

스크류 진공 가스빼기 결과표

2008. 07. 00.



FLYING TIGER CO., LTD.

2. Current Status

1. Many silver mark during production with ABS material.
2007 Avg. Scrap rate : 11.49% out of all scrap (Japan)
2. Many silver mark during production with ABS, P.C /ABS material mold (Korea)
2007 Avg. Scrap rate : Rice Dispenser : 6.3%,
Samsung 2C LCD Monitor : 29.2%

Cause:

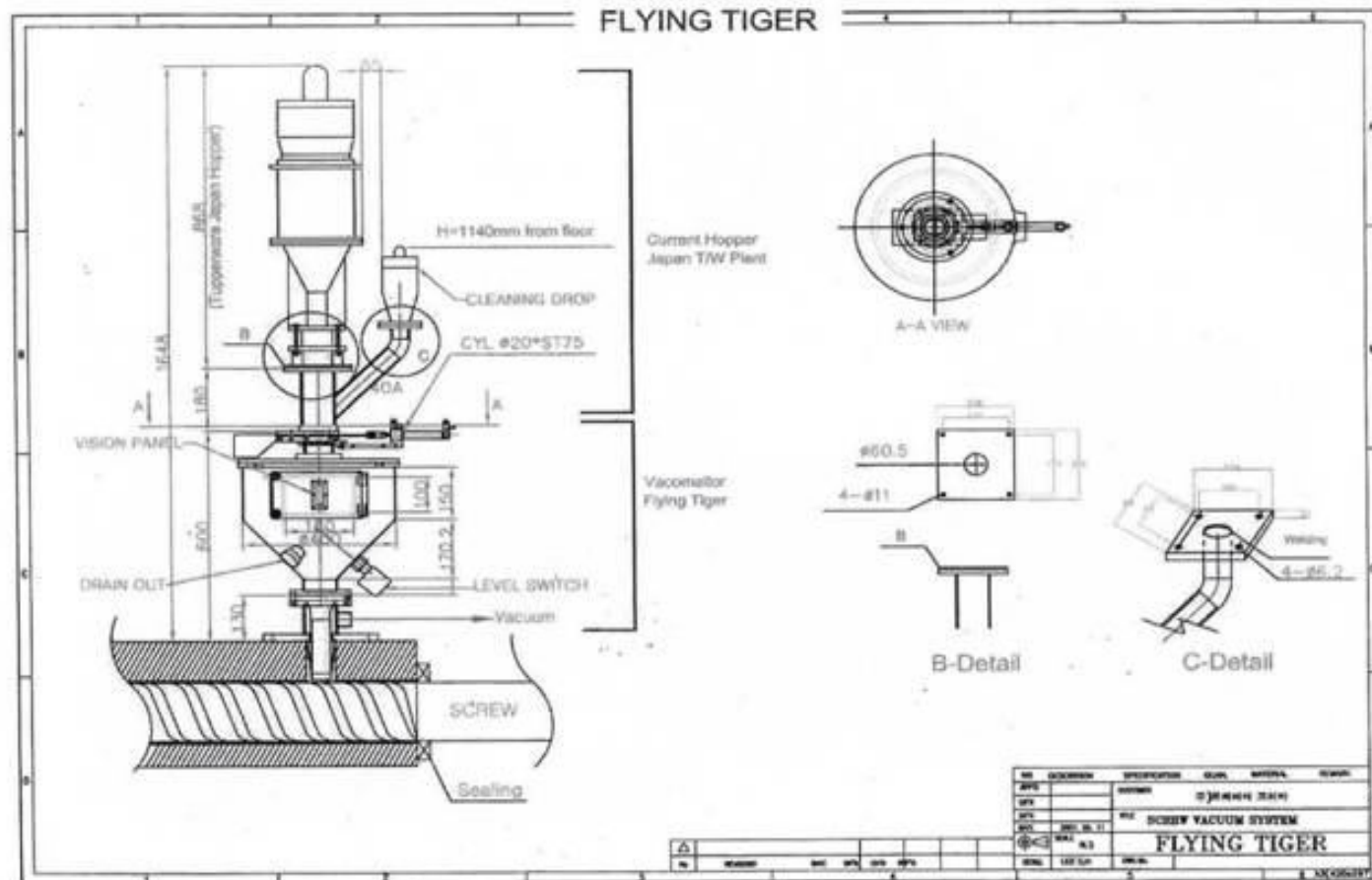
- a) Not enough dry of material.
- b) Air inhalation during charging.
- c) Gas evolution during melt material.
- d) Air venting problem

3. Need to improve silver mark.

5. Progress & Result

Test results		
Material	Without Vacmeltor	With Vacmeltor
No dried virgin material (100%)	Silver	No issue
Dried virgin material (80%) + No dried grinding material (20%)	Silver	No issue
No dried grinding material (100%)	Silver	No issue

