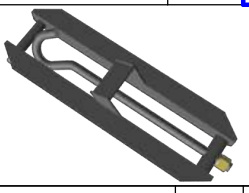
PetroLine'A
ООО НПП ПЕТРОЛАЙН-А

Questionnaire list
Drilling and Well Workover Monitoring System DEL-150

Customer Enterprise	
Equipment nomenclature	
Load Capacity	
Fixture Type	

Filled in		Position	
Contact number		E-mail	
		DATE	

Group Variables	№ position	Equipment nomenclature		Equipment trim	specification	quantity	Notes Marks
	1	Stabilized supply source (220 В) BP-137 for MU-150			Cable source length		
		or sourse cable (24 V)			15 m		
					20 m		
	1a	MU-150 Control Module	standard				
			extended				
			ethernet				
	2	Stabilized supply source (220 В) BP-137 for MK-140			Cable source length		
		or sourse cable (24 V)			15 m		
					20 m		
	2a	MK-140 Commutation Module					
	3	Stabilized supply source (220 В) BP-137 for MK-140(GAS)			Cable source length		
		or sourse cable (24 V)			15 m		
					20 m		
	3a	MK-140(GAS) Commutation Module	4 inputs				
			6 inputs				
			8 inputs				
	4	MK-140(M4) Commutation Module			Cable source length		
		AC 220 V			15 m		
		DC 24 V			20 m		
Commutation	5	Commutation Module (between control module with commutation module)			Cable source length		
		or commutation cable			15 m		
					20 m		

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Weight on hook	6	DN-130 load sensor		Calibration Ø22 Ø25 Ø28 Ø32 Ø35 Ø38		
Tool	7	Installer for setting of load sensor PUDN (Ø25-38)				
Weight on hook	8	Load sensor with output 4-20 мА		Ø Calibration		

** Load sensor DN-130 has 4 types of size for 4 types of cable partticular: Ø16-18 mm; Ø22-25 mm; Ø28-32 mm; Ø35-38 mm. Sensors are calibrated depending on wireline size and wire-line string up on load from 5 to 40 m.

Cable	9a	Sensor Commutation cable is universal	length	10	15	20	
			quantity				

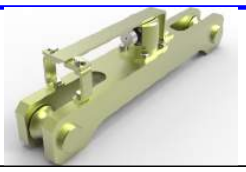
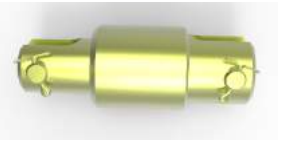
Flush Fluid on input	10	TP-140D Pressure Transducer		max. pressure		
Flush Fluid on input	11	TP-140D(M) Pressure Transducer (with t° measuring flush fluid)		max. pressure		
Flush Fluid on input	12	TP-140D(MA) Pressure Transducer (with output 4-20 mA)		max. pressure		

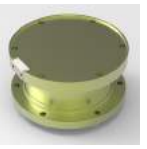
** Pressure Sensors calibrate on pressure 40, 60, 100 (MPa)

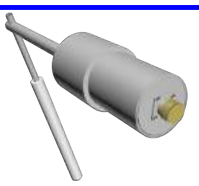
Cable	12a	Sensor Commutation cable is universal	length	10	15	20	
			quantity				

Descent rate, Rate of penetration, Tackle block position, Bottmhole depth, Bore pressure	13	DPS-140 Speed Sensor	Inductive Encoder Hollow shaft					Requires coordination of the size!

Cable	13a	Sensor Commutation cable is universal	length	10	15	20	
			quantity				

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Mechanical Tongs Load	14	DN-130 load sensor ∅18 mm		max. load		
		Torque Type				
		Torque Nomenclature				
Cable	14a	Sensor Commutation cable is universal	length / quantity: 10 / 15 / 20			
Hydraulic Tongs Line Pressure	15	TP-140D Pressure Transducer		max. pressure		
Tong torque	16	TP-140D Pressure Transducer		max. pressure		
		Torque Type				
		Torque Nomenclature				
Cable	16a	Sensor Commutation cable is universal	length / quantity: 10 / 15 / 20			
Tong torque	17	DN-130V inline Load sensor (for cable)		max. load		Requires coordination of the size!
Tong torque	18	DN-130V inline Load sensor (for rod)		max. load		Requires coordination of the size!
Tong torque	18a	DN-130V inline Load sensor (wireless)		max. load		Requires coordination of the size!
		Torque Type				
		Torque Nomenclature				
Cable	19a	Sensor Commutation cable is universal	length / quantity: 10 / 15 / 20			
Tong torque	20	DN-130V(K) inline Load sensor (Mechanical Assemble of torque setting)				
		Torque Type				
		Torque Nomenclature				
Cable	20a	Sensor Commutation cable 20/18	length / quantity: 10 / 15 / 20			

