round R
- filter GAUSS
- $\lambda c$  0.8 mm
- $\lambda s$  2.5  $\mu m$
- arbitrary length 3.00 mm
- pre/back-running ON
- waveform deletion OFF
- results judgment average value

Ra 0.030  $\mu m$   
Rz 0.224  $\mu m$   
RzJIS 0.163  $\mu m$

### Fine Polish

No tool marks, and mirror like finish.

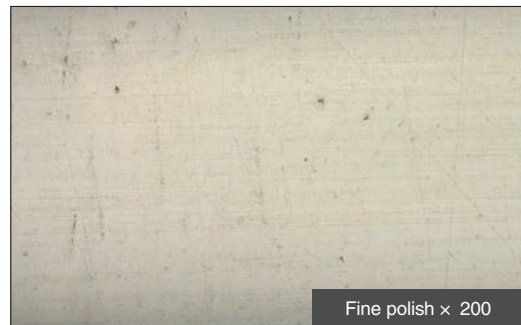
It will help eject part smoothly and help reduce any soldering issues.

### Spark Depo



Any troubles such as abrasion resistance, heat resistance, corrosion resistance and oxidation resistance will be reduced with spark depo coating.

### Electron Microscope



Our specialized polishing makes die-casting products better quality.

# BORE CORE



## DIECAST CAVITY PARTS



### Cylinder Block

Now the monthly quantity of Bore Core is up to 100 pcs. The last year record was up to 1000 pcs per year. The Bore Core is very important item for us.

We produce highest quality Bore Core in the world.

We produce Bore Core for Cylinder Block.

The Bore Core is main insert for cylinder block die casting.

The design of Bore Core are really difficult to produce.

Sometimes the length is over 500mm and the hole also deep.

Sometimes the surface finish like a mirror.

But we every time clear a lots kinds of request.



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# BORE CORE

## BORE CORE Line

Production line for Bore Core. We have really wide production line for bore core. The capacity is 100 pcs per month it will get your target price and delivery.

### Lathe Machine

We have over 10 lathe machines that produce Bore Core. If you know that we have long history produce die cast core pins. Our technical of Lathe machine evolved year by year.

Especially, the long boring are our specialty.

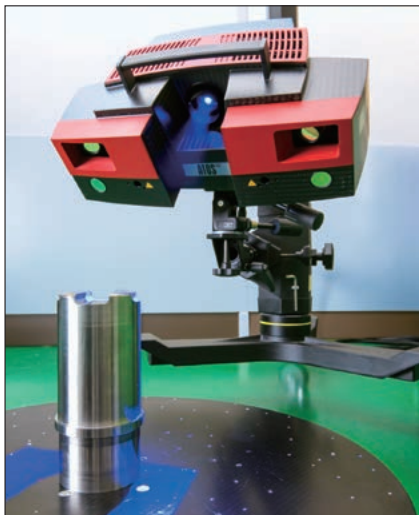
We can produce over 10mm under cut / one side by boring.



### Machining Center

We have 11 vertical Machining Centers and 4 horizontal Machining Centers in our Bore Core Cell.

Our specialties are long and wide boring. We will use BT-Tool and we have a lots of size BT-Tool and we have a lots of size BT-Tool. All machining is done with high speed hard milling avoiding EDM when possible.



### Non contact measuring machine

We will inspect by Non contact measuring machine. Of course we will use 3D Model for check. We would like to produce Bore Core with perfect quality.

# DISTRIBUTOR&RING



## DIECAST CAVITY PARTS



### Feature

We produce a lot of distributor and ring.  
The size is Max  $\phi 300\text{mm}$ . Last year the quantity is over 100 set.  
Recently, it is popular to use high level coolant for biscuit.  
As you know, it will shortening the cycle of Aluminum die cast.  
We have a lot of experience and machines.  
We will continue to produce good quality, good price and quick delivery.



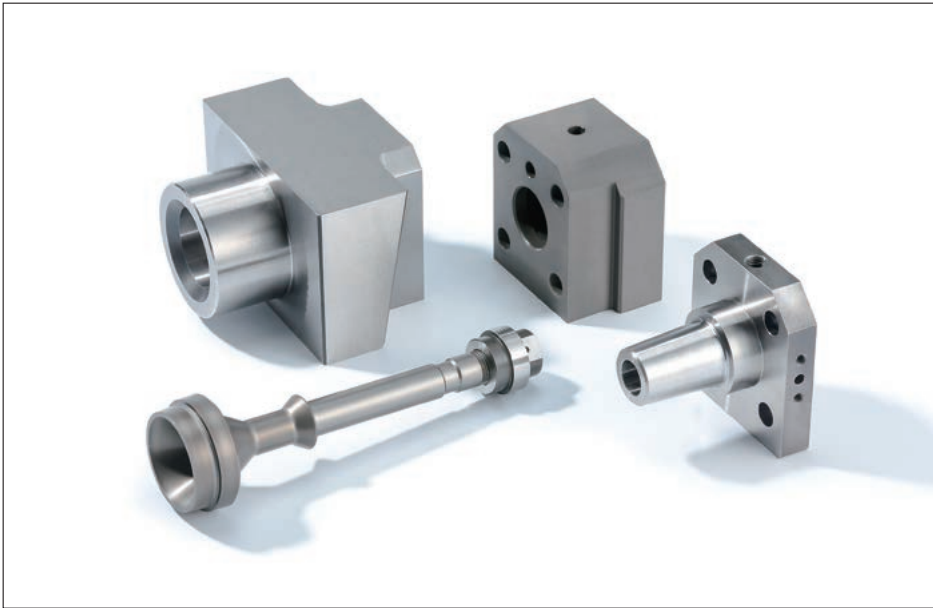
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# VALVE UNIT



## DIECAST CAVITY PARTS



We produce Vacuum Valve Unit.

