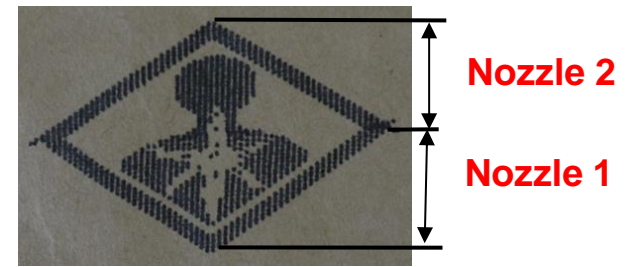
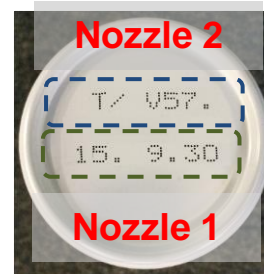
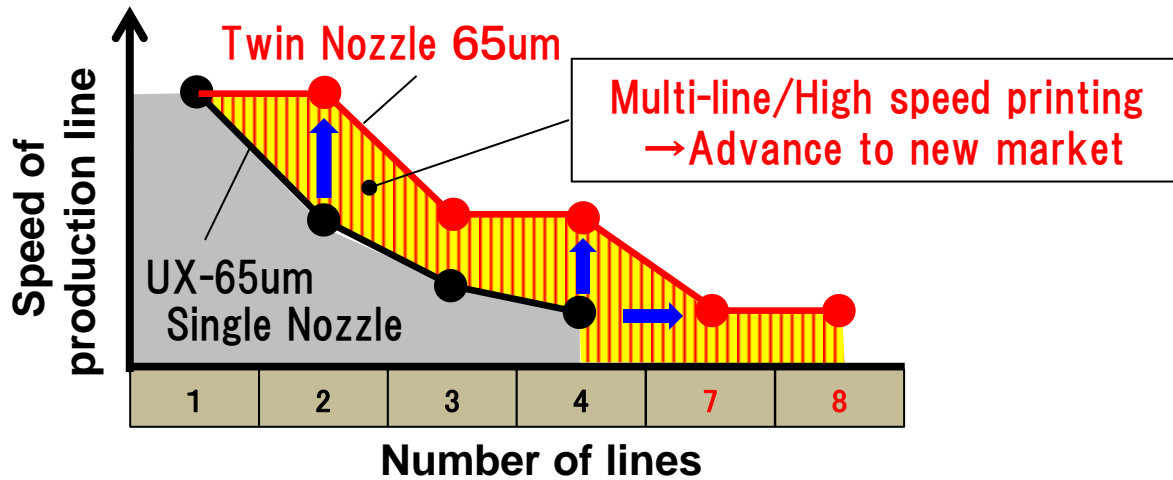


UX Twin nozzle

1. Development of Twin Nozzle IJP

Expected application target

- [1] **Pharmaceutical:** Barcode + Character print on packages
- [2] **Food/Beverage:** Multi-line/High speed printing
- [3] **Construction materials:** Logos, etc. (Printing by 2-nozzle composite character.)
- [4] **Food:** Chimney printing by 2-nozzle composite character.

