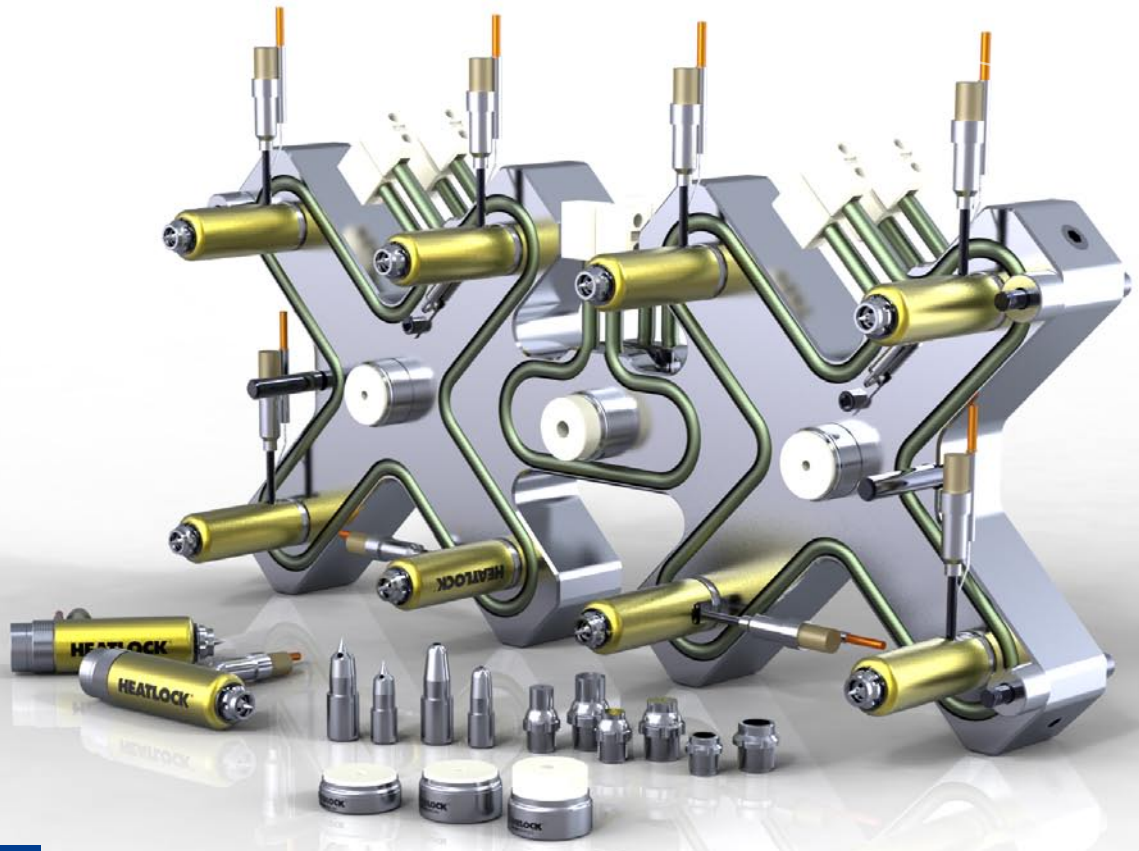
HEATLOCK®

Global Hot Runner Solution

Vol.1



A3 All-IN-ONE

A3 All-IN-ONE

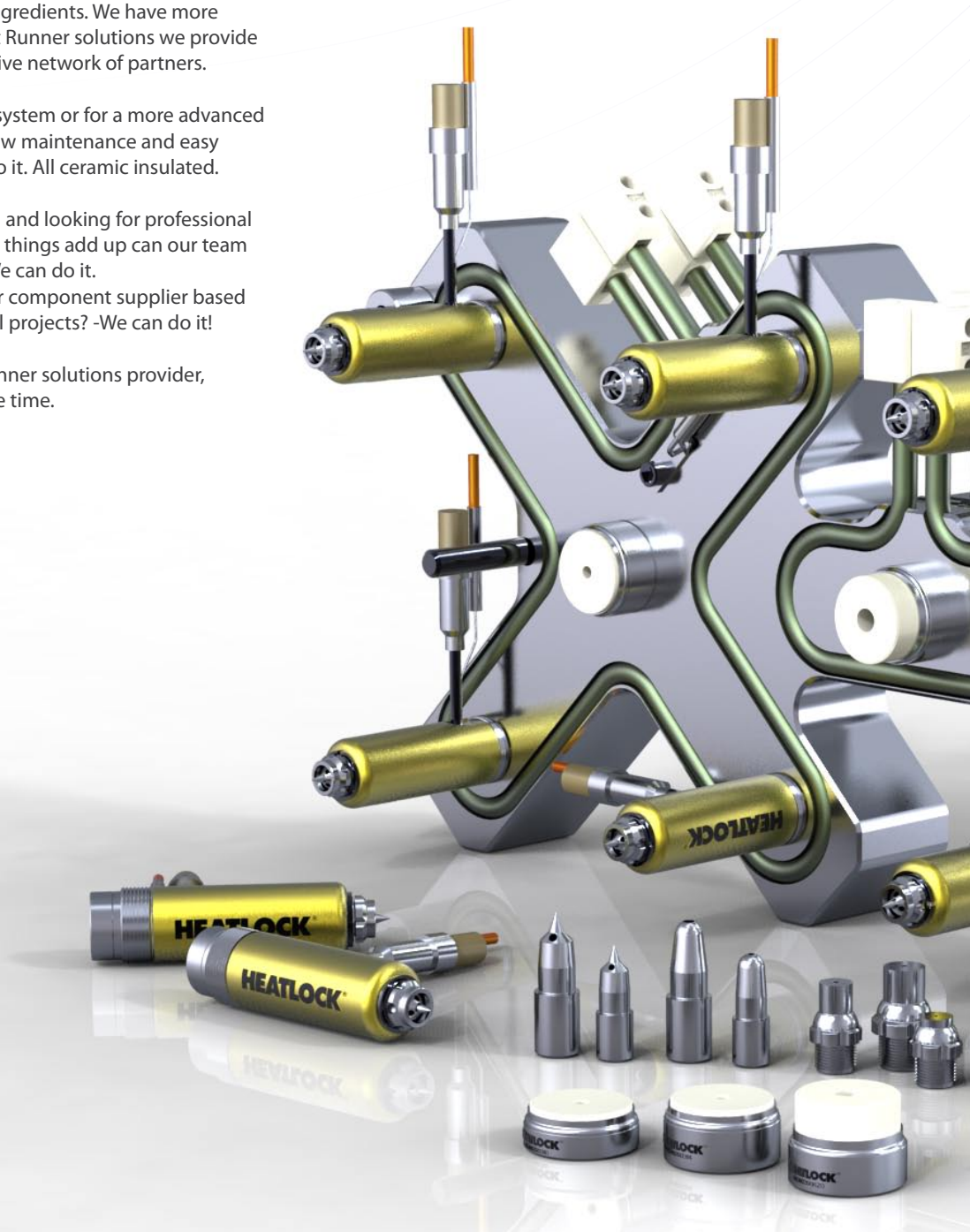
HEATLOCK Global Hot Runner Solution Provider

HEATLOCK is a Swedish Hot Runner solution provider with headquarters in China. Our operation is set up according to international business standards with a strict quality and management system as our key ingredients. We have more than 30 years experience with Hot Runner solutions we provide global service through our extensive network of partners.

Are you looking for a Hot Runner system or for a more advanced Hot Half designed for longevity, low maintenance and easy service in case it's needed? - We do it. All ceramic insulated.

Do you have moulds built in china and looking for professional project management to ensure all things add up can our team of project managers help you? - We can do it.
Do you need a reliable Hot Runner component supplier based in China for private label or special projects? -We can do it!