Vacuum is very important for the quality of die-casting parts.

# SUPER VENT



We have long history to produce Super Vent.

It will use decompression.

Decompression is important for quality.

The Super Vent is finish by all grind.

The performance will help reduce porosity.

If you use Super Vent, you will never do without.

Supported by Koyama-steel

# INSERTS

IN

## DIECAST CAVITY PARTS



### Feature

We have a long history of producing inserts for diecasting dies.

Recently, Aluminum die-casters are being tasked to reduce the weight of their castings with material saving inserts which are thin and have a long water hole.

We can produce an insert with a hole which is  $\phi 3\text{mm} \times L = 500\text{mm}$ , without difficulty.

We have all kind of TAP. (NPT, BSP M, UNF)

We have over 45 lathe and 25 machining centers at our three plants for these items.

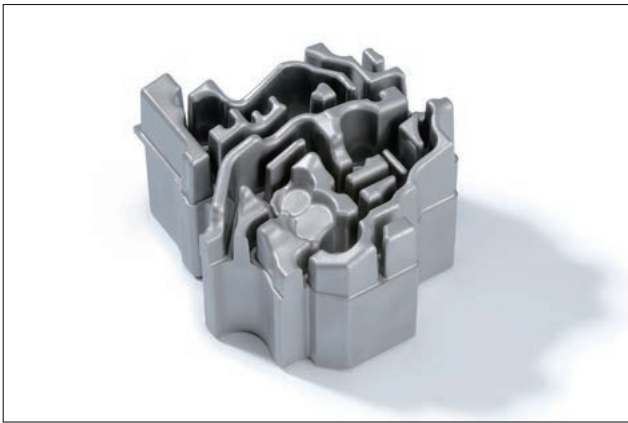
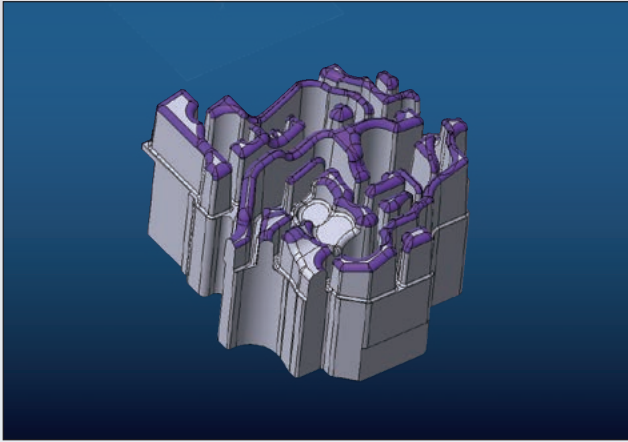


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# INSERTS

## DIECAST CAVITY PARTS



### 3D Interface

All Diecasters and die-builders use different CAD system. But we would like to propose STEP and Parasolid, to transfer data. Because the data does not always translate accurately.

DYNAMO prefers to use STEP and Parasolid.  
(Please contact us. We can handle CATIA and UG, Pro-E, Solidworks & Iges)

### Direct Milling

We prefer to use direct hard milling.

Minimum end mill size is  $\phi 0.5\text{mm}$  and the machine is 20000 rpm/s. Where possible the insert is machined without EDM, removing the need for polishing the recast layer and re-tempering the part, increasing the shot life of the insert.

### 3Axis Coordination Measuring

All inserts are checked on a 3 Axis CMM using the base 3D-Model supplied.

We choose at least 13 points on cavity area, and also at least 13 parts on the fit area.

We presently have 3 CNC CMM's all newer than 2009.

## DIECAST CAVITY PARTS



NIHON SEIKI CO., LTD.

### Feature

The insert and core die is one of our main item. Especially, Water Jacket (WJ) for Engine block die-casting die is our special product. We produce over 100 pieces WJ a year (sales result in 2013-2014)

