

# Chromatic Tempo

## Chromatic Scale – 12 Notes

The chromatic scale consists of all 12 notes that exist in music within an octave. [This](#) video explains why we have a 12-note-system in music.

How old is this system? It's probably been around since ancient times. But the music of the last millennium is definitely dominated by this system. It was raised to a higher level by the invention of *equal temperament* – first developed in china 1584 but not until the end of the 18<sup>th</sup> century becoming a standard system in western music. *Equal temperament* is a musical temperament, or a system of tuning, in which the frequency interval between every pair of adjacent notes has the same frequency-ratio – the ratio of 1 to  $\sqrt[12]{2}$ .

## The System of Chromatic Tempos

I have transferred the system of *equal temperament* on musical tempos. As a starting point I chose *one second* (60 BPM) and the range down (between 2 seconds and 1 seconds – that is, 30 – 60 BPM). Frequency doubling corresponds an octave in the range of musical tones (12 semitones) – likewise, tempo doubling corresponds to an octave in the system of the chromatic tempos.

Applying the ratio of the *equal temperament* (1 to  $\sqrt[12]{2}$ ) to tempos beginning with 30, we arrive at the following BPM numbers: 30 – 31,78 (=  $30 \times \sqrt[12]{2}$ ) – 33,67 (=  $31,78 \times \sqrt[12]{2}$  etc.) – 35,68 – 37,80 – 40,05 – 42,43 – 44,95 – 47,62 – 50,45 – 53,45 – 56,63 – 60 rounded: 30 – 32 – 34 – 36 – 38 – 40 – 42 – 45 – 48 – 51 – 54 – 57 – 60.

I use this range for all my exercises with metronome, except for exercises in odd meters. For beginners, for easy exercises, and for practicing long phrases or even whole songs, I recommend using only every other number, because then you don't have to practice in too many different tempos. On the other hand, the steps between the tempos are then not be too big: (30 – 34 – 38 – 42 – 48 – 54).

However, if you are practicing short phrases or rudiments at the limits of your technical ability, you should use all twelve tempos.

## Why practice with slow tempos?

If a song has a tempo of, say ♩ = 180 BPM, you can set your metronome to this number for practice, but you may get nervous when you hear the fast beeps (or clicks) of the metronome. And you may find that it's almost impossible for you to correct your tempo if you've deviated a little from the metronome click.

In this case, set your metronome to ♩ = 90 or even better to ♩ = 45. You'll feel more relaxed when you hear the slower rhythm, and you'll have more opportunity to correct if you deviate a little from your metronome. This flexibility can be helpful when practicing. This approach may be better than thinking: "*If it's not 100% correct, it's completely useless.*" Remember, this is an exercise, not a performance on stage.

## Why train with this system?

Everybody knows, what it means to double a tempo or to play half-time. But hardly anyone has any idea of how to play 1 ½ times faster or a third slower. Is it unnecessary to know such things? In nature and in music, simple numerical ratios prevail. Should a professional drummer ignore that when it comes to tempo ratios?

I've come to recognize two basic rules:

- 1. If you can play something in a certain tempo with metronome and you want to be able to play this faster, set the metronome to a  $\frac{1}{6}$  tempo faster. But if you're already close to the limit of your technical ability, you're better off setting the metronome only  $\frac{1}{12}$  faster.**

Years of practicing, exercising and teaching have shown me that these ratios are ideal. They correspond to *equal temperament*:

- The difference between one tempo and the next is not too great. Therefore, it is possible to master the exercise in the new tempo in a short time.
- The difference between one tempo and the next is not too small. Therefore, you do not need to practice too many different tempos.

With this system you get the tool to quickly find the right BPM numbers fast. Like the *chromatic scale* it contains the fractions (approximately, among others):

- (faster):  $1\frac{1}{12}$  –  $1\frac{1}{6}$  –  $1\frac{1}{4}$  –  $1\frac{1}{3}$  and  $1\frac{1}{2}$
- (slower)  $2\frac{3}{24}$  –  $1\frac{1}{12}$  –  $\frac{7}{8}$  –  $\frac{5}{6}$  –  $\frac{3}{4}$  –  $\frac{2}{3}$  and  $\frac{1}{2}$

If you work with this system regularly and take notes on your progress, you'll get a good feel for where your technical limits are – the exact outermost tempos, at which you can perform certain exercises. Would you like to know? Or do you think, those knowledges are unnecessary for you?

- 2. If you can't play something in a certain metronome tempo, try a tempo  $\frac{1}{6}$  slower. This means: go back 4 steps on the list of 12 Chromatic Tempos.**

The best way to learn a new lick or rudiment is to figure out as quickly as possible what tempo you can play it at with a metronome – no matter how slow this tempo may be. I call this the *Root Tempo*. From there you can use the *Tempo Method*, which means: use rule 1.

In most cases going 4 steps back is enough, to find the *Root Tempo*, but sometimes you need to try out even slower tempos.

