

BB BAR SYSTEM

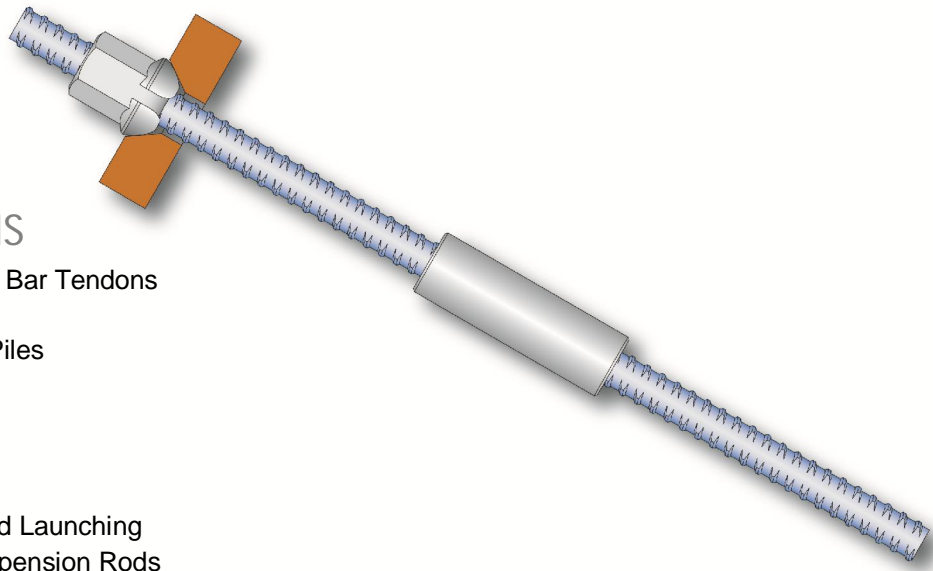
Conforming to ASTM A722 and BS4486 : 1980 and all other major international standards. Produced under quality control systems ISO9001 : 2008.

Robust hot rolled continuous thread profile offers high bond strength, can be cut and coupled at any point, low susceptibility to mechanical damage, easy installation and cleaning.

Supported with a wide range of proprietary accessories to accommodate multiple application. Tailor made solutions can also be designed on a case by case basis.

Corrosion protection systems for geotechnical application in accordance with BS8081, DIN EN 1537 : 2001 or other international standards can be provided.

Value added services including rental of stressing equipment for installation, preparation of method statements for handling, assembly and installation etc. Provision of qualified staff to supervise installation works.



APPLICATIONS

- Post-Tensioning Bar Tendons
- Form Ties
- Mini and Micro Piles
- Ground Anchors
- Soil Nails
- Rock Bolts
- Tie Rods
- Heavy Lifting and Launching
- Hanger and Suspension Rods

BB BAR PROPERTIES

Steel Grade**	N/mm ²	885/1080		835/1030					930/1080					1080/1230*
Nominal Bar Diameter D1	mm	15	20	26.5	32	36	40	50	26.5	32	36	40	50	36
Article No. 640 00 _ _ _ 3000	-	400	401	412	413	414	415	416	462	463	464	465	466	424
Nominal Sectional Area	mm ²	177	314	551	804	1019	1257	1963	551	804	1019	1257	1963	1019
Nominal Weight	kg/m	1.44	2.56	4.48	6.53	8.27	10.21	15.40	4.48	6.53	8.27	10.21	15.40	8.27
Bar Diameter D2	mm	14.6	19.5	25.8	31.2	34.9	38.7	48.2	25.8	31.2	34.9	38.7	48.2	34.9
Over Thread Diameter D0	mm	18.0	23.0	30.9	37.0	41.0	45.4	54.2	30.9	37.0	41.0	45.4	54.2	41.0
Pitch, right-hand Thread	mm	10	10	13	16	18	20	20	13	16	18	20	20	18
Ultimate Load	kN	191	339	568	828	1050	1295	2022	595	868	1101	1358	2120	1253
Yield Load	kN	157	278	460	671	851	1050	1639	512	748	948	1169	1826	1101
Cold Bending Radius Rmin	m	3.1	4	5.4	6.4	7.1	7.8	9.4	5.4	6.4	7.1	7.8	9.4	7.1
Max. Distance betw. supports	m	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Wobble Coefficient β	°/m	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Friction Coefficient μ	-	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
Slip at Nuts	mm	1.5	1.5	1	1	1	1	1	1	1	1	1	1	1
Slip at Couplers	mm	1.5	1.5	1	1	1	1	1	1	1	1	1	1	1
Protr. at Stressing End***	mm	40	65	75	90	100	120	145	75	90	100	120	145	110
Protr. at Coupling End***	mm	80	95	110	135	145	160	195	110	135	145	160	195	150

* BB Bars 26.5 and 32 mm in grade 1080/1230 can also be produced upon special arrangement.

