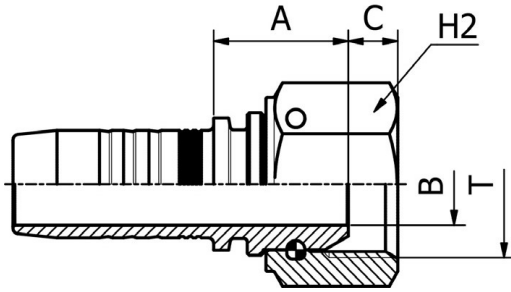


SAE STANDARD CONNECTIONS



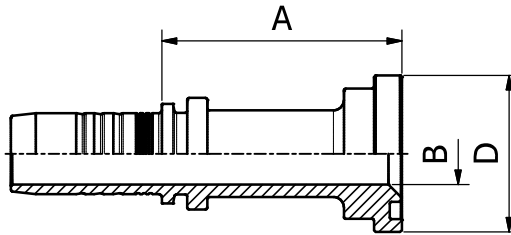
# M22812

**NPSM FEMALE 60° CONE  
SAE J516/J514  
(THRUST-WIRE NUT)**

FITTINGS 142

PART. REF.	HOSE BORE			Thread	DIMENSIONS mm						
	DN	Dash	inch		T	B	A	C	H2		
M22812-04-04	6	- 4	1/4"	1/4" - 18	4.0	17.5	4.2	19.0			
M22812-06-04	10	- 6	3/8"	1/4" - 18	4.1	18.0	4.2	19.0			
M22812-06-06	10	- 6	3/8"	3/8" - 18	7.0	21.0	6.0	22.0			
M22812-08-08	12	- 8	1/2"	1/2" - 14	9.3	23.0	6.5	27.0			
M22812-12-12	19	- 12	3/4"	3/4" - 14	15.0	24.5	9.0	32.0			
M22812-16-16	25	- 16	1"	1" - 11.5	19.8	27.5	10.5	38.0			

SAE STANDARD CONNECTIONS

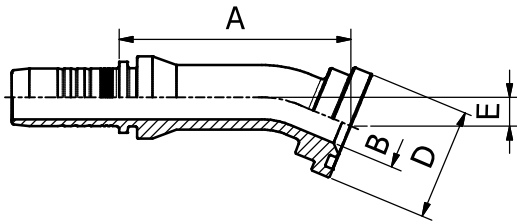


# M23311

**ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3**

PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm					
	DN	Dash	inch		inch	B	A	D		
M23311-08-08	12	-8	1/2"	1/2"	9.3	51.0	30.3			
M23311-08-12	12	-8	1/2"	3/4"	15.1	58.0	38.0			
M23311-10-08	16	-10	5/8"	1/2"	9.3	51.0	30.3			
M23311-10-12	16	-10	5/8"	3/4"	15.0	65.5	38.0			
M23311-10-24	16	-10	5/8"	1.1/2"	32.0	69.5	60.5			
M23311-12-12	19	-12	3/4"	3/4"	15.0	58.0	38.0			
M23311-12-16	19	-12	3/4"	1"	20.0	58.0	44.6			
M23311-12-20	19	-12	3/4"	1.1/4"	26.0	69.5	51.0			
M23311-16-12	25	-16	1"	3/4"	15.0	60.5	38.0			
M23311-16-16	25	-16	1"	1"	19.8	64.5	44.6			
M23311-16-20	25	-16	1"	1.1/4"	26.0	70.5	51.0			
M23311-20-12	31	-20	1.1/4"	3/4"	15.0	61.0	38.0			
M23311-20-16	31	-20	1.1/4"	1"	19.8	64.5	44.6			
M23311-20-20	31	-20	1.1/4"	1.1/4"	26.0	70.5	51.0			
M23311-20-24	31	-20	1.1/4"	1.1/2"	32.0	72.5	60.5			
M23311-20-32	31	-20	1.1/4"	2"	42.0	75.5	71.6			
M23311-24-24	38	-24	1.1/2"	1.1/2"	32.0	75.5	60.5			
M23311-24-32	38	-24	1.1/2"	2"	42.0	75.5	71.6			
M23311-32-32	51	-32	2"	2"	42.0	79.0	71.6			
M23311-32-40	51	-32	2"	2.1/2"	56.0	81.0	84.3			
M23311-38-40	60	-38	2.3/8"	2.1/2"	50.5	84.0	84.3			
M23311-40-32	63	-40	2.1/2"	2"	42.0	78.5	71.6			
M23311-40-40	63	-40	2.1/2"	2.1/2"	55.4	84.0	84.3			
M23311-40-48	63	-40	2.1/2"	3"	68.9	79.0	101.6			
M23311-40-56	63	-40	2.1/2"	3.1/2"	79.0	90.5	114.3			
M23311-40-64	63	-40	2.1/2"	4"	90.0	96.5	127.0			
M23311-48-48	76	-48	3"	3"	68.9	85.5	101.6			
M23311-56-56	89	-56	3.1/2"	3.1/2"	79.0	94.5	114.3			
M23311-64-64	102	-64	4"	4"	90.0	100.5	127.0			