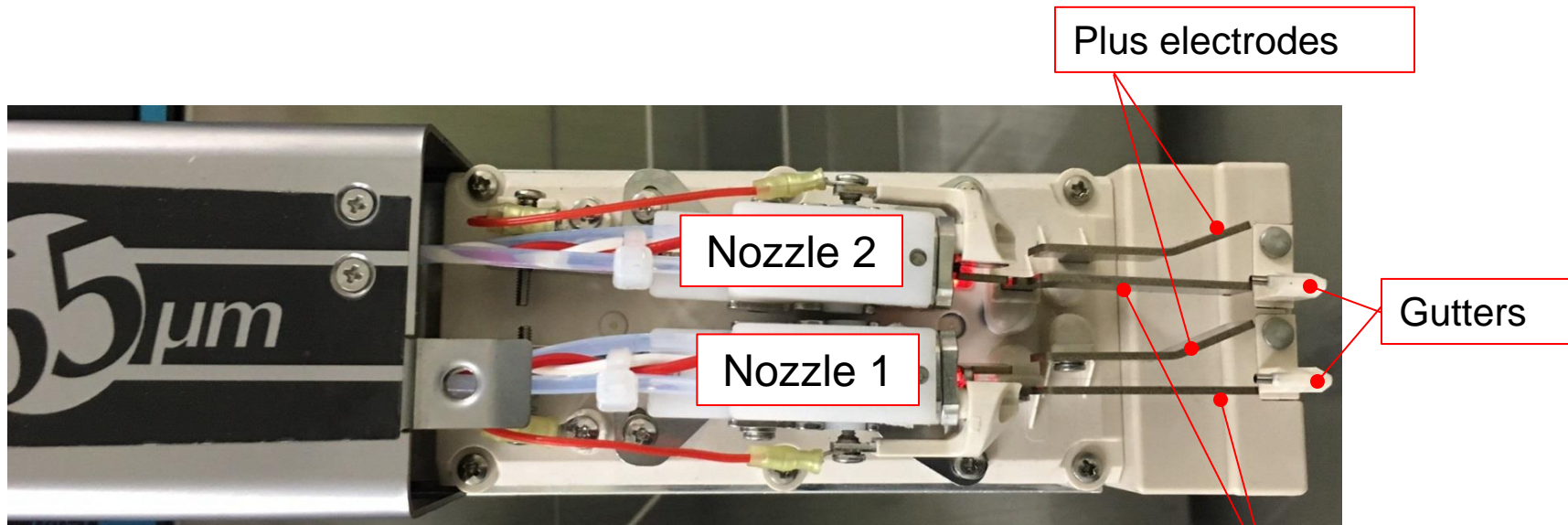


Composite figure

2. Print head



The design of the head cover follows that of the single machine.



Expansion of a print head is prevented by inserting plus electrodes and minus electrodes in a base part.

3. Product Specification (Comparison with Single Nozzle)

Category	#	Items	UX series/Single Nozzle			Twin Nozzle	
			Basic model UX-B	High-performance model UX-D	Premium model UX-E	High-performance model UX-D	
Basic Specifi- cation	1	Ink type	Dye/Soft pigment, nozzle x 1			Dye x 2	
	2	Nozzle Diameter	65μm	40/55/65/(100)μm	65μm	55/65μm	
	3	Number of Lines (Max. Vertical Dots)	3 Lines(30 Dots)	6 Lines(32 Dots)	6 Lines(32 Dots)	8 Lines(64 Dots)	
	4	Font 4x5	-	○	○	○	
	5	Font 5x5	○	○	○	○	
	6	Font 5x7(8),7x10,9x7(8),12x16	○	○	○	○	
	7	Font 10x12	○	○	○	○	
	8	Font 11x11(Kanji/Hangul Only)	○	○	○	○	
	9	Font 18x24	○	○	○	○	
	10	Font 24x32	-	○	○	○	
	11	Font 30x40	-	○	○	○ (End of Dec. 2016)	
	12	Font 36x48	-	○	○	○ (End of Dec. 2016)	
	13	Font 48x64	-	-	-	○ (End of Dec. 2016)	
	14	Ink Drop Use Rate 1 Line	f/2	f/2→ f/1 → f/1	f/1	f/1	
	15	Ink Drop Use Rate 2 Lines	f/2	f/2→ f/1.286→ f/1	f/1	f/1	
	16	Ink Drop Use Rate 3 Lines	f/3	f/2→ f/1.47 → f/1	f/1	f/1	
	17	Ink Drop Use Rate 4 Lines	-	f/2→ f/1.786→ f/1	(f/1)	(f/1)	
	18	Ink Drop Use Rate 5 Lines	-	f/3	(f/3)	f/1 (3+2 Lines)	
	19	Ink Drop Use Rate 6 Lines	-	f/3	(f/3)	f/1 (3+3 Lines)	
	20	Ink Drop Use Rate 7 Lines	-	-	-	(f/1) (4+3 Lines)	
	21	Ink Drop Use Rate 8 Lines	-	-	-	(f/1) (4+4 Lines)	
	22	Chimney Print	-		○	○	
	23	DIN Print	-		○	○	
	24	90 degree printing	x		x	○ (End of Dec. 2016)	
	25	Max. Number of Print Data Registration	150		300→2000	2000	
	26	Maximum Number of Print Digits	120		240→1000	1000	
	27	Number of Calendar Conditions	3		3→8	16(8 x 2)	
	28	Shift Code, Time Count	-		- →○	○	
	29	Number of Substitution Rules	48		48→99	99	
	30	Number of Count Conditions	3		8	16(8 x 2)	
	31	Power Consumption	120VA			150VA(TBD)	
	32	Weight	27kg			34kg	
	33	Dimensions	400(W)×320(D)×520(H)			400(W)×395(D)×520(H)	

