

Architectural Bar Systems



Dextra

About our range

Tension Rods typically act as bracing or suspension elements and provide the benefits of high strength, length adjustability, ease of installation as well as the ability to be post-tensioned after installation.

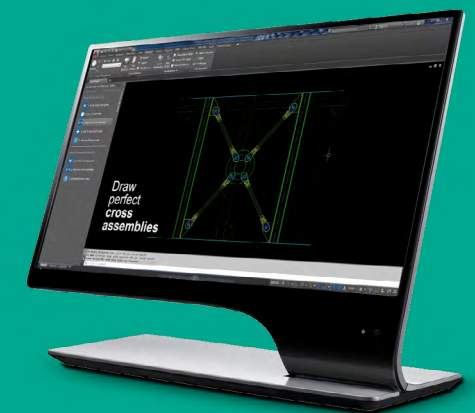
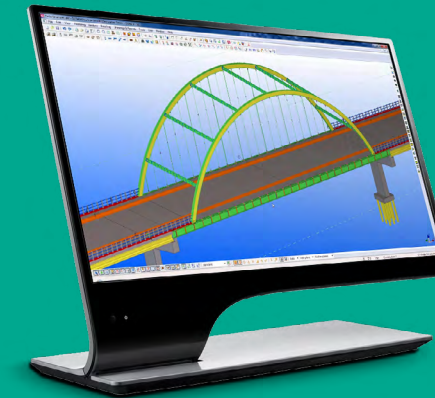
Compression Struts complement the range of architectural bar systems and are used when structural members are required to take compression loads as well as having the benefits of installation and aesthetic appeal associated with the Dextra tension rod system.

A wide range of sizes and accessories in various steel grades and in both carbon and stainless steel is available.



Typical applications

- Roof support systems
- Hanging floors
- Canopies roof support systems
- Road and pedestrian bridges
- Truss bracing systems
- Temporary stays and braces



CAD & BIM

Structures incorporating architectural tension bar systems are often complex.

To aid in the design, detailing and installation, Dextra offers automated drawing components in AutoCAD (2D), Trimble Tekla Structures (3D) and Revit (3D).

www.dextragroup.com/downloads-bim

Carbon steel



Design references

BS EN 1993 (Eurocode 3)

Product features

- Available in steel grades 460, 520 & 700 N/mm².
- Thread diameter range M16 to M133.
- Rolled threads for better performance.

Surface finish

Carbon Steel Tension Rods can either be delivered epoxy painted or galvanized. If required, they can also be delivered unpainted (plain black steel surface).

About our carbon steel range

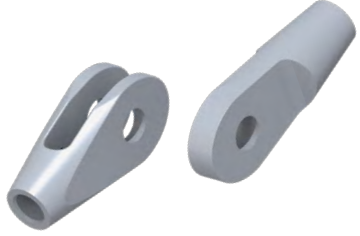



Available in high strength grades, allowing the use of smaller diameters to achieve the same tension capacity as larger diameter mild steel tension bars.

In situ length adjustment can be achieved by rotation of the bar into the forks and/or at each turnbuckle along the tendon.

Turnbuckles also allow for the application of a preload, making for example self-weight sagging corrections easier.