SAE STANDARD CONNECTIONS



# M23321

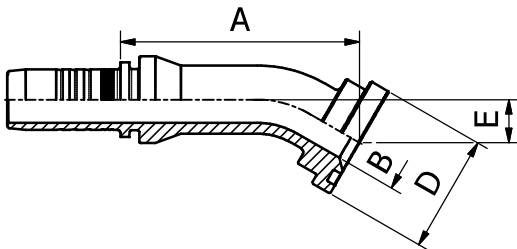
**22.5° ISO/SAE CODE 61 FLANGE**  
**SAE J516 / ISO 12151-3**

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm			
	DN	Dash	inch	inch		B	A	D	E
M23321-08-08	12	-8	1/2"	1/2"		9.3	64.0	30.3	8.0
M23321-12-12	19	-12	3/4"	3/4"		15.0	74.5	38.0	10.0
M23321-12-16	19	-12	3/4"	1"		20.0	74.5	44.6	10.0
M23321-16-16	25	-16	1"	1"		19.8	89.0	44.6	11.5
M23321-16-20	25	-16	1"	1.1/4"		26.0	88.5	51.0	11.5
M23321-16-24	25	-16	1"	1.1/2"		32.0	88.5	60.5	12.0
M23321-20-20	31	-20	1.1/4"	1.1/4"		26.0	100.0	51.0	12.0
M23321-20-20018	31	-20	1.1/4"	1.1/4"		26.0	99.0	51.0	18.0
M23321-20-24	31	-20	1.1/4"	1.1/2"		32.0	102.0	60.5	13.0
M23321-24-24	38	-24	1.1/2"	1.1/2"		32.0	116.5	60.5	14.0
M23321-24-24023	38	-24	1.1/2"	1.1/2"		32.0	115.0	60.5	23.0
M23321-24-32	38	-24	1.1/2"	2"		42.0	116.5	71.6	14.0
M23321-32-32	51	-32	2"	2"		42.0	134.5	71.6	15.0
M23321-40-40	63	-40	2.1/2"	2.1/2"		52.0	80.0	84.3	16.5
M23321-40-48	63	-40	2.1/2"	3"		61.0	107.5	101.6	20.5
M23321-48-48	76	-48	3"	3"		61.0	111.0	101.6	20.5

All items are made from solid with the exception of M23321-40-40, M23321-40-48, M23321-48-48

143 FITTINGS

SAE STANDARD CONNECTIONS



# M23331

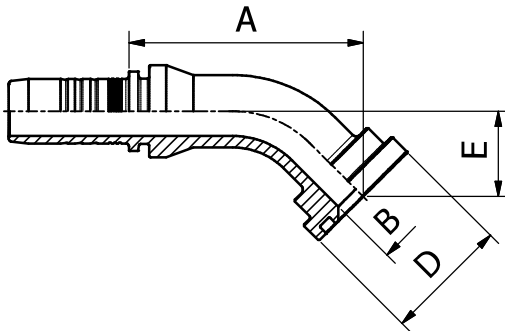
**30° ISO/SAE CODE 61 FLANGE**  
**SAE J516 / ISO 12151-3**