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Rotary torque, Rotor speed	21	DKM-140(R) wireless sensor on the rotor (shaft drive)				Please complete Annex 1
		Rotary Type				
		Rotare Nomenclature				
Cable	21a	Sensor Commutation cable is universal	length: 10 / 15 / 20 — quantity			
Rotary torque	22	TP-140D Pressure Transducer		max. pressure		
		Rotary Type				
		Rotare Nomenclature				
Cable	22a	Sensor Commutation cable is universal	length: 10 / 15 / 20 — quantity			
Rotary torque, Rotor speed	23	DN-130V(C) inline Load sensor (chain drive)		max. load		Please complete Annex 2
		Rotary Type				
		Rotare Nomenclature				
Cable	23a	Sensor Commutation cable 20/18	length: 10 / 15 / 20 — quantity			
Display	24	Display Module (Main)	Main Scale: Vernier Scale:			Please complete Annex 3
Display	25	Display Module (extra)				
Cable	25a	Cable is universal	length: 10 / 15 / 20 — quantity			
Cable	25б	The driller's console	length: 10 / 15 / 20 — quantity			

Group Variables	№ position	Equipment nomenclature			Equipment trim	specification	quantity	Notes Marks
Mud Output	26	IVR-140 Mud Return Indicator	canal ditch					
			pike					
Cable	26a	Universal communication cable			length 10 15 20			
					quantity			
Mud t°	27	DTE-140(ZH) measures ambient temperature	200 mm					
			300 mm					
			400 mm					
			500 mm					
Cable	27a	Universal communication cable			length 10 15 20			
					quantity			
Ambient temperature	28	DTE-140 ambient temperature sensor						
Кабель	28a	Universal communication cable			length 10 15 20			
					quantity			
Pump consumption	29	KDD-140 pulse signal processing module (flow meter)	VBI with cable 2 m					
			VBI with cable 15 m					
Cable	29a	Universal communication cable			length 10 15 20			
					quantity			
Mud Pensity	30	DPR-140 Mud Density Sensor						
Cable	30a	Universal communication cable			length 10 15 20			
					quantity			
Mud Level	31	U-150 level gauge						
Cable	31a	Universal communication cable			length 10 15 20			
					quantity			
Fuel Level	32	"Escort" fuel gauge sender	tank depth 1			cable length		
			tank depth 2			15 m		
						20 m		

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Gas content	33	GSV-1 gas analyzer **CH4**		cable length 20 m m m		
Gas content	34	GSV-1 gas analyzer **H2S**		cable length 20 m m m		
Sound Alarm	35	Sound Alarm		cable length 4 m 10 m m		
Light Alarm	36	Light Alarm **(for MK-140 (GAZ))**		cable length 4 m 10 m m		
Work with Memory Module	37	DEL-150SD Interfase (for work with memory module)				
Removable memory	38	Memory module				
Commutation	39	USB-RS485 Converter				