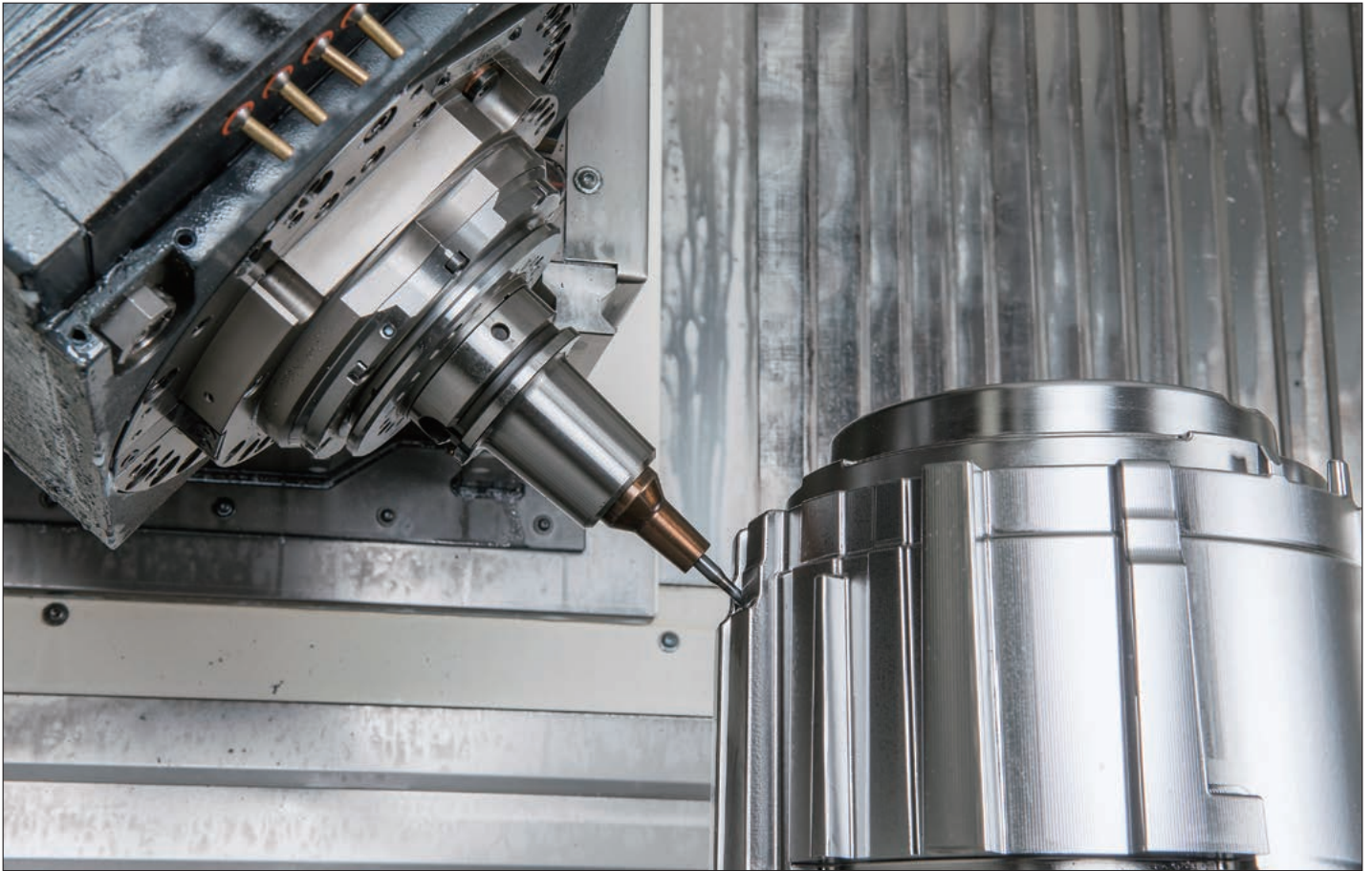
Our quality is a result of our 100 year history. We have produced 250 complete Engine block die-casting dies so far. We have the newest technology and equipment including 3 axis, 4 axis, and 5 axis CNC machines. We use hard milling and the result is making less use of EDM. It will increase shot count life for your die-casting die. Our experience and new technology will help expand your future.



# TRANSMISSION



## DIECAST CAVITY PARTS



NIHON SEIKI CO., LTD.

### Feature

Auto transmission die-casting dies and transmission case die-casting dies are also the most representative items in our products, and we have produced over 1000 pieces for each item so far.

As well as Engine block, transmission case is very important part.

We specialize in producing spline cores for FF and FR.

We have produced 50 pieces of spline a year (sales result in 2013-2014).

We always use the 5 axis machine, reducing the need for EDM and to keep items a good quality. Our specialized spline cores will win in a highly competitively market.

## DIECASTING DIE PARTS



### Protect your main insert core

Recently, medium and large die casting die main insert often to use. "LINER" that protects the water hole of main insert from rust and leakage from cracks in the insert.

It is really popular and we start to stock material. We have 3 choices of Material.

Each thermal conductivity is different.

● CU	Thermal Conductivity	389.773 (W/m·K)	STOCK ~φ50
● Brass	Thermal Conductivity	121.542 (W/m·K)	STOCK ~φ40
● SUS303	Thermal Conductivity	16.345 (W/m·K)	STOCK ~φ33

We would like to propose base thickness of liner are 1.0mm.

Sometimes problems are caused by too thin a liner, and some time the coolant effect is diminished if the liner is too thick. Please check the thermal conductivity and material for your die. We can produce liners with a max head diameter as shown above.



# COOLING TUBES



## DIECASTING DIE PARTS



### Feature

Recently, there has been an upsurge in the use of cooling tubes in die casting dies. The cooling of dies is very popular now and increases year by year. Dynamo now produces many types of cooling tubes. The material is normally stainless, but can be produced in other materials. As you know, we produce over 30,000 pcs custom made core pins per month. We will use this technology and brazing process to make cooling tubes. The brazing process uses a system developed by Dynamo. This brazing system is automated. It will eliminate leaks and provide good cost performance.



Brazing System



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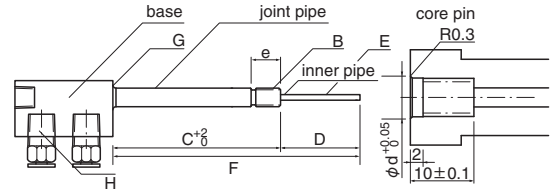
# DYNACOOOL ST



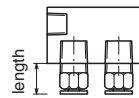
## DIECASTING DIE PARTS



Our narrowest pipes can cool any pins.  
 We can produce any size of pipes for any pins!  
 You can take inside pipe out when detent plug is taken off!



### Size of one touch fitting



	length from base
φ4 joint	about 11.0
φ6 joint	about 13.0

Unit : mm  
 ※ This fitting made by PISCO

### Feature

We can ship with one touch tube fitting.

