

How To Use One Rapid Test Assembly Machine Adapt With Multiple Types Cassettes?



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What we face the problems?



- 01 Cassette do not has unified standard
Multiple sizes, random cassette design
- 02 Cassette supplier do not consider
assembly automation
- 03 Plastic cassette bad quality
- 04 Strip bad quality

Conclusion

If you have 10 different types cassettes, then you need to use 10 assembly machines: one type cassette for one assembly machine. It's huge cost investment, it's waste money!

How To Solve Above Problem?

Part One: Improve strip's quality

Problem	Solution
The components detached	Use good quality backing card & pads with high adhesive
	
Can't use in automation	Good for automation

Part Two: Improve plastic cassette quality

From 3 points to improve cassette quality

Point 1: Cassette structure design

Point 2: Injection mold design

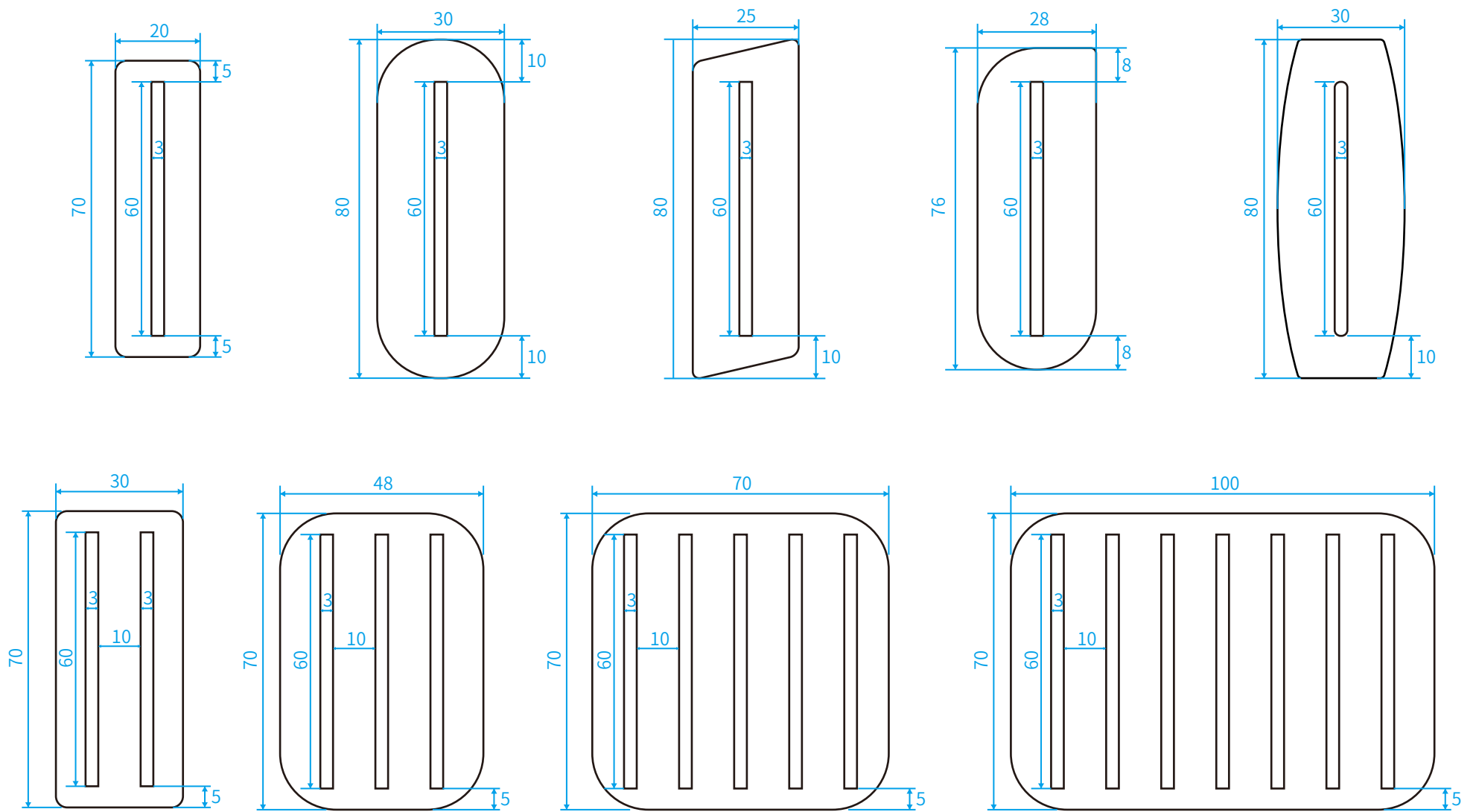
Point 3: Plastic quality selection

Point 01 Cassette structure design

Before design the cassette's structure, you need to consider assembly automation in future.

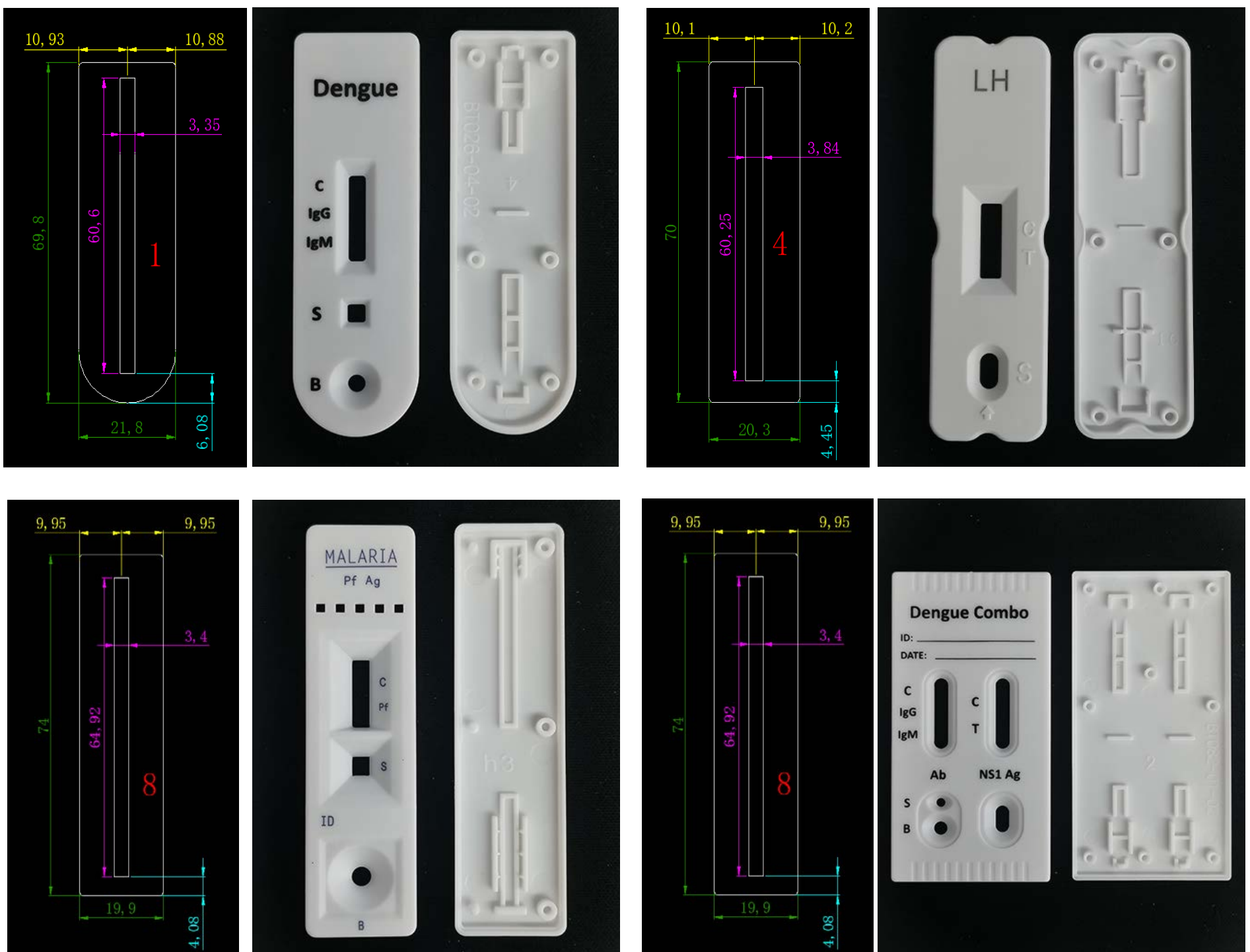
The key point is the strip channel must be a same size, although the housing design changed lots. Illustration as below:



