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Nr.: 4 - 042 - 240646 - 2024/01

DE



- 2.) Verwendungszweck:
(33) Verbunddübel und Verbundspreizdübel zur Verankerung im Beton

- 3.) Hersteller:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany

- 4.) System zur Bewertung und Überprüfung der Leistungsbeständigkeit:
System 1

- 5.) Europäisches Bewertungsdokument **EAD 330499-02-0601**
Europäisch Technische Bewertung: **ETA-24/0646**
Technische Bewertungsstelle: **DIBt - Deutsches Institut für Bautechnik, Berlin**
Notifizierte Stelle: **2873 - IFSW - Technische Universität Darmstadt**

- 6.) Erklärte Leitung(en):
- a) Mechanische Festigkeit und Standsicherheit (BWR 1) und Sicherheit bei der Nutzung (BWR 4)

[illegible]

Leistungserklärung

Nr.: 4 - 042 - 240646 - 2024/01

DE

EJOT®

b) Brandschutz (BWR 2)

Wesentliche Merkmale	Leistungswerte
Brandverhalten	Klasse A1
Feuerwiderstand	Siehe Anhang C 24 bis C 26

c) Hygiene, Gesundheit und Umweltschutz (BWR 3)

Wesentliche Merkmale	Leistungswerte
Inhalt, Emission und/oder Freisetzung von gefährlichen Stoffen	Keine Leistung bewertet

d) Schallschutz (BWR 5)

Wesentliche Merkmale	Leistungswerte

e) Energieeinsparung und Wärmeschutz (BWR 6)

Wesentliche Merkmale	Leistungswerte

f) Nachhaltige Nutzung der natürlichen Ressourcen (BWR 7)

Wesentliche Merkmale	Leistungswerte

Die Leistung des vorstehenden Produkts entspricht der erklärten Leistung/den erklärten Leistungen. Für die Erstellung der Leistungserklärung im Einklang mit der Verordnung (EU) Nr. 305/2011 ist allein der oben genannte Hersteller verantwortlich.

Unterzeichnet für den Hersteller und im Namen des Herstellers von:

Dr. Jens Weber

(Name)

Bad Laasphe, 08.08.2024

(Ort und Datum der Ausstellung)



(Unterschrift)

No 4 - 042 - 240646 - 2024/01

EN



- 2.) Intended use:
(33) Bonded fasteners and bonded expansion fasteners for use in concrete

- 3.) Hersteller:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany

- #### 4.) System of AVCP:

- | | | |
|-----|--------------------------------|---|
| 5.) | European Assessment Document: | EAD 330499-02-0601 |
| | European Technical Assessment: | ETA-24/0646 |
| | Technical assessment body: | DIBt - Deutsches Institut für Bautechnik, Berlin |
| | Notified body: | 2873 - IFSW - Technische Universität Darmstadt |

- 6.) Declared Performance:
- a) Mechanical resistance and stability (BWR 1) and safety and accessibility (BWR 4)

[illegible]

Declaration of Performance

No 4 - 042 - 240646 - 2024/01

EN

EJOT®

b) Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 24 to C 26

c) Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content, emission and/or release of dangerous substances	No performance assessed

d) Protection against noise (BWR 5)

Essential characteristic	Performance

e) Energy economy and heat retention (BWR 6)

Essential characteristic	Performance

f) Sustainable use of natural resources (BWR 7)

Essential characteristic	Performance

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Dr. Jens Weber

(Name)

Bad Laasphe, 08.08.2024

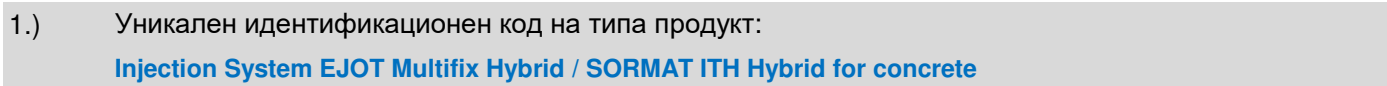
(Place and date of issue)



(Signature)

Nº 4 - 042 - 240646 - 2024/01

BG



2.) Предвидена употреба/употреби:
(33) **Свързани крепежни елементи и свързани разширителни крепежни елементи за използване в бетон**

3.) **Производитель:**
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany

4.) Система/системи за оценяване и проверка на постоянството на експлоатационните показатели:

5.)	Европейски документ за оценяване:	EAD 330499-02-0601
	Европейска техническа оценка:	ETA-24/0646
	Орган за техническа оценка:	DIBt - Deutsches Institut für Bautechnik, Berlin
	Нотифициран орган/органи:	2873 - IFSW - Technische Universität Darmstadt

а) Механична устойчивост и стабилност (BWR 1) и безопасност и достъпност (BWR 4)

[illegible]

ДЕКЛАРАЦИЯ ЗА ЕКСПЛОАТАЦИОННИ ПОКАЗАТЕЛИ

№ 4 - 042 - 240646 - 2024/01

BG



b) Безопасност в случай на пожар (BWR 2)

Основни характеристики	Показатели
Реакция при пожар	Клас A1
Устойчивост на огън	Вж. приложение B 24 до B 26
Устойчивост на огън	Вж. приложение B 24 до B 26

c) Хигиена, здраве и околна среда (BWR 3)

Основни характеристики	Показатели
Съдържание, емисии и/или изпускане на опасни вещества	Няма оценка на изпълнението

d) Защита от шум (BWR 5)

Основни характеристики	Показатели

e) Икономия на енергия и запазване на топлината (BWR 6)

Основни характеристики	Показатели

f) Устойчиво използване на природните ресурси (BWR 7)

Основни характеристики	Показатели

Експлоатационните показатели на продукта, посочени по-горе, са в съответствие с декларираните експлоатационни показатели. Настоящата декларация за експлоатационни показатели се издава в съответствие с Регламент (ЕС) № 305/2011, като отговорността за нея се носи изцяло от посочения по-горе производител.

Подписано за и от името на производителя от:

Dr. Jens Weber

(Име)

Bad Laasphe, 08.08.2024

(Място и Дата)

(Подпис)

Č. 4 - 042 - 240646 - 2024/01

CZ



- 6.) Deklarovaná vlastnosť/Deklarované vlastnosti:
- a) Mechanická odolnosť a stabilita (BWR 1) a bezpečnosť a dostupnosť (BWR 4)

[illegible]

PROHLÁŠENÍ O VLASTNOSTECH

č. 4 - 042 - 240646 - 2024/01

CZ

EJOT®

b) Bezpečnost při požáru (BWR 2)

základní charakteristiky	vlastnosti výrobku
Reakce na oheň	Třída A1
Odolnost proti ohni	Viz příloha C 24 až C 26

c) Hygiena, zdraví a životní prostředí (BWR 3)

základní charakteristiky	vlastnosti výrobku
Obsah, emise a/nebo uvolňování nebezpečných látek	Žádný hodnocený výkon

d) Ochrana proti hluku (BWR 5)

základní charakteristiky	vlastnosti výrobku

e) Úspora energie a zadržování tepla (BWR 6)

základní charakteristiky	vlastnosti výrobku

f) Udržitelné využívání přírodních zdrojů (BWR 7)

základní charakteristiky	vlastnosti výrobku

Vlastnosti výše uvedeného výrobku jsou ve shodě se souborem deklarovaných vlastností. Toto prohlášení o vlastnostech se v souladu s nařízením (EU) č. 305/2011 vydává na výhradní odpovědnost výrobce uvedeného výše.

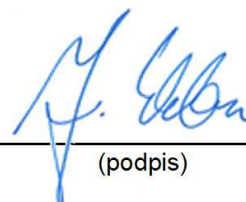
Podepsáno za výrobce a jeho jménem:

Dr. Jens Weber

(jméno)

Bad Laasphe, 08.08.2024

(místo a datum vydání)



(podpis)

YDEEVNEDEKLARATION

Nr.: 4 - 042 - 240646 - 2024/01

DK

EJOT®

b) Sikkerhed ved brand (BWR 2)

Væsentlige egenskaber	Ydelse
Reaktioner på brand	Klasse A1
Modstandsdygtighed over for brand	Se bilag C 24 til C 26

c) Hygiejne, sundhed og miljø (BWR 3)

Væsentlige egenskaber	Ydelse
Indhold, emission og/eller frigivelse af farlige stoffer	Ingen ydeevne vurderet

d) Beskyttelse mod støj (BWR 5)

Væsentlige egenskaber	Ydelse

e) Energibesparelser og varmebinding (BWR 6)

Væsentlige egenskaber	Ydelse

f) Bæredygtig udnyttelse af naturressourcer (BWR 7)

Væsentlige egenskaber	Ydelse

Ydeevnen for den vare, der er anført ovenfor, er i overensstemmelse med den deklarerede ydeevne. Denne ydeevnedeklaration er udarbejdet i overensstemmelse med forordning (EU) nr. 305/2011 på eneansvar af den fabrikant, der er anført ovenfor.

Underskrevet for fabrikanten og på dennes vegne af:

Dr. Jens Weber

(navn)

Bad Laasphe, 08.08.2024

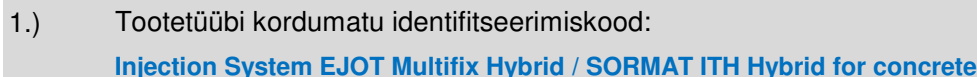
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(underskrift)

nr 4 - 042 - 240646 - 2024/01

EE



2.) Kavandatud kasutusala(d):
(33) Liimitud kinnitusvahendid ja liimitud paisumiskinnitid kasutamiseks betoonis

3.) Tootja:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany

4.) Toimivuse püsivuse hindamise ja kontrolli süsteem:

5.)	Euroopa hindamisdokument:	EAD 330499-02-0601
	Euroopa tehniline hinnang:	ETA-24/0646
	Tehnilise hindamise asutus:	DIBt - Deutsches Institut für Bautechnik, Berlin
	Teavitatud asutus(ed):	2873 - IFSW - Technische Universität Darmstadt

6.) Deklareeritud toimivus:

a) Mehaaniline vastupidavus ja stabiilsus (BWR 1) ning ohutus ja juurdepääsetavus (BWR 4)

[illegible]

TOIMIVUSDEKLARATSIOON

nr 4 - 042 - 240646 - 2024/01

EE

EJOT®

b) Ohutus tulekahju korral (BWR 2)

Põhiomadused	Toimivus
Reaktsioon tulekahjule	Klass A1
Vastupidavus tulekahju suhtes	Vt lisad C 24-C 26

c) Hügieen, tervis ja keskkond (BWR 3)

Põhiomadused	Toimivus
Ohtlike ainete sisaldus, heide ja/või vabanemine	Tulemuslikkust ei ole hinnatud

d) Kaitse müra eest (BWR 5)

Põhiomadused	Toimivus

e) Energiasääst ja soojapidavus (BWR 6)

Põhiomadused	Toimivus

f) Loodusvarade säästev kasutamine (BWR 7)

Põhiomadused	Toimivus

Eespool kirjeldatud toote toimivus vastab deklareeritud toimivusele. Käesolev toimivusdeklaratsioon on välja antud kooskõlas määrusega (EL) nr 305/2011 eespool nimetatud tootja ainuvastutusel.

Tootja poolt ja nimel allkirjastanud:

Dr. Jens Weber

(Nimi)

Bad Laasphe, 08.08.2024

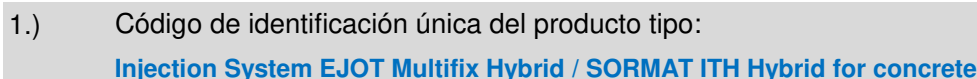
(Koht ja kuupäev)



(Allkiri)

no 4 - 042 - 240646 - 2024/01

ES



2.) Usos previstos:

(33) Cierres adhesivos y cierres de expansión adhesivos para uso en hormigón

3.) Fabricante:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany

4.) Sistemas de evaluación y verificación de la constancia de las prestaciones (EVCP):

5.) Documento de evaluación europeo: **EAD 330499-02-0601**
Evaluación técnica europea: **ETA-24/0646**
Organismo de evaluación técnica: **DIBt - Deutsches Institut für Bautechnik, Berlin**
Organismos notificados: **2873 - IFSW - Technische Universität Darmstadt**

6.) Prestaciones declaradas:

a) Resistencia mecánica y estabilidad (BWR 1) y seguridad y accesibilidad (BWR 4)

[illegible]

DECLARACIÓN DE PRESTACIONES

no 4 - 042 - 240646 - 2024/01

ES



b) Seguridad en caso de incendio (BWR 2)

Características esenciales	Prestaciones
Reacción al fuego	Clase A1
Resistencia al fuego	Véase el anexo C 24 a C 26

c) Higiene, salud y medio ambiente (BWR 3)

Características esenciales	Prestaciones
Contenido, emisión y/o liberación de sustancias peligrosas	No se ha evaluado el rendimiento

d) Protección contra el ruido (BWR 5)

Características esenciales	Prestaciones

e) Ahorro de energía y retención del calor (BWR 6)

Características esenciales	Prestaciones

f) Uso sostenible de los recursos naturales (BWR 7)

Características esenciales	Prestaciones

Las prestaciones del producto identificado anteriormente son conformes con el conjunto de prestaciones declaradas. La presente declaración de prestaciones se emite, de conformidad con el Reglamento (UE) no 305/2011, bajo la sola responsabilidad del fabricante arriba identificado.

