

The **ASDO** System is a prefabricated tension rod system which meets the demanding European Technical Approval **CE ETA-04/0038**. The customer is advised not to adapt the system (e.g. by welding, bending etc). Any changes to the delivered system may render the warranty and the approval of the system invalid. Only the use of approved ASDO components is recommended. For compression-rod systems the fork connectors can be delivered separately for connection to the customers own material.

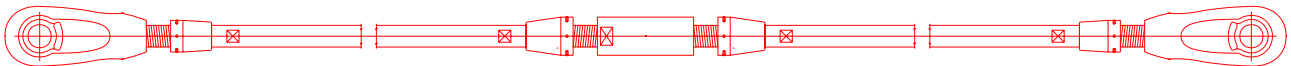
ANKER-SCHROEDER do not accept any liability or warranty for defects in system caused due to faulty storage, handling or assembly by the customer.

1. General hints

- connection plates should be manufactured in grade S355J2G3 steel; for dimensional detail see ASDO brochure
- for external applications corrosion protection is recommended (e.g. hot dip galvanizing, painting etc)
- assembly and adjustment of fittings should be performed when the system is straight and not heavily loaded (long length may require intermediate supports)
- pins to be connected without impact or drifting
- pin set screws be secured using Loctite or equivalent chemical locking compound

2. Before installation

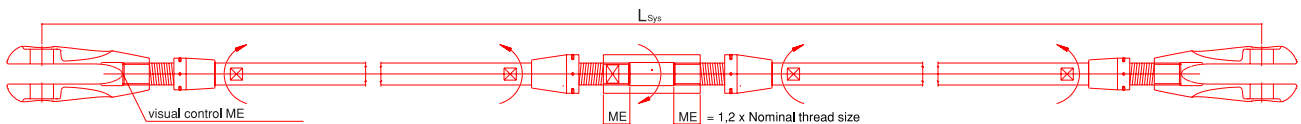
- check tendon is in factory delivered conditions (please inform Anker Schroeder immediately you suspect not)
- back off all lock covers as far as supplied
- lubricate all visible threads



2.1 Minimum Engagement (ME) and tendon length (see attached table A)

It is very important that the minimum engagement of each fitting is checked prior to installation. If fittings are not fully engaged the system will not have full load capacity.

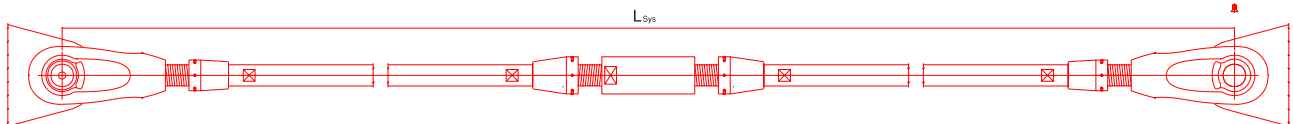
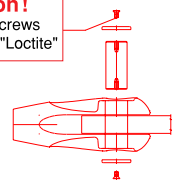
- tie bar / fork connector
the fork connector is sufficiently engaged when the bar end is visible in the opening of the fork connector
- tie bar / turnbuckle or coupler
- the minimum engagement $ME [mm] = 1.2 \times \text{Nominal thread size}$ - e.g. for M56 $ME = 67mm$



3. During installation

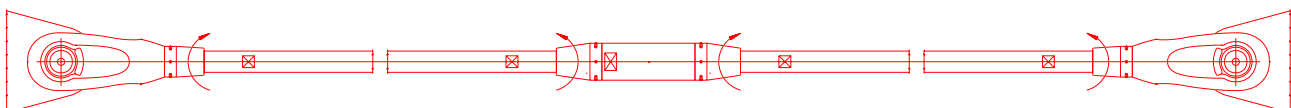
- support system length during lifting (intermediate supports may be required for long lengths, e.g. by use of a stiff lifting beam)
- install fork connector and pin set on one end; screws be secured using "Loctite"
- adjust tendon length with turnbuckle or bar
- install fork connector and pin set on second end; screws be secured using "Loctite"
torque to required value if necessary

Attention!
Countersunk screws
secured using "Loctite"



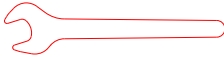
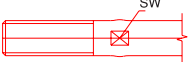


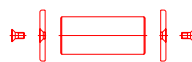


4. After installation

- check minimum engagement has been maintained of all parts, if need be record
- tighten all lock covers via hook spanner
- seal between fork connector and lock cover or gap between tie bar / lock cover with suitable compound if required



