

# Tire Model Marketplace

Detailed content description

# Available models



#	Model type	Road	Size	Brand	Tire Type	#	Model type	Road	Size	Brand	Tire Type
1	MF-Tyre + Turnslip	Dry asphalt	185/65R15	Continental	ContiEcoContact5	38	MF-Tyre	Packed snow	205/55R16	Continental	ContiWinterContact TS830
2	MF-Tyre + Turnslip	Dry asphalt	195/65R15	Yokohama	BluEarth RV-02	39	MF-Tyre	Polished Ice	205/55R16	Continental	ContiWinterContact TS830
3	MF-Tyre + Turnslip	Dry asphalt	205/55R16	Bridgestone	Playz PX	40	MF-Tyre	Wet asphalt	205/55R16	Continental	ContiWinterContact TS830
4	MF-Tyre + Turnslip	Dry asphalt	205/55R16	Continental	ContiPremiumContact5	41	MF-Tyre	Dry asphalt	205/55R16	Continental	ContiWinterContact TS830
5	MF-Tyre + Turnslip	Dry asphalt	205/55R16	Michelin	Primacy 4	42	MF-Tyre	Packed snow	205/55R16	Goodyear	Ultragrip 8
6	MF-Tyre + Turnslip	Dry asphalt	215/55R17	Continental	ContiPremiumContact5	43	MF-Tyre	Polished Ice	205/55R16	Goodyear	Ultragrip 8
7	MF-Tyre + Turnslip	Dry asphalt	225/45R17	Bridgestone	Turanza T001 VW	44	MF-Tyre	Wet asphalt	205/55R16	Goodyear	Ultragrip 8
8	MF-Tyre + Turnslip	Dry asphalt	225/50R17	Bridgestone	BLIZZAK LM001	45	MF-Tyre	Dry asphalt	205/55R16	Goodyear	Ultragrip 8
9	MF-Tyre + Turnslip	Dry asphalt	225/50R17	GoodYear	EfficientGrip Performance MO	46	MF-Tyre	Packed snow	205/55R16	Michelin	Alpin A4
10	MF-Tyre + Turnslip	Dry asphalt	225/50R17	Michelin	Primacy 3 AO	47	MF-Tyre	Polished Ice	205/55R16	Michelin	Alpin A4
11	MF-Tyre + Turnslip	Dry asphalt	235/45R17	Continental	ContiSportContact5 ContiSeal	48	MF-Tyre	Wet asphalt	205/55R16	Michelin	Alpin A4
12	MF-Tyre + Turnslip	Dry asphalt	235/65R17	Michelin	Latitude Sport 3 AO	49	MF-Tyre	Dry asphalt	205/55R16	Michelin	Alpin A4
13	MF-Tyre + Turnslip	Dry asphalt	225/50R18	Michelin	Primacy 3	50	MF-Tyre	Packed snow	225/50R17	Dunlop	SP WinterSport 3D
14	MF-Tyre + Turnslip	Dry asphalt	225/55R18	Pirelli	Scorpion Verde	51	MF-Tyre	Polished Ice	225/50R17	Dunlop	SP WinterSport 3D
15	MF-Tyre + Turnslip	Dry asphalt	225/55R18	Yokohama	BluEarth E70	52	MF-Tyre	Packed snow	195/65R15	Dunlop	SP WinterSport 3D
16	MF-Tyre + Turnslip	Dry asphalt	225/60R18	Bridgestone	BLIZZAK LM-80 EVO	53	MF-Tyre	Polished Ice	195/65R15	Dunlop	SP WinterSport 3D
17	MF-Tyre + Turnslip	Dry asphalt	225/60R18	Michelin	Latitude Sport 3	54	MF-Swift estimated	Dry asphalt	195/55R16	Generic	
18	MF-Tyre + Turnslip	Dry asphalt	235/50R18	Michelin	Primacy 3	55	MF-Swift estimated	Dry asphalt	205/55R16	Generic	
