

## Declaration of Performance No. 0756-CPR-0215

Heavy Duty Anchor (Torque controlled expansion anchor made of zinc coated steel) JCP Construction Products,

Unit 14 Teddington Business Park, Station Rd, Teddington, Middlesex TW11 9BQ Telephone +44 (0)208 943 1800

Intended use or uses of the products according to EAD 330232-00-0601	
Generic type	Torque controlled expansion anchor
Base material	Cracked and Non-cracked concrete C20/25 to C50/60 acc. EN 206-2:2003
Batch Number	Marked on individual boxes
Material	Zinc plated carbon steel
Durability	Dry internal conditions
Loading	Static, quasi-static, fire and seismic
Fire Resistance	120mins
Fire Reaction	EAD 330232-00-0601
ETA 07/0221 iccurd by	DIBt
ETA 07/0331 issued by	
On the basis of	ETAG 001
Certificate of Conformity 0756-CPD-0215 issued by	Technische Universitat Darmstadt
Under system	1

Mode   Male   M10   M12   M16   M20   M20   M31   M31   M32   M32   M32   M33   M34   M	Declared performances according to EAD 330232-00-0601										
Installation parameters  d <sub>s</sub> Nominal diameter of drill bit   [mm]   10   12   15   18   24   28    d <sub>t</sub> Fidure clearance hole   [mm]   12   14   17   20   26   31    h <sub>t</sub> Effective anchorage depth   [mm]   50   60   71   80   100   125    h <sub>t</sub> Depth of drill hole to deepest point   [mm]   65   80   95   105   130   160    h <sub>th</sub> Minimum thickness of concrete member   [mm]   100   120   140   160   200   250    Tend Nominal drorque moment   [mm]   15(10)   30(25)   50(55)   80(70)   160   280    Figures () are for SLSK anchors  Smin Minimum spacing   [mm]   50   60   70   80   100   125    for C≥ Edge distance   [mm]   80   100   120   160   180   300    Cmn Minimum edged distance   [mm]   50   60   70   80   100   125    for S≥ Anchor spacing   [mm]   50   60   70   80   100   180    for S≥ Anchor spacing   [mm]   100   120   175   200   220   540    Tensile Steet failure  NRKs, p.cr Characteristic tensile seel failure   [kN]   16   29   46   67   126   196    The pull-out failure  NRKs, p.cr Characteristic tensile resistance in cracked concrete C20/25   [kN]   18   20   30   35   50   72    The pull-out failure   12   12   12    The partial safety factor (includes γ2)   [-]   1.5    The partial safety factor for concrete C40/50   [-]   1.5    The partial safety factor for concrete C50/60   [-]   1.5    Splitting failure (The highest resistance in C20/25 concrete   [kN]   9   12   20   30   40   (1)    Splitting failure (The highest resistance in C20/25 concrete   [kN]   9   12   20   30   40   (1)    Splitting failure (The highest resistance in C30/37   [-]   1.2    The partial safety factor (includes γ2)   [-]   1.4    The highest resistance in C20/25 concrete   [-]   1.4    The highest resistance in C20/25 concrete   [-]   1.5    Splitting failure (The highest resistance in C50/60   [-]   1.5    Splitting failure (The highest resistance in C50/60   [-]   1.5    The highest resistance of C30   1.5   1.5    The highest resistance of C30   1.5   1.5    The highest resistance of C30   1.5   1.5    The highest r	Essential Characteristics		Performance					1			
d <sub>o</sub> Nominal diameter of drill bit         [mm]         10         12         15         18         24         28           d <sub>t</sub> Effective anchorage depth         [mm]         12         14         17         20         26         31           h <sub>t</sub> Depth of drill hole to deepest point         [mm]         50         60         71         80         100         125           h <sub>th</sub> Depth of drill hole to deepest point         [mm]         65         80         95         105         130         160           h <sub>min</sub> Minimum thickness of concrete member         [mm]         100         120         140         160         200         250           T <sub>mat</sub> Nominal torque moment         [mm]         15(10)         30(25)         50(55)         80(70)         160         280           S <sub>min</sub> Minimum spacing         [mm]         50         60         70         80         100         122           Gror S <sub>2</sub> Edge distance         [mm]         80         100         120         160         180         300           Gror S <sub>2</sub> Anchor spacing         [mm]         100         120         175         200         220         54				M6	M8	M10	M12	M16	M20		
Fixture clearance hole	-		Τ, ,	1 40	1 40	l	1 40	T	I 00	1	
