10 ¹² - M ₀ =6.7e+09 Nm - M ₀ =2.8e+10 Nm - M ₀ =	010141IMS0Q000Q 2018157013858IMS0Q000	(2018157121700IMS000000 2018158072013IMS000000	
= 1 110 0.7 c 1 0 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 		2018158204112IMS000000 2018159000959IMS000000
f _c =51.4 Hz err=0.10 f _c =51.9 Hz err=0.14	3.7e+10 Nm f _c =37.9 Hz err=0.12 M ₀ =1.3e+10 Nm f _c =49.1 Hz err=0.10	M_0 =1.4e+10 Nm f_c =56.8 Hz err =0.10 M_0 =1.3e+10 Nm f_c =48.5 Hz err =0.11	M_0 =1.4e+11 Nm f_c =33.2 Hz f_c =34.2 Hz err =0.17
10 ¹⁰ 2018159011231IMS600000 2018159035257IMS000000 2018159	044000IMS000000 2018159120046IMS00000	(2018159152310IMS000000 2018160051518IMS000000	2018160054115IMS000000 2018160102510IMS000000
f _c =45.9 Hz err=0.11	7.1e+09 Nm f _c =49.7 Hz err=0.12 M ₀ =2.7e+10 Nm f _c =37.5 Hz err=0.15 211026IMSC 0000 2018161004449IMS00000	M ₀ =1.5e+10 Nm f _c =56.8 Hz err=0.14 M ₀ =3.2e+10 Nm f _c =50.9 Hz err=0.15	$\begin{array}{c} M_0 = 4.2 e + 09 \text{ Nm} \\ f_c = 73.4 \text{ Hz} \\ err = 0.05 \end{array} \qquad \begin{array}{c} M_0 = 2.9 e + 11 \text{ Nm} \\ 6 = 31.5 \text{ Hz} \\ 6 = 0.13 \end{array}$
f _c =61.3 Hz err=0.07 f _c =49.8 Hz err=0.05	1.8e+10 Nm f _c =52.5 Hz err=0.07 124708IMS000000 2018162134139IMSC 000	M ₀ =5.6e+10 Nm f _c =37.0 Hz err=0.15 M ₀ =2.0e+10 Nm f _c =49.5 Hz err=0.13	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
f _c =38.7 Hz err=0.09	1.2e+11 Nm f _c =30.7 Hz Fr=0.10 M ₀ =9.9e+10 Nm f _c =29.3 Hz err=0.18	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
10 ¹⁰ - 2018163115829IMS000000 2018163132124IMS000000 2018163	031000IMS000000 2018165002042IMS00000	(2018165152357IMS000000 2018165200500IMS000000	2018166021841IMSC 0000 2018166111647IMS000000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	M ₀ =1.0e+10 Nm f _c =34.9 Hz err=0.11	M ₀ =1.4e+10 Nm f _c =50.1 Hz err=0.07	M_0 =8.2e+09 Nm f_c =49.6 Hz err =0.13 M_0 =4.5e+10 Nm f_c =32.4 Hz err =0.10
$10^{12} - \frac{\text{M}_0 = 1.5 \text{e} + 10 \text{ Nm}}{\text{f}_c = 51.7 \text{ Hz}} + \frac{\text{M}_0 = 1.4 \text{e} + 10 \text{ Nm}}{\text{err} = 0.16}$	024000IMS000000 2018169033430IMS00000	M ₀ =2.8e+10 Nm f _c =45.2 Hz err=0.10	2018169230658IMS000000 2018170012100IMS000000 M ₀ =1.6e+10 Nm f _c =36.9 Hz err=0.11 M ₀ =9.9e+09 Nm f _c =41.9 Hz err=0.20
.012	070706IMS000000 2018170141444IMS00000	M ₀ =2.1e+10 Nm f _c =47.4 Hz	2018170200105IM5000000 2018170210141IM5000000 $M_0=1.1e+10 \text{ Nm} f_c=53.3 \text{ Hz}$
10 ¹⁰ - eco.14 err=0.12	err=0.10	err=0.05 err=0.07	err=0.06
1012	1.3e+11 Nm f _c =29.6 Hz 1,202.4 Hz err=0.11	M ₀ =9.9e+09 Nm f _c =48.5 Hz err=0.14	M ₀ =1.0e+10 Nm f _c =43.2 Hz err=0.11