- material base : SUS303
- material fitting : SUS304
- material bubbler : SUS304
- Max pressure : 1.5Mpa
- O ring : JIS 4 Type D (heat resistant 200°C)

### LIST A

type	size	screw type						O-ring type
		joint pipe						joint pipe
		size	O.D.(φ)	bore(φ)	(e)	length of screw	φ d	O-ring
ST (square)	①	M6	6.0	3.0	10	8	6.2	SS4.5
	②	M8	8.0	4.0	10	8	8.2	SS6.5
	③	Rc1/16	8.0	4.0	tolerance area 4	7	—	—
	④	Rc1/8	10.5	5.7	tolerance area 4	10	—	—
	⑤	Rc1/4	13.8	7.8	tolerance area 6	10	—	—

Unit : mm

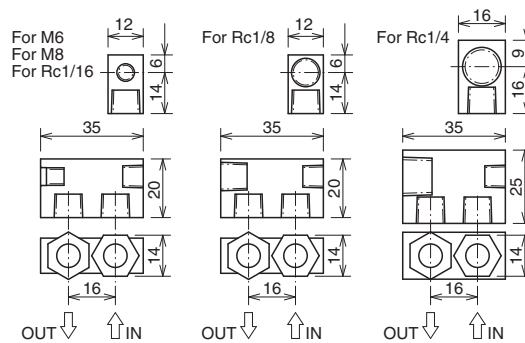
### LIST B

inner pipe		
size	O.D.(φ)	bore(φ)
①	1.0	0.75
②	1.2	0.9
③	1.5	1.2
④	1.8	1.4
⑤	2.0	1.6
⑥	2.2	1.8
⑦	2.4	2.0
⑧	3.0	2.6
⑨	4.2	3.8

Unit : mm

### ST base (Square Base)

Stainless steel made.  
 Hose direction is fixed.



### Order system

Please choose size and type for A ~ H.

Order Number DC - [A] - [B] - [C] - [D] - [E] - [F] - [G] - [H]

- A : Base type ..... Please choose ST
- B : Tap size ..... Please choose type from LIST A
- C : Length of joint pipe ..... Please write optional size.
- D : Length of inner pipe ..... Please write optional size.
- E : Diameter of inner pipe ..... Please choose O.D. from LIST B
- F : Total length (Length under neck) ..... Please write size of C + D.
- G : Weld ..... Please write No weld = 0 Need weld = 1
- H : Choose the fitting ..... One touch fitting : Please write No need = 0 for φ4 fitting = 1 for φ6 fitting = 2

※ Not to accidentally off a base part from bubbler, we recommend toweld.    ※ No price change between "No weld" and "Need weld".    ※ Item's spec will be changed without notice.

# DYNACOOOL OT



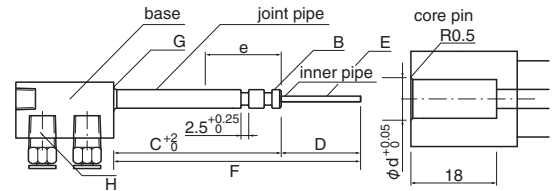
## DIECASTING DIE PARTS



Our narrowest pipes can cool any pins.

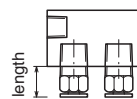
We can make any size of pipes for any pins!

You can take inside pipe out when detent plug is taken off!



### Size of one touch fitting

Unit : mm



	length from base
φ4 joint	about 11.0
φ6 joint	about 13.0

※ This fitting made by PISCO

### Feature

We can ship with one touch tube fitting.

- material base : SUS303
- fitting : SUS304
- bubbler : SUS304
- Max pressure : 1.5Mpa
- O ring : JIS 4 Type D (heat resistant 200°C)

### LIST A

Unit : mm

type	size	screw type joint pipe						O-ring type joint pipe	
		size	O.D.(φ)	bore(φ)	(e)	length of screw	φd	O-ring	
OT (square)	⑥	φ6.0	6.0	3.0	18	—	6.3	S4	
	⑦	φ8.0	8.0	4.0	18	—	8.2	S6	
	⑧	φ10.0	10.0	5.0	18	—	10.0	P7	

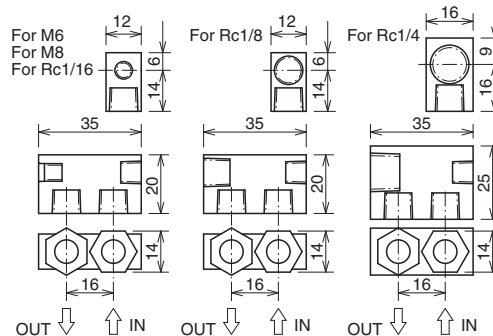
### LIST B

Unit : mm

inner pipe		
size	O.D.(φ)	bore(φ)
①	1.0	0.75
②	1.2	0.9
③	1.5	1.2
④	1.8	1.4
⑤	2.0	1.6
⑥	2.2	1.8
⑦	2.4	2.0
⑧	3.0	2.6
⑨	4.2	3.8

### OT base (Square Base)

Stainless steel  
Hose direction is fixed.



### Order system

Please choose size and type below for A ~ H.