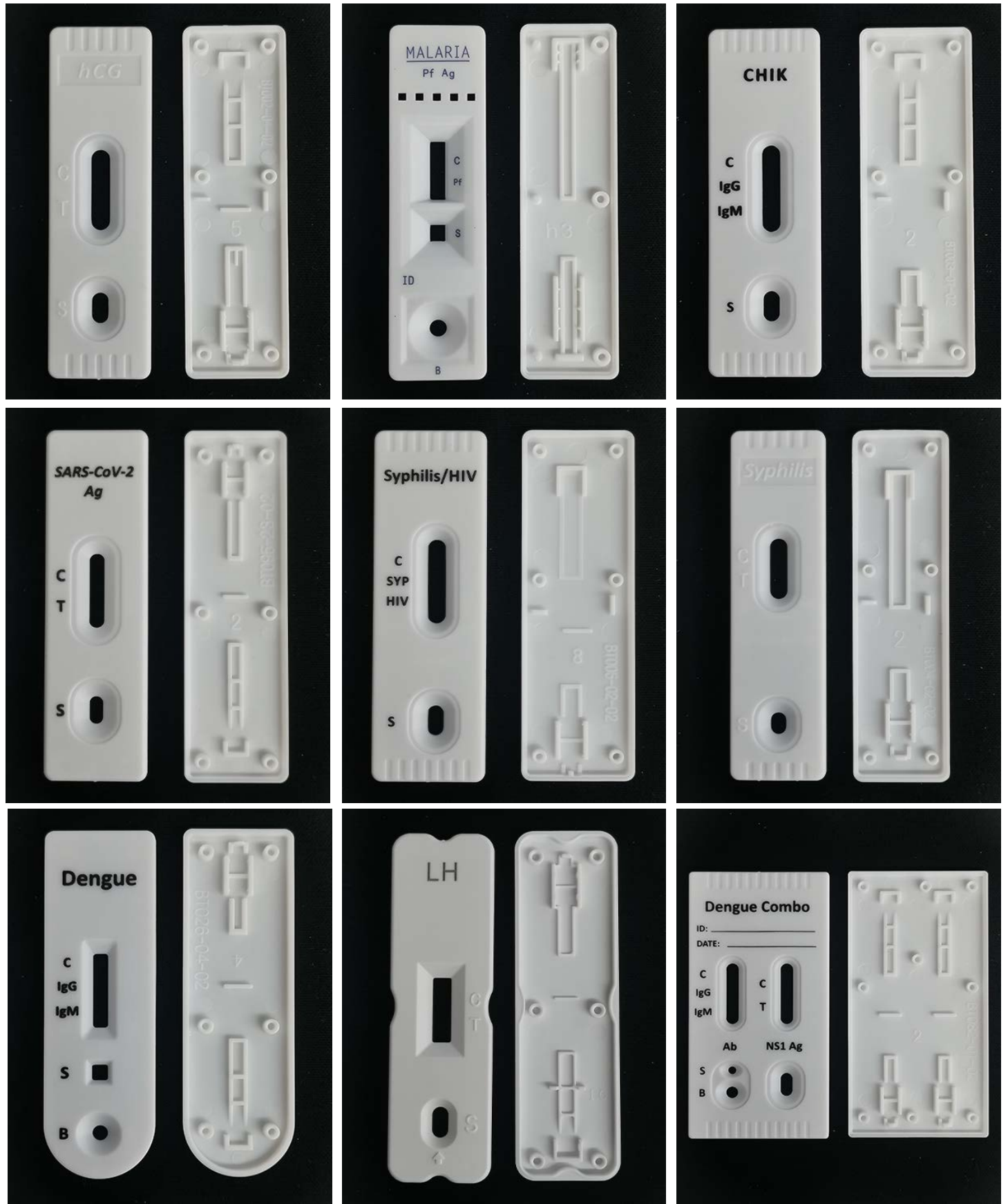


No matter how it change the housing, but the strip channel always same size: 3*60mm