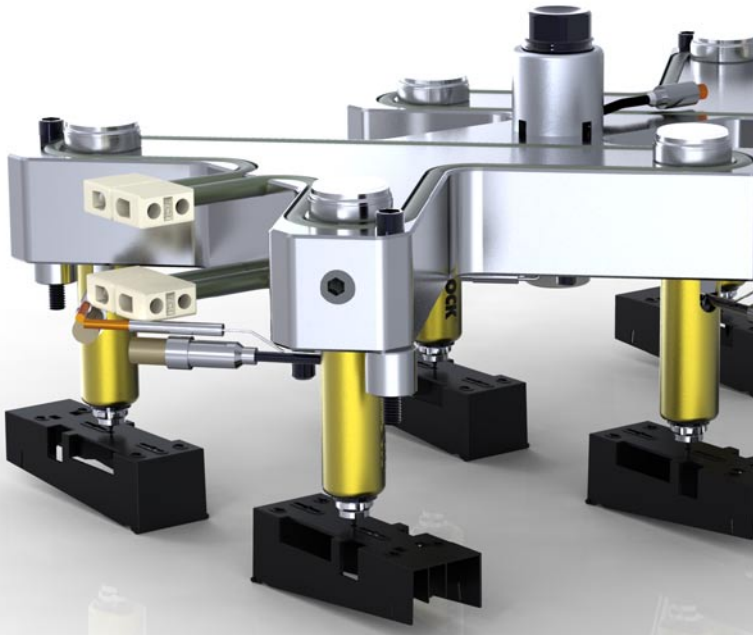
HEATLOCK; Your complete Hot Runner solutions provider, international and local at the same time.

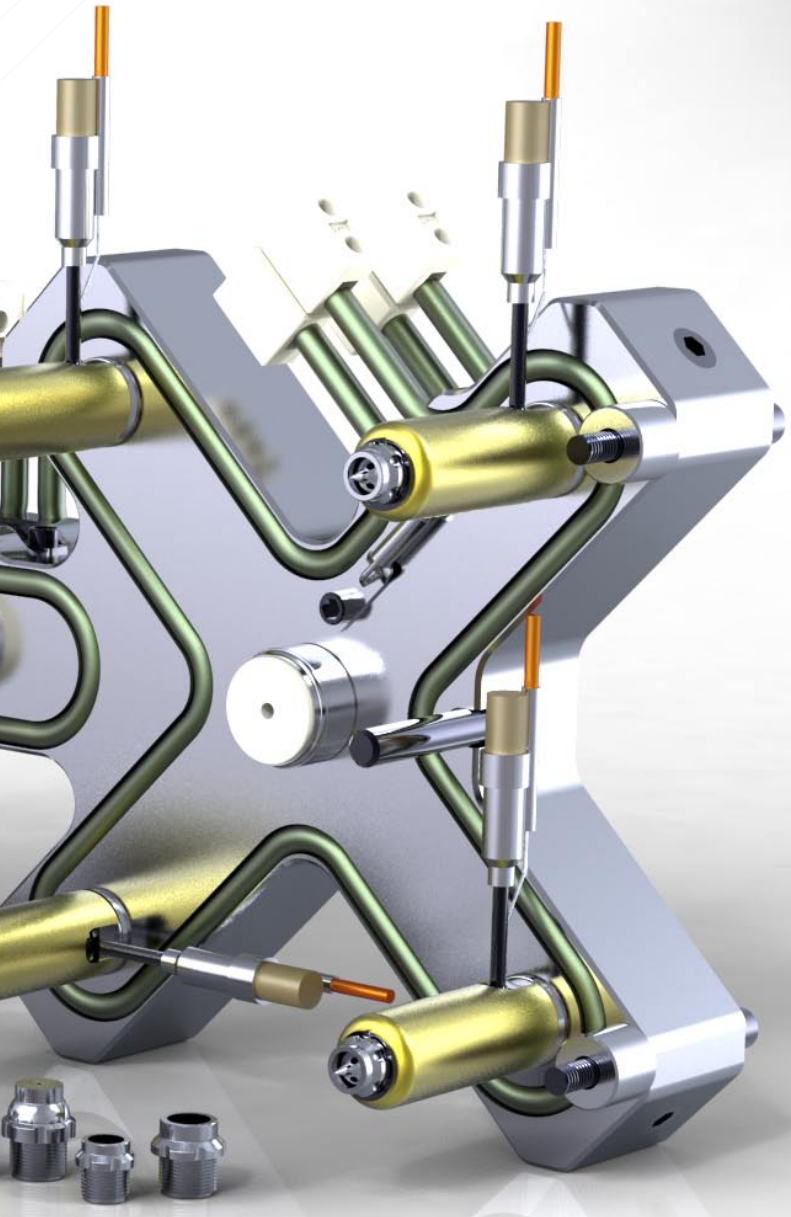


ALL-IN-ONE Technology

Hot Runners re-engineered to make it simple and easy to use with maximum performance and modularity. Commodity applications use the standard configurations for engineering resins simply up-grade with our high performance modules. Simply drop the Hot Runner system in your mould and adjust gate position to the optimum position using our virtual gate position technology, V-GATE.

All wire exits are to pre-determined once gate position is fixed. Grind back spacers to adjust for calculated heat expansion; close the clamp plate and you are ready to go.

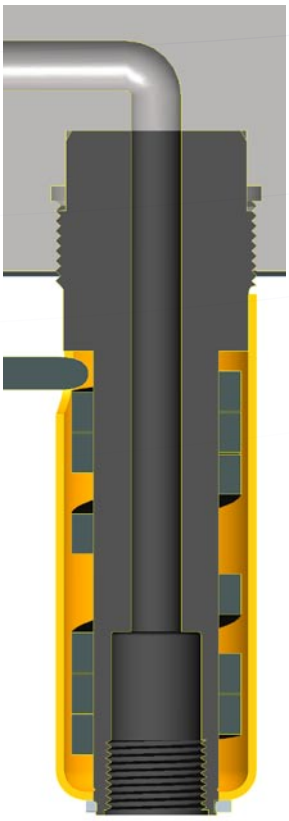




Ceramic Clamp Technology CE-FIX

Latest development with our well proven ceramic insulation technology! We are the first Hot Runner provider to introduce Hot Runners with Ceramics in 1982. Ceramic insulation is superior compared with other materials. With the ceramic insulation HEAT LOCK inside your Hot Runner System. This result to less temperature drop on contact surfaces and still with excessive support surfaces to ensure mould stability at the same time energy saving. With our latest patented CE-FIX technology we have made ceramics even easier to use with increased sustainability, easy to install and adjust.

➔ALL-IN-ONE technology



With our unique new AO-LOCK system we secure the nozzles to manifold to ensure leakage free Hot Runner system. All wire exits have pre-determined position to ensure your designed wire slots match the Hot Runner system.

To find nozzle suit your parts' gate requirements, just simply select nozzle size, length and front style using our nozzle guide.

All 8 front styles are available in one exit or three exit tip option. For glass filled resins and other materials requiring wear resistant tip select our TZM tip for maximized life, available in one exit style. All tips are designed to give minimum stress to material while maintaining a stable controlled gate temperature.

Simply drop the Hot Runner system in your mould and adjust gate position to the optimum position using our virtual gate position technology, V-GATE, can it get easier?

