



STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

Ref: CED/TFL/05/5040

Dated: 07-05-2024

Dated: 08-05-2024

To

M/S CGGC Dasu Hydropower Project Management in Pakistan
Dasu Hydropower Project

Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -1/10)

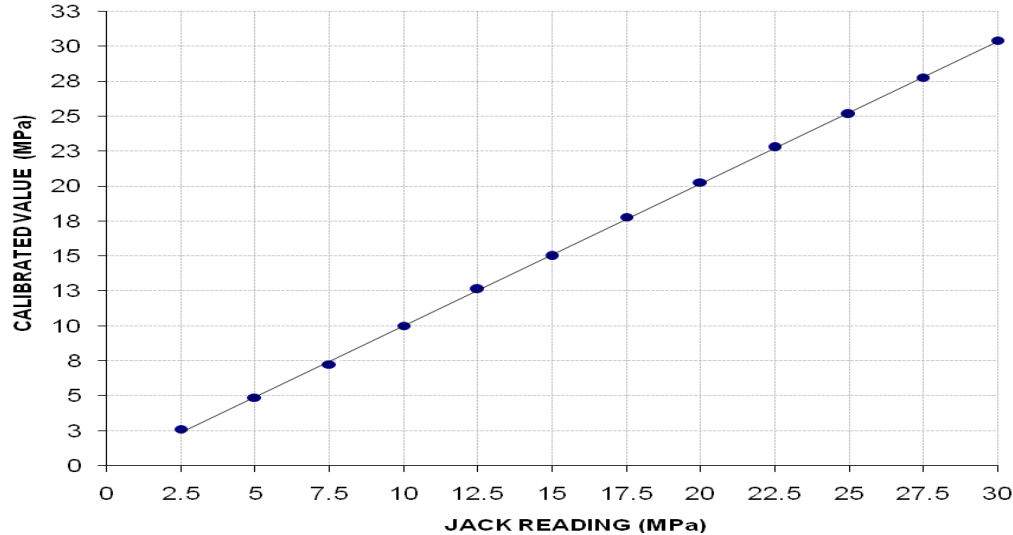
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 2203, Gauge No. 3946, Load Cell No. 451) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 30 (MPa)

Hydraulic Jack Reading (MPa)	2.50	5	7.50	10	12.50	15	17.50	20	22.50	25	27.50	30
Calibrated Load (kg)	8000	14800	22000	30400	38400	45600	54000	61600	69200	76400	84400	92400
Calibrated Pressure (Mpa)	2.63	4.87	7.24	10.00	12.64	15.01	17.77	20.27	22.77	25.14	27.78	30.41
Load Cell Reading (kN)	87.2	138.8	210.7	291.2	354.6	422.8	500.4	599.5	652.9	707.6	782.5	867.0

The Ram Area of Jack = 298 cm²

Calibration Curve For Jack No. 2203 (Gauge # 3946)
Calibrated Value (MPa) = (1.016 x Jack Reading (MPa)) - 0.133



I/C Testing Laboratoires
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Note:

