System overview






	KSB® B500	KSB® B900	KÜPS®	KSB® Inox	KÜBOLT®	KÜROR®
Self-drilling	■	■	■	■		
Cased drilling					■	■
Applications	**SIA 267**					
Pressure	**Chap. 9**					
temporary / permanent	■	■	■	■	■	■
jetting	■	■				
Tension – *no tension*	**Chap. 11**					
temporary < 5 years	■	■			■	
permanent > 5 years	3)		■	■	3)	
Protection level	**1**	■	■			■	
	Duplex	■	■				
	2a / 3a			■			
Resistance class 1	**2b**				■		
Resistance class 3	**3b**				■		
Tension – *Pre-tensioned*	**Chap. 10**					
temporary	■				■	
Installation with anchor stocking					■	■
Can be re-injected	■	■			■	■
Recommended injection material	thixotropic injection (**KÜMIX®** or KIM 500)					
Specifications						
Continuous load	■	■	■	■	■	
Glattes Rohr						■
Max. failure load	2050 kN	2600 kN	1000 kN	950 kN	690 kN 1) 2215 kN 2)	5000 kN 2)
Rod anchor diameter	32 – 114 mm	32 – 76 mm	32 – 51 mm	32 – 51 mm	20 – 40 mm 1) 50 – 63.5 mm 2)	60 – 508 mm
Drill bit diameter	51 – 200 mm	51 – 180 mm	51 – 170 mm	51 – 170 mm		
From stock in Kriens	■	■	■	■		

1) from stock
2) upon request
3) in combination with a thixotropic injection material

■ suitable
■ partially suitable

Caption

Pressure
Tension
Pre-Tensioned
Pressure / Tension

KSB® Specifications

Batches inspected according to
EN 10204: 2004

KSB® Standard B 500

weak ◎ strong
standard ◎ very strong

		Thread direction **left**											Thread direction **right**				
		R32/22	R32/20	R32/17	R32/15	R38/17	R38/15	R51/35	R51/28	R51/25	T64/42	T64/36	T76/59	T76/55	T76/51	T76/41	T114/92*
Failure load P_{pk}	kN	250	295	360	400	500	580	660	800	1 000	1 200	1 400	1 100	1 300	1 600	2 000	2 050
Tensile strength f_{pk} [3]	N/mm²	720	720	700	700	700	700	700	700	760	730	740	650	650	650	750	640
Yield strength F_{sk} [3]	kN	200	240	300	340	400	450	540	630	800	1 000	1 100	850	1 000	1 200	1 600	1 650
Yield point f_{sk}	N/mm²	580	580	600	600	600	600	600	600	600	600	580	520	520	520	580	520
Nominal outer diameter [2]	mm	32	32	32	32	38	38	51	51	51	64	64	76	76	76	76	114
Wall thickness	mm	5	6	7.5	9	8.5	9.5	8	9.5	12.5	11	13	8	10	12.5	16	10
Steel cross-section [1] A	mm²	360	420	530	580	740	800	950	1 150	1 370	1 710	1 920	1 650	1 970	2 420	2 930	3 280
Elongation after fracture Agt	%	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0	> 5.0
Ratio ft / fy		> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15
Weight G²	kg/m	2.90	3.40	4.20	4.55	5.80	6.30	7.45	9.10	10.70	13.45	15.05	13.00	15.50	19.00	23.00	25.80
Maximum test load (0.9 F_{yk}) F_p	kN	180	216	270	306	360	405	486	567	720	900	990	765	900	1 080	1 440	1 485

Impact / applications

for piles

Service loads $F_{ser} \approx F_{sk} / 1.75$	kN	114	134	170	194	229	257	309	360	457	571	629	486	571	685	914	943

with nails in full composite

Defined force $F_d \approx F_{sk} / 1.35$	kN	148	178	222	250	296	333	400	466	592	740	814	629	740	888	1 185	1 220

with prestressed anchor

Setting force $P_0 \approx 0.5\text{-}0.6 \times P_{pk}$	kN	150	177	216	240	300	348	396	480	600	720	840	660	780	960	1 200	1 230
DUPLEX		o.r.	×	o.r.	×	×	o.r.	×	×	o.r.	o.r.	o.r.	o.r.	×	o.r.	o.r.	o.r.

