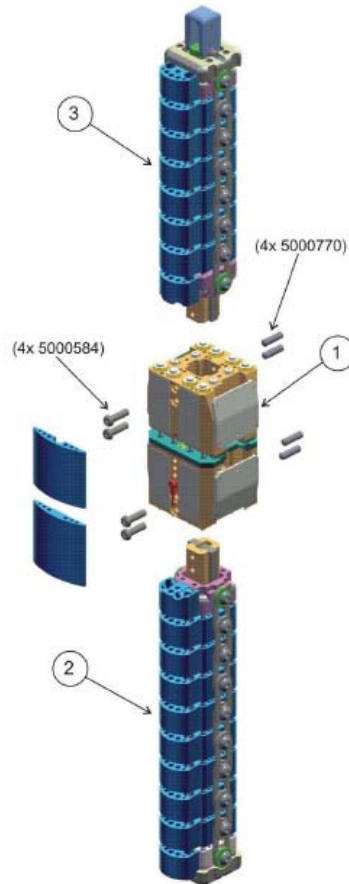


# Flex PLI GTR Status

Informal Group GTR9 PH2



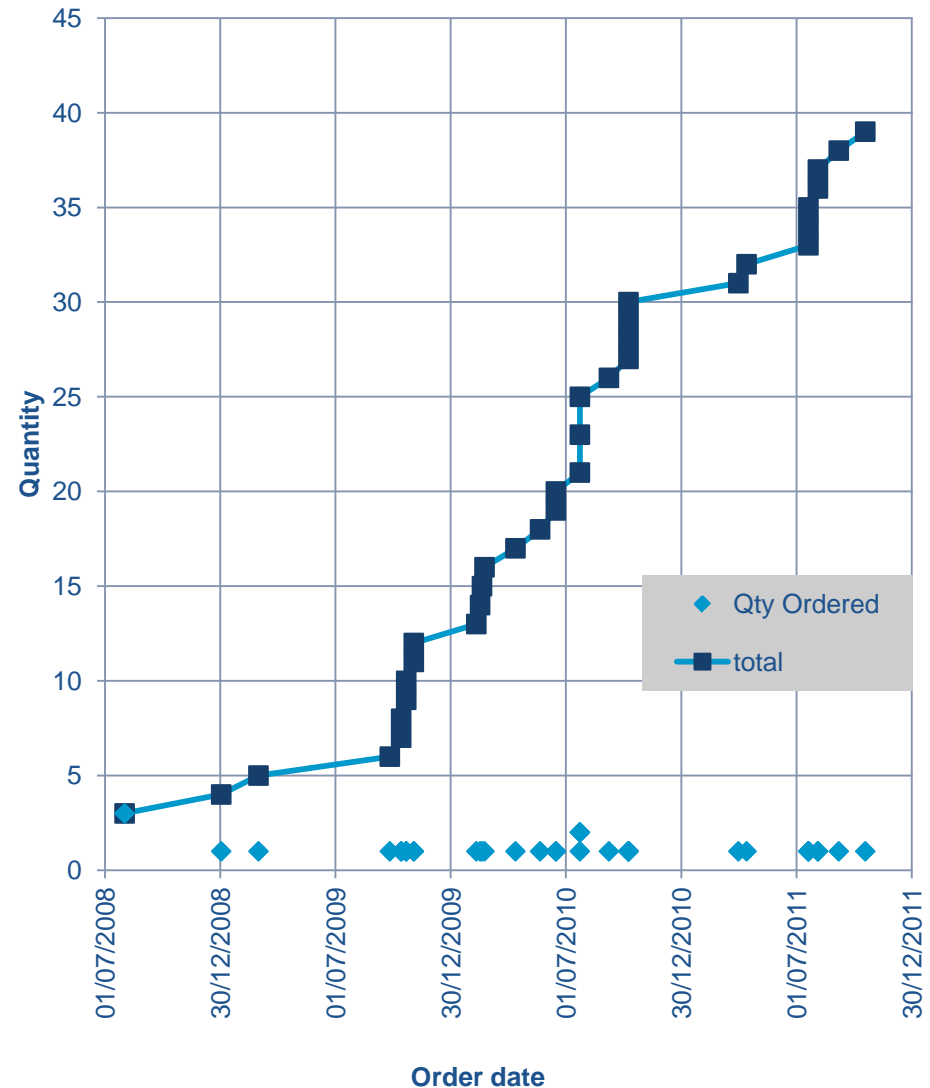
1-2 December 2011

# Content

- ▶ Number of GTR legs manufactured
- ▶ Flex Status
- ▶ Leg availability

# Number of GTR Legs Made

- ▶ 3 JARI prototypes
- ▶ 3 Humanetics for internal testing, demo and CAE
- ▶ 22 customer legs have been sold
- ▶ 12 legs are on order
- ▶ All customer legs have onboard DAS
- ▶ Some with optional addition channels up to 24