3. Product Specification (Comparison with Single Nozzle)

Category	#	Items	UX series/Single Nozzle			Twin Nozzle
			Basic model UX-B	High-performance model UX-D	Premium model UX-E	High-performance model UX-D
Basic Charac- ters	34	Alpha-Numeric, Symbols, Space		○		○
	35	Katakana (Japan displayed)		○		○
	36	Date-Dedicated Characters (Japanese)	24		25	25
	37	Half-Width Characters		○		○
	38	JIS Kanji Characters (Japanese)		○		○
	39	Accent, Greek, Russia (WW Models)		○		○
	40	Arabic (WW Models)		○		○
	41	Simple Kanji Characters (Simplified Chinese, English, Thailand, Vitnamese)		○		○
	42	Hangul Character (Korean)		○		○
	43	Local language (Hindi, Bengali, Hebrew)		○		○
Print Func- tions	44	Printing Interval		Approx. 7ms		Approx. 7ms
	45	High Frequency Print Mode (3ms)	None	Disable/Enable Selectable		Disable
	46	Mixed Scan of interlaced Scan and Single Scan	-		○	○
	47	Repeat Print		○ (Signal ON period/OFF-ON Transition)		○
	48	reciprocative Print Signal, Print Stop Signal	Option		○	○
	49	Output Signals	Option		○	○
	50	Sensor Out Timer (If sensor signal is detected long, Error will be caused)			○	○
	51	Speed Compensation with Product Speed Matching	-		○	○
52	Auto-Encoder	-		○	○	

3. Product Specification (Comparison with Single Nozzle)

Category	#	Items	UX series/Single Nozzle			Twin Nozzle	
			Basic model UX-B	High-performance model UX-D	Premium model UX-E	High-performance model UX-D	
Print	53	Number of Digits in A print Message	Maximum Number of Digits Available for Item Number is up to #25				
	54	Number of User Pattern (Fixed Size)	50 per Font	200 per font		200 per font	
	55	Number of User Pattern (Free Size)	-	50(32x320 Dots)		50(32x320 Dots)	
	56	Kanji Input Method	Conversion Input or Code Input				
	57	Dot Mixture		○		○	
	58	Free Layout	-	○ (32Dots)		○(64 Dots)	
	59	Barcode Print	-	○		○	
	60	Auto-Adding of readable Information of Barcode	-	○		○	
	61	2D-Code Print	-	○		DM, QR, Micro QR	
	62	Calendar with Substitution Rules	Year, Month, Day, Hour, Minute, Week Number, Day of the Week				
	63	Zero Suppression	Space/Left-Justified Selection				
	New function	64	5lines, 6lines printing (interlaced printing)	-	○		-
		65	High speed printing extension to multiple lines(2-4lines)	-	○		○
66		Line space extension (2, 3, 4lines 0-4)	-	○		○	
67		Print quality improvement of high speed printing	-	○		○	
68		Improvement of printing position accuracy	-	○		○	
69		Simplified setup for barcode type	-	○		○	
70		Message preview function		○		○	
71		Standardization of reverse scan printing	-	○		○	
72		Adding dedicated characters	-	○		○	
73		Barcode AI input	-	○		○	
74		Time management of service parts		○		○	
75		New human interface		○		○	
76		RFID (IC card)		○		○	
77		Guide for error occurrence		○		○	
78		Guide for service maintenance		○		○	