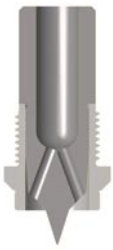
Front styles:

NOS/NOX/POS: open nut style no visible gate mark on your part

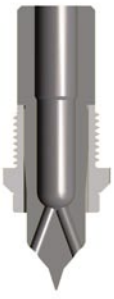
NPS/PPS: front style exchangeable gate

NPX/PPX: front style, extended, give you a ring gate mark on the part used on contoured parts or when you gate on a runner

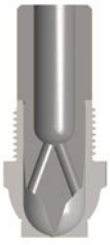
ENX: sprue style, the "cold sprue replacer"



NOS



NOX



NPS

NPX

POS

PPS

PPX

ENX

Front selection guide:

All fronts PS/PX and NX have hardness 52-54HRC

Tips:

N: needle type, with one or three exits, available in TZM one exit option for reinforced materials

P: open type

NOS

> Topless direct gate small residue on the part
> One exit options for shear sensitive materials
> TZM one exit tips for reinforced materials

NOX

> Topless direct gate small residue on the part
> One exit options for shear sensitive material

NPS

> Direct gate small residue on the part, reduced stringing
> One exit options for shear sensitive materials, TZM one exit tips for reinforced materials
> Exchangeable gate

NPX

> Direct gate small residue on the part, reduced stringing
> One exit options for shear sensitive materials, TZM one exit tips for reinforced materials
> Gating on contour or with a sprue gate
> Exchangeable gate

POS

> Topless direct gate or as sprue gate
> Open flow little shear stress
> Fast gate cooling

PPS

> Topless direct gate or on a sprue gate
> Open flow little shear stress
> Exchangeable gate

PPX

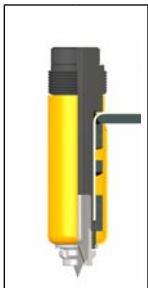
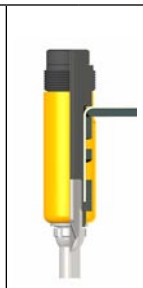
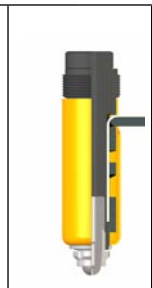
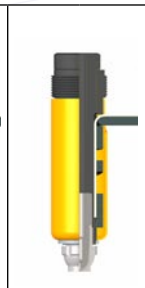
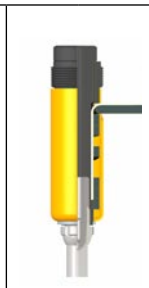
> Direct gate or on a sprue gate small residue on the part
> Open flow little shear stress
> Gating on contour or with a sprue gate
> Exchangeable gate

ENX

> Open sprue gate
> Open flow little shear stress
> Gating on contour or runners

Contents

Nozzle selection guide

																
Type	**NOS**		**NOX**		**NPS**		**NPX**		**POS**		**PPS**		**PPX**		**ENX**	
Runner Ø	5	7	5	7	5	7	5	7	5	7	5	7	5	7	5	7
Gate Ø	0,6-2	0,8-3	0.6-2	0.8-3	0,6-2	0,8-3	0,6-2	0,8-3	0,6-2	0,8-3	0,6-2	0,8-3	0,6-2	0,8-3	1,5-3	2-4

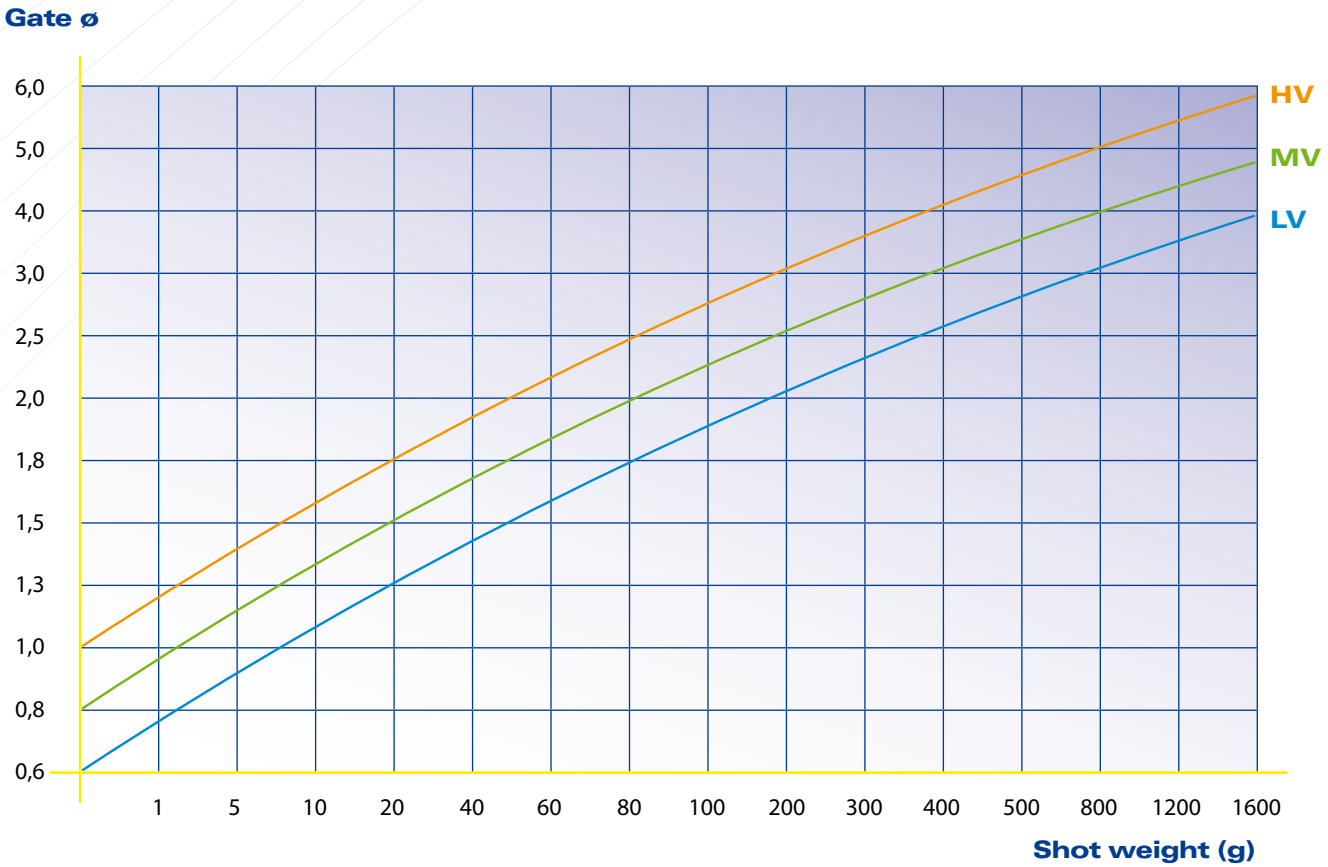
Max recommended shot weight																
Low	200	420	200	420	200	420	200	420	350	620	350	620	350	620	350	620
Medium	120	260	120	260	120	260	120	260	150	310	150	310	150	310	150	310
High	40	110	40	110	40	110	40	110	80	200	80	200	80	200	80	200

Suitability																
PP	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
PS/PE	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
ABS/SAN	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
POM	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
LCP	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PBT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PET	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PA6/PA66	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
PC	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
PMMA	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
PPO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PES/PEK	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PPS/PEI	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

***Excellent *Contact Heatlock

Viskosity: **Low** **Medium** **High**

➔Gate diameter



NOTE:
1. For "TP" type reduce gate Ø -30%
2. For filled materials increase gate Ø +20%

1. **LV** **Low viscosity** materials PS, PE, PP
2. **MV** **Medium viscosity** materials ABS, SAN, PA, POM
3. **HV** **High viscosity** materials PC, PMMA, PC/ABS, PUR

Above diagram is a guideline built on experience from thousands of applications. However is the result depending on numerous conditions in your mould; balance between shot weight, injection speed, injection pressure, mould temperature, temperature control around the gate area, temperature control opposite the gate.

A smaller gate freeze faster compared with a larger gate, a faster cycle time allow smaller gate, long cycle time requires bigger gate.

If cycle time is short and injection speed fast it may be necessary to design gate cooling to avoid gate to overheat.
When you gate on a runner is it recommended to make the gate slightly larger to reduce pressure drop and decrease shear rates. Runner shall be adjusted in size to suit Hot Runner moulding to get shortest cycle time.

Above diagram is a guideline only, final decision is to be decided by the moulder or simulation considering all factors of the process.