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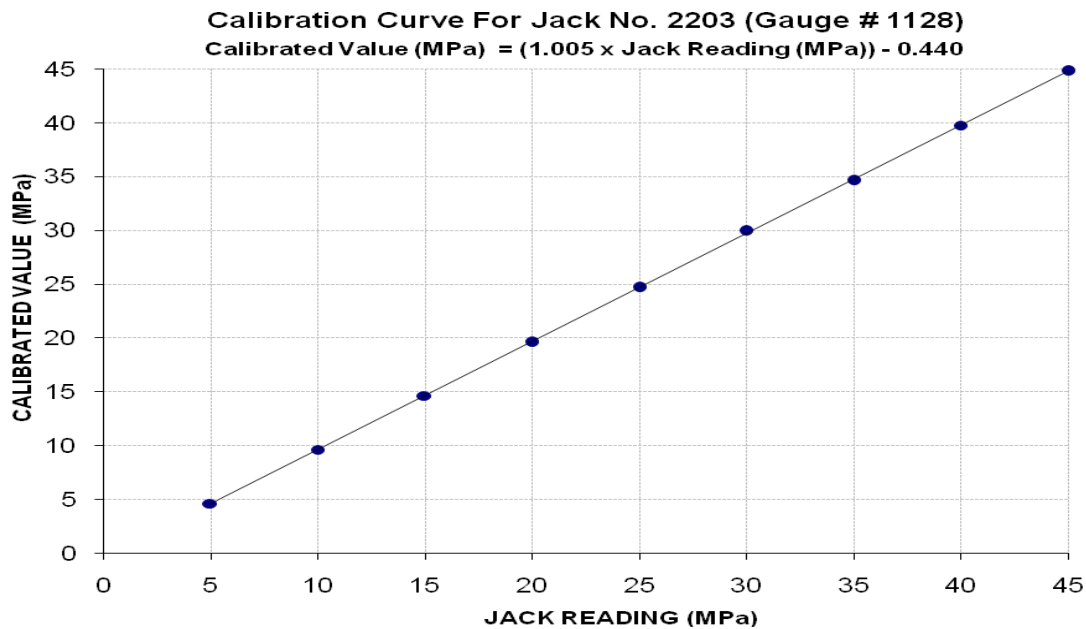
Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -2/10)

Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 2203, Gauge No. 1128) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 45 (MPa)

Hydraulic Jack Reading (MPa)	5	10	15	20	25	30	35	40	45
Calibrated Load (kg)	14000	29200	44400	59600	75000	91000	105200	120800	136200
Calibrated Pressure (Mpa)	4.61	9.61	14.61	19.61	24.68	29.95	34.62	39.75	44.82

The Ram Area of Jack = 298 cm²



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Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -3/10)

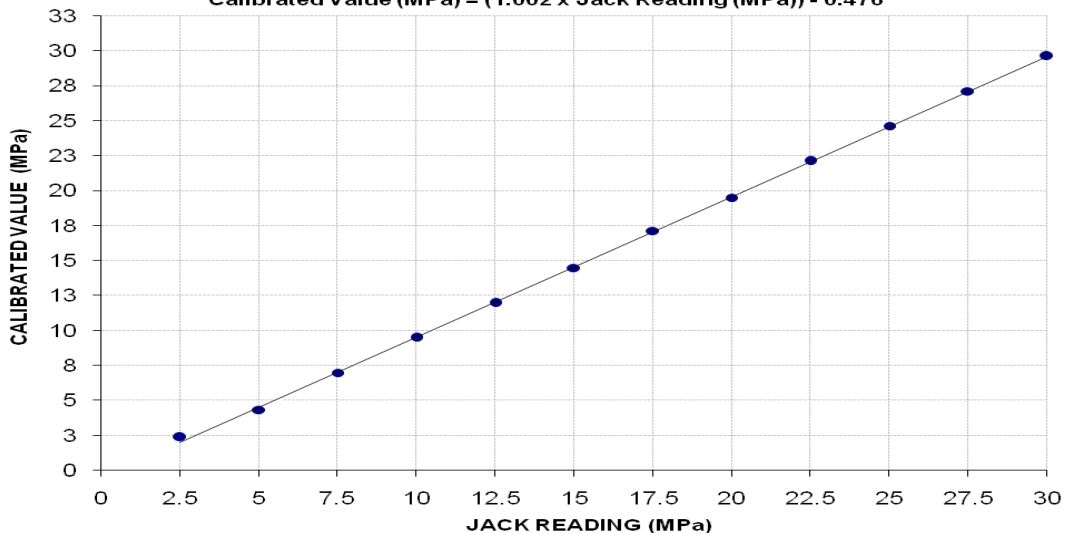
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 2205, Gauge No. 3928, Load Cell No. 451) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 30 (MPa)