10 ¹⁰	173814IMS000000 2018171232614IMS00000	(2018171233929IMS000000 2018172001100IMS000000	2018172010600IMS000000 2018172041700IM 200000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	2.1e+11 Nm $f_c=31.6$ Hz $f_c=32.5$ Hz err=0.12	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$M_0=6.7e+09 \text{ Nm} \\ f_c=55.5 \text{ Hz} \\ err=0.06 \\ M_0=1.1e+11 \text{ Nm} \\ f_c=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ f_0=23.4 \text{ Hz} \\ err=0.05 \\ M_0=1.1e+11 \text{ Nm} \\ err=0.05 \\ M_0=11 \\ M_$
2018172070230IMS000000 2018172090030IMS000000 2018173		L	······································
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	H.0e+10 Nm f _c =44.9 Hz err=0.10 M ₀ =9.8e+09 Nm f _c =42.4 Hz err=0.08	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	M_0 =1.2e+10 Nm f_c =42.0 Hz err =0.12 M_0 =1.5e+10 Nm f_c =41.0 Hz err =0.09
	130130IMS000000 2018173142304IMS0 000 1.1e+10 Nm f _c =28.0 Hz	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	2018173191258IMS000000 2018173214953IMS000000 $M_0=1.0e+10 \text{ Nm}$ $f_c=52.1 \text{ Hz}$ $f_c=50.2 \text{ Hz}$
10 ¹⁰ - err=0.08	err=0.09 err=0.10	err=0.08	err=0.05 err=0.06 2018174131934IMS000000 2018174154112IMS0000000
1012	0.6e+09 Nm f _c =46.6 Hz err=0.07 0.6e+09 Nm f _c =28.1 Hz err=0.08	M ₀ =8.8e+09 Nm f _c =45.0 Hz err=0.11	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
E 10 ¹⁰ - 2018175062422IMS000000 2018175071713IMSC 0000 2018175 E 10 ¹² - M ₀ =1.0e+10 Nm	132759IMS000000 2018176001813IMS00000	(2018176155852IMSC 0000 2018176170554IMS000000	2018176210520IMS000000 2018177104730IMS000000
err=0.05 err=0.15	$\begin{array}{c} \text{H.1e+10 Nm} \\ \text{f}_c = 38.2 \text{ Hz} \\ \text{err} = 0.13 \end{array}$	M ₀ =4.5e+10 Nm f _c =32.3 Hz err=0.11 T _c =32.4 Hz err=0.12	M_0 =3.4e+11 Nm M_0 =2.1e+10 Nm f_c =28.6 Hz e 1 =0.09 f_c =0.11
2018178152609IMS0d0000 2018178222942IMS0d0000 2018178	053245IMS000000 2018179233042IMS00000	(2018180013150IMS000000	2018180094138IMS000000 2018181040940IMS00000
10 ¹² - M ₀ =3.2e+11 Nm	$\begin{array}{c} 3.6e+10 \text{ Nm} \\ f_c=40.2 \text{ Hz} \\ err=0.10 \end{array}$	M_0 =1.1e+11 Nm f_c =27.9 Hz f_c =32.0 Hz f_c =0.11	$M_0 = 4.6e + 10 \text{ Nm} \ f_c = 40.6 \text{ Hz} \ err = 0.09$ $M_0 = 3.0e + 10 \text{ Nm} \ f_c = 33.6 \text{ Hz} \ err = 0.08$
	3.7e+10 Nm	M ₀ =6.2e+10 Nm	M ₀ =4.3e+10 Nm
$f_c=26.9 \text{ Hz}$ $err=0.11$ $f_c=40.7 \text{ Hz}$ $err=0.11$	f _c =32.5 Hz err=0.12 f _c =25.9 Hz err=0.11	f _c =33.4 Hz err=0.09	f _c =36.9 Hz err=0.06 f _c =38.2 Hz err=0.08
