

# Vremac Cylinders BV

## Cylinder Catalogue

210 bar / 320 bar



# Basic design V21 - V32



<b>Working Pressure</b>	210 bar V21 range 320 bar V32 range
<b>Test Pressure Static</b>	320 bar V21 range 350 bar V32 range
<b>Piston Speed</b>	max. 0,5 m/s
<b>Fluid</b>	Mineral oil acc. DIN 51524
<b>Temperature Range</b>	-20° to +70°C
<b>Viscosity Range</b>	2,8 to 380 mm <sup>2</sup> /s
<b>Stroke</b>	max. 12.000 mm.
<b>Connections</b>	"G" acc. ISO 228-1.
<b>Ball Bearing</b>	steel/steel-with lubrication nipple
<b>Cylinder Body</b>	St52
<b>Piston Rod</b>	see orderingcode
<b>Seals</b>	see page 5
<b>Preservation</b>	primer

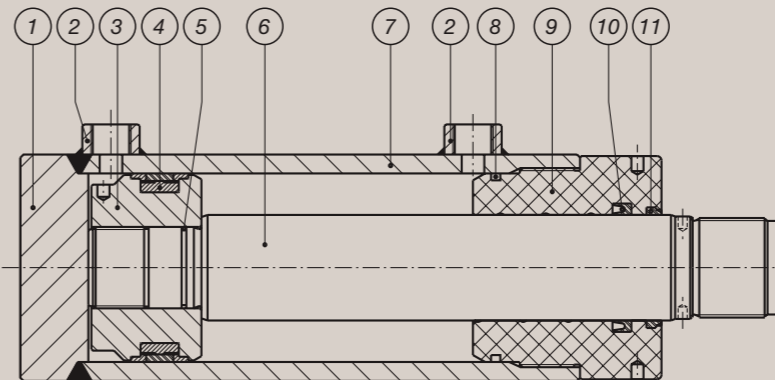
Nominal stroke (S) mm	Dimension tolerance mm
0 - 499	± 1,5
500 - 1249	± 2
1250 - 3149	± 3
3150 - 8000	± 5

### Special design with:

- End cushioning
- Integrated displacement transducer
- Integrated proximity switches
- Valve mounting faces
- Flanged cover/bottom construction
- Piston rod on both sides
- Complete stainless steel design
- High temperature seals VITON
- Low friction seals
- Including Lloyds/Veritas/ABS/GL certificate

### Cylinder with standard seals

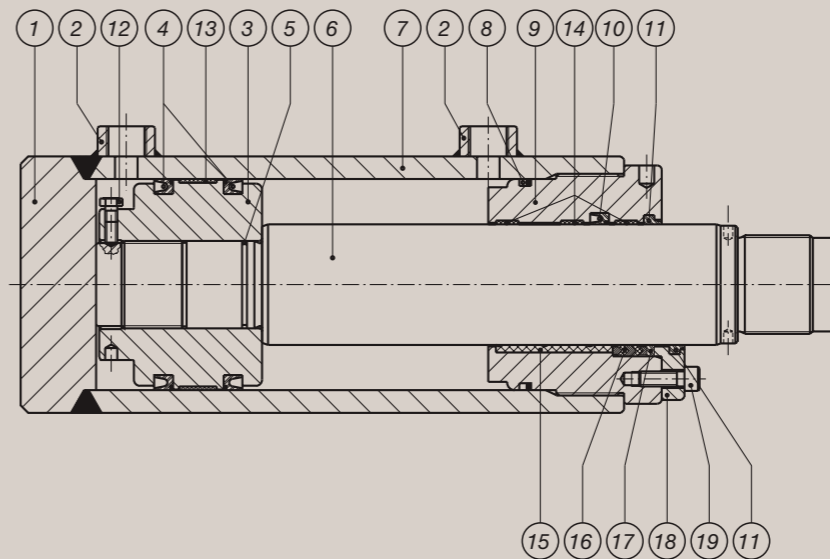
boring - bore > 32 - 125 mm



- 1 Bottom
- 2 Connection
- 3 Piston
- 4 Piston seal
- 5 O-ring
- 6 Piston rod
- 7 Cylinder body
- 8 O-ring
- 9 Cylinder cover
- 10 Piston rod seal
- 11 Dirt wiper
- 12 Securing bolt
- 13 Piston guide
- 14 Piston rod guide
- 15 Piston rod guide bush
- 16 V-ring set
- 17 Backupring
- 18 Gland
- 19 Cap screw

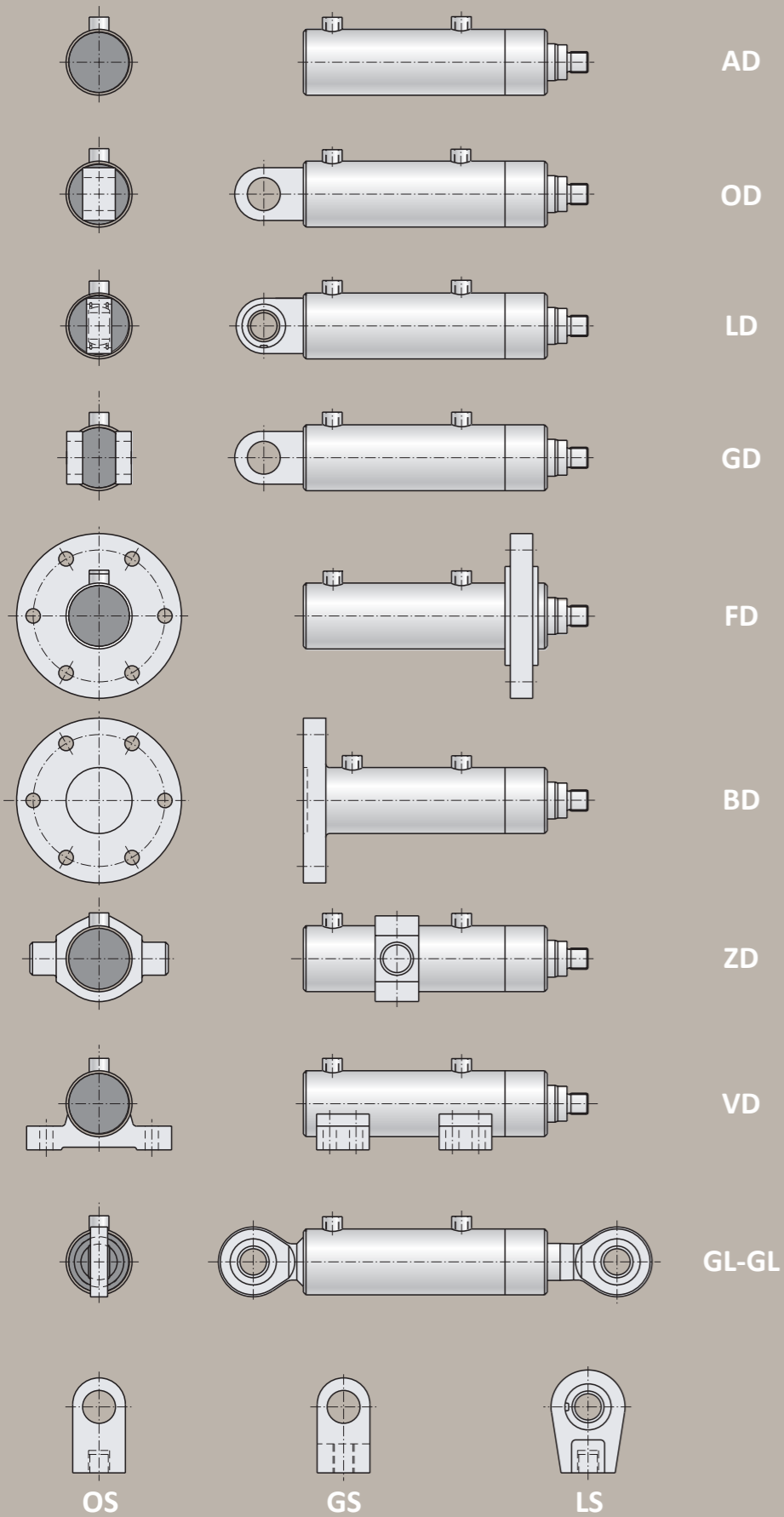
### Cylinder with standard seals

boring - bore > 125 mm





# Selection table



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320 bar pag 22

210 bar pag 12  
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320 bar pag 26

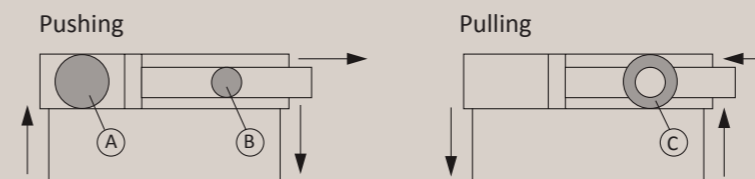
210 bar pag 16  
320 bar pag 27

210 bar pag 17  
320 bar pag 28

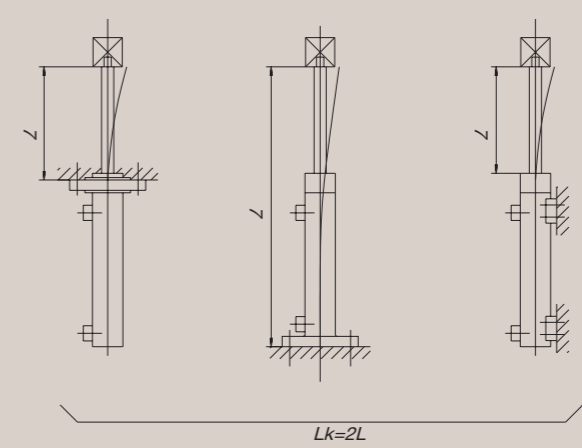
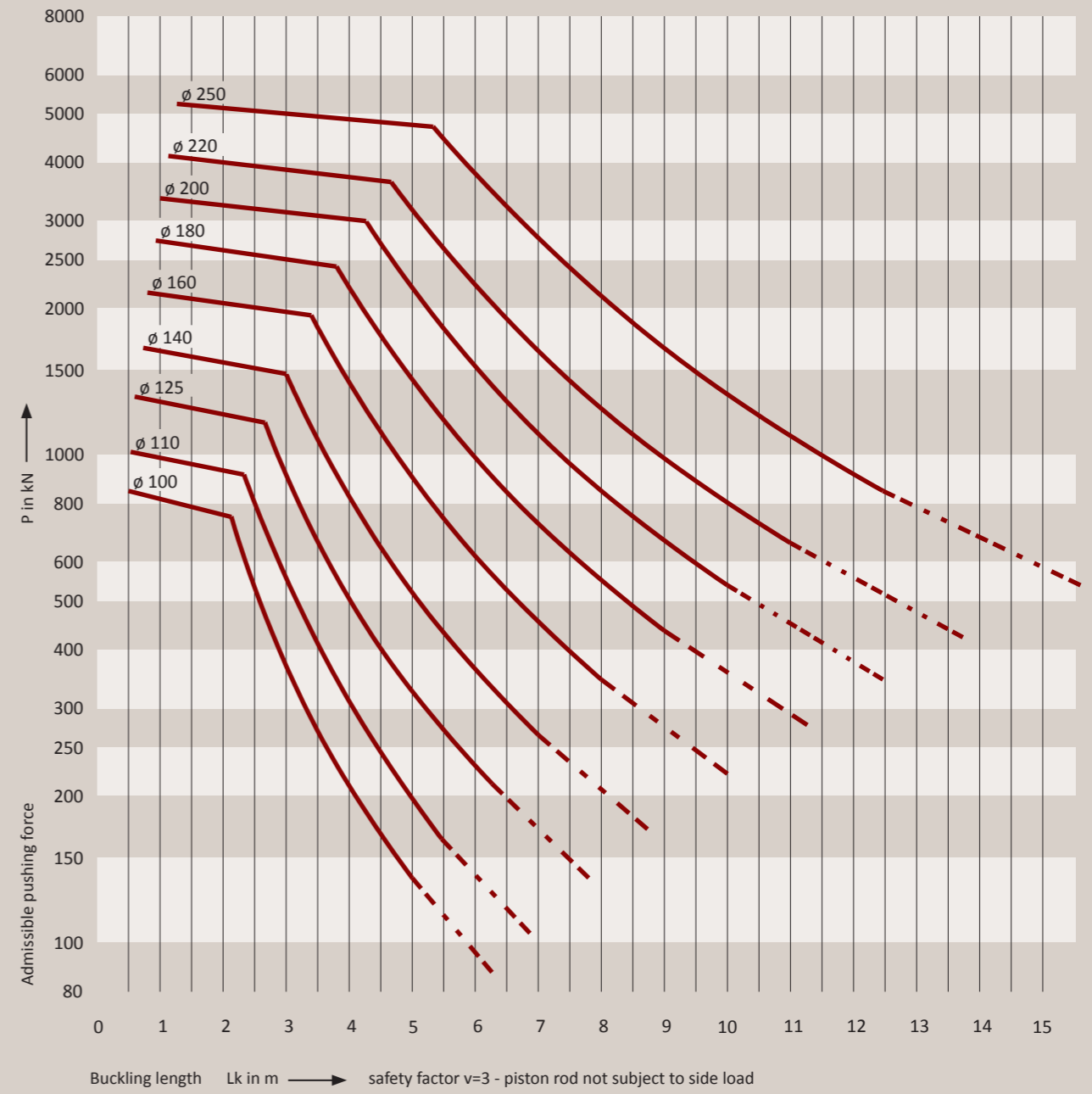
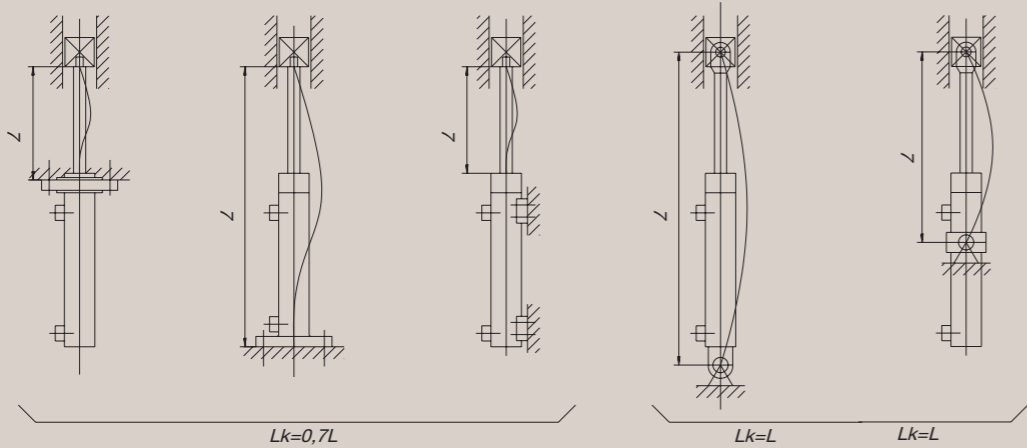
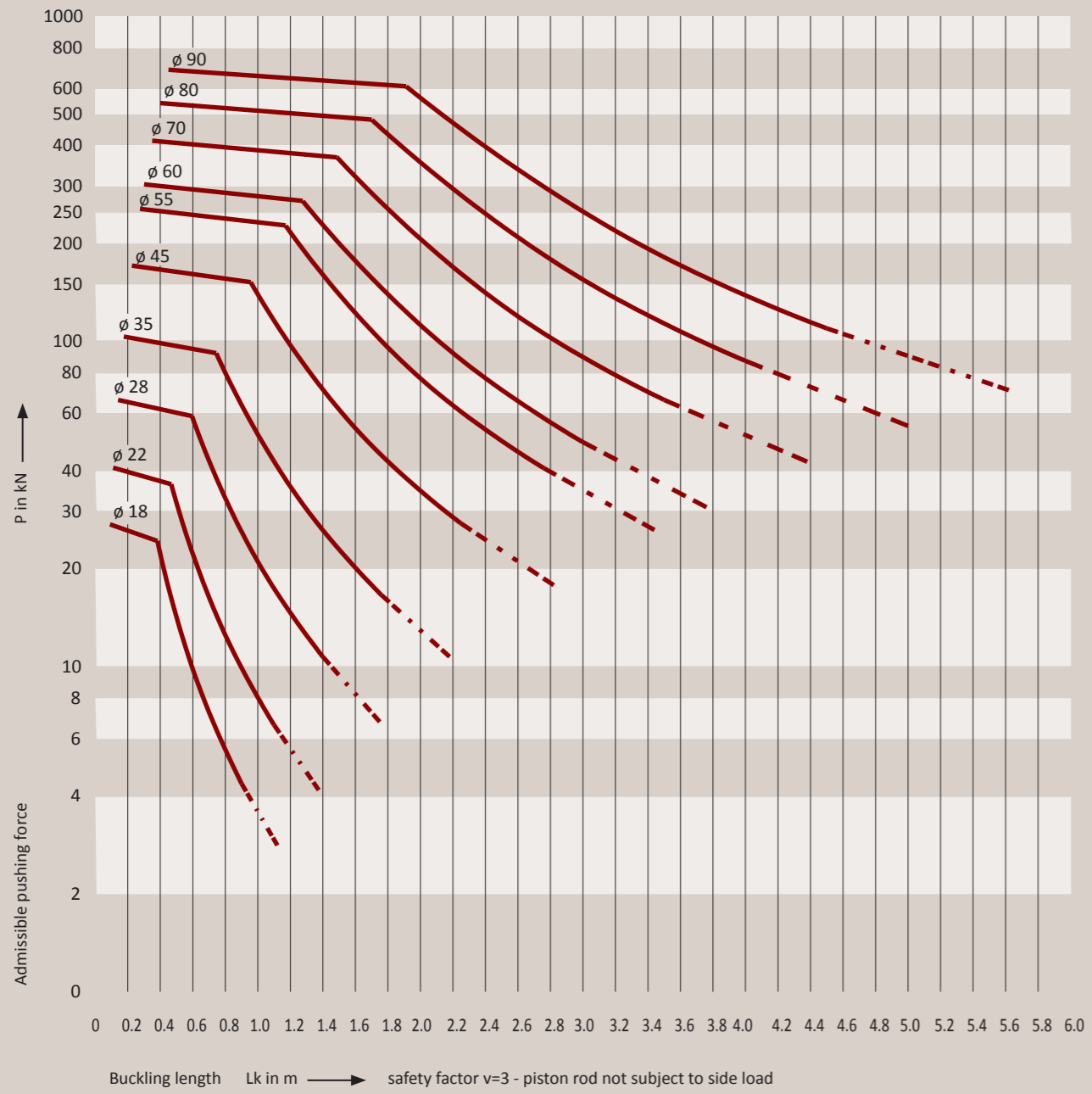
210 bar pag 18