Hydraulic Jack Reading (MPa)	2.50	5	7.50	10	12.50	15	17.50	20	22.50	25	27.50	30
Calibrated Load (kg)	7200	13200	21200	28800	36400	44000	52000	59200	67200	74800	82400	90000
Calibrated Pressure (Mpa)	2.37	4.34	6.98	9.48	11.98	14.48	17.11	19.48	22.12	24.62	27.12	29.62
Load Cell Reading (kN)	70.0	126.4	199.7	266.6	334.3	410.3	481.3	549.3	621.2	692.1	766.9	834.4

The Ram Area of Jack = 298 cm^2

Calibration Curve For Jack No. 2205 (Gauge # 3928)
Calibrated Value (MPa) = (1.002 x Jack Reading (MPa)) - 0.476



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Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -4/10)

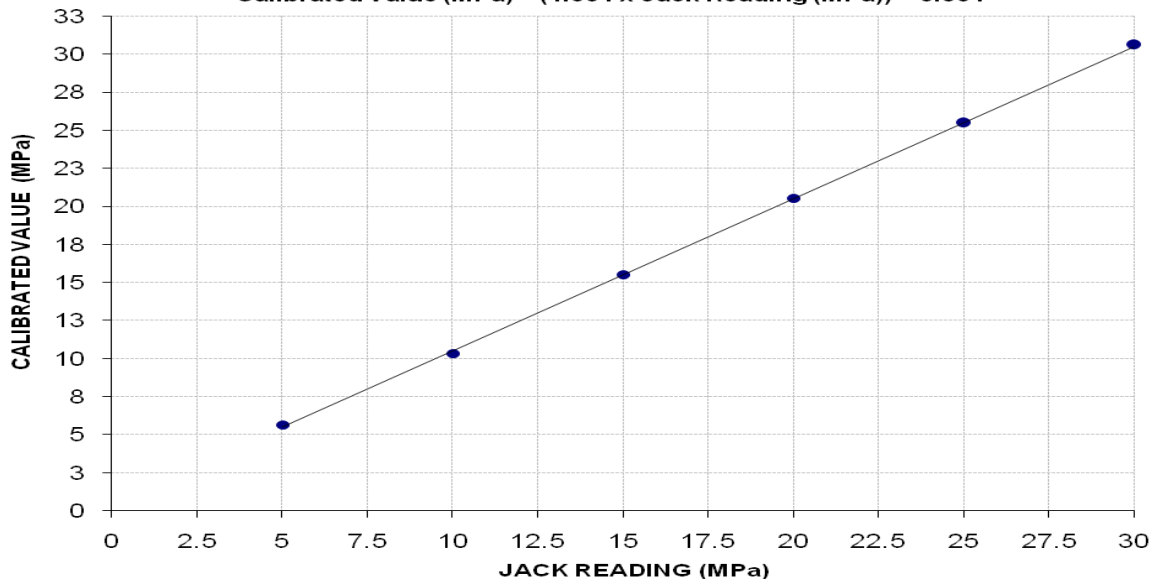
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 2205, Gauge No. 3964) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 45 (MPa)

Hydraulic Jack Reading (MPa)	5	10	15	20	25	30	35	40	45
Calibrated Load (kg)	17200	31400	47200	62400	77400	93000	108200	123200	138400
Calibrated Pressure (Mpa)	5.66	10.33	15.53	20.54	25.47	30.61	35.61	40.54	45.55

The Ram Area of Jack = 298 cm²

Calibration Curve For Jack No. 2205 (Gauge # 3964)
Calibrated Value (MPa) = (1.001 x Jack Reading (MPa)) + 0.504



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Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -5/10)