Lock selection

Blocked Equipment	Voriable	Connecting Place
drawwork		
pump		
rotor		
tong		

Cable	40	Blocking Cable	cable length 15 m 20 m		

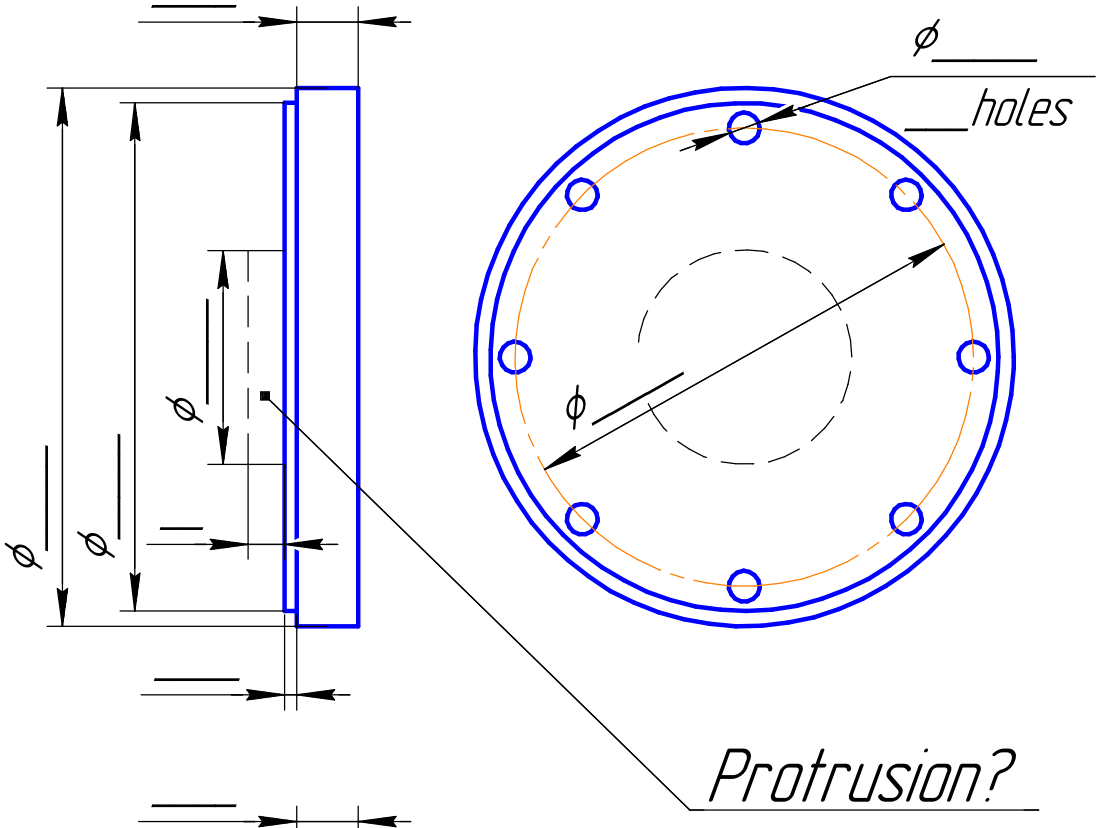
Range of additional devices

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Commutation	41	KBS-485 Wireless Communication (Communication MU-150 and PS)		cable length 15 m 20 m		
Commutation	42	Wi-Fi Wireless Communication (to DEL-150E)		cable length 10 m 15 m 20 m		
Transducers	43	PS-150(4K) Signal Transducer (4 outputs 4-20 mA) 1 2 3 4		cable length 15 m		Requires coordination of the size!
Transducers	44	PS-150(AD) Signal Transducer (4 inputs 4-20 mA) 1 2 3 4		cable length 15 m		Requires coordination of the size!
Transducers	45	PS-150(AD2) Signal Transducer (2 inputs 4-20 mA) 1 2		cable length 15 m		Requires coordination of the size!
Transducers	46	PS-150(LLS) Signal Transducer (2 inputs for Fuel level gauges)		cable length 15 m 20 m		