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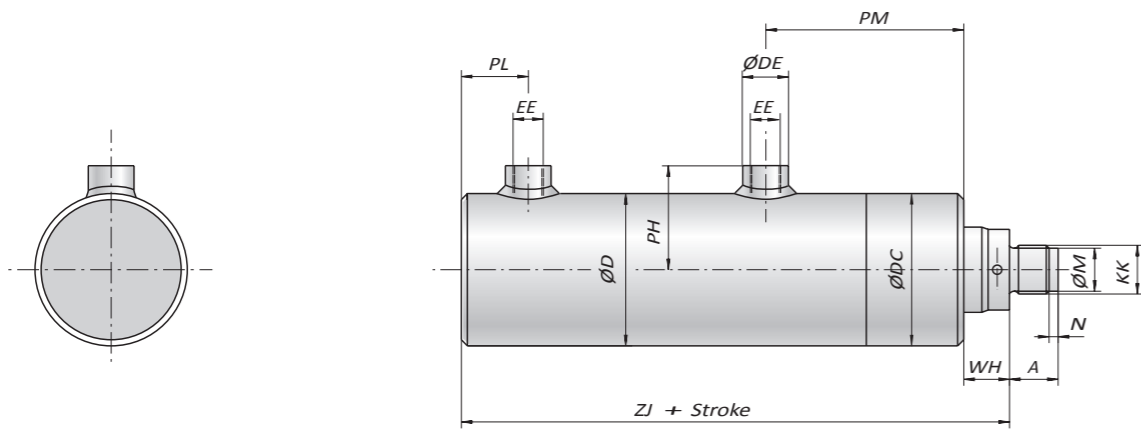
dimension		area			A/C	theoretical forces at a mechanical efficiency of 100 %					
bore	piston rod	piston area	rod area	ring area	piston area / ring area	pushing force			pulling force		
						100 bar	210 bar	320 bar	100 bar	210 bar	320 bar
mm	mm	cm <sup>2</sup>	cm <sup>2</sup>	cm <sup>2</sup>	-	kN	kN	kN	kN	kN	kN
32	18	8.04	2.54	5.50	1.46	8.04	16.9	-	5.50	11.5	-
32	22	8.04	3.80	4.24	1.90	8.04	16.9	-	4.24	8.91	-
40	22	12.57	3.80	8.77	1.43	12.6	26.4	40.2	8.77	18.4	28.0
40	28	12.57	6.16	6.41	1.96	12.6	26.4	40.2	6.41	13.5	20.5
50	35	19.63	6.16	13.48	1.46	19.6	41.2	62.8	13.5	28.3	43.1
50	35	19.63	9.62	10.01	1.96	19.6	41.2	62.8	10.0	21.0	32.0
63	35	31.17	9.62	21.55	1.45	31.2	65.5	99.8	21.6	45.3	69.0
63	45	31.17	15.90	15.27	2.04	31.2	65.5	99.8	15.3	32.1	48.9
80	45	50.27	15.90	34.36	1.46	50.3	106	161	34.4	72.2	110
80	55	50.27	23.76	26.51	1.90	50.3	106	161	26.5	55.7	84.8
100	60	78.54	28.27	50.27	1.56	78.5	165	251	50.3	106	161
100	70	78.54	38.48	40.06	1.96	78.5	165	251	40.1	84.1	128
125	70	122.7	38.48	84.23	1.46	123	258	393	84.2	177	270
125	90	122.7	63.62	59.10	2.08	123	258	393	59.1	124	189
140	80	153.9	50.27	103.7	1.48	154	323	493	104	218	332
140	100	153.9	78.54	75.40	2.04	154	323	493	75.4	158	241
160	90	201.1	63.62	137.4	1.46	201	422	643	137	289	440
160	110	201.1	95.03	106.0	1.90	201	422	643	106	223	339
180	100	254.5	78.54	175.9	1.45	254	534	814	176	369	563
180	110	254.5	95.03	159.4	1.60	254	534	814	159	336	510
180	125	254.5	122.7	131.8	1.93	254	534	814	132	277	422
200	110	314.2	95.03	219.1	1.43	314	660	1005	219	460	701
200	125	314.2	122.7	191.4	1.64	314	660	1005	191	402	613
200	140	314.2	153.9	160.2	1.96	314	660	1005	160	336	513
220	125	380.1	122.7	257.4	1.48	380	798	1216	257	541	824
220	140	380.1	153.9	226.2	1.68	380	798	1216	226	475	724
220	160	380.1	201.1	179.1	2.12	380	798	1216	179	376	573
250	140	490.9	153.9	336.9	1.46	491	1031	1571	337	708	1078
250	160	490.9	201.1	289.8	1.69	491	1031	1571	290	609	927
250	180	490.9	254.5	236.4	2.08	491	1031	1571	236	496	756
280	160	615.8	201.1	414.7	1.48	616	1293	1970	415	871	1327
280	180	615.8	254.5	361.3	1.70	616	1293	1970	361	759	1156
280	200	615.8	314.2	301.6	2.04	616	1293	1970	302	633	965
320	180	804.2	254.5	549.8	1.46	804	1689	2574	550	1155	1759
320	220	804.2	380.1	424.1	1.90	804	1689	2574	424	891	1357
360	200	1017.9	314.2	703.7	1.45	1018	2138	3257	704	1478	2252
360	250	1017.9	490.9	527.0	1.93	1018	2138	3257	527	1107	1686



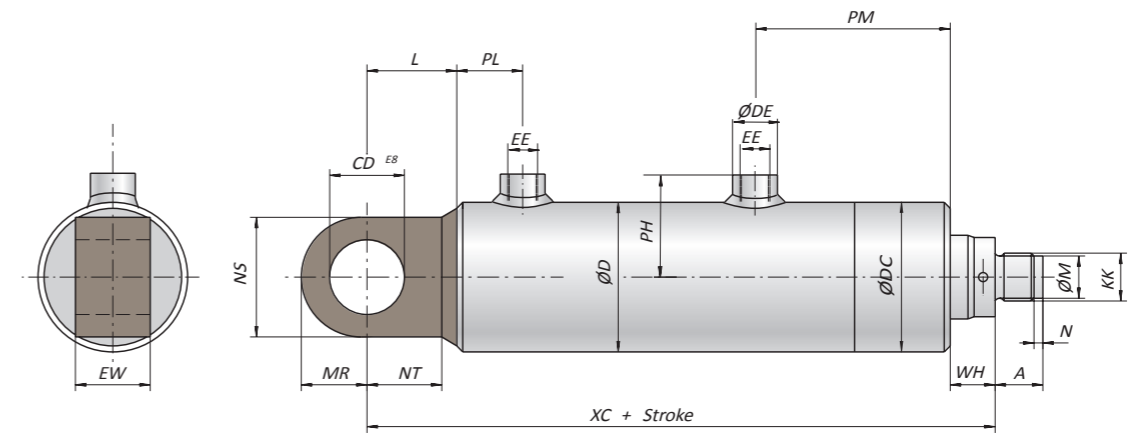
# Piston rods buckling load diagrams



# Basic design 210 bar



# Eye mounting 210 bar



## V21-AD

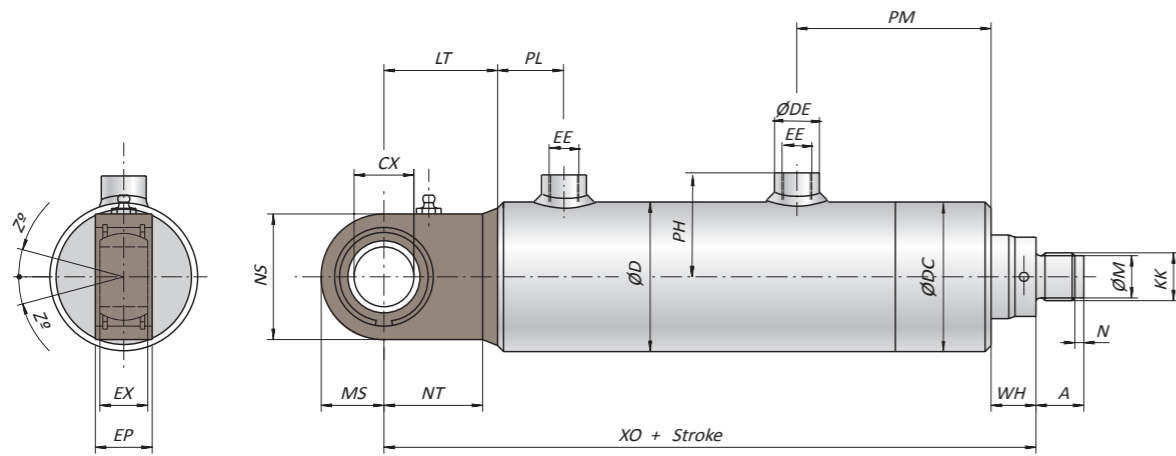
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ
32	18 22	16	42	44	25	G 3/8	M16x1,5	-	-	36	22	70	15	140
40	22 28	16	50	58	25	G 3/8	M16x1,5	-	-	40	22	75	15	155
50	28 35	22	60	68	32	G 1/2	M22x1,5	-	-	45	30	80	15	170
63	35 45	28	75	80	32	G 1/2	M28x1,5	-	-	53	30	85	20	180
80	45 55	35	95	100	32	G 1/2	M35x1,5	-	-	63	30	95	20	200
100	60 70	45	115	120	38	G 3/4	M45x1,5	-	-	78	40	110	20	225
125	70 90	58	145	148	38	G 3/4	M58x1,5	-	-	93	45	125	20	250
140	80 100	58	160	158	38	G 3/4	M58x1,5	-	-	100	55	115	25	285
160	90 110	65	185	185	50	G 1	M65x1,5	62	15	118	65	130	25	315
180	100 125	80	210	208	50	G 1	M80x2	75	18	130	70	145	25	345
200	110 140	100	230	228	50	G 1	M100x2	95	20	140	75	155	25	375
220	125 160	110	273	245	60	G 1 1/4	M110x2	105	20	167	90	180	25	420
250	140 180	120	298	275	60	G 1 1/4	M120x3	114	20	179	100	205	30	485
280	160 200	130	323	310	60	G 1 1/4	M130x3	124	20	192	105	235	30	520
320	180 220	140	368	350	70	G 1 1/2	M140x4	132	20	214	120	250	30	565
360	200 250	150	419	395	70	G 1 1/2	M150x4	142	20	240	130	285	30	635