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm			
	DN	Dash	inch	inch		B	A	D	E
M23331-08-08	12	-8	1/2"	1/2"		9.3	62.5	30.3	11.0
M23331-08-12	12	-8	1/2"	3/4"		15.0	63.5	38.0	11.5
M23331-12-12	19	-12	3/4"	3/4"		15.0	73.0	38.0	14.0
M23331-12-16	19	-12	3/4"	1"		20.0	73.0	44.6	14.0
M23331-16-16	25	-16	1"	1"		19.8	87.0	44.6	16.5
M23331-16-20	25	-16	1"	1.1/4"		26.0	87.0	51.0	16.5
M23331-20-20	31	-20	1.1/4"	1.1/4"		26.0	98.0	51.0	17.5
M23331-20-24	31	-20	1.1/4"	1.1/2"		32.0	100.0	60.5	18.5
M23331-20-24044	31	-20	1.1/4"	1.1/2"		32.0	131.5	60.5	44.0
M23331-24-24	38	-24	1.1/2"	1.1/2"		32.0	114.5	60.5	20.0
M23331-24-32	38	-24	1.1/2"	2"		42.0	114.5	71.6	20.0
M23331-32-32	51	-32	2"	2"		42.0	132.0	71.6	22.0
M23331-40-40	63	-40	2.1/2"	2.1/2"		52.0	87.5	84.3	24.0
M23331-40-48	63	-40	2.1/2"	3"		52.0	85.0	101.6	24.5
M23331-48-48	76	-48	3"	3"		61.0	117.5	101.6	31.5

All items are made from solid with the exception of M23331-40-40, M23331-40-48, M23331-48-48

# M23341

45° ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3



FITTINGS

144

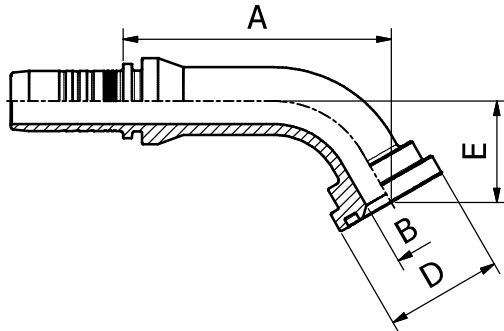
PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23341-06-08	10	-6	3/8"	1/2"		9.3	52.5	30.0	17.5			
M23341-08-08	12	-8	1/2"	1/2"		9.3	58.5	30.3	18.5			
M23341-08-12	12	-8	1/2"	3/4"		15.0	59.5	38.0	19.0			
M23341-08-16	12	-8	1/2"	1"		19.8	59.5	44.6	19.0			
M23341-10-12	16	-10	5/8"	3/4"		15.0	61.0	38.0	22.0			
M23341-12-12	19	-12	3/4"	3/4"		15.0	71.0	38.0	26.0			
M23341-12-16	19	-12	3/4"	1"		20.0	68.5	44.6	23.0			
M23341-16-12	25	-16	1"	3/4"		15.0	74.5	38.0	23.0			
M23341-16-16	25	-16	1"	1"		19.8	81.5	44.6	27.5			
M23341-16-16032	25	-16	1"	1"		19.8	86.0	44.5	32.0			
M23341-16-20	25	-16	1"	1.1/4"		26.0	81.5	51.0	27.5			
M23341-20-16	31	-20	1.1/4"	1"		19.8	84.5	44.6	29.5			
M23341-20-20	31	-20	1.1/4"	1.1/4"		26.0	92.0	51.0	29.5			
M23341-20-20038	31	-20	1.1/4"	1.1/4"		26.0	100.5	50.9	38.0			
M23341-20-24	31	-20	1.1/4"	1.1/2"		32.0	93.5	60.5	31.0			
M23341-24-24	38	-24	1.1/2"	1.1/2"		32.0	107.5	60.5	34.5			
M23341-24-24044	38	-24	1.1/2"	1.1/2"		32.0	117.0	60.5	44.0			
M23341-24-32	38	-24	1.1/2"	2"		42.0	107.5	71.6	34.5			
M23341-32-20	51	-32	2"	1.1/4"		26.0	128.5	51.0	32.0			
M23341-32-32	51	-32	2"	2"		42.0	124.0	71.6	39.0			
M23341-32-32056	51	-32	2"	2"		42.0	141.0	71.5	56.0			
M23341-32-40	51	-32	2"	2.1/2"		56.0	136.5	84.3	49.5			
M23341-40-32	63	-40	2.1/2"	2"		42.0	152.0	71.6	48.5			
M23341-40-40	63	-40	2.1/2"	2.1/2"		52.0	95.0	84.3	48.5			
M23341-40-48	63	-40	2.1/2"	3"		61.0	117.5	101.6	53.5			
M23341-48-48	76	-48	3"	3"		58.0	125.5	101.6	53.5			
M23341-56-56	89	-56	3.1/2"	3.1/2"		79.0	139.0	114.3	68.0			
M23341-56-64	89	-56	3.1/2"	4"		79.0	124.5	127.0	53.5			
M23341-64-64	102	-64	4"	4"		90.0	132.0	127.0	56.5			

All items are made from solid with the exception of M23341-40-40, M23341-40-48, M23341-48-48, M23341-56-56, M23341-56-64, M23341-64-64.