Accessories

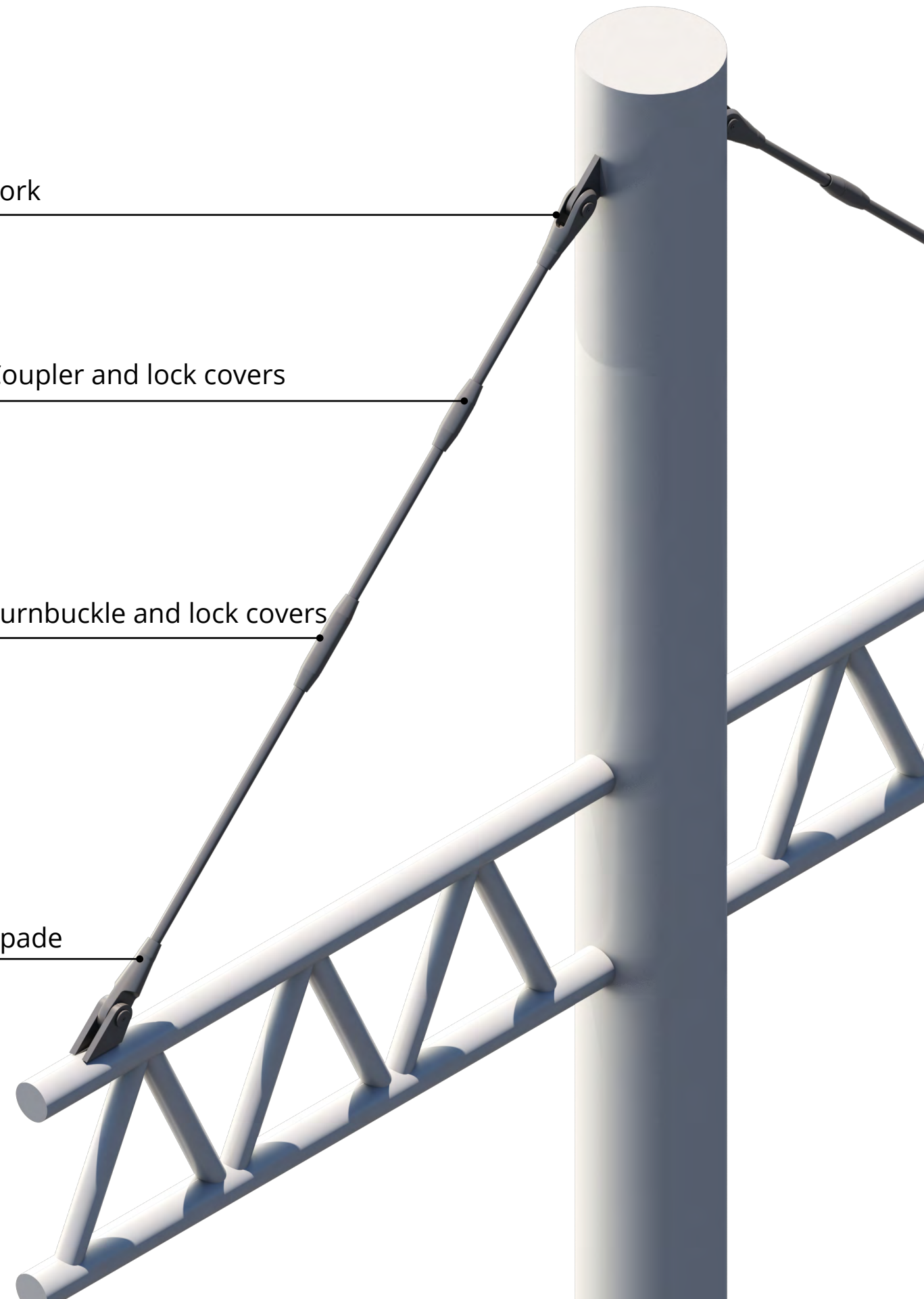
Forks and Spades		To be connected to grade S355 gusset plates. They can also be connected together to form an articulation joint.
Couplers		To connect individual lengths of bar, usually to achieve a greater tendon length than is possible with a single bar.
Turnbuckles		To connect bars and adjust the overall tendon length.
Cross Turnbuckles		To allow two tendons to cross each other in the same plan.
Lock covers		To cover the exposed thread of the bar and prevent the relative rotation of components.