## V21-OD

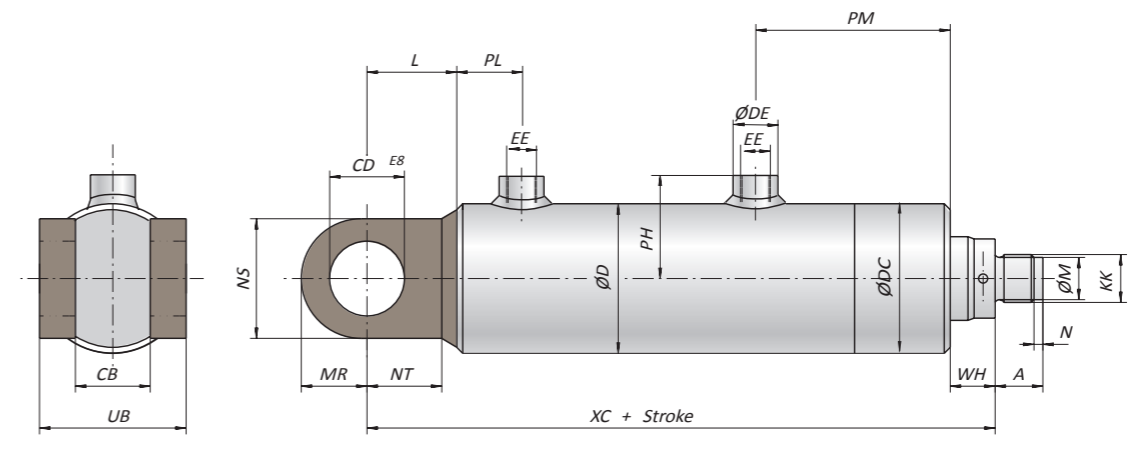
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	XC	CD	EW	L	MR	NS	NT
32	18 22	16	42	44	25	G 3/8	M16x1,5	-	-	36	22	70	15	178	20	20	38	23	40	33
40	22 28	16	50	58	25	G 3/8	M16x1,5	-	-	40	22	75	15	200	25	25	45	27	40	40
50	28 35	22	60	68	32	G 1/2	M22x1,5	-	-	45	30	80	15	221	30	30	51	33	50	45
63	35 45	28	75	80	32	G 1/2	M28x1,5	-	-	53	30	85	20	241	35	40	61	38	60	55
80	45 55	35	95	100	32	G 1/2	M35x1,5	-	-	63	30	95	20	269	40	50	69	49	75	60
100	60 70	45	115	120	38	G 3/4	M45x1,5	-	-	78	40	110	20	313	50	60	88	55	100	80
125	70 90	58	145	148	38	G 3/4	M58x1,5	-	-	93	45	125	20	350	60	80	100	60	110	90
140	80 100	58	160	158	38	G 3/4	M58x1,5	-	-	100	55	115	25	385	60	80	100	60	110	85
160	90 110	65	185	185	50	G 1	M65x1,5	62	15	118	65	130	25	430	70	90	115	70	125	100
180	100 125	80	210	208	50	G 1	M80x2	75	18	130	70	145	25	486	80	108	141	80	140	125
200	110 140	100	230	228	50	G 1	M100x2	95	20	140	75	155	25	525	90	128	150	90	150	130
220	125 160	110	273	245	60	G 1 1/4	M110x2	105	20	167	90	180	25	590	100	138	170	100	165	150
250	140 180	120	298	275	60	G 1 1/4	M120x3	114	20	179	100	205	30	670	110	148	185	110	180	160
280	160 200	130	323	310	60	G 1 1/4	M130x3	124	20	192	105	235	30	730	120	168	210	120	200	185
320	180 220	140	368	350	70	G 1 1/2	M140x4	132	20	214	120	250	30	795	140	188	230	140	240	200
360	200 250	150	419	395	70	G 1 1/2	M150x4	142	20	240	130	285	30	895	160	218	260	160	280	225

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

# Spherical eye mounting 210 bar



# Clevis mounting 210 bar



## V21-LD

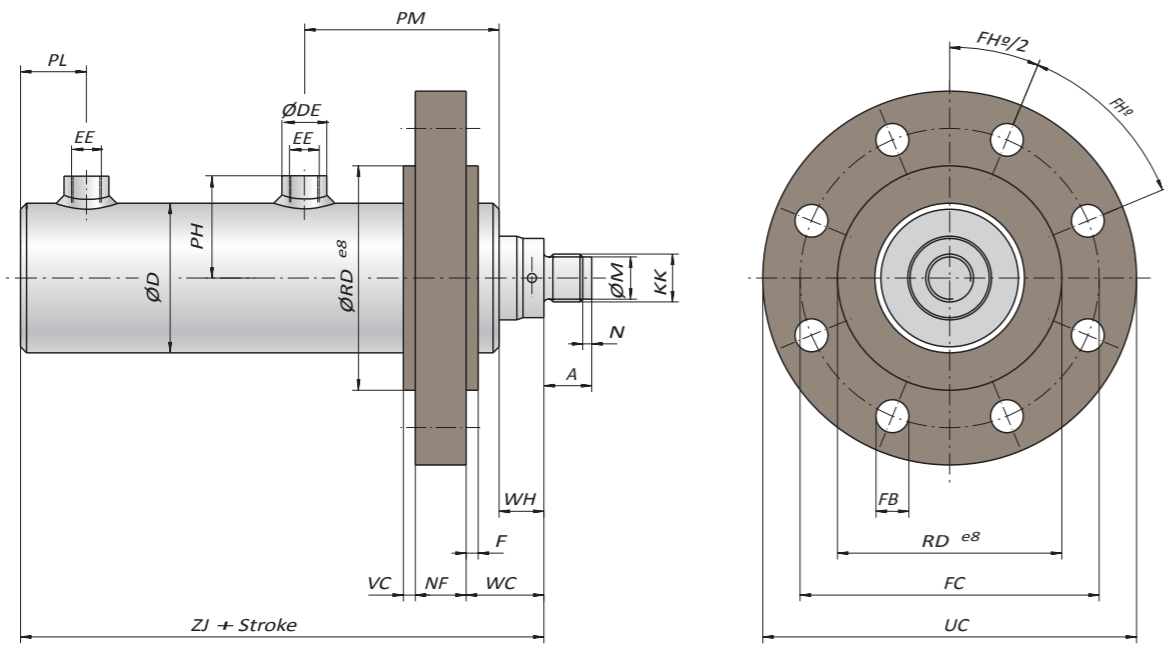
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	XO	CX	EP	EX	LT	MS	NS	NT	Z
32	18 22	16	42	44	25	G 3/8	M16x1,5	-	-	36	22	70	15	178	20 <sup>0</sup> <sub>-0,010</sub>	19 <sup>+1</sup> <sub>0</sub>	16 <sup>0</sup> <sub>-0,12</sub>	38	25	50	33	9
40	22 28	16	50	58	25	G 3/8	M16x1,5	-	-	40	22	75	15	200	25 <sup>0</sup> <sub>-0,010</sub>	23 <sup>+1</sup> <sub>0</sub>	20 <sup>0</sup> <sub>-0,12</sub>	45	28	55	40	7
50	28 35	22	60	68	32	G 1/2	M22x1,5	-	-	45	30	80	15	221	30 <sup>0</sup> <sub>-0,010</sub>	28 <sup>+1</sup> <sub>0</sub>	22 <sup>0</sup> <sub>-0,12</sub>	51	33	65	45	6
63	35 45	28	75	80	32	G 1/2	M28x1,5	-	-	53	30	85	20	241	35 <sup>0</sup> <sub>-0,012</sub>	30 <sup>+1</sup> <sub>0</sub>	25 <sup>0</sup> <sub>-0,12</sub>	61	42	83	55	6
80	45 55	35	95	100	32	G 1/2	M35x1,5	-	-	63	30	95	20	269	40 <sup>0</sup> <sub>-0,012</sub>	35 <sup>+1,5</sup> <sub>0</sub>	28 <sup>0</sup> <sub>-0,12</sub>	69	50	100	60	7
100	60 70	45	115	120	38	G 3/4	M45x1,5	-	-	78	40	110	20	313	50 <sup>0</sup> <sub>-0,012</sub>	40 <sup>+1,5</sup> <sub>0</sub>	35 <sup>0</sup> <sub>-0,12</sub>	88	62	123	80	6
125	70 90	58	145	148	38	G 3/4	M58x1,5	-	-	93	45	125	20	350	60 <sup>0</sup> <sub>-0,015</sub>	50 <sup>+2,5</sup> <sub>0</sub>	44 <sup>0</sup> <sub>-0,15</sub>	100	70	140	90	6
140	80 100	58	160	158	38	G 3/4	M58x1,5	-	-	100	55	115	25	385	60 <sup>0</sup> <sub>-0,015</sub>	50 <sup>+2,5</sup> <sub>0</sub>	44 <sup>0</sup> <sub>-0,15</sub>	100	70	140	85	6
160	90 110	65	185	185	50	G 1	M65x1,5	62	15	118	65	130	25	430	70 <sup>0</sup> <sub>-0,015</sub>	55 <sup>+3</sup> <sub>0</sub>	49 <sup>0</sup> <sub>-0,15</sub>	115	82	164	100	6
180	100 125	80	210	208	50	G 1	M80x2	75	18	130	70	145	25	486	80 <sup>0</sup> <sub>-0,015</sub>	60 <sup>+3</sup> <sub>0</sub>	55 <sup>0</sup> <sub>-0,15</sub>	141	90	180	125	6
200	110 140	100	230	228	50	G 1	M100x2	95	20	140	75	155	25	525	90 <sup>0</sup> <sub>-0,020</sub>	65 <sup>+4</sup> <sub>0</sub>	60 <sup>0</sup> <sub>-0,20</sub>	150	113	226	130	5
220	125 160	110	273	245	60	G 1 1/4	M110x2	105	20	167	90	180	25	590	100 <sup>0</sup> <sub>-0,020</sub>	70 <sup>+4</sup> <sub>0</sub>	70 <sup>0</sup> <sub>-0,20</sub>	170	125	250	150	7
250	140 180	120	298	275	60	G 1 1/4	M120x3	114	20	179	100	205	30	670	110 <sup>0</sup> <sub>-0,020</sub>	80 <sup>+5</sup> <sub>0</sub>	70 <sup>0</sup> <sub>-0,20</sub>	185	148	295	165	6
280	160 200	130	323	310	60	G 1 1/4	M130x3	124	20	192	105	235	30	730	120 <sup>0</sup> <sub>-0,020</sub>	90 <sup>+5</sup> <sub>0</sub>	85 <sup>0</sup> <sub>-0,20</sub>	210	180	360	190	6
320	180 220	140	368	350	70	G 1 1/2	M140x4	132	20	214	120	250	30	795	140 <sup>0</sup> <sub>-0,025</sub>	100 <sup>+3</sup> <sub>-1</sub>	90 <sup>0</sup> <sub>-0,25</sub>	230	200	380	205	7
360	200 250	150	419	395	70	G 1 1/2	M150x4	142	20	240	130	285	30	895	160 <sup>0</sup> <sub>-0,025</sub>	110 <sup>+3</sup> <sub>-1</sub>	105 <sup>0</sup> <sub>-0,25</sub>	260	240	420	230	8

## V21-GD

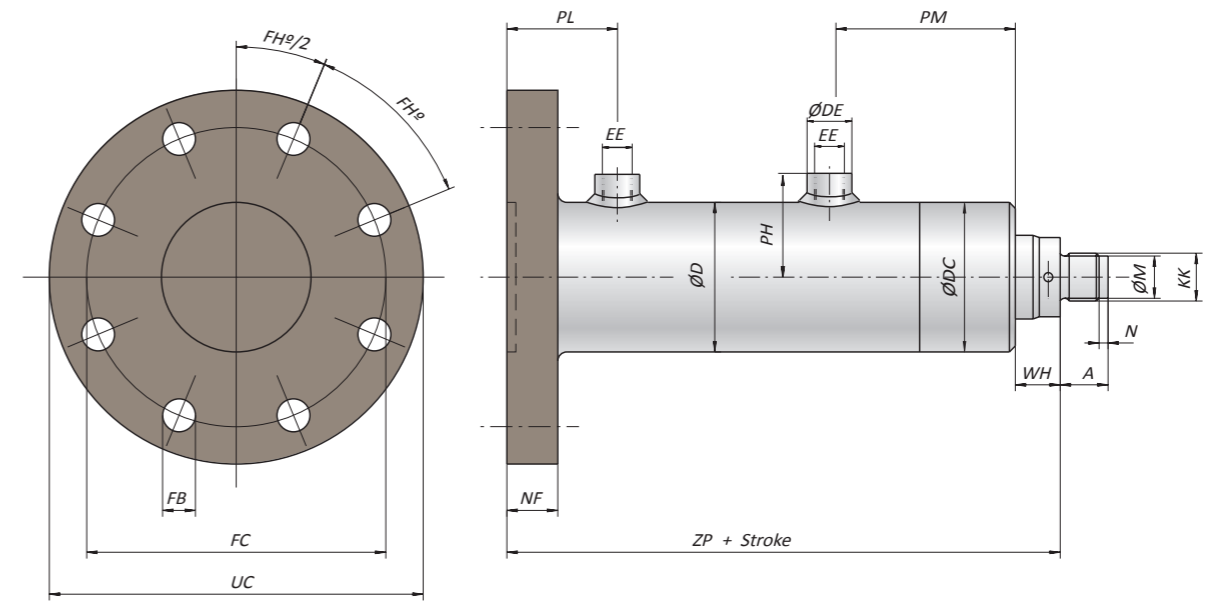
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	XC	CB	CD	L	MR	NS	NT	UB
32	18 22	16	42	44	25	G 3/8	M16x1,5	-	-	36	22	70	15	178	20	20	38	23	40	33	40
40	22 28	16	50	58	25	G 3/8	M16x1,5	-	-	40	22	75	15	200	25	25	45	27	40	40	49
50	28 35	22	60	68	32	G 1/2	M22x1,5	-	-	45	30	80	15	221	30	30	51	33	50	45	60
63	35 45	28	75	80	32	G 1/2	M28x1,5	-	-	53	30	85	20	241	40	35	61	38	60	55	80
80	45 55	35	95	100	32	G 1/2	M35x1,5	-	-	63	30	95	20	269	50	40	69	49	75	60	90
100	60 70	45	115	120	38	G 3/4	M45x1,5	-	-	78	40	110	20	313	60	50	88	55	100	80	110
125	70 90	58	145	148	38	G 3/4	M58x1,5	-	-	93	45	125	20	350	80	60	100	60	110	90	140
140	80 100	58	160	158	38	G 3/4	M58x1,5	-	-	100	55	115	25	385	80	60	100	60	110	90	140
160	90 110	65	185	185	50	G 1	M65x1,5	62	15	118	65	130	25	430	90	70	115	70	125	105	160
180	100 125	80	210	208	50	G 1	M80x2	75	18	130	70	145	25	486	110	80	141	80	140	130	200
200	110 140	100	230	228	50	G 1	M100x2	95	20	140	75	155	25	525	130	90	150	90	150	135	230
220	125 160	110	273	245	60	G 1 1/4	M110x2	105	20	167	90	180	25	590	140	100	170	100	165	155	250
250	140 180	120	298	275	60	G 1 1/4	M120x3	114	20	179	100	205	30	670	150	110	185	110	180	170	270
280	160 200	130	323	310	60	G 1 1/4	M130x3	124	20	192	105	235	30	730	170	120	210	120	200	190	300
320	180 220	140	368	350	70	G 1 1/2	M140x4	132	20	214	120	250	30	795	190	140	230	140	240	210	330
360	200 250	150	419	395	70	G 1 1/2	M150x4	142	20	240	130	285	30	895	220	160	260	160	280	235	380