SAE STANDARD CONNECTIONS

# M23361

60° ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	Dash	inch	inch	B	A	D	E
M23361-08-08	12	-8	1/2"	1/2"	9.3	71.5	30.3	26.0
M23361-08-12	12	-8	1/2"	3/4"	15.0	72.0	38.0	26.5
M23361-12-12	19	-12	3/4"	3/4"	15.0	87.0	38.0	33.0
M23361-12-16	19	-12	3/4"	1"	20.0	87.0	44.6	33.0
M23361-16-16	25	-16	1"	1"	19.8	104.0	44.6	39.0
M23361-16-20	25	-16	1"	1.1/4"	26.0	104.0	51.0	39.0
M23361-20-20	31	-20	1.1/4"	1.1/4"	26.0	120.0	51.0	43.0
M23361-20-20065	31	-20	1.1/4"	1.1/4"	26.0	107.5	51.0	65.0
M23361-20-24	31	-20	1.1/4"	1.1/2"	32.0	121.0	60.5	44.5
M23361-24-20	38	-24	1.1/2"	1.1/4"	26.0	136.5	51.0	46.5
M23361-24-24	38	-24	1.1/2"	1.1/2"	32.0	143.5	60.5	50.5
M23361-24-32	38	-24	1.1/2"	2"	42.0	143.5	71.6	51.0
M23361-32-32	51	-32	2"	2"	42.0	129.0	71.6	58.0
M23361-40-40	63	-40	2.1/2"	2.1/2"	52.0	94.5	84.3	67.0
M23361-40-48	63	-40	2.1/2"	3"	52.0	87.5	101.6	54.5
M23361-48-48	76	-48	3"	3"	61.0	128.5	101.6	79.0

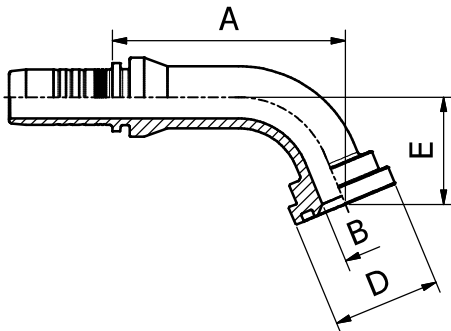
All items are made from solid with the exception of M23361-40-40, M23361-40-48, M23361-48-48.

145 FITTINGS

SAE STANDARD CONNECTIONS

# M23371

67.5° ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3



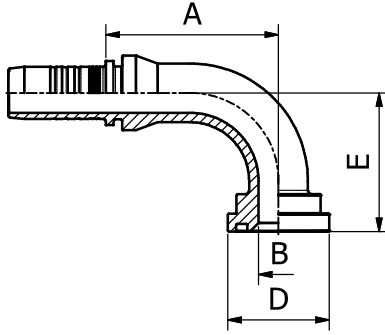
PART. REF.	HOSE BORE			FLANGE	DIMENSIONS mm			
	DN	Dash	inch	inch	B	A	D	E
M23371-08-08	12	-8	1/2"	1/2"	9.3	68.0	30.3	29.5
M23371-08-12	12	-8	1/2"	3/4"	15.0	68.5	38.0	30.5
M23371-08-16	12	-8	1/2"	1"	19.8	68.5	44.6	30.5
M23371-12-12	19	-12	3/4"	3/4"	15.0	82.0	38.0	38.0
M23371-12-16	19	-12	3/4"	1"	20.0	82.0	44.6	38.0
M23371-12-20	19	-12	3/4"	1.1/4"	26.0	82.0	51.0	38.0
M23371-16-16	25	-16	1"	1"	19.8	98.5	44.6	45.0
M23371-16-20	25	-16	1"	1.1/4"	26.0	98.5	51.0	45.0
M23371-20-20	31	-20	1.1/4"	1.1/4"	26.0	114.0	51.0	50.0
M23371-20-24	31	-20	1.1/4"	1.1/2"	32.0	115.0	60.5	52.0
M23371-24-24	38	-24	1.1/2"	1.1/2"	32.0	136.5	60.5	59.0
M23371-24-32	38	-24	1.1/2"	2"	42.0	136.5	71.6	59.0
M23371-32-32	51	-32	2"	2"	42.0	162.0	71.6	68.5
M23371-32-32085	51	-32	2"	2"	42.0	150.5	71.6	85.0
M23371-32-40	51	-32	2"	2.1/2"	56.0	171.5	84.3	83.5
M23371-40-40	63	-40	2.1/2"	2.1/2"	52.0	95.0	84.3	78.0
M23371-40-48	63	-40	2.1/2"	3"	52.0	90.5	101.6	64.5

All items are made from solid with the exception of M23371-40-40, M23371-40-48.

