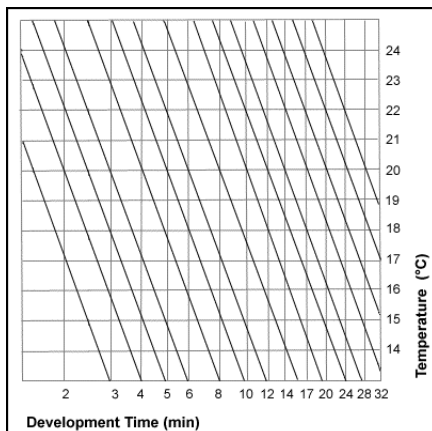# Photo Warehouse

FILM DEVELOPMENT CHART

	68° D-76 or Ultrafine Powder Dev.	68° D-76 or Ultrafine Powder Dev. 1:1	68° Sensidol 1:9	68° U60 1:9	68° F60 1:9	68° Ultrafine Liquid Dev. 1:4	68° HC-110 Dil. B	68° T-Max Dev.
Ultrafine B&W 125	6-8	10	5 ½	5 ½	5 ½	8 ½	5	5 ½
Ultrafine B&W 400	7 ½	13	7	7	7	11	6	8
Ultramax T-Grain 400	6	10	9	9	9	12 ½	5	8
Ultrafine Plus B&W 100	9	10	11	11	11	12	8.5	8.5
Ultrafine Plus B&W 400	8.5	9	10	10	10	8	10	7
Ultrafine Xtreme 100	8	10 ½	5	5	5	6 ½	8 ½	6
Ultrafine Xtreme 400	7	12 ½	6 ½	6 ½	6 ½	7 ½	5	6
Agfa APX ISO 400	10	11	8	8	8	8	6	7
Kodak Plus-X Pan ISO 125	5 ½	8 ½	5 ½	5 ½	5 ½	7	3 ½	5 ¾
Kodak T-Max 100	9	12	7	7	7	7	7	7 ½
Kodak T-Max 400	8	12 ½	6 ¾	6 ¾	6 ¾	8	6	7
Kodak T-Max 3200	14	--	11 ½	11 ½	11 ½	--	10 ½	9 ½ (75°)
Kodak Tri-X Pan ISO 400	6 ¾	9 ¾	9 ¼	9 ¼	9 ¼	8	6	6
Ilford Delta ISO 100	8 ½	11	7	7	7	7	6	7
Ilford Delta ISO 400	9 ½	14	7 ½	7 ½	7 ½	8	7 ½	6 ½
Ilford FP4 Plus	8 ½	11	5 ½	5 ½	5 ½	7	9	6 ½
Ilford HP5 Plus	7 ½	13	7	7	7	8	5	6 ½

These times are a guide. A test roll should be developed prior to actual production.
120 roll film required approximately 10% more developing time.

Ortho Litho Film - A&B 1:3 2 ¾ - 3 ½ MIN @ 68°

PUSH PROCESSING (B/W)

These are general guidelines when no published development times are available. To use this chart multiply the published time at recommended ASA by the factor in parenthesis (ie. If Tri-X rated at 400ASA is normally developed for 6 minutes in a standard developer, then when Tri-X is pushed three stops to 3200ASA development would be: 6 x 2 = 12 minutes). **Please use these recommendations as starting points only.** In many cases these times will prove excessive, but when all else fails they can be a good guideline. Please note separate data for Tmax films.

Standard Developer
1 stop push = (x1.25)
2 stop push = (x1.5)
3 stop push = (x2.0)

Compensating Developer
1 stop push = (x1.4)
2 stop push = (x1.85)
3 stop push = (x2.5)

TMax Films
1 stop push = no change
2 stop push = (x1.33)
3 stop push = (x1.66)

Celsius		Fahrenheit
18	=	64.4
19	=	66.2
20	=	68.0
21	=	69.8
22	=	71.6
23	=	73.4
24	=	75.2
25	=	77.0
26	=	78.8

Conversion chart instructions
Locate the point on the grid where the recommended time and temp intersect. From that point follow the diagonal line up or down to the desired temperature and then read the new time from the bottom row.

*Compensating developers include Microphen, TMax, and any other developers which are specifically formulated for push processing.

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