From Flying Tiger in Korea



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Vacmeltor

Vacmeltor Test Summary Results in Korea

No.	Mold No.	Material	Runner type	Production Hours		Scrap rate(%)		Diff.	Loss time(min)		Diff.	Mold Cleaning times		Diff.	Remark
				Without Vacmeltor	With Vacmeltor	Without Vacmeltor	With Vacmeltor		Without Vacmeltor	With Vacmeltor		Without Vacmeltor	With Vacmeltor		
1	3588A	PC	Valve Gate	8.0	8.0	3.2	2.3	-0.9	30.0	15.0	-15.0	2.0	1.0	1.0	
Sub Avg.				8.0	8.0	3.2	2.3	-0.9 (28.1%)	30.0	15.0	-15.0 (50.0%)	2.0	1.0	-1.0 (50.0%)	
2	9000A	PC/ABS	Valve Gate	62.0	82.0	29.2	15.3	-13.9	135.0	15.0	-120.0	9.0	1.0	8.0	Samsung LCD
3	2808A	ABS	Valve Gate	32.0	33.0	6.3	3.3	-3.0	135.0	15.0	-120.0	4.0	1.0	3.0	
Sub Avg.				47.0	57.5	17.8	9.3	-8.5 (47.8%)	135.0	15.0	-120.0 (88.9%)	6.5	1.0	-5.5 (84.6%)	
4	2387A	PET ULTEM	COLD	8.0	8.0	9.8	7.6	-2.2	40.0	25.0	-15.0	4.0	2.5	1.5	
5	2491A	PET ULTEM	COLD	8.0	8.0	6.6	5.2	-1.4	10.0	10.0	0.0	1.0	1.0	0.0	
6	2493A	PET ULTEM	COLD	8.0	8.0	2.3	1.9	-0.4	30.0	10.0	-20.0	3.0	1.0	2.0	
7	2298A	PET ULTEM	Valve Gate	8.0	8.0	16.5	16.6	-0.1	70.0	70.0	0.0	7.0	7.0	0.0	Not improved valve gate
8	2297A	PET ULTEM	Valve Gate	8.0	8.0	20.3	20.1	0.2	80.0	80.0	0.0	8.0	8.0	0.0	Not improved valve gate
9	2300A	PET ULTEM	COLD	4.0	4.0	4.6	3.2	-1.4	40.0	20.0	-20.0	4.0	2.0	2.0	
10	2299A	PET ULTEM	COLD	4.0	4.0	7.5	6.4	-1.1	30.0	20.0	-10.0	3.0	2.0	1.0	
Sub Avg.				6.9	6.9	9.7	8.7	-1.0 (10.3%)	42.9	33.6	-9.3 (21.7%)	4.3	3.4	-0.9 (20.9%)	
Avg.				20.6	24.1	10.2	6.8	-3.4 (33.3%)	69.3	21.2	-48.1 (69.4%)	4.3	1.8	-2.5 (58.1%)	

※ Notes

- Reduce scrap rate by material
- P.C Material : 3.2=>2.3 (-0.9, 28.1% improved)
- ABS, P.C/ABS Material : 17.8=>9.3 (-8.5, 47.8% improved)
- PET Ultem material : 9.7=>8.7 (-1.0, 10.3% improved)
- No improvement of Scrap, Loss time for PET Ultem in Valve gate molds.
=> Execute gas evolution at the melt material in Manifold.

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Major Defect Improvement in Korea

No.	Mold No.	Material	Runner Type	Gas mark (%)		Diff.	Silver (%)		Diff.	Re-Start up (%)		Diff.	Remark
				Without Vacmeltor	With Vacmeltor		Without Vacmeltor	With Vacmeltor		Without Vacmeltor	With Vacmeltor		
1	3588A	PC	Valve Gate	1.5	1.3	-0.2	1.1	0.4	-0.7	0.5	0.4	-0.1	
Sub Avg.				1.5	1.3	-0.2 (13.3%)	1.1	0.4	-0.7 (63.6%)	0.5	0.4	-0.1 (20.0%)	
2	9000A	PC/ABS	Valve Gate	3.7	0.3	-3.4	2.2	0.5	-1.7	2.6	0.8	-1.8	Samsung LCD
3	2808A	ABS	Valve Gate	1.5	0.5	-1.0	1.1	0.0	-1.1	0.4	0.2	-0.2	
Sub Avg.				2.6	0.4	-2.2 (84.6%)	1.7	0.3	-1.4 (82.4%)	1.5	0.5	-1.0 (66.6%)	
4	2387A	PET ULTEM	COLD	4.6	3.2	-1.4	2.3	2.1	-0.2	1.3	0.7	-0.6	
5	2491A	PET ULTEM	COLD	0.0	0.0	0.0	0.7	0.3	-0.4	0.2	0.2	0.0	
6	2493A	PET ULTEM	COLD	0.3	0.0	-0.3	0.1	0.0	-0.1	0.5	0.2	-0.3	
7	2298A	PET ULTEM	Valve Gate	10.3	10.2	-0.1	2.3	2.4	0.1	1.2	1.2	0.0	
8	2297A	PET ULTEM	Valve Gate	13.0	12.5	-0.5	3.2	3.4	0.2	1.5	1.6	0.1	
9	2300A	PET ULTEM	COLD	0.8	0.2	-0.6	1.6	0.9	-0.7	0.4	0.2	-0.2	
10	2299A	PET ULTEM	COLD	1.4	1.0	-0.4	1.2	0.9	-0.3	0.8	0.6	-0.2	
Sub Avg.				4.3	3.9	-0.5 (11.6%)	1.6	1.4	-0.2 (12.5%)	0.8	0.7	-0.2 (25.0%)	
Avg.				2.8	1.9	-1.0 (35.7%)	1.5	0.7	-0.8 (53.3%)	0.9	0.5	-0.4 (44.4%)	

