

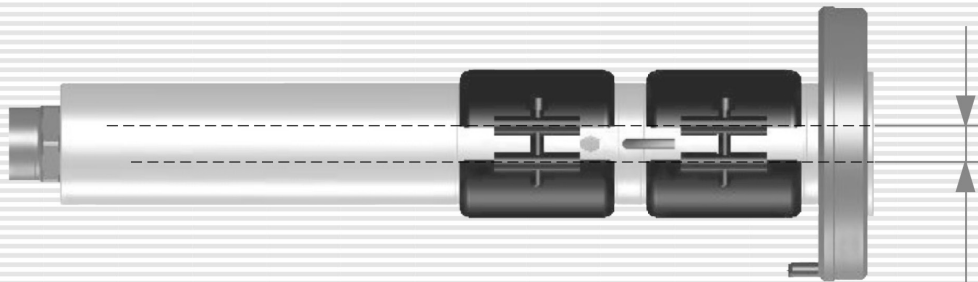


BARNES™
MOLDING SOLUTIONS

HOT RUNNER TECHNOLOGY

SR20 Hot Runner Nozzle Manifold Nozzles Sliding Fit

Products / Technical Guide



Ø8-20

Illustrations simplified, schematically drawn and not to scale.

Product type

- Hot runner nozzle, SR (support ring)
- Manifold nozzle sliding fit
 - Utilizes heat pipe technology to ensure uniform temperature
 - Patented seal technology
 - Replaceable threaded tips

Available with ten Controlled Vestige (CV) tip options including valve gates for zero vestige applications. See table at right.

Available gating types

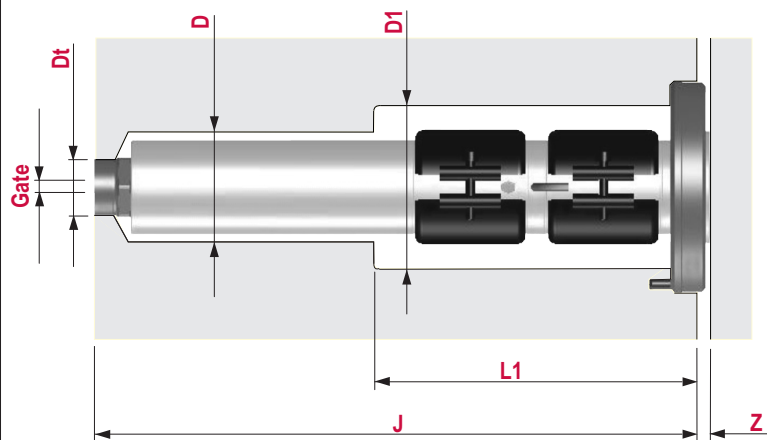
- Full flow
- Cone point:
 - CV11CM & CV21CM developed for PA and PBT
- Valve gate:
 - VG12 & VG23 tapered gate
 - VG12S & VG23S Straight gate

Major Dimensions (mm)

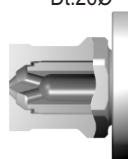
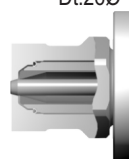
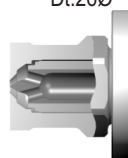
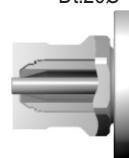
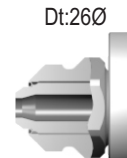
J Nozzle length	106-500
Nozzle flow bore	8-20Ø
D band/helical	Ø50/65Ø
D1 band/helical	Ø82/70Ø
Dt	Ø26
Z	6
L1	80 (single heater) 145 (installed spare)

Application

- Suitable for all filled and unfilled materials

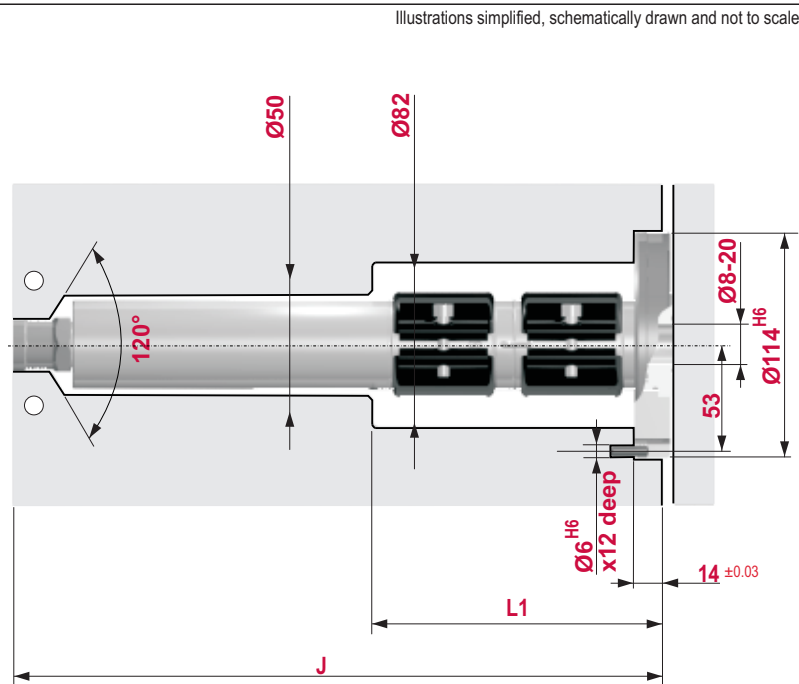
 page no. of related data sheets

Available tip styles for SR20 Nozzles

Gating of nozzle tip

	Full flow thermal gate	Cone point thermal gate	Valve Gate
Witness Mark	CV-10 Gate: 2.0-7.0Ø Dt: 26Ø 	CV-11 Gate: 2.0-4.0Ø Dt: 26Ø 	VG-12 Gate: 3.9Ø Dt: 26Ø 
		VG-11CM Gate: 3.0-4.0Ø Dt: 26Ø 	VG-12S Gate: 5.0Ø Dt: 26Ø 
No Witness Mark	CV-20 Gate: 2.0-7.0Ø Dt: 26Ø 	CV-21 Gate: 2.0-4.0Ø Dt: 26Ø 	VG-23 Gate: 3.9Ø Dt: 26Ø 
		VG-21CM Gate: 3.0-4.0Ø Dt: 26Ø 	VG-23S Gate: 5.0Ø Dt: 26Ø 

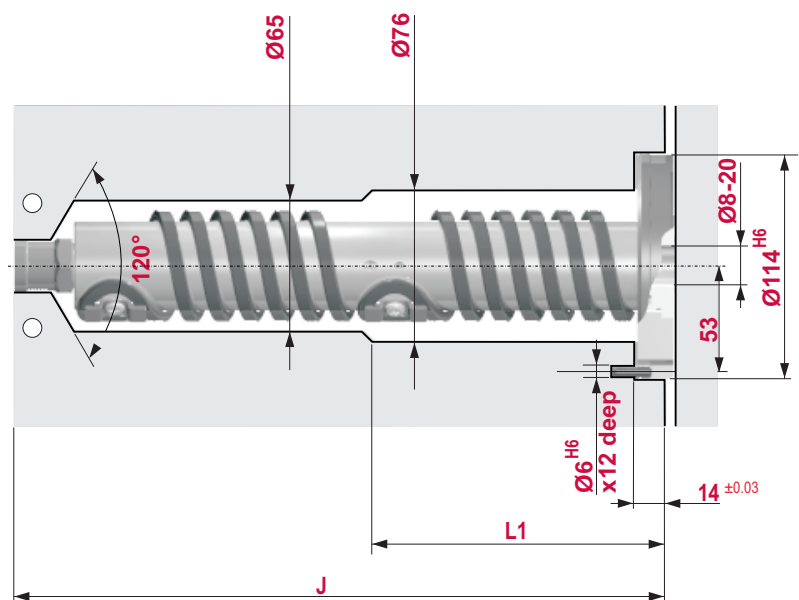
Band Heater

- Externally heated, 240V/500W and 600W
- With the exception of the CM style tips one heater is required for operation. When using the CM style tips the Ø82 heater clearance hole depth increases, eliminating the Ø50 clearance hole
- J minimum = 106
- J maximum = 380
- Installed spare heater and TC when space permits (J 150-380)
- L1 = 80 for single heater
145 for installed spare heater



Helical Heater

- Externally heated, 240V/750W, one or two heaters
- When J is greater than 380 two heaters are required for operation
- J minimum = 195
- J Maximum = 500
- For J 195-380, L1=0
- J 380-500, L1=J/2



Illustrations simplified, schematically drawn and not to scale.