h <sub>of</sub> Effective anchorage depth         [mm]         50         60         71         80         100         125           h₁         Depth of drill hole to deepest point         [mm]         65         80         95         105         130         160           h₁nь         Minimum thickness of concrete member         [mm]         100         120         140         160         200         250           T <sub>Inst</sub> Nominal torque moment         [mm]         15(10)         30(25)         50(55)         80(70)         160         280           Figures (-) are for SLSK anchors           Smin         Minimum spacing         [mm]         50         60         70         80         100         125           for S≥         Edge distance         [mm]         80         100         120         160         180         300           Cors≥         Anchor spacing         [mm]         50         60         70         80         100         120         180           Tensile Steel failure         [mm]         50         60         70			<u> </u>								
h <sub>1</sub> Depth of drill hole to deepest point			+								
h <sub>min</sub> Minimum thickness of concrete member         [mm]         100         120         140         160         200         250           T <sub>inst</sub> Nominal torque moment         [mm]         15(10)         30(25)         50(55)         80(70)         160         280           S <sub>min</sub> Minimum spacing         [mm]         50         60         70         80         100         125           for C≥         Edge distance         [mm]         80         100         125         160         180         300           C <sub>min</sub> Minimum edged distance         [mm]         50         60         70         80         100         180           for S≥         Anchor spacing         [mm]         100         120         175         200         220         540           Tessile Stell allure         [kN]         16         29         46         67         126         196           Tessile Stell failure         [kN]         16         29         46         67         126         196           Tessile Stell failure         [kN]         16         29         46         67         126         196 <th c<="" td=""><td></td><td>- ·</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td></td> <td>- ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		- ·								
$T_{rest}$ Nominal torque moment $T_{rest}$ Nominal torque mome											
S <sub>min</sub> Minimum spacing         [mm]         50         60         70         80         100         125           for C≥ Edge distance         [mm]         80         100         120         160         180         300           Cmn         Minimum edged distance         [mm]         50         60         70         80         100         180           for S≥         Anchor spacing         [mm]         100         120         175         200         220         540           Tensile Steel failure         [mm]         100         120         175         200         220         540           Tensile Steel failure         [kN]         16         29         46         67         126         196           YM.s.         Partial safety factor         [-]         1.5         1.5         12         16         25         36         50         70         80         100         190         100         120         17         200         220         540         100         100         120         13         12         16         25         36         50         70         180         21         12         12	h <sub>min</sub>		[mm]								
S <sub>min</sub> Minimum spacing         [mm]         50         60         70         80         100         125           for C≥         Edge distance         [mm]         80         100         120         160         180         300           C <sub>min</sub> Minimum edged distance         [mm]         50         60         70         80         100         180           for S≥         Anchor spacing         [mm]         100         120         175         200         220         540           NRs.s         Characteristic tensile steel failure         [mm]         100         120         175         200         220         540           NRs.s         Characteristic tensile steel failure         [kN]         16         29         46         67         126         196         196         196         125         140         196         196         196         196         180         190         196	T <sub>inst</sub>	Nominal torque moment	[mm]				, ,	160	280		
for C≥ Edge distance					ires (-) are fo		hors				