Firmado por y en nombre del fabricante por:

Dr. Jens Weber

(nombre)

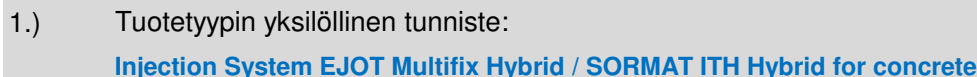
Bad Laasphe, 08.08.2024

(lugar y fecha de emisión)

(firma)

Nro **4 - 042 - 240646 - 2024/01**

F



2.) Aiottu käyttötarkoitus (aiotut käyttötarkoitukset):
(33) Betonissa käytettävät liimakiinnittimet ja liimapaisukiinnittimet

3.) Valmistaja:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany

4.) Suoritusason pysyvyyden arvioinnissa ja varmentamisessa käytetty järjestelmä/käytetyt järjestelmät:

5.) Eurooppalainen arviointiasiakirja: **EAD 330499-02-0601**
Eurooppalainen tekninen arviointi: **ETA-24/0646**
Teknisestä arvioinnista vastaava laitos: **DIBt - Deutsches Institut für Bautechnik, Berlin**
Ilmoitettu laitos/ilmoitetut laitokset: **2873 - IFSW - Technische Universität Darmstadt**

6.) Ilmoitettu suoritustaso/ilmoitetut suoritustasot:

a) Mekaaninen kestävyys ja vakavuus (BWR 1) sekä turvallisuus ja saavutettavuus (BWR 4)

[illegible]

SUORITUSTASOILMOITUS

Nro 4 - 042 - 240646 - 2024/01

FI



b) Turvallisuus tulipalon sattuessa (BWR 2)

Perusominaisuudet	Tuotteen suoritustaso
Reagointi tulipaloon	Luokka A1
Tulenkestävyys	Ks. liitteet C 24-C 26

c) Hygienia, terveys ja ympäristö (BWR 3)

Perusominaisuudet	Tuotteen suoritustaso
Vaarallisten aineiden pitoisuus, päästöt ja/tai vapautuminen	Suorituskykyä ei ole arvioitu

d) Suojaus melua vastaan (BWR 5)

Perusominaisuudet	Tuotteen suoritustaso

e) Energiansäästö ja lämmöntalteenotto (BWR 6)

Perusominaisuudet	Tuotteen suoritustaso

f) Luonnonvarojen kestävä käyttö (BWR 7)

Perusominaisuudet	Tuotteen suoritustaso

Edellä yksilöidyn tuotteen suoritustaso on ilmoitettujen suoritustasojen joukon mukainen. Tämä suoritustasoilmoitus on asetuksen (EU) N:o 305/2011 mukaisesti annettu edellä ilmoitetun valmistajan yksinomaisella vastuulla.

Valmistajan puolesta allekirjoittanut:

Dr. Jens Weber

(nimi)

Bad Laasphe, 08.08.2024

(paikka ja päivämäärä)

(allekirjoitus)

No 4 - 042 - 240646 - 2024/01

FR



- ## Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete

- ### (33) Attaches collées et attaches à expansion collées pour utilisation dans le béton

- EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany**

- ## Systeme 1

- Organisme(s) notifié(s): **2873 - IFSW - Technische Universität Darmstadt**

- a) Résistance mécanique et stabilité (BWR 1) et sécurité et accessibilité (BWR 4)

[illegible]

DÉCLARATION DES PERFORMANCES

No 4 - 042 - 240646 - 2024/01

FR



b) Sécurité en cas d'incendie (REB 2)

Caractéristiques essentielles	Performances du produit
Réaction au feu	Classe A1
Résistance au feu	Voir annexe C 24 à C 26

c) Hygiène, santé et environnement (REB 3)

Caractéristiques essentielles	Performances du produit
Contenu, émission et/ou rejet de substances dangereuses	Aucune performance évaluée

d) Protection contre le bruit (REB 5)

Caractéristiques essentielles	Performances du produit

e) Économie d'énergie et rétention de la chaleur (REB 6)

Caractéristiques essentielles	Performances du produit

f) Utilisation durable des ressources naturelles (REB 7)

Caractéristiques essentielles	Performances du produit

Les performances du produit identifié ci-dessus sont conformes aux performances déclarées. Conformément au règlement (UE) no 305/2011, la présente déclaration des performances est établie sous la seule responsabilité du fabricant mentionné ci-dessus.

Signé pour le fabricant et en son nom par:

Dr. Jens Weber

(Nom)

Bad Laasphe, 08.08.2024

(Lieu et date)

(Signature)

Αριθ. 4 - 042 - 240646 - 2024/01

GR



- 1.) Μοναδικός κωδικός ταυτοποίησης του τύπου του προϊόντος:
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete
- 2.) Προβλεπόμενη(-ες) χρήση(-εις):
(33) Συνδεδεμένοι σύνδεσμοι και σύνδεσμοι διαστολής για χρήση σε σκυρόδεμα
- 3.) Κατασκευαστής:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Ger
- 4.) Σύστημα/συστήματα AVCP (αξιολόγηση και επαλήθευση της σταθερότητας της επίδοσης):
σύστημα 1
- 5.) Ευρωπαϊκό έγγραφο αξιολόγησης: **EAD 330499-02-0601**
Ευρωπαϊκή τεχνική αξιολόγηση: **ETA-24/0646**
Οργανισμός τεχνικής αξιολόγησης: **DIBt - Deutsches Institut für Bautechnik, Berlin**
Κοινοποιημένος(-οι) οργανισμός(-οι): **2873 - IFSW - Technische Universität Darmstadt**

- 6.) Δηλωθείσα(-ες) επίδοση(-εις):
- a) Μηχανική αντίσταση και σταθερότητα (BWR 1) και ασφάλεια και προσβασιμότητα (BWR 4)

[illegible]

ΔΗΛΩΣΗ ΕΠΙΔΟΣΕΩΝ

Αριθ. 4 - 042 - 240646 - 2024/01

GR



b) Ασφάλεια σε περίπτωση πυρκαγιάς (BWR 2)

Ουσιώδη χαρακτηριστικά	Απόδοση
Αντίδραση στη φωτιά	Κατηγορία A1
Αντοχή στη φωτιά	Βλέπε παράρτημα Γ 24 έως Γ 26

c) Υγιεινή, υγεία και περιβάλλον (BWR 3)

Ουσιώδη χαρακτηριστικά	Απόδοση
Περιεχόμενο, εκπομπή ή/και απελευθέρωση επικίνδυνων ουσιών	Δεν αξιολογούνται οι επιδόσεις

d) Προστασία από θόρυβο (BWR 5)

Ουσιώδη χαρακτηριστικά	Απόδοση

e) Εξοικονόμηση ενέργειας και συγκράτηση θερμότητας (BWR 6)

Ουσιώδη χαρακτηριστικά	Απόδοση

f) Εξοικονόμηση ενέργειας και συγκράτηση θερμότητας (BWR 7)

Ουσιώδη χαρακτηριστικά	Απόδοση

Η επίδοση του προϊόντος που ταυτοποιείται ανωτέρω είναι σύμφωνη με τη (τις) δηλωθείσα(-ες) επίδοση(-εις). Η δήλωση αυτή των επιδόσεων συντάσσεται, σύμφωνα με τον κανονισμό (ΕΕ) αριθ. 305/2011, με αποκλειστική ευθύνη του κατασκευαστή που ταυτοποιείται ανωτέρω.

Υπογραφή για λογαριασμό και εξ ονόματος του κατασκευαστή από:

Dr. Jens Weber

(όνομα)

Bad Laasphe, 08.08.2024

(τόπος και ημερομηνία έκδοσης)

(υπογραφή)

Br. 4 - 042 - 240646 - 2024/01

HR



- 6.) Objavljena svojstva:
- a) Mehanička otpornost i stabilnost (BWR 1) i sigurnost i pristupačnost (BWR 4)

[illegible]

IZJAVA O SVOJSTVIMA

Br. 4 - 042 - 240646 - 2024/01

HR

EJOT®

b) Sigurnost u slučaju požara (BWR 2)

Bitne karakteristike	Svojstva
Reakcija na vatru	Klasa A1
Otpornost na vatru	Vidi Dodatak C 24 do C 26

c) Higijena, zdravlje i okoliš (BWR 3)

Bitne karakteristike	Svojstva
Sadržaj, emisija i/ili ispuštanje opasnih tvari	Izvedba nije procijenjena

d) Zaštita od buke (BWR 5)

Bitne karakteristike	Svojstva

e) Ušteda energije i zadržavanje topline (BWR 6)

Bitne karakteristike	Svojstva

f) Održivo korištenje prirodnih resursa (BWR 7)

Bitne karakteristike	Svojstva

Prije utvrđeno svojstvo proizvoda u skladu je s objavljenim svojstvima. Ova izjava o svojstvima izdaje se, u skladu s Uredbom (EU) br. 305/2011, pod isključivom odgovornošću prethodno utvrđenog proizvođača.

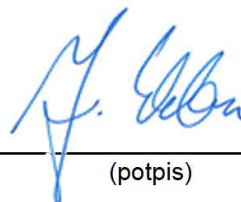
Za proizvođača i u njegovo ime potpisao:

Dr. Jens Weber

(ime)

Bad Laasphe, 08.08.2024

(Mjesto i datum izdavanja)



(potpis)

Száma: 4 - 042 - 240646 - 2024/01

HU



- ## Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete

- ### (33) Betonban használható ragasztott kötőelemek és ragasztott tágulási kötőelemek

- EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany**

- rendszer 1

- EAD 330499-02-0601

ETA-24/0646

DIBt - Deutsches Institut für Bautechnik, Berlin

2873 - IFSW - Technische Universität Darmstadt

- a) Mechanikai ellenállás és stabilitás (BWR 1), biztonság és elérhetőség (BWR 4)

[illegible]

TELJESÍTMÉNYNYILATKOZAT

Száma: 4 - 042 - 240646 - 2024/01

HU



b) Biztonság tűz esetén (BWR 2)

Lényeges termékjellemzők	Termék teljesítménye
Tűzre adott reakció	A1 osztály
Tűzállóság	Lásd a C 24-C 26. mellékletet

c) Higiénia, egészség és környezet (BWR 3)

Lényeges termékjellemzők	Termék teljesítménye
Veszélyes anyagok tartalma, kibocsátása és/vagy kibocsátása	Nincs értékelt teljesítmény

d) Zaj elleni védelem (BWR 5)

Lényeges termékjellemzők	Termék teljesítménye

e) Energiatakarékosság és hővisszatartás (BWR 6)

Lényeges termékjellemzők	Termék teljesítménye

f) A természeti erőforrások fenntartható használata (BWR 7)

Lényeges termékjellemzők	Termék teljesítménye

A fent azonosított termék teljesítménye megfelel a bejelentett teljesítmény(ek)nek. A 305/2011/EU rendeletnek megfelelően e teljesítménynyilatkozat kiadásáért kizárólag a fent meghatározott gyártó a felelős.