KÜPS® Drill 2a

Outer diameter	mm				60	76	76	89	89	89	89	89					
Inner covering	mm				10.5	16.1	16.1	15.8	15.8	15.8	12.3	12.3					

KÜPS® Bolt 2a

Outer diameter	mm	60	60	60	60	76	76	89	89	89	89	89					
Inner covering	mm				10.5	16.1	16.1	15.8	15.8	15.8	12.3	12.3					

Caption

R32/22 — ISO 10208 — Rounded threads — Nominal outer diameter in mm — Inner diameter

T76/55 — Trapezoidal thread — Nominal outer diameter in mm — Inner diameter

Caption

Pressure | Tension
Pre-Tensioned | Pressure / Tension
Permanent | Jet

KSB® System options

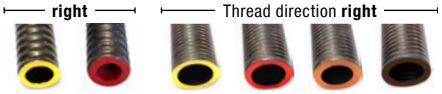
Raw | Duplex
KÜPS® 2a | INOX 2b

[1] Calculated from the nominal mass with $S_0 = 10^3 \times / 7.850$ (kg/m³)
[2] Permissible deviation: -3 bis +9 (%)
[3] Characteristic value (5 % fractile)
* Delivery on request (o.r. / delivery time min. 2 weeks)
– Corresponds to B 500 B according to SIA 262
– Values are subject to constant changes
– Anchor rod delivery lengths: 2, 3 or 4 meters

KSB® B 900

weak / standard / strong / very strong

Thread direction **right**



		R51/7T	R51/9T	T76/6T	T76/8T*	T76/10T	T76/12
Failure load P_{pk}	kN	1 000	1 200	1 400	1 800	2 200	2 600
Tensile strength f_{pk} [3]	N/mm²	> 1 100	> 1 100	> 1 100	> 1 100	> 1 100	> 1 100
Yield strength F_{sk} [3]	kN	800	1 000	1 200	1 400	1 700	2 100
Yield point f_{sk}	N/mm²	> 900	> 900	> 900	> 900	> 900	> 900
Nominal outer diameter [2]	mm	51	51	76	76	76	76
Wall thickness	mm	7.1	9.4	6.3	8	10	12.5
Steel cross-section [1] A	mm²	1 000	1 200	1 500	1 800	2 200	2 900
Elongation after fracture Agt	%	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ratio ft / fy		> 1.15	> 1.15	> 1.15	> 1.15	> 1.15	> 1.15
Weight G²	kg/m	8.00	9.60	12.20	14.50	17.70	23.30
Maximum test load (0.9 F_{yk}) F_p	kN	720	900	1 080	1 260	1 530	1 890

pre-tensioned / no tension

Impact / applications

for piles

Service loads $F_{ser} \approx F_{sk} / 1.75$	kN	457	571	685	800	971	1 200

with nails in full composite

Defined force $F_d \approx F_{sk} / 1.35$	kN	592	740	888	1 037	1 259	1 555

with prestressed anchor

Setting force $P_0 \approx 0.5\text{-}0.6 \times P_{pk}$	kN	not suitable					
DUPLEX		o.r.	o.r.	o.r.	o.r.	o.r.	o.r.

KÜPS® Drill 2a

Outer diameter	mm	89	89				

KÜPS® Bolt 2a

Outer diameter	mm	o.r.	o.r.				

KSB® INOX

Thread direction **left**

		R32 INOX	R38 INOX	R51 INOX	R38 INOX 3b
		2b			3b
Failure load P_{pk}	kN	360	630	950	630
Tensile strength f_{pk} [3]	N/mm²	800	800	800	800
Yield strength F_{sk} [3]	kN	300	460	760	460
Yield point f_{sk}	N/mm²	650	650	650	650
Nominal outer diameter [2]	mm	32	38	51	38
Wall thickness	mm	5.6	9.5	9.5	9.5
Steel cross-section [1] A	mm²	480	800	1 300	800
Elongation after fracture Agt	%	> 5.0	> 5.0	> 5.0	> 5.0
Ratio ft / fy		> 1.2	> 1.2	> 1.2	> 1.2
Weight G²	kg/m	3.8	6.3	10.5	6.3
Maximum test load (0.9 F_{yk}) F_p	kN	270	414	684	414

pre-tensioned / no tension

Impact / applications

for piles

Service loads $F_{ser} \approx F_{sk} / 1.75$	kN	170	260	430	260

with nails in full composite

Defined force $F_d \approx F_{sk} / 1.35$	kN	222	340	562	340

Caption

R32/22 — ISO 10208 Rounded threads; Nominal outer diameter in mm; Inner diameter

T76/55 — Trapezoidal thread; Nominal outer diameter in mm; Inner diameter

Caption

Pressure; Tension; Pre-Tensioned; Pressure/Tension; Permanent; Jet

KSB® System options

Raw; Duplex; KÜPS® 2a; INOX 2b

- The support (top plate) must be positioned at 90° to the axis of the supporting element
- Values are subject to constant changes
- Anchor rod delivery lengths: 2, 3 or 4 meters