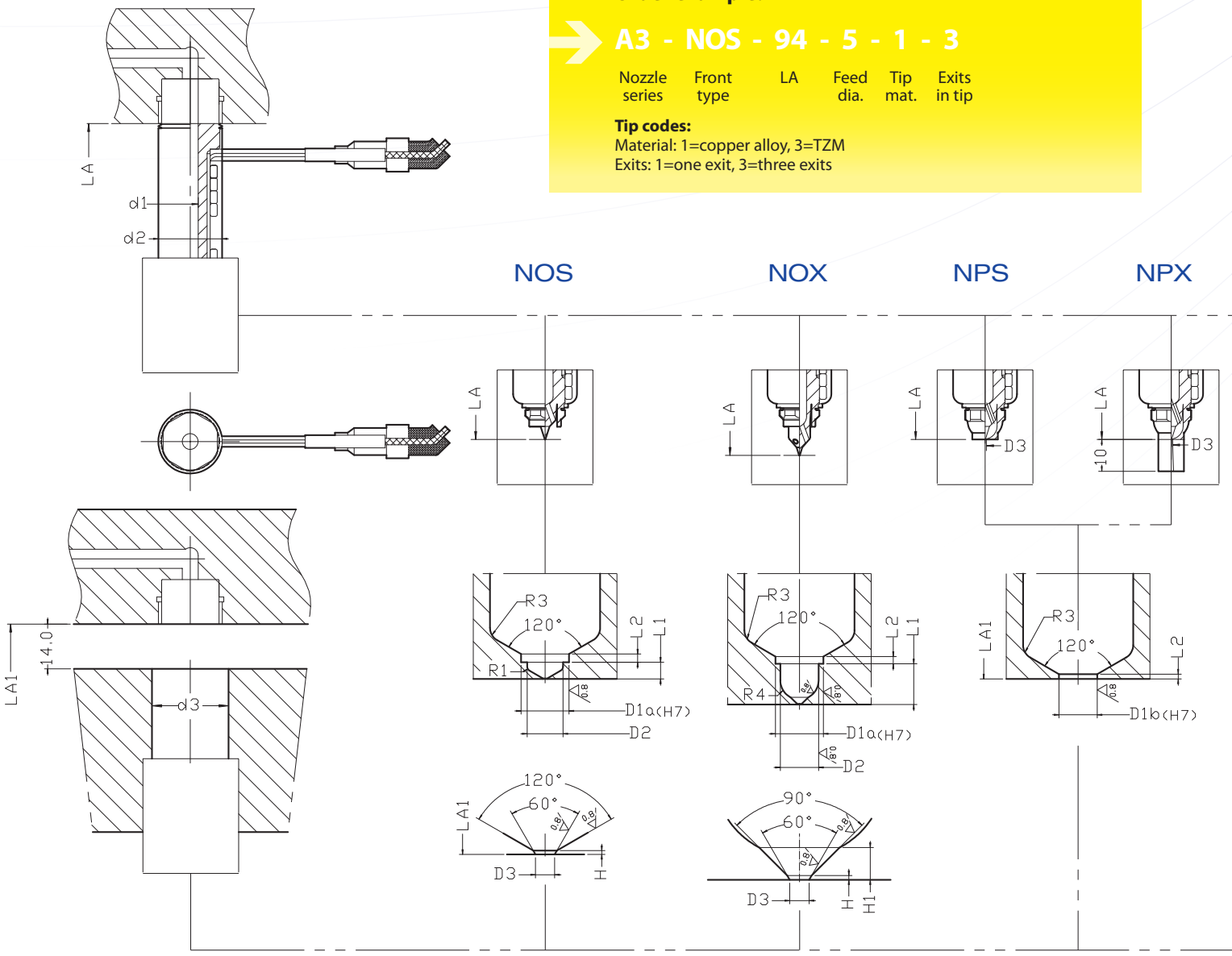
➔ALL-IN-ONE nozzle guide

Order example:

A3 - NOS - 94 - 5 - 1 - 3

Nozzle series	Front type	LA	Feed dia.	Tip mat.	Exits in tip

Tip codes:
Material: 1=copper alloy, 3=TZM
Exits: 1=one exit, 3=three exits



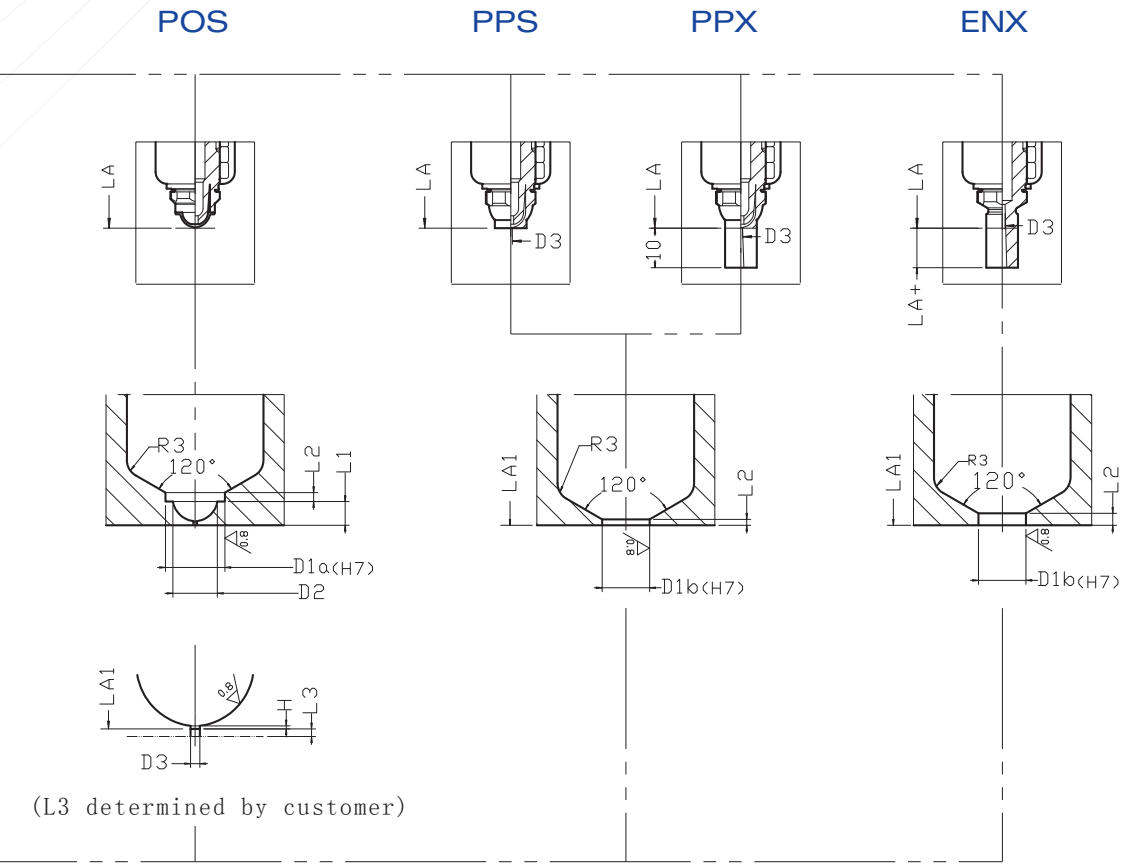
Size	05				
LA	64	74	94	114	134
LA1	64.15	74.17	94.21	114.25	134.29
d1	5				
d2	20				
d3	23				

Size	07					
LA	74	94	114	134	154	174
LA1	74.18	94.22	114.26	134.29	154.33	174.37
d1	7					
d2	23					
d3	27					

Virtual Gate Positing Technology, V-GATE

Our V-GATE technology ensure the Hot Runner tips are in maximised position at working temperature during production. Gate geometry and Hot Runner front positions are individually calculated for each application to ensure lower temperature settings with perfect gate performance resulting in low shear stress and cosmetic gate residues.

Generic LA1 is at 170C difference between moulding temperature and mould.