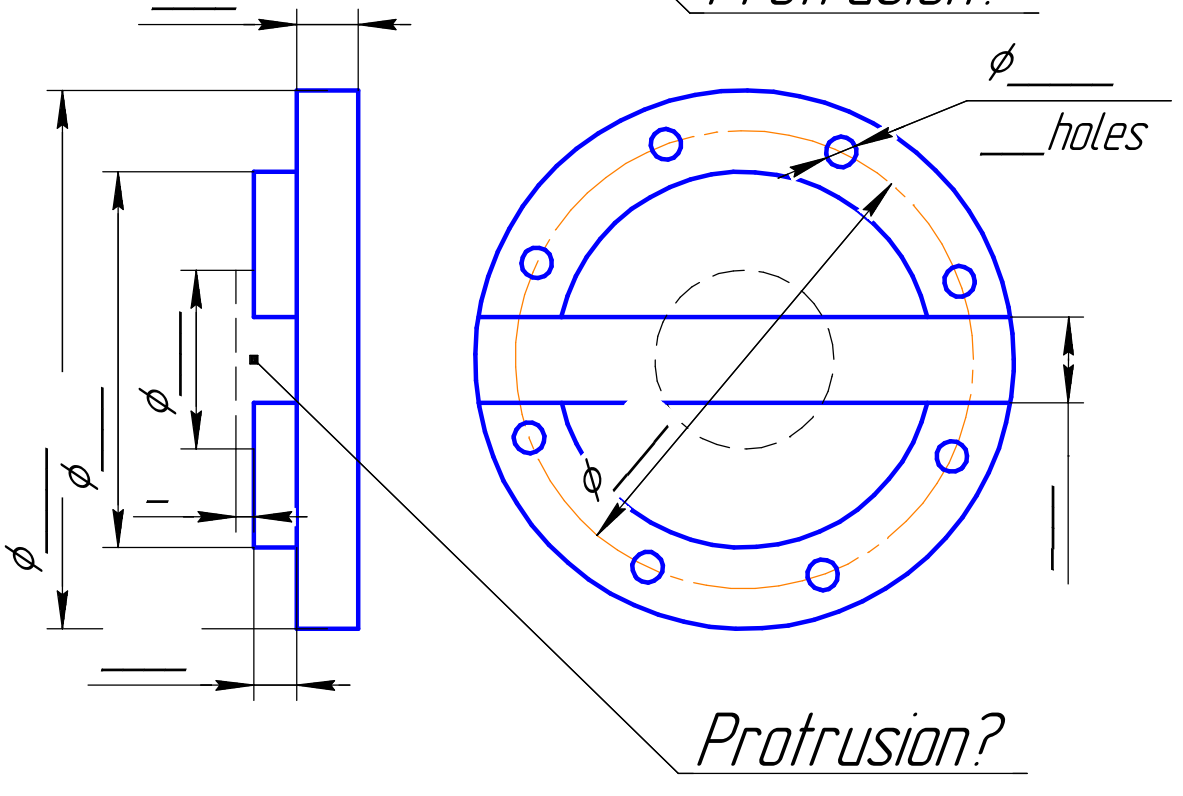
Appendix 1

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Rotary torque, Rotor speed	21	DKM-140(R) wireless sensor on the rotor (shaft drive)				Please complete Annex 1
Cable	21a	Sensor Commutation cable is universal	length / quantity	10	15	20