1. Cut out for the nozzle

J Length from back of cavity plate to Gate location

General tolerances: DIN ISO 2768-mK

Surfaces: $\frac{3.2}{\nabla} / \left(\frac{1.6}{\nabla} / \frac{0.8}{\nabla} \right)$

Values of the dimension J can be found in the data sheet for the selected nozzle type.

2. Cut out for connections

→ electrical power
→ thermocouple

3. Alignment pin

The alignment pin prevents the nozzle from rotating.

4. Cut out for the nozzle tip

- A)** Through bore nozzle tip (CV10, CV11, CV11CM, VG12 and VG12S)
b) Blind bore nozzle tip (CV20, CV21, CV21CM, VG23 & VG23S)

Dt Tip Ø

H Hot runner gate Ø

Depending on the selected nozzle type, different cut outs are required for the nozzle tip.

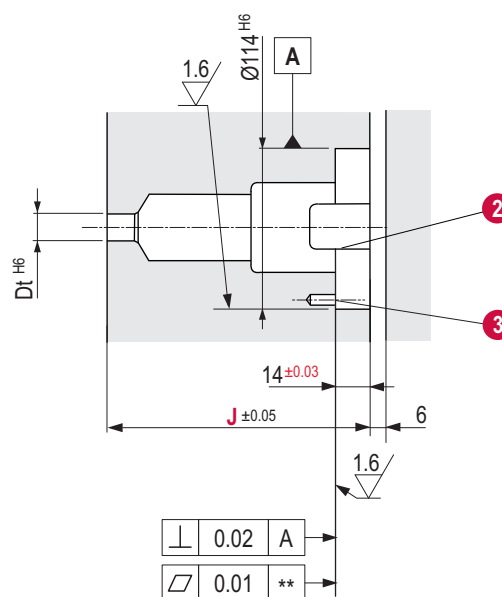
The dimensions of the cut out for the nozzle tip used can be found in the nozzle data sheet.

1) Applies to valve gate nozzles.

1

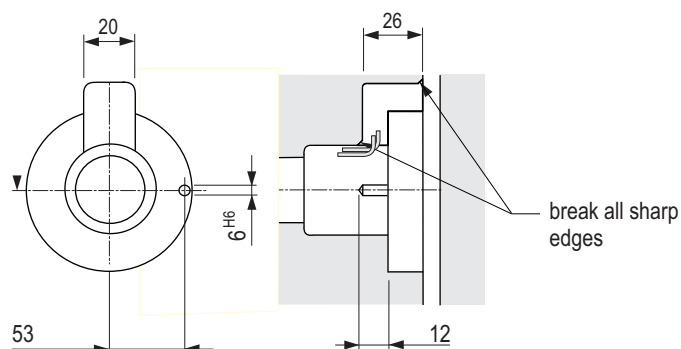
* drawn offset

** to all other pocket surfaces



2

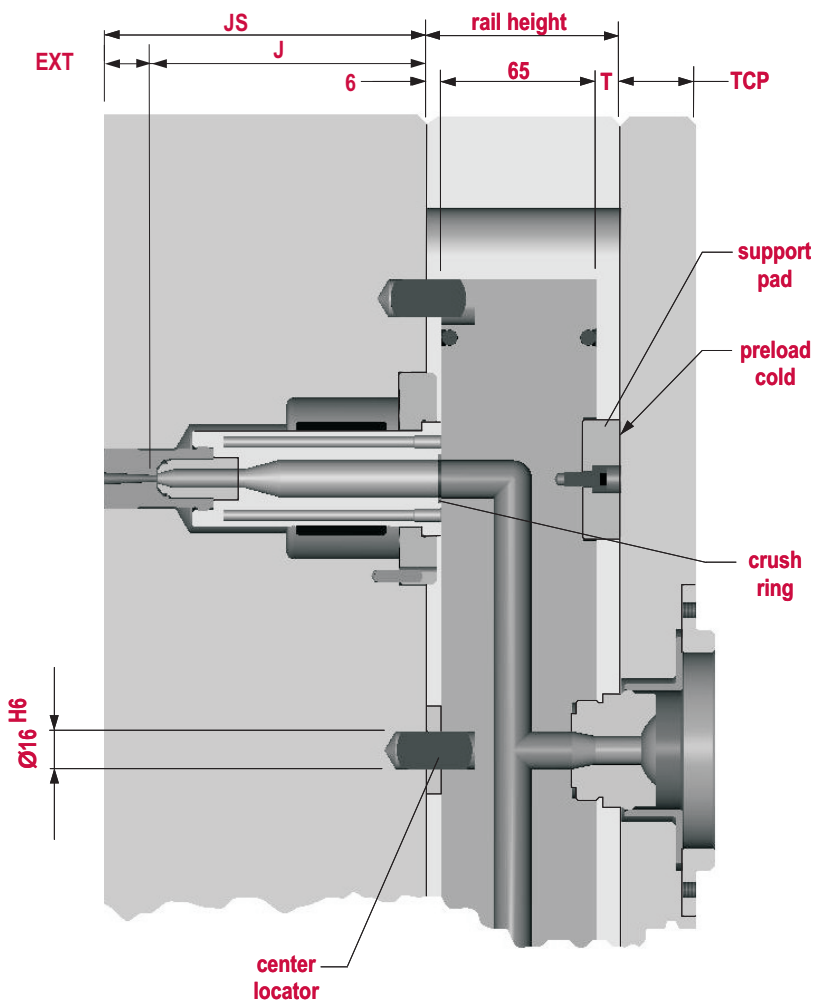
3



SR20 Series

- SR20 manifold criteria:
- SR20 hot runner systems are designed with preload between the thrust pads and the mold plates in the cold condition. As the manifold heats an additional sealing force is created
 - Thrust pads are made of a low conductivity material and should only be replaced with an equivalent Synventive part
 - Excessive contact with the mold will cause heat sinks and affect system performance. Contact with the mold must be limited to specified areas.
 - Support ring nozzles do not line up with sub-runners in the manifold in the cold condition. As the manifold heats up the manifold sub-runner locations expand to the correct location.
 - Minimum rail height:
 - 81 (thermal gates)
 - 93 (valve gates)
 - T :
 - = Rail height - 6 - 65 (thermal Gate)
 - = 22 (Valve Gate)
 - Minimum T (thermal gates) = 10

Illustrations simplified, schematically drawn and not to scale.



Variable	Description
T	Top Air Gap
J	Depth to Zero Extension
TCP	Top Clamp Plate
JS	Depth to Parting Line
EXT	Extension

Illustrations simplified, schematically drawn and not to scale.

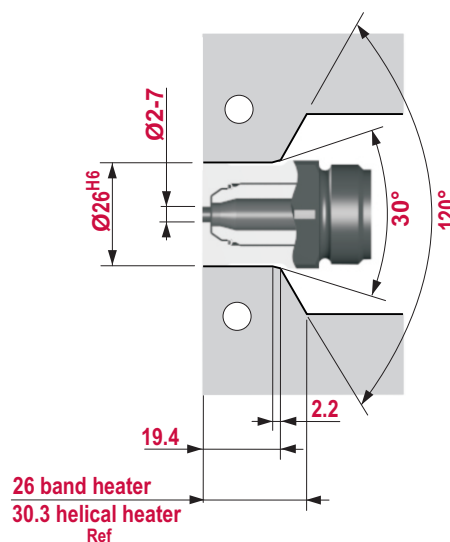
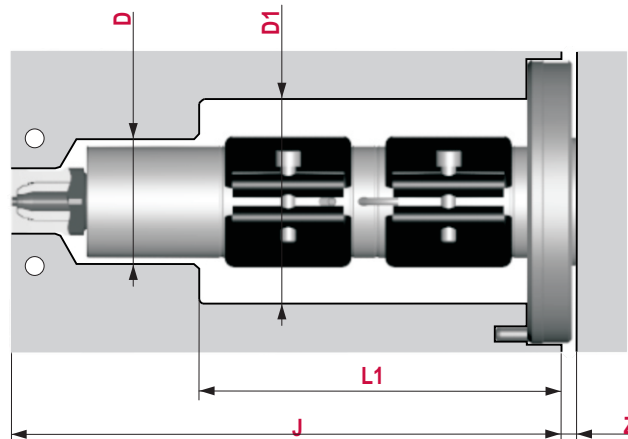
SR20 CV10

General:

- Filled and unfilled materials
- Easy orifice changes by straight reaming
- Heat pipes for isothermal operation

Nozzle Criteria:

- Orifice Ø2.0-7.0
- J length 106-500
- Open flow bore
- Patented seal



- Information regarding
 - tolerances and surfaces
 - shape and position tolerances
 - cut out for connections
 - groove/bore for locking pin

please see page 3

 "Cut out in mould plate
 for nozzle and connections"

- Cooling required
 - around the nozzle tip
 - opposite to the nozzle tip
- The front of the nozzle tip must
 always be against plastic.
- General tolerances according to
 DIN ISO 2768-mK

Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)

Illustrations simplified, schematically drawn and not to scale.

