



Rubber expansion joint



General information

Company KOHAFLEX supplies rubber expansion joints according to customer requirements. Expansion joints are used for elimination of thermal dilatations on pipelines or for vibration absorbing. Rubber expansion joints are supplied with flange or threaded fittings. Material of rubber bellows is chosen on the basis of transported media and working load.

Construction of rubber expansion joints

- rubber expansion joints are flexible rubber „bellows“ manufactured by vulcanization of rubber mixture together with reinforced fabric or steel cord,
- to increase pressure resistance of rubber expansion joints is inserted in middle wall of bellows reinforcements from textile or steel cord and also steel reinforcement at flange area of rubber bellows,
- rubber expansion joints are with swivel, galvanized flanges, fixed flanges, or threaded fittings with pipe threads,
- we offer rubber expansion joints in dimensions from DN15 up to DN3600 mm,
- thermal resistance of rubber expansion joints is from -25°C up to max. 130°C, depending on used rubber material and inner reinforcement of expansion joint,
- pressure resistance of rubber expansion joints in standard version is PN 6, 10 and 16 (nominal pressure at temperature 20°C). Pressure resistance depends from type and dimension of expansion joint and max. working temperature of medium. At working temperature higher than 80°C is necessary to correct pressure resistance of expansion joint. Size of correction depends on type of expansion joint and material of „bellows“,
- to increase resistance against vacuum is possible to supply expansion joint with inserted vacuum reinforcement ring,
- to increase resistance against outside radiant heat is possible to protect expansion joint by sleeve made from glass or ceramic fabrics. Necessary to require from supplier.

Use of rubber expansion joints

- rubber expansion joints are used for elimination of thermal dilatation in pipeline.
- The largest range of use are applications in vibration damping, vibration and noise from pumps and other vibrating pipe aggregates.

Pressure resistance reduction depending on temperature for material of rubber EPDM

Temperature [°C]	Allowed working pressure [bar] for PN10	Allowed working pressure [bar] for PN16
80	10	16
90	8,9	14,1
100	7,9	12,3
110	6,8	10,4
120	5,8	8,6
130	4,7	6,7

Material of rubber expansion joints

Marking	Material	Use	Thermal resistance
EPDM	Ethylene-propylene	Cold water, hot water, air, good chemical resistance.	-25°C to +130°C
NBR	Acrylonitrile-butadiene	Fuel, mineral oils, natural gas	-20°C to +90°C
CR	Chloroprene/Neoprene	Resistance against UV radiation, saline solutions	-20°C to +70°C
CSM	Hypalon	Chemically aggressive medium, acids	-20°C to +80°C
FPM	Viton/Fluor polymer	Good chemical resistance, thermal resistance	-10°C to +180°C
IR	Natural rubber	Water, food	-20°C to +70°C
IIR	Butyl rubber	Alkaline medium, air, resistance against UV radiation	-25°C to +90°C

NOTE

To design optimal type of expansion joint is necessary to specify in inquiry:

- transported medium, temperature, pressure, possibly to note the material of rubber, with which has customer positive experience
- dimensions /standard and material of connection fittings
- requirement for total length of expansion joint
- required size of movements /vibrations

For specification of expansion joint could customer use questionnaire for expansion joints, which can find on our website: www.kohaflex.sk/en

For correct operation of expansion joint, his long life and compliance with warranty terms, is necessary to build-in expansion joint into pipeline in accordance with installation instructions, which are delivered together with expansion joint.

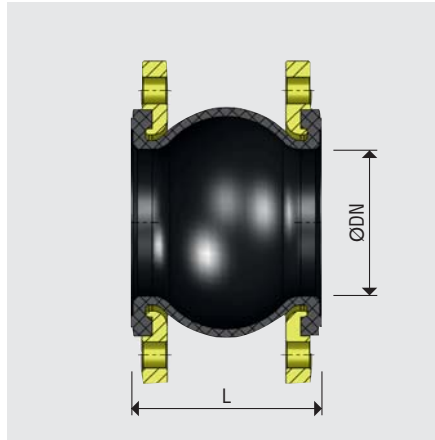
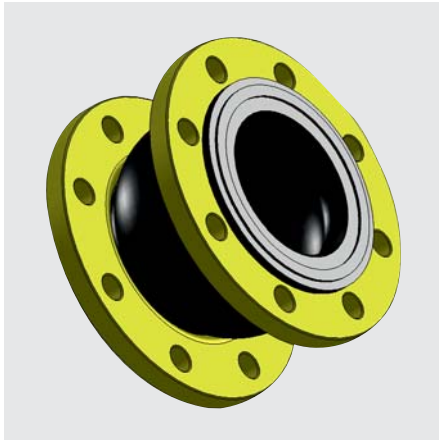
To increase the life of the bellows working outdoors, we advice to protect joints by covered against UV radiance (aging of rubber).