19	MF-Tyre + Turnslip	Dry asphalt	235/60R18	Continental	Cross Contact LX sport AO	56	MF-Swift estimated	Dry asphalt	205/60R16	Generic	
20	MF-Tyre + Turnslip	Dry asphalt	255/45R18	Michelin	Primacy HP MO FSL	57	MF-Swift estimated	Dry asphalt	215/45R17	Generic	
21	MF-Tyre + Turnslip	Dry asphalt	235/40R19	Bridgestone	BLIZZAK VRX2	58	MF-Swift estimated	Dry asphalt	225/55R17	Generic	
22	MF-Tyre + Turnslip	Dry asphalt	235/40R19	Dunlop	SP SPORT MAXX 050+	59	MF-Swift estimated	Dry asphalt	235/65R17	Generic	
23	MF-Tyre + Turnslip	Dry asphalt	235/55R19	Bridgestone	Dueler H/P Sport	60	MF-Swift estimated	Dry asphalt	225/40R18	Generic	
24	MF-Tyre + Turnslip	Dry asphalt	235/55R19	GoodYear	Excellence AO	61	MF-Swift estimated	Dry asphalt	225/55R18	Generic	
25	MF-Tyre + Turnslip	Dry asphalt	245/45R19	Michelin	Primacy 3 ST	62	MF-Swift estimated	Dry asphalt	235/60R18	Generic	
26	MF-Tyre + Turnslip	Dry asphalt	255/50R19	Michelin	Premier LTX	63	MF-Swift estimated	Dry asphalt	245/40R18	Generic	
27	MF-Tyre + Turnslip	Dry asphalt	255/50R18	Michelin	Latitude Tour HP * ZP (runflat)	64	MF-Swift estimated	Dry asphalt	235/35R19	Generic	
28	MF-Tyre + Turnslip	Dry asphalt	265/35R19	Bridgestone	BLIZZAK VRX2	65	MF-Swift estimated	Dry asphalt	235/55R19	Generic	
29	MF-Tyre + Turnslip	Dry asphalt	265/35R19	Dunlop	SP SPORT MAXX 050+	66	MF-Swift estimated	Dry asphalt	255/45R19	Generic	
30	MF-Tyre + Turnslip	Dry asphalt	195/50R20	Bridgestone	Potenza S001 (*)	67	MF-Swift estimated	Dry asphalt	245/30R20	Generic	
31	MF-Tyre + Turnslip	Dry asphalt	215/45R20	Bridgestone	Potenza S001 (*)	68	MF-Swift estimated	Dry asphalt	255/35R20	Generic	
32	MF-Tyre + Turnslip	Dry asphalt	235/55R20	Bridgestone	BLIZZAK DM-V2	69	MF-Swift estimated	Dry asphalt	255/45R20	Generic	
33	MF-Tyre + Turnslip	Dry asphalt	235/55R20	Bridgestone	ALENZA 001	70	MF-Swift estimated	Dry asphalt	255/50R20	Generic	
34	MF-Tyre + Turnslip	Dry asphalt	245/45R20	Pirelli	Scorpion Verde All Seasons	71	MF-Swift estimated	Dry asphalt	285/45R20	Generic	
35	MF-Tyre + Turnslip	Dry asphalt	255/45R20	Continental	ContiSportContact 5 SUV AO	72	MF-Swift estimated	Dry asphalt	305/30R20	Generic	
36	MF-Tyre + Turnslip	Dry asphalt	255/45R20	Bridgestone	Dueler H/P Sport	73	MF-Swift estimated	Dry asphalt	255/35R21	Generic	
37	MF-Tyre + Turnslip	Dry asphalt	255/40R21	Pirelli	Pzero R01	74	MF-Swift estimated	Dry asphalt	285/40R21	Generic	
						75	MF-Swift estimated	Dry asphalt	285/40R22	Generic	