Size	L1			LA+			L2								D1a	D1b	D2			D3								H		H1
	NOX	NOS	POS	ENX	NPX	PPX	ENX	NOS	NOX	NPS	NPX	POS	PPS	PPX	ALL	ALL	NOX	NOS	POS	ENX	NOS	NOX	NPS	NPX	POS	PPS	PPX	NOS	NOX	POS	NOX
05	8.5	3.5		10			2	2	2	1	1	2	1	1	10	8	8	7.5		3≥1.5	2≥0.6				3≥0.6			0.2			1.5
07	8.5	3.5		15			2	2.5	2.5	1.5	1.5	2.5	1.5	1.5	12	10	9			4≥2	3≥0.8				4≥0.8			0.2			1.5

➔A3 ALL-IN-ONE spare part guide

Nozzle body Spare parts list

Nozzle LA	Body	Coilheater	Thermocouple	Reflector	Manifold Nut
64	A3BD106405	CS14120430200	TC00140200	RFT120120-064	A3KG2016
74	A3BD107405	CS14120530225	TC00140210	RFT120120-074	
94	A3BD109405	CS14120730250	TC00140220	RFT120120-094	
114	A3BD111405	CS14120930350	TC00140220	RFT120120-114	
134	A3BD113405	CS14121130350	TC00140250	RFT120120-134	
74	A3BD207407	CS14150510300	TC00140200	RFT224200-074	A3KG2416
94	A3BD209407	CS14150710350	TC00140210	RFT224200-094	
114	A3BD211407	CS14150910450	TC00140220	RFT224200-114	
134	A3BD213407	CS14151110450	TC00140230	RFT224200-134	
154	A3BD215407	CS14151310500	TC00140250	RFT224200-154	
174	A3BD217407	CS14151510550	TC00140250	RFT224200-174	

Front Spare Parts

Item code	Size 05		Item code	Size 07	
	Nut	Tip		Nut	Tip
A3NOS110101-1	A3OS11010	A3TN109281-1	A3NOS212121-1	A3OS21212	A3TN211351-1
A3NOS110103-1		A3TN109283-1	A3NOS212123-1		A3TN211353-1
A3NOS110101-3		A3TN109281-3	A3NOS212121-3		A3TN211351-3
A3NPS108101-1	A3PS10810	A3TN109281-1	A3NPS210121-1	A3PS21012	A3TN211351-1
A3NPS108103-1		A3TN109283-1	A3NPS210123-1		A3TN211353-1
A3NPS108101-3		A3TN109281-3	A3NPS210121-3		A3TN211351-3
A3NPX108101-1	A3PX10810	A3TN109281-1	A3NPX210121-1	A3PX21012	A3TN211351-1
A3NPX108103-1		A3TN109283-1	A3NPX210123-1		A3TN211353-1
A3NPX108101-3		A3TN109281-3	A3NPX210121-3		A3TN211351-3
A3NOX110101-1	A3OS11010	A3TN109331-1	A3NOX212121-1	A3OS21212	A3TN211401-1
A3NOX110103-1		A3TN109333-1	A3NOX212123-1		A3TN211403-1
A3NOX110101-3		A3TN109331-3	A3NOX212121-3		A3TN211401-3
A3ENX10810	A3ENX10810	A3ENX10810	A3ENX21012	A3ENX21012	A3ENX21012
A3POS11010	A3OS11010	A3TP10927	A3POS21212	A3OS21212	A3TP21133
A3PPS10810	A3PS10810		A3PPS21012	A3PS21012	
A3PPX10810	A3PX10810		A3PPX21012	A3PX21012	

A3 ALL-IN-ONE Tip Guide

Our standard harden copper alloy tips are suitable for all non filled resins. All tips are available as one and three exit options. One exit style is recommended for any shear sensitive resins or in cases where cosmetic requirement is high and do not allow flow line marks. TZM is hard wear resistant tips with excellent heat conductivity to be used with abrasive materials such as glass filled (available in one exit option).

Special tip available up on request

TN tip Spare part list

1 exit			3 exits
copper	TZM		copper
A3TN109281-1	A3TN109283-1		A3TN109281-3
A3TN109331-1	A3TN109333-1		A3TN109331-3
A3TN211351-1	A3TN211353-1		A3TN211351-3
A3TN211401-1	A3TN211403-1		A3TN211401-3

➔Manifolds

Standard options

> Manifold shapes -O , -I, -H, -X, -X-X, -Y-Y
> Manifold thickness 36mm
> Feed channel Ø6 or Ø8
> Material 420H stainless steel
> Delivery time within 3 weeks

Standard manifolds

More than 150 standard configurations!
All in 2D or 3D from our web site

Special manifolds

We make customized manifold for all applications with our following design standard;

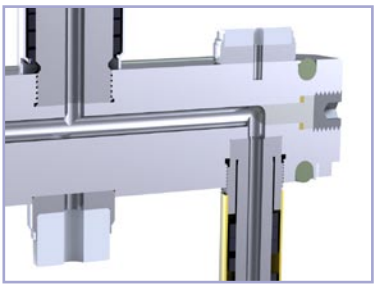
> Physically balanced feed channels
> Additional supports if needed to ensure rigidity of the mould

Please find enquiry form on page 19 to send us your requirements. You can also e-mail the enquiry using any of the common CAD formats.

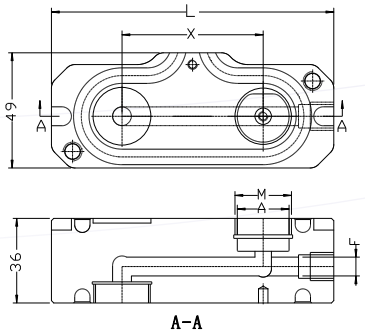
Manifold details

All HEATLOCK manifolds are with side plugs spherically rounded corners as standard. This prevents "dead" spots and guarantees even material flow.

All insulated with our HEATLOCK CE-FIX technology to ensure good temperature control and to reduce power consumption

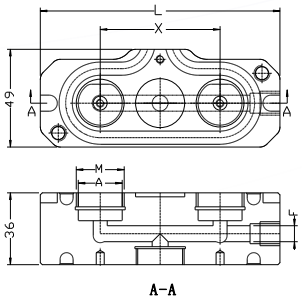


Offset-type



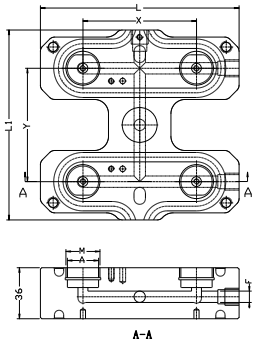
Part No.	M	A(Ø)	F(Ø)	L=120 X	L=140 X	L=160 X	L=180 X	L=200 X	L=220 X
SMO/3606	20	18	6	60	80	100	120	140	160
SMO/3608	24	22	8						

I-type



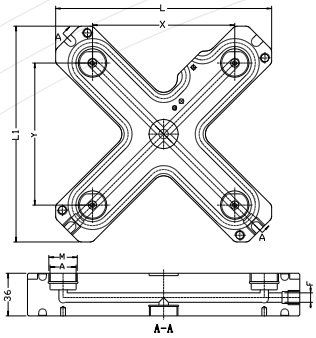
Part No.	M	A(Ø)	F(Ø)	L=120 X	L=140 X	L=160 X	L=180 X	L=200 X	L=220 X	L=260 X	L=300 X	L=340 X
SMI/3606	20	18	6	60	80	100	120	140	160	200	240	280
SMI/3608	24	22	8									

H-type



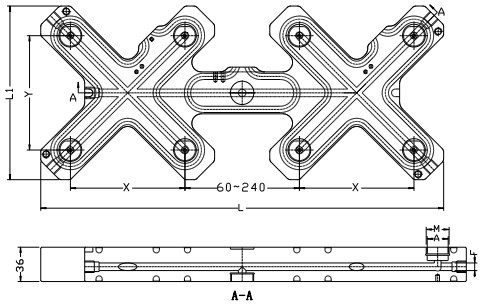
Part No.	M	A(Ø)	F(Ø)	Y	L=140 X	L=160 X	L=180 X	L=200 X	L=220 X	L=260 X	L=300 X	L=340 X	L1
SMH/3606	20	18	6	80	80	100	120	140	160	200	240	280	134
SMH/3608	24	22	8										
SMH/3606	20	18	6	100		100	120	140	160	200	240	280	154
SMH/3608	24	22	8										
SMH/3606	20	18	6	120			120	140	160	200	240	280	174
SMH/3608	24	22	8										
SMH/3606	20	18	6	140				140	160	200	240	280	194
SMH/3608	24	22	8										