Cmin         Minimum edged distance         [mm]         50         60         70         80         100         180           for S≥ Anchor spacing         [mm]         100         120         175         200         220         540           Tensile Steel Failure           NRx,s         Characteristic tensile steel failure         [kN]         16         29         46         67         126         196           VM.S         Partial safety factor         [·]         1.5		, ,	[mm]								
for S≥ Anchor spacing         [mm]         100         120         175         200         220         540           Tensile Steel failure           NRk.s         Characteristic tensile steel failure         [kN]         16         29         46         67         126         196           γM.S         Partial safety factor         [-]         1.5		· ·	[mm]	80	100	120	160	180	300		
Tensile Steel failure $N_{Rk,S}$   Characteristic tensile steel failure   [kN]   16   29   46   67   126   196   70   70   70   70   70   70   70   7		9	[mm]	50	60	70	80	100	180		
N <sub>Rk,S</sub>   Characteristic tensile steel failure   [kN]   16   29   46   67   126   196	for S≥	Anchor spacing	[mm]	100	120	175	200	220	540		
γM.S         Partial safety factor         [-]         1.5           Pull-out failure           NRk,p,cr         Characteristic tensile resistance in cracked concrete C20/25         [kN]         5         12         16         25         36         50           NRk,p,ucr         Characteristic tensile resistance in non-cracked concrete C20/25         [kN]         18         20         30         35         50         72           γM.p         Partial safety factor (Includes γ2)         [-]         1.5         1.5         1.5         1.2         1.5         1.2         1.5         1.2         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5         1.5	Tensile Steel	failure									
Pull-out failure         NRk,p,cr       Characteristic tensile resistance in cracked concrete C20/25       [kN]       5       12       16       25       36       50         NRk,p,ucr       Characteristic tensile resistance in non-cracked concrete C20/25       [kN]       18       20       30       35       50       72         γM,p       Partial safety factor (Includes γ2)       [-]       1.5	$N_{Rk,s}$	Characteristic tensile steel failure	[kN]	16	29	46	67	126	196		
NRk,p,cr   Characteristic tensile resistance in cracked concrete C20/25   [kN]   5   12   16   25   36   50     NRk,p,ucr   Characteristic tensile resistance in non-cracked concrete C20/25   [kN]   18   20   30   35   50   72     YM,p   Partial safety factor (Includes γ2)   [-]   1.5	γM,s	Partial safety factor	[-]			1	.5				
NRk,p,ucr Characteristic tensile resistance in non-cracked concrete C20/25 [kN] 18 20 30 35 50 72 $\gamma$ M,p Partial safety factor (Includes $\gamma$ 2) [-] 1.5 $\gamma$ CC30/37 Increasing factor for concrete C30/37 [-] 1.22 $\gamma$ CC40/50 Increasing factor for concrete C40/50 [-] 1.41 $\gamma$ CC50/60 Increasing factor for concrete C50/60 [-] 1.5 $\gamma$ CSplitting failure (The highest resistance of Case 1 and Case 2 may be used) $\gamma$ CCase 1 $\gamma$ Critical spacing (Splitting) [mm] 150 180 213 240 300 375 $\gamma$ CCase 2 $\gamma$ Critical spacing (Splitting) [mm] 75 90 106.5 120 150 188 $\gamma$ CCase 2 $\gamma$ CCase 2 $\gamma$ Critical spacing (Splitting) [mm] 250 300 355 400 500 625	Pull-out failure	)									
γM,P       Partial safety factor (Includes γ2)       [·]       1.5         ΨcC30/37       Increasing factor for concrete C30/37       [·]       1.22         ΨcC40/50       Increasing factor for concrete C40/50       [·]       1.41         ΨcC50/60       Increasing factor for concrete C50/60       [·]       1.55         Splitting failure (The highest resistance of Case 1 and Case 2 may be used)         Case 1         N°Rk,sp       Characteristic Resistance in C20/25 concrete       [kN]       9       12       20       30       40       (1)         S <sub>cr,sp</sub> Critical spacing (Splitting)       [mm]       150       180       213       240       300       375         C <sub>cr,sp</sub> Critical edge distance (Splitting)       [mm]       75       90       106.5       120       150       188         Case 2         S <sub>cr,sp</sub> Critical spacing (Splitting)       [mm]       250       300       355       400       500       625	NRk,p,cr	Characteristic tensile resistance in cracked concrete C20/25	[kN]	5	12	16	25	36	50		
