

TEKNİK FREN

DİNGİL OTOMOTİV SAN. TİC. LTD. ŞTİ.

CATALOGUE · ISUZU

Isuzu NPR10 · NPR 3D · TORA All Modifications

Technical tables for additional axle and axle lift, chassis extension, truck-to-tractor conversion, axle manufacturing and sleeper cabs.

WE DESIGN **TO THE NEED.**

ISO 9001

TSE

TÜV-SÜD

VCA

SGS



THE TEKNİK FREN ASSURANCE

2-YEAR or 100,000 KM WARRANTY

An engineering journey that began in 1978.

Our company was founded in Gebze and incorporated by İbrahim Topçu. Since the day it was founded, it has served Anadolu Isuzu and Otokar, which rank among the world's renowned automotive companies, as well as the defence industry.

Through projects that put technology and quality first, Teknik Fren has multiplied its business volume, created jobs, earned its customers' satisfaction with high-quality service and added value to its country's economy.

Our work falls under three headings: chassis and additional axle optimisation, cab modification and special vehicles. Quality, sustainability and integrity are our most important core values.



1978 The start of an engineering career

Our founder, İbrahim Topçu, began his career in mechanical engineering; until 2005 he served as technical director and partner at companies manufacturing parts for automotive OEMs.

2005 Dinamik Fren Test Mühendislik Danışmanlık

Having set up on his own, İbrahim Topçu founded this company and continued to provide engineering and consultancy services to the automotive industry.

Gebze Teknik Fren Dingil Otomotiv

Our company was founded in Gebze and, from day one, began serving Anadolu Isuzu, Otokar and the defence industry.

Organisations we have served since the day we were founded.

ANADOLU ISUZU

OTOKAR

DEFENCE INDUSTRY



Sustainability

We back sustainability with environmental action: efficient use of energy, effective waste management and R&D projects aimed at developing environmentally compatible products and technologies.



Quality

We carry out durability and long-distance road tests on the prototype vehicles designed for our projects using our dedicated GPS-linked test equipment, collecting data in real time.



R&D

We use 3D CAD in our prototype designs to get results quickly, speed up the transition to series production and minimise design errors.

WE DESIGN **TO THE NEED.**

Six steps from analysis to delivery. Our processes are designed to interlock with the vehicle manufacturer's, which means maximum transparency and minimum lead time.



01

Market and Needs Analysis

We analyse the need against technology, market, regulatory and price criteria and define a realistic solution.



02

3D CAD Design

Design down to the smallest detail. Using 3D CAD speeds up the transition to series production and minimises design errors.



03

Risk Analysis

Sustainability, maintenance and after-sales considerations are built into the design, and risks are assessed rigorously.



04

Prototype and Road Testing

Our dedicated prototype team prepares the vehicle; durability and long-distance road tests are carried out with our GPS-linked test equipment.



05

Homologation

Tests are carried out with authorised technical services, the engineering documentation (project file) is prepared and an application for certification is submitted to TSE.



06

Delivery

The new configuration is programmed into the vehicle's ECU using our diagnostic equipment, and the vehicle is handed over.



The NPR 3D is now 16 tonnes

~~12.5~~ → **16** TONNES

With our additional axle and axle lift, the Isuzu NPR 3D and NQR 3D go from 12,500 kg to 16,000 kg.

For chassis modification, a Long option is available alongside the standard chassis: on the NPR 3D Long, the wheelbase increases from 3,385 mm to 3,815 mm and the maximum body length from 5,450 mm to 6,400 mm.

PAYLOAD

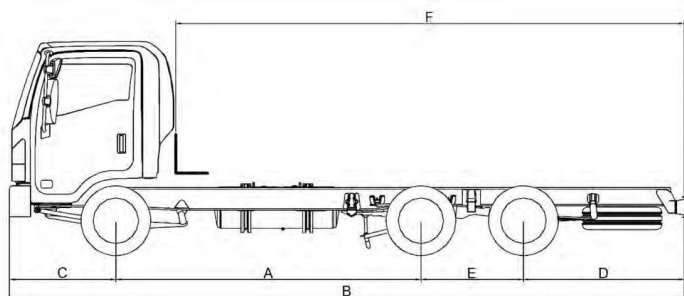
11,400 kg

WHEELBASE

3385–3815 mm

MAX. BODY LENGTH

6,400 mm



Isuzu NPR 3D and NQR 3D additional axle technical specifications

SPECIFICATION	NPR 3D	NPR 3D LONG
DIMENSIONS (MM)		
Wheelbase	3,385	3,815
Front overhang	1,128	1,128
Rear overhang (with body, max.)	1,826	2,335
Rear axle spacing	1,001	1,001
Start of body – end of bumper	5,100	6,000
Maximum length	7,340	8,250
Maximum width	2,550	2,550
Min. body length	5,200	6,250
Max. body length	5,450	6,400
WEIGHTS (KG)		
Gross vehicle weight (GVW)	15,000	15,000
Kerb weight	3,600	3,800
Payload (carrying capacity)	11,400	11,200
Front axle capacity	3,400	3,400
1st rear axle capacity	6,400	6,400
2nd rear axle capacity	6,000	6,400