Rubber expansion joints with swivel flanges type GKA

Connection dimensions of flanges: according to STN EN 1092-1, PN10,PN16

Material of flanges : carbon steel, galvanized, hot-dip galvanized steel.

On request is possible to deliver expansion joints also with other dimensional and material of flanges



TYPE GKA-C10R

DN		L	Allowed movements				Pressure	Vacuum
mm	inches	nominal length mm	Lc max.allow. compression mm	Le max. allow. tension mm	R max. allow. Later. Movement +/- mm	α max. allow. angle movement +/- grad	PN bar	mm Hg without reinforce ring
25	1"	150	13	10	13	15	16	660
40	1 ½"	150	13	10	13	15	16	
50	2"	150	13	10	13	15	16	
65	2 ½"	150	13	10	13	15	16	
80	3"	150	13	10	13	15	16	
100	4"	150	16	10	13	15	16	
125	5"	150	16	10	13	15	16	
150	6"	150	16	10	13	15	16	
200	8"	150	16	10	13	15	16	
250	10"	200	19	13	19	15	16	
300	12"	200	19	13	19	15	16	
350	14"	200	19	13	19	15	10	
400	16"	200	19	13	19	15	10	
450	18"	200	19	13	19	15	10	
500	20"	200	19	13	19	15	10	
600	24"	250	22	14	21	15	10	

TYPE GKA-C15

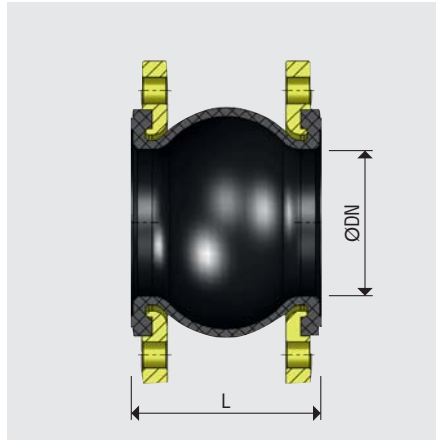
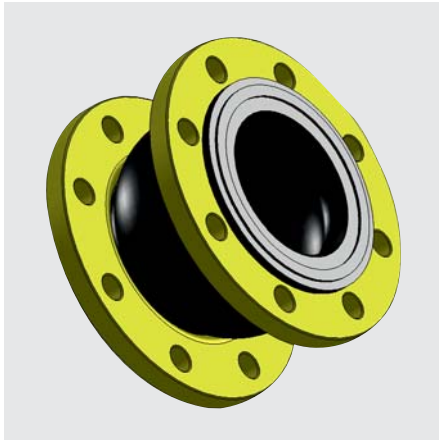
DN		L	Allowed movements				Pressure	Vacuum
mm	inches	nominal length mm	Lc max.allow. compression mm	Le max. allow. tension mm	R max. allow. Later. Movement +/- mm	α max. allow. angle movement +/- grad	PN bar	mm Hg without reinforce ring
25	1"	130	30	20	20	35	10	660
32	1 ¼"	130	30	20	20	35	10	
40	1 ½"	130	30	20	20	35	10	
50	2"	130	30	20	20	35	10	
65	2 ½"	130	30	20	20	30	10	
80	3"	130	30	20	20	30	10	
100	4"	130	30	20	20	25	10	
125	5"	130	30	20	20	25	10	
150	6"	130	30	20	20	15	10	
200	8"	130	30	20	20	15	10	
250	10"	130	30	20	20	10	10	
300	12"	130	30	20	20	10	10	

Rubber expansion joints with swivel flanges type GKA

Connection dimensions of flanges: according to STN EN 1092-1, PN10,PN16

Material of flanges : carbon steel, galvanized, hot-dip galvanized

On request is possible to deliver expansion joints also with other dimensional and material of flanges



