



Basic information

Important for all users who are too lazy to read (like me):

Especially in case of problems, I strongly advise to read the chapters "1.3 Compatibility" and "1.4 Macros (VBA) and security alerts" first.

1 Introduction

1.1 Prologue

This file reflects my knowledge and experience gained during many years of organising DMMs and many visits to other tournaments.

The aim of this file is to support others who want to organise fixtures or tournaments.

The emphasis is clearly on the game schedule (fixture list).

This file is not a tournament planner, it only represents the optimal team pairings for group and knockout rounds.

A tournament planning (especially for MÖlkky) is mainly based on 3 criteria:

- number of teams
- number of available fields
- the available time frame

This then gives the options for possible group sizes (and number of rounds) and/or number of elimination rounds.

If you notice any errors or if you think of any improvements or enhancements, please let me know by e-mail:

walter_aust@t-online.de

The same applies if you have problems inserting another language.

1.2 Usage

All worksheets are protected without a password to avoid unintentional changes.

In principle, all dropdown and checkbox controls (combo boxes and checkboxes) should be functional (see also chapter "1.3 Compatibility").

In addition, the following formatted cells can be changed either by manual input or by partially existing spin buttons.

Number of teams (round robin) OR game results in the KO rounds

Highlighting a team (Round-Robin, Multi-Teams)

Highlighting a second team (Round-Robin, Multi-Teams)

All other cells are fixed values or are calculated.

1.3 Compatibility

This file was created using Microsoft® Excel® 2016 with Microsoft® Windows 10 as operating system.

Theoretically, the file should also be compatible with the "macOS" operating system.

Unfortunately, there is only limited compatibility between the different providers of Office packages.

With macros (VBA), however, compatibility is de facto non-existent.

With the sheets for "Round-Robin" and "Multi-Teams" macros could still be avoided by some tricks.

In the KO rounds and when creating external tables, they are unfortunately unavoidable.

Furthermore, ActiveX controls have been omitted for compatibility reasons, even though they would sometimes be more convenient.

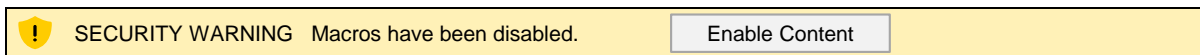
1.4 Macros (VBA) and security alerts

With the security settings generally recommended for macros, a warning message (see below) should appear.

I do not know what this message looks like for non-Microsoft products.

When you open a file that has macros, the yellow message bar appears with a shield icon and the Enable Content button. If you know the macro, or macros, are from a reliable source, use the following instructions:

On the Message Bar, click "Enable Content".





Basic information

2 Sheets in this workbook

2.1 Info

this sheet

2.2 Round-Robin

"Group stage: Representation of the round-robin system"

The table shows a straight round-robin-system (everyone against everyone).

A perfect game schedule would have the following characteristics:

- Each team plays each of the others exactly once.
- No team plays two consecutive games on the same playing field.
- Each team plays twice on each playing field.
- Each team begins exactly once the first set on each playing field.

In reality, this is not always possible, please see also the "properties" beside the game schedule.

To check team pairings, it is possible to select following criteria:

- number of teams (between 2 and 26)
- number of fields (until now only possible for 10 teams)
- two teams highlighted in different colours

Calculation of the required playing fields, rounds, games and sets

(if all equivalent rounds take place simultaneously)

n = number of teams per group (2...26)

r = number of rounds

f = number of fields

g = number of games

s = number of sets

8
7
4
28

= n (if n is odd)

= $n-1$ (if n is even)

= round-up ($n / 2$)

= $(n / 2) \times (n - 1)$

= determination by the organizer

2.3 Multi-Teams

"Group stage: Representation of the multi-team-game system (sequence of the teams)"

The table shows 4 games with 3 to 6 teams each in one game and how the throw order changes.

A perfect game schedule would have the following characteristics:

- There are as many sets as there are teams in one game.
- Each team begins one set exactly once.
- Two teams following each other in the throwing order play exactly once in a row.

In reality, this is not always possible, please see also the "properties" beside the game schedule.

To check consecutive teams, it is possible to select following criteria:

- two teams highlighted in different colours

Calculation of the required playing fields, rounds, games and sets

(if all equivalent rounds take place simultaneously)

n = number of teams per group (2...6)

r = number of rounds

f = number of fields

g = number of games

s = number of sets

4
1
1
1
4

= 1 (always)

= 1 (always)

= determination by the organizer

= n



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2.4 KO-Single

"Final rounds: Representation of a single elimination system (knockout rounds)"

Classical knock-out, where the loser of a game is eliminated from the tournament.

The chosen system of the game numbers and who plays against whom is widespread and relatively simple.

However, a deviation was made here in the seeding of the preliminary groups in order to comply with the following conditions: (order = descending priority)

- If the best teams in each preliminary group win every game, they should play each other as late as possible.
- If two teams of a preliminary group win every game, they should play each other as late as possible.
- When drawing the preliminary round groups, the group combinations in the first knockout round should be mixed as much as possible. Example: 4 groups of 4 teams, group A does not play only one group.