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

# Front flange mounting 210 bar



# Rear flange mounting 210 bar



## V21-FD

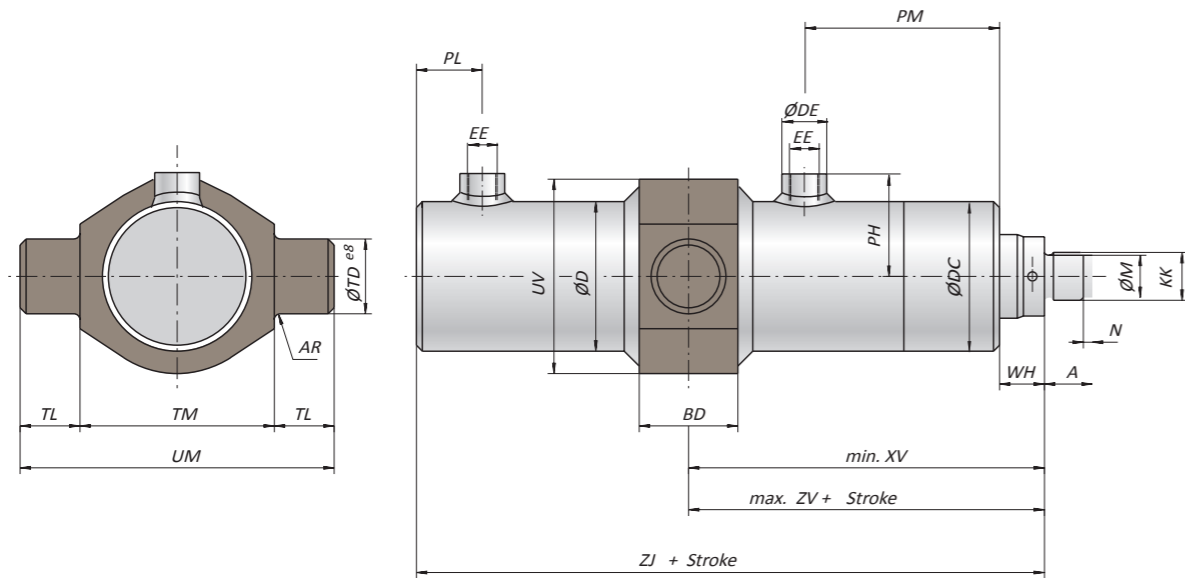
Bore	Rod	A	D	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ	F	FB	FC	FH	NF	RD	UC	VC	WC	
32	18	22	16	42	25	G 3/8	M16x1,5	-	-	36	22	70	15	140	3	9(4x)	80	90	15	60	100	10	18
40	22	28	16	50	25	G 3/8	M16x1,5	-	-	40	22	75	15	155	4	11(4x)	100	90	17	75	125	11	19
50	28	35	22	60	32	G 1/2	M22x1,5	-	-	45	30	80	15	170	4	14(4x)	115	90	20	85	145	11	19
63	35	45	28	75	32	G 1/2	M28x1,5	-	-	53	30	85	20	180	4	14(6x)	130	60	23	100	160	13	24
80	45	55	35	95	32	G 1/2	M35x1,5	-	-	63	30	95	20	200	4	18(6x)	155	60	26	120	190	13	24
100	60	70	45	115	38	G 3/4	M45x1,5	-	-	78	40	110	20	225	5	18(8x)	175	45	32	140	210	13	25
125	70	90	58	145	38	G 3/4	M58x1,5	-	-	93	45	125	20	250	5	22(8x)	215	45	40	175	260	15	25
140	80	100	58	160	38	G 3/4	M58x1,5	-	-	100	55	115	25	285	5	22(8x)	220	45	40	180	265	5	65
160	90	110	65	185	50	G 1	M65x1,5	62	15	118	65	130	25	315	5	22(8x)	245	45	40	205	290	5	65
180	100	125	80	210	50	G 1	M80x2	75	18	130	70	145	25	345	5	26(8x)	280	45	40	230	335	5	70
200	110	140	100	230	50	G 1	M100x2	95	20	140	75	155	25	375	5	26(8x)	305	45	45	255	360	5	75
220	125	160	110	273	60	G 1 1/4	M110x2	105	20	167	90	180	25	420	5	33(8x)	355	45	50	295	425	5	90
250	140	180	120	298	60	G 1 1/4	M120x3	114	20	179	100	205	30	485	5	33(8x)	385	45	55	325	455	5	115
280	160	200	130	323	60	G 1 1/4	M130x3	124	20	192	105	235	30	520	5	39(8x)	430	45	60	355	510	5	130
320	180	220	140	368	70	G 1 1/2	M140x4	132	20	214	120	250	30	565	5	39(12x)	475	30	65	400	555	5	135
360	200	250	150	419	70	G 1 1/2	M150x4	142	20	240	130	285	30	635	5	39(12x)	530	30	70	455	610	5	150

## V21-BD

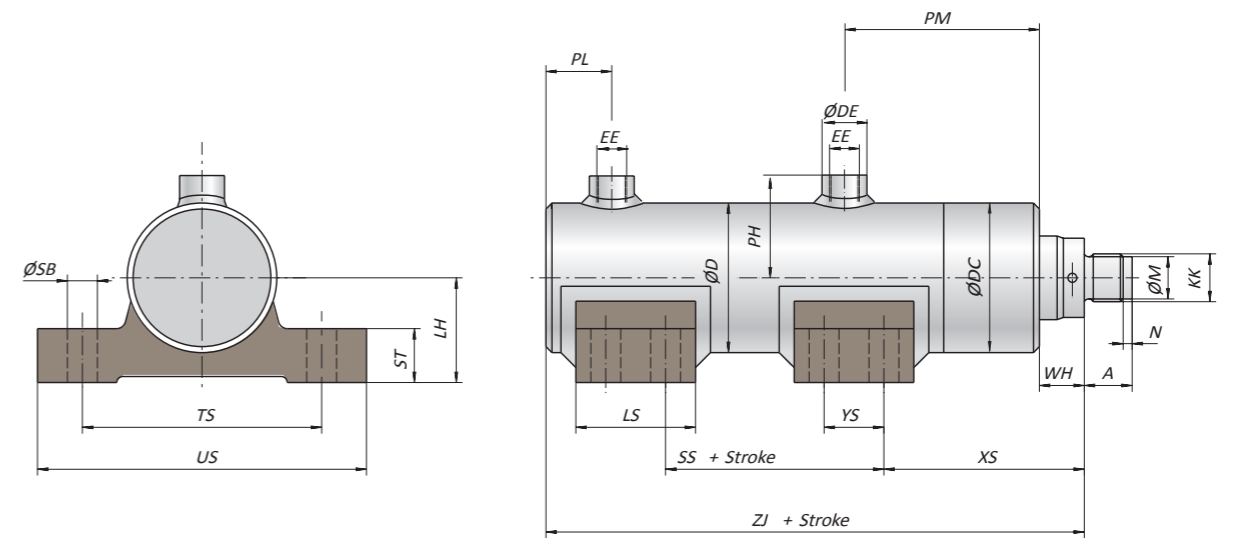
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZP	FB	FC	FH	NF	UC	
32	18	22	16	42	44	25	G 3/8	M16x1,5	-	-	36	37	70	15	155	9(4x)	80	90	15	100
40	22	28	16	50	58	25	G 3/8	M16x1,5	-	-	40	37	75	15	170	11(4x)	100	90	17	125
50	28	35	22	60	68	32	G 1/2	M22x1,5	-	-	45	45	80	15	185	14(4x)	115	90	20	145
63	35	45	28	75	80	32	G 1/2	M28x1,5	-	-	53	50	85	20	200	14(6x)	130	60	23	160
80	45	55	35	95	100	32	G 1/2	M35x1,5	-	-	63	50	95	20	220	18(6x)	155	60	26	190
100	60	70	45	115	120	38	G 3/4	M45x1,5	-	-	78	60	110	20	245	18(8x)	175	45	32	210
125	70	90	58	145	148	38	G 3/4	M58x1,5	-	-	93	70	125	20	275	22(8x)	215	45	40	260
140	80	100	58	160	158	38	G 3/4	M58x1,5	-	-	100	75	115	25	305	22(8x)	220	45	40	265
160	90	110	65	185	185	50	G 1	M65x1,5	62	15	118	80	130	25	330	22(8x)	245	45	40	290
180	100	125	80	210	208	50	G 1	M80x2	75	18	130	85	145	25	360	26(8x)	280	45	40	335
200	110	140	100	230	228	50	G 1	M100x2	95	20	140	90	155	25	390	26(8x)	305	45	45	360
220	125	160	110	273	245	60	G 1 1/4	M110x2	105	20	167	100	180	25	430	33(8x)	355	45	50	425
250	140	180	120	298	275	60	G 1 1/4	M120x3	114	20	179	110	205	30	495	33(8x)	385	45	55	455
280	160	200	130	323	310	60	G 1 1/4	M130x3	124	20	192	115	235	30	530	39(8x)	430	45	60	510
320	180	220	140	368	350	70	G 1 1/2	M140x4	132	20	214	125	250	30	570	39(12x)	475	30	65	555
360	200	250	150	419	395	70	G 1 1/2	M150x4	142	20	240	130	285	30	635	39(12x)	530	30	70	610

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

# Trunnion mounting 210 bar



# Feet mounting 210 bar



## V21-ZD

Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ	BD	AR	TD	TL	TM/UV	UM	XV	ZV	min Stroke	
32	18	22	16	42	44	25	G 3/8	M16x1,5	-	-	36	22	70	15	140	28	2	20	20	55	95	120	80	40
40	22	28	16	50	58	25	G 3/8	M16x1,5	-	-	40	22	75	15	155	33	2	25	20	65	105	130	90	40
50	28	35	22	60	68	32	G 1/2	M22x1,5	-	-	45	30	80	15	170	38	2	30	25	80	130	140	95	45
63	35	45	28	75	80	32	G 1/2	M28x1,5	-	-	53	30	85	20	180	43	2	35	25	95	145	155	100	55
80	45	55	35	95	100	32	G 1/2	M35x1,5	-	-	63	30	95	20	200	48	2	40	30	115	175	170	115	55
100	60	70	45	115	120	38	G 3/4	M45x1,5	-	-	78	40	110	20	225	58	2	50	35	140	210	195	120	75
125	70	90	58	145	148	38	G 3/4	M58x1,5	-	-	93	45	125	20	250	68	2	60	40	175	255	215	135	80
140	80	100	58	160	158	38	G 3/4	M58x1,5	-	-	100	55	115	25	285	83	2	70	50	195	295	220	150	70
160	90	110	65	185	185	50	G 1	M65x1,5	62	15	118	65	130	25	315	93	2	80	55	225	335	245	160	85
180	100	125	80	210	208	50	G 1	M80x2	75	18	130	70	145	25	345	108	2	90	60	255	375	270	175	95
200	110	140	100	230	228	50	G 1	M100x2	95	20	140	75	155	25	375	118	3	100	65	280	410	290	190	100
220	125	160	110	273	245	60	G 1 1/4	M110x2	105	20	167	90	180	25	420	128	3	110	70	330	470	325	210	115
250	140	180	120	298	275	60	G 1 1/4	M120x3	114	20	179	100	205	30	485	138	3	125	80	360	520	360	260	100
280	160	200	130	323	310	60	G 1 1/4	M130x3	124	20	192	105	235	30	520	158	4	140	90	400	580	405	275	130
320	180	220	140	368	350	70	G 1 1/2	M140x4	132	20	214	120	250	30	565	178	4	160	100	440	640	440	285	155
360	200	250	150	419	395	70	G 1 1/2	M150x4	142	20	240	130	285	30	635	198	4	180	110	500	720	485	335	150