TYPE GKA-C5

DN		L	Allowed movements				Pressure	Vacuum
mm	inches	nominal length mm	Lc max.allow. compression mm	Le max. allow. tension mm	R max. allow. Later. Movement +/- mm	α max. allow. angle movement +/- grad	PN bar	mm Hg without reinforce ring
32	1 ¼"	106	30	20	15	7,5	16	660
40	1 ½"	106	30	20	15	7,5	16	
50	2"	106	30	20	15	7,5	16	
65	2 ½"	106	30	20	15	7,5	16	
80	3"	106	30	20	15	7,5	16	
100	4"	106	30	20	15	7,5	16	
125	5"	106	30	20	15	7,5	16	
150	6"	106	30	20	15	7,5	16	
200	8"	106	30	20	15	5	16	
250	10"	106	30	20	15	5	16	
300	12"	106	30	20	15	5	16	

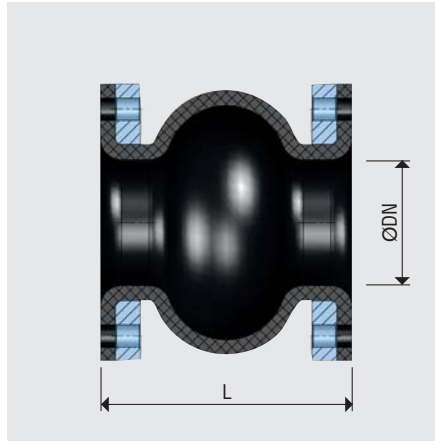
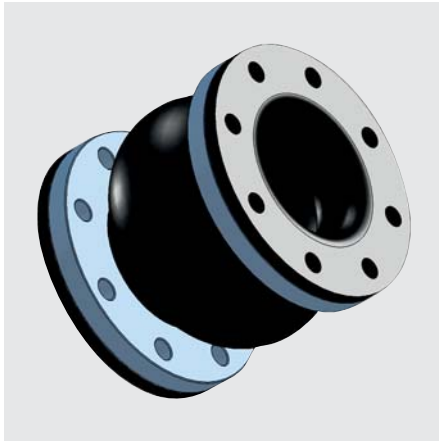
TYPE GKA-C10

DN		L	Allowed movements				Pressure	Vacuum
mm	inches	nominal length mm	Lc max.allow. compression mm	Le max. allow. tension mm	R max. allow. Later. Movement +/- mm	α max. allow. angle movement +/- grad	PN bar	mm Hg without reinforce ring
25	1"	95	8	4	8	15	10	660
32	1 ¼"	95	8	4	8	15	10	
40	1 ½"	95	8	5	8	15	10	
50	2"	105	8	6	8	15	10	
65	2 ½"	115	12	6	10	15	10	
80	3"	130	12	10	10	15	10	
100	4"	135	18	10	12	15	10	
125	5"	170	18	10	12	15	10	
150	6"	180	18	14	12	15	10	
200	8"	205	25	14	22	15	10	
250	10"	240	25	14	22	15	10	
300	12"	260	25	16	22	15	10	
350	14"	265	25	16	22	15	7	
400	16"	265	25	16	22	15	7	
450	18"	265	25	16	22	15	7	
500	20"	265	25	16	22	15	7	
600	24"	265	25	16	22	15	7	
650	26"	265	25	16	22	15	7	
700	28"	265	25	16	22	15	7	
800	32"	265	25	16	22	15	7	
900	36"	265	25	16	22	15	7	
1000	40"	265	25	16	22	15	7	
1200	48"	265	25	16	22	15	7	

Rubber expansion joints with fixed flanges type GKB

Connection dimensions of flanges: according to STN EN 1092-1, PN6, PN10 and PN16

Material of flanges: carbon steel, with anticorrosive paint, or hot-dip galvanized flanges