1012	201046IMS0Q0000 2018184202906IMS0Q000 	M ₀ =2.7e+10 Nm f _c =40.3 Hz err=0.07 M ₀ =2.7e+10 Nm f _c =35.0 Hz err=0.11	2018185034551IMS000000 2018185120950IMS000000 M ₀ =1.1e+10 Nm f _c =43.4 Hz err=0.08 M ₀ =1.4e+10 Nm f _c =38.6 Hz err=0.06
10 ¹⁰ - 2018185145450IMS0Q000Q 2018185155423IMS0Q000Q 2018186	070100IMS0Q000Q 2018186092109IMS0Q000		
$10^{12} - \begin{array}{ c c c c c c c c c c c c c c c c c c c$	3.6e+11 Nm =22.7 HZ e0=0.13 M ₀ =4.4e+10 Nm f _c =29.4 Hz err=0.09	M_0 =1.8e+10 Nm f_c =31.8 Hz err =0.10 M_0 =2.8e+11 Nm f_c =2.7.9-Hz err =0.13	$M_0=7.6e+10 \text{ Nm}$ $f_c=34.1 \text{ Hz}$ $err=0.08$ $f_c=44.5 \text{ Hz}$ $err=0.07$
10 ¹⁰ - 2018187034808IMS000000 2018187062657IMS000000 201818	084836IMS000000 2018188142051IMS00000	(2018188161324IMS000000 2018188173124IMS000000	2018188175428IMS000000 2018188193122IMS000000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3.2e+10 Nm f _c =29.1 Hz err=0.17 M ₀ =1.8e+10 Nm f _c =49.7 Hz err=0.08	M ₀ =1.7e+10 Nm f _c =46.2 Hz err=0.09	$\begin{array}{c} \text{M}_0 = 9.8 \text{e} + 09 \text{ Nm} \\ \text{f}_c = 46.8 \text{ Hz} \\ \text{err} = 0.09 \end{array} \qquad \begin{array}{c} \text{M}_0 = 3.6 \text{e} + 10 \text{ Nm} \\ \text{f}_c = 34.6 \text{ Hz} \\ \text{err} = 0.10 \end{array}$
.012	214700IMS000000 2018188214802IMS00000 2.2e+10 Nm f _c =33.5 Hz M ₀ =4.9e+10 Nm f _c =32.6 Hz	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2018189095118IMS000000 2018189132738IMS000000 $M_0=8.3e+09 \text{ Nm} $ $f_c=45.8 \text{ Hz} $ $M_0=1.6e+10 \text{ Nm} $ $f_c=41.8 \text{ Hz} $
err=0.09 err=0.08 err=0.08	err=0.11 err=0.12 152317IMS0Q000Q 2018189160854IMS0Q000	err=0.06 err=1.18	err=0.07 err=0.09 2018189195043IMS60000 2018190005253IMS000000
$10^{12} - M_0 = 1.0e + 11 \text{ Nm} f_c = 36.7 \text{ Hz} err = 0.04$ $M_0 = 7.2e + 09 \text{ Nm} f_c = 43.6 \text{ Hz} err = 0.04$	3.1e+10 Nm f _c =38.0 Hz err=0.12 M ₀ =3.6e+11 Nm =24.1 Hz e0=0.14	M ₀ =7.0e+09 Nm f _c =52.5 Hz err=0.08 M ₀ =1.8e+10 Nm f _c =38.4 Hz err=0.11	M ₀ =2.8e+11 Nm M ₀ =3.3e+10 Nm f _c =37.7 Hz err=0.11
10 ¹⁰ - 2018190020811IMS000000 2018190025747IMS0 0000 201819	155046IMS000000 2018193142500IMS00000	(2018193204529IMS600000 2018194085018IMS000000	2018194133411IMS000000 2018195011432IMS000000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3.8e+09 Nm f _c =55.7 Hz err=0.08 M ₀ =1.6e+10 Nm f _c =36.7 Hz err=0.11	M ₀ =3.1e+10 Nm f _c =34.3 Hz err=0.10 M ₀ =4.0e+10 Nm f _c =31.5 Hz err=0.11	M ₀ =2.6e+10 Nm f _c =43.3 Hz err=0.09