Ψ°CC30/37         Increasing factor for concrete C30/37         [-]         1.22           Ψ°CC40/50         Increasing factor for concrete C40/50         [-]         1.41           Ψ°CC50/60         Increasing factor for concrete C50/60         [-]         1.55           Splitting failure (The highest resistance of Case 1 and Case 2 may be used)           Case 1           N°Rk.sp         Characteristic Resistance in C20/25 concrete         [kN]         9         12         20         30         40         (1)         S <sub>Cr.sp</sub> Critical spacing (Splitting)         [mm]         150         180         213         240         300         375         C <sub>Cr.sp</sub> Critical edge distance (Splitting)         [mm]         75         90         106.5         120         150         188           Case 2           S <sub>Cr.sp</sub> Critical spacing (Splitting)         [mm]         250         300         355         400         500         625	NRk,p,ucr	Characteristic tensile resistance in non-cracked concrete C20/25	[kN]	18	20	30	35	50	72		
Ψ°CC40/50         Increasing factor for concrete C40/50         [-]         1.41           Ψ°CC50/60         Increasing factor for concrete C50/60         [-]         1.55           Splitting failure (The highest resistance of Case 1 and Case 2 may be used)           Case 1         N°Rk,sp         Characteristic Resistance in C20/25 concrete         [kN]         9         12         20         30         40         (1)           S <sub>Cr,sp</sub> Critical spacing (Splitting)         [mm]         150         180         213         240         300         375           C <sub>cr,sp</sub> Critical edge distance (Splitting)         [mm]         75         90         106.5         120         150         188           Case 2           S <sub>cr,sp</sub> Critical spacing (Splitting)         [mm]         250         300         355         400         500         625	γM,p	Partial safety factor (Includes γ2)	[-]			1	.5				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	<b>ΨcC30/37</b>	Increasing factor for concrete C30/37	[-]			1.	.22				
Splitting failure (The highest resistance of Case 1 and Case 2 may be used)  Case 1  N°Rk,sp Characteristic Resistance in C20/25 concrete [kN] 9 12 20 30 40 (1)  S <sub>cr,sp</sub> Critical spacing (Splitting) [mm] 150 180 213 240 300 375  C <sub>cr,sp</sub> Critical edge distance (Splitting) [mm] 75 90 106.5 120 150 188  Case 2  S <sub>cr,sp</sub> Critical spacing (Splitting) [mm] 250 300 355 400 500 625	ΨcC40/50	Increasing factor for concrete C40/50	[-]	1.41							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ΨcC50/60				1						
N°Rk,sp         Characteristic Resistance in C20/25 concrete         [kN]         9         12         20         30         40         (1) $S_{cr,sp}$ Critical spacing (Splitting)         [mm]         150         180         213         240         300         375 $C_{cr,sp}$ Critical edge distance (Splitting)         [mm]         75         90         106.5         120         150         188           Case 2 $S_{cr,sp}$ Critical spacing (Splitting)         [mm]         250         300         355         400         500         625	Splitting failure (The highest resistance of Case 1 and Case 2 may be used)										
S <sub>cr,sp</sub> Critical spacing (Splitting)         [mm]         150         180         213         240         300         375           C <sub>cr,sp</sub> Critical edge distance (Splitting)         [mm]         75         90         106.5         120         150         188           Case 2           S <sub>cr,sp</sub> Critical spacing (Splitting)         [mm]         250         300         355         400         500         625	Case 1										
$C_{cr,sp}$ Critical edge distance (Splitting) [mm] 75 90 106.5 120 150 188 Case 2 $C_{cr,sp}$ Critical spacing (Splitting) [mm] 250 300 355 400 500 625	NºRk,sp	Characteristic Resistance in C20/25 concrete	[kN]	9	12	20	30	40	(1)		
$C_{cr,sp}$ Critical edge distance (Splitting) [mm] 75 90 106.5 120 150 188 Case 2 $S_{cr,sp}$ Critical spacing (Splitting) [mm] 250 300 355 400 500 625	S <sub>cr,sp</sub>	Critical spacing (Splitting)	[mm]	150	180	213	240	300	375	1	
Case 2       S <sub>cr,sp</sub> Critical spacing (Splitting)       [mm]       250       300       355       400       500       625			[mm]	75	90	106.5	120	150	188	1	
S <sub>cr,sp</sub> Critical spacing (Splitting)         [mm]         250         300         355         400         500         625           C <sub>cr,sp</sub> Critical edge distance (Splitting)         [mm]         125         150         177.5         200         250         313	Case 2										
C <sub>cr.sp.</sub> Critical edge distance (Splitting) [mm] 125 150 177.5 200 250 313	S <sub>cr,sp</sub>	Critical spacing (Splitting)	[mm]	250	300	355	400	500	625		
	C <sub>cr,sp</sub>	Critical edge distance (Splitting)		125	150	177.5	200	250	313	1	