3. Product Specification (Comparison with Single Nozzle)

Category	#	Items	UX series/Single Nozzle			Twin Nozzle	
			Basic model UX-B	High-performance model UX-D	Premium model UX-E	High-performance model UX-D	
Others	79	User Data Saving	USB Memory can be used by User.				
	80	WYSIWYG of Print Contents	○			○	
	81	Communication:RS232C	Option	○		○	
	82	Communication: Ethernet (TUP-I/Library Communication)	-	○		○	
	83	Communication: Ethernet (LAN Unit/Tunnel Communication)	-	○		Option	
	84	Remote Control Signals	Option	○		○	
	85	Software Option Setup	-	○		○	
	86	Message Change During Printing	○			○	
	87	Print Buffer	○			○	
	88	Instantaneous Interruption	Specification:20ms; Actual:50ms				
Controls	89	Procedure of Instantaneous Interruption	○			○	
	90	Auto-Power off	-	○		○	
	91	Calendar Clock Accuracy	Actual±10s per Month			Actual±10s per Month	
	92	Back up Battery	2 Batteries			2 Batteries	
	Hardware	93	I/O Control Input Signal I/F x4	NPN/PNP(DIP-SW)	NPN/PNP(DIP-SW)		
		94	I/O Control Output Signal I/F x4	NPN/PNP(DIP-SW)			
		95	I/O Status Signal Output	Transistor: Standard (Open Collector), Relay: Option (DC30V only)			
		96	DC Power Supply For Sensor	24V, 100mA Total			24V, 100mA Total
		97	DC Power Supply For Encoder	24V, 100mA Total			24V, 100mA Total
	Physical	98	IP Grade	IP55	IP65		IP55
99		Control Panel	10.4" Color LCD Built-in				
100		Separated type Control Panel	-	Option		Option	
101		Solvent Consumption [20-deg C]	3.5ml/h		2.5ml/h	7.0ml/h	
102		Print Head Cable Length	4m			4m	
103		Print Head Cable Diameter	21mm		26mm	26mm	
104		6m Print Head Cable	-	-		-	
105		Print Head Cable Orientation	Standard Straight/Right Angle Selectable				
106		Right Angle Print Head	-	-		-	
107		Ink Filter Replacement Frequency	2400h			2400h	
108	Ink Filter Replacement Method	One-Touch Joint System					
109	Operating Temperature	0-30 deg C (Ink Type Limited)			0-45 deg C		



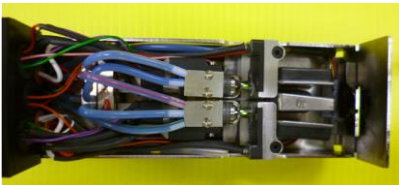
4. Schedule of software functions

No	Function	Demo machine	Mass production	2017.3
1	Enhanced HMI	OK	OK	OK
2	8 line printing	OK	OK	OK
3	Synchronized print start position	OK	OK	OK
4	Composite character (User pattern)	OK	OK	OK
5	Repeat print	OK	OK	OK
6	Calendar、 Count	OK	OK	OK
7	Product speed matching[encoder&Auto]	OK	OK	OK
8	Change Character orientation	OK	OK	OK
9	Copy data(IJP⇔USB)	OK	OK	OK
10	Edit Standard pattern	OK	OK	OK
11	Edit substitution rule	OK	OK	OK
12	Circulation control (*)	OK	OK	OK
13	System environment setup	OK	OK	OK
14	User environment setup	OK	OK	OK
15	Communication	OK	OK	OK
16	Replenishing the ink or makeup(RFID)	OK	OK	OK
17	SOP-04,05,08	-	OK	OK
18	SOP15-19⇒standardization	-	OK	OK
19	Composite character	-	-	OK
20	90 degree printing	-	-	OK

(*) Process prior to long-term shutdown, Process after long-term shutdown, Ink filter replacement