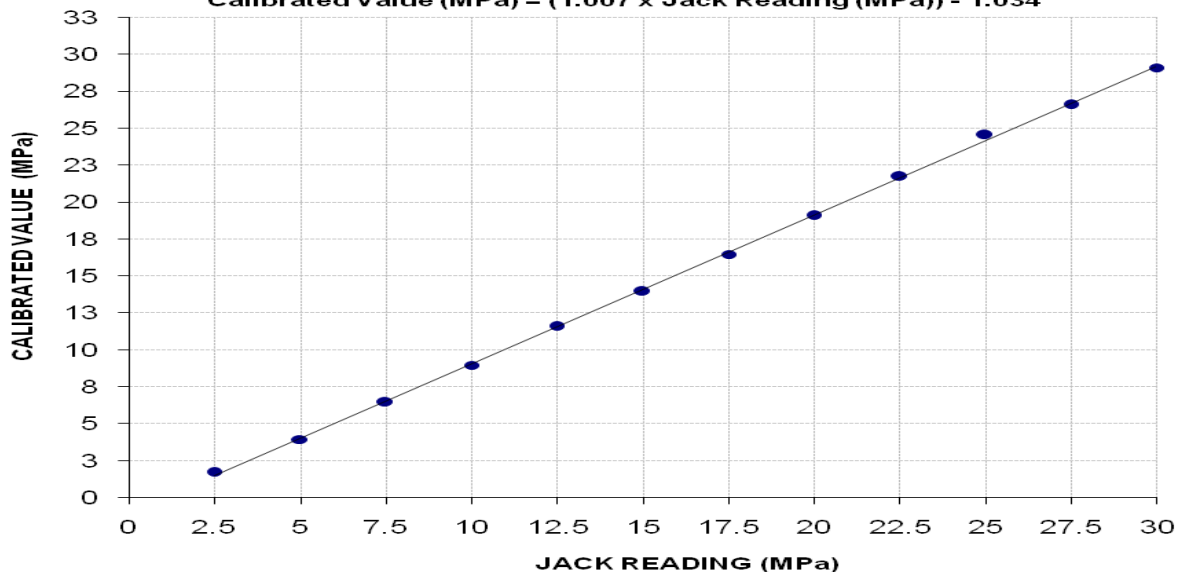
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 1839, Gauge No. 1578, Load Cell No. 455) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 30 (MPa)

Hydraulic Jack Reading (MPa)	2.50	5	7.50	10	12.50	15	17.50	20	22.50	25	27.50	30
Calibrated Load (kg)	5200	12000	19600	27200	35200	42400	50000	58000	66000	74600	80800	88400
Calibrated Pressure (Mpa)	1.71	3.95	6.45	8.95	11.58	13.95	16.45	19.09	21.72	24.55	26.59	29.09
Load Cell Reading (kN)	48.9	130.5	194.7	262.3	325.2	397.2	461.0	538.3	616.0	682.9	755.7	812.7

The Ram Area of Jack = 298 cm²

Calibration Curve For Jack No. 1839 (Gauge # 1578)
Calibrated Value (MPa) = (1.007 x Jack Reading (MPa)) - 1.034



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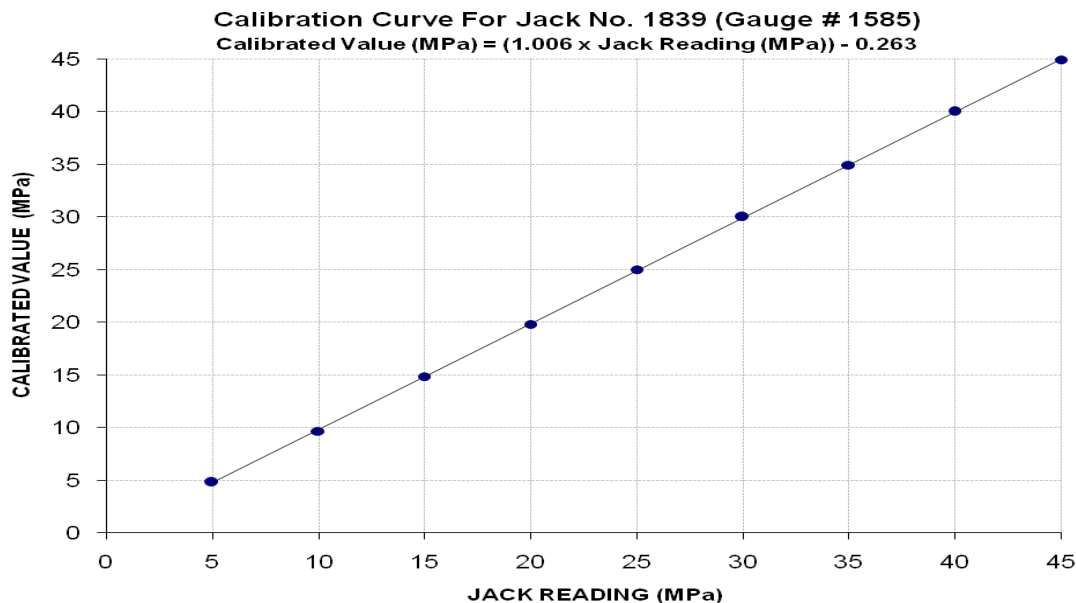
Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -6/10)

Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 1839, Gauge No. 1585) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 45 (MPa)

Hydraulic Jack Reading (MPa)	5	10	15	20	25	30	35	40	45
Calibrated Load (kg)	14600	29400	45200	60200	76000	91200	106200	121600	136600
Calibrated Pressure (Mpa)	4.80	9.68	14.88	19.81	25.01	30.01	34.95	40.02	44.95

The Ram Area of Jack = 298 cm²



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Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -7/10)

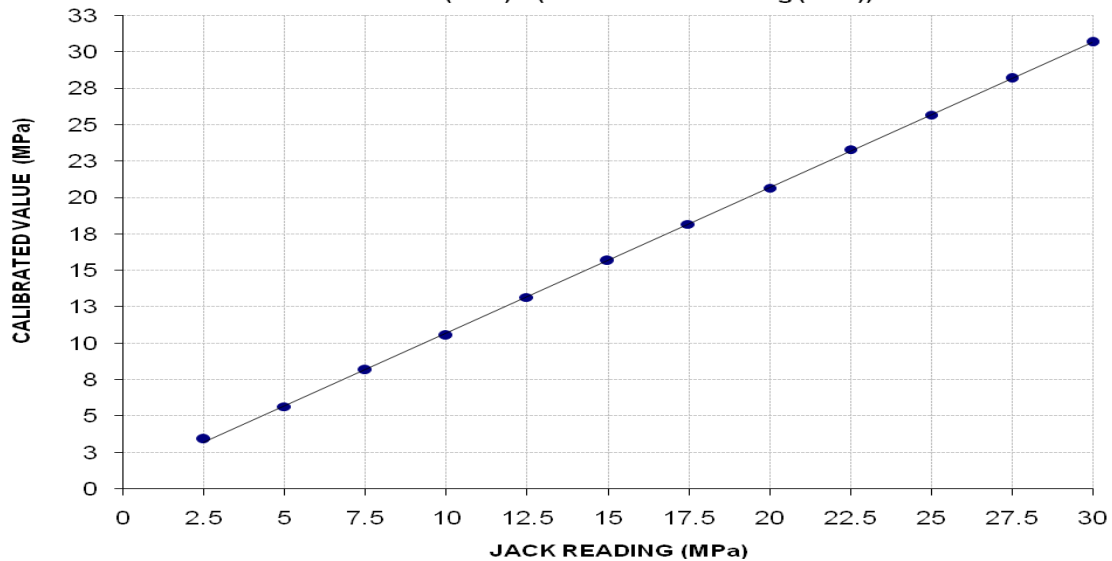
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 2204, Gauge No. 3944, Load Cell No. 455) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 30 (MPa)

Hydraulic Jack Reading (MPa)	2.50	5	7.50	10	12.50	15	17.50	20	22.50	25	27.50	30
Calibrated Load (kg)	10400	17200	24800	32000	40000	47600	55200	62800	70800	78000	85600	93200
Calibrated Pressure (Mpa)	3.42	5.66	8.16	10.53	13.16	15.66	18.17	20.67	23.30	25.67	28.17	30.67
Load Cell Reading (kN)	95.5	151.9	223.8	293.0	367.1	439.5	511.7	585.7	657.4	729.5	797.4	870.5