Concrete co	ne failure								
		[mm1]	14	40	70	OF.	100	115	
h <sub>ef</sub>	Effective anchorage depth	[mm]	46	60		85	100	115	ŀ
S <sub>cr,N</sub>	Critical spacing	[mm]	138	180	210	255	300	345	ļ
C <sub>cr,N</sub> γM,s	Critical edge distance	[mm]	69	90	105	127.5	150	172.5	ļ
	11								
	nt under tensile loading	1 1						ı	
N <sub>cr</sub>	Service tensile loads in cracked concrete	[kN]	2.4	5.7	7.6	12.3	17.1	24.0	
δN0, <sub>cr</sub>	Short term displacement under tensile loads	[mm]	0.5	0.5	0.5	0.7	0.8	0.9	
δN∞, <sub>cr</sub>	Long term displacement under tensile loads	[mm]	2.0	2.0	1.3	1.3	1.3	1.4	
Nu <sub>cr</sub>	Service tensile loads in non-cracked concrete	[kN]	8.5	9.5	14.3	17.2	24.0	34.0	
$\delta$ N0, $u_{cr}$	Short term displacement under tensile loads	[mm]	0.8	1	1.1	1.1	1.1	0.3	
δN∞, <sub>ucr</sub>	Long term displacement under tensile loads	[mm]	3.4	3.4	1.7	1.7	1.7	1.4	
Shear steel t	failure <b>JHD</b>								
$V_{Rk,s}$	Characteristic shear steel failure without lever arm	[kN]	16	25	36	63	91	122	
$M^0_{Rk,s}$	Characteristic shear steel failure with lever arm	[Nm]	12	30	60	105	266	519	]
γm,sV	Partial safety factor	[-]			1.	.25			
	failure NHD and SLSK								
$V_{Rk,s}$	Characteristic shear steel failure without lever arm	[kN]	18	30	48	73	126	150	
$M^0_{Rk,s}$	Characteristic shear steel failure with lever arm	[Nm]	12	30	60	105	266	519	
γm,sV	Partial safety factor	[-]			1.	.25			
Concrete pry	yout failure								
k	Factor in equation 95.6) ETAG 001 Annex C §5.2.3.3	[-]	1.8			2.0			
γМ,ср	Partial safety factor	[-]			1	.5			
Shear concr	ete edge failure								
l <sub>ef</sub>	Effective anchorage length	[mm]	50	60	71	80	100	125	
Displacemen	nt on shear load <b>JHD</b>								
V	Service shear load in cracked and non-cracked concrete	[kN]	9.1	14.0	20.7	35.1	52.1	77.0	
$\delta_{v0}$	Short term displacement under shear load	[mm]	2.5	2.1	2.7	3.0	5.1	4.3	
δV∞	Long term displacement under shear load	[mm]	3.8	3.1	4.1	4.5	7.6	6.5	
Displacemen	nt on shear load NHD and SLSK								
V	Service shear load in cracked and non-cracked concrete	[kN]	10.1	17.1	27.5	41.5	72.0	77.0	
$\delta_{v0}$	Short term displacement under shear load	[mm]	2.9	2.5	3.6	3.5	7.0	4.3	1
δV∞	Long term displacement under shear load	[mm]	4.4	3.8	5.4	5.3	10.5	6.5	
Characterist	ic tensile fire resistance								
N <sub>Rk,fi30</sub>	Fire resistance duration = 30 minutes	[kN]	1.0	1.9	4.3	6.3	8.8	15.9	
N <sub>Rk,fi60</sub>	Fire resistance duration = 60 minutes	[kN]	0.8	1.5	3.2	4.6	8.6	13.5	1
N <sub>Rk,fi90</sub>	Fire resistance duration = 90 minutes	[kN]	0.6	1.0	2.1	3.0	5.0	7.7	1
N <sub>Rk,fi120</sub>	Fire resistance duration = 120 minutes	[kN]	0.4	0.8	1.5	2.0	3.1	4.9	1
	ic shear fire resistance without lever arm	t							
V <sub>Rk,fi30</sub>	Fire resistance duration = 30 minutes	[kN]	1.0	1.9	4.3	6.3	11.6	18.3	
V <sub>Rk,fi60</sub>	Fire resistance duration = 60 minutes	[kN]	0.8	1.5	3.2	4.6	8.6	13.5	1
V <sub>Rk,fi90</sub>	Fire resistance duration = 90 minutes	[kN]	0.6	1.0	2.1	3.0	5.0	7.7	1
V <sub>Rk,fi120</sub>	Fire resistance duration = 120 minutes	[kN]	0.4	0.8	1.5	2.0	3.1	4.9	1
	ic shear fire resistance with lever arm	[KIV]	7.7	0.0	1.0	2.0	J 3.1	7.7	
V <sub>Rk,fi30</sub>	Fire resistance duration = 30 minutes	[kN]	0.8	2.0	5.6	9.7	24.8	42.4	
	Fire resistance duration = 50 minutes	[kN]	0.6	1.5	4.1	7.2	18.3	29.8	1
V <sub>Rk,fi60</sub>	Fire resistance duration = 90 minutes	[kN]	0.6	1.0	2.7	4.7	11.9	17.1	1
$V_{Rk,fi90}$	THE TESISIANCE AMERICA - 70 HIMAGES	[KIN]	0.4	1.0	2.1	4.7	11.7	17.1	J
$V_{Rk,fi120}$	Fire resistance duration = 120 minutes	[kN]	0.3	0.8	1.9	3.1	6.6	10.7	

