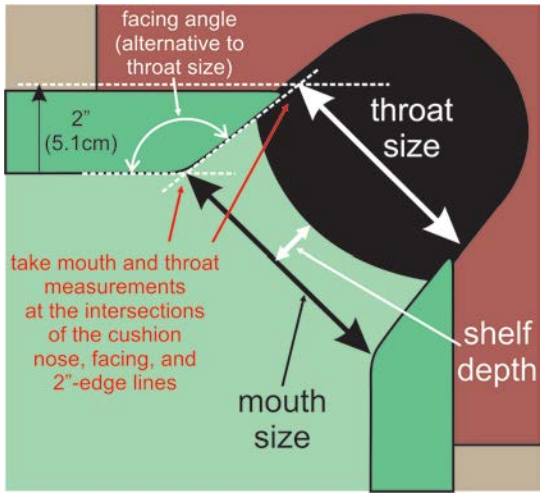
Table Difficulty Factor (TDF)

(3/1/2015)

The **Table Difficulty Factor (TDF)** is a percentage measure of how difficult or easy a particular table plays. It is based on table size and the three corner-pocket measurements illustrated below. If the cushion is not 2" (5.1cm) thick, measure the throat size 2" (5.1 cm) back from the cushion noses. You can lay down Post-It Notes or masking tape to better define the lines and intersection points to help with the mouth and throat measurements. If you have an angle-measurement device, you can measure the facing angle directly instead of measuring the throat size. The shelf depth should be measured from the pocket mouth line to the slate top lip edge (where the pocket opening first starts).



Four factors are used to account for table size, pocket size, pocket facing angle, and pocket shelf depth. Each factor is a number less than, equal to, or greater than 1, where 1 indicates average or standard. By multiplying the four factors, you get the TDF which is a good measure of table "toughness." If TDF=1, the table has an average level of difficulty; if TDF>1, the table plays more difficult than average; and if TDF<1, the table plays easier than average.

The four factors are defined as follows:

Table Size Factor (TSF)

table size	playing area dimensions (cushion nose to nose)	table size factor (TSF)
12 ft (gigantic)	140" x 70" (355.6cm x 177.8cm)	1.25
10 ft (oversized)	112" x 56" (284.5cm x 142.2cm)	1.10
9 ft (regulation size)	100" x 50" (254.0cm x 127.0cm)	**1.00**
8 ft+ (pro 8)	92" x 46" (233.7cm x 116.8cm)	0.95
8 ft (home table)	88" x 44" (223.5cm x 111.7cm)	0.90
6 ft or 7 ft ("bar box")	72-84" x 36-42" (182.9-213.4cm x 91.4-106.7cm)	0.85

Pocket Size Factor (PSF)

pocket mouth size	≤ 3 3/8“ (8.6cm)	> 3 3/8” (8.6cm) and ≤ 3 1/2” (8.9cm)	> 3 1/2” (8.9cm) and ≤ 3 5/8” (9.2cm)	> 3 5/8” (9.2cm) and ≤ 3 3/4” (9.5cm)	> 3 3/4” (9.5cm) and ≤ 3 7/8” (9.8cm)	> 3 7/8” (9.8cm) and ≤ 4” (10.2cm)	> 4” (10.2cm) and ≤ 4 1/8” (10.5cm)	> 4 1/8” (10.5cm) and ≤ 4 1/4” (10.8cm)	> 4 1/4” (10.8cm) and ≤ 4 3/8” (11.1cm)	> 4 3/8” (11.1cm) and ≤ 4 1/2” (11.4cm)	> 4 1/2” (11.4cm) and ≤ 4 3/4” (12.1cm)	> 4 3/4” (12.1cm) and ≤ 5” (12.7cm)	> 5” (12.7cm) and ≤ 5 1/4” (13.3cm)	> 5 1/4” (13.3cm)
pocket size factor (PSF)	1.55	1.46	1.38	1.31	1.25	1.20	1.15	1.10	1.05	**1.00**	0.95	0.91	0.88	0.85