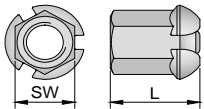
** Yield Strength at 0.2% Offset ($R_{0.2}$) / Ultimate Tensile Strength (R_m)

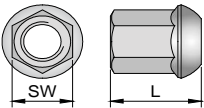
*** Minimum bar protrusion for stressing with stressing coupler and maximum stressing force 0.9 of bar yield load

SPHERICAL ANCHORAGE ACCESSORIES

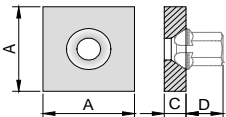
System Grade	885/1080		835/1030 or 930/1080					1080/1230
Bar Diameter	15	20	26.5	32	36	40	50	36

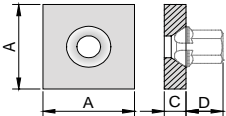
NUTS

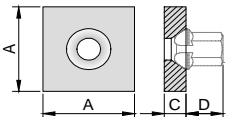
Spherical Nut - w/ Slots		Article No. 475 ___ 3000		31 462	31 423	01 424	01 465		01 424
	L	mm		75	100	100	125		100
	SW	mm		46	65	65	70		65
	Unit Weight	kg		0.71	2.22	2.07	2.88		2.07

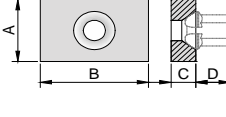
Spherical Nut - Plain 55°		Article No. 475 ___ 3000		30 462	30 423	00 424	00 465	50 466	00 424
	L	mm		75	100	100	125	145	100
	SW	mm		46	65	65	70	85	65
	Unit Weight	kg		0.76	2.39	2.21	3.04	5.10	2.21

PLATES

Anchor Plate 55° fci 28		Article No. 022 ___ 3060		00 462	00 463	00 464	00 465	00 466	00 424
	A	mm		130	160	180	200	240	190
	C	mm		35	40	45	50	55	50
	D**	mm		62	77	77	101	119	77
	Unit Weight	kg		4.21	6.96	10.26	14.19	22.72	12.91

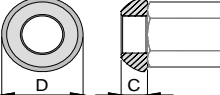
Anchor Plate 55° fci 35		Article No. 022 ___ 3070		00 462	00 463	00 464	00 465	00 466	00 424
	A	mm		120	140	160	180	220	170
	C	mm		35	40	45	50	55	50
	D**	mm		62	77	77	101	119	77
	Unit Weight	kg		3.52	5.07	7.86	11.21	18.75	10.08

Anchor Plate 55° fci 40		Article No. 022 ___ 3080		00 462	00 463	00 464	00 465	00 466	00 424
	A	mm		110	135	150	170	210	160
	C	mm		30	40	45	50	55	50
	D**	mm		62	77	77	101	119	77
	Unit Weight	kg		2.46	4.64	6.76	9.83	16.89	8.79

Rectangular Plate 55°		Article No. 022 ___ 3000		01 462	11 463	01 464	01 465	-	01 424
	A	mm		120	120	150	160	-	150
	B	mm		150	220	240	250	-	290
	C	mm		35	50	55	60	-	65
	D**	mm		62	77	77	101	-	77
	Unit Weight	kg		4.50	9.14	14.21	17.14	-	20.70

WASHERS

Washer for Sph. Nut 55°		Article No. 463 ___ 3000		00 462	32 423	00 424	00 465	50 466	00 424
	D	mm		85	110	110	125	140	110
	C	mm		25	40	40	40	40	40
	Unit Weight	kg		0.77	1.86	1.86	2.53	3.08	1.86

Spherical Washer		Article No. 462 ___ 3000		00 462	32 423	00 424	00 465	00 466	00 424
	D	mm		62	90	90	95	110	90
	C	mm		20	36	36	35	37	36
	Unit Weight	kg		0.25	1.05	0.97	1.03	1.41	0.97

1. Same accessories for both bar steel grades 835/1030 and 930/1080
2. Other accessories for 15 and 20mm, please refer to our Form Tie System brochure
3. Other accessories also available upon special arrangement

* Also available in SW60x90 upon special arrangement

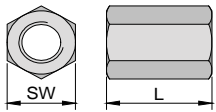
** Approximate Protrusion of Nut from Plate

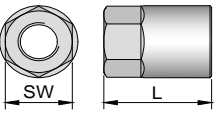
fci (N/mm²) - is the minimum concrete cylinder strength at the time of stressing or load transfer

FLAT ANCHORAGE ACCESSORIES

System Grade	885/1080		835/1030 or 930/1080					1080/1230
Bar Diameter	15	20	26.5	32	36	40	50	36