Order Number

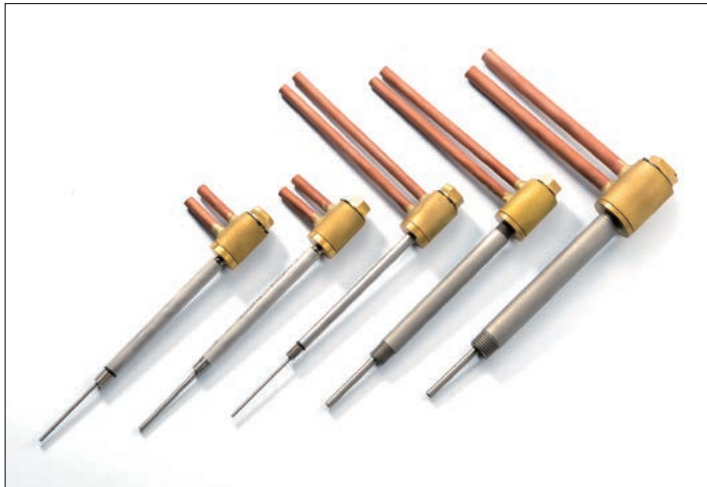
DC - A - B - C - D - E - F - G - H

- A : Base type ..... Please choose OT
- B : Tap size ..... Please choose sign from LIST A
- C : Length of joint pipe ..... Please write optional size.
- D : Length of inner pipe ..... Please write optional size.
- E : Diameter of inner pipe ..... Please choose O.D. from LIST B
- F : Total length (Length under neck) ..... Please write size of C + D.
- G : Weld ..... Please write No weld = 0 weld = 1
- H : Choose the fitting ..... One touch fitting : Please write No need = 0 for φ4 fitting = 1 for φ6 fitting = 2

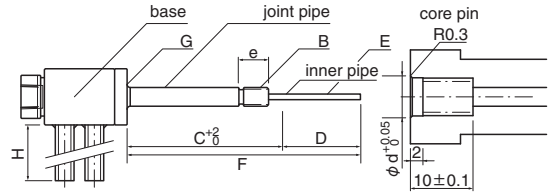
# DYNACOOL RT



## DIECASTING DIE PARTS



You can choose dimensions as needed  
 Copper pipes can be formed in any direction.  
 Any size of pipe will cool your any kinds of pins.  
 We can produce any size of pipes for any size pin!  
 You can take inside pipe out when detent plug is taken off!



### Feature

- material base : BRASS
- fitting : SUS304
- bubbler : SUS304
- Max pressure : 1.5Mpa
- O ring : JIS 4 Type D (heat resistant 200°C)

### LIST A

Unit : mm

type	size	screw type joint pipe						O-ring type joint pipe
		size	O.D.(φ)	bore(φ)	(e)	length of screw	φd	O-ring
RT (revolving)	①	M6	6.0	3.0	10	8	6.2	SS4.5
	②	M8	8.0	4.0	10	8	8.2	SS6.5
	③	Rc1/16	8.0	4.0	tolerance area 4	7	—	—
	④	Rc1/8	10.5	5.7	tolerance area 4	10	—	—
	⑤	Rc1/4	13.8	7.8	tolerance area 6	10	—	—

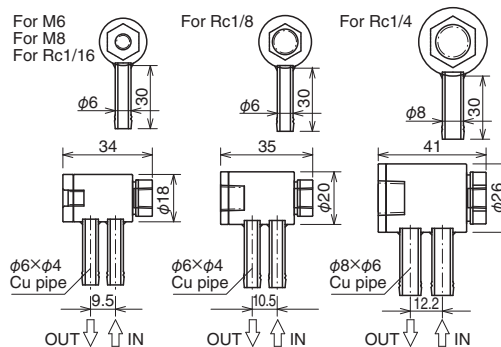
### LIST B

Unit : mm

inner pipe		
size	O.D.(φ)	bore(φ)
①	1.0	0.75
②	1.2	0.9
③	1.5	1.2
④	1.8	1.4
⑤	2.0	1.6
⑥	2.2	1.8
⑦	2.4	2.0
⑧	3.0	2.6
⑨	4.2	3.8

### RT base (Revolving Base)

The body is brass.  
 Nipple is Cu.  
 Inner & Outer pipes are SUS 304  
 Can change the direction of hose.



### Order system

Please choose size and sign for A ~ H.

Order Number DC - A - B - C - D - E - F - G - H set size = ( ) mm

- |                                      |       |  |
|--------------------------------------|-------|--|
| A : Base type                        | ..... | Please choose RT                                       |
| B : Tap size                         | ..... | Please choose type from LIST A                         |
| C : Length of joint pipe             | ..... | Please write optional size.                            |
| D : Length of inner pipe             | ..... | Please write optional size.                            |
| E : Diameter of inner pipe           | ..... | Please choose O.D. from LIST B                         |
| F : Total length (Length under neck) | ..... | Please write size of C + D.                            |
| G : Weld                             | ..... | Please write No weld = 0 Need weld = 1                 |
| H : Choose the fitting               | ..... | Length of Cu pipe Normal 30 mm = 0 Set size ( ) mm = 1 |

※ Not to accidentally off a base part from bubbler, we recommend to weld. ※ No price change between "No weld" and "Need weld". ※ Item's spec will be changed without notice.

# DYNACOOOL RS



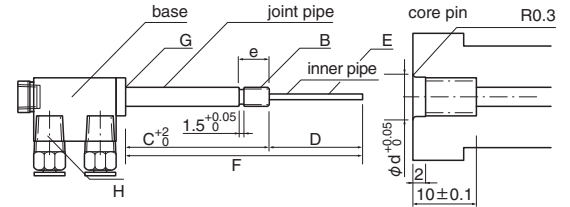
## DIECASTING DIE PARTS



Our narrowest pipes can cool any pins.