SR20 CV10

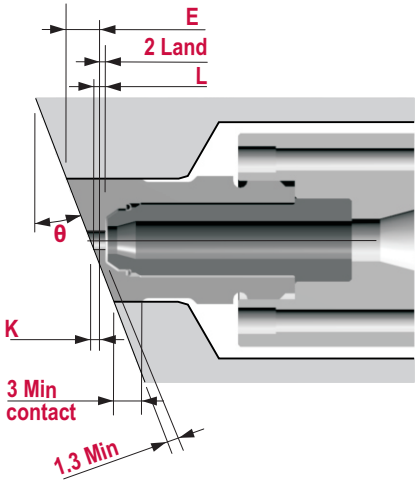
- SR20 contour criteria:
- When gating on an angled mold contour the vestige height may be increased depending on the angle
 - K is the increase in land required to maintain a 1.3 minimum wall thickness

$\theta \leq 8^\circ;$

$K=0$
 $E=13TAN\theta$
 $L=2-(\varnothing \text{ Orifice}/2)*TAN\theta$

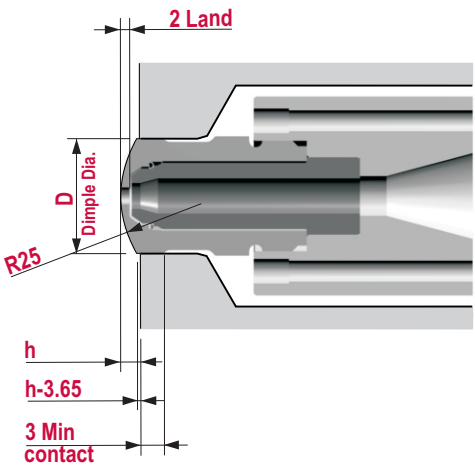
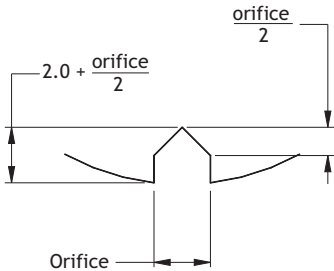
$\theta > 8^\circ;$

$K=4.75TAN\theta+1.3/COS\theta-2$
 $E=K+13TAN\theta$
 $L=2+K-(\varnothing \text{ Orifice}/2)*TAN\theta$



Angled Mold Contour

- SR20 recess criteria:
- Values in tables are for materials not having glass fibers. Consult Synventive for vestige height when using glass fillers
 - Recessed gates are used to reduce vestige height above the part surface or keep the vestige below the part surface
 - For most materials CV10 vestige height is equal to $2 + (\text{orifice } \varnothing / 2)$. If the vestige height, relative to the possible gate recess depth (h), is too great, use of a CV11 tip is recommended



Spherical Recess

H (recess depth)	2.0	2.5	3.0	3.5	4.0
D	19.6	21.8	23.7	25.5	26.0

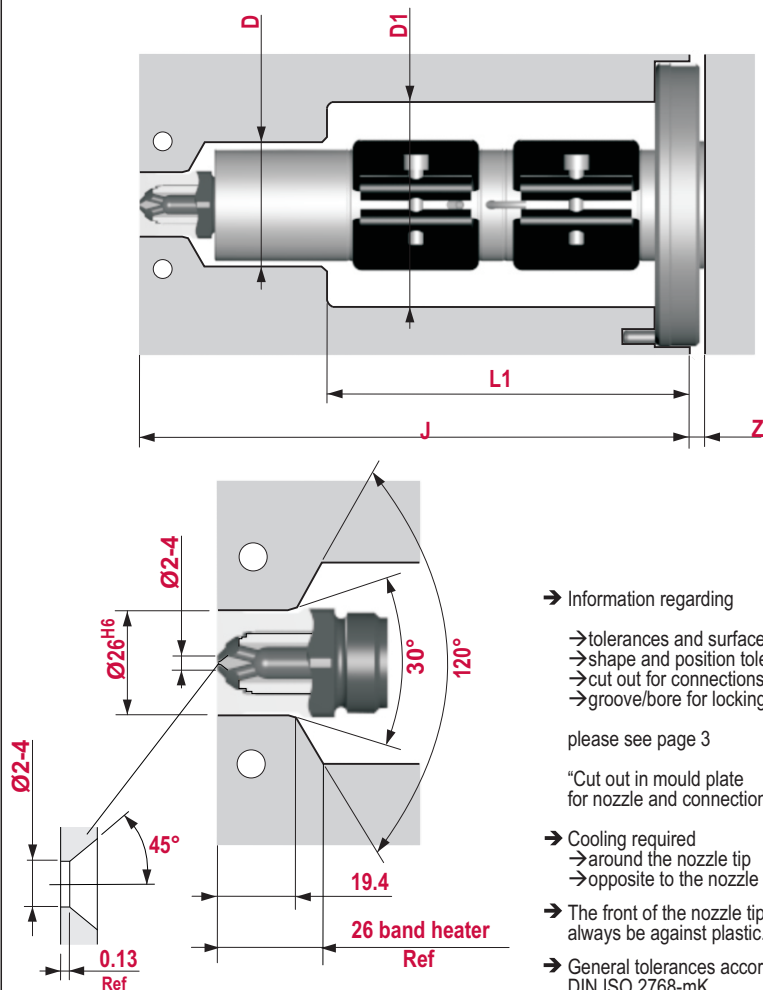
Illustrations simplified, schematically drawn and not to scale.

SR20 CV11
General:

- Filled and unfilled materials
- More heat in gate area for semi-crystalline materials
- Heat pipes for isothermal operation

Nozzle Criteria:

- Orifice Ø2.0-4.0
- J length 106-500
- Patented seal


Information regarding

- tolerances and surfaces
- shape and position tolerances
- cut out for connections
- groove/bore for locking pin

please see page 3

"Cut out in mould plate for nozzle and connections"

Cooling required

- around the nozzle tip
- opposite to the nozzle tip

→ The front of the nozzle tip must always be against plastic.

→ General tolerances according to DIN ISO 2768-mK

Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)

Illustrations simplified, schematically drawn and not to scale.

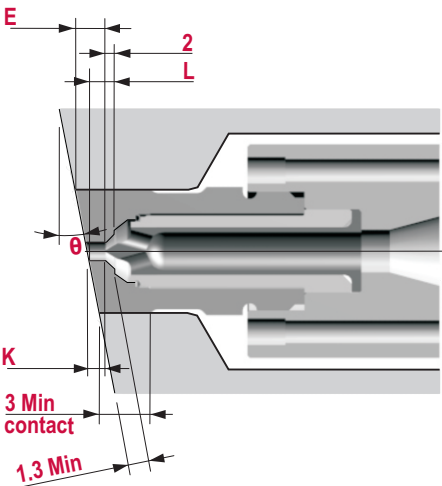
SR20 CV11

- SR20 contour criteria:
- When gating on an angled mold contour the vestige height may be increased depending on the angle
 - K is the increase in land required to maintain a 0.13 land and/or 1.3 minimum wall thickness

$\theta \leq 9^\circ$;
 $K = (\varnothing \text{ Orifice} / 2) * \text{TAN} \theta$
 $E = (26 + \varnothing \text{ Orifice} / 2) * \text{TAN} \theta$
 $L = 0.13$

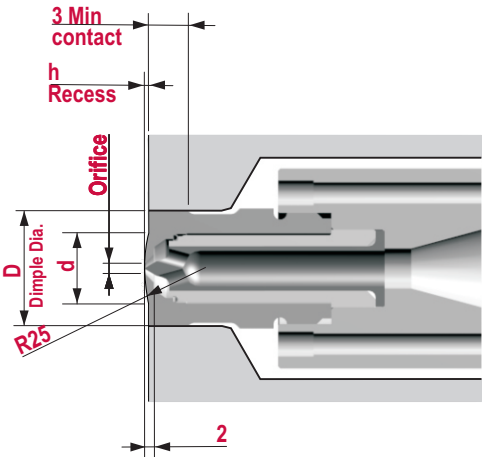
$9^\circ < \theta \leq 13^\circ$;
 $K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta + (\varnothing \text{ Orifice} - 2) / 2 * \text{TAN} \theta - 2$
 $E = K + 13 \text{TAN} \theta$
 $L = 0.13 + K - (\varnothing \text{ Orifice} / 2) * \text{TAN} \theta$