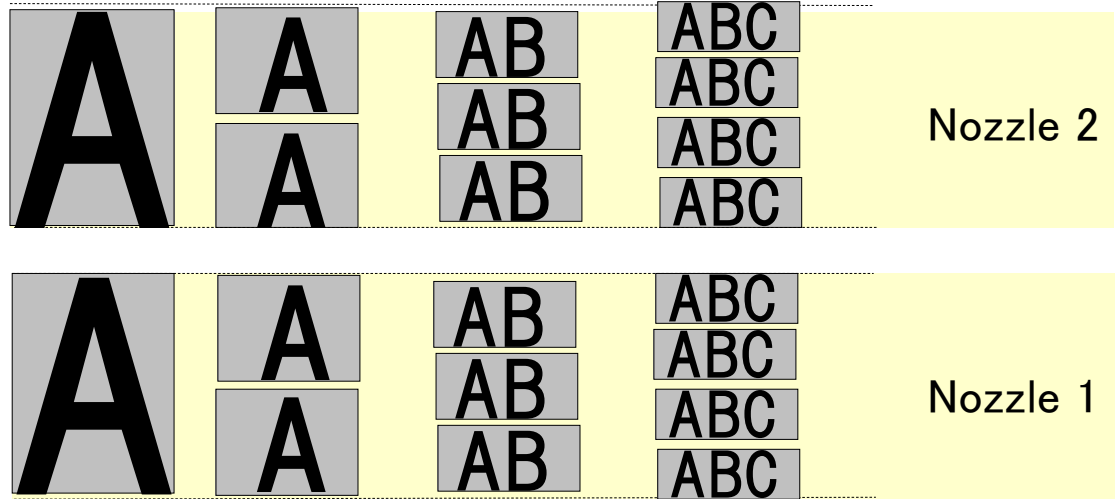
END



No	Items	UX-Twin	Imaje 9030 1.2G	Domino A420i DUO
	Printhead			
1	Ink Type/Nozzle Diameter	Dye 65, 55 μ m	Dye, Pigment/71 μ m, 50 μ m	Dye 75 μ m
2	Nozzle Interval	12mm	9.5mm	12mm
3	Number of Lines	4 Lines \times 2	4 Lines \times 2	4 Lines \times 2
4	Max. Vertical Dots	32 Dots \times 2	24 Dots \times 2	32 Dots \times 2
5	Printhead Dimensions	235 \times 46 \times 54	182 \times 44 \times 54	255 \times 50 \times 57
6	Console Dimensions	400 (W) \times 395 (D) \times 527 (H)	365 (W) \times 222 (D) \times 400 (H)	455 (W) \times 370 (D) \times 524 (H)
7	Max print speed (65 μ m)	295 (m/min)	268 (m/min)	325 (m/min)
8	IP Grade	IP55	IP54 IP65 (Option)	IP55
9	1 Nozzle Operation • Beam adjustment • Nozzle backwash	Yes	No	No
10	Solvent Consumption [MEK:20°C]	7.0ml/h (UX-D \times 2) Recovery by 2 pumps	18mL/h (experiment at Taga) Strong recovery by 1 pump	(Equal to Imaje ?) Strong recovery by 1 pump
11	Printhead Cable Length	4 m	3 m	3 m
12	Printhead Cable Diameter	26.4mm (same as UX-E)	15.5mm	20mm
13	Operating Temperature	0-45°C	0-40°C	5-45°C

【Basic character】

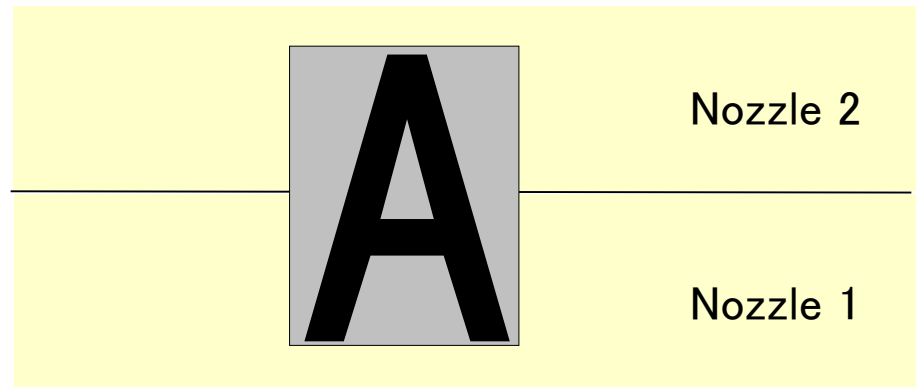
Font	Line
4 x 5	4 lines x 2
5 x 5	4 lines x 2
5 x 8 (5 x 7)	4 lines x 2
7 x 10	3 lines x 2
9 x 8 (9 x 7)	4 lines x 2
10 x 12	2 lines x 2
12 x 16	2 lines x 2
18 x 24	1 line x 2
24 x 32	1 line x 2



【Composite character】

Font	Line
30 x 40	1 line
36 x 48	1 line
48 x 64	1 line

Print functions you can use :
Basic characters, Calendar counts,
User patterns.



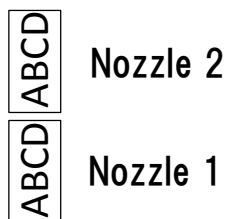
Print lower half by Nozzle 1 and upper half by Nozzle 2.

【Max number of print digits】

Line	Max number of print digits	
	Twin nozzle	Single nozzle
1 line	500 x 2 nozzles	1000
2 lines	250 x 2 nozzles	500
3 lines	166 x 2 nozzles	333
4 lines	100 x 2 nozzles	250

【90 degree printing】

- Twin nozzle only. 32dots (Vertical dot including inter character) x 2 nozzles



【Chimney printing】

- Both single and twin nozzle. (5 x 3, 5 x 5, 7 x 5) 。 1 line x 2 nozzles