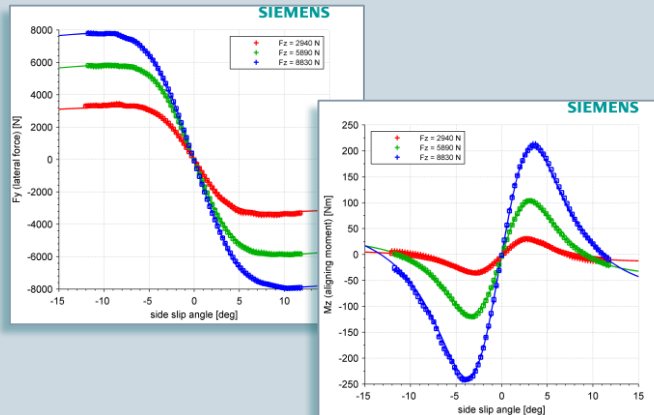
# Simcenter Tire solution for vehicle dynamic simulations



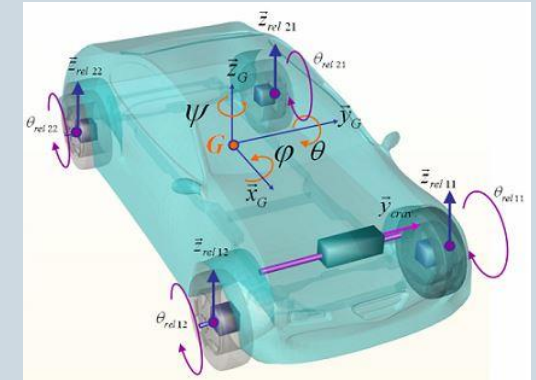
## Tire Testing



## Parameter identification



## Simulation



Tire testing

TYDEX  
file

MF-Tool

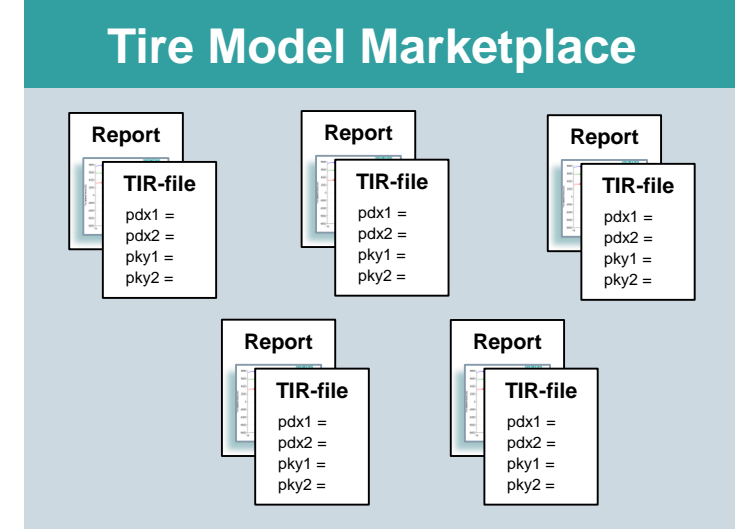
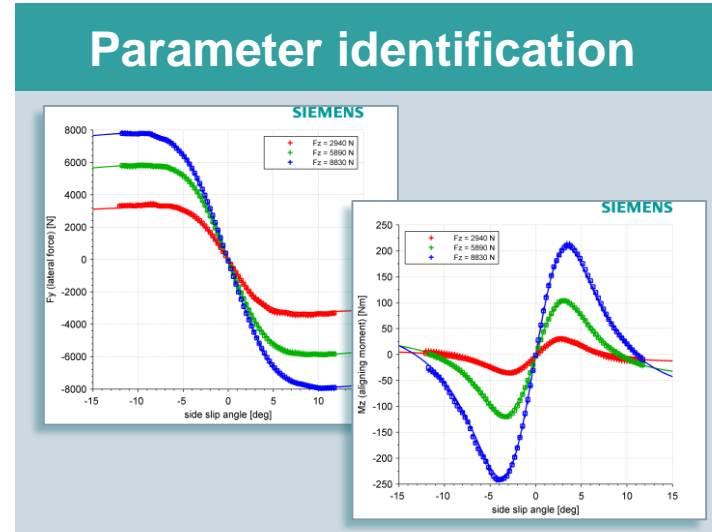
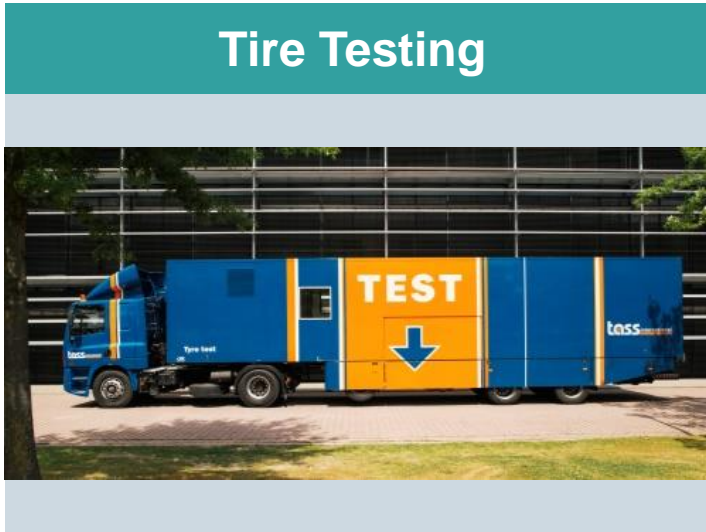
Tire prop.  
file