Kerb weight: the weight including a 75 kg driver, with all fluids and a full fuel tank. The weighbridge tolerance permitted by the highways authority is not included.



Isuzu TORA additional axle technical specifications

SPECIFICATION	TORA	TORA LONG
DIMENSIONS (MM)		
Wheelbase	3,900	4,660
Length (excluding body)	8,120	9,226
Front overhang	1,170	1,170
Rear overhang (with body, max.)	2,106	2,446
Rear axle spacing	1,350	1,350
Start of body – end of bumper	6,300	7,400
Maximum length	8,526	9,626
Maximum width	2,550	2,550
Min. body length	6,200	7,300
Max. body length	6,700	7,800
WEIGHTS (KG)		
Gross vehicle weight (GVW)	21,000	21,000
Kerb weight	5,400	5,540
Payload (carrying capacity)	15,600	15,460
Front axle capacity	5,500	5,500
1st rear axle capacity	10,900	10,900
2nd rear axle capacity	9,000	9,000

Kerb weight: the weight including a 75 kg driver, with all fluids and a full fuel tank. The weighbridge tolerance permitted by the highways authority is not included.



TORA and TORA Long: now 21 tonnes

21,000 kg

With the Isuzu TORA additional axle conversion, the gross vehicle weight becomes 21,000 kg. The front axle is rated at 5,500 kg and the rear axles at 10,900 kg and 9,000 kg.

By fitting an additional axle we increase the net payload of your Isuzu, and we carry out this modification using the original components used by the vehicle manufacturer.

KERB WEIGHT

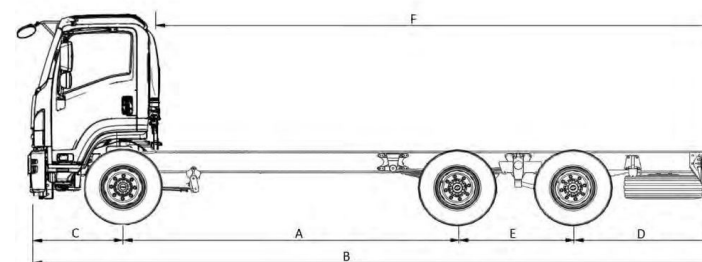
5,400 kg

WHEELBASE

3900–4660 mm

MAX. BODY LENGTH

7,800 mm



Chassis Extension

We carry out chassis optimisation for greater loading capacity, optimum manoeuvrability and more efficient use of the vehicle chassis.

A chassis extension lengthens the vehicle's chassis to provide more usable length for the body. Chassis (frame) optimisation increases loading capacity and makes more efficient use of the chassis.

In our projects, the Isuzu NPR 3D Long raises the maximum body length from 5,450 mm to 6,400 mm, and the Isuzu TORA Long from 6,700 mm to 7,800 mm. In our Mercedes Atego additional axle conversion, the maximum body length on the 5360 UK variant is 8,600 mm.



Standard and Long chassis dimensions (mm)

DIMENSION (MM)	NPR 3D	NPR 3D LONG	TORA	TORA LONG
Wheelbase	3,385	3,815	3,900	4,660
Rear axle spacing	1,001	1,001	1,350	1,350
Rear overhang (with body, max.)	1,826	2,335	2,106	2,446
Start of body – end of bumper	5,100	6,000	6,300	7,400
Maximum length	7,340	8,250	8,526	9,626
Maximum width	2,550	2,550	2,550	2,550
Min. body length	5,200	6,250	6,200	7,300
Max. body length	5,450	6,400	6,700	7,800

Standard and long chassis dimensions for the Isuzu NPR 3D and TORA.

NPR 3D LONG BODY LENGTH

6,400 mm

TORA LONG BODY LENGTH

7,800 mm

ATEGO 5360 UK BODY LENGTH

8,600 mm

Truck-to-Tractor Conversion

We convert your truck into a tractor unit with the ISUZU NPR TRACTOR UNIT 16T, which we designed for bulky but low-tonnage loads.