The Ram Area of Jack = 298 cm²

Calibration Curve For Jack No. 2204 (Gauge # 3944)
Calibrated Value (MPa) = (0.998 x Jack Reading (MPa)) + 0.716



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Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -8/10)

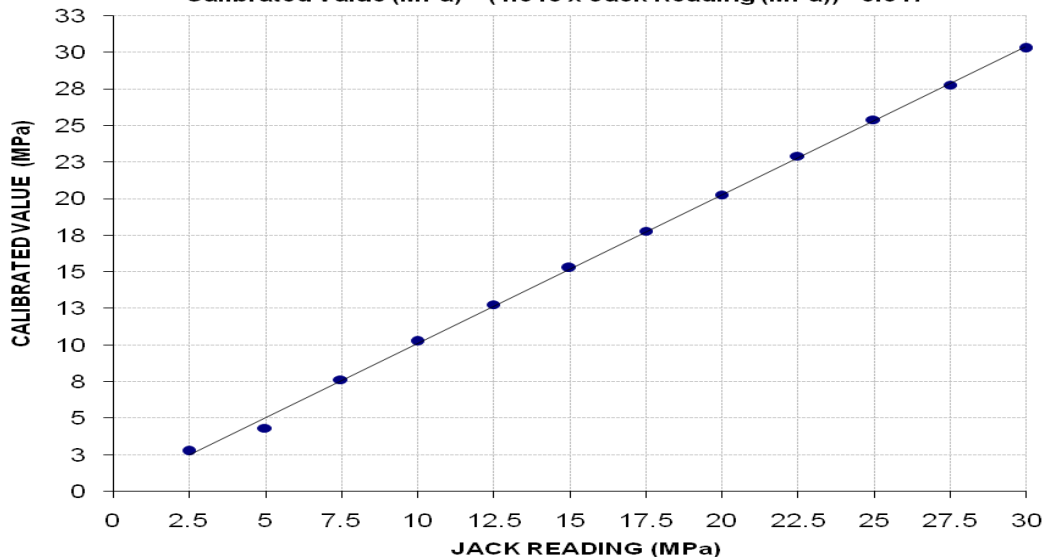
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 2204, Gauge No. 1588, Load Cell No. 451) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 30 (MPa)

Hydraulic Jack Reading (MPa)	2.50	5	7.50	10	12.50	15	17.50	20	22.50	25	27.50	30
Calibrated Load (kg)	8400	13200	23200	31200	38800	46400	54000	61600	69600	77200	84400	92000
Calibrated Pressure (Mpa)	2.76	4.34	7.63	10.27	12.77	15.27	17.77	20.27	22.90	25.41	27.78	30.28
Load Cell Reading (kN)	82.0	147.9	216.5	288.3	351.8	430.0	497.7	565.5	646.7	720.9	802.0	891.1

The Ram Area of Jack = 298 cm²

Calibration Curve For Jack No. 2204 (Gauge # 1588)
Calibrated Value (MPa) = (1.015 x Jack Reading (MPa)) - 0.047



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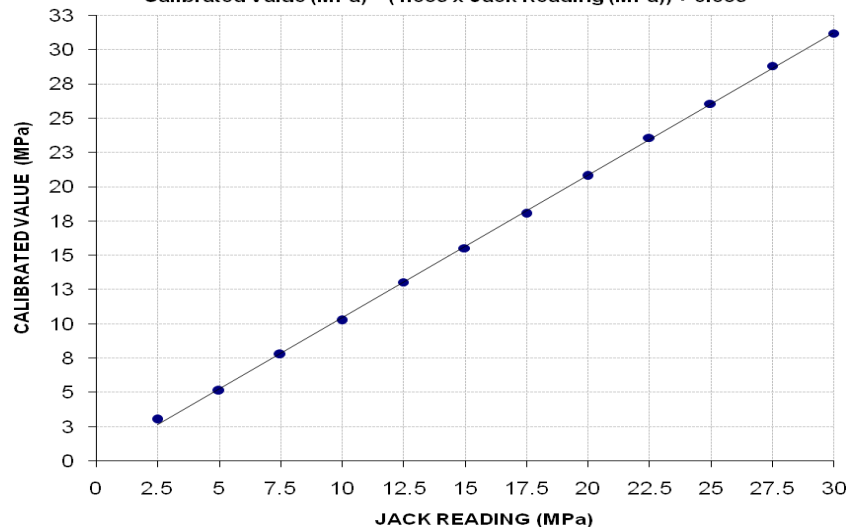
Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 1801, Gauge No. 3833, Load Cell No. 455) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 30 (MPa)