Pocket Angle Factor (PAF)

pocket mouth-throat difference 2” (5.1cm) back from the cushion noses		> 1 1/4” (32mm)	> 1” (25mm) and ≤ 1 1/4” (32mm)	> 7/8” (22mm) and ≤ 1” (25mm)	> 3/4” (19mm) and ≤ 7/8” (22mm)	> 5/8” (16mm) and ≤ 3/4” (19mm)	> 1/2” (13mm) and ≤ 5/8” (16mm)	> 3/8” (10mm) and ≤ 1/2” (13mm)	> 1/4” (6mm) and ≤ 3/8” (10mm)	≤ 1/4” (6mm)
pocket facing angle (can measure directly instead of using the mouth-throat difference)		> 145.3º	> 143.5º and ≤ 145.3º	> 142.6º and ≤ 143.5º	> 141.7º and ≤ 142.6º	> 140.7º and ≤ 141.7º	> 139.6º and ≤ 140.7º	> 138.6º and ≤ 139.6º	> 137.0º and ≤ 138.6º	≤ 137.0º
pocket angle factor (PAF)	**PSF≤0.90**	1.09	1.07	1.05	1.03	1.01	**1.00**	0.98	0.96	0.94
	0.90<PSF<1.10	1.14	1.10	1.07	1.04	1.02	**1.00**	0.98	0.97	0.95
	PSF≥1.10	1.20	1.14	1.09	1.05	1.02	**1.00**	0.99	0.98	0.97

Pocket Shelf Factor (PLF)

pocket shelf depth		> 2 1/4" (57mm)	>2” (51mm) and ≤ 2 1/4” (57mm)	>1 3/4” (44mm) and ≤ 2” (51mm)	> 1 1/2” (38mm) and ≤ 1 3/4” (44mm)	> 1 1/4” (32mm) and ≤ 1 1/2” (38mm)	≤ 1 1/4” (32mm)
pocket shelf factor (PLF)	**PSF≤0.90**	1.07	1.03	1.01	**1.00**	0.97	0.93
	0.90<PSF<1.10 and PAF<1.10	1.10	1.05	1.03	**1.00**	0.98	0.95
	PSF≥1.10 or PAF≥1.10	1.15	1.07	1.03	**1.00**	0.99	0.98

Total Table Difficulty Factor (TDF)

TDF = TSF x PSF x PAF x PLF

The TDF can be used to adjust numbers from any scoring or rating system like the Billiard University Exams, "playing the ghost" drills, the Hopkins Q Skills drill, or the Fargo rating drill (for detailed descriptions of each, see the rating systems resource page). An effective score, taking table difficulty into consideration, can be calculated with:

(effective score) = (raw score) x TDF

NOTE – The TDF and effective-score numbers should not be interpreted too literally since there are so many other factors that contribute to how difficult a table actually plays (cloth type and condition, ball conditions, pocket facing and shim properties, rail and cushion conditions, table levelness, humidity, etc.). Here's a rough scale one can use to put the TDF factor in better perspective:

TDF	< 0.70	0.70-0.85	0.85-0.95	0.95-1.05	1.05-1.15	1.15-1.30	> 1.30
table difficulty	too easy	very easy	easy	average	tough	very tough	too tough

Example

As an example, let's say two players ("A" and "B") got an identical Billiard University (BU) score of 130. Player "A" took the exams on a fairly easy table with the following measurements:

Table "A"

table size = 8', mouth = 5", throat = 4 1/2", (mouth-throat) = 1/2", shelf = 1 3/8"

TDF = TSF x PSF x PAF x PLF = 0.90 x 0.91 x 0.98 x 0.98 = 0.79

Therefore, table "A" is about 21% easier than average (in the "very easy" range), and the effective BU score on this table would be about 130 x 0.79 = 103 (much lower than 130).

Player "B" took the exams on a fairly tough table with the following measurements:

Table "B"

table size = 9', mouth = 3 7/8", throat = 3 1/4", (mouth-throat) = 5/8", shelf = 1 7/8"

TDF = TSF x PSF x PAF x PLF = 1.00 x 1.25 x 1.00 x 1.03 = 1.29

Therefore, table "B" is about 29% more difficult than average (in the "very tough" range), and the effective BU score on this table would be about 130 x 1.29 = 168 (much higher than 130). This helps put the BU scores in better perspective based on table difficulty. Again, these numbers should not be taken too literally. They just help roughly compare scores on different tables in a relative sense.