MF-Tyre/MF-Swift



Goal: provide tire modelling methodology for vehicle dynamic simulations

# Tire model marketplace concept



- 75 directly available non-exclusive MF-Tyre/MF-Swift parameter sets
- Tested on-road with the Siemens Tire Test Trailer
- Product consists of watermarked:
  - TIR file
  - Validation report
- Alternative to tire testing services with unmatched price/quality ratio

# Model type: MF-Tyre + Turnslip

- Steady state slip characteristics measured on-road with the Siemens Tire Test Trailer
- Transient and turnslip parameters based on Flat-Trac measurements
- MF-Swift parameters estimated

	Fit level	Identified/estimated	Test type	Test facility
<b>MF-Tyre</b>	Fx Pure	Identified	Longitudinal slip sweep	Test Trailer
	Fy Pure	Identified	Side slip angle sweep	Test Trailer
	Mx Pure	Identified	Side slip angle sweep	Test Trailer
	Mz Pure	Identified	Side slip angle sweep	Test Trailer
	Fx/Fy Combined	Estimated	-	-
	Mz Combined	Estimated	-	-
	Loaded/effective rolling radius	Identified	Vertical load sweep	Test Trailer
	Contact patch	Identified	Static contact patch	Test Trailer
	Longitudinal transients	Identified	Harmonic excitation	FlatTrac
	Lateral transients	Identified	Low velocity step steer	FlatTrac
<b>MF-Swift</b>	Turn slip	Identified	Standstill & rolling steering angle sweeps	FlatTrac
	Enveloping	Estimated	-	-
	In-plane dynamics (cleat 2D)	Estimated	-	-
	Out-of-plane dynamics (cleat 3D)	Estimated	-	-

## Model type: MF-Tyre

- Steady state slip characteristics measured on-road with the Siemens Tire Test Trailer on different road surfaces, including low friction
- Transient parameters based on FlatPlank measurements
- MF-Swift parameters estimated

	Fit level	Identified/estimated	Test type	Test facility
<b>MF-Tyre</b>	Fx Pure	Identified	Longitudinal slip sweep	Test Trailer
	Fy Pure	Identified	Side slip angle sweep	Test Trailer
	Mx Pure	Identified	Side slip angle sweep	Test Trailer
	Mz Pure	Identified	Side slip angle sweep	Test Trailer
	Fx/Fy Combined	Estimated	-	
	Mz Combined	Estimated	-	
	Loaded/effective rolling radius	Identified	Vertical load sweep	Test Trailer
	Contact patch	Identified	Static contact patch	FlatPlank
	Longitudinal transients	Identified	Static longitudinal stiffness	FlatPlank
	Lateral transients	Identified	Static lateral stiffness	FlatPlank
<b>MF-Swift</b>	Turn slip	Default	-	
	Enveloping	Estimated	-	
	In-plane dynamics (cleat 2D)	Estimated	-	
	Out-of-plane dynamics (cleat 3D)	Estimated	-	

## Model type: MF-Swift estimated

- All parameters determined based on estimation algorithms that are calibrated based on the Siemens measurement database

	Fit level	Identified/estimated	Test type	Test facility
<b>MF-Tyre</b>	Fx Pure	Estimated	-	-
	Fy Pure	Estimated	-	-
	Mx Pure	Estimated	-	-
	Mz Pure	Estimated	-	-
	Fx/Fy Combined	Estimated	-	-
	Mz Combined	Estimated	-	-
	Loaded/effective rolling radius	Estimated	-	-
	Contact patch	Estimated	-	-
	Longitudinal transients	Estimated	-	-
	Lateral transients	Estimated	-	-
<b>MF-Swift</b>	Turn slip	Estimated	-	-
	Enveloping	Estimated	-	-
	In-plane dynamics (cleat 2D)	Estimated	-	-
	Out-of-plane dynamics (cleat 3D)	Estimated	-	-

# Disclaimer



The purpose of this document is to provide an overview of the Tire Model Marketplace concept and content.

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