Fork

Coupler and lock covers

Turnbuckle and lock covers

Spade



Carbon steel systems load table

Rod Thread Size	Nominal Rod Ø*	Rod Critical Section	Rod Linear Weight	Grade 460			Grade 520			Grade 700		
				Yield Load**	Ultimate Load**	Tension Capacity as per EC3***	Yield Load**	Ultimate Load**	Tension Capacity as per EC3***	Yield Load**	Ultimate Load**	Tension Capacity as per EC3***
mm	mm	mm ²	kg/m	kN	kN	kN	kN	kN	kN	kN	kN	kN
M16	15	157	1.4	72	98	71	81	105	76	110	141	102
M20	19	245	2.2	113	153	110	127	164	118	171	220	159
M24	23	353	3.3	162	220	159	183	236	170	247	317	228
M30	28	561	4.8	258	350	252	292	376	270	392	505	363
M36	34	817	7.1	376	510	368	425	547	394	572	735	529
M42	40	1,121	9.9	516	701	504	583	751	541	785	1,009	726
M48	45	1,473	12.5	678	921	663	766	987	711	1,031	1,326	955
M52	49	1,758	14.8	809	1,099	791	914	1,178	848	1,230	1,582	1,139
M56	53	2,030	17.3	934	1,269	914	1,056	1,360	979	1,421	1,827	1,315
M64	61	2,676	22.9	1,231	1,672	1,204	1,392	1,793	1,291	1,873	2,408	1,734
M68	65	3,055	26.0	1,405	1,910	1,375	1,589	2,047	1,474	2,139	2,750	1,980
M78	75	4,114	34.7	1,892	2,571	1,851	2,139	2,756	1,984	2,879	3,702	2,666
M83	80	4,702	39.5	2,163	2,938	2,116	2,445	3,150	2,268	3,291	4,231	3,047
M88	85	5,329	44.5	2,451	3,331	2,398	2,771	3,570	2,571	3,730	4,796	3,453
M93	90	5,995	49.9	2,758	3,747	2,698	3,118	4,017	2,892	4,197	5,396	3,885
M98	95	6,701	55.6	3,083	4,188	3,016	3,485	4,490	3,233	4,691	6,031	4,342
M103	100	7,446	61.7	3,425	4,654	3,351	3,872	4,989	3,592	5,212	6,702	4,825
M113	110	9,054	74.6	4,165	5,659	4,075	4,708	6,066	4,368	6,338	8,149	5,867
M123	120	10,820	88.8	4,977	6,762	4,869	5,626	7,249	5,219	7,574	9,738	7,011
M133	130	12,742	104.2	5,861	7,964	5,734	6,626	8,537	6,147	8,919	11,468	8,257

*Nominal bar diameter may vary for small order quantities **Yield and ultimate loads are unfactored ***As per BS EN 1993-1-1 γ_{m0} 1.0; γ_{m2} 1.25

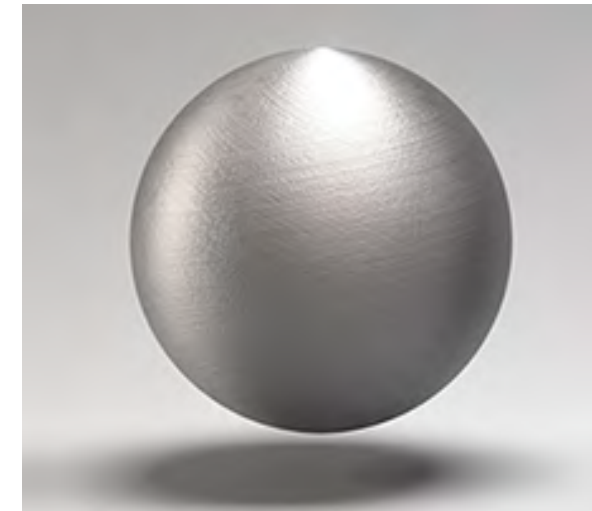
Stainless steel



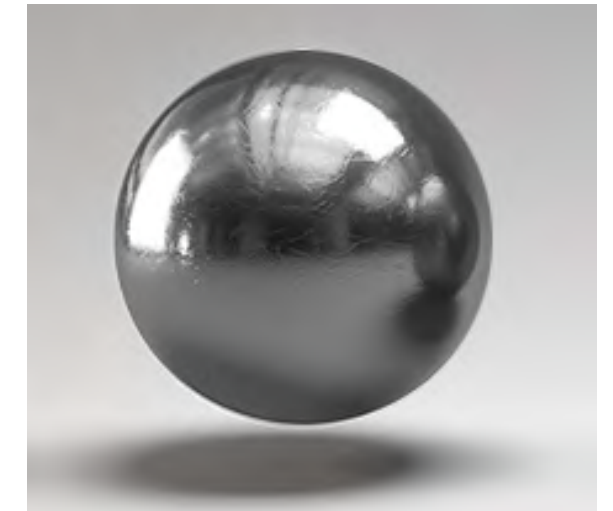
Design references

BS EN 1993 (Eurocode 3)