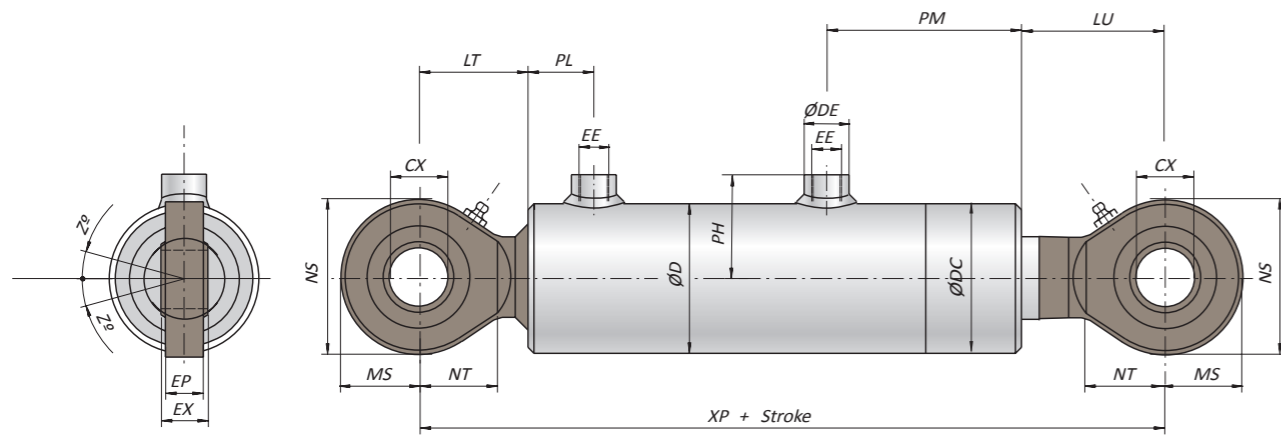
## V21-VD

Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ	LH	LS	SB	SS	ST	TS	US	XS	YS	
32	18	22	16	42	44	25	G 3/8	M16x1,5	-	-	36	22	70	15	140	30	25	11	60	12	70	90	60	-
40	22	28	16	50	58	25	G 3/8	M16x1,5	-	-	40	22	75	15	155	35	30	14	60	15	80	105	70	-
50	28	35	22	60	68	32	G 1/2	M22x1,5	-	-	45	30	80	15	170	45	40	18	60	18	100	135	80	-
63	35	45	28	75	80	32	G 1/2	M28x1,5	-	-	53	30	85	20	180	50	45	18	60	20	115	150	90	-
80	45	55	35	95	100	32	G 1/2	M35x1,5	-	-	63	30	95	20	200	65	50	18	70	30	140	175	95	-
100	60	70	45	115	120	38	G 3/4	M45x1,5	-	-	78	40	110	20	225	75	70	22	65	35	170	210	115	-
125	70	90	58	145	148	38	G 3/4	M58x1,5	-	-	93	45	125	20	250	90	90	22	55	35	200	240	115	45
140	80	100	58	160	158	38	G 3/4	M58x1,5	-	-	100	55	115	25	285	105	90	22	120	35	220	260	85	45
160	90	110	65	185	185	50	G 1	M65x1,5	62	15	118	65	130	25	315	120	100	26	135	40	260	310	90	50
180	100	125	80	210	208	50	G 1	M80x2	75	18	130	70	145	25	345	130	130	33	135	45	290	350	100	65
200	110	140	100	230	228	50	G 1	M100x2	95	20	140	75	155	25	375	150	130	33	150	50	310	370	110	65

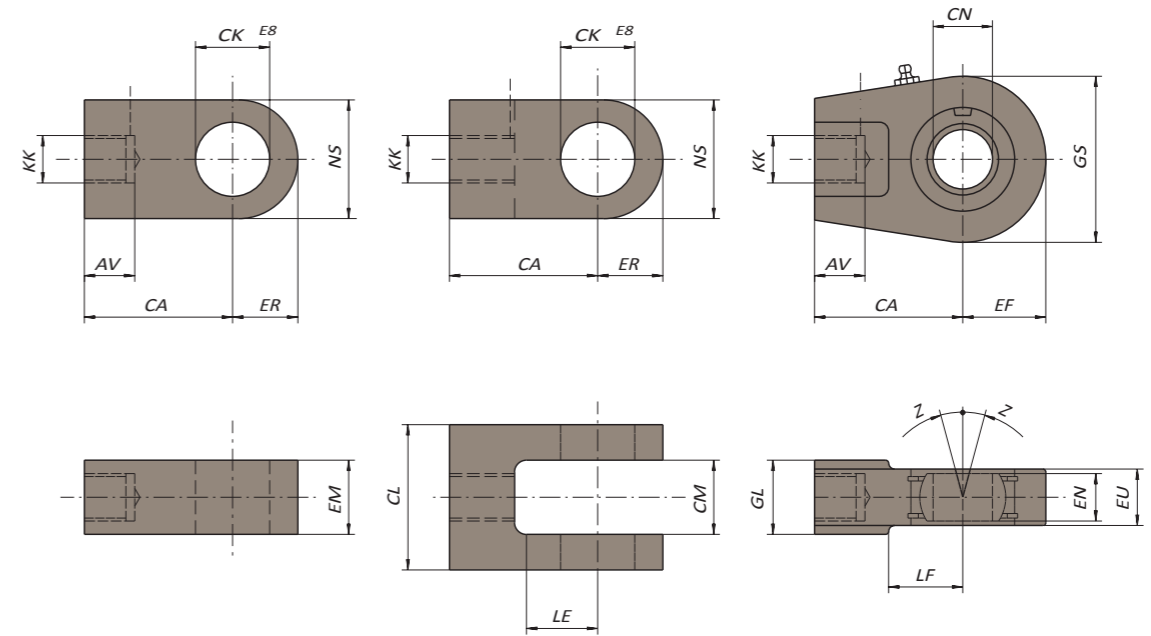
- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request



# Spherical eye mounting 210 bar



# Piston rod mounting 210 bar



## V21-GL-GL

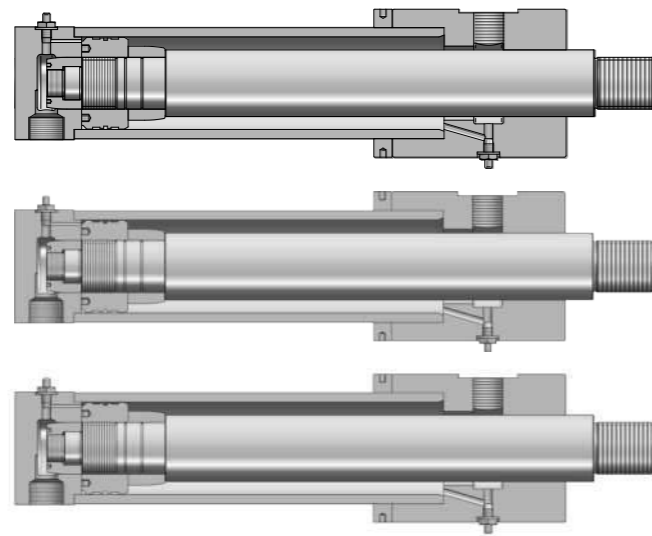
Bore	Rod	D	DC	DE	EE	PH	PL	PM	XP	CX	EP	EX	LT	LU	MS	NS	NT	Z
32	18 22	42	44	25	G 3/8	36	22	70	216	20 <sup>0</sup> <sub>-0,010</sub>	13	16 <sup>0</sup> <sub>-0,12</sub>	38	53	27	53	27	9
40	22 28	50	58	25	G 3/8	40	22	75	245	25 <sup>0</sup> <sub>-0,010</sub>	17	20 <sup>0</sup> <sub>-0,12</sub>	45	60	32	64	32	7
50	28 35	60	68	32	G 1/2	45	30	80	272	30 <sup>0</sup> <sub>-0,010</sub>	19	22 <sup>0</sup> <sub>-0,12</sub>	51	66	37	73	37	6
63	35 45	75	80	32	G 1/2	53	30	85	302	35 <sup>0</sup> <sub>-0,012</sub>	21	25 <sup>0</sup> <sub>-0,12</sub>	61	81	41	82	42	6
80	45 55	95	100	32	G 1/2	63	30	95	338	40 <sup>0</sup> <sub>-0,012</sub>	23	28 <sup>0</sup> <sub>-0,12</sub>	69	89	46	92	48	7
100	60 70	115	120	38	G 3/4	78	40	110	401	50 <sup>0</sup> <sub>-0,012</sub>	30	35 <sup>0</sup> <sub>-0,12</sub>	88	108	56	112	60	6
125	70 90	145	148	38	G 3/4	93	45	125	450	60 <sup>0</sup> <sub>-0,015</sub>	38	44 <sup>0</sup> <sub>-0,15</sub>	100	120	68	135	75	6
140	80 100	160	158	38	G 3/4	100	55	115	485	60 <sup>0</sup> <sub>-0,015</sub>	38	44 <sup>0</sup> <sub>-0,15</sub>	100	125	68	135	75	6
160	90 110	185	185	50	G 1	118	65	130	545	70 <sup>0</sup> <sub>-0,015</sub>	42	49 <sup>0</sup> <sub>-0,15</sub>	115	140	80	160	87	6
180	100 125	210	208	50	G 1	130	70	145	627	80 <sup>0</sup> <sub>-0,015</sub>	47	55 <sup>0</sup> <sub>-0,15</sub>	141	166	90	180	100	6

## V21-OS/GS/LS

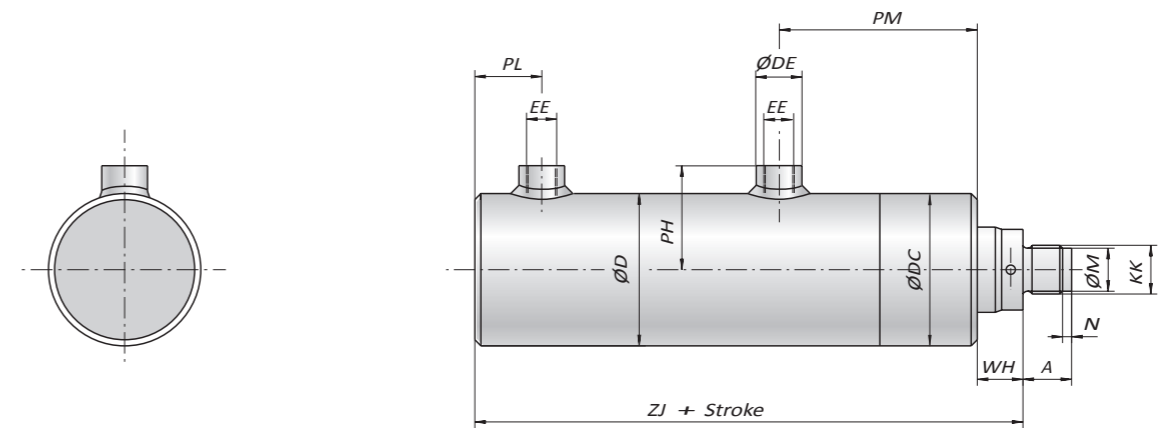
Bore	AV	CA	CK	CL	CM	CN	EF	EM	EN	ER	EU	GL	GS	KK	LE	LF	NS	Z
32	17	50	20	40	20	20 <sup>0</sup> <sub>-0,010</sub>	28	20	16 <sup>0</sup> <sub>-0,12</sub>	23	19	25	56	M16x1,5	24	25	40	9
40	17	50	25	50	25	25 <sup>0</sup> <sub>-0,010</sub>	28	25	20 <sup>0</sup> <sub>-0,12</sub>	27	23	25	56	M16x1,5	34	25	40	7
50	23	60	30	60	30	30 <sup>0</sup> <sub>-0,010</sub>	32	30	22 <sup>0</sup> <sub>-0,12</sub>	33	28	32	64	M22x1,5	38	30	50	6
63	29	70	35	80	40	35 <sup>0</sup> <sub>-0,012</sub>	39	40	25 <sup>0</sup> <sub>-0,12</sub>	38	30	40	78	M28x1,5	42	38	60	6
80	36	85	40	90	50	40 <sup>0</sup> <sub>-0,012</sub>	47	50	28 <sup>0</sup> <sub>-0,12</sub>	49	35	49	94	M35x1,5	50	45	75	7
100	46	105	50	110	60	50 <sup>0</sup> <sub>-0,012</sub>	58	60	35 <sup>0</sup> <sub>-0,12</sub>	55	40	61	116	M45x1,5	60	55	100	6
125	59	130	60	140	80	60 <sup>0</sup> <sub>-0,015</sub>	70	80	44 <sup>0</sup> <sub>-0,15</sub>	60	50	75	130	M58x1,5	65	65	110	6
140	59	130	60	140	80	60 <sup>0</sup> <sub>-0,015</sub>	70	80	44 <sup>0</sup> <sub>-0,15</sub>	60	50	75	130	M58x1,5	65	65	110	6
160	66	150	70	160	90	70 <sup>0</sup> <sub>-0,015</sub>	82	90	49 <sup>0</sup> <sub>-0,15</sub>	70	55	86	154	M65x1,5	75	75	125	6
180	81	170	80	200	110	80 <sup>0</sup> <sub>-0,015</sub>	95	108	55 <sup>0</sup> <sub>-0,15</sub>	80	60	102	176	M80x2	85	80	140	6
200	101	210	90	230	130	90 <sup>0</sup> <sub>-0,020</sub>	113	128	60 <sup>0</sup> <sub>-0,20</sub>	90	65	124	206	M100x2	95	90	150	5
220	111	235	100	250	140	100 <sup>0</sup> <sub>-0,020</sub>	125	138	70 <sup>0</sup> <sub>-0,20</sub>	100	70	138	230	M110x2	110	105	165	7
250	125	265	110	270	150	110 <sup>0</sup> <sub>-0,020</sub>	143	148	70 <sup>0</sup> <sub>-0,20</sub>	110	80	152	265	M120x3	125	115	180	6
280	135	310	120	300	170	120 <sup>0</sup> <sub>-0,020</sub>	180	168	85 <sup>0</sup> <sub>-0,20</sub>	120	90	172	340	M130x3	155	140	200	6
320	145	350	140	330	190	140 <sup>0</sup> <sub>-0,025</sub>	200	188	90 <sup>0</sup> <sub>-0,25</sub>	140	100	188	380	M140x4	185	160	240	7
360	155	400	160	380	220	160 <sup>0</sup> <sub>-0,025</sub>	240	218	105 <sup>0</sup> <sub>-0,25</sub>	160	110	218	420	M150x4	215	195	280	8

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

## Extra length for cylinders with cushioning



## Basic design 320 bar



### V21-V32

Bore	Bottom	Cover	Cover & Bottom
32	+34	0	+34
40	+34	0	+34
50	+34	0	+34
63	+45	+5	+50
80	+43	+10	+53
100	+48	+15	+63
125	+48	+40	+88

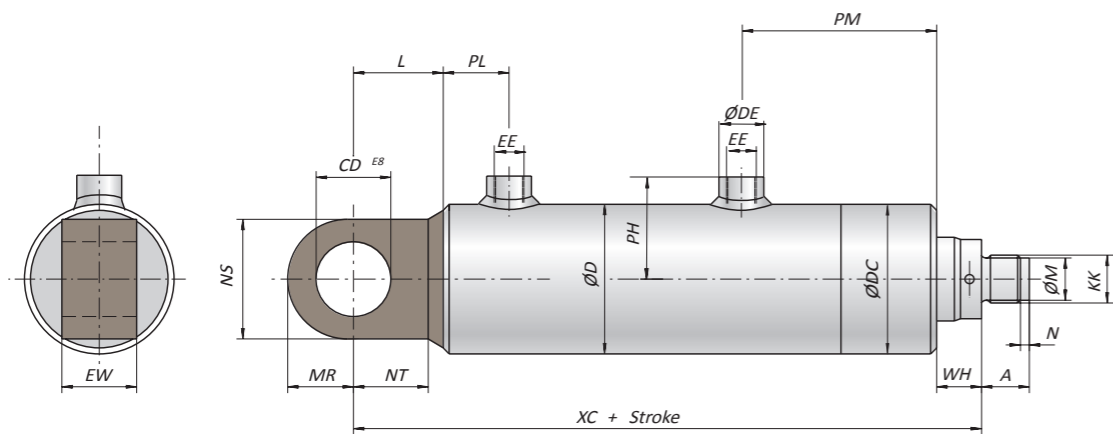
- Dimensions in mm
- Larger bore upon request