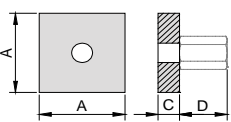
NUTS

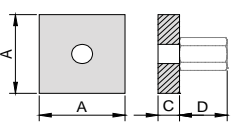
Full Force Hex Nut		Article No. 476 ___ 3000	00 400	00 401	00 462	00 463	01 464	00 465	02 466	00 424
	L	mm	50	65	80	90	100	120	145	110
	SW	mm	32	38	50	60	65	70	90	65
	Unit Weight	kg	0.26	0.45	0.92	1.50	1.91	2.60	5.52	2.05

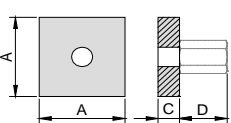
Hex Nut - Partial Hex		Article No. 476 ___ 3000							00 466	
	L	mm							145	
	SW	mm							90	
	Unit Weight	kg							6.75	

Round Nut - 2 Flat Side		Article No. 476 ___ 3000						01 465	01 466	
	L	mm						120	145	
	SW	mm						70	90	
	Unit Weight	kg						3.23	7.18	

PLATES

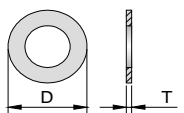
Anchor Plate fci 28		Article No. 021 ___ 3060	00 400	00 401	00 462	00 463	00 464	00 465	00 466	00 424
	A	mm	80	100	130	160	180	200	240	190
	C	mm	20	25	35	40	45	50	55	50
	D	mm	50	65	80	90	100	120	145	110
	Unit Weight	kg	0.96	1.87	4.39	7.64	10.91	14.93	23.73	13.57

Anchor Plate fci 35		Article No. 021 ___ 3070	00 400	00 401	00 462	00 463	00 464	00 465	00 466	00 424
	A	mm	70	90	120	140	160	180	220	170
	C	mm	20	25	35	40	45	50	55	50
	D	mm	50	65	80	90	100	120	145	110
	Unit Weight	kg	0.72	1.49	3.71	5.76	8.51	11.95	19.76	10.75

Anchor Plate fci 40		Article No. 021 ___ 3080	00 400	00 401	00 462	00 463	00 464	00 465	00 466	00 424
	A	mm	65	85	110	135	150	170	210	160
	C	mm	15	20	30	35	40	45	55	45
	D	mm	50	65	80	90	100	120	145	110
	Unit Weight	kg	0.46	1.06	2.64	4.66	6.59	9.52	17.90	8.51

WASHERS

Flat Washer		Article No. 461 ___ 3000		00 462	00 463	00 464	00 465	00 466	00 424
	D	mm		65	80	90	95	105	95
	T	mm		10	10	10	12	10	10
	Unit Weight	kg		0.19	0.30	0.39	0.50	0.47	0.44

Flat Washer		Article No. 461 ___ 3000		22 462	22 463	22 464	22 465	22 466	22 424
	D	mm		60	70	75	80	100	75
	T	mm		5	5	5	5	5	5
	Unit Weight	kg		0.08	0.11	0.12	0.13	0.21	0.12

1. Same accessories for both bar steel grades 835/1030 and 930/1080
 2. Other accessories for 15 and 20mm, please refer to our Form Tie System brochure
- fci (N/mm²) - is the minimum concrete cylinder strength at the time of stressing or load transfer

COUPLERS

System Grade	885/1080		835/1030 or 930/1080					1080/1230
Bar Diameter	15	20	26.5	32	36	40	50	36

COUPLERS

Straight Round Coupler		Article No. 526 ___ 3000	00 400	00 401	00 462	00 423	00 424	00 465	00 466	00 424
	L	mm	90	110	160	200	220	250	290	220
	D	mm	30	40	50	65	70	75	90	70
	Unit Weight	kg	0.34	0.75	1.59	3.62	4.53	5.77	9.64	4.53

Slim Coupler*		Article No. 531 ___ 3000			00 462	00 463	00 424	00 465	00 466	00 424
	L	mm			110	150	180	200	220	180
	D	mm			45	55	60	65	80	60
	Unit Weight	kg			0.77	1.64	2.26	2.89	5.01	2.26

Coupler w/ Set Screws		Article No. 526 ___ 3000					02 424			02 424
	L	mm					220			220
	SW	mm					70			70
	Unit Weight	kg					4.52			4.52

1. Same accessories for both bar steel grades 835/1030 and 930/1080
2. Other accessories for 15 and 20mm, please refer to our Form Tie System brochure
3. For full tension-compression coupling, use Full Force Hex Nuts on both ends

* For predominantly static load only

LOCK NUTS

System Grade	885/1080		835/1030 or 930/1080					1080/1230
Bar Diameter	15	20	26.5	32	36	40	50	36