A gyártó nevében és részéről aláíró személy:

Dr. Jens Weber

(név)

Bad Laasphe, 08.08.2024

(hely és kiállítás dátuma)

(aláírás)

N. 4 - 042 - 240646 - 2024/01

IT



- 6.) Prestazioni dichiarate:
- a) Resistenza meccanica e stabilità (BWR 1) e sicurezza e accessibilità (BWR 4)

[illegible]

DICHIARAZIONE DI PRESTAZIONE

N. 4 - 042 - 240646 - 2024/01

IT



b) Sicurezza in caso di incendio (BWR 2)

Caratteristiche essenziali	Prestazione
Reazione al fuoco	Classe A1
Resistenza al fuoco	Cfr. allegato da C 24 a C 26

c) Igiene, salute e ambiente (BWR 3)

Caratteristiche essenziali	Prestazione
Contenuto, emissione e/o rilascio di sostanze pericolose	Nessuna prestazione valutata

d) Protezione contro il rumore (BWR 5)

Caratteristiche essenziali	Prestazione

e) Economia energetica e ritenzione di calore (BWR 6)

Caratteristiche essenziali	Prestazione

f) Uso sostenibile delle risorse naturali (BWR 7)

Caratteristiche essenziali	Prestazione

La prestazione del prodotto sopra identificato è conforme all'insieme delle prestazioni dichiarate. La presente dichiarazione di responsabilità viene emessa, in conformità al regolamento (UE) n. 305/2011, sotto la sola responsabilità del fabbricante sopra identificato.

Firmato a nome e per conto del fabbricante da:

Dr. Jens Weber

(nome)

Bad Laasphe, 08.08.2024

(luogo e data del rilascio)

(firma)

Nr. 4 - 042 - 240646 - 2024/01

EJOT®

- 6.) Deklaruojama (-os) eksploatacinė (-ės) savybė (-ės):
- a) Mechaninis atsparumas ir stabilumas (BWR 1) ir saugumas bei prieinamumas (BWR 4)

[illegible]

EKSPLOATACINIŲ SAVYBIŲ DEKLARACIJA

Nr. 4 - 042 - 240646 - 2024/01

LT



b) Sauga gaisro atveju (BWR 2)

Esminės charakteristikos	Eksploatacinės savybės
Reakcija į ugnį	A1 klasė
Atsparumas ugniai	Žr. C 24-C 26 priedus.

c) Higiena, sveikata ir aplinka (BWR 3)

Esminės charakteristikos	Eksploatacinės savybės
Pavojingų medžiagų kiekis, išmetimas ir (arba) išleidimas	Veiklos rezultatai neįvertinti

d) Apsauga nuo triukšmo (BWR 5)

Esminės charakteristikos	Eksploatacinės savybės

e) Energijos taupymas ir šilumos išsaugojimas (BWR 6)

Esminės charakteristikos	Eksploatacinės savybės

f) Tvarus gamtos išteklių naudojimas (BWR 7)

Esminės charakteristikos	Eksploatacinės savybės

Nurodyto produkto eksploatacinės savybės atitinka visas deklaruotas eksploatacines savybes. Ši eksploatacinių savybių deklaracija pateikiama vadovaujantis Reglamentu (ES) Nr. 305/2011, atsakomybė už jos turinį tenka tik joje nurodytam gamintojui.

Pasirašyta (gamintojo ir jo vardu):

Dr. Jens Weber

(vardas)

Bad Laasphe, 08.08.2024

(išdavimo vieta ir data)

(parašas)

EKSPLOATĀCIJAS ĪPAŠĪBU DEKLARĀCIJA

Nr. 4 - 042 - 240646 - 2024/01

LV



b) Drošība ugunsgrēka gadījumā (BWR 2)

Būtiskie raksturlielumi	Ekspluatācijas īpašības
Reakcija uz ugunsgrēku	A1 klase
Ugunsizturība	Skatīt C 24. līdz C 26. pielikumu.

c) Higiēna, veselība un vide (BWR 3)

Būtiskie raksturlielumi	Ekspluatācijas īpašības
Bīstamu vielu saturs, emisija un/vai izdalīšanās	Veiktspēja nav novērtēta

d) Aizsardzība pret troksni (BWR 5)

Būtiskie raksturlielumi	Ekspluatācijas īpašības

e) Enerģijas ekonomija un siltuma saglabāšana (BWR 6)

Būtiskie raksturlielumi	Ekspluatācijas īpašības

f) Dabas resursu ilgtspējīga izmantošana (BWR 7)

Būtiskie raksturlielumi	Ekspluatācijas īpašības

Iepriekš norādītā izstrādājuma ekspluatācijas īpašības atbilst deklarēto ekspluatācijas īpašību kopumam. Šī ekspluatācijas īpašību deklarācija izdota saskaņā ar Regulu (ES) Nr. 305/2011, un par to ir atbildīgs vienīgi iepriekš norādītais ražotājs.

Parakstīts ražotāja vārdā:

Dr. Jens Weber

(Vārds)

Bad Laasphe, 08.08.2024

(Izsniegšanas vieta un datums)

(Paraksts)

DIKJARAZZJONI TA' PRESTAZZJONI

Nru. 4 - 042 - 240646 - 2024/01

MT



b) Sigurtà fil-każ ta 'nar (BWR 2)	
Karatteristiċi essenzjali	Prestazzjoni
Reazzjoni għan-nar	Klassi A1
Reżistenza għan-nar	Ara l-Anness C 24 sa C 26

c) Iġjene, saħħa u ambjent (BWR 3)	
Karatteristiċi essenzjali	Prestazzjoni
Kontenut, emissjoni u/jew rilaxx ta' sustanzi perikolużi	Ebda prestazzjoni evalwata

d) Protezzjoni kontra l-istorbju (BWR 5)	
Karatteristiċi essenzjali	Prestazzjoni

e) Ekonomija tal-enerġija u żamma tas-sħana (BWR 6)	
Karatteristiċi essenzjali	Prestazzjoni

f) Użu sostenibbli tar-riżorsi naturali (BWR 7)	
Karatteristiċi essenzjali	Prestazzjoni

Il-prestazzjoni tal-prodott identifikat hawn fuq hija konformi mal-prestazzjonijiet iddikjarati. Din id-dikjarazzjoni ta' prestazzjoni hija maħruġa, skont ir-Regolament (UE) Nru 305/2011, taħt ir-responsabbiltà unika tal-manifattur identifikat hawn fuq.

Iffirmat għal u f'isem il-manifattur minn:

Dr. Jens Weber
(isem)

Bad Laasphe, 08.08.2024
(post u data tal-ħruġ)

(firma)

Nr. 4 - 042 - 240646 - 2024/01

NL



- 6.) Aangegeven prestatie(s):
- a) Mehāniskā izturība un stabilitāte (BWR 1) un drošība un pieejamība (BWR 4)

[illegible]

PRESTATIEVERKLARING

Nr. 4 - 042 - 240646 - 2024/01

NL



b) Veiligheid in geval van brand (BWR 2)

Essentiële kenmerken	Prestaties
Reactie op vuur	Klasse A1
Weerstand tegen vuur	Zie bijlage C 24 tot C 26.

c) Hygiëne, gezondheid en het milieu (BWR 3)

Essentiële kenmerken	Prestaties
Inhoud, emissie en/of vrijkomen van gevaarlijke stoffen	Geen prestatiebeoordeling

d) Bescherming tegen lawaai (BWR 5)

Essentiële kenmerken	Prestaties

e) Energiebesparing en warmtebehoud (BWR 6)

Essentiële kenmerken	Prestaties

f) Duurzaam gebruik van natuurlijke hulpbronnen (BWR 7)

Essentiële kenmerken	Prestaties

De prestaties van het hierboven omschreven product zijn conform de aangegeven prestaties. Deze prestatieverklaring wordt in overeenstemming met Verordening (EU) nr. 305/2011 onder de exclusieve verantwoordelijkheid van de hierboven vermelde fabrikant verstrekt.

Ondertekend voor en namens de fabrikant door:

Dr. Jens Weber

(naam)

Bad Laasphe, 08.08.2024

(plaats en datum van afgifte)

(handtekening)

Nr 4 - 042 - 240646 - 2024/01

PL



- 6.) Deklarowane właściwości użytkowe:
- a) Nośność i stateczność (BWR 1) oraz bezpieczeństwo użytkowania (BWR 4)

[illegible]

DEKLARACJA WŁAŚCIWOŚCI UŻYTKOWYCH

Nr 4 - 042 - 240646 - 2024/01

PL

EJOT®

b) Bezpieczeństwo pożarowe (BWR 2)

Zasadnicze charakterystyki	Właściwości użytkowe
Reakcja na ogień	Klasa A1
Odporność na ogień	Patrz załącznik C 24 do C 26

c) Higiena, zdrowie i środowisko (BWR 3)

Zasadnicze charakterystyki	Właściwości użytkowe
Zawartość, emisja i/lub uwalnianie substancji niebezpiecznych	Brak oceny wyników

d) Ochrona przed hałasem (BWR 5)

Zasadnicze charakterystyki	Właściwości użytkowe

e) Oszczędność energii i zatrzymywanie ciepła (BWR 6)

Zasadnicze charakterystyki	Właściwości użytkowe

f) Zrównoważone wykorzystanie zasobów naturalnych (BWR 7)

Zasadnicze charakterystyki	Właściwości użytkowe

Właściwości użytkowe określonego powyżej wyrobu są zgodne z zestawem deklarowanych właściwości użytkowych. Niniejsza deklaracja właściwości użytkowych wydana zostaje zgodnie z Rozporządzeniem (UE) nr 305/2011 na wyłączną odpowiedzialność producenta określonego powyżej.

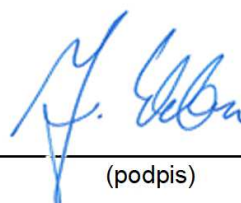
W imieniu producenta podpisał(-a):

Dr. Jens Weber

(nazwisko)

Bad Laasphe, 08.08.2024

(miejsce i data wydania)



(podpis)

N.º 4 - 042 - 240646 - 2024/01

PT



- | | |
|-----|--|
| 1.) | Código de identificação único do produto-tipo:
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete |
| 2.) | Utilização(ões) prevista(s)
(33) Fixadores ligados e fixadores de expansão ligados para utilização em betão |
| 3.) | Fabricante:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany |
| 4.) | Sistema(s) de avaliação e verificação da regularidade do desempenho (AVCP):
Sistema 1 |
| 5.) | Documento de Avaliação Europeu: EAD 330499-02-0601
Avaliação Técnica Europeia: ETA-24/0646
Organismo de Avaliação Técnica: DIBt - Deutsches Institut für Bautechnik, Berlin
Organismo(s) notificado (s): 2873 - IFSW - Technische Universität Darmstadt |

- 6.) Desempenho(s) declarado(s):
- a) Resistência mecânica e estabilidade (BWR 1) e segurança e acessibilidade (BWR 4)

[illegible]

DECLARAÇÃO DE DESEMPENHO

N.º 4 - 042 - 240646 - 2024/01

PT

EJOT®

b) Segurança em caso de incêndio (BWR 2)

Características essenciais	Desempenho
Reacção ao fogo	Classe A1
Resistência ao fogo	Ver anexos C 24 a C 26

c) Higiene, saúde e meio ambiente (BWR 3)

Características essenciais	Desempenho
Conteúdo, emissão e/ou libertação de substâncias perigosas	Nenhum desempenho avaliado

d) Protecção contra o ruído (BWR 5)

Características essenciais	Desempenho

e) Economia de energia e retenção de calor (BWR 6)

Características essenciais	Desempenho

f) Utilização sustentável dos recursos naturais (BWR 7)

Características essenciais	Desempenho

O desempenho do produto identificado acima está em conformidade com o conjunto de desempenhos declarados. A presente declaração de desempenho é emitida, em conformidade com o Regulamento (UE) n.º 305/2011, sob a exclusiva responsabilidade do fabricante identificado acima.