$\theta > 13^\circ$;
 $K = K + 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta - 2$
 $E = K + 13 \text{TAN} \theta$
 $L = 0.13 + K - (\varnothing \text{ Orifice} / 2) * \text{TAN} \theta$



Angled Mold Contour

- SR20 recess criteria:
- Values in tables are for materials not having glass fibers. Consult Synventive for vestige height when using glass fillers
 - Recessed gates are used to reduce vestige height above the part surface or keep the vestige below the part surface



Spherical Recess

Orifice	2.0-2.2	2.2-2.4	2.4-2.6	2.6-2.8	2.8-3.0	3.0-3.2
H	1.00	1.06	1.12	1.18	1.26	1.32
d	2.45	2.65	2.85	3.05	3.25	3.45
D	14.20	14.64	15.06	15.47	15.99	16.38
Orifice	3.2-3.4	3.4-3.6	3.6-3.8	3.8-4.0		
H	1.40	1.46	1.52	1.60		
d	3.65	3.85	4.05	4.25		
D	16.87	17.25	17.61	18.07		

Illustrations simplified, schematically drawn and not to scale.

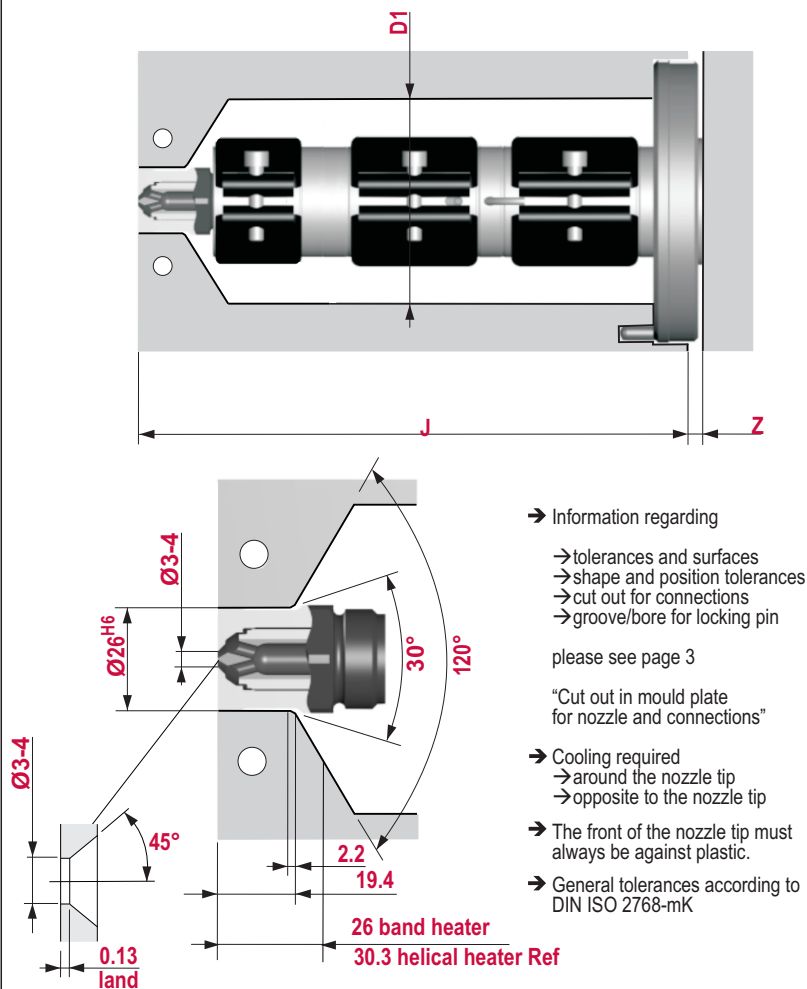
SR20 CV11CM

General:

- Filled and unfilled materials
- Developed for PA and PBT
- Heat pipes for isothermal operation

Nozzle Criteria:

- Orifice Ø3.0-4.0
- J length 106-500
- Patented seal



Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)

SR20 CV11CM

- SR20 contour criteria:
- ➔When gating on an angled mold contour the vestige height may be increased depending on the angle
 - ➔K is the increase in land required to maintain a 0.13 land and/or 1.3 minimum wall thickness

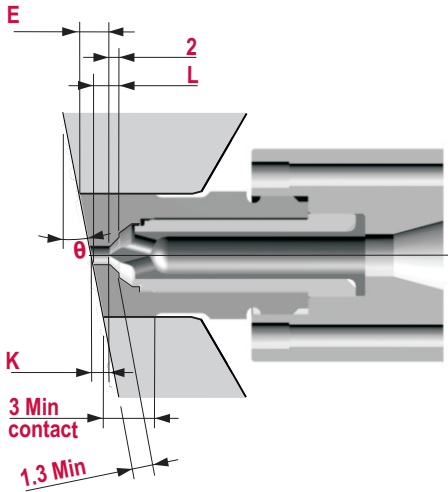
$\theta \leq 9^\circ$;
 $K = (\varnothing \text{ Orifice} / 2) * \text{TAN} \theta$
 $E = (26 + \varnothing \text{ Orifice} / 2) * \text{TAN} \theta$
 $L = 0.13$

$9^\circ < \theta \leq 13^\circ$;
 $K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta + (\varnothing \text{ Orifice} - 2) / 2 * \text{TAN} \theta - 2$
 $E = K + 13 \text{TAN} \theta$
 $L = 0.13 + K - (\varnothing \text{ Orifice} / 2) * \text{TAN} \theta$

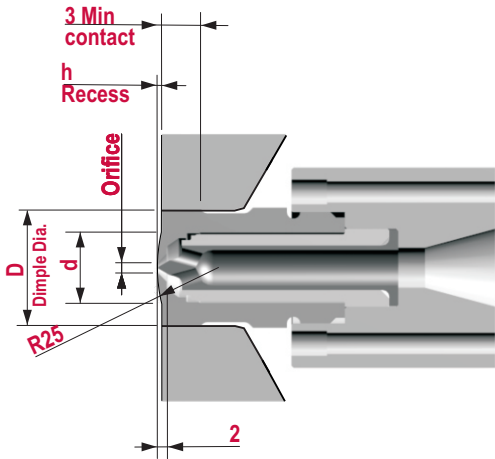
$\theta > 13^\circ$;
 $K = K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta - 2$
 $E = K + 13 \text{TAN} \theta$
 $L = 0.13 + K - (\varnothing \text{ Orifice} / 2) * \text{TAN} \theta$

- SR20 recess criteria:
- ➔Values in tables are for materials not having glass fibers. Consult Synventive for vestige height when using glass fillers
 - ➔Recessed gates are used to reduce vestige height above the part surface or keep the vestige below the part surface

Illustrations simplified, schematically drawn and not to scale.



Angled Mold Contour



Spherical Recess

Orifice	3.0-3.2	3.2-3.4	3.4-3.6	3.6-3.8	3.8-4.0	
H	1.00	1.06	1.12	1.18	1.26	
d	2.45	2.65	2.85	3.05	3.25	
D	14.00	14.41	14.80	15.18	15.67	

Illustrations simplified, schematically drawn and not to scale.