※ Notes

- Reduce gas mark : P.C : 0.2(13.3%improved), P.C/ABS, ABS : 2.2(84.6%improved), PET Ultem : 0.5(11.6% improved)
 - Reduce silver mark : P.C : 0.7(63.6%improved), P.C/ABS, ABS : 1.4(82.4%improved), PET Ultem : 0.2(12.5% improved)
 - No improvement of Scrap, Loss time for PET Ultem in Valve gate molds.
- => Execute gas evolution at the melt material in Manifold.

Vacmeltor Test Summary Results in Japan

No.	Mold No.	Material	Runner Type	Actual Cycle	Production Hours		Scrap rate(%)		Diff.	Loss time(min)		Diff.	Mold Cleaning times		Diff.	Remark
					Without Vacmeltor	With Vacmeltor	Without Vacmeltor	With Vacmeltor		Without Vacmeltor	With Vacmeltor		Without Vacmeltor	With Vacmeltor		
1	4489A	ABS	Valva Gate	33.8	7.7	4.0	7.9	4.7	-3.2	6.0	6.0	0.0	1.0	1.0	0.0	
2	3724A	ABS	Valva Gate	47.5	10.8	3.2	8.0	7.4	-0.6	0.0	0.0	0.0	0.0	0.0	0.0	
3	3723A	ABS	Valva Gate	27.0	5.3	7.6	2.5	2.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	QA sample
4	4569A	ABS	Valva Gate	32.5	3.7	1.2	16.7	5.3	-11.4	30.0	0.0	-30.0	2.0	0.0	-2.0	
Sub Avg.				35.2	6.9	4.0	8.8	5.0	-3.8 (43.2%)	9.0	1.5	-7.5 (83.3%)	0.8	0.3	-0.5 (62.5%)	
5	4694A	PP	Valva Gate	40.9	2.9	21.3	8.6	3.5	-5.1	6.0	0.0	-6.0	3.0	0.0	-3.0	Reduce contamination
Sub Avg.				33.9	2.9	21.3	8.6	3.5	-5.1 (59.3%)	6.0	0.0	-6.0 (100%)	3.0	0.0	-3.0 (100%)	
Avg.				38.1	4.9	12.7	8.7	4.3	-4.4 (50.6%)	7.5	0.8	-6.8 (90.6%)	1.9	0.1	-1.8 (94.7%)	

※ Notes

- Reduce scrap rate by material
- ABS Material : 8.8=>5.0 (-3.8, 43.2% improved)
- PP Material : 8.6=>3.5 (-5.1, 59.3% improved)



Vacmeltor (Screw Vacuum System) Test Result in Korea

Feb. 18, 2008

※ Test date : Feb. 12~15, 2008

※ Test mold : 2808A - Rice Dispenser Housing

※ Material : ABS

✱ Test results

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Vacmeltor (Screw Vacuum System) Test Result in Korea

Jun. 18. 2008

- ※ Test date : Jun. 18. 2008
- ※ Test mold : 2493 - A Medium Oval Grid
- ※ Material : PET Ultem

※ Test results

Description		Without Vacmeltor	With Vacmeltor	Saving
Test day		1Shift	1Shift	-
Total production Q'ty		1824pcs	2018pcs	-
Cycle time		25.0sec	25.0sec	-
Total scrap rate		2.3%	1.9%	-0.4%
Defect	Silver	0.1%	0.0%	-0.1%
	Gas mark	0.3%	0.0%	-0.3%
	contamination	1.2%	1.2%	0.0%
	Other defect	0.7%	0.7%	0.0%
Loss time (by Shift)		10min * 3times = 30min	10min * 1times = 10min	-20.0min
Mold cleaning times (by Shift)		3times/Shift	1times/Shift	-
Remarks		-.Reduce scrap rate : 17.4% -.Improved Product Quality (good gloss at surface) -.Uniform Quality -.Reduce Loss time:66.7%		