Assinado por e em nome do fabricante por:

Dr. Jens Weber

(nome)

Bad Laasphe, 08.08.2024

(local e data de emissão)



(assinatura)

Nr. 4 - 042 - 240646 - 2024/01

RO



- 6.) Performanța (performanțe) declarată (declarate):
- a) Rezistența mecanică și stabilitatea (BWR 1) și siguranța și accesibilitatea (BWR 4)

[illegible]

DECLARAȚIA DE PERFORMANȚĂ

Nr, 4 - 042 - 240646 - 2024/01

RO

EJOT®

b) Siguranța în caz de incendiu (BWR 2)

Caracteristici esențiale	Performanța produsului
Reacția la foc	Clasa A1
Rezistența la foc	A se vedea anexele C 24 - C 26

c) Igiena, sănătatea și mediul (BWR 3)

Caracteristici esențiale	Performanța produsului
Conținutul, emisia și/sau eliberarea de substanțe periculoase	Nu se evaluează performanța

d) Protecție împotriva zgomotului (BWR 5)

Caracteristici esențiale	Performanța produsului

e) Economie de energie și păstrarea căldurii (BWR 6)

Caracteristici esențiale	Performanța produsului

f) Utilizarea durabilă a resurselor naturale (BWR 7)

Caracteristici esențiale	Performanța produsului

Performanța produsului identificat mai sus este în conformitate cu setul de performanțe declarate. Această declarație de performanță este eliberată în conformitate cu Regulamentul (UE) nr. 305/2011, pe răspunderea exclusivă a fabricantului identificat mai sus.

Semnata pentru și în numele fabricantului de către:

Dr. Jens Weber

(numele)

Bad Laasphe, 08.08.2024

(locul și data emiterii)


(semnătură)

PRESTANDEDEKLARATION

Nr 4 - 042 - 240646 - 2024/01

SE

EJOT®

b) Säkerhet vid brand (BWR 2)

Väsentliga egenskaper	Prestanda
Reaktion på brand	Klass A1
Motståndskraft mot brand	Se bilaga C 24 till C 26

c) Hygien, hälsa och miljö (BWR 3)

Väsentliga egenskaper	Prestanda
Innehåll, utsläpp och/eller frigörelse av farliga ämnen	Ingen resultatbedömning

d) Skydd mot buller (BWR 5)

Väsentliga egenskaper	Prestanda

e) Energihushållning och värmehållning (BWR 6)

Väsentliga egenskaper	Prestanda

f) Hållbar användning av naturresurser (BWR 7)

Väsentliga egenskaper	Prestanda

Prestandan för ovanstående produkt överensstämmer med den angivna prestandan. Denna prestandadeklaration har utfärdats i enlighet med förordning (EU) nr 305/2011 på eget ansvar av den tillverkare som anges ovan.

Undertecknad på tillverkarens vägnar av:

Dr. Jens Weber

(namn)

Bad Laasphe, 08.08.2024

(plats and datum)



(signatur)

Č. 4 - 042 - 240646 - 2024/01

SK



- ## Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete

- ### (33) Lepené spojovacie prvky a lepené rozperné spojovacie prvky na použitie v betóne

- EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany**

- ## System 1

- EAD 330499-02-0601

- ETA-24/0646**

- DIBt - Deutsches Institut für Bautechnik, Berlin**

- 2873 - IFSW - Technische Universität Darmstadt

- a) Mechanická odolnosť a stabilita (BWR 1) a bezpečnosť a dostupnosť (BWR 4)

[illegible]

VYHLÁSENIE O PARAMETROCH

č. 4 - 042 - 240646 - 2024/01

SK

EJOT®

b) Bezpečnosť v prípade požiaru (BWR 2)

základné charakteristiky	vlastnosti výrobku
Reakcia na požiar	Trieda A1
Odolnosť voči ohňu	Pozri prílohy C 24 až C 26

c) Hygiena, zdravie a životné prostredie (BWR 3)

základné charakteristiky	vlastnosti výrobku
Obsah, emisie a/alebo uvoľňovanie nebezpečných látok	Nehodnotí sa žiadna výkonnosť

d) Ochrana proti hluku (BWR 5)

základné charakteristiky	vlastnosti výrobku

e) Úspora energie a zadržiavanie tepla (BWR 6)

základné charakteristiky	vlastnosti výrobku

f) Udržateľné využívanie prírodných zdrojov (BWR 7)

základné charakteristiky	vlastnosti výrobku

Uvedené parametre výrobku sú v zhode so súborom deklarovaných parametrov. Toto vyhlásenie o parametroch sa v súlade s nariadením (EÚ) č. 305/2011 vydáva na výhradnú zodpovednosť uvedeného výrobcu.

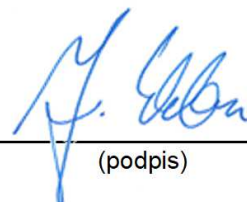
Podpísal(-a) za a v mene výrobcu:

Dr. Jens Weber

(meno)

Bad Laasphe, 08.08.2024

(miesto a dátum na výstava)



(podpis)

Št. 4 - 042 - 240646 - 2024/01

SLO



- 1.) Enotna identifikacijska oznaka tipa proizvoda:
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete
- 2.) Predvidena uporaba:
(33) Lepljeni pritrdilni elementi in lepljeni raztezni elementi za uporabo v betonu
- 3.) Proizvajalec:
EJOT SE & Co. KG, Market Unit Construction, In der Stockwiese 35, 57334 Bad Laasphe - Germany
- 4.) Sistemi ocenjevanja in preverjanja nespremenljivosti lastnosti:
Sistem 1
- 5.) Evropski ocenjevalni dokument: **EAD 330499-02-0601**
Evropska tehnična ocena: **ETA-24/0646**
Organ za tehnično ocenjevanje: **DIBt - Deutsches Institut für Bautechnik, Berlin**
Priglašeni organi: **2873 - IFSW - Technische Universität Darmstadt**

- 6.) Navedene lastnosti:
- a) Mehanska odpornost in stabilnost (BWR 1) ter varnost in dostopnost (BWR 4)

[illegible]

IZJAVA O LASTNOSTIH

Št. 4 - 042 - 240646 - 2024/01

SLO

EJOT®

b) Varnost v primeru požara (BWR 2)

Glavne značilnosti	Zmogljivost proizvoda
Odziv na ogenj	Razred A1
Odpornost na ogenj	Glej Prilogo C 24 do C 26

c) Higiena, zdravje in okolje (BWR 3) \ t

Glavne značilnosti	Zmogljivost proizvoda
Vsebnost, emisije in/ali sproščanje nevarnih snovi	Uspešnost ni bila ocenjena

d) Zaščita pred hrupom (BWR 5) \ t

Glavne značilnosti	Zmogljivost proizvoda

e) Varčevanje z energijo in ohranjanje toplote (BWR 6) \ t

Glavne značilnosti	Zmogljivost proizvoda

f) Trajnostna raba naravnih virov (BWR 7) \ t

Glavne značilnosti	Zmogljivost proizvoda

Lastnosti proizvoda, navedenega zgoraj, so v skladu z navedenimi lastnostmi. Za izdajo te izjave o lastnostih je v skladu z Uredbo (EU) št. 305/2011 odgovoren izključno proizvajalec, naveden zgoraj.

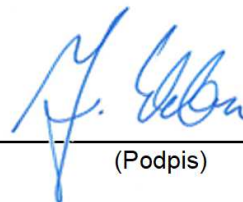
Podpisal za in v imenu proizvajalca:

Dr. Jens Weber

(Ime)

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(Kraj in datum izstavitve)



(Podpis)

Table B1: Installation parameters for threaded rod

Threaded rod			M8	M10	M12	M16	M20	M24	M27	M30
Diameter of element	$d = d_{nom}$	[mm]	8	10	12	16	20	24	27	30
Nominal drill hole diameter	d_0	[mm]	10	12	14	18	22	28	30	35
Effective embedment depth	$h_{ef,min}$	[mm]	60	60	70	80	90	96	108	120
	$h_{ef,max}$	[mm]	160	200	240	320	400	480	540	600
Diameter of clearance hole in the fixture ^{b)}	Prepositioned installation $d_f \leq$	[mm]	9	12	14	18	22	26	30	33
	Push through installation d_f	[mm]	12	14	16	20	24	30	33	40
Maximum installation torque	$\max T_{inst}$	[Nm]	10	20	40 ^{a)}	60	100	170	250	300
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30 \text{ mm}$ $\geq 100 \text{ mm}$			$h_{ef} + 2d_0$				
Minimum spacing	s_{min}	[mm]	40	50	60	75	95	115	125	140
Minimum edge distance	c_{min}	[mm]	35	40	45	50	60	65	75	80

1) For application under seismic loading the diameter of clearance hole in the fixture shall be at maximum $d_1 + 1\text{ mm}$ or alternatively the annular gap between fixture and threaded rod shall be filled force-fit with mortar.

2) Maximum installation torque for M12 with steel Grade 4.6 is 35 Nm

Table B2: Installation parameters for reinforcing bar

Reinforcing bar			$\varnothing 8^{1)}$	$\varnothing 10^{1)}$	$\varnothing 12^{1)}$	$\varnothing 14$	$\varnothing 16$	$\varnothing 20$	$\varnothing 24^{1)}$	$\varnothing 25^{1)}$	$\varnothing 28$	$\varnothing 32$
Diameter of element	$d = d_{nom}$	[mm]	8	10	12	14	16	20	24	25	28	32
Nominal drill hole diameter	d_0	[mm]	10	12	12	14	14	18	20	25	30	32
Effective embedment depth	$h_{ef,min}$	[mm]	60	60	70	75	80	90	96	100	112	128
	$h_{ef,max}$	[mm]	160	200	240	280	320	400	480	500	560	640
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$				$h_{ef} + 2d_0$					
Minimum spacing	s_{min}	[mm]	40	50	60	70	75	95	120	120	130	150
Minimum edge distance	c_{min}	[mm]	35	40	45	50	50	60	70	70	75	85

1) both nominal drill hole diameter can be used

Table B3: Installation parameters for Internal threaded anchor rod

Internal threaded anchor rod			IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20
Internal diameter of anchor rod	d_2	[mm]	6	8	10	12	16	20
Outer diameter of anchor rod ¹⁾	$d = d_{nom}$	[mm]	10	12	16	20	24	30
Nominal drill hole diameter	d_0	[mm]	12	14	18	22	28	35
Effective embedment depth	$h_{ef,min}$	[mm]	60	70	80	90	96	120
	$h_{ef,max}$	[mm]	200	240	320	400	480	600
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	7	9	12	14	18	22
Maximum installation torque	$\max T_{inst}$	[Nm]	10	10	20	40	60	100
Thread engagement length min/max	l_{IG}	[mm]	8/20	8/20	10/25	12/30	16/32	20/40
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30 \text{ mm}$ $\geq 100 \text{ mm}$		$h_{ef} + 2d_0$			
Minimum spacing	s_{min}	[mm]	50	60	75	95	115	140
Minimum edge distance	c_{min}	[mm]	40	45	50	60	65	80

1) With metric threads

Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete	Annex B 3
Intended use Installation parameters	

Table C1: Characteristic values for steel tension resistance and steel shear resistance of threaded rods