Operating and fuel costs are rising by the day, and reducing harm to the environment calls for vehicles with lower emissions. For bulky but low-tonnage loads, we designed the ISUZU NPR TRACTOR UNIT 16T.

With a gross combination weight of 16 tonnes, this tractor unit can pull a semi-trailer of the same volume as one hauled by a large tractor unit. It is designed to cut operating costs by almost 50% and to prevent unnecessary pollution of the environment.

Because this economical tractor unit has a full air brake system, the response time between it and the braking system of the semi-trailer it pulls is kept to a minimum. And with a sleeper cab of our own design, it offers all the comfort of a large tractor unit.

GROSS
COMBINATION
WEIGHT

16,000
kg

GROSS VEHICLE
WEIGHT

7,950
kg

ENGINE POWER

190
HP

WARRANTY

2 years
/ 100,000 km



Low operating costs

Designed to cut operating costs by almost 50%.



Large volume

Pulls a semi-trailer of the same volume as one hauled by a large tractor unit.



Full air brakes

Response time with the semi-trailer's braking system is kept to a minimum; ABS, ASR and EBD are fitted.



Sleeper cab

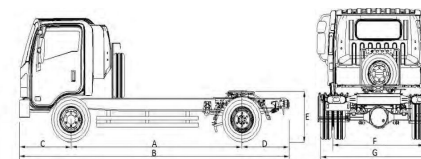
The sleeper cab, our own design, offers all the comfort of a large tractor unit.



Isuzu NPR Tractor Unit technical specifications

SPECIFICATION	VALUE
CAB	
Cab type	Sleeper cab
ENGINE	
Type	ISUZU 4HK1E5C
Displacement	4 cylinders, 5,193 cc
Power	190 HP (140 kW) @ 2,600 rpm
Torque	513 Nm / 1,600–2,600 rpm
GEARBOX	
Type	MZZ6F
Gears	Manual, 6 forward and 1 reverse
Final drive ratio	5.125 (optional 5.571 and 5.857)
SUSPENSION	
Front	Semi-elliptic alloy steel leaf springs, double-acting hydraulic telescopic shock absorbers
Rear	Air suspension
BRAKE SYSTEM	
Front / rear	Disc / disc
Brake system	Full air, automatic brake lining adjustment, ABS, ASR and EBD
Auxiliary brake	Vacuum-assisted engine exhaust brake
Parking brake	Emergency spring brake acting on the rear wheels

SPECIFICATION	VALUE
TYRES AND FIFTH WHEEL	
Front and rear tyres	215/75 R17.5 · rim 17.5×6.0
Fifth wheel	Jost or SAF Holland
DIMENSIONS (MM)	
Wheelbase	3,385
Length	5,400
Front overhang	1,128
Rear overhang	887
Fifth-wheel height	900
Axle track width	1,650
Width	2,122
WEIGHTS (KG)	
Gross vehicle weight (GVW)	7,950
Gross combination weight	16,000
Kerb weight	3,300
Front axle capacity	3,400
Rear axle capacity	6,400



Kerb weight: the weight including a 75 kg driver, with all fluids and a full fuel tank. Weighbridge tolerance is not included.

Axle Manufacturing

The additional axles we manufacture for 17.5" and 19.5" wheel sizes are available with disc or drum brakes for 17.5" and with disc brakes for 19.5".

By using the same bearings, hubs and calipers as the drive axle of your ISUZU vehicle, we stay true to your vehicle's original design. As a result, the additional axle performs to the same standard as the vehicle's own parts.

WHEEL SIZE

17.5" and 19.5"

17.5" OPTIONS

Disc or drum

19.5" OPTION

Disc

SHARED COMPONENTS

Bearing · hub · caliper



Same components as the drive axle

The bearings, hubs and calipers are the same as those on the vehicle's drive axle.



3D CAD design

We use 3D CAD in our prototype designs to speed up the transition to series production and minimise design errors.



Testing and analysis

We carry out durability and long-distance road tests on prototype vehicles using our dedicated GPS-linked test equipment.