## The previous performance data relates to the following product codes

d	Marking	t <sub>fix</sub>	Product Code				
	d <sub>o</sub> /L	[mm]	JHD	NHD	SLSK		
	SZM6/10-10	10	JHD0610		SLSK10/10		
	SZM6/10-25	25			SLSK10/25		
M6	SZM6/10-30	30	JHD0630				
	SZM6/10-45	45			SLSK10/45		
	SZM6/10-50	50	JHD0650				
	SZM8/12-10	10	JHD0810	NHD0810	SLSK12/10		
M8	SZM8/12-25	25			SLSK12/25		
IVIO	SZM8/12-30	30	JHD0830	NHD0830			
	SZM8/12-50	50	JHD0850	NHD0850	SLSK12/50		
	SZM10/15-10	10			SLSK15/10		
	SZM10/15-15	15	JHD1015	NHD1015			
M10	SZM10/15-25	25	JHD1025	NHD1025	SLSK15/25		
	SZM10/15-45	45	JHD1045	NHD1045			
	SZM10/15-50	50			SLSK15/50		
	SZM12/18-10	10	JHD1210	NHD1210			
M12	SZM12/18-20	20	JHD1220	NHD1220	SLSK18/20		
IVIIZ	SZM12/18-40	40	JHD1240	NHD1240	SLSK18/40		
	SZM12/18-70	70	JHD1270	NHD1270			
	SZM16/24-10	10	JHD1610		·		
M16	SZM16/24-20	20	JHD1620	NHD1620	·		
IVITO	SZM16/24-25	25	JHD1625		·		
	SZM16/24-50	50	JHD1650	NHD1650			
M20	SZM20/28-25	25	JHD2030				
IVIZU	SZM20/28-50	50	JHD2060				

	Amendments	
[1]	CPD changed to CPR	03/11/2017
[2]	ETAG changed to EAD	04/11/2017
[3]	CPD Range changed	05/11/2017
[4]	ETA changed	06/11/2017

The performances of the product identified by the above product codes are in conformity with the declared performance. This Declaration of performance is issued under the sole responsibility of JCP Construction products. Signed for and on behalf of the manufacturers.

Name and function	Place and date of issue	Signature
Brian Deluce	Teddington	0-01
Technical Manager	03/11/2017	V. L. Welsice