Threaded rod			M8	M10	M12	M16	M20	M24	M27	M30	
Cross section area	A _s	[mm ²]	36,6	58	84,3	157	245	353	459	561	
Characteristic tension resistance, Steel failure ¹⁾											
Steel, Property class 4.6 and 4.8	N _{Rk,s}	[kN]	15 (13)	23 (21)	34	63	98	141	184	224	
Steel, Property class 5.6 and 5.8	N _{Rk,s}	[kN]	18 (17)	29 (27)	42	78	122	176	230	280	
Steel, Property class 8.8	N _{Rk,s}	[kN]	29 (27)	46 (43)	67	125	196	282	368	449	
Stainless steel A2, A4 and HCR, class 50	N _{Rk,s}	[kN]	18	29	42	79	123	177	230	281	
Stainless steel A2, A4 and HCR, class 70	N _{Rk,s}	[kN]	26	41	59	110	171	247	3 ³⁾	3 ³⁾	
Stainless steel A4 and HCR, class 80	N _{Rk,s}	[kN]	29	46	67	126	196	282	3 ³⁾	3 ³⁾	
Characteristic tension resistance, Partial factor ²⁾											
Steel, Property class 4.6 and 5.6	γ _{Ms,N}	[-]	2,0								
Steel, Property class 4.8, 5.8 and 8.8	γ _{Ms,N}	[-]	1,5								
Stainless steel A2, A4 and HCR, class 50	γ _{Ms,N}	[-]	2,86								
Stainless steel A2, A4 and HCR, class 70	γ _{Ms,N}	[-]	1,87								
Stainless steel A4 and HCR, class 80	γ _{Ms,N}	[-]	1,6								
Characteristic shear resistance, Steel failure ¹⁾											
Without lever arm	Steel, Property class 4.6 and 4.8	V ⁰ _{Rk,s}	[kN]	9 (8)	14 (13)	20	38	59	85	110	135
	Steel, Property class 5.6 and 5.8	V ⁰ _{Rk,s}	[kN]	11 (10)	17 (16)	25	47	74	106	138	168
	Steel, Property class 8.8	V ⁰ _{Rk,s}	[kN]	15 (13)	23 (21)	34	63	98	141	184	224
	Stainless steel A2, A4 and HCR, class 50	V ⁰ _{Rk,s}	[kN]	9	15	21	39	61	88	115	140
	Stainless steel A2, A4 and HCR, class 70	V ⁰ _{Rk,s}	[kN]	13	20	30	55	86	124	3 ³⁾	3 ³⁾
	Stainless steel A4 and HCR, class 80	V ⁰ _{Rk,s}	[kN]	15	23	34	63	98	141	3 ³⁾	3 ³⁾
With lever arm	Steel, Property class 4.6 and 4.8	M ⁰ _{Rk,s}	[Nm]	15 (13)	30 (27)	52	133	260	449	666	900
	Steel, Property class 5.6 and 5.8	M ⁰ _{Rk,s}	[Nm]	19 (16)	37 (33)	65	166	324	560	833	1123
	Steel, Property class 8.8	M ⁰ _{Rk,s}	[Nm]	30 (26)	60 (53)	105	266	519	896	1333	1797
	Stainless steel A2, A4 and HCR, class 50	M ⁰ _{Rk,s}	[Nm]	19	37	66	167	325	561	832	1125
	Stainless steel A2, A4 and HCR, class 70	M ⁰ _{Rk,s}	[Nm]	26	52	92	232	454	784	3 ³⁾	3 ³⁾
	Stainless steel A4 and HCR, class 80	M ⁰ _{Rk,s}	[Nm]	30	59	105	266	519	896	3 ³⁾	3 ³⁾
Characteristic shear resistance, Partial factor ²⁾											
Steel, Property class 4.6 and 5.6	γ _{Ms,V}	[-]	1,67								
Steel, Property class 4.8, 5.8 and 8.8	γ _{Ms,V}	[-]	1,25								
Stainless steel A2, A4 and HCR, class 50	γ _{Ms,V}	[-]	2,38								
Stainless steel A2, A4 and HCR, class 70	γ _{Ms,V}	[-]	1,56								
Stainless steel A4 and HCR, class 80	γ _{Ms,V}	[-]	1,33								
1) Values are only valid for the given stress area A _s . Values in brackets are valid for undersized threaded rods with smaller stress area A _s for hot-dip galvanised threaded rods according to EN ISO 10684:2004+AC:2009.											
2) in absence of national regulation											
3) Fastener type not part of the ETA											
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete								Annex C 1			
Performances											
Characteristic values for steel tension resistance and steel shear resistance of threaded rods											

Table C2: Characteristic values of tension loads under static and quasi-static action for a working life of 50 and 100 years

[illegible]

Table C3: Characteristic values of tension loads under static and quasi-static action for a working life of 50 years

Threaded rod					M8	M10	M12	M16	M20	M24	M27	M30
Steel failure												
Characteristic tension resistance			$N_{Rk,s}$	[kN]	$A_s \cdot f_{uk}$ (or see Table C1)							
Partial factor			$\gamma_{Ms,N}$	[-]	see Table C1							
Combined pull-out and concrete failure												
Characteristic bond resistance in uncracked concrete C20/25												
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,ucr}$	[N/mm²]	17	17	16	15	14	13	13	13
	II: 50°C/80°C		$\tau_{Rk,ucr}$	[N/mm²]	17	17	16	15	14	13	13	13
	III: 72°C/120°C		$\tau_{Rk,ucr}$	[N/mm²]	15	14	14	13	12	12	11	11
	IV: 100°C/160°C		$\tau_{Rk,ucr}$	[N/mm²]	12	11	11	10	9,5	9,0	9,0	9,0
Characteristic bond resistance in cracked concrete C20/25												
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,cr}$	[N/mm²]	7,0	7,5	8,0	9,0	8,5	7,0	7,0	7,0
	II: 50°C/80°C		$\tau_{Rk,cr}$	[N/mm²]	7,0	7,5	8,0	9,0	8,5	7,0	7,0	7,0
	III: 72°C/120°C		$\tau_{Rk,cr}$	[N/mm²]	6,0	6,5	7,0	7,5	7,0	6,0	6,0	6,0
	IV: 100°C/160°C		$\tau_{Rk,cr}$	[N/mm²]	5,5	5,5	6,0	6,5	6,0	5,5	5,5	5,5
Reduktion factor ψ_{sus}^0 in cracked and uncracked concrete C20/25												
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	ψ_{sus}^0	[-]	0,90							
	0,87											
	0,75											
	0,66											
Increasing factors for concrete			ψ_c	[-]	$(f_{ck} / 20)^{0,1}$							
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,ucr} =$		$\psi_c \cdot \tau_{Rk,ucr,(C20/25)}$							
			$\tau_{Rk,cr} =$		$\psi_c \cdot \tau_{Rk,cr,(C20/25)}$							
Concrete cone failure												
Relevant parameter					see Table C2							
Splitting												
Relevant parameter					see Table C2							
Installation factor												
for dry and wet concrete	MAC	γ_{inst}	[-]	1,2					No Performance assessed			
	CAC			1,0								
	HDB			1,2								
for flooded bore hole	CAC			1,4								
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete									Annex C 3			
Performances Characteristic values of tension loads under static and quasi-static action for a working life of 50 years (threaded rod)												

Table C4: Characteristic values of tension loads under static and quasi-static action for a working life of 100 years

Threaded rod				M8	M10	M12	M16	M20	M24	M27	M30	
Steel failure												
Characteristic tension resistance		$N_{Rk,s}$	[kN]	$A_s \cdot f_{yk}$ (or see Table C1)								
Partial factor		$\gamma_{Ms,N}$	[-]	see Table C1								
Combined pull-out and concrete failure												
Characteristic bond resistance in uncracked concrete C20/25												
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,ucr,100}$	[N/mm ²]	17	17	16	15	14	13	13	13
	II: 50°C/80°C		$\tau_{Rk,ucr,100}$	[N/mm ²]	17	17	16	15	14	13	13	13
Characteristic bond resistance in cracked concrete C20/25												
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,cr,100}$	[N/mm ²]	5,5	6,0	6,5	6,5	6,5	6,5	6,5	6,5
	II: 50°C/80°C		$\tau_{Rk,cr,100}$	[N/mm ²]	5,5	6,0	6,5	6,5	6,5	6,5	6,5	6,5
Reduktion factor $\psi_{sus,100}^0$ in cracked and uncracked concrete C20/25												
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\psi_{sus,100}^0$	[-]	0,90							
	II: 50°C/80°C				0,87							
Increasing factors for concrete			ψ_c	[-]	$(f_{ck} / 20)^{0,1}$							
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,ucr,100} =$		$\psi_c \cdot \tau_{Rk,ucr,100,(C20/25)}$							
			$\tau_{Rk,cr,100} =$		$\psi_c \cdot \tau_{Rk,cr,100,(C20/25)}$							
Concrete cone failure												
Relevant parameter				see Table C2								
Splitting												
Relevant parameter				see Table C2								
Installation factor												
for dry and wet concrete	MAC	γ_{inst}	[-]	1,2					No Performance assessed			
	CAC			1,0								
	HDB			1,2								
for flooded bore hole	CAC			1,4								
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete										Annex C 4		
Performances												
Characteristic values of tension loads under static and quasi-static action for a working life of 100 years (threaded rod)												

Table C5: Characteristic values of shear loads under static and quasi-static action for a working life of 50 and 100 years

Threaded rod			M8	M10	M12	M16	M20	M24	M27	M30
Steel failure without lever arm										
Characteristic shear resistance Steel, strength class 4.6, 4.8 and 5.6, 5.8	$V_{Rk,s}^0$	[kN]	$0,6 \cdot A_s \cdot f_{uk}$ (or see Table C1)							
Characteristic shear resistance Steel, strength class 8.8 Stainless Steel A2, A4 and HCR, all strength classes	$V_{Rk,s}^0$	[kN]	$0,5 \cdot A_s \cdot f_{uk}$ (or see Table C1)							
Partial factor	$\gamma_{Ms,V}$	[-]	see Table C1							
Ductility factor	k_7	[-]	1,0							
Steel failure with lever arm										
Characteristic bending moment	$M_{Rk,s}^0$	[Nm]	$1,2 \cdot W_{el} \cdot f_{uk}$ (or see Table C1)							
Elastic section modulus	W_{el}	[mm ³]	31	62	109	277	541	935	1387	1874
Partial factor	$\gamma_{Ms,V}$	[-]	see Table C1							
Concrete pry-out failure										
Factor	k_8	[-]	2,0							
Installation factor	γ_{inst}	[-]	1,0							
Concrete edge failure										
Effective length of fastener	l_f	[mm]	$\min(h_{ef}; 12 \cdot d_{nom})$						$\min(h_{ef}; 300\text{mm})$	
Outside diameter of fastener	d_{nom}	[mm]	8	10	12	16	20	24	27	30
Installation factor	γ_{inst}	[-]	1,0							
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete								Annex C 5		
Performances Characteristic values of shear loads under static and quasi-static action for a working life of 50 and 100 years (threaded rod)										

Table C6: Characteristic values of tension loads under static and quasi-static action for a working life of 50 years

Internal threaded anchor rods				IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20	
Steel failure ¹⁾										
Characteristic tension resistance,	5.8	$N_{Rk,s}$	[kN]	10	17	29	42	76	123	
Steel, strength class	8.8	$N_{Rk,s}$	[kN]	16	27	46	67	121	196	
Partial factor, strength class 5.8 and 8.8		$\gamma_{Ms,N}$	[-]	1,5						
Characteristic tension resistance, Stainless Steel A4 and HCR, Strength class 70 ²⁾		$N_{Rk,s}$	[kN]	14	26	41	59	110	124	
Partial factor		$\gamma_{Ms,N}$	[-]	1,87						
Combined pull-out and concrete cone failure										
Characteristic bond resistance in uncracked concrete C20/25										
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,ucr}$	[N/mm ²]	17	16	15	14	13	13
	II: 50°C/80°C		$\tau_{Rk,ucr}$	[N/mm ²]	17	16	15	14	13	13
	III: 72°C/120°C		$\tau_{Rk,ucr}$	[N/mm ²]	14	14	13	12	12	11
	IV: 100°C/160°C		$\tau_{Rk,ucr}$	[N/mm ²]	11	11	10	9,5	9,0	9,0
Characteristic bond resistance in cracked concrete C20/25										
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,cr}$	[N/mm ²]	7,5	8,0	9,0	8,5	7,0	7,0
	II: 50°C/80°C		$\tau_{Rk,cr}$	[N/mm ²]	7,5	8,0	9,0	8,5	7,0	7,0
	III: 72°C/120°C		$\tau_{Rk,cr}$	[N/mm ²]	6,5	7,0	7,5	7,0	6,0	6,0
	IV: 100°C/160°C		$\tau_{Rk,cr}$	[N/mm ²]	5,5	6,0	6,5	6,0	5,5	5,5
Reduction factor ψ_{sus} in cracked and uncracked concrete C20/25										
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	ψ_{sus}	[-]	0,90					
	0,87									
	0,75									
	0,66									
Increasing factors for concrete			ψ_c	[-]	$(f_{ck} / 20)^{0,1}$					
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,ucr} =$	$\psi_c \cdot \tau_{Rk,ucr}(C20/25)$						
			$\tau_{Rk,cr} =$	$\psi_c \cdot \tau_{Rk,cr}(C20/25)$						
Concrete cone failure										
Relevant parameter				see Table C2						
Splitting failure										
Relevant parameter				see Table C2						
Installation factor										
for dry and wet concrete	MAC	γ_{inst}	[-]	1,2			No Performance assessed			
	CAC			1,0						
	HDB			1,2						
for flooded bore hole	CAC			1,4						
1) Fastenings (incl. nut and washer) must comply with the appropriate material and property class of the internal threaded rod. The characteristic tension resistance for steel failure is valid for the internal threaded rod and the fastening element. 2) For IG-M20 strength class 50 is valid										
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete								Annex C 6		
Performances										
Characteristic values of tension loads under static and quasi-static action for a working life of 50 years (internal threaded anchor rod)										

Table C7: Characteristic values of tension loads under static and quasi-static action for a working life of 100 years