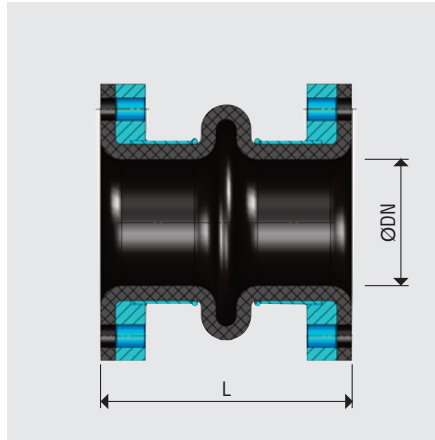
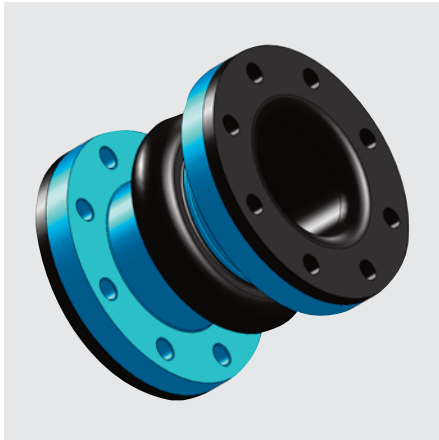
TYPE GKB-201W

DN		L	Allowed movements				Pressure		Vacuum
mm	inches	nominal length mm	Lc max. allow. compression mm	Le max. allow. tension mm	R max. allow. Later. Movement. +/- mm	α max. allow. angle movement +/- grad	Working bar	Burst bar	mm Hg
50	2"	152	19	13	13	14,5	11	45	760
65	2 1/2"	152	19	13	13	11,5	11	45	
80	3"	152	19	13	13	10,0	11	45	
100	4"	152	19	13	13	7,5	11	45	
125	5"	152	19	13	13	6,0	9,7	38	
150	6"	152	19	13	13	5,5	9,7	38	
200	8"	152	19	13	13	5,0	9,7	38	
250	10"	203	25	16	16	4,5	9,7	38	
300	12"	203	25	16	16	3,8	9,7	38	
350	14"	203	25	16	16	3,3	6,2	24	
400	16"	203	25	16	16	2,8	4,8	19	
450	18"	203	25	16	16	2,5	4,8	19	
500	20"	203	25	16	16	2,5	4,8	19	
550	22"	254	32	19	16	2,3	4,5	19	
600	24"	254	32	19	16	2,0	4,8	19	
650	26"	254	32	19	16	2,0	4,8	19	
700	28"	254	32	19	16	2,0	4,1	16	
750	30"	254	32	19	16	2,0	4,1	16	
800	32"	254	32	19	16	1,8	4,1	16	
850	34"	254	32	19	16	1,8	4,1	16	
900	36"	254	32	19	16	1,5	4,1	16	
950	38"	254	32	19	16	1,5	4,1	16	
1000	40"	254	32	19	16	1,5	4,1	16	
1050	42"	305	32	22	19	1,5	4,1	16	
1100	44"	305	38	22	19	1,5	4,1	16	
1150	46"	305	38	22	19	1,5	4,1	16	
1200	48"	305	38	22	19	1,5	4,1	16	
1250	50"	305	38	22	19	1,3	4,1	16	
1300	52"	305	38	22	19	1,3	4,1	16	
1350	54"	305	38	22	19	1,3	4,1	16	
1400	56"	305	38	22	19	1,3	4,1	16	
1450	58"	305	38	22	19	1,0	4,1	16	
1500	60"	305	38	22	19	1,0	4,1	16	
1650	66"	305	38	22	19	1,0	3,5	14	
1800	72"	305	38	22	19	0,9	3,5	14	
1950	78"	305	38	22	19	0,9	3,5	14	
2100	84"	305	38	22	19	0,8	3,5	14	
2400	96"	305	38	22	19	0,7	3,5	14	
2550	102"	305	57	25	29	0,6	2,1	8	
2700	108"	305	57	25	29	0,4	1,7	7	
3000	120"	305	57	25	29	0,4	1,7	7	
3300	132"	305	57	25	29	0,3	1,7	7	
3600	144"	305	57	25	29	0,1	1,7	7	

Rubber expansion joints with fixed flanges type GKB M80

Connection dimensions of flanges: according to STN EN 1092-1, PN6, PN10 and PN16

Material of flanges: carbon steel, with anticorrosive paint, or hot-dip galvanized flanges