X-type



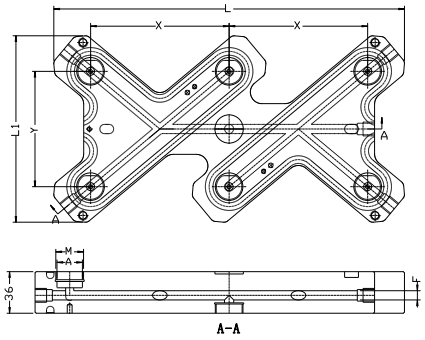
Part No.	M	A(Ø)	F(Ø)	L=129 X/Y	L=149 X/Y	L=169 X/Y	L=182 X/Y	L=202 X/Y	L=222 X/Y	L=262 X/Y	L=302 X/Y
SMX/3606	20	18	6	60	80	100	120	140	160	200	240
SMX/3608	24	22	8								

X-X-type



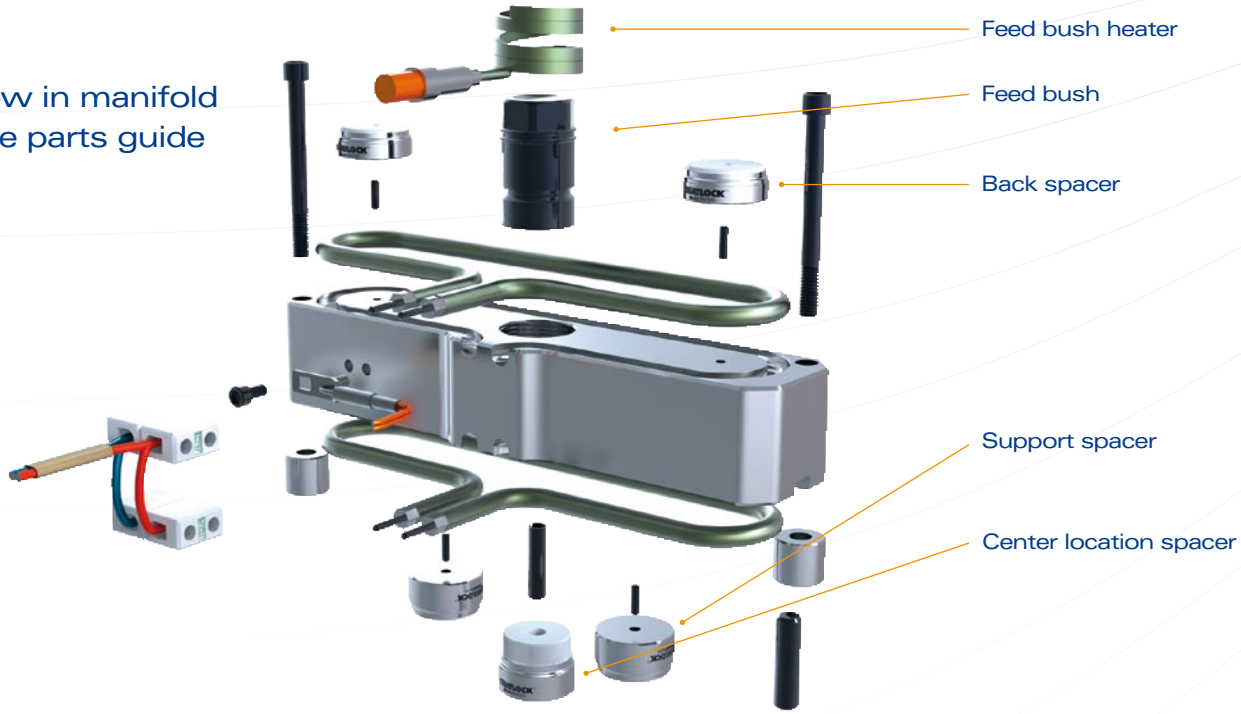
Part No.	M	A(Ø)	F(Ø)	L=242 L1=129 X/Y	L=302 L1=149 X/Y	L=362 L1=169 X/Y	L=422 L1=182 X/Y	L=482 L1=202 X/Y	L=542 L1=222 X/Y	L=662 L1=262 X/Y	L=782 L1=302 X/Y
SMXX/3606	20	18	6	60	80	100	120	140	160	200	240
SMXX/3608	24	22	8								

Y-Y-type

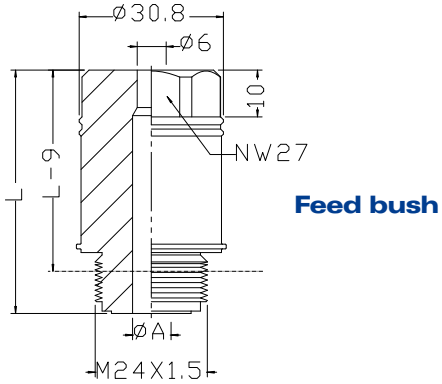


Part No.	M	A(Ø)	F(Ø)	Y	L=222 X	L=264 X	L=305 X	L=344 X	L=384 X	L=465 X	L1
SMY/3606	20	18	6	80	80	100	120				142
SMY/3608	24	22	8								
SMY/3606	20	18	6	100		100	120	140			162
SMY/3608	24	22	8								
SMY/3606	20	18	6	120			120	140	160		182
SMY/3608	24	22	8								
SMY/3606	20	18	6	140				140	160	200	202
SMY/3608	24	22	8								

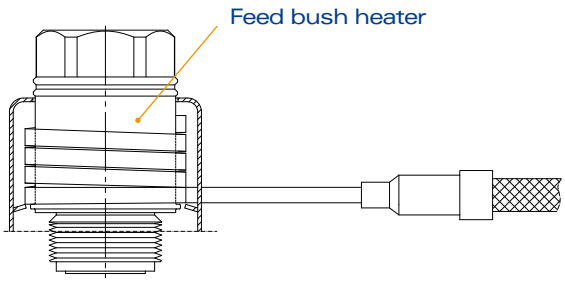
Screw in manifold spare parts guide



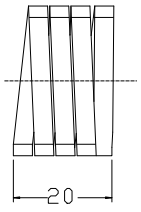
Manifold Component

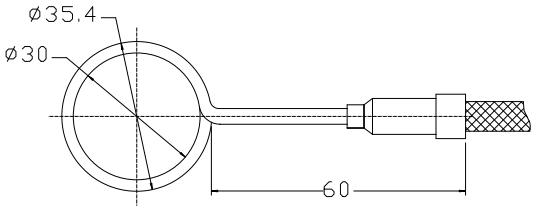


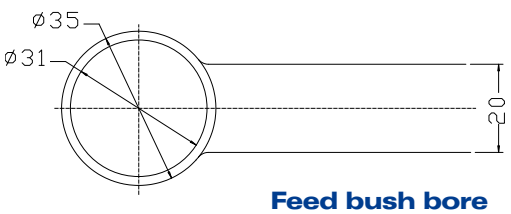
Feed bush



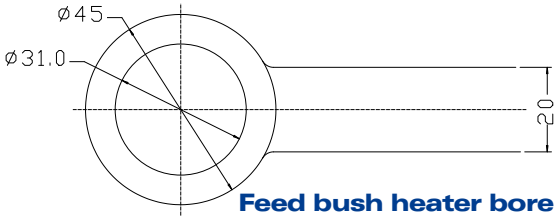
Item code	L	A	Feed bush Heater
DSP5202408	52	8	BS230020250
DSP5202410		10	