Internal threaded anchor rods				IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20	
Steel failure ¹⁾										
Characteristic tension resistance,	5.8	$N_{Rk,s}$	[kN]	10	17	29	42	76	123	
Steel, strength class	8.8	$N_{Rk,s}$	[kN]	16	27	46	67	121	196	
Partial factor, strength class 5.8 and 8.8		$\gamma_{Ms,N}$	[-]	1,5						
Characteristic tension resistance, Stainless Steel A4 and HCR, Strength class 70 ²⁾		$N_{Rk,s}$	[kN]	14	26	41	59	110	124	
Partial factor		$\gamma_{Ms,N}$	[-]	1,87						
Combined pull-out and concrete cone failure										
Characteristic bond resistance in uncracked concrete C20/25										
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,ucr,100}$	[N/mm ²]	17	16	15	14	13	13
	II: 50°C/80°C		$\tau_{Rk,ucr,100}$	[N/mm ²]	17	16	15	14	13	13
Characteristic bond resistance in cracked concrete C20/25										
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,cr,100}$	[N/mm ²]	6,0	6,5	6,5	6,5	6,5	6,5
	II: 50°C/80°C		$\tau_{Rk,cr,100}$	[N/mm ²]	6,0	6,5	6,5	6,5	6,5	6,5
Reduktion factor $\psi_{sus,100}^0$ in cracked and uncracked concrete C20/25										
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\psi_{sus,100}^0$	[-]	0,90					
	II: 50°C/80°C				0,87					
Increasing factors for concrete			ψ_c	[-]	$(f_{ck} / 20)^{0,1}$					
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,ucr,100} =$	$\psi_c \cdot \tau_{Rk,ucr,100,(C20/25)}$						
			$\tau_{Rk,cr,100} =$	$\psi_c \cdot \tau_{Rk,cr,100,(C20/25)}$						
Concrete cone failure										
Relevant parameter				see Table C2						
Splitting failure										
Relevant parameter				see Table C2						
Installation factor										
for dry and wet concrete	MAC	γ_{inst}	[-]	1,2		No Performance assessed				
	CAC			1,0						
	HDB			1,2						
for flooded bore hole	CAC			1,4						
¹⁾ Fastenings (incl. nut and washer) must comply with the appropriate material and property class of the internal threaded rod. The characteristic tension resistance for steel failure is valid for the internal threaded rod and the fastening element. ²⁾ For IG-M20 strength class 50 is valid										
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete								Annex C 7		
Performances										
Characteristic values of tension loads under static and quasi-static action for a working life of 100 years (internal threaded anchor rod)										

Table C8: Characteristic values of shear loads under static and quasi-static action for a working life of 50 and 100 years

Internal threaded anchor rods				IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20
Steel failure without lever arm¹⁾									
Characteristic shear resistance, Steel, strength class	5.8	$V_{Rk,s}^0$	[kN]	5	9	15	21	38	61
	8.8	$V_{Rk,s}^0$	[kN]	8	14	23	34	60	98
Partial factor, strength class 5.8 and 8.8		$\gamma_{Ms,V}$	[-]	1,25					
Characteristic shear resistance, Stainless Steel A4 and HCR, Strength class 70 ²⁾		$V_{Rk,s}^0$	[kN]	7	13	20	30	55	40
Partial factor		$\gamma_{Ms,V}$	[-]	1,56					2,38
Ductility factor		k_7	[-]	1,0					
Steel failure with lever arm¹⁾									
Characteristic bending moment, Steel, strength class	5.8	$M_{Rk,s}^0$	[Nm]	8	19	37	66	167	325
	8.8	$M_{Rk,s}^0$	[Nm]	12	30	60	105	267	519
Partial factor, strength class 5.8 and 8.8		$\gamma_{Ms,V}$	[-]	1,25					
Characteristic bending moment, Stainless Steel A4 and HCR, Strength class 70 ²⁾		$M_{Rk,s}^0$	[Nm]	11	26	52	92	233	456
Partial factor		$\gamma_{Ms,V}$	[-]	1,56					2,38
Concrete pry-out failure									
Factor		k_8	[-]	2,0					
Installation factor		γ_{inst}	[-]	1,0					
Concrete edge failure									
Effective length of fastener		l_f	[mm]	$\min(h_{ef}; 12 \cdot d_{nom})$					$\min(h_{ef}; 300\text{mm})$
Outside diameter of fastener		d_{nom}	[mm]	10	12	16	20	24	30
Installation factor		γ_{inst}	[-]	1,0					
¹⁾ Fastenings (incl. nut and washer) must comply with the appropriate material and property class of the internal threaded rod. The characteristic tension resistance for steel failure is valid for the internal threaded rod and the fastening element. ²⁾ For IG-M20 strength class 50 is valid									
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete								Annex C 8	
Performances Characteristic values of shear loads under static and quasi-static action for a working life of 50 and 100 years (internal threaded anchor rod)									

Table C9: Characteristic values of tension loads under static and quasi-static action for a working life of 50 years

Reinforcing bar				Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24	Ø 25	Ø 28	Ø 32
Steel failure													
Characteristic tension resistance		$R_{k,s}$	[kN]	$A_s \cdot f_{uk}^{1)}$									
Cross section area		A_s	[mm²]	50	79	113	154	201	314	452	491	616	804
Partial factor		$\gamma_{Ms,N}$	[-]	1,4 ²⁾									
Combined pull-out and concrete failure													
Characteristic bond resistance in uncracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,ucr}$	[N/mm²]	14	14	14	14	13	13	13	13	13
	II: 50°C/80°C		$\tau_{Rk,ucr}$	[N/mm²]	14	14	14	14	13	13	13	13	13
	III: 72°C/120°C		$\tau_{Rk,ucr}$	[N/mm²]	13	12	12	12	12	11	11	11	11
	IV: 100°C/160°C		$\tau_{Rk,ucr}$	[N/mm²]	9,5	9,5	9,5	9,0	9,0	9,0	9,0	8,5	8,5
Characteristic bond resistance in cracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,cr}$	[N/mm²]	5,5	5,5	6,0	6,5	6,5	6,5	6,5	7,0	7,0
	II: 50°C/80°C		$\tau_{Rk,cr}$	[N/mm²]	5,5	5,5	6,0	6,5	6,5	6,5	6,5	7,0	7,0
	III: 72°C/120°C		$\tau_{Rk,cr}$	[N/mm²]	4,5	5,0	5,0	5,5	5,5	5,5	5,5	6,0	6,0
	IV: 100°C/160°C		$\tau_{Rk,cr}$	[N/mm²]	4,0	4,5	4,5	5,0	5,0	5,0	5,0	5,0	5,0
Reduction factor ψ_{sus}^0 in cracked and uncracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	ψ_{sus}^0	[-]	0,90								
	0,87												
	0,75												
	0,66												
Increasing factors for concrete			ψ_c	[-]	$(f_{ck} / 20)^{0,1}$								
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,ucr} =$		$\psi_c \cdot \tau_{Rk,ucr,(C20/25)}$								
			$\tau_{Rk,cr} =$		$\psi_c \cdot \tau_{Rk,cr,(C20/25)}$								
Concrete cone failure													
Relevant parameter				see Table C2									
Splitting													
Relevant parameter				see Table C2									
Installation factor													
for dry and wet concrete	MAC	γ_{inst}	[-]	1,2					No Performance assessed				
	CAC			1,0									
	HDB			1,2									
for flooded bore hole	CAC			1,4									
1) f_{uk} shall be taken from the specifications of reinforcing bars													
2) in absence of national regulation													
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete													
Performances													
Characteristic values of tension loads under static and quasi-static action for a working life of 50 years (rebar)													
Annex C 9													

Table C10: Characteristic values of tension loads under static and quasi-static action for a working life of 100 years

Reinforcing bar				Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24	Ø 25	Ø 28	Ø 32
Steel failure													
Characteristic tension resistance		$N_{Rk,s}$	[kN]	$A_s \cdot f_{yk}^{1)}$									
Cross section area		A_s	[mm ²]	50	79	113	154	201	314	452	491	616	804
Partial factor		$\gamma_{Ms,N}$	[-]	1,4 ²⁾									
Combined pull-out and concrete failure													
Characteristic bond resistance in uncracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,ucr,100}$	[N/mm ²]	14	14	14	14	13	13	13	13	13
	II: 50°C/80°C		$\tau_{Rk,ucr,100}$	[N/mm ²]	14	14	14	14	13	13	13	13	13
Characteristic bond resistance in cracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,cr,100}$	[N/mm ²]	4,5	4,5	4,5	4,5	4,5	4,0	4,0	4,0	4,0
	II: 50°C/80°C		$\tau_{Rk,cr,100}$	[N/mm ²]	4,5	4,5	4,5	4,5	4,5	4,0	4,0	4,0	4,0
Reduktion factor $\psi_{sus,100}^0$ in cracked and uncracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\psi_{sus,100}^0$	[-]	0,90								
	II: 50°C/80°C				0,87								
Increasing factors for concrete			ψ_c	[-]	$(f_{ck} / 20)^{0,1}$								
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,ucr,100} =$		$\psi_c \cdot \tau_{Rk,ucr,100,(C20/25)}$								
			$\tau_{Rk,cr,100} =$		$\psi_c \cdot \tau_{Rk,cr,100,(C20/25)}$								
Concrete cone failure													
Relevant parameter				see Table C2									
Splitting													
Relevant parameter				see Table C2									
Installation factor													
for dry and wet concrete	MAC	γ_{inst}	[-]	1,2					No Performance assessed				
	CAC			1,0									
	HDB			1,2									
for flooded bore hole	CAC			1,4									
¹⁾ f_{yk} shall be taken from the specifications of reinforcing bars ²⁾ in absence of national regulation													
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete										Annex C 10			
Performances Characteristic values of tension loads under static and quasi-static action for a working life of 100 years (rebar)													

Table C11: Characteristic values of shear loads under static and quasi-static action for a working life of 50 and 100 years

[illegible]

Table C12: Displacements under tension load¹⁾

Threaded rod			M8	M10	M12	M16	M20	M24	M27	M30
Uncracked concrete C20/25 under static and quasi-static action for a working life of 50 and 100 years										
Temperature range I: 24°C/40°C II: 50°C/80°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,031	0,032	0,034	0,037	0,039	0,042	0,044	0,046
	δ_{N100} -factor	[mm/(N/mm ²)]	0,040	0,042	0,044	0,047	0,051	0,054	0,057	0,060
Temperature range III: 72°C/120°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,032	0,034	0,035	0,038	0,041	0,044	0,046	0,048
	δ_{N100} -factor	[mm/(N/mm ²)]	0,042	0,044	0,045	0,049	0,053	0,056	0,059	0,062
Temperature range IV: 100°C/160°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,121	0,126	0,131	0,142	0,153	0,163	0,171	0,179
	δ_{N100} -factor	[mm/(N/mm ²)]	0,124	0,129	0,135	0,146	0,157	0,168	0,176	0,184
Cracked concrete under static and quasi-static action for a working life of 50 and 100 years										
Temperature range I: 24°C/40°C II: 50°C/80°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,081	0,083	0,085	0,090	0,095	0,099	0,103	0,106
	δ_{N100} -factor	[mm/(N/mm ²)]	0,104	0,107	0,110	0,116	0,122	0,128	0,133	0,137
Temperature range III: 72°C/120°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,084	0,086	0,088	0,093	0,098	0,103	0,107	0,110
	δ_{N100} -factor	[mm/(N/mm ²)]	0,108	0,111	0,114	0,121	0,127	0,133	0,138	0,143
Temperature range IV: 100°C/160°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,312	0,321	0,330	0,349	0,367	0,385	0,399	0,412
	δ_{N100} -factor	[mm/(N/mm ²)]	0,321	0,330	0,340	0,358	0,377	0,396	0,410	0,424
¹⁾ Calculation of the displacement $\delta_{N0} = \delta_{N0}\text{-factor} \cdot \tau$; τ : action bond stress for tension $\delta_{N100} = \delta_{N100}\text{-factor} \cdot \tau$;										