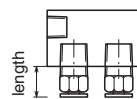
We can produce any size of pipes for any pins!

You can take inside pipe out when detent plug is taken off!



### Size of one touch fitting

Unit : mm



	length from base
φ4 joint	about 11.0
φ6 joint	about 13.0

※ This fitting made by PISCO

### Feature

We can ship with one touch tube fitting.

- material base : BRASS, SUS303
- material fitting : SUS304
- material bubbler : SUS304
- Max pressure : 1.5Mpa
- O ring : JIS 4 Type D (heat resistant 200°C)

### LIST A

Unit : mm

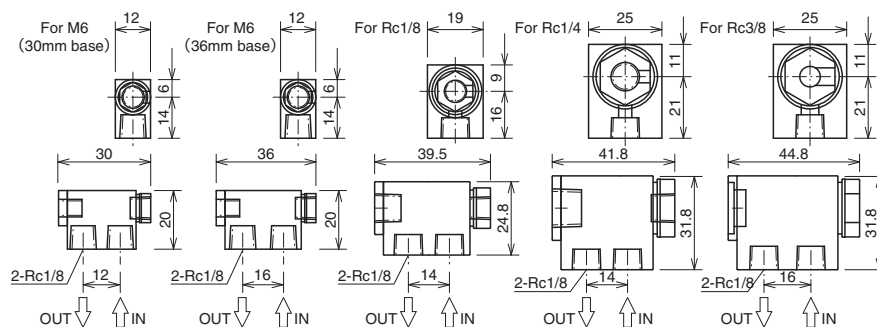
type	size	screw type joint pipe					O-ring type joint pipe	
		size	O.D.(φ)	bore(φ)	(e)	length of screw	φ d	O-ring
RS (revolving square)	①	M6 (30mm base)	6.0	3.0	10	8	6.2	SS4.5
	⑩	M6 (36mm base)	6.0	3.0	10	8	6.2	SS4.5
	④	Rc1/8	10.5	5.7	tolerance area 4	10	—	—
	⑤	Rc1/4	13.8	7.8	tolerance area 6	10	—	—
	⑨	Rc3/8	17.3	10.9	tolerance area 7	14	—	—

### LIST B

Unit : mm

inner pipe		
size	O.D.(φ)	bore(φ)
①	1.0	0.75
②	1.2	0.9
③	1.5	1.2
④	1.8	1.4
⑤	2.0	1.6
⑥	2.2	1.8
⑦	2.4	2.0
⑧	3.0	2.6
⑨	4.2	3.8
⑩	8.0	6.0

RS base (Revolving Square Base) Body is brass. Square base is stainless. Can change the direction of hose.



※ Regarding RS M6, Please choose size from ①~⑤.

※ Regarding RS Rc3/8, This is only form φ 8 × bore φ 6.

### Order system

Please choose size and sign for A ~ H.

Order Number

DC - A - B - C - D - E - F - G - H set size = ( ) mm

- A : Base type ..... Please choose RS
- B : Tap size ..... Please choose sign from LIST A
- C : Length of joint pipe ..... Please write optional size.
- D : Length of inner pipe ..... Please write optional size.
- E : Diameter of inner pipe ..... Please choose O.D. from LIST B
- F : Total length (Length under neck) ..... Please write size of C + D.
- G : Weld ..... Please write No weld = 0 Need weld = 1
- H : Choose the fitting ..... One touch joint : Please write No need = 0 for φ4 fitting = 1 Need for φ6 fitting = 2

## DIECASTING DIE PARTS



### Feature

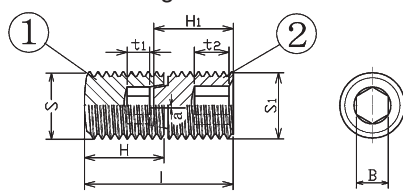
Safety is power ! A definitive edition of set screw !  
From industrial machine to fixed die,  
our hard lock set screws answer to various needs.

- THE SEMI PERMANENT LOCKING STRUCTURE
- RE-USABILITY  
Repeated removal and installation does not affect anti-loosening effect.
- WORKABILITY  
Easy locking,  
using a single hexagon wrench.
- ECONOMICAL  
Lifetime cost is lower  
because of the reduced maintenance.



# HARD LOCK SETSCREW

## HLS drawing



## HLS Standard spec of material/Surface treatment

Size	Hardness(material)	Surface treatment
M8~M20	Class10(SCM435 refining / surface hardness HRC45~53)	Black oxidized
M24~M36	Class8(S45C refining / surface hardness HRC30~43)	Black oxidized

※Please feel free to contact us about the other.

### HLS size table(Standard) (Coarse screw C type)

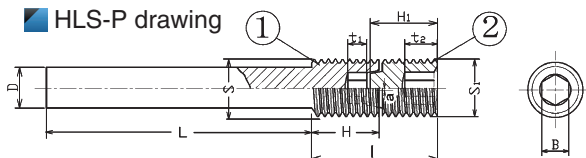
※We also have "HLS-T" (Order number is HLS-○-B)