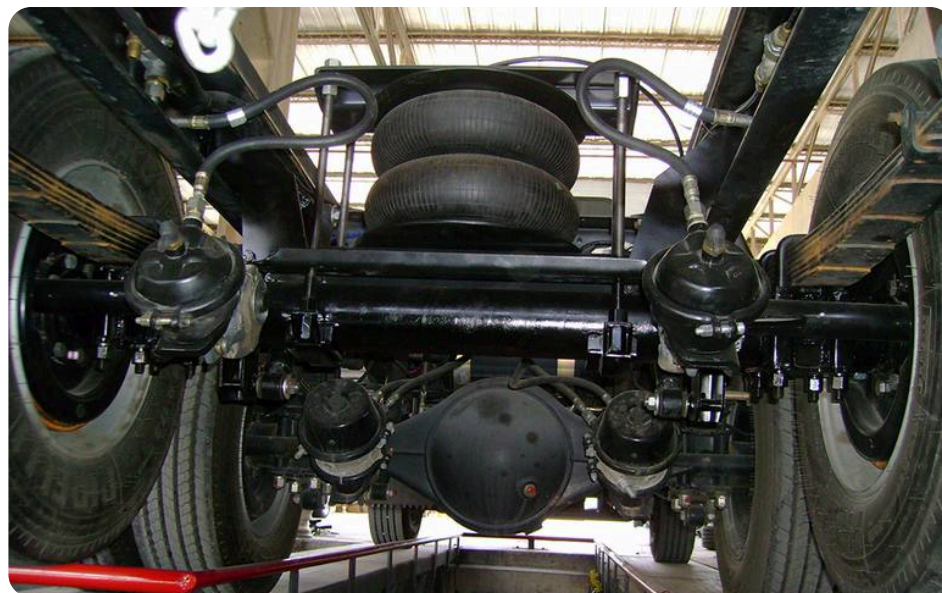
COMFORTABLE, RELAXED TRAVEL

Sleeper Cab **Conversion**

With a sleeper cab conversion we create more living space inside the cab and add the sleeper berth that has become a necessity in today's conditions.

Alongside chassis and additional axle optimisation, cab modification is one of our main fields of work. The sleeper cab of our own design is also used in our Isuzu NPR Tractor Unit 16T application and offers all the comfort of a large tractor unit.

- ✓ More living space inside the cab
- ✓ Our own design
- ✓ Sleeper berth installation
- ✓ Compatible with the Isuzu NPR Tractor Unit



AIR SUSPENSION FOR THE ISUZU NPR 10

Air Suspension **Conversion**

On request, we fit air suspension to your ISUZU NPR 10 vehicles.

Our Isuzu NPR Tractor Unit 16T application also has air suspension at the rear; at the front it has semi-elliptic alloy steel leaf springs and double-acting hydraulic telescopic shock absorbers.

After the modification, the new configuration is programmed into the vehicle's ECU using our computer-aided diagnostic equipment.

How does the homologation process work?

Approval from the competent authorities is mandatory for the modification or manufacture of a vehicle. We manage this entire process with our authorised in-house engineers.



Preliminary development tests

On the prototypes we design, we carry out our preliminary tests with our own test equipment and under the supervision of our specialist engineers, just as a vehicle manufacturer would.



Authorised technical service tests

Together with technical services authorised by the Ministry of Science, Industry and Technology of the Republic of Türkiye, the technical units affected by the modification are tested and the test reports are obtained.



Engineering documentation and TSE application

The engineering documentation (project file) for the modified vehicle is prepared and an application for certification is submitted to TSE.



Road tests with GPS-linked equipment

We carry out durability and long-distance road tests on the prototype vehicles designed for our projects using our dedicated GPS-linked test equipment, collecting data in real time.

- ✓ Durability tests
- ✓ Long-distance road tests
- ✓ Real-time data collection
- ✓ Our own test equipment

ISO 9001

Quality assurance standard

TSE

Turkish Standards Institution

TÜV-SÜD

Approval and accreditation

VCA

Approval and accreditation

SGS

Approval and accreditation

TEKNİK FREN

DİNGİL OTOMOTİV SAN. TİC. LTD. ŞTİ.

CONTACT

WE DESIGN TO THE NEED.

Teknik Fren specialises in optimising and completing truck manufacturers' product ranges. Our aim is to maximise the profitability of trucks on a sustainable basis.

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THE TEKNİK FREN ASSURANCE

2-YEAR or 100,000 KM WARRANTY

The Isuzu TORA 21-tonne additional axle and Isuzu NPR Tractor Unit 16T applications featured in our catalogues come with a warranty of 2 years or 100,000 km.

EXPORT

Committed to adding value to its country's economy, our company also delivers its solutions to customers abroad.

IT Italy

ES Spain

CZ Czechia

UZ Uzbekistan

RU Russia

CERTIFICATES AND APPROVALS

ISO 9001

TSE

TÜV-SÜD

VCA

SGS

Organisations we have served since the day we were founded.

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