### V32-AD

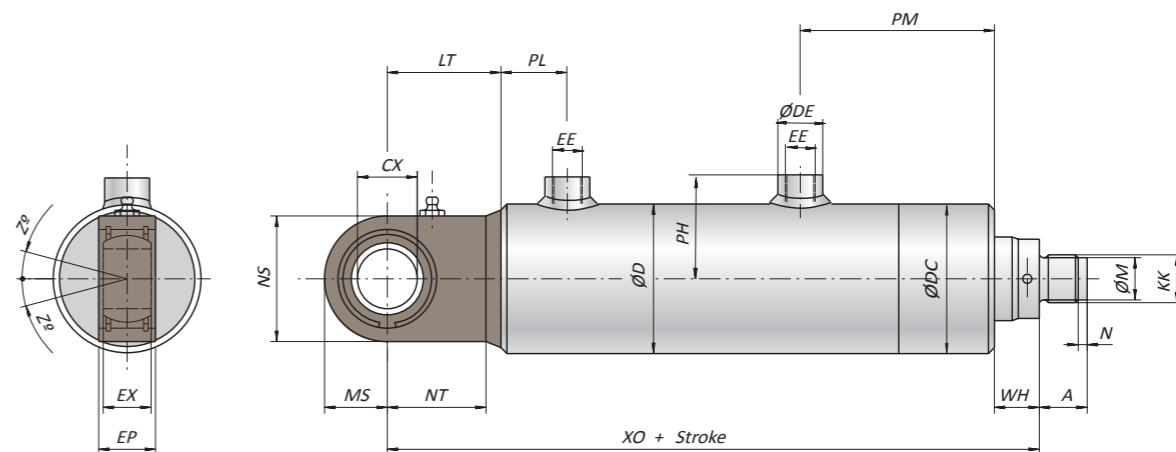
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	22	75	15	155
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	30	80	15	170
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	35	85	20	185
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	40	95	20	210
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	50	110	20	235
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	60	125	20	265
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	70	115	50	325
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	80	130	50	355
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	90	145	50	390
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	95	155	50	420
220	140 160	120	273	228	60	G 1 1/4	M120x3	114	20	167	110	180	55	470
250	160 180	130	323	245	60	G 1 1/4	M130x3	124	20	192	125	205	55	535
280	180 200	140	355	275	60	G 1 1/4	M140x4	132	20	208	135	235	55	575
320	180 220	150	406	310	70	G 1 1/2	M150x4	142	20	233	150	250	70	635
360	200 250	170	445	350	70	G 1 1/2	M170x4	162	20	253	165	285	70	710

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

# Eye mounting 320 bar



# Spherical eye mounting 320 bar



## V32-OD

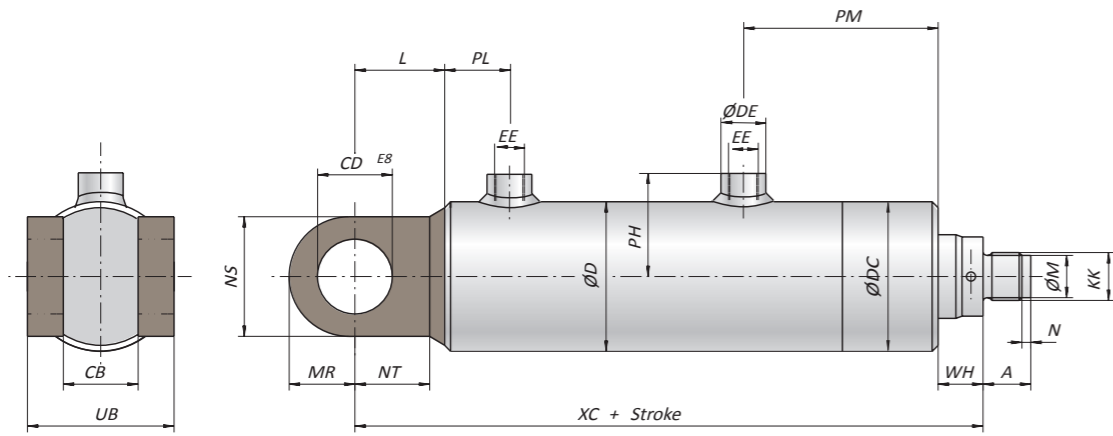
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	XC	CD	EW	L	MR	NS	NT
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	22	75	15	200	25	25	45	27	40	40
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	30	80	15	221	30	30	51	33	50	45
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	35	85	20	246	35	40	61	38	60	50
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	40	95	20	279	40	50	69	49	75	60
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	50	110	20	323	50	60	88	55	100	75
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	60	125	20	380	70	90	115	70	125	100
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	70	115	50	440	70	90	115	70	125	95
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	80	130	50	496	80	108	141	80	140	120
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	90	145	50	540	90	128	150	90	150	130
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	95	155	50	590	100	138	170	100	165	150
220	140 160	120	273	228	60	G 1 1/4	M120x3	114	20	167	110	180	55	655	110	148	185	110	180	160
250	160 180	130	323	245	60	G 1 1/4	M130x3	124	20	192	125	205	55	745	120	168	210	120	200	180
280	180 200	140	355	275	60	G 1 1/4	M140x4	132	20	208	135	235	55	805	140	188	230	140	240	200
320	180 220	150	406	310	70	G 1 1/2	M150x4	142	20	233	150	250	70	895	160	218	260	160	280	220
360	200 250	170	445	350	70	G 1 1/2	M170x4	162	20	253	165	285	70	1000	180	238	290	180	320	245

## V32-LD

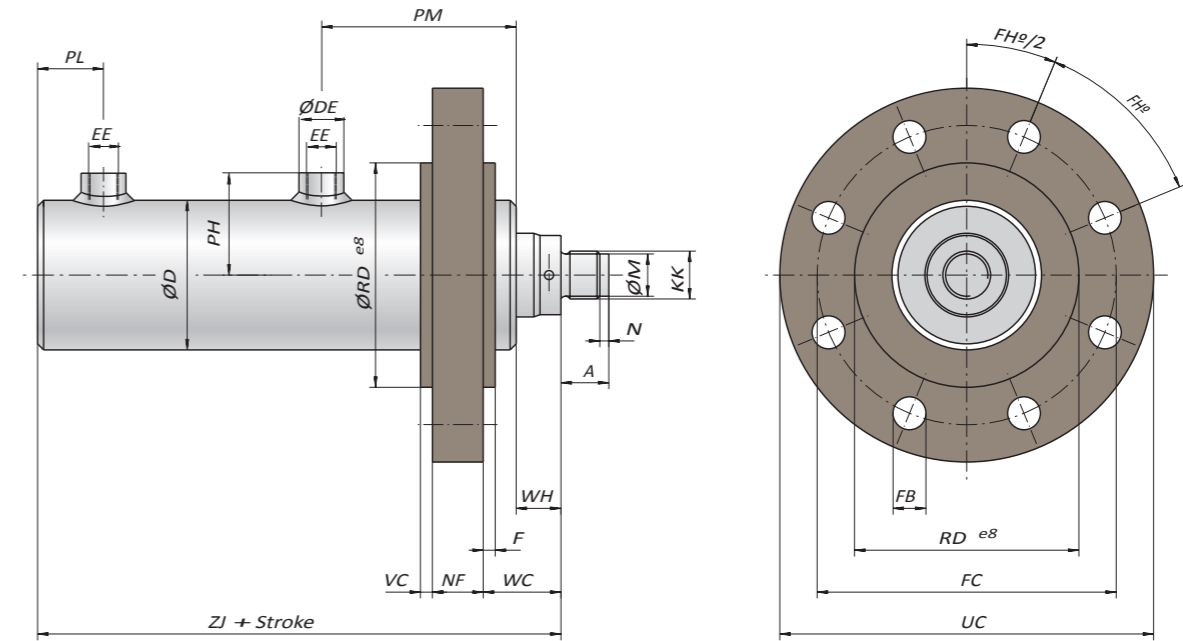
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	XO	CX	EP	EX	LT	MS	NS	NT	Z
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	22	75	15	200	25 <sup>0</sup> <sub>-0,010</sub>	23 <sup>+1</sup> <sub>0</sub>	20 <sup>0</sup> <sub>-0,12</sub>	45	28	55	40	7
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	30	80	15	221	30 <sup>0</sup> <sub>-0,010</sub>	28 <sup>+1</sup> <sub>0</sub>	22 <sup>0</sup> <sub>-0,12</sub>	51	33	65	45	6
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	35	85	20	246	35 <sup>0</sup> <sub>-0,012</sub>	30 <sup>+1</sup> <sub>0</sub>	25 <sup>0</sup> <sub>-0,12</sub>	61	42	83	55	6
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	40	95	20	279	40 <sup>0</sup> <sub>-0,012</sub>	35 <sup>+1,5</sup> <sub>0</sub>	28 <sup>0</sup> <sub>-0,12</sub>	69	50	100	60	7
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	50	110	20	323	50 <sup>0</sup> <sub>-0,012</sub>	40 <sup>+1,5</sup> <sub>0</sub>	35 <sup>0</sup> <sub>-0,12</sub>	88	62	123	75	6
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	60	125	20	380	70 <sup>0</sup> <sub>-0,015</sub>	55 <sup>+3</sup> <sub>0</sub>	49 <sup>0</sup> <sub>-0,15</sub>	115	82	164	100	6
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	70	115	50	440	70 <sup>0</sup> <sub>-0,015</sub>	55 <sup>+3</sup> <sub>0</sub>	49 <sup>0</sup> <sub>-0,15</sub>	115	82	164	100	6
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	80	130	50	496	80 <sup>0</sup> <sub>-0,015</sub>	60 <sup>+3</sup> <sub>0</sub>	55 <sup>0</sup> <sub>-0,15</sub>	141	90	180	120	6
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	90	145	50	540	90 <sup>0</sup> <sub>-0,020</sub>	65 <sup>+4</sup> <sub>0</sub>	60 <sup>0</sup> <sub>-0,20</sub>	150	113	226	130	5
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	95	155	50	590	100 <sup>0</sup> <sub>-0,020</sub>	70 <sup>+4</sup> <sub>0</sub>	70 <sup>0</sup> <sub>-0,20</sub>	170	125	250	150	7
220	140 160	120	273	228	60	G 1 1/4	M120x3	114	20	167	110	180	55	655	110 <sup>0</sup> <sub>-0,020</sub>	80 <sup>+5</sup> <sub>0</sub>	70 <sup>0</sup> <sub>-0,20</sub>	185	148	295	165	6
250	160 180	130	323	245	60	G 1 1/4	M130x3	124	20	192	125	205	55	745	120 <sup>0</sup> <sub>-0,020</sub>	90 <sup>+5</sup> <sub>0</sub>	85 <sup>0</sup> <sub>-0,20</sub>	210	180	360	185	6
280	180 200	140	355	275	60	G 1 1/4	M140x4	132	20	208	135	235	55	805	140 <sup>0</sup> <sub>-0,025</sub>	100 <sup>+3</sup> <sub>-1</sub>	90 <sup>0</sup> <sub>-0,25</sub>	230	200	380	200	7
320	180 220	150	406	310	70	G 1 1/2	M150x4	142	20	233	150	250	70	895	160 <sup>0</sup> <sub>-0,025</sub>	110 <sup>+3</sup> <sub>-1</sub>	105 <sup>0</sup> <sub>-0,25</sub>	260	240	420	220	8
360	200 250	170	445	350	70	G 1 1/2	M170x4	162	20	253	165	285	70	1000	180 <sup>0</sup> <sub>-0,025</sub>	120 <sup>+3</sup> <sub>-1</sub>	105 <sup>0</sup> <sub>-0,25</sub>	290	300	460	245	6

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

# Clevis mounting 320 bar



# Front flange mounting 320 bar



## V32-GD

Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	XC	CB	CD	L	MR	NS	NT	UB
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	22	75	15	200	25	25	45	27	40	40	49
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	30	80	15	221	30	30	51	33	50	45	60
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	35	85	20	246	40	35	61	38	60	55	80
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	40	95	20	279	50	40	69	49	75	60	90
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	50	110	20	323	60	50	88	55	100	80	110
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	60	125	20	380	90	70	115	70	125	105	160
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	70	115	50	440	90	70	115	70	125	100	160
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	80	130	50	496	110	80	141	80	140	125	200
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	90	145	50	540	130	90	150	90	150	135	230
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	95	155	50	590	140	100	170	100	165	155	250
220	140 160	120	273	228	60	G 1 1/4	M120x3	114	20	167	110	180	55	655	150	110	185	110	180	165	270
250	160 180	130	323	245	60	G 1 1/4	M130x3	124	20	192	125	205	55	745	170	120	210	120	200	190	300
280	180 200	140	355	275	60	G 1 1/4	M140x4	132	20	208	135	235	55	805	190	140	230	140	240	210	330
320	180 220	150	406	310	70	G 1 1/2	M150x4	142	20	233	150	250	70	895	220	160	260	160	280	230	380
360	200 250	170	445	350	70	G 1 1/2	M170x4	162	20	253	165	285	70	1000	240	180	290	180	320	255	420