Here to check bad quality design for assembly automation:



After analysis, the data as below:



No.	Cassette length	Cassette width	Strip channel size	Strip width	Off-center position
1	69.8	21.8	60.6*3.35	3.35	0.03
2	70	22	60*3.9	3.9	0.05
3	70	20	60.7*3.85	3.85	0.13
4	70	20.3	60.25*3.84	3.84	0.05
5	70	22	60.65*2.95	2.95	0.08
6	70	22	60.5*3.9	3.9	1.05
7	70	22	60.45*3.9	3.9	1.15
8	75.2	20	60.5*3.9	3.9	0.15
9	70	36	60.5*3.3	3.3	0.00
10	74	19.9	64.92*3.4	3.4	0.00
11	90	25	80.35*4	4.0	0.15


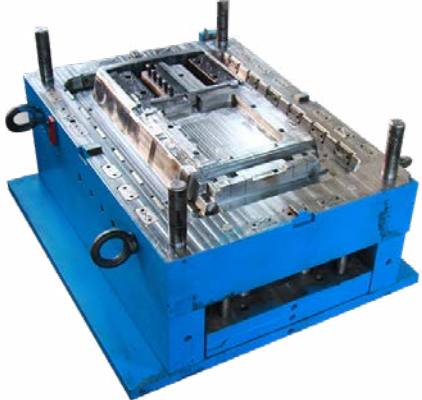
The diversification of changing strip channel size, it's a nightmare for automated assembly.

Create high precise cassette structure design, keep the strip channel in same dimension all the time.

Point 02 **Cassette structure design**

Be careful while start design the injection mold. The high quality mold usually choose hot runner mold.

Hot runner VS cold runner

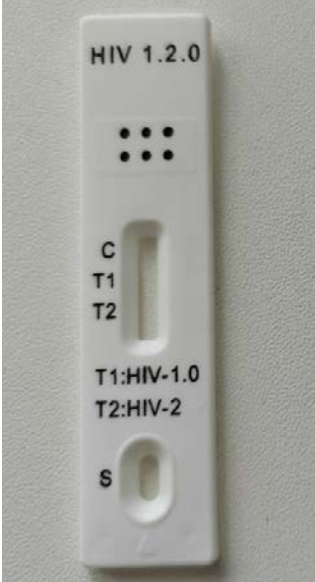

VS	Hot runner with mold	Cold runner mold
Image		
Cost	High	Low
Precise	High	Low
Lifetime	Long	Short
Good for automation	Yes	No
Adapt with injection machine	Almost brands	Special brands

For assembly automation, recommend to use hot runner with mold to inject high quality cassettes.

Point 03 **Plastic quality selection**

Except for the injection mold and injection machine, then the plastic raw material is important to the quality.

VS	Bad quality	Good quality
Image		

Hardness	Too soft	Hard
Deformation	Yes, curved	No
Good for printing	No, need plasma treatment before printing 	Yes, directly print 

How to use one rapid test assembly machine adapt with multiple types cassettes?

Here some videos for reference:

01 strip cassette
<https://youtu.be/8NWCiOh-9zk>

02 strips cassette
<https://youtu.be/xCtUjyZnCL0>

03 strips cassette
<https://youtu.be/vET6oh5RGwA>

04 strips cassette
https://youtu.be/eCooQaOC_jg

How to improve your cassette quality?

Please consult with your cassette supplier and their injection mold designer.

How ANTITECK can help you solve multiple type cassette in automated assembly problems?

Yes, we can help. From cassette structure and mold design, to fully automated or semi automated rapid assembly, an ONE STOP-SHOP solution. Contact us via email info@antiteck.com