Hydraulic Jack Reading (MPa)	2.50	5	7.50	10	12.50	15	17.50	20	22.50	25	27.50	30
Calibrated Load (kg)	9200	15600	23600	31200	39600	47200	54800	63200	71600	79200	87600	94800
Calibrated Pressure (Mpa)	3.03	5.13	7.77	10.27	13.03	15.53	18.03	20.80	23.56	26.06	28.83	31.20
Load Cell Reading (kN)	82.9	150.8	226.9	296.9	366.0	430.9	502.9	579.4	647.2	718.4	796.7	861.4

The Ram Area of Jack = 298 cm²

Calibration Curve For Jack No. 1801 (Gauge # 3833)
Calibrated Value (MPa) = (1.039 x Jack Reading (MPa)) + 0.039



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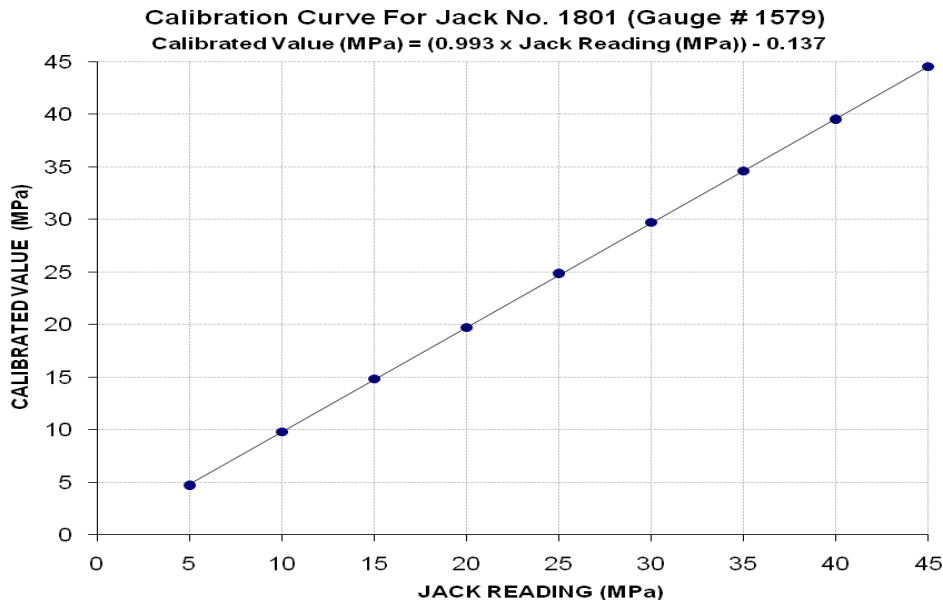
Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/05/5040)** (Page -10/10)

Reference to your Letter No. Nil, dated: 07/05/2024 on the subject cited above. One Hydraulic Jack (Jack No. 1801, Gauge No. 1579) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 60 (MPa)
Calibrated Range : Zero - 45 (MPa)

Hydraulic Jack Reading (MPa)	5	10	15	20	25	30	35	40	45
Calibrated Load (kg)	14200	29800	45200	60000	75400	90400	105200	120000	135400
Calibrated Pressure (Mpa)	4.67	9.81	14.88	19.75	24.81	29.75	34.62	39.49	44.56

The Ram Area of Jack = 298 cm²



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