In these cases, as mentioned above: Do you think it's better to try out any BPM numbers found intuitively? Okay – then: forget this system!

## Practicing with music

Practicing with a practice drum set allows you to practice with music. By that, I don't mean learning a specific song with specific drum notes – no! I mean practicing drum rudiments with music!

Since I also work as a DJ, I have a large well-stocked and well-labeled music collection. I have my songs sorted by tempo in 12 playlists. (Most DJ programs are capable of this.) Each playlist represents  $\frac{1}{12}$  of my system of *chromatic tempos*. I sorted them from high to low, meaning the song with the highest tempo is first and the song with the lowest tempo is last in each list. In the middle of each list are the songs whose tempo correspond to the core number of the playlist. I mentioned the core numbers of the twelve *chromatic tempos* in the beginning. Here is the table of the twelve playlists:

No.	↓	↑	rounded core number	core number	tempo area			
1	1/2	1	<b>30</b>	30,00	-	61,76 - 58,29	123,52 - 116,58	247,04 - 233,16
2	- 11/24	+ 1/12	32	31,78	-	65,45 - 61,76	130,90 - 123,52	261,80 - 247,04
3	- 10/24	+ 1/6	<b>34</b>	33,67	-	69,32 - 65,45	138,64 - 130,90	277,28 - 261,80
4	- 9/24	+ 1/4	36	35,68	-	73,44 - 69,32	146,88 - 138,64	293,76 - 277,28
5	- 1/3	+ 1/3	<b>38</b>	37,80	-	77,81 - 73,44	155,62 - 146,88	311,24 - 293,76
6	- 7/24	+ 5/12	40	40,05	41,22 - 40,00	82,43 - 77,81	164,86 - 155,62	323,72 - 311,24
7	- 1/4	+ 1/2	<b>42</b>	42,43	43,72 - 41,22	87,44 - 82,43	174,88 - 164,86	349,76 - 323,72
8	- 5/24	+ 7/12	45	44,95	46,27 - 43,72	92,53 - 87,44	185,06 - 174,88	370,12 - 349,76
9	- 1/6	+ 2/3	<b>48</b>	47,62	49,02 - 46,27	98,03 - 92,53	196,06 - 185,06	392,12 - 370,12
10	- 1/8	+ 3/4	51	50,45	51,93 - 49,02	103,86 - 98,03	207,72 - 196,06	400,00 - 392,12
11	- 1/12	+ 5/6	<b>54</b>	53,45	55,02 - 51,93	110,04 - 103,86	220,04 - 207,72	-
12	- 1/24	+ 11/12	57	56,63	58,29 - 55,02	116,58 - 110,04	233,16 - 220,08	-
13	1	2	60 =30					

- The second column (from left) shows the ratios of the core numbers of each playlist to each other when you consider the highest tempo as 1.
- The third column (from left) shows the ratios of each playlist's core numbers to each other when you consider the lowest tempo as 1.
- The higher tempos (300 BPM and more) are traditional jazz music tempo designations. Composers traditionally do not use tempo designations below 40 BPM and above 400 BPM.

I use all rows for practicing rudiments on my drum pad and on my practice drum set. (My practice drum kit has no electronic drum sounds and no midi functions. It consists of practice drum pads only.)

I also use the 8<sup>th</sup> row (45 BPM) also for jogging, because these songs are good for running at about 180 steps per minute. This frequency is used by professionals and is recommended by doctors to save knees. I am not well trained in running. So, I take small steps. I actually run very slowly. But I am able to run 12 km at a stretch without knee problems after a three-month break.

I use the 6<sup>th</sup> row currently for inline skating (approx. 80 steps per minute).

I also made playlists with only triplet rhythms or with only waltzes. In doing so, I have applied the following rules:

1. For waltzes I usually assign a BPM number for whole measures – not for individual beats. For example, tournament waltzes have a tempo of 58 – 60 BPM – not 174 - 180 BPM.
2. But if the tempo of such a whole  $\frac{3}{4}$ -bar is slower than 40 BPM, I use the BPM number for a single beat instead.
3. If the tempo is between 40 – 80 BPM (or if it is a song of the kind mentioned in no. 2), I consider this song to be a waltz – regardless of what genre it is (jazz, blues, rock or other). I refrain from practicing to songs with a triplet waltz rhythm ( $\frac{9}{8}$ -rhythm).
4. If the tempo is above 80 BPM, I consider the song to have a triplet rhythm – no matter what genre it is. Any song with a 16<sup>th</sup> note shuffle rhythm between 40 – 80 BPM also belongs in this category.

### **Why are the playlists sorted in descending order?**

The reason is that this gives me the feeling that my technical progress is greater than it actual is. This illusion helps me stay motivated to keep practicing.

The same reason applies when I jog or inline skate to the music from the playlists: the frequency slowly drops. This helps me to mobilize additional energy.