

TABLE 2. EXPERIMENTAL DATA FOR COLD HYDROSTATIC EXTRUSION OF 7075-0 ALUMINUM ALLOY ROUNDS

Die Angle - 45 degrees (included) Billet surface finish - 60-100 microinches, rms
 Fluid - Castor oil

Item	Trial	Extrusion Ratio	Stem Speed, ipm	Billet Lubricant	Extrusion Pressure, 1000 psi				Type of Curve (see p 25)	Length of Extrusion, inches	Comments
					Breakthrough		Runout				
					Stem	Fluid	Stem	Fluid			
1	347	20	20	L17	162	152	144	130	C1	65	Reference trial ⁽⁴⁾
	431	20	20	L52	188	169	142	119	D2	74	--
	432	20	20	L53	164	150	144	123	C2	79	Insufficient lubricant on nose
	453	20	20	L53	155	138	142	122	B2	108	Pressure for first billet in tandem
		20	20	L53	--	177	--	122	C2	20	Restarting pressure
	454(a)	20	20	L53	150	134	136	122	B2	108	Leading billet only
	463	20	20	L53	152	137	138	123	B2	66	Stepped billet nose, A = 1.25 in.
	464(b)	20	20	L53	149	135	133	119	B2	68	--
	433	20	20	L54	169	154	143	127	C2	57	Insufficient lubricant on nose
	436	20	20	L38	156	140	140	122	B2	39	--
	440	20	20	L33	169	150	159	138	B3	40	--
	447	20	20	L31	168	148	136	125	C2	65	--
	449(a)	20	20	L31	176	153	141	128	C2	65	--
2	435	40	20	L53	254	221	165	142	D2	58	--
	468(b)	40	20	L53	204	164	144	135	D3	137	--
	446	40	20	L38	204	179	146	135	D1	119	--
	470	40	20	L53	168	150	154	137	C2	140	Compound-angle billet nose, A = 0.75 in.
3	434	20	80	L53	170	148	144	126	B2	88	--
	448	20	80	L54	168	150	144	126	B2	50	--
	467	20	80	L31	174	158	144	133	B2	44	--
4	457	2.5	20	L17	48	46	48	46	A1	8	--
	456	7	20	L17	99	94	96	89	A2	18	--

(a) Flame coated die used.

(b) Fluid used was silicate ester (SE).

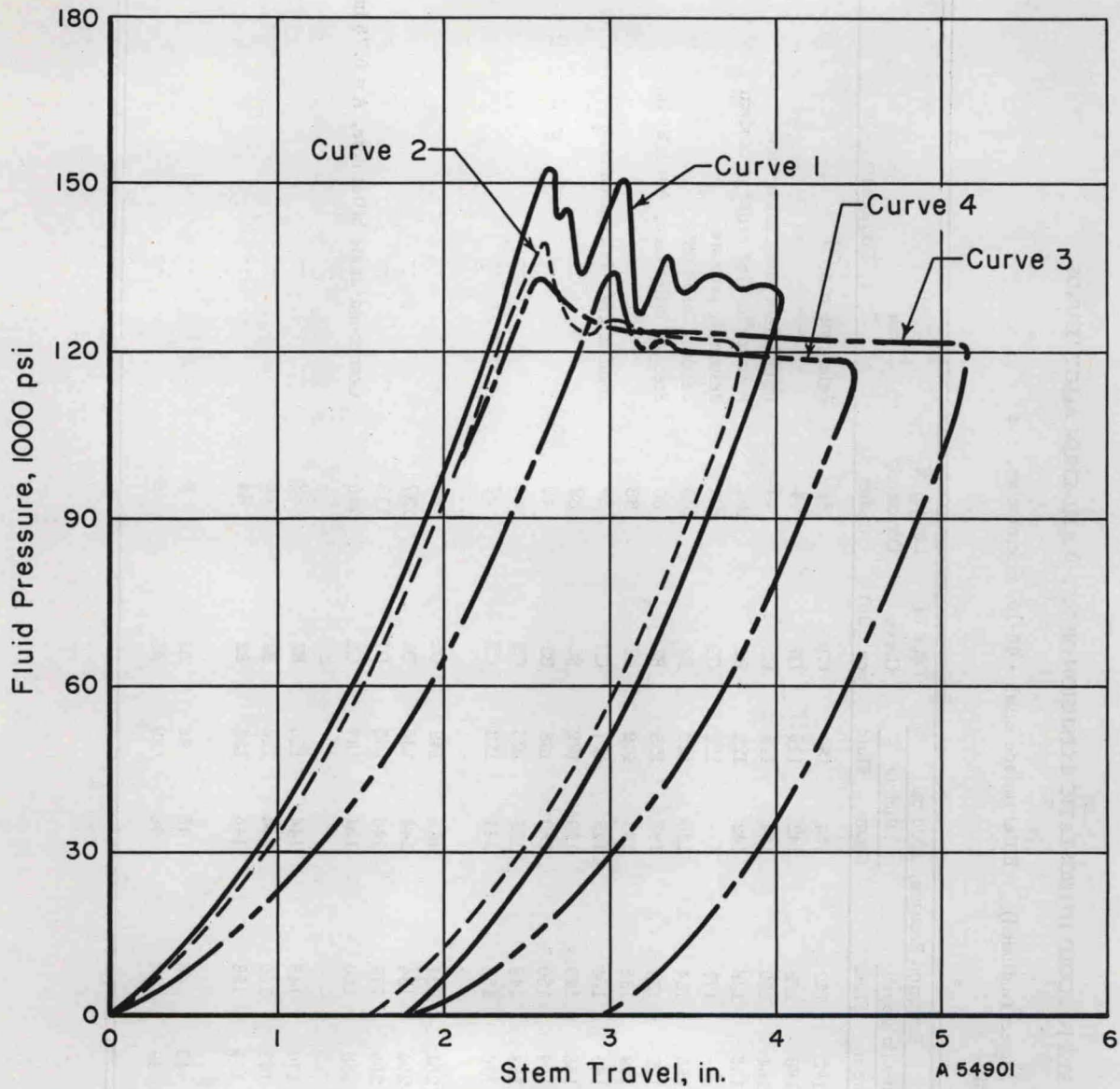


FIGURE 3. EFFECT OF FLUID AND BILLET LUBRICANT ON PRESSURE-DISPLACEMENT CURVES OBTAINED IN THE HYDROSTATIC EXTRUSION OF 7075-0 ALUMINUM AT A RATIO OF 20:1

Extrusion Conditions: Stem speed 20 ipm
 Die angle 45 degrees included

<u>Curve</u>	<u>Trial</u>	<u>Fluid</u>	<u>Billet Lubricant</u>
1	347	Castor oil	20 wt. % MoS ₂ in castor wax (L17)
2	436	Castor oil	PTFE (L38)
3	454	Castor oil	20 wt. % MoS ₂ in stearyl stearate (L53)
4	464	Silicate ester	20 wt. % MoS ₂ in stearyl stearate (L53)