Table C13: Displacements under shear load¹⁾

Threaded rod			M8	M10	M12	M16	M20	M24	M27	M30
Uncracked and cracked concrete under static and quasi-static action for a working life of 50 and 100 years										
All temperature ranges	δ_{V0} -factor	[mm/kN]	0,06	0,06	0,05	0,04	0,04	0,03	0,03	0,03
	δ_{V100} -factor	[mm/kN]	0,09	0,08	0,08	0,06	0,06	0,05	0,05	0,05
¹⁾ Calculation of the displacement $\delta_{V0} = \delta_{V0}\text{-factor} \cdot V$; V: action shear load $\delta_{V100} = \delta_{V100}\text{-factor} \cdot V$;										

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PerformancesDisplacements under static and quasi-static action
for a working life of 50 and 100 years (threaded rod)**Annex C 12**

Table C14: Displacements under tension load¹⁾

Internal threaded anchor rods			IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20
Uncracked concrete under static and quasi-static action for a working life of 50 and 100 years								
Temperature range I: 24°C/40°C II: 50°C/80°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,032	0,034	0,037	0,039	0,042	0,046
	$\delta_{N\infty}$ -factor	[mm/(N/mm ²)]	0,042	0,044	0,047	0,051	0,054	0,060
Temperature range III: 72°C/120°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,034	0,035	0,038	0,041	0,044	0,048
	$\delta_{N\infty}$ -factor	[mm/(N/mm ²)]	0,044	0,045	0,049	0,053	0,056	0,062
Temperature range IV: 100°C/160°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,126	0,131	0,142	0,153	0,163	0,179
	$\delta_{N\infty}$ -factor	[mm/(N/mm ²)]	0,129	0,135	0,146	0,157	0,168	0,184
Cracked concrete under static and quasi-static action for a working life of 50 and 100 years								
Temperature range I: 24°C/40°C II: 50°C/80°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,083	0,085	0,090	0,095	0,099	0,106
	$\delta_{N\infty}$ -factor	[mm/(N/mm ²)]	0,170	0,110	0,116	0,122	0,128	0,137
Temperature range III: 72°C/120°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,086	0,088	0,093	0,098	0,103	0,110
	$\delta_{N\infty}$ -factor	[mm/(N/mm ²)]	0,111	0,114	0,121	0,127	0,133	0,143
Temperature range IV: 100°C/160°C	δ_{N0} -factor	[mm/(N/mm ²)]	0,321	0,330	0,349	0,367	0,385	0,412
	$\delta_{N\infty}$ -factor	[mm/(N/mm ²)]	0,330	0,340	0,358	0,377	0,396	0,424

¹⁾ Calculation of the displacement

$$\delta_{N0} = \delta_{N0}\text{-factor} \cdot \tau; \quad \tau: \text{action bond stress for tension}$$

$$\delta_{N\infty} = \delta_{N\infty}\text{-factor} \cdot \tau;$$

Table C15: Displacements under shear load¹⁾

Internal threaded anchor rods			IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20
Uncracked and cracked concrete under static and quasi-static action for a working life of 50 and 100 years								
All temperature ranges	δ_{V0} -factor	[mm/kN]	0,07	0,06	0,06	0,05	0,04	0,04
	$\delta_{V\infty}$ -factor	[mm/kN]	0,10	0,09	0,08	0,08	0,06	0,06

¹⁾ Calculation of the displacement

$$\delta_{V0} = \delta_{V0}\text{-factor} \cdot V; \quad V: \text{action shear load}$$

$$\delta_{V\infty} = \delta_{V\infty}\text{-factor} \cdot V;$$

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Performances

Displacements under static and quasi-static action for a working life of 50 and 100 years (internal threaded anchor rod)

Annex C 13

Table C18: Characteristic values of tension loads under seismic action (performance category C1) for a working life of 50 years

[illegible]

Table C19: Characteristic values of tension loads under seismic action (performance category C1) for a working life of 100 years

[illegible]

Table C20: Characteristic values of shear loads under seismic action (performance category C1) for a working life of 50 and 100 years

Threaded rod			M8	M10	M12	M16	M20	M24	M27	M30
Steel failure										
Characteristic shear resistance (Seismic C1)	$V_{Rk,s,eq,C1}$	[kN]	$0,70 \cdot V_{Rk,s}^0$							
Partial factor	$\gamma_{Ms,V}$	[-]	see Table C1							
Factor for annular gap	α_{gap}	[-]	$0,5 (1,0)^{(1)}$							

1) Value in brackets valid for filled annular gap between fastener and clearance hole in the fixture. Use of special filling washer Annex A 3 is recommended

Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete

Performances

Characteristic values of shear loads under seismic action (performance category C1)
(threaded rod)

Annex C 17

Table C21: Characteristic values of tension loads under seismic action (performance category C1) for a working life of 50 years

Reinforcing bar				Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24	Ø 25	Ø 28	Ø 32	
Steel failure														
Characteristic tension resistance		$N_{Rk,s,eq,C1}$	[kN]	$1,0 \cdot A_s \cdot f_{uk}^{1)}$										
Cross section area		A_s	[mm ²]	50	79	113	154	201	314	452	491	616	804	
Partial factor		$\gamma_{Ms,N}$	[-]	1,4 ²⁾										
Combined pull-out and concrete failure														
Characteristic bond resistance in cracked and uncracked concrete C20/25														
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,eq,C1}$	[N/mm ²]	5,5	5,5	6,0	6,5	6,5	6,5	6,5	7,0	7,0	7,0
	II: 50°C/80°C		$\tau_{Rk,eq,C1}$	[N/mm ²]	5,5	5,5	6,0	6,5	6,5	6,5	6,5	7,0	7,0	7,0
	III: 72°C/120°C		$\tau_{Rk,eq,C1}$	[N/mm ²]	4,5	5,0	5,0	5,5	5,5	5,5	5,5	6,0	6,0	6,0
	IV: 100°C/160°C		$\tau_{Rk,eq,C1}$	[N/mm ²]	4,0	4,5	4,5	5,0	5,0	5,0	5,0	5,0	5,0	5,0
Increasing factors for concrete		ψ_c	[-]	1,0										
Characteristic bond resistance depending on the concrete strength class		$\tau_{Rk,eq,C1} =$		$\psi_c \cdot \tau_{Rk,eq,C1,(C20/25)}$										
Installation factor														
for dry and wet concrete	CAC	γ_{inst}	[-]	1,0										
	HDB			1,2										
for flooded bore hole	CAC			1,4										
1) f_{uk} shall be taken from the specifications of reinforcing bars 2) in absence of national regulation														
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete											Annex C 18			
Performances Characteristic values of tension loads under seismic action (performance category C1) for a working life of 50 years (rebar)														

Table C22: Characteristic values of tension loads under seismic action (performance category C1) for a working life of 100 years

Reinforcing bar				Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24	Ø 25	Ø 28	Ø 32
Steel failure													
Characteristic tension resistance		$N_{Rk,s,eq,C1}$	[kN]	$1,0 \cdot A_s \cdot f_{yk}^{1)}$									
Cross section area		A_s	[mm²]	50	79	113	154	201	314	452	491	616	804
Partial factor		$\gamma_{Ms,N}$	[-]	$1,4^{2)}$									
Combined pull-out and concrete failure													
Characteristic bond resistance in cracked and uncracked concrete C20/25													
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,eq,C1}$	[N/mm²]	4,5	4,5	4,5	4,5	4,5	4,0	4,0	4,0	4,0
	II: 50°C/80°C		$\tau_{Rk,eq,C1}$	[N/mm²]	4,5	4,5	4,5	4,5	4,5	4,0	4,0	4,0	4,0
Increasing factors for concrete		ψ_c	[-]	1,0									
Characteristic bond resistance depending on the concrete strength class		$\tau_{Rk,eq,C1} =$		$\psi_c \cdot \tau_{Rk,eq,C1,(C20/25)}$									
Installation factor													
for dry and wet concrete	CAC	γ_{inst}	[-]	1,0									
	HDB			1,2									
for flooded bore hole	CAC			1,4									
1) f_{yk} shall be taken from the specifications of reinforcing bars													
2) in absence of national regulation													
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete											Annex C 19		
Performances Characteristic values of tension loads under seismic action (performance category C1) for a working life of 100 years (rebar)													

Table C23: Characteristic values of shear loads under seismic action (performance category C1) for a working life of 50 and 100 years

Reinforcing bar			Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24	Ø 25	Ø 28	Ø 32
Steel failure												
Characteristic shear resistance	$V_{Rk,s,eq}$	[kN]	$0,35 \cdot A_s \cdot f_{uk}^{1)}$									
Cross section area	A_s	[mm ²]	50	79	113	154	201	314	452	491	616	804
Partial factor	$\gamma_{Ms,V}$	[-]	1,5 ²⁾									
Factor for annular gap	α_{gap}	[-]	0,5 (1,0) ³⁾									
1) f_{uk} shall be taken from the specifications of reinforcing bars 2) in absence of national regulation 3) Value in brackets valid for filled annular gap between fastener and clearance hole in the fixture. Use of special filling washer Annex A 3 is recommended												
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete										Annex C 20		
Performances Characteristic values of shear loads under seismic action (performance category C1) for a working life of 50 and 100 years (rebar)												

Table C24: Characteristic values of tension loads under seismic action (performance category C2) for a working life of 50 years

[illegible]

Table C25: Characteristic values of tension loads under seismic action (performance category C2) for a working life of 100 years

Threaded rod			M12	M16	M20	M24		
Steel failure								
Characteristic tension resistance, Steel, strength class 8.8 Stainless Steel A4 and HCR, Strength class ≥ 70		$N_{Rk,s,eq,C2}$	[kN]	$1,0 \cdot N_{Rk,s}$				
Partial factor		$\gamma_{Ms,N}$	[-]	see Table C1				
Combined pull-out and concrete failure								
Characteristic bond resistance in cracked and uncracked concrete C20/25								
Temperature range	I: 24°C/40°C	Dry, wet concrete and flooded bore hole	$\tau_{Rk,eq,C2}$	[N/mm ²]	3,6	3,5	3,3	2,3
	II: 50°C/80°C		$\tau_{Rk,eq,C2}$	[N/mm ²]	3,6	3,5	3,3	2,3
Increasing factors for concrete			ψ_c	[-]	1,0			
Characteristic bond resistance depending on the concrete strength class			$\tau_{Rk,eq,C2} =$		$\psi_c \cdot \tau_{Rk,eq,C2,(C20/25)}$			
Installation factor								
for dry and wet concrete	CAC	γ_{inst}	[-]	1,0				
	HDB			1,2				
for flooded bore hole	CAC			1,4				

Table C26: Characteristic values of shear loads under seismic action (performance category C2) for a working life of 50 and 100 years

Threaded rod		M12	M16	M20	M24
Steel failure					
Characteristic shear resistance Steel, strength class 8.8 Stainless Steel A4 and HCR, Strength class ≥ 70	$V_{Rk,s,eq,C2}$	[kN]	$0,70 \cdot V_{Rk,s}^0$		
Partial factor	$\gamma_{Ms,V}$	[-]	see Table C1		
Factor for annular gap	α_{gap}	[-]	0,5 (1,0) ¹⁾		

1) Value in brackets valid for filled annular gap between fastener and clearance hole in the fixture. Use of special filling washer Annex A 3 is recommended

Table C27: Displacements under tension load

Threaded rod			M12	M16	M20	M24
Cracked concrete under seismic action (performance category C2) for a working life of 50 and 100 years						
All temperature ranges	$\delta_{N,eq,C2(50\%)} =$	[mm]	0,24	0,27	0,29	0,27
	$\delta_{N,eq,C2(DLS)}$					
	$\delta_{N,eq,C2(100\%)} =$	[mm]	0,55	0,51	0,50	0,58
	$\delta_{N,eq,C2(ULS)}$					

Table C28: Displacements under shear load

Threaded rod			M12	M16	M20	M24
Cracked concrete under seismic action (performance category C2) for a working life of 50 and 100 years						
All temperature ranges	$\delta_{V,eq,C2(50\%)} =$	[mm]	3,6	3,0	3,1	3,5
	$\delta_{V,eq,C2(DLS)}$					
	$\delta_{V,eq,C2(100\%)} =$	[mm]	7,0	6,6	7,0	9,3
	$\delta_{V,eq,C2(ULS)}$					

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Performances

Characteristic values of shear loads Displacements under seismic action (performance category C2) for a working life of 50 and 100 years (threaded rod)

Annex C 23

Table C29: Characteristic values of tension and shear loads under fire exposure in hammer drilled holes (HD), compressed air drilled holes (CD) and in hammer drilled holes with hollow drill bit (HDB)