Surface finish



Satin finish
Ra 0.4 (N5) as per ISO 1302



Mirror finish
Ra 0.1 (N3) as per ISO 1302
(Available upon request)

About our stainless steel range

When the requirements for pleasing aesthetics or corrosion protection are particularly high, stainless steel tension rods are the perfect solution.

Product features

- Available in stainless steel grade S460 & S520.
- Thread diameter range M16 to M98.
- Rolled threads.



Stainless steel systems load table

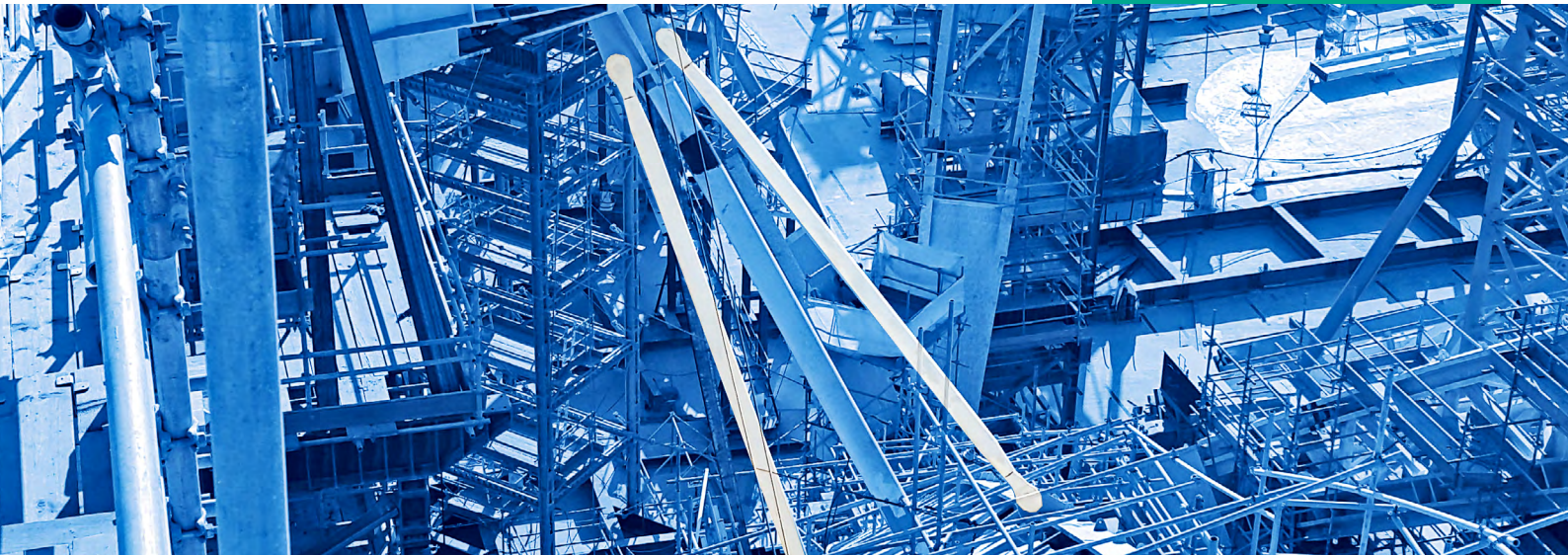
Rod Thread Size	Nominal Rod Ø*	Rod Critical Section	Rod Linear Weight	Grade S460			Grade S520		
				Yield Load**	Ultimate Load**	Tension Capacity as per EC3***	Yield Load**	Ultimate Load**	Tension Capacity as per EC3***
mm	mm	mm ²	kg/m	kN	kN	kN	kN	kN	kN
M16	15	157	1.4	72	102	73	81	105	76
M20	19	245	2.3	113	159	115	127	164	118
M24	23	353	3.3	162	229	165	183	236	170
M30	28	561	4.9	258	364	257	292	376	270
M36	34	817	7.2	376	531	380	425	547	394
M42	40	1,121	10.0	516	729	525	583	751	541
M48	45	1,473	12.7	678	958	665	766	987	711
M56	53	2,030	17.6	934	1,320	923	1,056	1,360	979
M64	61	2,676	23.3	1,231	1,739	1,222	1,392	1,793	1,291
M78	75	4,114	35.2	1,892	2,674	1,847	2,139	2,756	1,984
M83	80	4,702	40.1	2,163	3,056	2,102	2,445	3,150	2,268
M88	85	5,329	45.2	2,451	3,464	2,373	2,771	3,570	2,571
M93	90	5,995	50.7	2,758	3,897	2,660	3,118	4,017	2,892
M98	95	6,701	56.5	3,083	4,356	2,964	3,485	4,490	3,233