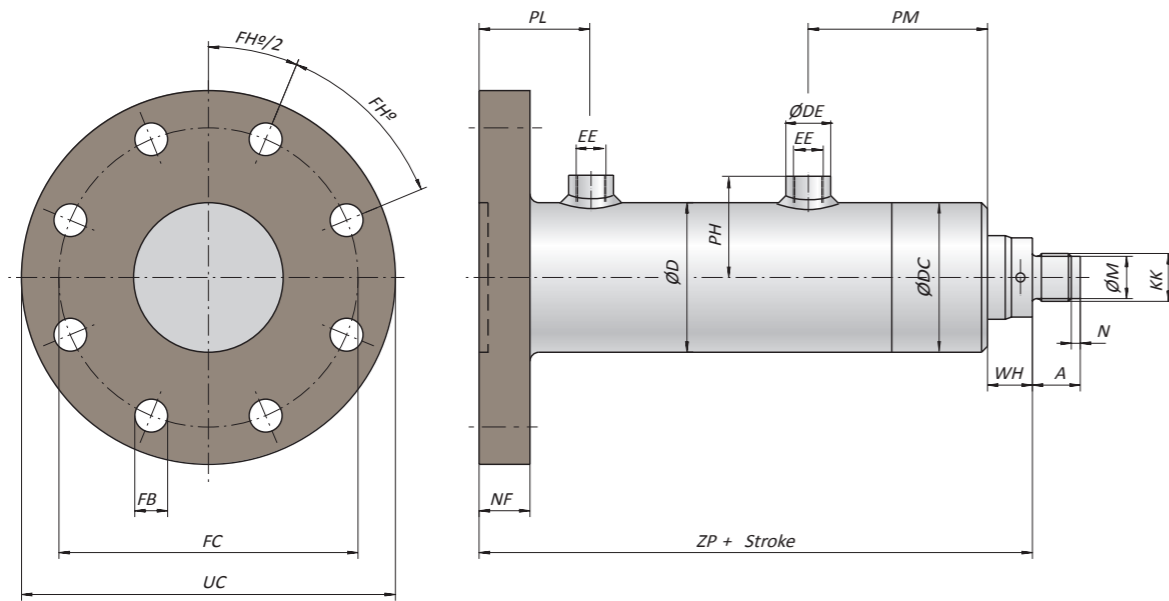
## V32-FD

Bore	Rod	A	D	DE	EE	KK	M	N	PH	PL	PM	WH	ZI	F	FB	FC	FH	NF	RD	UC	VC	WC
40	22 28	16	50	25	G 3/8	M16x1,5	-	-	40	22	75	15	155	4	11(4x)	100	90	17	75	125	11	19
50	28 35	22	60	32	G 1/2	M22x1,5	-	-	45	30	80	15	170	4	14(4x)	115	90	20	85	145	11	19
63	35 45	28	83	32	G 1/2	M28x1,5	-	-	57	35	85	20	185	4	14(6x)	130	60	23	100	160	13	24
80	45 55	35	100	32	G 1/2	M35x1,5	-	-	65	40	95	20	210	4	18(6x)	155	60	26	120	190	13	24
100	60 70	45	120	38	G 3/4	M45x1,5	-	-	80	50	110	20	235	5	18(8x)	175	45	32	140	210	13	25
125	70 90	65	150	38	G 3/4	M65x1,5	62	15	95	60	125	20	265	5	22(8x)	215	45	40	175	260	15	25
140	80 100	65	170	38	G 3/4	M65x1,5	62	15	105	70	115	50	325	5	26(8x)	245	45	40	195	300	5	95
160	90 110	80	190	50	G 1	M80x2	75	18	120	80	130	50	355	5	26(8x)	270	45	45	220	325	5	95
180	110 125	100	219	50	G 1	M100x2	95	20	135	90	145	50	390	5	33(8x)	305	45	50	245	375	5	100
200	125 140	110	244	50	G 1	M110x2	105	20	147	95	155	50	420	5	33(8x)	335	45	55	275	405	5	105
220	140 160	120	273	60	G 1 1/4	M120x3	114	20	167	110	180	55	470	5	39(8x)	375	45	60	300	455	5	125
250	160 180	130	323	60	G 1 1/4	M130x3	124	20	192	125	205	55	535	5	39(8x)	430	45	65	355	510	5	145
280	180 200	140	355	60	G 1 1/4	M140x4	132	20	208	135	235	55	575	5	39(12x)	465	30	70	390	545	5	160
320	180 220	150	406	70	G 1 1/2	M150x4	142	20	233	150	250	70	635	5	45(12x)	535	30	80	450	625	5	180
360	200 250	170	445	70	G 1 1/2	M170x4	162	20	253	165	285	70	710	5	45(12x)	580	30	90	495	670	5	200

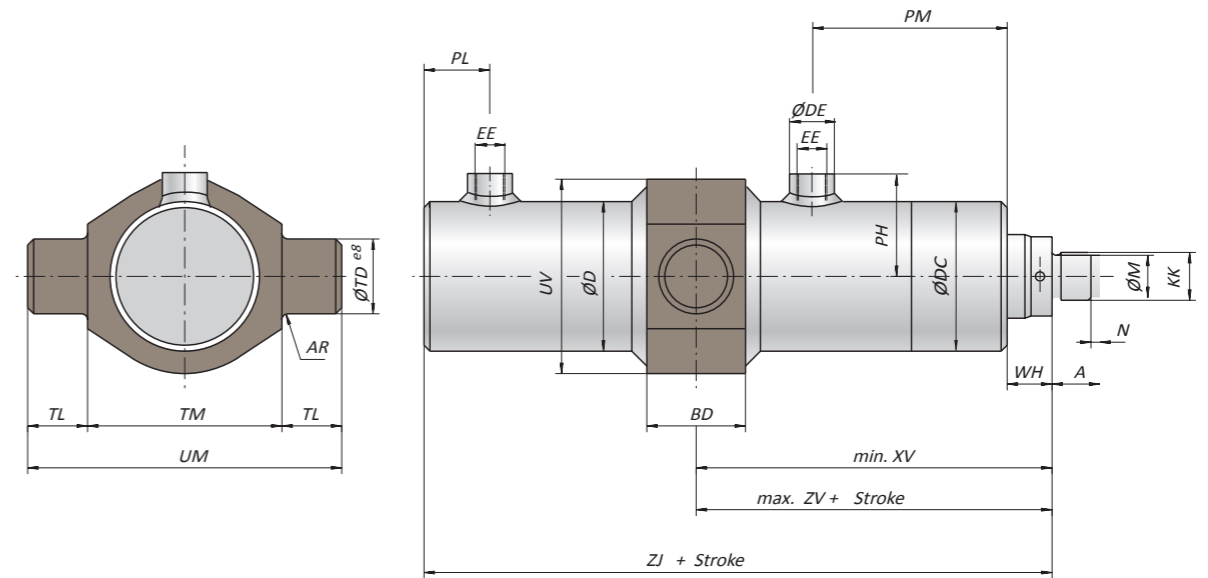
- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request



# Rear flange mounting 320 bar



# Trunnion mounting 320 bar



## V32-BD

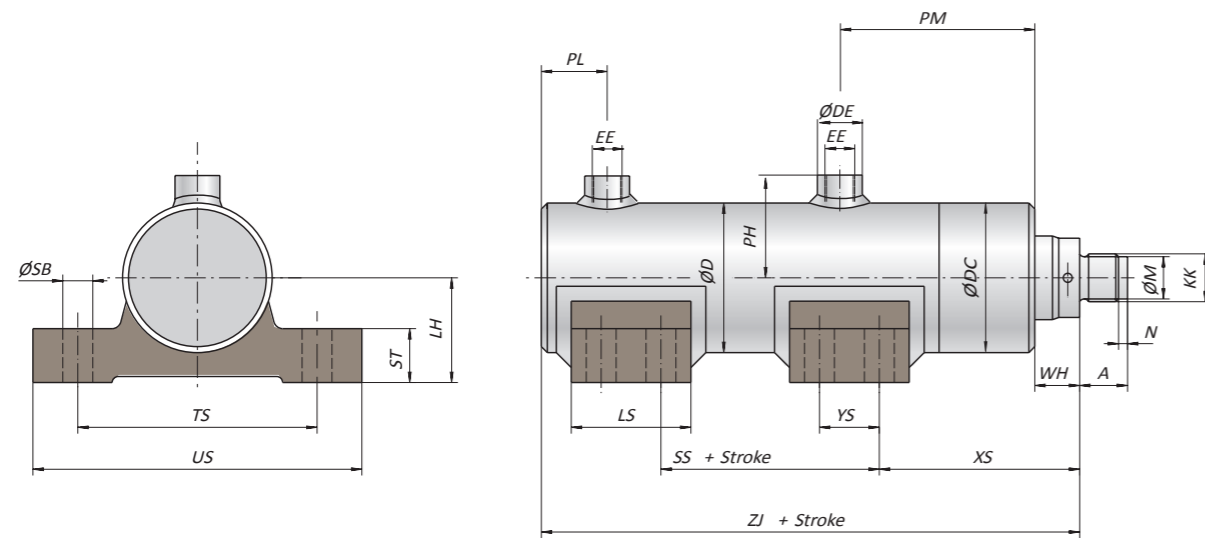
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZP	FB	FC	FH	NF	UC
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	37	75	15	170	11(4x)	100	90	17	125
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	45	80	15	185	14(4x)	115	90	20	145
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	50	85	20	200	14(6x)	130	60	23	160
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	50	95	20	220	18(6x)	155	60	26	190
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	60	110	20	245	18(8x)	175	45	32	210
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	70	125	20	275	22(8x)	215	45	40	260
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	80	115	50	335	26(8x)	245	45	40	300
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	90	130	50	365	26(8x)	270	45	45	325
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	95	145	50	395	33(8x)	305	45	50	375
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	105	155	50	430	33(8x)	335	45	55	405
220	140 160	120	273	228	60	G 1 1/4	M120x3	114	20	167	110	180	55	470	39(8x)	375	45	60	455
250	160 180	130	323	245	60	G 1 1/4	M130x3	124	20	192	125	205	55	535	39(8x)	430	45	65	510
280	180 200	140	355	275	60	G 1 1/4	M140x4	132	20	208	135	235	55	575	39(12x)	465	30	70	545
320	180 220	150	406	310	70	G 1 1/2	M150x4	142	20	233	150	250	70	635	45(12x)	535	30	80	625
360	200 250	170	445	350	70	G 1 1/2	M170x4	162	20	253	165	285	70	710	45(12x)	580	30	90	670

## V32-ZD

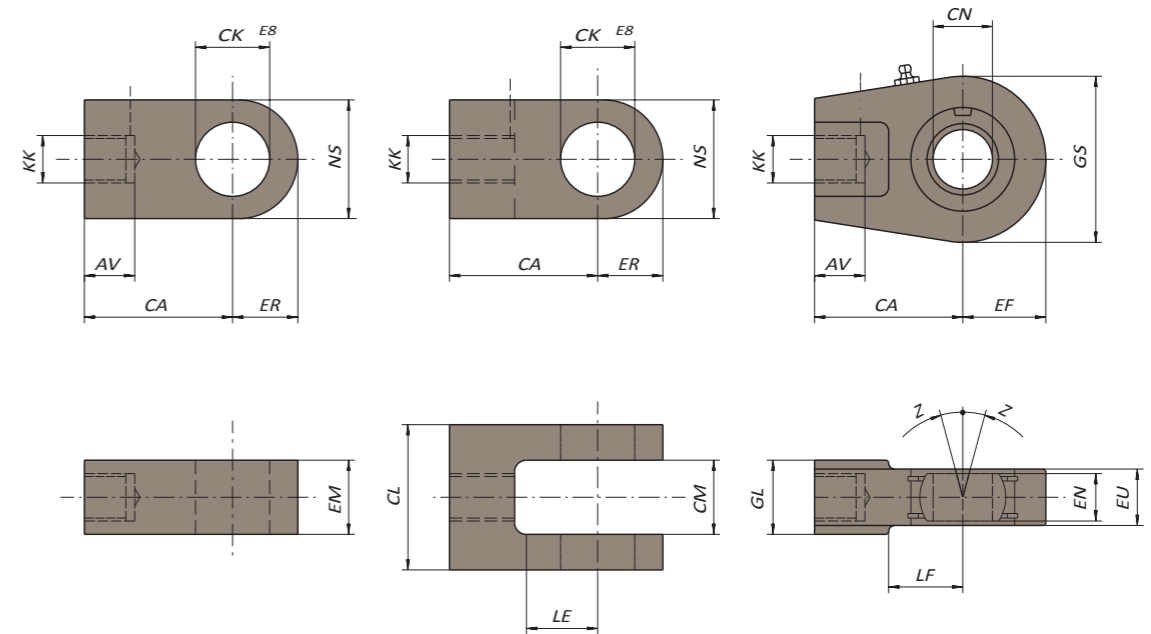
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ	BD	AR	TD	TL	TM/UV	UM	XV	ZV	min Stroke
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	22	75	15	155	33	2	25	20	65	105	130	90	40
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	30	80	15	170	38	2	30	25	80	130	140	95	45
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	35	85	20	185	48	2	40	30	115	175	160	95	65
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	40	95	20	210	58	2	50	35	140	210	175	110	65
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	50	110	20	235	68	2	60	40	175	255	200	115	85
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	60	125	20	265	83	2	70	50	195	295	230	120	110
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	70	115	50	325	93	2	80	55	225	335	255	165	90
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	80	130	50	355	108	2	90	60	255	375	285	170	115
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	90	145	50	390	118	3	100	65	280	410	310	185	125
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	95	155	50	420	128	3	110	70	330	470	325	205	120
220	140 160	120	273	228	60	G 1 1/4	M120x3	114	20	167	110	180	55	470	138	3	125	80	360	520	370	225	145
250	160 180	130	323	245	60	G 1 1/4	M130x3	124	20	192	125	205	55	535	158	4	140	90	400	580	410	260	150
280	180 200	140	355	275	60	G 1 1/4	M140x4	132	20	208	135	235	55	575	178	4	160	100	440	640	455	275	180
320	180 220	150	406	310	70	G 1 1/2	M150x4	142	20	233	150	250	70	635	198	4	180	110	500	720	505	300	205
360	200 250	170	445	350	70	G 1 1/2	M170x4	162	20	253	165	285	70	710	218	4	200	120	550	790	555	345	210