[1] Calculated from the nominal mass with $S_0 = 10^3 \times / 7.850$ (kg/m³)

[2] Permissible deviation: -3 bis +9 (%)

[3] Characteristic value (5 % fractile)

* Delivery on request (o.r. / delivery time min. 2 weeks)

KÜBOLT® Specifications

KÜBOLT® B 500

Thread direction **left**

		20	25	28	32	40	50*	57*	63.5*
Failure load F_{tk}	kN	175	270	340	440	690	1 080	1 820	2 215
Yield strength F_{yk} [3]	kN	160	245	310	405	630	980	1 440	1 760
Tensile strength f_{tk} [3]	N/mm²	550	550	550	550	550	550	550	550
Yield point f_{yk}	N/mm²	500	500	500	500	500	500	500	500
Nominal outer diameter [2]	mm	23	29	32	36	45	56	63	70
Wall thickness	mm								
Steel cross-section [1] **A**	mm²	314	491	616	804	1 256	1 963	2 600	3 167
Elongation after fracture Agt	%	> 5	> 5	> 5	> 5	> 5	> 5	> 5	> 5
Weight G²	kg/m	2.52	3.88	4.85	6.33	9.91	15.41	20.40	24.90
Maximum test load (0.9 F_{yk}) F_p	kN	144	221	279	365	567	882	1 296	1 584

Impact / applications

for piles

Service loads Fyk/1.75 F	kN	91	140	177	231	360	560	820	1 006

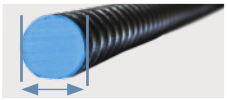
with nails in full composite

Defined force Fyk/1.35 F	kN	118	181	229	300	466	725	844	1 303

with prestressed anchor

Setting force ≤ 0.6 × Ftk/P 0	kN	105	162	204	264	414	648	1 090	1 329
DUPLEX	o.r.	o.r.	o.r.	o.r.	o.r.	o.r.	o.r.	o.r.	o.r.

Pre-injected KÜBOLT® 2a/3a (without coupling)



Outer diameter	mm	65	65	65	65	85	100	100	100

[1] Calculated from the nominal mass with S0 = 106 x m / 7.850 (kg/m3)

[2] Permissible deviation: -3 bis +9 (%)

[3] Characteristic value (5 %-fractile)

* Delivery on request

– Values are subject to constant changes

– Delivery lengths of anchor rods 12 meters, further lengths with additional cutting surcharge on request

Caption

Pressure

Tension

Pre-Tensioned

Pressure / Tension

Permanent

Jet

KÜROR® Specifications

KÜROR® S355 / S560 (N80)

		60/5.0	76/10.0	89/7.0	89/10.0	89/12.5	101.6/10.0	114/10.0	114/12.5	114/16.0	127/10.0	127/12.5	152/10.0	159/12.5	168/12.5	178/10.0	178/16.0
Eff. Outer diameter	mm	60	76	89	89	89	101	114	114	114	127	127	152	159	168	178	178
Wall thickness	mm	5	10	7	10	12.5	10	10	12.5	16	10	12.5	10	12.5	12.5	10	16
Steel cross-section A	mm^2	869	2 080	1 820	2 480	3 000	2 880	3 280	4 000	4 940	3 676	4 496	4 474	5 753	6 120	5 272	8 130
Weight G²	kg/m	6.82	16.3	14.3	19.5	23.6	22.6	25.7	31.4	38.8	28.8	35.3	35.1	45.1	48	41.4	63.8

Service loads NRd *without reduction of the sleeve*

S355

Fyk/1.75 F	kN	176	421	370	503	608	580	665	810	1 002	746	912	908	1 167	1 240	1 069	1 640
equivalent to NRd KSB® Anchor		R32/15	R51/7T	R51/7T	R51/9T	T76/6T	T76/8T	T76/6T	T76/10T	T76/10T	T76/8T	T76/10T	T76/10T	T76/12T	T76/12T	T76/12T	

S560 (N80)

Fyk/1.75 F	kN	278	664	582	793		920	1 049			1 176					1 687	2 600
equivalent to NRd KSB® Anker^{900}		R51/35	T76/6T	T76/6T	T76/8T		T76/12T	T76/12T									

Delivery time of all **KÜROR®** takes a minimum of 2-3 weeks.

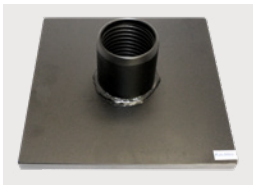
Decrease

Male/Female
~ 60 % Decrease

Male/Male and a sleeve
~ 30 % Decrease

Female/Female and nipple
~ 25 % Decrease

Pile head



Caption

Pressure
Tension
Pre-Tensioned
Pressure / Tension
Permanent
Jet