Feed bush bore



Feed bush heater bore

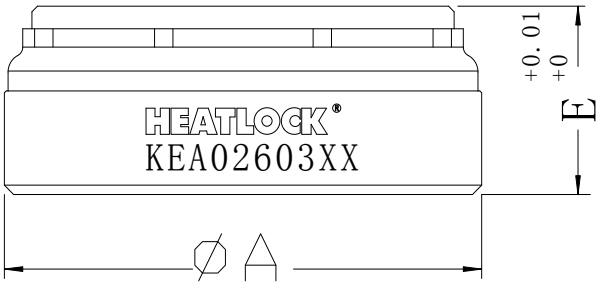
→Ceramic

Ceramic clamp technology CE-FIX

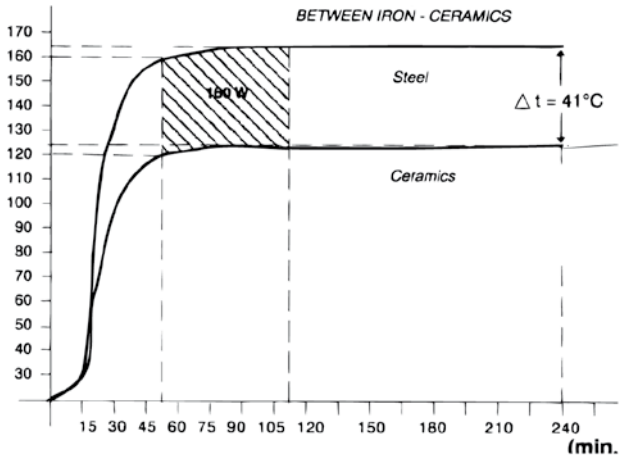
Our latest development within our well proven ceramic insulation technology! We were the first in 1982 to introduce Hot Runners with Ceramics. Ceramic insulation is superior insulator compared with anything else; it LOCK HEAT in!

Result is less heat transform at contact surfaces, still with excessive support surfaces to ensure mould stability at the same time energy saving. With our latest patented CE-FIX technology have we made ceramics even easier to use with increased sustainability, easy to install and adjust.

Standard ceramic



Item code	A	E	Description
KEA0260310	26	10	Back spacer
KEA0260314	26	14	Support spacer
KEA0260620	26	20	Center location spacer



The diagram display the difference in heat transform from manifold to clamp plate. One side has 4 steel spacers and the other 4 ceramic spacers. Contact surface of the spacers was 450mm^2.

The result shows a difference of 0.33Wh/mm^2 between steel and ceramics. Ceramics save 0.33Wh for every mm^2 contact surface compared with steel per hour.

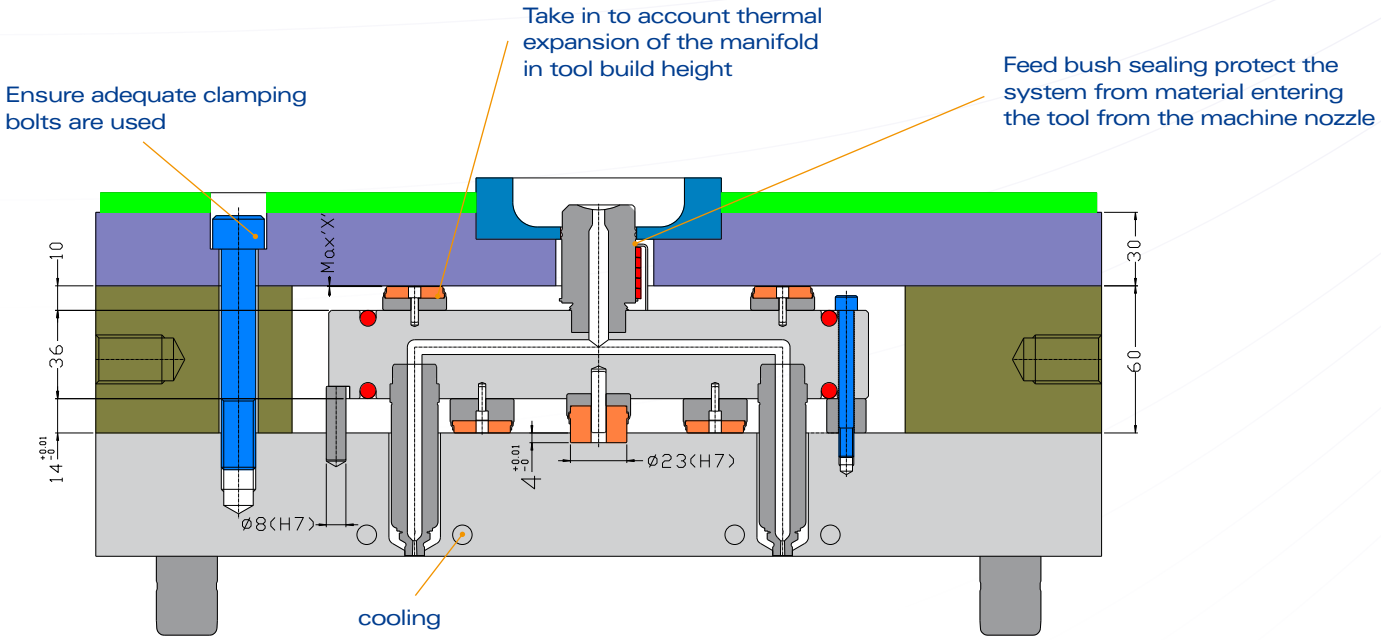
Summarizing:

> remarkable energy saving

> less heat loss means less work for your chiller

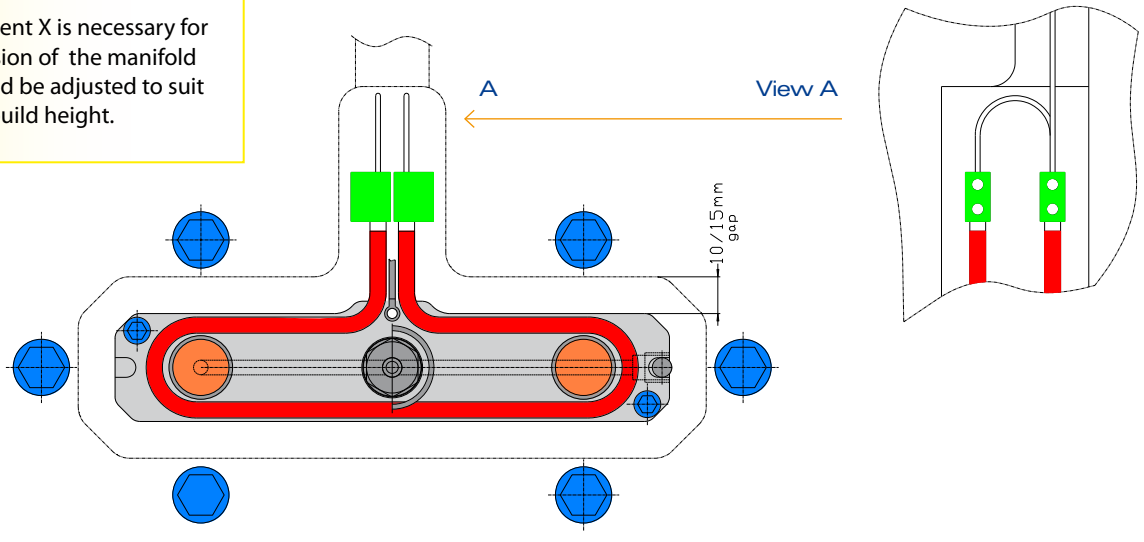
➔Manifold assembly

Manifolds



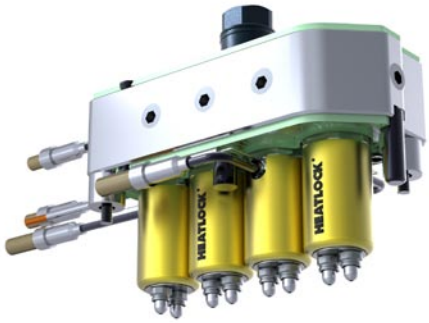
NOTE:
Warning:
The back support are supplied with nominal dimension 10mm +0.01.

The measurement X is necessary for thermal expansion of the manifold system. It should be adjusted to suit your requited build height.