NUTS

Lock Nut*		Article No.477 ___ 3000			01 422	02 423	02 424	01 465	01 466	02 424
	L	mm			30	30	30	35	35	30
	SW	mm			45	51	51	68	80	51
	Unit Weight	kg			0.25	0.30	0.25	0.69	0.94	0.25

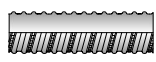
Lock Nut Big*		Article No.477 ___ 3000	22 400	22 401	22 462	22 463	22 424	22 465	22 466	22 424
	L	mm	30	40	45	60	65	70	85	65
	SW	mm	27	34	45	55	60	65	80	60
	Unit Weight	kg	0.10	0.19	0.38	0.77	0.98	1.20	2.28	0.98

* Lock nut or counter nut are used to engage the threads only and should not be use to transfer structural loads. Use Lock Nut big or Full Force Hex Nuts when using hydraulic torque wrench.

DUCTS / SHEATHING ACCESSORIES

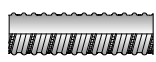
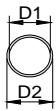
System Grade	885/1080		835/1030 or 930/1080					1080/1230
Bar Diameter	15	20	26.5	32	36	40	50	36

Corrugated Metal Duct 1



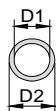
Article No. _____									
D1	mm	25	30	35	40	45	50	60	45
D2	mm	31	36	41	46	51	56	67	51
T	mm	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Unit Weight	kg	0.261	0.309	0.358	0.407	0.456	0.505	0.604	0.456

Corrugated Metal Duct 2



Article No. _____									
D1	mm	30	35	40	45	50	55	65	50
D2	mm	36	41	46	51	56	61	72	56
T	mm	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Unit Weight	kg	0.309	0.358	0.407	0.456	0.505	0.555	0.654	0.505

Corrugated PE Sheathing

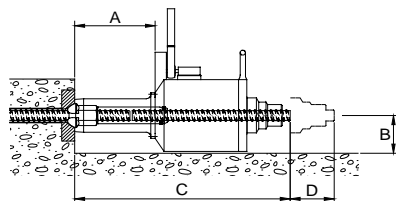


Article No. _____									
Size	mm	30	30	50	50	50	80	80	50
D1	mm	30	30	50	50	50	80	80	50
D2	mm	40	40	64	64	64	102	102	64
T	mm	1.4	1.4	1.4	1.4	1.4	1.90	1.90	1.4
Unit Weight	kg	0.23	0.23	0.36	0.36	0.36	0.80	0.80	0.36

Duct 1 is the minimum duct size while Duct 2 is the recommended duct size.

STRESSING EQUIPMENT & ACCESSORIES

Stressing Jack



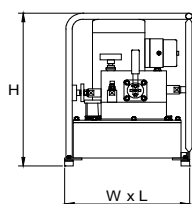
Capacity	kN	1100	1700 CFK
A	mm	275	300**
B	mm	140	140
C	mm	~ 770	~ 977**
D	mm	50*/150	250
Weight	kg	54	49.7***

* max. 50mm nut travel w ithout tightening. Nut must be tightened continuously during stressing.

** varies depending on the application

*** jack body only

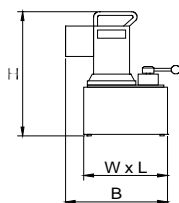
Hydraulic Pump



Capacity	l/min	0.65 / 2.1
W	mm	380
L	mm	460
H	mm	600
Weight*	kg	36

*w eight w ithout oil filling

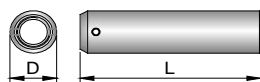
Hydraulic Pump



Capacity	l/min	0.9
Max. Pressure	bar	700
W	mm	241
L	mm	292
B	mm	391
H	mm	520
Weight*	kg	35

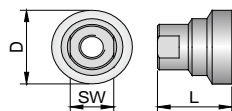
*w eight w ith oil filling

Stressing Coupler



Article No. 528 ___ 3000	00 401	00 422	00 423	00 424	00 465	00 466
Bar Diameter	20	26.5	32	36	40	50
L	mm	195	220	240	240	290
D	mm	62	62	62	62	85
Weight*	kg	2.45	3.48	3.54	3.30	5.01

Spindle Nut



Article No. 485 ___ 3000	00 401	00 422	00 423	00 424	00 465	00 466
Bar Diameter	20	26.5	32	36	40	50
L	mm	120	120	120	120	190
D	mm	130	130	130	130	150
SW	mm	70	70	70	70	85
Weight*	kg	6.36	6.36	6.36	6.36	10.41

We reserve the right to make changes and improvements to the products and/or the process which may result in benefit and/or changes to physical/mechanical characteristics.

The data contained herein are considered representative of current production and is believed to be reliable and to represent the best available characterization of the product as of April 2016.