* Nominal bar diameter may vary for small order quantities

** Yield and ultimate loads are unfactored

*** As per BS EN 1993-1-4 γ_{m0} 1.1; γ_{m2} 1.25

Compression struts



Design references

BS EN 1993 (Eurocode 3)

Surface finish

Compression struts can either be delivered plain, painted or galvanized. If required, they can also be delivered unpainted (plain black steel surface).

Product features

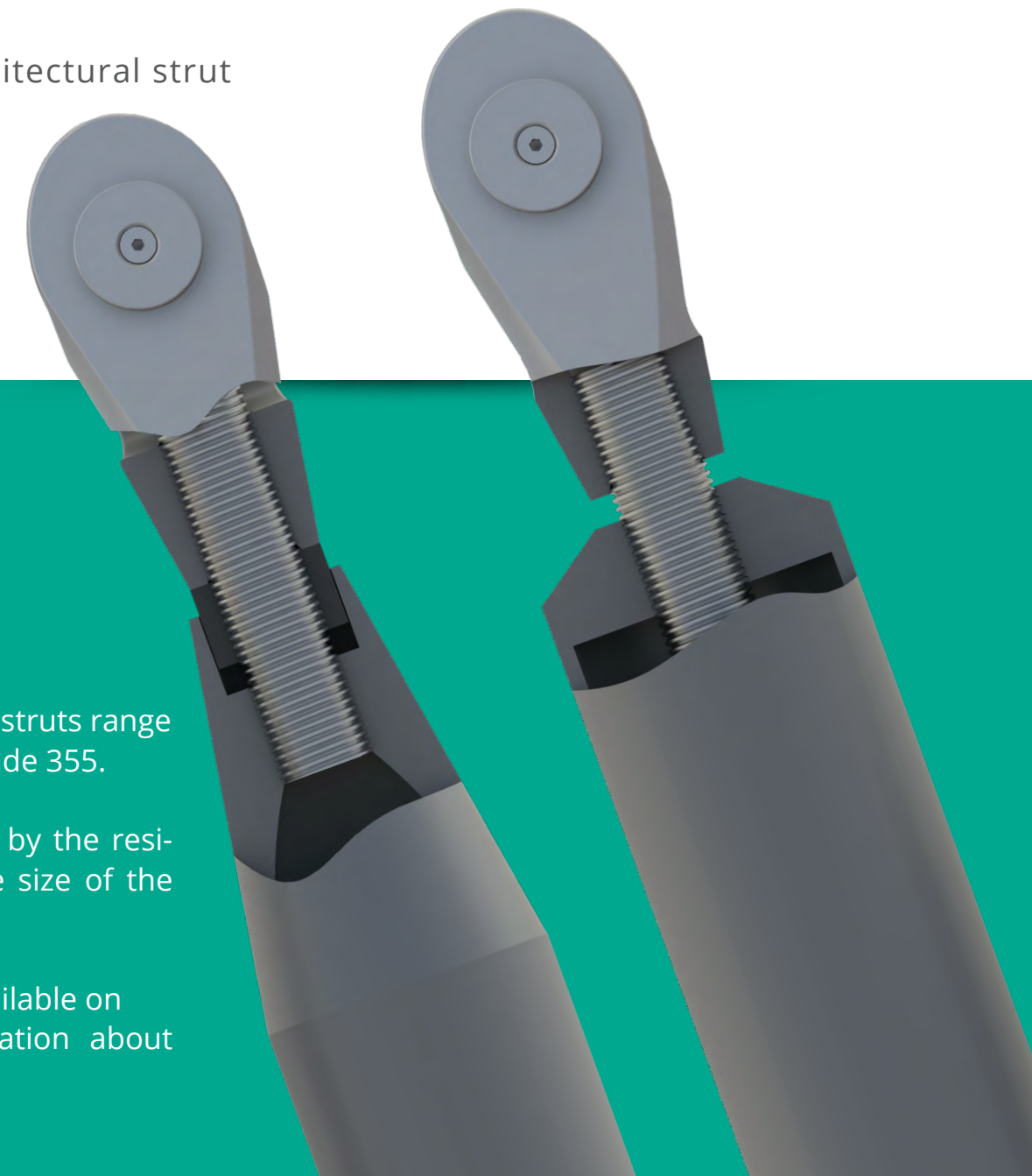
- Struts are available in two alternative designs:
 - Architectural (with long cone and smoother lines).
 - Non-architectural.
- Carbon steel tube (Circular Hollow Section) range from 42mm to 324mm.
- Thread diameter range from M16 to M103.
- Length adjustment of the assembly possible at each fork end.