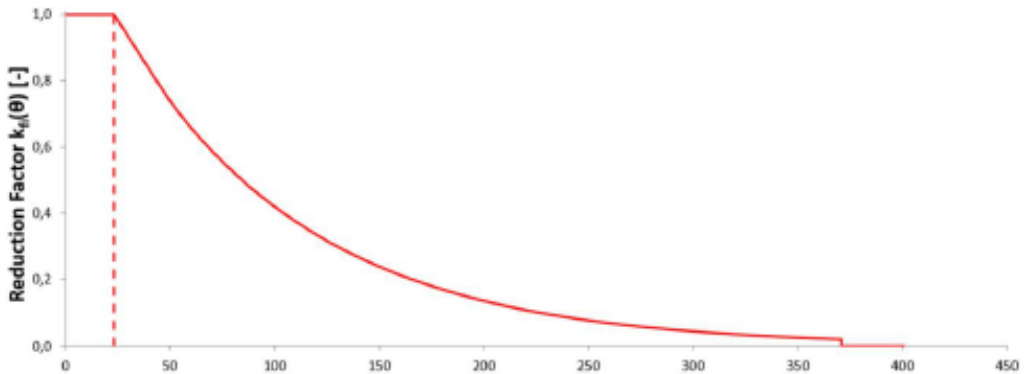
Threaded rod				M8	M10	M12	M16	M20	M24	M27	M30	
Steel failure												
Characteristic tension resistance; Steel, Stainless Steel A2, A4 and HCR, strength class 5.8 resp. 50 and higher	$N_{Rk,s,fi}$	[kN]	Fire exposure time [min]	30	1,1	1,7	3,0	5,7	8,8	12,7	16,5	20,2
				60	0,9	1,4	2,3	4,2	6,6	9,5	12,4	15,1
				90	0,7	1,0	1,6	3,0	4,7	6,7	8,7	10,7
				120	0,5	0,8	1,2	2,2	3,4	4,9	6,4	7,9
Characteristic bond resistance in cracked and uncracked concrete C20/25 up to C50/60 under fire conditions for a given temperature θ												
Temperature reduction factor	$k_{fi,p}(\theta)$	[-]	$\theta < 24^{\circ}\text{C}$	1,0								
			$24^{\circ}\text{C} \leq \theta \leq 379^{\circ}\text{C}$	$1,301 \cdot e^{-0,011 \cdot \theta} \leq 1,0$								
			$\theta > 379^{\circ}\text{C}$	0,0								
												
Characteristic bond resistance for a given temperature (θ)	$\tau_{Rk,fi}(\theta)$	[N/mm ²]		$k_{fi,p}(\theta) \cdot \tau_{Rk,cr,(C20/25)}^{1)}$								
Steel failure without lever arm												
Characteristic shear resistance; Steel, Stainless Steel A2, A4 and HCR, strength class 5.8 resp. 50 and higher	$V_{Rk,s,fi}$	[kN]	Fire exposure time [min]	30	1,1	1,7	3,0	5,7	8,8	12,7	16,5	20,2
				60	0,9	1,4	2,3	4,2	6,6	9,5	12,4	15,1
				90	0,7	1,0	1,6	3,0	4,7	6,7	8,7	10,7
				120	0,5	0,8	1,2	2,2	3,4	4,9	6,4	7,9
Steel failure with lever arm												
Characteristic bending moment; Steel, Stainless Steel A2, A4 and HCR, strength class 5.8 resp. 50 and higher	$M^0_{Rk,s,fi}$	[Nm]	Fire exposure time [min]	30	1,1	2,2	4,7	12,0	23,4	40,4	59,9	81,0
				60	0,9	1,8	3,5	9,0	17,5	30,3	44,9	60,7
				90	0,7	1,3	2,5	6,3	12,3	21,3	31,6	42,7
				120	0,5	1,0	1,8	4,7	9,1	15,7	23,3	31,5
1) $\tau_{Rk,cr,(C20/25)}$ characteristic bond resistance for cracked concrete for concrete strength class C20/25 for the relevant temperature range												
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete									Annex C 24			
Performances Characteristic values of tension and shear loads under fire exposure (threaded rod)												

Table C30: Characteristic values of tension and shear loads under fire exposure in hammer drilled holes (HD), compressed air drilled holes (CD) and in hammer drilled holes with hollow drill bit (HDB)

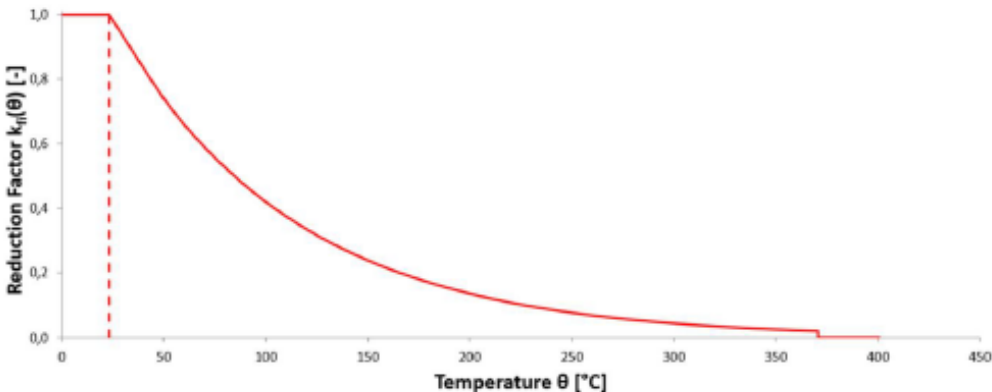
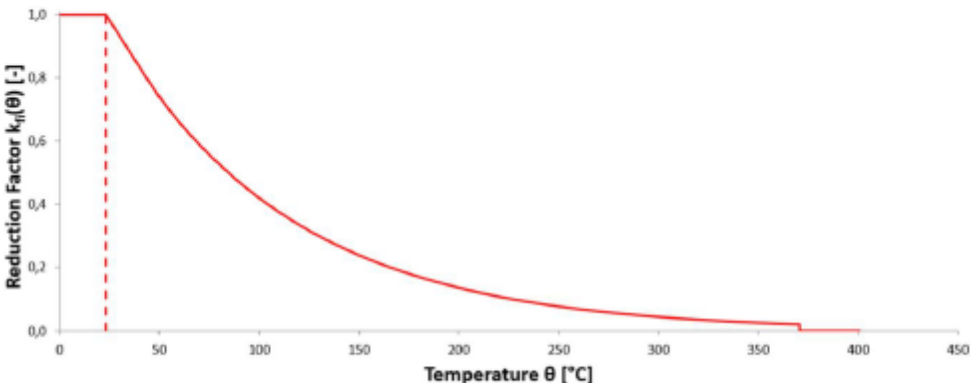
Internal threaded anchor rods				IG-M6	IG-M8	IG-M10	IG-M12	IG-M16	IG-M20	
Steel failure										
Characteristic tension resistance; Steel, Stainless Steel A4 and HCR, strength class 5.8 and 8.8 resp. 70	$N_{Rk,s,fi}$	[kN]	Fire exposure time [min]	30	0,3	1,1	1,7	3,0	5,7	8,8
				60	0,2	0,9	1,4	2,3	4,2	6,6
				90	0,2	0,7	1,0	1,6	3,0	4,7
				120	0,1	0,5	0,8	1,2	2,2	3,4
Characteristic bond resistance in cracked and uncracked concrete C20/25 up to C50/60 under fire conditions for a given temperature θ										
Temperature reduction factor	$k_{fi,p}(\theta)$	[-]	$\theta < 24^{\circ}\text{C}$		1,0					
			$24^{\circ}\text{C} \leq \theta \leq 379^{\circ}\text{C}$		$1,301 \cdot e^{-0,011 \cdot \theta} \leq 1,0$					
			$\theta > 379^{\circ}\text{C}$		0,0					
										
Characteristic bond resistance for a given temperature (θ)	$\tau_{Rk,fi}(\theta)$	[N/mm ²]		$k_{fi,p}(\theta) \cdot \tau_{Rk,cr,(C20/25)}^{1)}$						
Steel failure without lever arm										
Characteristic shear resistance; Steel, Stainless Steel A4 and HCR, strength class 5.8 and 8.8 resp. 70	$V_{Rk,s,fi}$	[kN]	Fire exposure time [min]	30	0,3	1,1	1,7	3,0	5,7	8,8
				60	0,2	0,9	1,4	2,3	4,2	6,6
				90	0,2	0,7	1,0	1,6	3,0	4,7
				120	0,1	0,5	0,8	1,2	2,2	3,4
Steel failure with lever arm										
Characteristic bending moment; Steel, Stainless Steel A4 and HCR, strength class 5.8 and 8.8 resp. 70	$M^0_{Rk,s,fi}$	[Nm]	Fire exposure time [min]	30	0,2	1,1	2,2	4,7	12,0	23,4
				60	0,2	0,9	1,8	3,5	9,0	17,5
				90	0,1	0,7	1,3	2,5	6,3	12,3
				120	0,1	0,5	1,0	1,8	4,7	9,1
1) $\tau_{Rk,cr,(C20/25)}$ characteristic bond resistance for cracked concrete for concrete strength class C20/25 for the relevant temperature range										
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete								Annex C 25		
Performances Characteristic values of tension and shear loads under fire exposure (internal threaded anchor rod)										

Table C31: Characteristic values of tension and shear loads under fire exposure in hammer drilled holes (HD), compressed air drilled holes (CD) and in hammer drilled holes with hollow drill bit (HDB)

Reinforcing bar				Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24	Ø 25	Ø 28	Ø 32	
Steel failure														
Characteristic tension resistance; BSt 500	$N_{Rk,s,fi}$	[kN]	Fire exposure time [min]	30	0,5	1,2	2,3	3,1	4,0	6,3	9,0	9,8	12,3	16,1
				60	0,5	1,0	1,7	2,3	3,0	4,7	6,8	7,4	9,2	12,1
				90	0,4	0,8	1,5	2,0	2,6	4,1	5,9	6,4	8,0	10,5
				120	0,3	0,6	1,1	1,5	2,0	3,1	4,5	4,9	6,2	8,0
Characteristic bond resistance in cracked and uncracked concrete C20/25 up to C50/60 under fire conditions for a given temperature θ														
Temperature reduction factor	$k_{fi,p}(\theta)$	[-]	$\theta < 22^{\circ}\text{C}$	1,0										
			$22^{\circ}\text{C} \leq \theta \leq 370^{\circ}\text{C}$	$1,268 \cdot e^{-0,011 \cdot \theta} \leq 1,0$										
			$\theta > 370^{\circ}\text{C}$	0,0										
														
Characteristic bond resistance for a given temperature (θ)	$\tau_{Rk,fi}(\theta)$	[N/mm ²]		$k_{fi,p}(\theta) \cdot \tau_{Rk,cr,(C20/25)}^{1)}$										
Steel failure without lever arm														
Characteristic shear resistance; BSt 500	$V_{Rk,s,fi}$	[kN]	Fire exposure time [min]	30	0,5	1,2	2,3	3,1	4,0	6,3	9,0	9,8	12,3	16,1
				60	0,5	1,0	1,7	2,3	3,0	4,7	6,8	7,4	9,2	12,1
				90	0,4	0,8	1,5	2,0	2,6	4,1	5,9	6,4	8,0	10,5
				120	0,3	0,6	1,1	1,5	2,0	3,1	4,5	4,9	6,2	8,0
Steel failure with lever arm														
Characteristic bending moment; BSt 500	$M^0_{Rk,s,fi}$	[Nm]	Fire exposure time [min]	30	0,6	1,8	4,1	6,5	9,7	18,8	32,6	36,8	51,7	77,2
				60	0,5	1,5	3,1	4,8	7,2	14,1	24,4	27,6	38,8	57,9
				90	0,4	1,2	2,6	4,2	6,3	12,3	21,2	23,9	33,6	50,2
				120	0,3	0,9	2,0	3,2	4,8	9,4	16,3	18,4	25,9	38,6
¹⁾ $\tau_{Rk,cr,(C20/25)}$ characteristic bond resistance for cracked concrete for concrete strength class C20/25 for the relevant temperature range														
Injection System EJOT Multifix Hybrid / SORMAT ITH Hybrid for concrete										Annex C 26				
Performances Characteristic values of tension and shear loads under fire exposure (reinforcing bar)														