TYPE GKB-M80

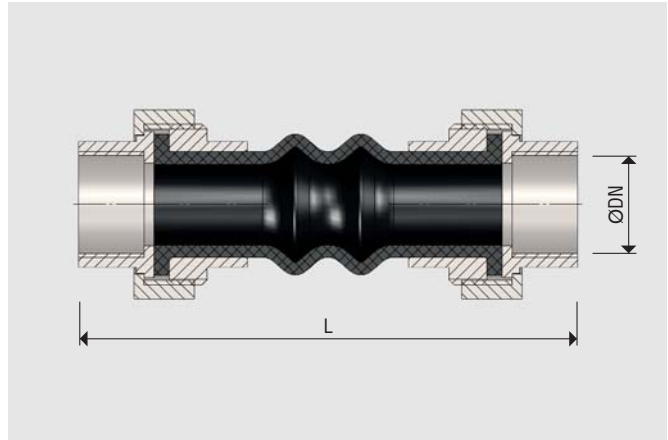
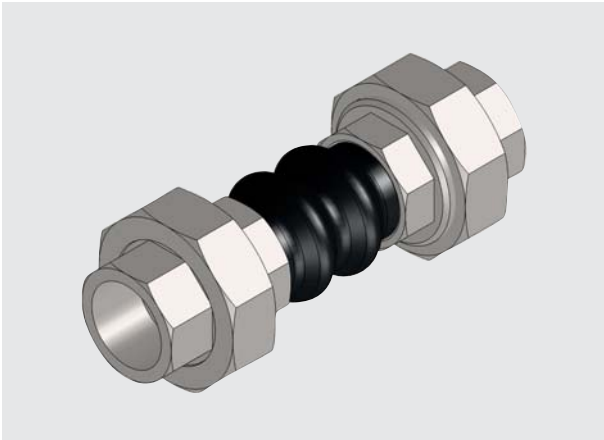
DN	L (mm)	Compensation possibilities				Nominal pressure PN bar	Weight (kg)
		Axial (mm)		Lateral (+/-mm)	Angular (+/- °)		
40	130/150	+30	-30	20	10	16	4,0
50	130/150	+30	-30	20	10	16	5,0
65	130/150	+30	-30	20	10	16	6,0
80	200	+10	-13	5	6	16	9,81
100	200	+10	-13	5	6	16	11,4
125	200	+10	-13	5	6	16	15,1
150	250	+10	-13	5	6	16	20,1
200	250	+10	-13	5	6	10	25,3
250	250	+10	-13	5	6	10	31,0
300	300	+13	-17	8	6	10	41,4
350	300	+13	-17	8	6	10	53,2
400	300	+13	-17	8	6	10	61,1
500	300	+13	-17	8	6	10	82,7
600	300	+13	-17	8	6	6	77,8
700	300	+13	-17	8	6	6	105,0
800	350	+15	-20	12	3	6	155,0
1000	350	+15	-20	12	3	6	176,0
1200	400	+15	-20	12	3	6	293,0
1400	400	+15	-20	12	3	6	400,0
1600	450	+15	-20	12	3	6	496,0
1800	450	+15	-20	12	3	6	610,0
2000	450	+15	-20	12	3	6	767,0
2200	510	+15	-20	12	3	2,5	901,0

Rubber expansion joints with threaded fittings type GKZ TF30

Connection: Screw-coupling with female thread BSP or NPT

Material of fittings: malleable iron, galvanized

On request is possible to deliver expansion joints also with other dimensional and material of fittings.

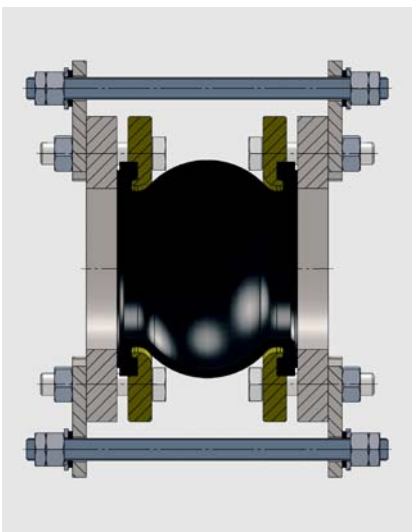


TYPE GKZ-TF30

DN		L nominal length mm	Allowed movements				Pressure PN bar	Vacuum mm Hg without reinforce ring
mm	inches		Lc max.allow. compression mm	Le max. allow. tension mm	R max. allow. Later. Movement +/- mm	α max. allow. angle movement +/- grad		
15	1/2"	200	22	6	22	45	405	
20	3/4"	200	22	6	22	45		
25	1"	200	22	6	22	45		
32	1 1/4"	200	22	6	22	45		
40	1 1/2"	200	22	6	22	45		
50	2"	200	22	6	22	45		
65	2 1/2"	240	22	6	22	45		
80	3"	240	22	6	22	45		