Variant 1

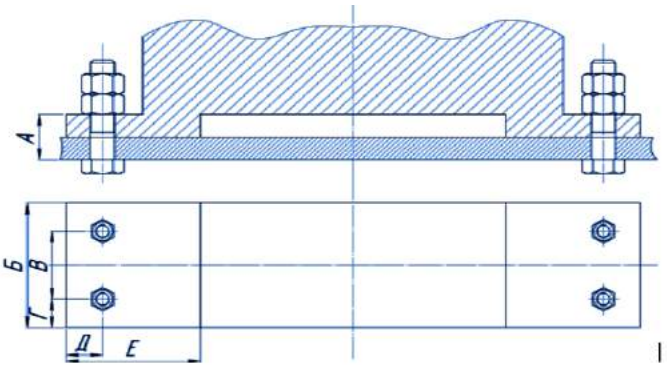


Variant 2

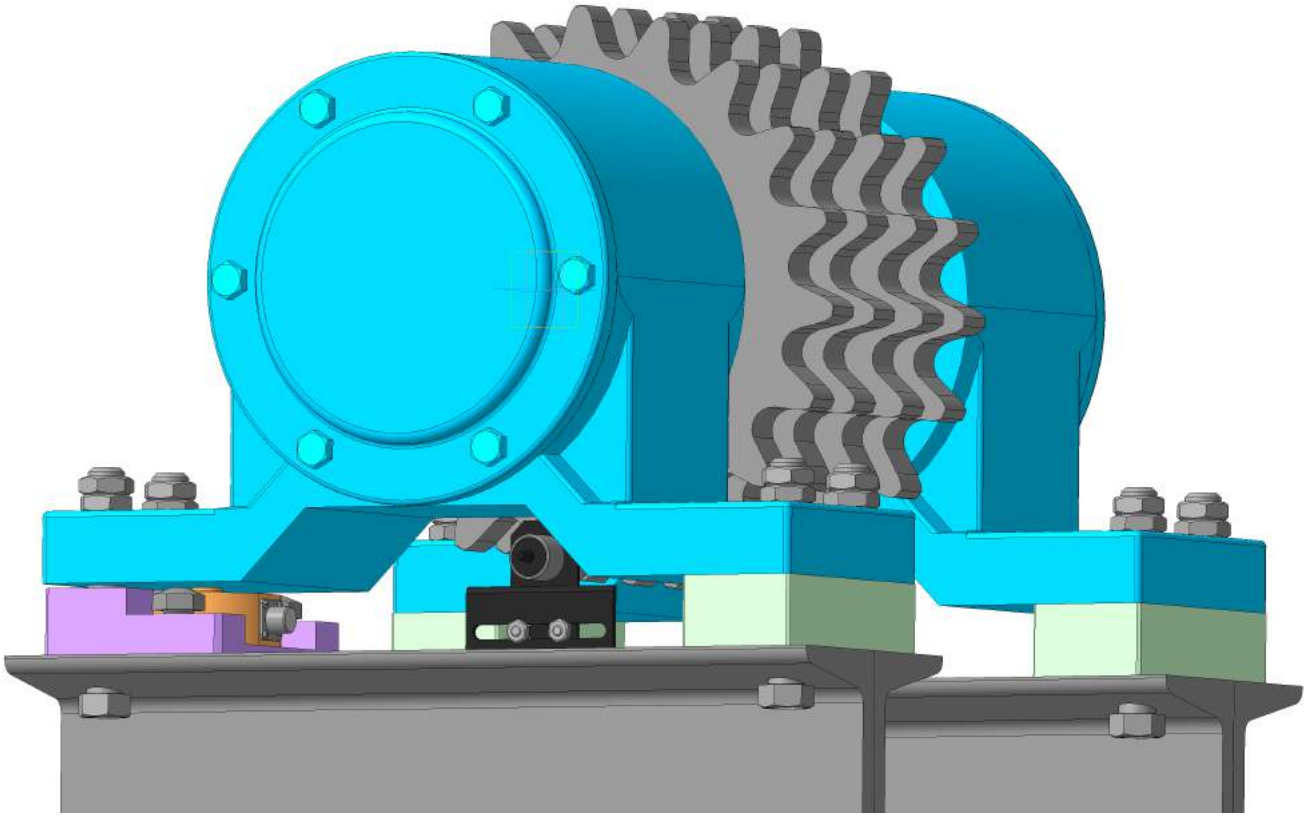


Appendix 2

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Rotary torque, Rotor speed	23	DN-130V(C) inline Load sensor (chain drive)		max. load		Please complete Annex 2
		Rotary Type				
		Rotare Nomenclature				
Cable	23a	Sensor Commutation cable 20/18	length / quantity	10	15 / 20	



	Dimensions
А	mm
Б	mm
В	mm
Г	mm
Д	mm
Е	mm
И	mm



Appendix 3

Group Variables	№ position	Equipment nomenclature	Equipment trim	specification	quantity	Notes Marks
Display	24	Display Module (Main)				Please complete Annex 3
		Main Scale		Vernier Scale		
Display	25	Display Module (extra)				
Cable	25а	Cable is universal	length / quantity	10 /	15 /	20 /
Cable	25б	The driller's console	length / quantity	10 /	15 /	20 /

*** Display Module (main) Scale variant: 42, 48, 60, 90, 120, 180, 240, 300, 360, 420.

Extra Vernier Scale variant: 4,5 ; 6

Measured quantity	show on display: main	extra 1	extra 2	extra 3
Weight on hook				
Weight on tool				
Manual tong torque				
Manual tong torque 2				
Hydraulic tong torque pressure				
"AKB-4" tong torque				
Hydraulic tong torque				
Manifold pressure				
Rotary torque				
Rotor speed				
Top-drive rotary torque				
Top-drive rotor speed				
Input fluid t °				
Output fluid t °				
Descent rate				
Rate of penetration				
Tackle block position (travel block position)				
Bottomhole depth				
Bore position				
Mud rate on input (Pump RPM)				
Mud Output				
Mud level (volume mud)				
Total mud volume				
Mud density				
Ambient temperature				
Wind Speed				
Date				
Time				