Casing Module CM-22 & Torque Turn

*For reference only, please contact your local sales contact for more information.

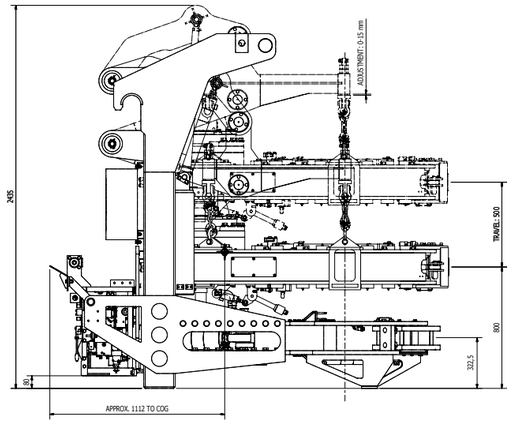
CM-22

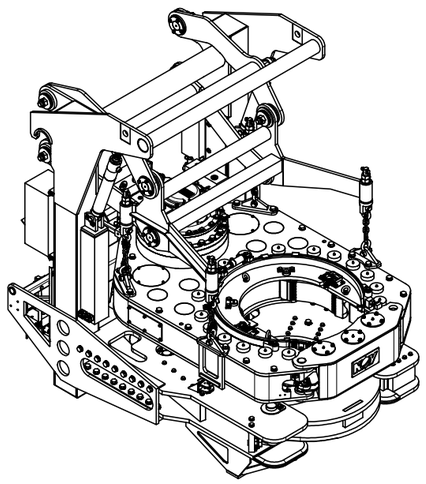
The casing module consists of upper tong, backup tong and a stabbing guide. It is easily and quickly hooked on to the roughneck by use of hydraulic and electric quick connectors. Being fully automated, integrated into NOV control systems, zone management and safety systems including NOV Torque Turn casing logging system, it ensures efficient, safe and reliable make-up and break-out performances.

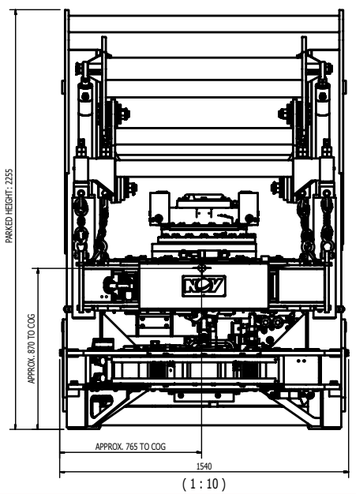
Features

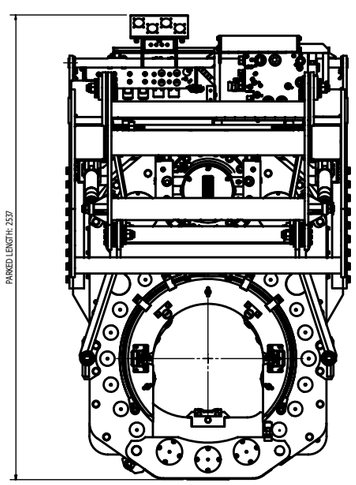
- High Torque
- High accuracy
- Wide range
- High resolution electric torque cell
- Gear on the fly (high speed/low speed)
- Sensors for ACS, MMC and PIM
- Slick design and maintenance optimized
- Stabbing guide
- Radio remote
- Roughneck models compatibility:
  - ST-160
  - ARN-200/270
  - MPT-200/270

Technical Specifications	
Options	Stabbing guide, Radio remote, Torque verification sub
Remote controlled from driller cabin	yes
Connection Hoses	Complete including quick connectors
Mount	Separate module, attached to RN main frame
Rotation range	360° endless
Connection OD range	7" to 22"
Hydraulic requirements	
Minimum	300 l/min
Maximum	420 l/min
Rotation speed: 147 500 lbf-ft 88 500 lbf-ft 12 000 lbf -ft	 2 rpm 7 rpm 15 rpm
Max make-up torque: 14'' to 22'' 10'' to 14'' 7'' to 10''	 147 500 lbf-ft 88 500 lbf-ft 44 200 lbf-ft
Max break-out torque 14'' to 22'' 10'' to 14'' 7'' to 10''	 147 500 lbf-ft 88 500 lbf-ft 44 200 lbf-ft
Horizontal travel	RN model dependent
Vertical adjustment	RN model dependent
Assembly weight	5000 kg









(1 : 10)

Torque Turn

The Torque Turn Logging system is a system designed to monitor and log data from casing pipe spin-in and make-up operations and to perform data analysis according to given criteria for an acceptable connection.

Torque Turn integrated casing tongs and NOV's casing ready pipe rackers enables the rig crew to perform all pipe handling and casing logging under the supervision of professional casing supervisors. Together with 3rd part approved torque verification sub, this setup ensures casing tong performance including documentation and logging of a safe and reliable casing connection. Torque Turn visualizes the torque curves and suggests the torque shoulder point for makeup and spin-in operations. The system's analysis function assists the operator by identifying and assessing the casing connection execution. The operator is prompted to revise the connection analysis prior to acceptance or rejection, introducing a systematic method ensuring a consistent approach for maintaining integrity of the entire well.