Unit : mm

Thread Dia	Pitch		Fixing Screw ①			Lock Screw ②			in set	Hex. Hole ①②		Set weight (g)	Tightning torque value Set screw(凹) / Lock screw(凸)	Security torque
	S,S1	Coarse	F:Fine	H	tolerance	t <sub>1</sub>	H <sub>1</sub>	tolerance		t <sub>2</sub>	∅			
M8	1.25	—	10	±0.29	≥2.5	10	±0.29	≥5	17.5	4	+0.02 +0.10	4	9 ~ 11	16
M10	1.5	—	12	±0.35	≥3	12	±0.35	≥6	21	5	+0.02 +0.14	8	16 ~ 20	30
M12	1.75	1.5	16	±0.35	≥5	16	±0.35	≥8	29	6	+0.02 +0.14	16	27 ~ 33	52
M14	2.0	1.5	16	±0.35	≥4	16	±0.35	≥8	28	6	+0.02 +0.14	22	27 ~ 33	52
M16	2.0	1.5	20	±0.42	≥6	20	±0.42	≥10	36	8	+0.03 +0.18	37	63 ~ 77	120
M18	2.5	1.5	20	±0.42	≥6	20	±0.42	≥10	36	8	+0.03 +0.18	47	63 ~ 77	120
M20	2.5	1.5	20	±0.42	≥7	20	±0.42	≥12	35	10	+0.03 +0.18	52	90 ~ 110	220
M22	2.5	1.5	25	±0.42	≥10	25	±0.42	≥15	45	12	+0.03 +0.18	79	150 ~ 190	370
M24	3.0	1.5	25	±0.42	≥9	25	±0.42	≥15	44	12	+0.03 +0.21	95	150 ~ 190	370
M30	3.5	1.5	30	±0.42	≥9	30	±0.42	≥15	54	17	+0.03 +0.21	161	530 ~ 650	980
M36	4.0	1.5	35	±0.5	≥8	35	±0.5	≥15	63	17	+0.03 +0.21	368	530 ~ 650	980

※Hexagon socket set screw to JIS B 1177 (ISO4026) ※Screw accuracy...JIS B0205(1998) / (ISO 261)6g

## HLS-P drawing



## HLS-P Standard spec of material/Surface treatment

Size	Hardness(material)	Surface treatment
M12~M36	Class8(S45C refining / surface hardness HRC30~43)	Black oxidized

※Please feel free to contact us about the other.

### HLS-P size table (Spacer combined unit) (Coarse screw A type)

※We also have "HLS-TP" (Order number is HLS-○-D-L○)

Unit : mm

Thread Dia	Pitch		L	Fixing Screw ①			Lock Screw ②			in set	Hex. Hole ①②		Pin diameter	Set weight (g)	Tightning torque value Set screw(凹) / Lock screw(凸)	Security torque	
	S,S1	Coarse		F:Fine	H	tolerance	t <sub>1</sub>	H <sub>1</sub>	tolerance		t <sub>2</sub>	∅					B
M12	1.75	1.5	100	15	±0.35	≥4	16	±0.35	12	28	6	+0.02 +0.14	8	0	53	27 ~ 33	52
			-0.2											92			
M16	2.0	1.5	100	20	±0.42	≥6	20	±0.42	12	36	8	+0.03 +0.18	12	0	123	63 ~ 77	120
			-0.2											212			
			-0.2											257			
			-0.2											257			
M20	2.5	1.5	100	25	±0.42	≥6	20	±0.42	12	40	10	+0.03 +0.18	16	0	217	90 ~ 110	220
			-0.2											374			
			-0.2											453			
			-0.2											531			
M24	3.0	1.5	100	35	±0.42	≥7	25	±0.5	15	54	12	+0.03 +0.21	20	0	369	150 ~ 190	370
			-0.2											613			
			-0.2											735			
			-0.2											857			
M30	3.5	1.5	100	40	±0.42	≥7	30	±0.5	20	64	17	+0.03 +0.21	24	0	570	530 ~ 650	980
			-0.2											922			
			-0.2											1,098			
			-0.2											1,098			
M36	4.0	1.5	100	40	±0.5	≥7	35	±0.5	20	68	17	+0.03 +0.21	30	0	948	530 ~ 650	980
			-0.2											1,501			

※Hexagon socket set screw to JIS B 1177 (ISO4026) ※Screw accuracy...JIS B0205(1998) / (ISO 261)6g

〈Order number example〉

M12 Coarse + L125...HLS-12-C-L125

M12Fine + L125...HLS-12-DF-L125

## MAX BOY collection



### Feature

Low cost and perfect timing.

All your needs will be covered by Dynamo's Stream !

- Simple setup using PLC.
- Uses shop air and water.
- Compact and light design.

#### 2 System

Size	L160 × W300 × H480
Weight	Approx, 15kg

#### 4 System

Size	L240 × W600 × H480
Weight	Approx, 26 kg



# STREAM

## STREAM 1

### accurate coolant

Stream makes it possible to pump cooling water at just the right time.



Before



After

## STREAM 2

### solve your problems through three characteristics

#### characteristic 1

Accurate set up of cooling water volume.



No countercurrent prevents galling & shrinkage porosity.

#### characteristic 2

Water supply by air pressure.



Possible to cool thin pins which is difficult by water pressure.