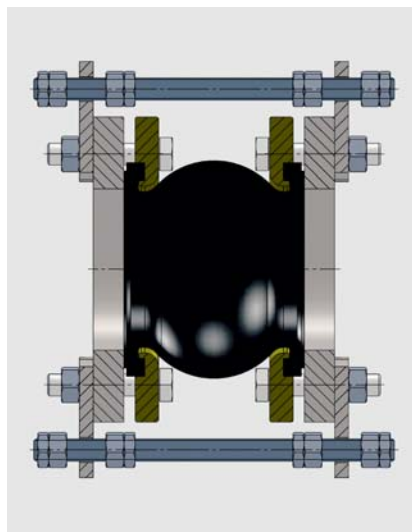
Tie-rods

For absorption of axial reaction forces of expansion joints and for definition of size and direction of movement is possible to deliver expansion joint with tie-rods. **We recommend to use tie-rods in case, that placing of pipeline will not assure absorption of axial reaction force of expansion joint!**



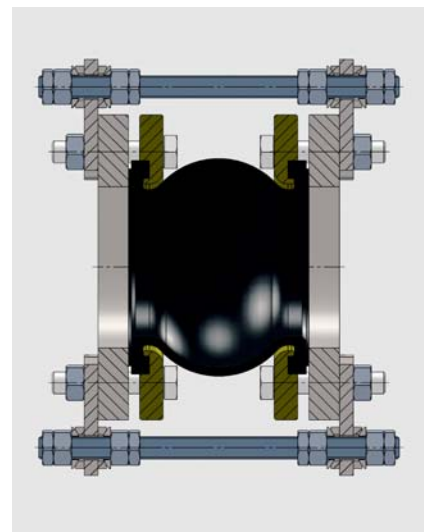
Type CR-1M

Tie-rods in rubber silentblocks, intended for vibration absorbing



Type CR-3M

Tie-rods defining the size of axial movement

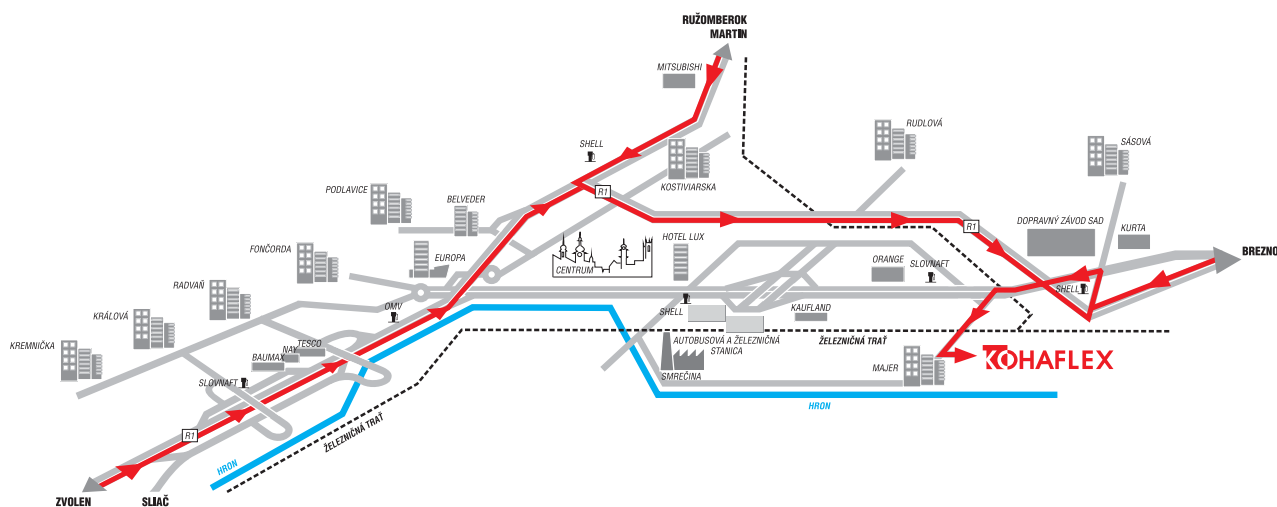


Type CR-5M

Lateral tie-rods system



Company KOHAFLEX holds Quality certificate ISO 9001:2008



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