2018195074501IMS000000 2018195123640IMS000000 2018195	172331IMS000000 2018195195343IMS00000	(2018196003937IMS000000	2018196071020IMS000000 2018196133941IMS000000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.6e+09 Nm f _c =49.0 Hz err=0.07 M ₀ =1.8e+10 Nm f _c =38.9 Hz err=0.07	M_0 Ge+12 Nm f_c =0.9 Hz f_c =0.11 M_0 =6.7e+10 Nm f_c =36.9 Hz err =0.11	$M_0 = 1.6e + 10 \text{ Nm} \\ f_c = 48.0 \text{ Hz} \\ err = 0.08 \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$
10 ¹² - M ₀ =7.7e+10 Nm - M ₀ =2.2e+10 Nm - M ₀ =	070436IMS000000 2018197091659IMS00000	M ₀ =2.5e+11 Nm	2018199080816IMS000000 2018199104200IMS000000 M ₀ =1.0e+10 Nm M ₀ =8.7e+10 Nm
$f_c=30.4 \ Hz$ $err=0.11$ $f_c=49.7 \ Hz$ $err=0.09$	f _c =49.2 Hz err=0.08 f _c =52.1 Hz err=0.06	f _c =21.8 Hz	f _c =58.1 Hz err=0.09 f _c =32.8 Hz err=0.09
$10^{12} - \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4.7e+10 Nm f _c =35.5 Hz	M ₀ =3.8e+11 Nm M ₀ =23.3 Hz M ₀ =0.1.1e+10 Nm f _c =53.5 Hz	M_0 =4.7e+10 Nm f_c =30.1 Hz M_0 =1.4e+10 Nm f_c =49.7 Hz
10 ¹⁰ - 2018200100833IMS000000 2018200100919IMS000000 2018200	err=0.12 = 0.11	enc 0.20 err=0.05	err=0.11 err=0.07 2018200134612IMS000000 2018200143037IMS000000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	M ₀ =1.3e+10 Nm f _c =34.8 Hz err=0.10	M_0 =2.1e+10 Nm f_c =36.0 Hz err =0.10 M_0 =8.4e+10 Nm f_c =40.3 Hz err =0.12	$\begin{array}{c} \text{M}_0 = 1.0 \text{e} + 10 \text{ Nm} \\ \text{f}_c = 44.9 \text{ Hz} \\ \text{err} = 0.08 \end{array} \qquad \begin{array}{c} \text{M}_0 = 1.1 \text{e} + 10 \text{ Nm} \\ \text{f}_c = 47.5 \text{ Hz} \\ \text{err} = 0.09 \end{array}$
2018200170651IMSC 0000 2018200191849IMS000000 201820	073346IMS000000 2018201152715IMS0 000		2018202144515IMS000000 2018202222748IMS000000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	M ₀ =1.1e+10 Nm f _c =48.1 Hz err=0.09	M ₀ =2.5e+10 Nm f _c =42.7 Hz err=0.11 M ₀ =1.0e+10 Nm f _c =47.6 Hz err=0.07	M_0 =1.3e+10 Nm f_c =52.6 Hz err =0.10 M_0 =7.2e+10 Nm f_c =38.6 Hz err =0.12
201020222770116	030928IMS000000 2018203081713IMS00000	2018203090059IMS000000 2018203113243IMS000000	10 100
	2.4e+10 Nm	M ₀ =2.1e+11 Nm	M ₀ =1.1e+10 Nm f _c =47.2 Hz
$10^{12} - M_0 = 9.6e + 09 \text{ Nm} \\ f_c = 47.7 \text{ Hz} \\ err = 0.09 \\ 10^{10} - M_0 = 7.1e + 10 \text{ Nm} \\ f_c = 36.1 \text{ Hz} \\ err = 0.13 \\ - M_0 = 7.1e + 10 \text{ Nm} \\ f_c = 36.1 \text{ Hz} \\ err = 0.13 \\ - M_0 = 7.1e + 10 \text{ Nm} \\ - M_0 = 7.1e$	2.4e+10 Nm f _c =42.3 Hz err=0.12 M ₀ =1.1e+10 Nm f _c =46.8 Hz err=0.08 232316IMS000000 2018204160756IMS00000	f _c =30.9 Hz f _c =29.8 Hz f _c =0.13	M ₀ =1.1e+10 Nm f _c =47.2 Hz err=0.10 - 28 sc - 21 .0 - 14 ts - 7