SAE STANDARD CONNECTIONS

# M23391

90° ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3

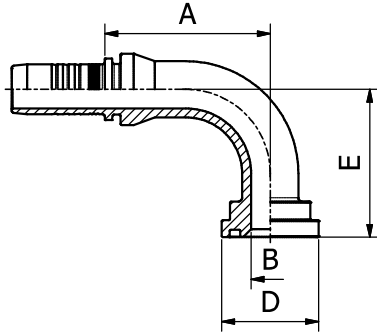


FITTINGS

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PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23391-06-08	10	-6	3/8"	1/2"		9.3	44.5	30.0	34.5			
M23391-08-08	12	-8	1/2"	1/2"		9.3	54.5	30.3	40.0			
M23391-08-12	12	-8	1/2"	3/4"		15.0	54.5	38.0	41.0			
M23391-08-16	12	-8	1/2"	1"		19.8	54.5	44.6	66.0			
M23391-10-08	16	-10	5/8"	1/2"		9.3	56.0	30.3	46.5			
M23391-10-12	16	-10	5/8"	3/4"		15.0	56.0	38.0	47.5			
M23391-12-12	19	-12	3/4"	3/4"		15.0	64.5	38.0	52.0			
M23391-12-16	19	-12	3/4"	1"		20.0	64.5	44.6	52.0			
M23391-12-20	19	-12	3/4"	1.1/4"		26.0	64.5	51.0	52.0			
M23391-16-12	25	-16	1"	3/4"		15.0	71.0	38.0	52.0			
M23391-16-16	25	-16	1"	1"		19.8	77.5	44.6	62.0			
M23391-16-20	25	-16	1"	1.1/4"		26.0	77.5	51.0	62.0			
M23391-16-24	25	-16	1"	1.1/2"		32.0	77.0	60.5	64.0			
M23391-20-16	31	-20	1.1/4"	1"		19.8	80.0	44.6	66.0			
M23391-20-20	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	70.0			
M23391-20-24	31	-20	1.1/4"	1.1/2"		32.0	90.5	60.5	72.0			
M23391-20-32	31	-20	1.1/4"	2"		42.0	93.5	71.6	76.0			
M23391-24-20	38	-24	1.1/2"	1.1/4"		26.0	104.5	51.0	75.0			
M23391-24-24	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	84.0			
M23391-24-32	38	-24	1.1/2"	2"		42.0	108.0	71.6	84.0			
M23391-32-24	51	-32	2"	1.1/2"		32.0	136.0	60.5	89.0			
M23391-32-32	51	-32	2"	2"		42.0	129.0	71.6	99.0			
M23391-32-40	51	-32	2"	2.1/2"		56.0	132.5	84.3	116.0			
M23391-40-32	63	-40	2.1/2"	2"		42.0	149.5	71.6	114.0			
M23391-40-40	63	-40	2.1/2"	2.1/2"		52.0	88.0	84.3	119.0			
M23391-40-48	63	-40	2.1/2"	3"		61.0	120.0	101.6	140.0			
M23391-48-48	76	-48	3"	3"		58.0	123.0	101.6	140.0			
M23391-48-56	76	-48	3"	3.1/2"		61.0	123.0	114.3	115.0			
M23391-56-56	89	-56	3.1/2"	3.1/2"		79.0	134.5	114.3	160.0			
M23391-64-64	102	-64	4"	4"		90.0	153.5	127.0	158.5			

All items are made from solid with the exception of M23391-40-40, M23391-40-48, M23391-48-48, M23391-48-56, M23391-56-56, M23391-64-64.