Fitting tools

Nominal thread size	Hook spanner DIN 1810B	Open-jaw wrench		Allen key	
	 for fork, turnbuckle, coupler 	 for tension rod 	for turnbuckle/coupler 	 for pin set screw* 	Countersunk screw DIN EN ISO 10642
M	Size [mm]	SW [mm]	Spanner flat SW [mm]	M	SW [mm]
12	16-18	10	17	3	2
16	20-22	14	22	3	2
20	25-28	18	30	4	2,5
24	34-36	22	36	4	2,5
27	40-42	25	41	5	3
30	40-42	27	45	5	3
36	52-55	34	50	6	4
42	58-62	36	60	6	4
45	68-76	41	65	8	5
48	68-75	41	65	8	5
52	68-75	46	75	8	5
56	80-90	50	85	8	5
60	80-90	55	90	10	6
64	80-90	60	95	10	6
68	95-100	60	100	10	6
72	110-115	65	105	12	8
76	110-115	70	110	12	8
80	110-115	75	120	12	8
85	120-130	80	125	16	10
90	120-130	85	130	16	10
95	135-145	90	140	16	10
100	135-145	95	145	20	12
105	155-165	100	WITH drilling ø Q = 25 mm	20	12
110	155-165	105		20	12
115	155-165	110		20	12
120	180-195	115		20	12
130	180-195	125		20	12
140	205-220	135		20	12
150	205-220	145		20	12
160	230-245	155		24	14

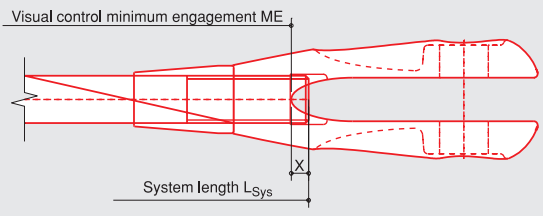
Alternative pin design *

- M12 - M24: Collar pin with washer + screw or circlip
Using circlips a special pincer acc. DIN / ISO 5254, site A1, is necessary
- M12 - M60: Collar pin with washer + countersunk screw

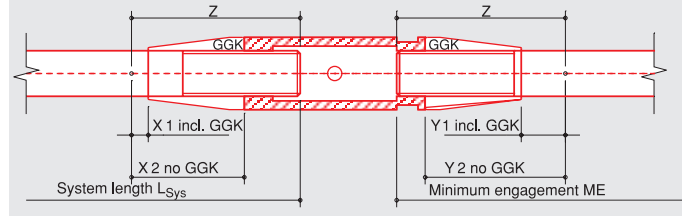
Table A:

Reference dimensions for system length and minimum engagement

tie bar / fork connector



tie bar / turnbuckle or coupler



Nominal thread size M	System length			Minimum engagement		Marking dot on the bar ⁽¹⁾ Z [mm]
	Fork connector GK X [mm]	Turnbuckle SP		Turnbuckle SP / Coupler MU		
		incl. GGK X1 [mm]	no GGK X2 [mm]	incl. GGK Y1 [mm]	no GGK Y2 [mm]	
12	6	99	129	105	135	150
16	8	82	122	90	130	150
20	10	66	116	76	126	150
24	12	54	109	66	121	150
27	14	44	104	57	117	150
30	15	29	99	44	114	150
36	18	108	188	126	206	250
42	21	83	178	104	199	250
45	23	74	174	96	196	250
48	24	58	168	82	192	250
52	25	47	162	72	187	250
56	25	37	157	62	182	250
60	25	33	153	58	178	250
64	25	13	148	38	173	250
68	25	58	193	83	218	300
72	25	53	188	78	213	300
76	25	48	183	73	208	300
80	25	39	179	64	204	300
85	25	33	173	58	198	300
90	25	22	162	47	187	300
95	25	16	156	41	181	300
100	25	10	150	35	175	300
105	25	104	244	129	269	400
110	25	98	238	123	263	400
115	25	92	232	117	257	400
120	25	86	226	111	251	400
130	25	74	214	99	239	400
140	25	62	202	87	227	400
150	25	50	190	75	215	400
160	25	38	178	63	203	400

Minimum engagement of each fitting to be checked prior to installation

(1) tie bar marked with a dot (Z), only for connection tie bar / turnbuckle or coupler
In case of additional protection (painting) the dot has to be renewed