SR20 CV20

General:

- Filled and unfilled materials
- Easy orifice changes by straight reaming
- Heat pipes for isothermal operation
- No witness mark on part
- Easier removal of frozen material around tip for color change

Nozzle Criteria:

- Orifice Ø2.0-7.0
- J length 106-500
- Open flow bore
- Patented seal

SR20 contour criteria:

- When gating on an angled mold contour the vestige height may be increased depending on the angle
- K is the increase in land required to maintain 1.3 minimum wall thickness

$$\theta \leq 8^\circ;$$

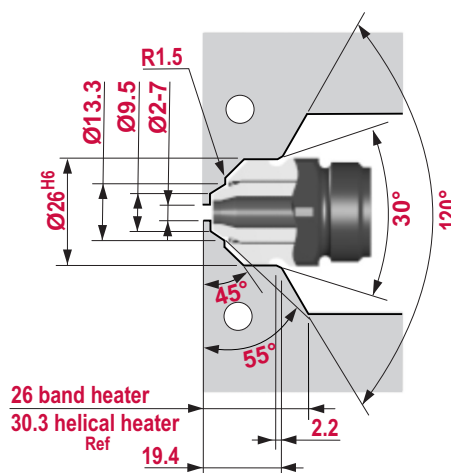
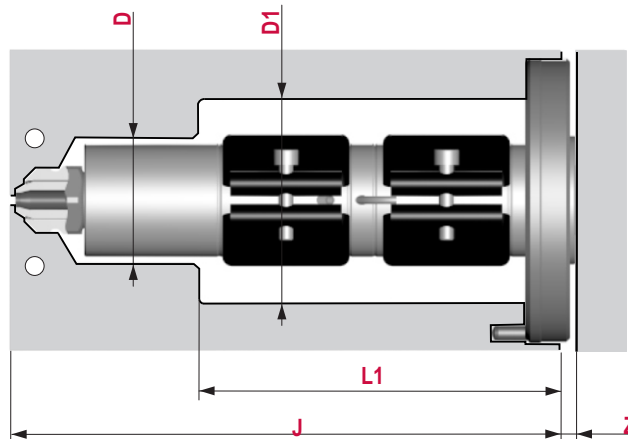
$$K=0$$

$$L=2-(\text{Ø Orifice}-2)*\text{TAN}\theta$$

$$\theta > 18^\circ;$$

$$K=4.75\text{TAN}\theta+1.3/\text{COS}\theta-2$$

$$L=2+K-(\text{Ø Orifice}/2)*\text{TAN}\theta$$



→ Information regarding

- tolerances and surfaces
- shape and position tolerances
- cut out for connections
- groove/bore for locking pin

please see page 3

"Cut out in mould plate for nozzle and connections"

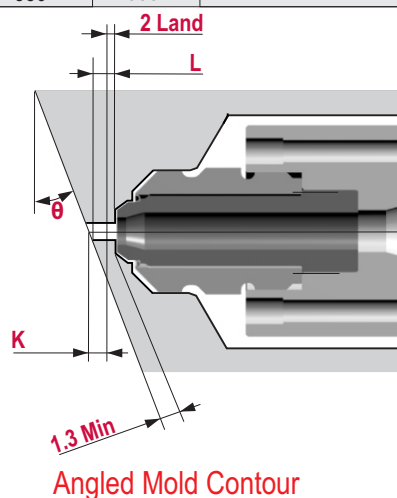
→ Cooling required

- around the nozzle tip
- opposite to the nozzle tip

→ The front of the nozzle tip must always be against plastic.

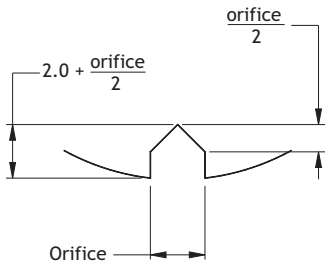
→ General tolerances according to DIN ISO 2768-mK

Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)

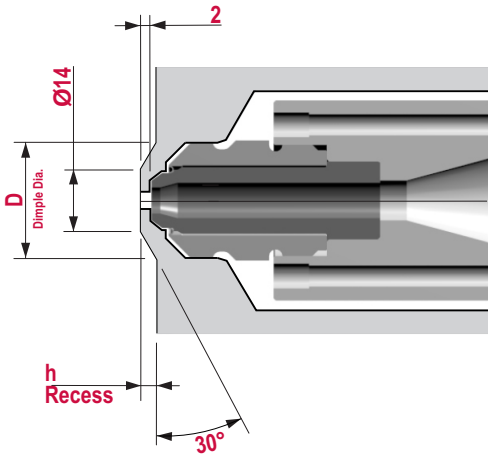


SR20 CV20

- SR20 recess criteria:
- Values in tables are for materials not having glass fibers. Consult Synventive for vestige height when using glass fillers
 - Recessed gates are used to reduce vestige height above the part surface or keep the vestige below the part surface
 - For most materials CV20 vestige height is equal to $2 + (\text{orifice } \varnothing / 2)$. If the vestige height, relative to the possible gate recess depth (h), is too great, use of a CV21 tip is recommended

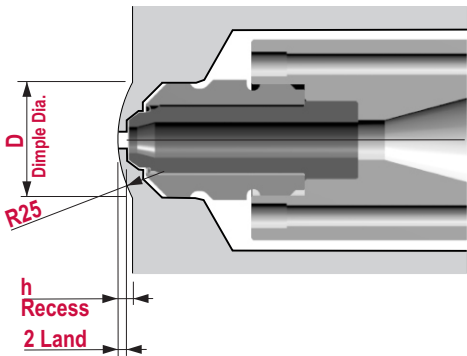


Illustrations simplified, schematically drawn and not to scale.



Conical Recess

h (recess depth)	2.0	2.5	3.0	3.5	4.0
D	21.0	22.7	24.4	26.1	27.9



Spherical Recess

h (recess depth)	2.0	2.5	3.0	3.5	4.0
D	19.6	21.8	23.7	25.5	27.1

Illustrations simplified, schematically drawn and not to scale.

SR20 CV21

General:

- Filled and unfilled materials
- More heat in gate area for semi-crystalline materials
- Heat pipes for isothermal operation
- No witness mark on part
- Easier removal of frozen material around tip for color change

Nozzle Criteria:

- Orifice Ø2.0-4.0
- J length 106-500
- Patented seal

SR20 contour criteria:

- When gating on an angled mold contour the vestige height may be increased depending on the angle
- K is the increase in land required to maintain 1.3 minimum wall thickness

$$\theta \leq 9^\circ;$$

$$K = (\text{Ø Orifice}/2) * \text{TAN} \theta$$

$$L = 0.13$$

$$9^\circ < \theta \leq 13^\circ;$$

$$K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta +$$

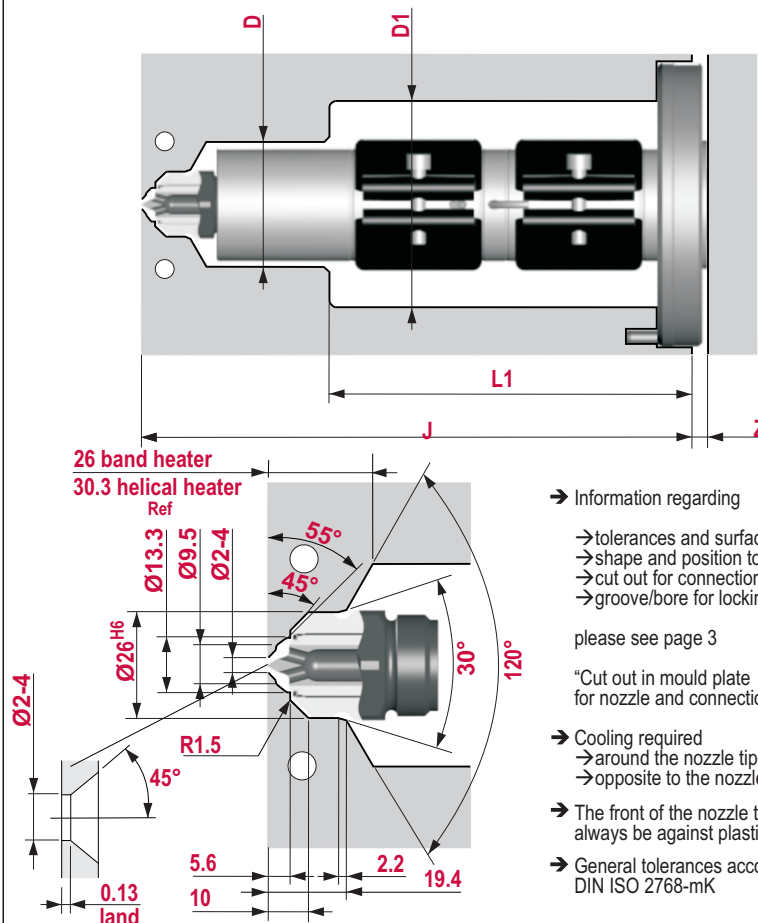
$$(\text{Ø Orifice} - 2) / 2 * \text{TAN} \theta - 2$$

$$L = 0.13 + K - (\text{Ø Orifice} / 2) * \text{TAN} \theta$$

$$\theta > 13^\circ;$$

$$K = K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta - 2$$

$$L = 0.13 + K - (\text{Ø Orifice} / 2) * \text{TAN} \theta$$



→ Information regarding

- tolerances and surfaces
- shape and position tolerances
- cut out for connections
- groove/bore for locking pin

please see page 3

"Cut in mould plate for nozzle and connections"

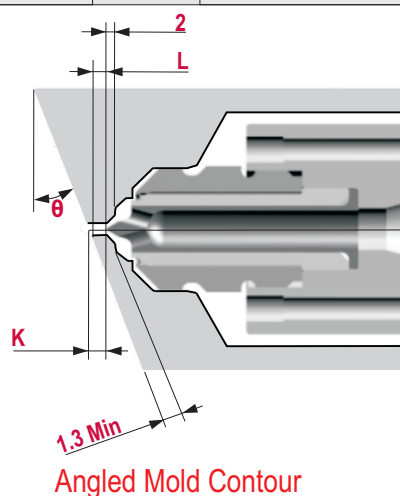
→ Cooling required

- around the nozzle tip
- opposite to the nozzle tip

→ The front of the nozzle tip must always be against plastic.