Thermal Expansion	T=150˚C	T=200˚C	T=250˚C	T=300˚C
manifold 36mm thick	0,01	0,05	0,08	0,12

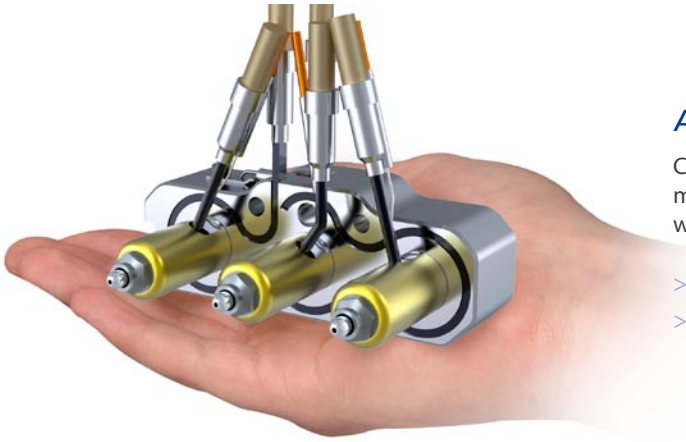
Special Hot Runner solutions



A3 ALL-IN-ONE MT (multi tip) nozzles

Small gate pitch, 4 in-line balanced system for vertical injection moulding machines, 2 components moulding. Material TPE white

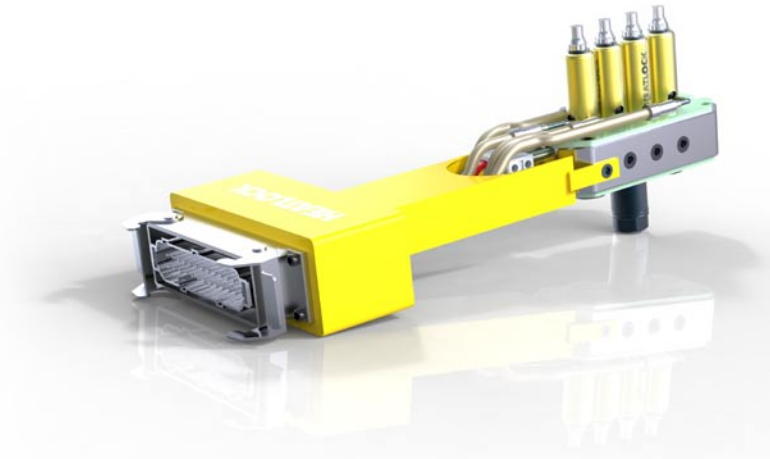
> **Pitch between tips:** 10mm
> **Pitch between nozzles:** 29mm
> **Manifold size:** 141x61,5x35



A3 ALL-IN-ONE TP nozzle compact mini

Compact system 3 in-line mini system for vertical injection moulding machines, 2 components moulding. Material TPE white

> **Pitch between nozzles:** 40,5mm
> **Manifold size:** 128x46x30



A3 pre-wired system

Plug and play solution ready out of the box just to drop in to your mould.

All wires are bundled in a cable duct fitted with a connector, wired to your specifications

➔Controller

CE

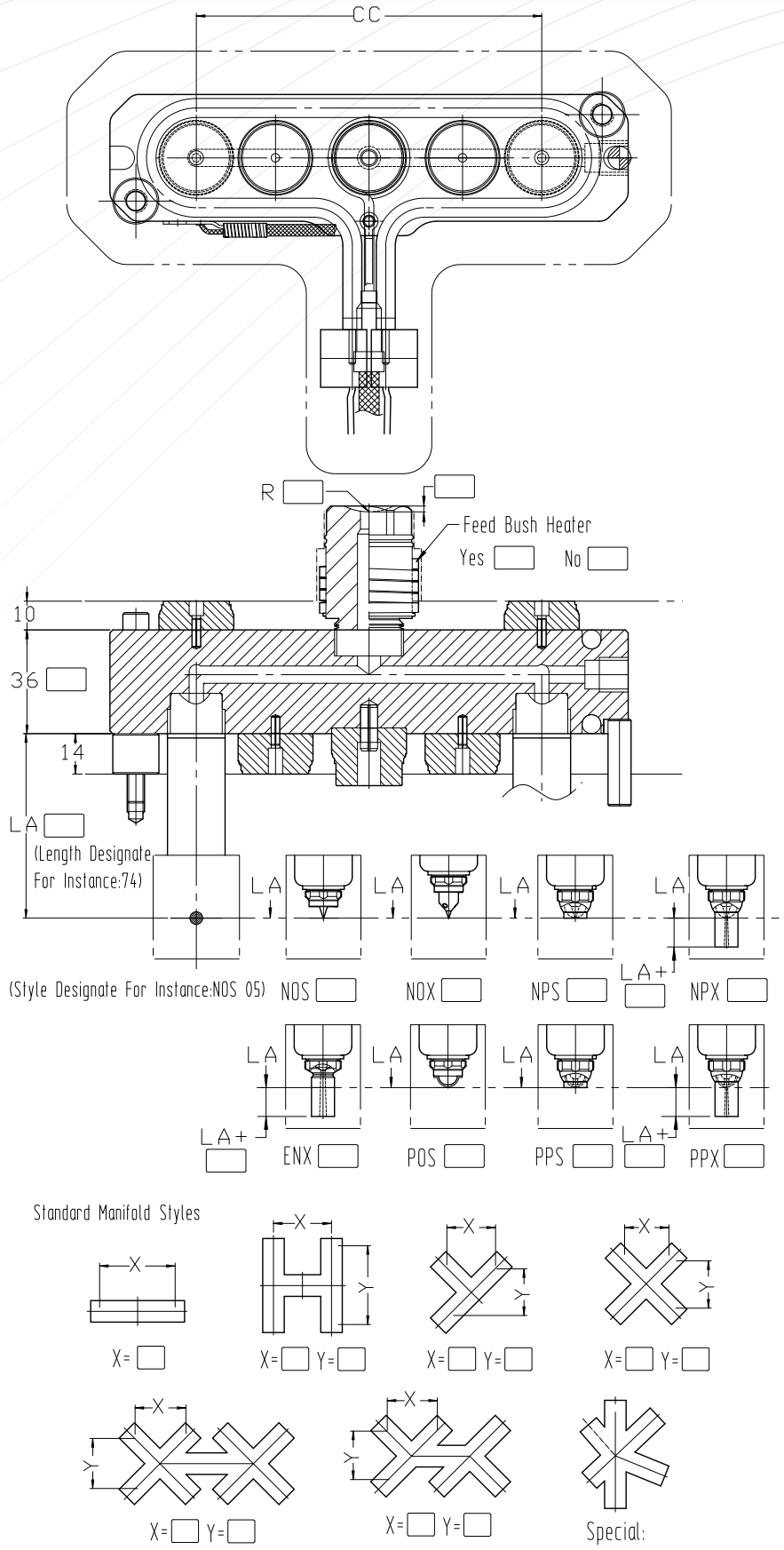
CE Certificated:

- > 3 zones
- > 6 zones
- > 10 zones
- > 12 zones

Power supply:
1 to 3 zones : 220V AC
more than 3 zones : 380V AC

Modular plug and play design controller with CE certification:

1. P.I.D close loop control ,±1˚C.
2. Intelligent parameters optimizer.
3. Soft start function.
4. Error detection, protection and alarm function.
5. Compatible with J&K type thermocouple.
6. Auto-manual switch.



Please provide the following information:

Customer Quote NO.:	
Company:	
Contact:	**Date:**
Address:	
Tel:	
Fax:	
E-mail:	
Product Description:	
Material:	**Glass Filled:** %
	Frame Retardant:
Per Product Weight:	
NO. of Cavities:	
NO. of Gates Per Product:	
Wall Thickness:	
Remarks:	

Order example: H6080-94+10NPX1-3 05-R19D5H

Manifold				Nozzle								Feed bush		
Type	X	Y	—	LA	LA+	Front type	Tip material		Exits in tip	Runner	—	R	D	Heater
H	60	80	-	94	10	NPX	1	-	3	05	-	R19	D5	H

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frontdesk@heatlock.com

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