#### characteristic 3

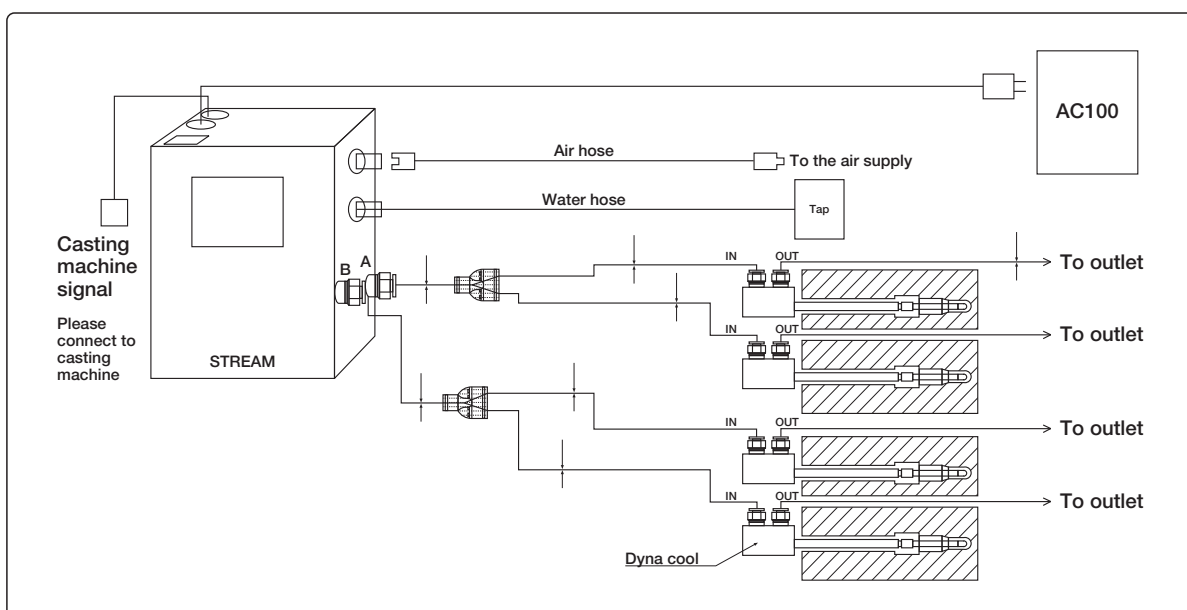
Simple structure without high pressure pump.



Compact light design easy maintenance.

## STREAM 3

### Example



## ■ History

- 1920 Foundation of the original of Dynamo in Kobe.
- 1973 Founded of Yukoku Seiki, inc. in Nagoya-City.
- 1980 Start to production "custom made core pin".
- 1990 Dynamo, Inc. start with capital 5 million yen.
- 1995 Increased capital to 10 million yen.
- 1996 Exhibited at Japan Die Casting Congress & Exposition in Yokohama, and released "Draw Polish".
- 1998 Exhibited at Die Casting Congress & Exposition in Yokohama, and released "small coolant hole core pin".
- 1999 Exhibited at NADCA 1999 Cleveland Ohio Die casting Congress & Exposition in USA.
- 2000 Exhibited at Japan Die Casting Congress & Exposition in Yokohama, and released "Cooling System".
- 2001 Exhibited at NADCA1999 Cleveland Ohio Die casting Exposition.
- 2002 Exhibited at Japan Die Casting Congress & Exposition in Yokohama, and released "Fine Polish".
- 2003 Acquired international dealerships for HLS (Hardlock Industry Co., Ltd)  
Exhibited at NADCA2003 Indianapolis.Indiana Die casting Congress & Exposition.
- 2004 Exhibited at Japan Die Casting Congress & Exposition in Yokohama, and released "HLS".
- 2006 Exhibited at Japan Die Casting Congress & Exposition in Yokohama, and released " Surface Treatment".
- 2007 Moved headquarters to Seto-city, Aichi, and open a new factory.
- 2008 Exhibited at NADCA 2008 Atlanta, Georgia Die casting Exposition.  
Exhibited at 2012 Japan Die Casting Congress and Exposition in Yokohama and released "Cold Stream".  
Increased capital to 20 million yen in December.
- 2009 Started selling of Cold Stream in North America.
- 2010 Exhibited at Cast Expo 2010.
- 2011 Acquired a patent for Cold Stream.
- 2012 Acquired ISO9001 certification in March.  
Dynamo in Vietnam started from July,2012.  
Vietnam started to produce 8000 pcs of core pin and cooling pipe.  
Exhibited at NADCA 2012 Die Casting Congress and Exposition.  
Established Dynamo Second Factory.
- 2013 Exhibited at METALEX 2013 exhibition (at Ho Chi Minh City in Vietnam).  
Second Factory started to produce 8000 pcs of core pin & insert part.  
Second Factory started to run Bore core line.  
The line produce 100 pcs Bore core in a month.

## ■ Main customer

- AISIN AW CO.,LTD
- AISIN SEIKI CO.,LTD
- Ahresty
- Isuzu Motors Limited
- Suzuki Motor Corporation
- DAIHATSU
- Tokaiseiki Corporation
- TOYOTA MOTOR Corporation
- TOYOTA Industries Corporation
- Fuji Heavy Industries Ltd
- MAZDA Motor Corporation
- Ryobi
- Ahresty Mexicana,S.A.de C.V.
- Ahresty Wilmington corporation
- Bodine Aluminum, Inc.
- Chrysler Company LLC.
- EXCO ENGINEERING
- GENERAL MOTORS
- HAL ALUMINUM
- Honda Engineering North America, INC.
- Honda Manufacturing of Alabama, LLC.
- Nemak USA, Inc.
- RDCM, S. DE R.L. DE C.V.
- Ryobi Aluminium Casting (UK), Ltd.
- Ryobi Die Casting (USA), INC.
- TD Automotive Compressor Georgia, LLC.
- (other 900 companies)



■ Main Office Dynamo, Inc.



■ Die casting exhibition



■ Die casting exhibition



■ Japan Second Factory



■ Vietnam Factory