Calculation of the required playing fields, rounds, games and sets

(if all equivalent rounds take place simultaneously)

n = number of teams (4, 8, 16, 32, 64, 128)

r = number of rounds

f = number of fields

g = number of games

s = number of sets

16
4
8
16

= $\log_2 (n)$

= $n / 2$

= n (with game for the third place)

= determination by the organizer

2.5 KO-Full

"Final rounds: Representation of a full elimination system (with games for all ranking positions)"

The basic principle and requirements correspond to the single elimination system.

All teams have the same number of games.

The winner of a game plays with the other winners for the upper half of the positions, the losers play for the lower half.

It does not require more playing fields and time than the single elimination system.

Calculation of the required playing fields, rounds, games and sets

(if all equivalent rounds take place simultaneously)

n = number of teams (4, 8, 16, 32, 64, 128)

r = number of rounds

f = number of fields

g = number of games

s = number of sets

16
4
8
32

= $\log_2 (n)$

= $n / 2$

= $(n / 2) \times \log_2 (n) = r \times f$

= determination by the organizer



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2.6 **KO-Consolation**

"Final rounds: Representation of a single elimination system (knockout rounds) with a consolation round"
 The basic principle and requirements correspond to the single elimination system.

With one exception: the losers of the first round continue to play in a single elimination system for the middle ranks.

Example: 64 teams, middle rank = 33,
 The losers of the first round (Round-of-64) will continue with a single elimination system for places 33 to 36 (corresponds to 1st to 4th place in the consolation round).

Note on the spreadsheet:

 Above this line, the games for the first place take place.

 Below this line the games of the consolation round take place.

Calculation of the required playing fields, rounds, games and sets
 (if all equivalent rounds take place simultaneously)

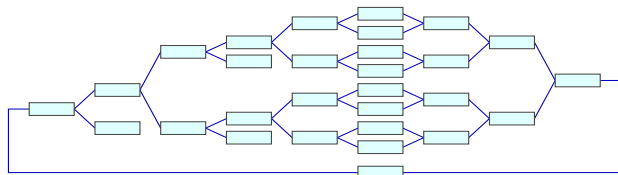
n = number of teams (8 ,16, 32, 64, 128)	16	
r = number of rounds	4	= log ₂ (n)
f = number of fields	8	= n / 2
g = number of games	24	= 1.5 × n
s = number of sets		= determination by the organizer

2.7 **KO-Double**

"Final rounds: Representation of a double-elimination system"
 A double elimination system is a form of tournament in which a participant becomes ineligible to win the tournament championship only after losing two games.

It requires the same number of fields as the single or full elimination system, but has minimum twice as many rounds.

In contrast to the usual representation (see graphic below), I have chosen a different representation of the double KO system here, which in my view better illustrates the systematics.



Note on the spreadsheet:

 Above this line, the games for the first place take place.

 Any team that falls below this line (because it lost a game) can still participate in the final game if it wins all the following games.

Calculation of the required playing fields, rounds, games and sets
 (if all equivalent rounds take place simultaneously)

n = number of teams (8 ,16, 32, 64)	16	
r = number of rounds	8	= 2 × log ₂ (n) + x
f = number of fields	8	= n / 2
g = number of games	30	= 2n - 2 + x
s = number of sets		= determination by the organizer

x depends on the course of the game of the loser of the final game (game for the first place)
 x = 0; if the loser had already lost a match in the knockout round before the final match (double knockout)
 x = 1; if the loser had not lost a game in the knockout round before the final game, there will a second final game



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2.8 Info Swiss-system

"Representation of the Swiss system"

The Swiss system is best described as a special form of round robin tournament.

The first round is seeded or drawn; after each round the intermediate score is determined, and in the following rounds the leader always plays against the second, the third against the fourth, and so on.

Due to the systematics and complexity of this tournament form, it is not yet implemented here.

3 Base tables

3.1 Table Round-Robin

The sheet contains 2 tables, which are only available in English for technical reasons.

- 'tbl_RR_Data': Table of team pairings depending on the number of teams and playing fields
- 'tbl_RR_Info': Table of notes depending on the number of teams and playing fields

Both tables are used for the following sheet: 'Round-Robin'

3.2 Table Multi-Teams

The sheet contains 1 table, which is only available in English for technical reasons.

- 'tbl_MT_Data': Table of team orders per set depending on the number of teams
- 'tbl_MT_Info': Table of notes depending on the number of teams

This is used for following sheets: 'Multi-Teams'

3.3 Table KO-Rounds

The sheet contains 1 table, which is only available in English for technical reasons.

- 'tbl_KO_Data': Table of team pairings (with predecessor game or group rank) for KO-rounds

This is used for all "Info KO-..." sheets.

3.9 Localisation

The sheet contains all language-dependent texts.

For a new language, simply enter the name of the language in the top row in the next available column. That's all (except the missing translations).

It is a good idea to copy the complete column of a fully filled language for the new language so that there are no gaps in missing translations.

4 Revisions

1.00.00	2022-08-04	Walter Aust	first edition / Erstausgabe
1.00.01	2022-09-25	Walter Aust	spelling corrections / Schreibfehlerkorrekturen formula and name optimizations / Optimierung von Formeln und Namen

5 About the author

I've been using Excel since 1988 (back then on a Macintosh) and the program definitely became a hobby of mine a long time ago. I've also been using the associated programming language VBA extensively since the beginning.

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