Typical applications

- Roof support
- Truss bracing
- Face bracing

Architectural strut

Non-Architectural strut



Model selection

CHS (circular hollow section) compression struts range from M30 to M103 and are available in grade 355.

The total compression capacity is limited by the resistance to buckling (which depends on the size of the CHS and pin-to-pin length).

Please refer to the technical datasheet available on www.dextragroup.com for more information about strut selection.



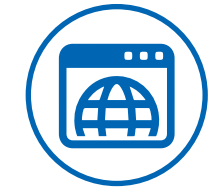
Resources



Brochure



Datasheet



Webpage

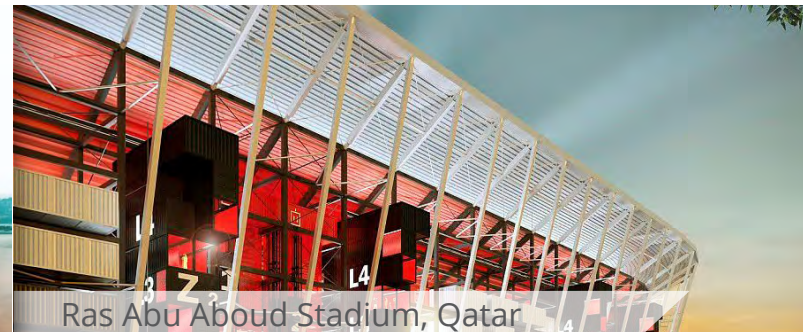


Certification

Project References



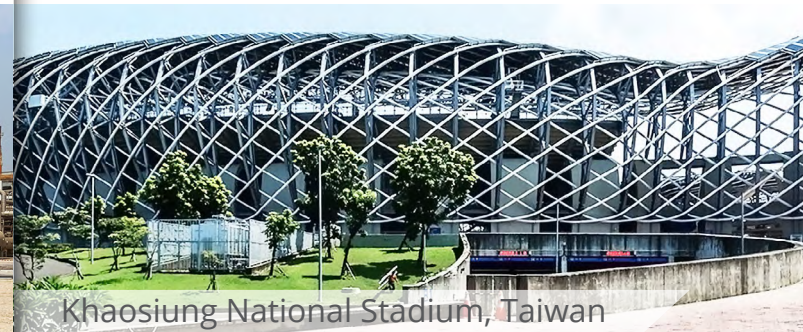
Mahakam Bridge, Indonesia



Ras Abu About Stadium, Qatar



Cylingas Reservoirs, UAE



Khaosung National Stadium, Taiwan



Abu Dhabi International Airport, UAE



Suvarnabhumi International Airport, Bangkok

CAD & BIM Tools

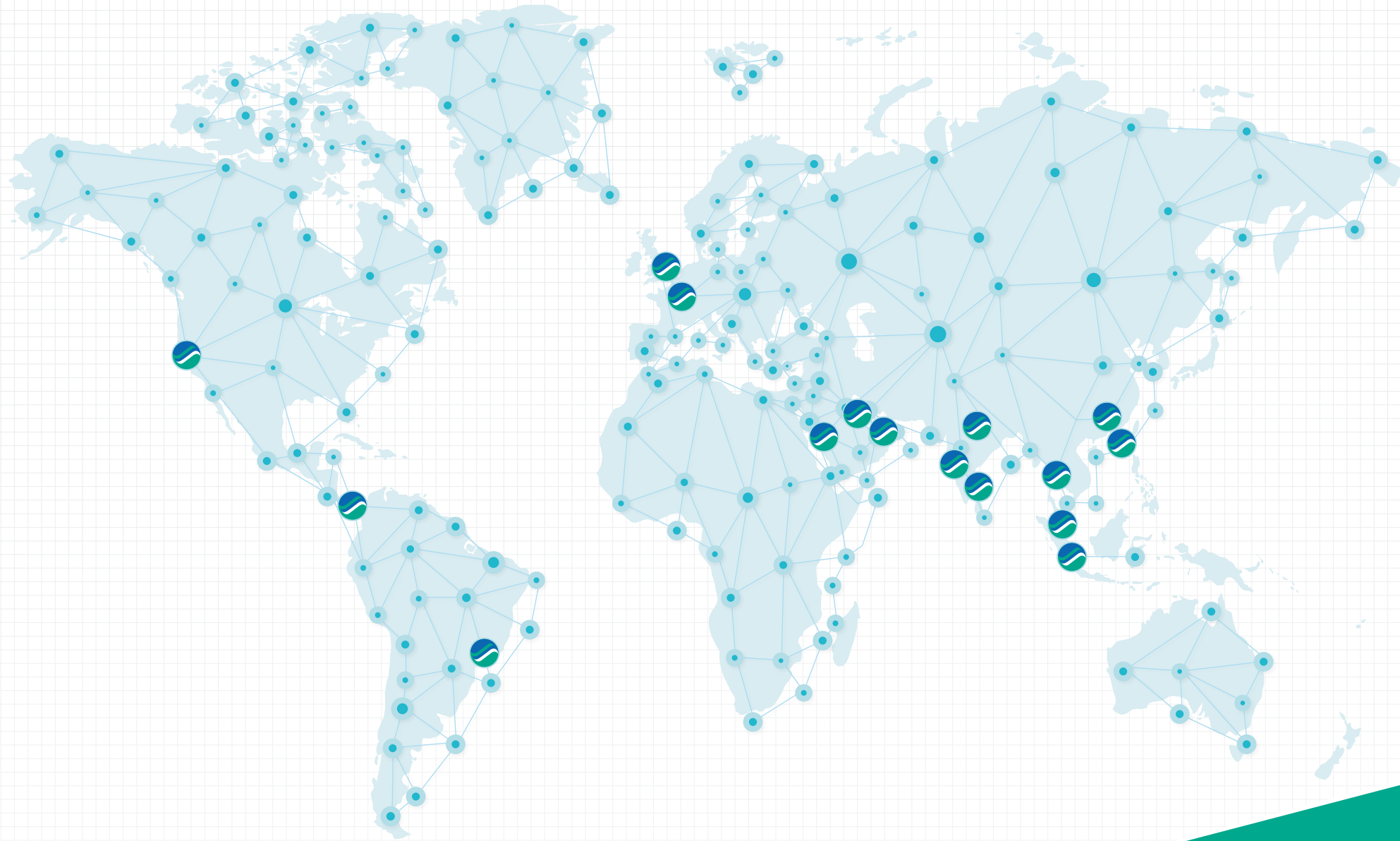


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Commercial presence
in more than
55 countries



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