→ General tolerances according to DIN ISO 2768-mK

Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)

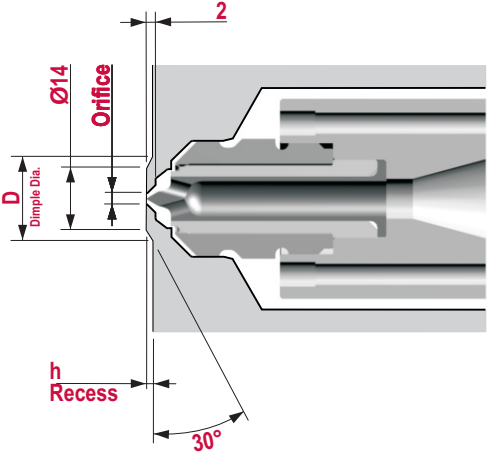


Angled Mold Contour

SR20 CV21

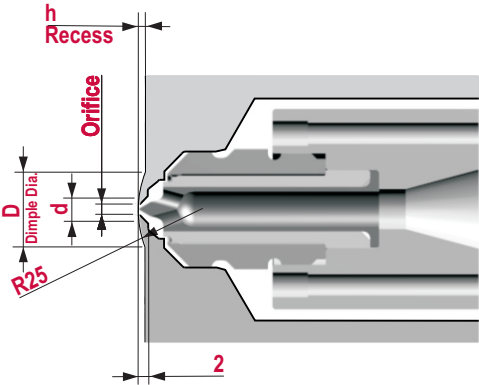
- SR20 recess criteria:
- Values in tables are for materials not having glass fibers. Consult Synventive for vestige height when using glass fillers
 - Recessed gates are used to reduce vestige height above the part surface or keep the vestige below the part surface
 - Maintain 0.13 land when machining gate orifice

Illustrations simplified, schematically drawn and not to scale.



Conical Recess

Orifice	2.0	2.5	3.0	3.5	4.0	
h	0.93	1.09	1.26	1.43	1.59	
D	17.22	17.78	18.36	18.95	19.51	



Spherical Recess

Orifice	2.0-2.2	2.2-2.4	2.4-2.6	2.6-2.8	2.8-3.0	3.0-3.2
h	1.00	1.06	1.12	1.18	1.26	1.32
d	2.45	2.65	2.85	3.05	3.25	3.45
D	14.20	14.64	15.06	15.47	15.99	16.38
Orifice	3.2-3.4	3.4-3.6	3.6-3.8	3.8-4.0		
h	1.40	1.46	1.52	1.60		
d	3.65	3.85	4.05	4.25		
D	16.87	17.25	17.61	18.07		

Illustrations simplified, schematically drawn and not to scale.

SR20 CV21CM

- General:
- Filled and unfilled materials
 - Developed for PA and PBT
 - Heat pipes for isothermal operation
 - No witness mark on part
 - Easier removal of frozen material around tip for color change

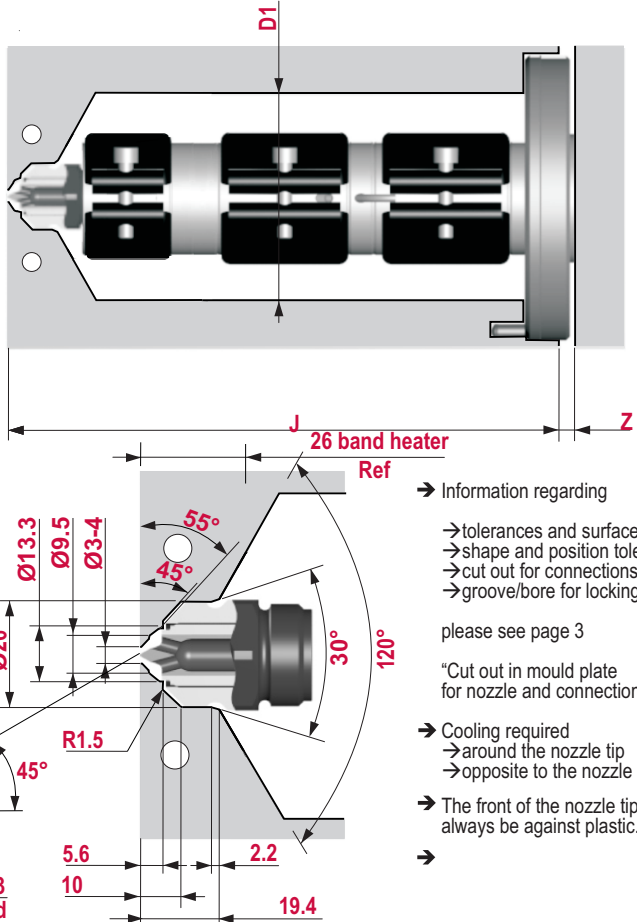
- Nozzle Criteria:
- Orifice Ø3.0-4.0
 - J length 75-375
 - Patented seal

- SR20 contour criteria:
- When gating on an angled mold contour the vestige height may be increased depending on the angle
 - K is the increase in land required to maintain 1.3 minimum wall thickness

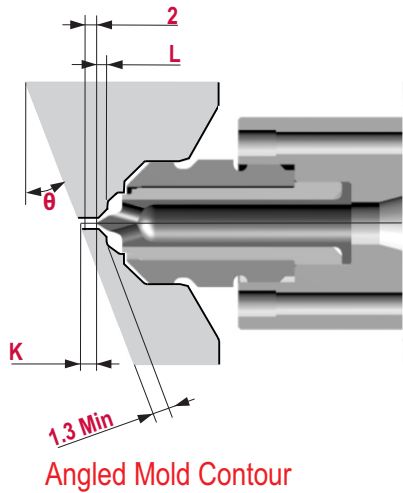
$\theta \leq 9^\circ;$
 $K = (\text{Ø Orifice}/2) * \text{TAN} \theta$
 $L = 0.13$

$9^\circ < \theta \leq 13^\circ;$
 $K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta + (\text{Ø Orifice} - 2) / 2 * \text{TAN} \theta - 2$
 $L = 0.13 + K - (\text{Ø Orifice}/2) * \text{TAN} \theta$

$\theta > 13^\circ;$
 $K = K = 4.75 \text{TAN} \theta + 1.3 / \text{COS} \theta - 2$
 $L = 0.13 + K - (\text{Ø Orifice}/2) * \text{TAN} \theta$



Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)

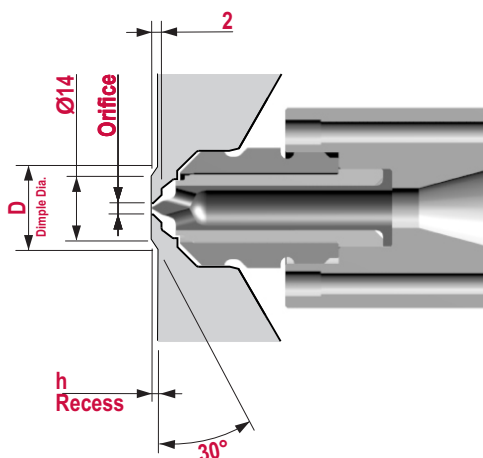


Illustrations simplified, schematically drawn and not to scale.