Features

- Casing pipe make-up and spin-in operations monitoring
- Real-time connection trend display
- Shoulder torque point identification
- Casing joint assembly evaluation
- Full historical data retrieval and analysis display
- Casing job execution reports
- Easy configuration with interactive operator interface
- High speed data logger (10Hz)

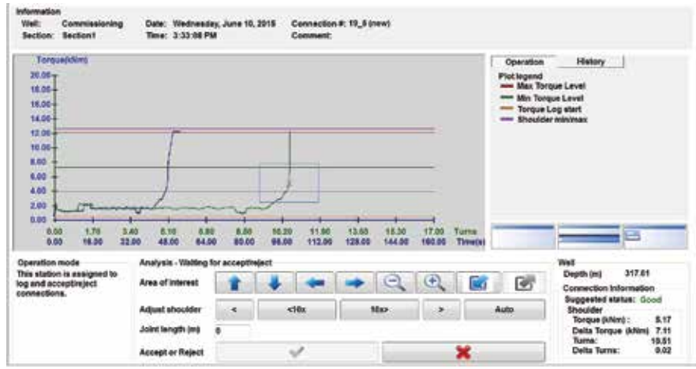
Operation modes

- Monitoring
- Operation
- Historical

Benefits

- Enables rig crew to perform all pipe handling
- Assists casing operator decisions
- Provides reporting services, ref. to ISO9001:2008
- Decreases drilling contractor's costs
- Reduces casing connection failures
- Contributes to high-integrity casing string
- Easy to operate

Other Specifications
Seamless integration with existing NOV Hydratong systems
No additional sensors needed
Can be operated from NOV control and monitoring screens
Supported by NOV Training courses



Casing job report 19.06.2010

Rig Name:	<Sample Rig>	Well:	Sample Well	Company Responsible:	NOV	Report Comments:	
Rig Location:	<Sample Location>	Well Section:	9 5/8	Casing Responsible:	NOV		
Rig Operator:	<Sample Operator>			Casing crew:	NN		

Section Data

Start:	17.0 9.201 2 02: 00:40	Casing Type:	9 5/8	Max Torque	(kNm)	24.0
End:	17.0 9.201 2 14: 00:50	Thread Type:	<SampleThread>	Min Torque	(kNm)	19.5
Depth (m)	217.252	Thread Compound:	<Sample T. Comp>	Optimum Torque	(kNm)	21.6

Joint#	Completed	Length	Depth	Fin. Torque	Fin. Turn	Shldr Torque	Shlder Turn	Dlta Torque	Dlta Turn	Comment
017_01	06/17/2010 02:50:50PM	12.79	12.79	19,902.61	10.80	13,046.12	10.67	6,856.50	0.13	m/u joint inter to shoe
016_01	06/17/2010 01:53:48PM	12.79	25.58	23,410.46	12.27	6,128.64	11.92	17,281.82	0.35	m/u joint FLOAT to INTER A
015_02	06/17/2010 11:50:02AM	12.79	38.37	22,042.99	10.40	9,283.98	10.38	12,759.01	0.02	m/u joint 2 to 4
014_01	06/17/2010 10:52:19AM	12.79	51.16	21,329.53	11.16	3,883.50	11.04	17,446.04	0.12	m/u joint 3 to 4
013_01	06/17/2010 10:29:44AM	12.73	63.88	22,518.63	10.48	4,733.01	10.38	17,785.62	0.10	m/u joint 5 to 7
012_01	06/17/2010 10:18:38AM	12.79	76.67	22,637.54	10.32	5,218.45	10.27	17,419.09	0.05	m/u joint 6 to 7
011_01	06/17/2010 08:45:10AM	12.79	89.46	20,140.43	9.85	3,762.14	9.84	16,378.29	0.01	m/u joint 8 to 10
010_01	06/17/2010 08:33:37AM	12.79	102.25	23,172.64	11.25	3,337.38	11.21	19,835.26	0.05	m/u joint 9 into 10
009_01	06/17/2010 08:09:55AM	12.79	115.03	19,843.15	10.24	3,762.14	10.15	16,081.01	0.09	m/u joint 11 into 13
008_01	06/17/2010 07:58:18AM	12.73	127.76	19,605.33	10.33	4,308.25	10.24	15,297.08	0.09	m/u joint 12 into 13
007_01	06/17/2010 07:28:26AM	12.77	140.52	20,259.34	9.81	7,160.19	9.53	13,099.15	0.29	m/u joint 14 into 16
006_01	06/17/2010 07:15:42AM	12.79	153.31	23,351.01	11.01	1,516.99	10.87	21,834.02	0.15	m/u joint 15 into 16
005_02	06/17/2010 05:58:41AM	12.79	166.10	24,540.11	10.04	4,429.61	9.95	20,110.50	0.09	m/u joint 17 into 19
004_01	06/17/2010 05:35:56AM	12.79	178.89	19,664.79	10.84	4,186.89	10.75	15,477.90	0.09	m/u joint 19 into 18
003_01	06/17/2010 05:11:59AM	12.79	191.67	21,686.26	10.39	2,973.30	10.27	18,712.96	0.13	m/u joint 20 into 22
002_01	06/17/2010 04:56:52AM	12.79	204.46	20,378.25	10.42	3,762.14	10.35	16,616.11	0.07	m/u joint 22 into 21
001_01	06/17/2010 02:57:40AM	12.79	217.25	22,518.63	7.81	4,429.61	7.70	18,089.02	0.11	m/u joint 24 into 25

rig@nov.com nov.com