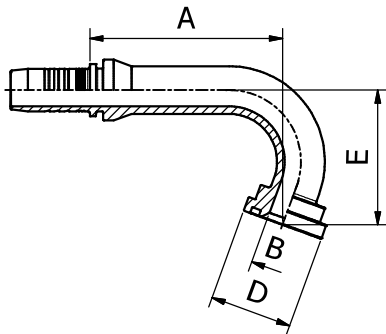
SAE STANDARD CONNECTIONS

# M23391 LONG DROP

90° LONG DROP ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23391-06-08041	10	-6	3/8"	1/2"		9.3	44.5	30.0	41.0			
M23391-12-12058	19	-12	3/4"	3/4"		15.0	64.5	38.0	58.0			
M23391-16-16070	25	-16	1"	1"		19.8	77.5	44.5	70.0			
M23391-16-20117	25	-16	1"	1.1/4"		26.0	77.5	51.0	117.0			
M23391-16-24107	25	-16	1"	1.1/2"		32.0	77.0	60.5	107.0			
M23391-20-20091	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	91.0			
M23391-20-20100	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	100.0			
M23391-20-20112	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	112.0			
M23391-20-20130	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	130.0			
M23391-20-20168	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	168.0			
M23391-20-24118	31	-20	1.1/4"	1.1/2"		32.0	90.5	60.5	118.0			
M23391-20-24130	31	-20	1.1/4"	1.1/2"		32.0	90.5	60.5	130.0			
M23391-24-24104	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	104.0			
M23391-24-24148	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	148.0			
M23391-24-24172	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	172.0			
M23391-24-32115	38	-24	1.1/2"	2"		42.0	108.0	71.6	115.0			
M23391-24-32172	38	-24	1.1/2"	2"		42.0	108.0	71.6	172.0			
M23391-32-32138	51	-32	2"	2"		42.0	129.0	71.5	138.0			
M23391-32-32203	51	-32	2"	2"		42.0	129.0	71.6	203.0			

147 FITTINGS

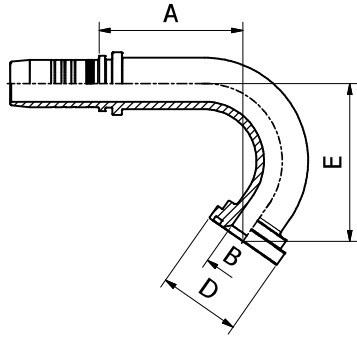


SAE STANDARD CONNECTIONS

# M23301P

110° ISO/SAE CODE 61 FLANGE  
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23301-08-12P	12	-8	1/2"	3/4"		15.0	53.0	38.0	48.0			
M23301-12-12P	19	-12	3/4"	3/4"		15.0	89.0	38.0	62.0			
M23301-12-16P	19	-12	3/4"	1"		20.0	89.0	44.6	62.0			
M23301-16-16P	25	-16	1"	1"		19.8	88.5	44.6	79.0			
M23301-16-20133P	25	-16	1"	1.1/4"		26.0	69.0	51.0	133.0			
M23301-20-20P	31	-20	1.1/4"	1.1/4"		26.0	102.0	51.0	91.0			
M23301-20-24P	31	-20	1.1/4"	1.1/2"		32.0	96.5	60.5	93.0			
M23301-24-24119P	38	-24	1.1/2"	1.1/2"		32.0	105.5	60.5	119.0			
M23301-32-32P	51	-32	2"	2"		42.0	142.0	71.6	123.0			



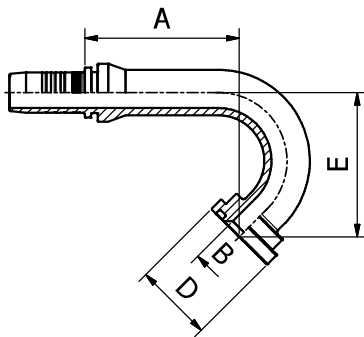
SAE STANDARD CONNECTIONS

# M23301S

**125° ISO/SAE CODE 61 FLANGE**  
**SAE J516 / ISO 12151-3**

FITTINGS 148

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23301-32-32151S	51	-32	2"	2"		42.0	118.5	71.6	151.0			



SAE STANDARD CONNECTIONS

# M23301T

**135° ISO/SAE CODE 61 FLANGE**  
**SAE J516 / ISO 12151-3**

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23301-12-12T	19	-12	3/4"	3/4"		15.0	74.5	38.0	70.0			
M23301-12-16T	19	-12	3/4"	1"		20.0	74.5	44.6	70.0			
M23301-16-16T	25	-16	1"	1"		19.8	70.0	44.6	88.5			