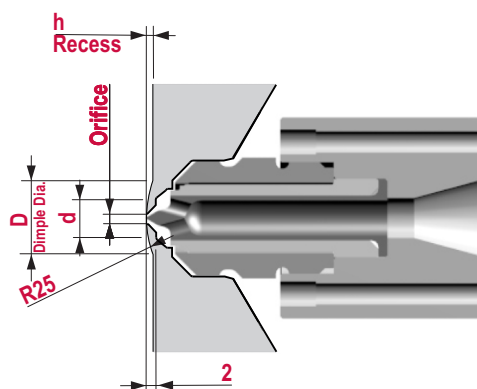
SR20 CV21CM

SR20 recess criteria:

- Values in tables are for materials not having glass fibers. Consult Synventive for vestige height when using glass fillers
- Recessed gates are used to reduce vestige height above the part surface or keep the vestige below the part surface
- Maintain 0.13 land when machining gate recess or contour


Conical Recess

Orifice	3.0	3.5	4.0			
h (recess depth)	1.26	1.43	1.59			
D	18.4	19.0	19.5			


Spherical Recess

Orifice	3.0-3.2	3.2-3.4	3.4-3.6	3.6-3.8	3.8-4.0	
h	1.32	1.40	1.46	1.52	1.60	
d	3.45	3.65	3.85	4.05	4.25	
D	16.38	16.87	17.25	17.61	18.07	

SR20 VG12

- General:
- Filled and unfilled materials
 - Tapered valve pin to eliminate gate flash
 - Heat pipes for isothermal operation

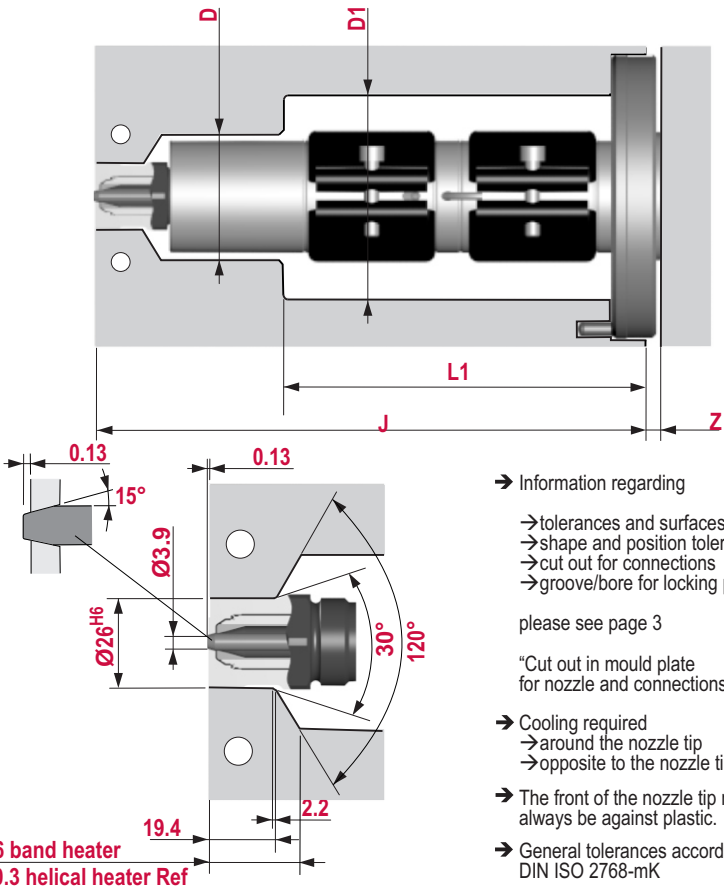
- Nozzle Criteria:
- Orifice Ø3.9
 - J length 106-500
 - Patented seal

- SR20 recess criteria:
- When gating on an angled mold contour the vestige height may be increased depending on the angle
 - K is the increase in land required to maintain a 1.3 minimum wall thickness

$\theta \leq 8^\circ;$
 $K=0$
 $E=13TAN\theta$

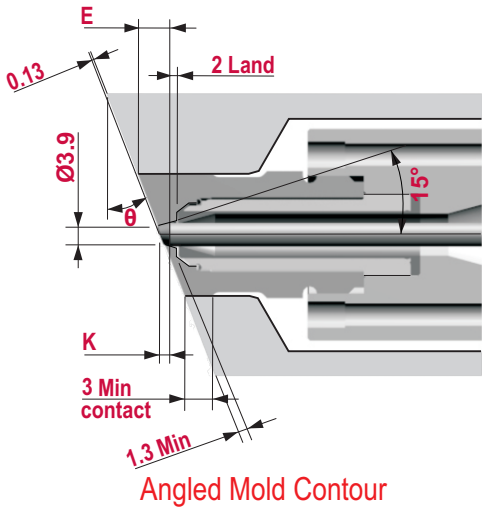
$\theta > 8^\circ;$
 $K=4.75TAN\theta+1.3/COS\theta-2$
 $L=K+13TAN\theta$

Illustrations simplified, schematically drawn and not to scale.



- Information regarding
- tolerances and surfaces
 - shape and position tolerances
 - cut out for connections
 - groove/bore for locking pin
- please see page 3
- "Cut out in mould plate for nozzle and connections"
- Cooling required
- around the nozzle tip
 - opposite to the nozzle tip
- The front of the nozzle tip must always be against plastic.
- General tolerances according to DIN ISO 2768-mK

Heater Style			Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)



Illustrations simplified, schematically drawn and not to scale.

SR20 VG12S
General:

- Filled and unfilled materials
- Straight valve pin for non-adjustable actuators and glass filled materials
- Heat pipes for isothermal operation

Nozzle Criteria:

- Orifice Ø5
- J length 106-500
- Patented seal

SR20 recess criteria:

- When gating on an angled mold contour the vestige height may be increased depending on the angle
- K is the increase in land required to maintain a 1.3 minimum wall thickness

$$\theta \leq 8^\circ;$$

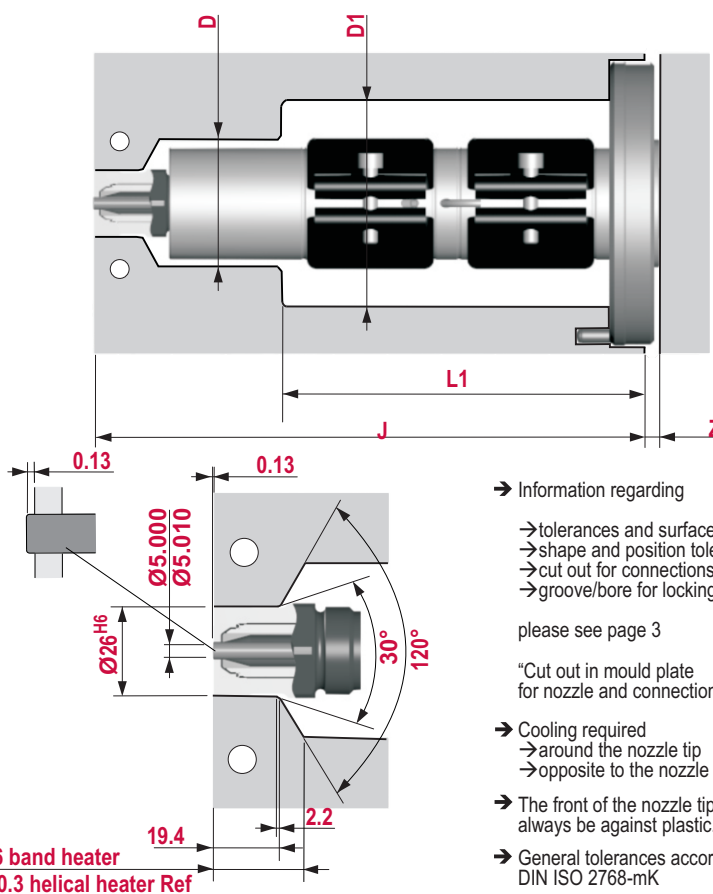
$$K=0$$

$$E=13 \tan \theta$$

$$\theta > 8^\circ;$$

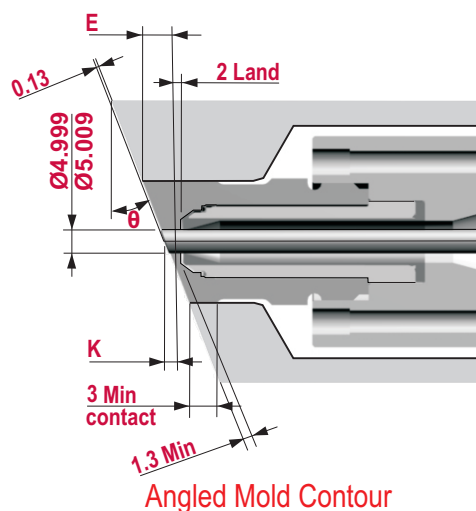
$$K=4.75 \tan \theta + 1.3 / \cos \theta - 2$$

$$L=K+13 \tan \theta$$



26 band heater
30.3 helical heater Ref

Heater Style			Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)