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request

# Feet mounting 320 bar



# Piston rod mounting 320 bar



## V32-VD

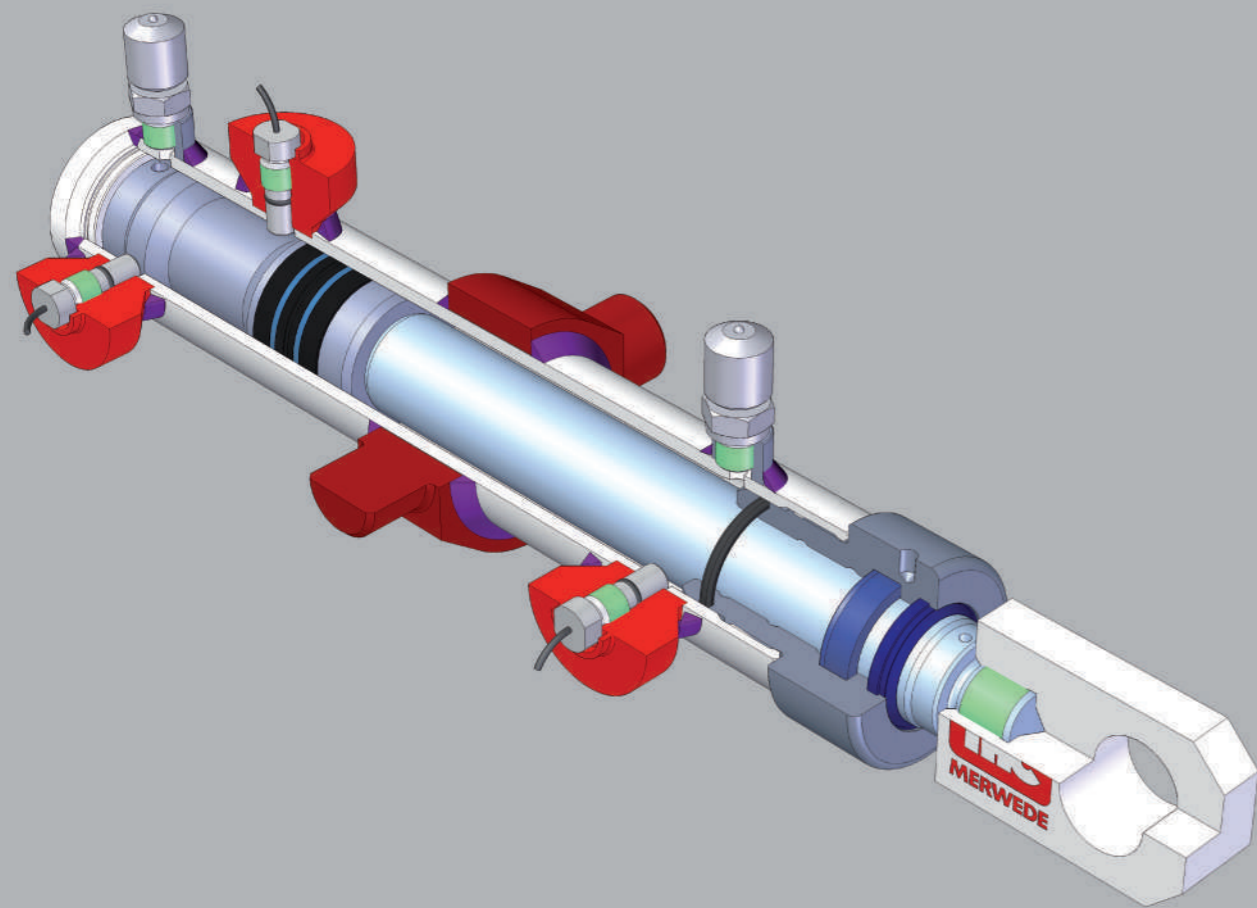
Bore	Rod	A	D	DC	DE	EE	KK	M	N	PH	PL	PM	WH	ZJ	LH	LS	SB	SS	ST	TS	US	XS	YS
40	22 28	16	50	44	25	G 3/8	M16x1,5	-	-	40	22	75	15	155	35	30	14	60	15	80	105	70	-
50	28 35	22	60	58	32	G 1/2	M22x1,5	-	-	45	30	80	15	170	45	40	18	60	18	100	135	80	-
63	35 45	28	83	68	32	G 1/2	M28x1,5	-	-	57	35	85	20	185	55	50	18	55	25	120	155	95	-
80	45 55	35	100	80	32	G 1/2	M35x1,5	-	-	65	40	95	20	210	70	60	22	65	35	150	190	105	-
100	60 70	45	120	100	38	G 3/4	M45x1,5	-	-	80	50	110	20	235	80	90	22	50	35	175	215	105	45
125	70 90	65	150	120	38	G 3/4	M65x1,5	62	15	95	60	125	20	265	100	100	26	65	40	220	270	115	50
140	80 100	65	170	148	38	G 3/4	M65x1,5	62	15	105	70	115	50	325	115	100	26	120	45	240	290	115	50
160	90 110	80	190	158	50	G 1	M80x2	75	18	120	80	130	50	355	125	130	33	115	50	270	330	125	65
180	110 125	100	219	185	50	G 1	M100x2	95	20	135	90	145	50	390	145	140	33	140	60	300	360	130	70
200	125 140	110	244	208	50	G 1	M110x2	105	20	147	95	155	50	420	160	160	39	135	65	340	410	145	80

## V32-OS/GS/LS

Bore	AV	CA	CK	CL	CM	CN	EF	EM	EN	ER	EU	GL	GS	KK	LE	LF	NS	Z
40	17	50	25	50	25	25 <sup>0</sup> <sub>-0,010</sub>	28	25	20 <sup>0</sup> <sub>-0,12</sub>	27	23	25	56	M16x1,5	34	25	40	7
50	23	60	30	60	30	30 <sup>0</sup> <sub>-0,010</sub>	32	30	22 <sup>0</sup> <sub>-0,12</sub>	33	28	32	64	M22x1,5	38	30	50	6
63	29	70	35	80	40	35 <sup>0</sup> <sub>-0,012</sub>	39	40	25 <sup>0</sup> <sub>-0,12</sub>	38	30	40	78	M28x1,5	42	38	60	6
80	36	85	40	90	50	40 <sup>0</sup> <sub>-0,012</sub>	47	50	28 <sup>0</sup> <sub>-0,12</sub>	49	35	49	94	M35x1,5	50	45	75	7
100	46	105	50	110	60	50 <sup>0</sup> <sub>-0,012</sub>	58	60	35 <sup>0</sup> <sub>-0,12</sub>	55	40	61	116	M45x1,5	60	55	100	6
125	66	150	70	160	90	70 <sup>0</sup> <sub>-0,015</sub>	82	90	49 <sup>0</sup> <sub>-0,15</sub>	70	55	86	154	M65x1,5	75	75	125	6
140	66	150	70	160	90	70 <sup>0</sup> <sub>-0,015</sub>	82	90	49 <sup>0</sup> <sub>-0,15</sub>	70	55	86	154	M65x1,5	75	75	125	6
160	81	170	80	200	110	80 <sup>0</sup> <sub>-0,015</sub>	95	108	55 <sup>0</sup> <sub>-0,15</sub>	80	60	102	176	M80x2	85	80	140	6
180	101	210	90	230	130	90 <sup>0</sup> <sub>-0,020</sub>	113	128	60 <sup>0</sup> <sub>-0,20</sub>	90	65	124	206	M100x2	95	90	150	5
200	111	235	100	250	140	100 <sup>0</sup> <sub>-0,020</sub>	125	138	70 <sup>0</sup> <sub>-0,20</sub>	100	70	138	230	M110x2	110	105	165	7
220	125	265	110	270	150	110 <sup>0</sup> <sub>-0,020</sub>	143	148	70 <sup>0</sup> <sub>-0,20</sub>	110	80	152	265	M120x3	125	115	180	6
250	135	310	120	300	170	120 <sup>0</sup> <sub>-0,020</sub>	180	168	85 <sup>0</sup> <sub>-0,20</sub>	120	90	172	340	M130x3	155	140	200	6
280	145	350	140	330	190	140 <sup>0</sup> <sub>-0,025</sub>	200	188	90 <sup>0</sup> <sub>-0,25</sub>	140	100	188	380	M140x4	185	160	240	7
320	155	400	160	380	220	160 <sup>0</sup> <sub>-0,025</sub>	240	218	105 <sup>0</sup> <sub>-0,25</sub>	160	110	218	420	M150x4	215	195	280	8
360	175	425	180	420	240	180 <sup>0</sup> <sub>-0,025</sub>	300	238	105 <sup>0</sup> <sub>-0,25</sub>	180	120	238	460	M170x4	220	220	320	6

- Dimensions in mm
- Cylinders with cushioning; see page 20 for alternative sizes
- Bores up to 1000 mm (based on standard cylinder) are available on request





## Service & repair



## Customized Cylinders

### Customized specifications

Bore	: up to 1000 mm
Rod	: 18 to 700 mm
Stroke	: up to 15.000 mm
Working pressure	: 200 bar to 700 bar
Test pressure	: 320 bar to 1000 bar
Piston speed	: max 5 m/s
Fluid	: all kinds of oil
Temperature range	: -60°C to +100°C
Connections	: SAE, etc.
Cylinder body	: SS, S355JZH, etc.
Protectant	: Primer, 2 layers, 3 layers, etc.



### Options

- Fixed and adjustable end cushionings
- Positioning measurement system
- Integrated proximity switches
- Specific installation dimensions
- Manifolds
- Piping
- Stainless steel design
- High temperature and/or low friction seals
- Certifiable (Lloyds, DNV, ABS, etc.)

### Our job is to make your hydraulic movement possible

We will search for and find the solution that fits your equipment. Our specialty is an open mind, creativity and a proactive attitude. With the right questions asked we will find out the best solution. Difficult assignments will activate us more and more.

More than 75% of our orders are custom-made and newly engineered. Try us...

### Vremac Repair

Repairing hydraulic cylinders involves more than replacing broken parts. Who guarantees trouble free operation without defects in the future? The experts of IHC Vremac do! We have sound hydraulic knowledge and extensive experience with cylinders in all kind of applications.

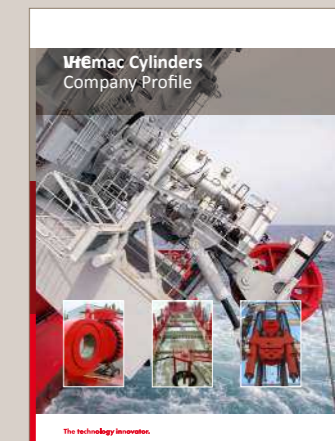
### All cylinders

The repair jobs involve preventive maintenance, renovation, spare parts of any kind and repair on site or in our workshop. With 50 years of experience in hydraulics and a solid build up database (throughout 40 years); we know what we are talking about.

### Always available

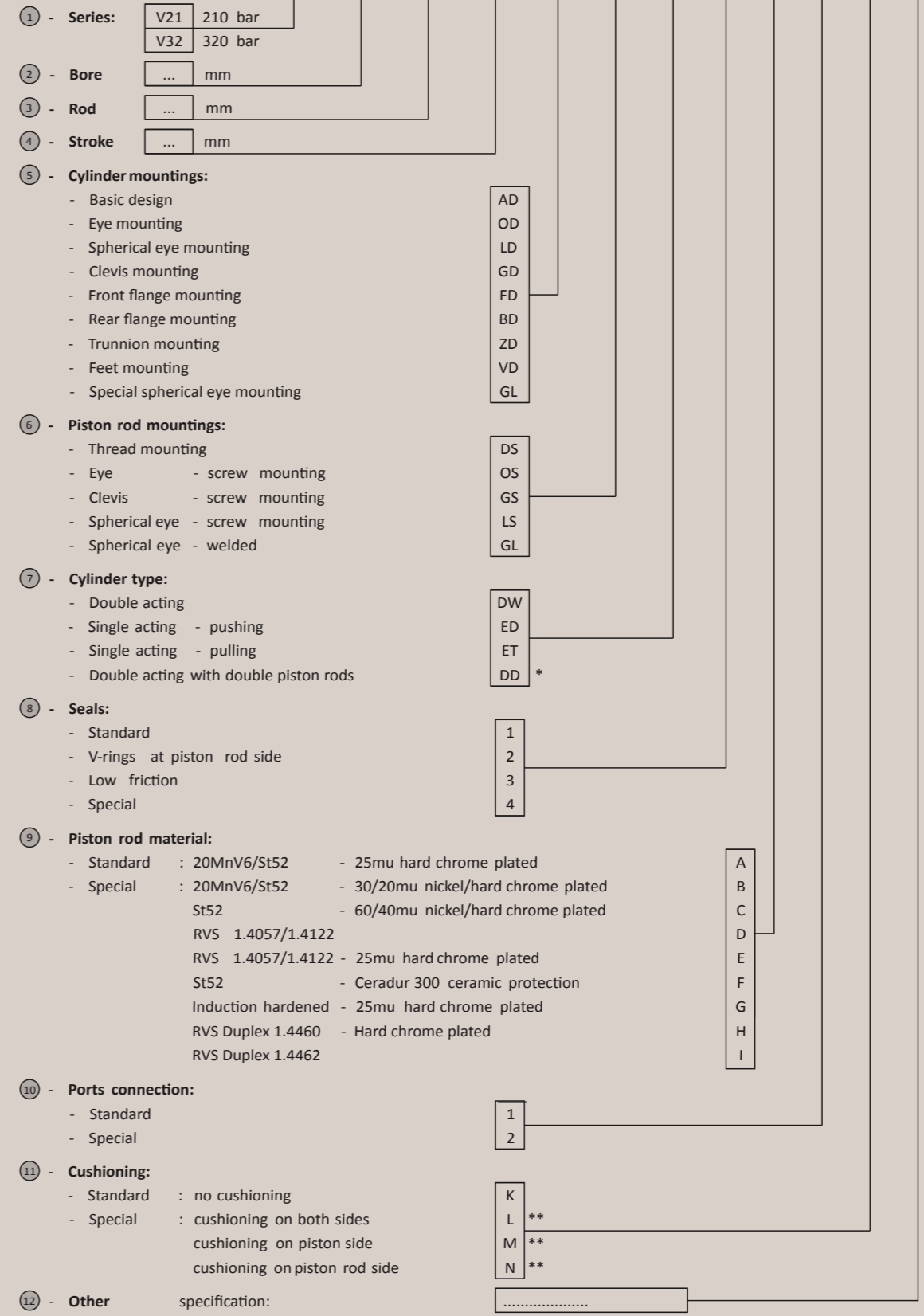
Both service and repair requires immediate action and quick response. A permanent core of professionals is available to answer your questions and repair your cylinders or other hydraulic parts. We prefer in-house repair because of our well equipped workshop, but our service engineers will travel wherever or whenever you need them.

Please contact our repair department any time.  
T +31 55 599 45 20



# Ordering code

① V21 - ② 100 - ③ 60 - ④ 800 / ⑤ LD - ⑥ LS - ⑦ DW - ⑧ 1 - ⑨ A - ⑩ 1 - ⑪ K / ⑫ ...



Spread this side, in order to use the ordering codes >>