# Flex Status

- ▶ All legs after Polyester bone prototypes have more durable Vinyl ester bones. Some prototypes have been updated.
- ▶ 4 different batches of Vinyl ester bone have been used.
- ▶ After the first batch of vinyl ester slight Inverse test performance deviations appeared with respect to Polyester
- ▶ All legs pass agreed static GTR component corridors
- ▶ GTR pendulum corridors are all met, T3 and T4 are usually high and MCL is generally low
- ▶ Not all inverse GTR corridors can be achieved, some tibia moment channels are too low
- ▶ From test experience Humanetics currently manufactures bones to be as close to GTR inverse corridors as possible

# Example 2011 Production Pendulum Results

Pendulum			SN DH5646			
Date			3/21/2011	3/21/2011	4/1/2011	4/7/2011
Test site	Low	High	Plymouth	Plymouth	Nagoya	Nagoya
Peak Moment @ T1	235	272	243.29	245.57	246.97	252.70
Peak Moment @ T2	185	211	198.12	199.87	199.64	205.10
Peak Moment @ T3	135	160	152.92	154.93	151.24	156.50
Peak Moment @ T4	94	108	102.79	103.89	102.89	107.00
Peak ACL Elongation	9	11	10.02	9.99	10.03	10.20
Peak MCL Elongation	23	26	22.87	23.08	23.17	23.60
Peak LCL Elongation	2	4.5	3.24	3.18	3.19	4.30
Peak PCL Elongation	4	5.4	4.09	4.18	4.27	2.00
Femur stiffness			mid			
Femur thickness			10.44mm			
Femur Batch			B2			
Tibia stiffness			mid-high			
Tibia thickness			10.36mm			
Tibia Batch			B2			
Tibia Assembly			Pass			
Femur Assembly			Pass			
Knee Assembly			Pass			
				1/2 turn to springs		With SLICE

SN DG0726		
4/29/2011	5/2/2011	5/16/2011
Plymouth	Plymouth	BAST
251.00	246.83	248.30
207.98	204.93	199.50
159.07	155.94	150.30
109.33	106.83	101.50
9.23	9.07	9.90
23.14	22.96	22.90
3.66	3.54	3.10
4.94	5.06	4.20
High		
10.38mm		
B2		
High		
10.67mm		
B3		
Pass		
Pass		
Pass		

SN DG6304		
6/16/2011	6/16/2011	6/17/2011
Plymouth	Plymouth	Plymouth
244.25	244.33	243.67
199.49	199.54	198.98
151.61	151.77	151.08
102.39	102.45	101.50
9.23	9.24	9.25
22.67	22.70	22.72
2.86	2.86	2.86
4.93	4.95	4.96
MID		
?		
B2		
MID		
?		
B2		
Pass		
Pass		
Pass		

SN DH6791		
5/5/2011	5/6/2011	5/6/2011
Plymouth	Plymouth	Plymouth
247.76	247.71	248.41
204.72	204.12	204.63
156.46	155.79	153.01
106.91	106.50	106.52
9.55	9.90	9.68
23.14	23.08	23.18
4.10	3.93	3.97
4.76	4.45	4.53
Low		
~10.3		
B2		
Medium		
10.4		
B3		
Pass		
Pass		
Pass		

# Example 2011 Production Inverse Results

Inverse			SN DH5646	
Date			4/19/2011	4/20/2011
Test site			Plymouth	Plymouth
Pre Impact velocity	10.9	11.3	11.05	11.34
Peak Moment @ T1	237	277	0.00	257.14
Peak Moment @ T2	223	269	228.26	232.05
Peak Moment @ T3	176	204	173.37	180.00
Peak Moment @ T4	98	120	98.19	101.26
Peak ACL Elongation	8.5	10.5	8.28	8.75
Peak MCL Elongation	18	23	19.77	19.73
Peak PCL Elongation	4.5	6	0.01	5.83
Femur stiffness			mid	
Femur thickness			10.44mm	
Femur Batch			B2	
Tibia stiffness			mid-high	
Tibia thickness			10.36mm	
Tibia Batch			B2	
Tibia Assembly			Pass	
Femur Assembly			Pass	
Knee Assembly			Pass	

SN DG0726	
4/29/2011	5/16/2011
Plymouth	BAST
11.34	11.09
237.73	250.30
221.94	229.50
169.13	177.70
93.42	97.40
9.27	8.70
19.59	19.10
5.34	5.10
High	
10.38mm	
B2	
High	
10.67mm	
B3	
Pass	
Pass	
Pass	

SN DG6304	
6/17/2011	8/4/2011
Plymouth	BAST
11.24	11.15
241.32	246.8
222.27	224.1
170.39	170.5
97.06	97.3
9.26	9.7
19.33	20.3
5.62	5.4
MID	
?	
B2	
MID	
?	
B2	
Pass	
Pass	
Pass	

DH6791
4/20/2011
Plymouth
11.24
231.48
216.31
171.09
99.40
8.22
16.24
4.38
Low
~10.3
B2
Medium
10.4
B3
Pass
Pass
Pass

DI6014
6/2/2011
Plymouth
11.24
241.01
217.43
167.68
97.11
9.55
19.42
6.27
High
?
B3
High
?
B2
Pass
Pass
Pass

# Leg Availability for Testing

- ▶ Humanetics proposes at least 10 legs should be tested for corridor definition at 5 labs after they have been checked and certified
- ▶ Availability of legs for testing would depend on customer co-operation
- ▶ Humanetics would make their internal legs available for testing