



HOIST STROKE CALCULATIONS

1. Angle of Tip

Where pivot centres and hoist stroke are known:-

$$\frac{\text{STROKE}}{\text{PIVOT CENTRES}} \times 59 = \text{ANGLE OF TIP}$$

2. Hoist Stroke

Where pivot centres and angle of tip are known

ANGLE	USE FORMULAE	
47.5°	PIVOT CENTRE x 0.80	= HOIST STROKE
50°	PIVOT CENTRE x 0.84	

3. Pivot Centres

Where hoist stroke and angle of tip are known

ANGLE	USE FORMULAE	
47.5°	STROKE x 1.25	= PIVOT CENTRE
50°	STROKE x 1.19	

DIRECT THRUST IN TONNES FOR EACH STAGE DIAMETER

Press. Bar	ø30	ø46	ø61	ø68	ø76	ø88	ø91	ø107	ø126	ø145	ø165	ø187
100	0.707	1.662	2.923	3.633	4.538	6.084	6.506	8.996	12.474	16.520	21.392	27.476
140	0.990	2.327	4.093	5.086	6.353	8.518	9.109	12.594	17.464	23.128	29.948	38.467
170	1.202	2.826	4.970	6.176	7.715	10.344	11.061	15.293	21.206	28.084	36.350	46.710



ANGLES AT WHICH VARIOUS MATERIAL WILL SLIDE

ASHES, DRY	33°	COAL, HARD	24°	ORE, DRY	30°
ASHES, MOIST	36°	COAL, SOFT	30°	ORE, FRESH MINED	37°
ASHES, WET	30°	COKE	23°	RUBBLE	45°
ASPHALT	45°	CONCRETE	30°	SAND, DRY	35°
CINDERS, DRY	33°	EARTH, LOOSE	28°	SAND & CRUSHED STONE	27°
CINDERS, MOIST	34°	EARTH COMPACTED	50°	STONE	30°
CINDERS, WET	31°	GARBAGE	30°	STONE, BROKEN	27°
CINDERS & CLAY	30°	GRAVEL	40°	STONE, CRUSHED	30°
CLAY	45°				

COMMODITY WEIGHTS OF SOME MATERIALS

MATERIAL	KG per M ³	MATERIAL	KG per M ³
ASHES	641	LIME	861
ASPHALT	1603	LIMESTONE-SOLID	2553
BARLEY	609	LIMESTONE-CRUSHED	1603
CINDERS	641	MANGANESE	4151
CLAY-DRY	1009	MARBLE-SOLID	2645
CLAY-WET	1764	MARBLE-CRUSHED	1539
COAL-BLACK	903	MUD-DRY	1283 TO 1764
COAL-BROWN	757	MUD-WET	1764 TO 2084
COKE	594	CRUSHED ROCK & STONE	1363 TO 1669
CONCRETE-DRY MIX	1247	SALT-FINE	802
CONCRETE-WET MIX	2375	SAND-DRY & LOOSE	1430 TO 1698
EARTH-DRY	656 TO 834	SAND-DRY & COMPACT	1876
EARTH-WET	1152 TO 1283	SAND-MOIST & LOOSE	1443 TO 1698
GARBAGE-DRY	528 TO 659	SANDSTONE-SOLID	2494
GARBAGE-WET	656 TO 834	SANDSTONE-CRUSHED	1366
GRAVEL & SAND-DRY & LOOSE	1463 TO 1729	STONE-CRUSHED	1603
GRAVEL & SAND-DRY & PACKED	1764	SUPERPHOSPHATE	1026
GYPSUM	600 - MOIST	WHEAT	769
LEAD	7274		

This list of approximate weights of various materials has been compiled from the best sources available. As can be seen there is a wide variation of weights in number of instances, this variation indicates the advisability of checking actual weights in order to obtain accurate calculations.