SR20 VG23

- General:
- Filled and unfilled materials
 - Tapered valve pin to eliminate gate flash
 - Heat pipes for isothermal operation
 - No witness mark on part

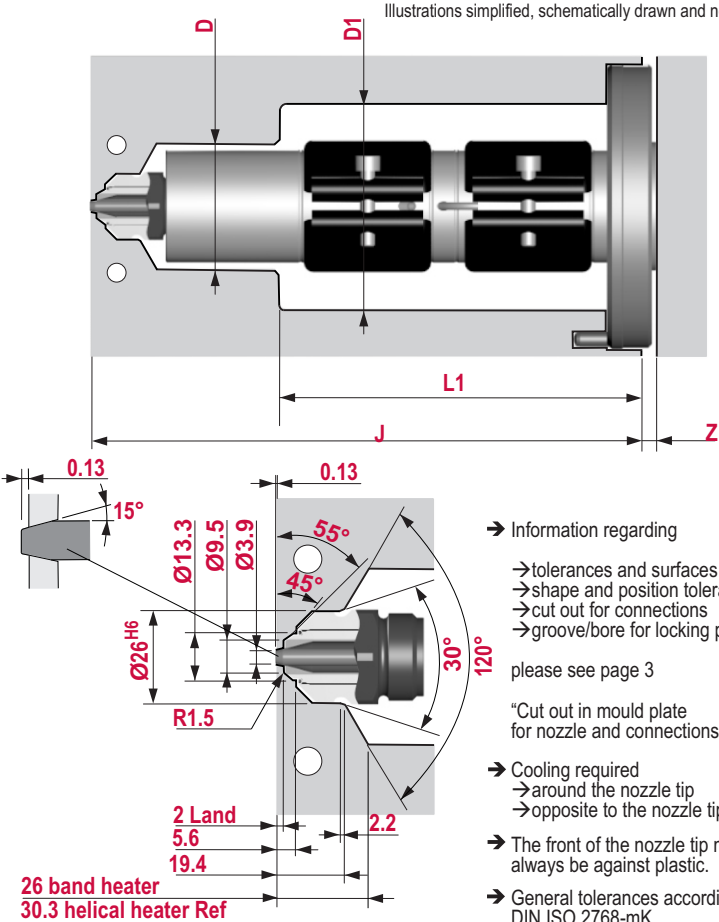
- Nozzle Criteria:
- Orifice Ø3.9
 - J length 106-500
 - Patented seal

- SR20 recess criteria:
- When gating on an angled mold contour the vestige height may be increased depending on the angle
 - K is the increase in land required to maintain a 1.3 minimum wall thickness

$\theta \leq 8^\circ;$
K=0

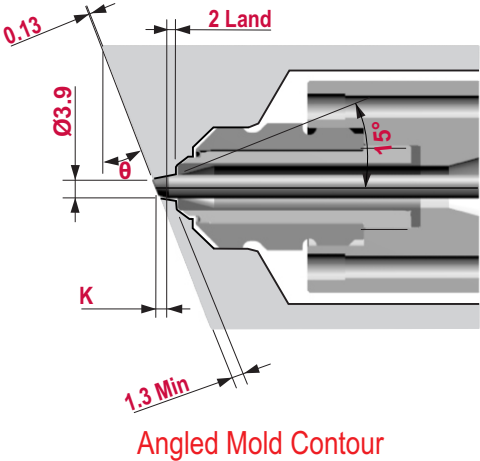
$\theta > 8^\circ;$
 $K=4.75 \tan \theta + 1.3 / \cos \theta - 2$

Illustrations simplified, schematically drawn and not to scale.



- Information regarding
- tolerances and surfaces
 - shape and position tolerances
 - cut out for connections
 - groove/bore for locking pin
- please see page 3
- "Cut out in mould plate for nozzle and connections"
- Cooling required
- around the nozzle tip
 - opposite to the nozzle tip
- The front of the nozzle tip must always be against plastic.
- General tolerances according to DIN ISO 2768-mK

Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)



Illustrations simplified, schematically drawn and not to scale.

SR20 VG23

General:

- Filled and unfilled materials
- Straight valve pin for non-adjustable actuators and glass filled materials
- Heat pipes for isothermal operation
- No witness mark on part

Nozzle Criteria:

- Orifice Ø5.0
- J length 106-500
- Patented seal

SR20 recess criteria:

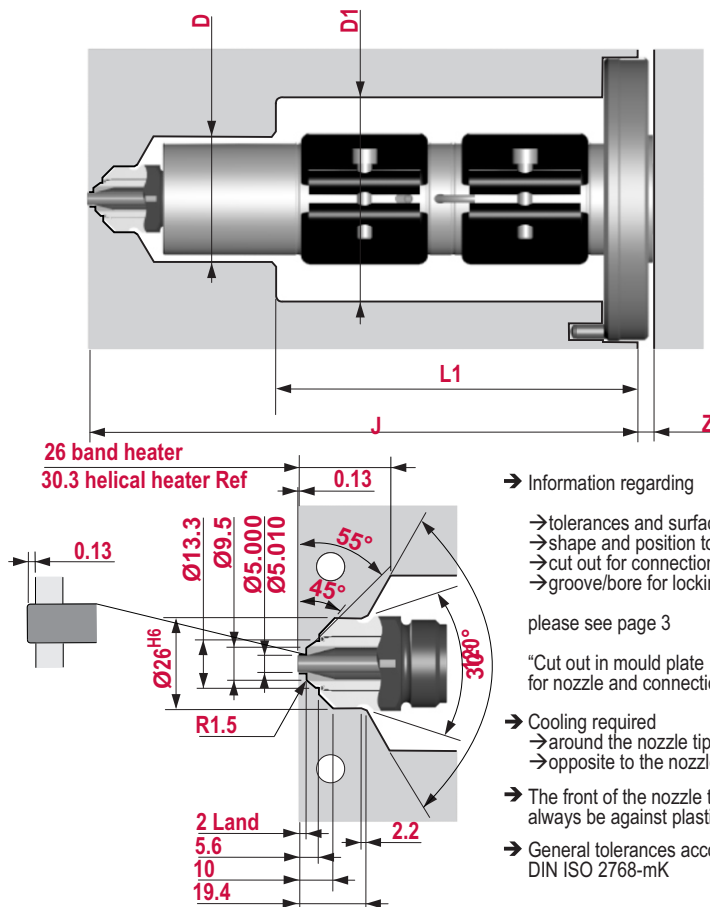
- When gating on an angled mold contour the vestige height may be increased depending on the angle
- K is the increase in land required to maintain a 1.3 minimum wall thickness

$$\theta \leq 8^\circ;$$

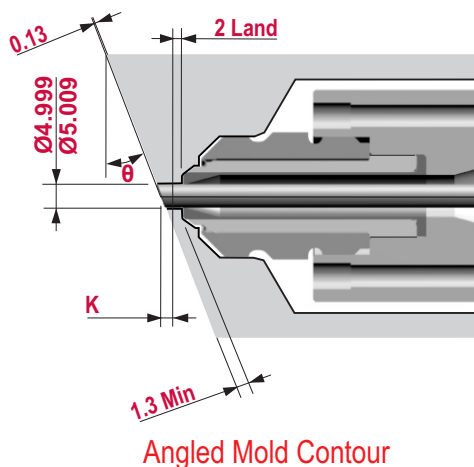
$$K=0$$

$$\theta > 8^\circ;$$

$$K=4.75 \tan \theta + 1.3 / \cos \theta - 2$$



Heater Style	J Min	J Max	Heater Qty	Watts/Volts
Band	106	149.9	1	750W/240V
Band	150	380	2 (one spare)	750W/240 (each)
Helical	195	379.9	1	750W/240V
Helical	380	500	2	750W/240V (each)





BARNES™
MOLDING SOLUTIONS



Barnes Molding Solutions is the expert cluster for molds, hot runners, and controls for industrial plastic injection molding. Our brands Foboha, Männer, Synventive, Thermoplay, Priamus and Gammaflux are leaders in their field. We have a comprehensive and in-depth understanding of the automotive, medical, packaging and electronics industries. We support our customers with sophisticated high-performance technologies through to customized turnkey solutions.



barnesmoldingsolutions.com

Synventive®
molding solutions

THERMOPLAY®
HotRunnerSystems

männer®
SOLUTIONS FOR PLASTICS

FOBOHA®

PRIAMUS®

Gammaflux®