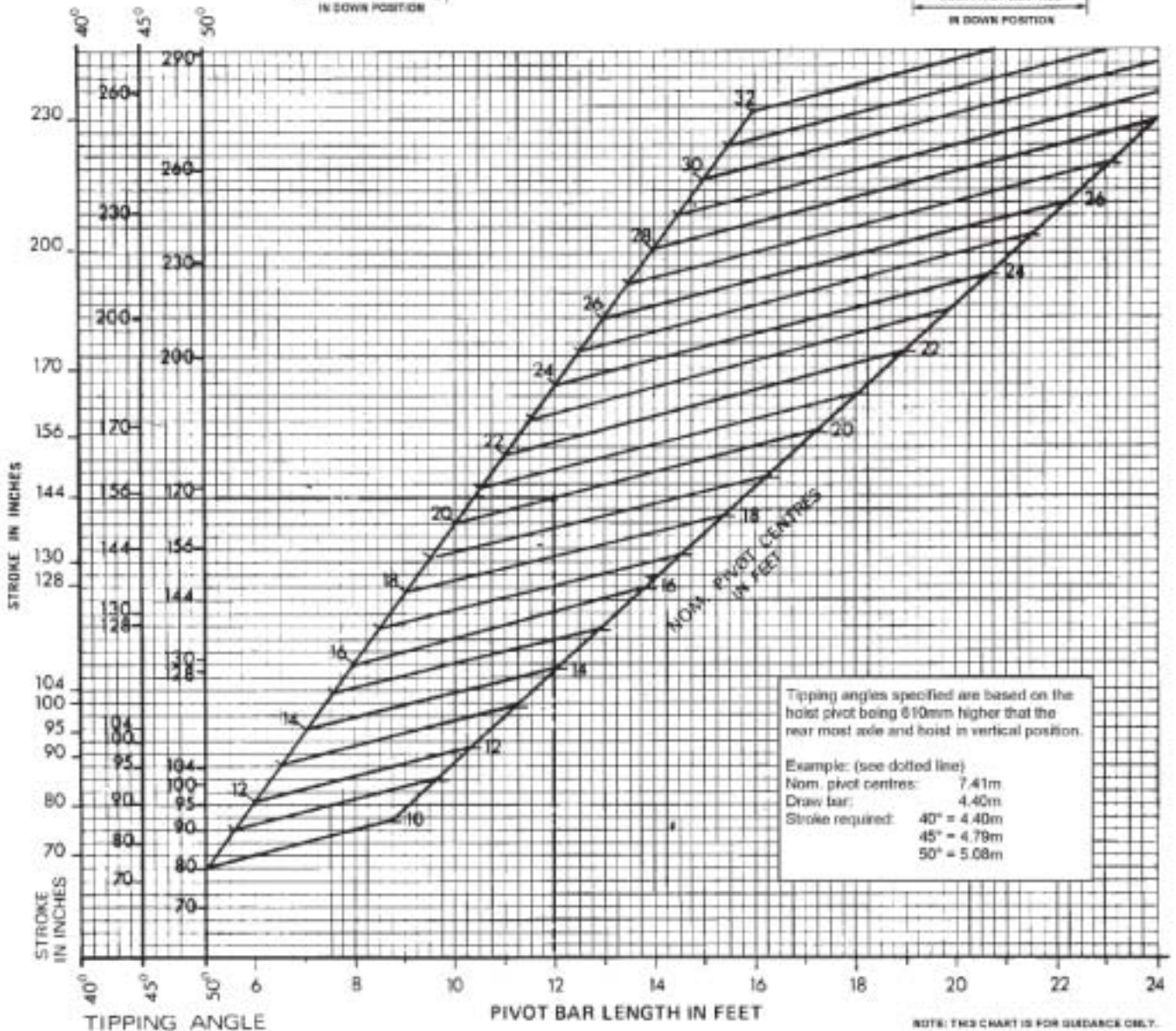
It is intended as a reference guide only.



No. 1 in Transport Hydraulics

HOIST STROKE SELECTION FOR CHASSISLESS TIPPERS

MINIMUM TIPPING ANGLE
RECOMMENDED - 48°



Tipping angles specified are based on the hoist pivot being 610mm higher than the rear most axle and hoist in vertical position.

Example: (see dotted line)
 Nom. pivot centres: 7.41m
 Draw bar: 4.40m
 Stroke required: 40° = 4.40m
 45° = 4.79m
 50° = 5.08m

NOTE: THIS CHART IS FOR GUIDANCE ONLY.
 FOR OTHER APPLICATION CONTACT
 THE SALES DEPARTMENT