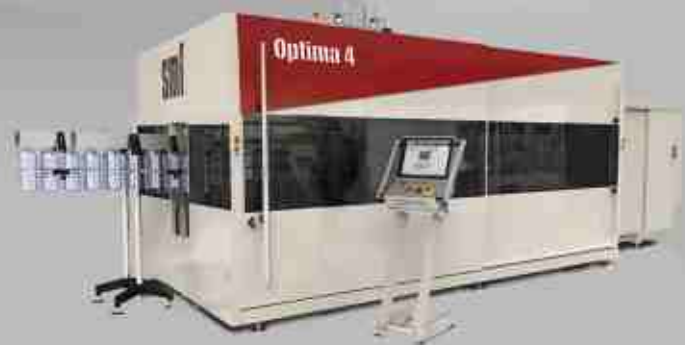




FULLY ELECTRIC MACHINES FOR PET BOTTLES PRODUCTION

optima turbo SERIES



Optima 2	
Bottle size	0,2 – 3,0 L
Output	ca. 3 500 bph (0,5 – 1,0 L) ca. 3 200 bph (1,5 L) ca. 2 500 bph (3,0 L)
Power installed	65 kW
Effective power	10,4 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 1,9 Nm ³
Number of cavities	2

version VCN (variable cavities number) available as option

Optima 2/3	
Bottle size	0,2 – 0,6 L
Output	ca. 5 500 bph (0,2L) ca. 5 500 bph (0,5 L)
Power installed	65 kW
Effective power	13,2 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 3,0 Nm ³
Number of cavities	3

version VCN (variable cavities number) available as option

Optima 2/1	
Bottle size	1,0 – 7,0 L
Output	ca. 1 800 bph (1,0 L) ca. 1 500 bph (5,0 L) ca. 1 300 bph (7,0 L)
Power installed	65 kW
Effective power	13,2 kW (5,0 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 5,3 Nm ³
Number of cavities	1

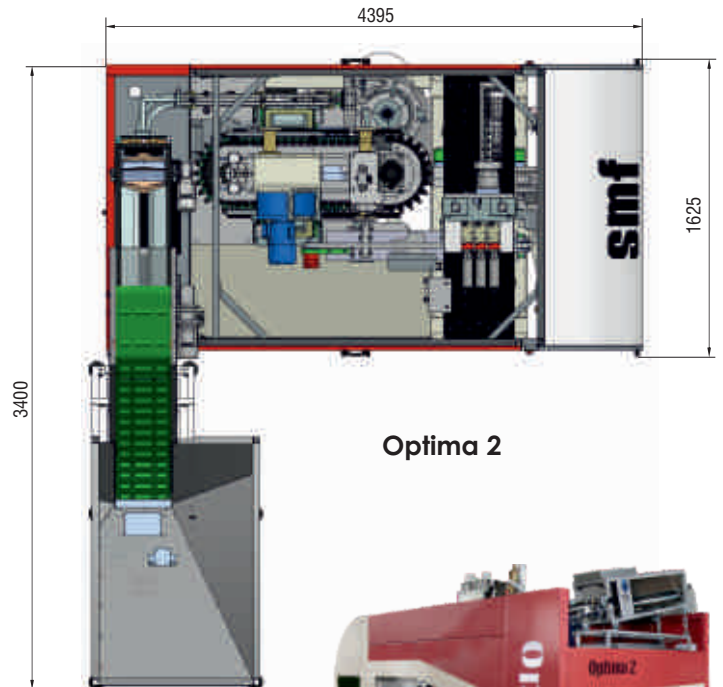
version VCN (variable cavities number) available as option

Optima 2 Turbo is a 2-cavity, automatic machine with nominal working speed 3500 bph of 500ml. Ready bottles are discharged in upright position. Classic version **Optima 2** is designed for bottles from 200ml up to 3000ml. Unique feature is available as option VCN system (variable cavities number) which allows to adapt the same machine to be one, two or three cavities system.

Other blowers basing on frame & closing unit of classic

Optima 2 turbo:

- **Optima 2/3** – three cavity machine with nominal working speed 5500 bph of 200ml, suitable for bottle 200ml – 600ml
- **Optima 2/1** – one cavity machine with nominal working speed 1500 bph of 5l, suitable for bottle 200 ml – 7000 ml
- **VCN** system must be define at early stage



Optima 4NT

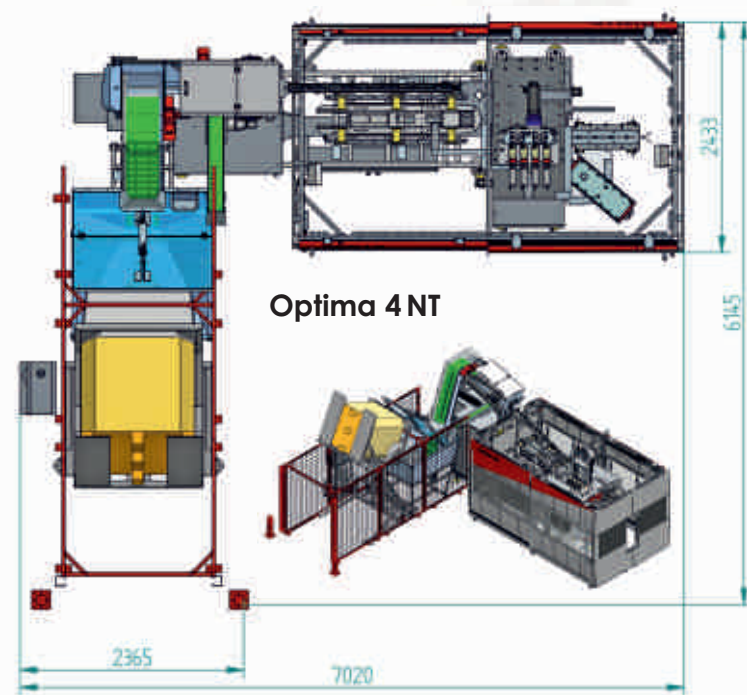
Optima 4 NT is a 4-cavity, automatic machine with nominal working speed 7000 bph of 500ml. Ready bottles are discharged in upright position. Classic version **Optima 4** is designed for bottles from 200ml up to 2500ml. This modern machine is fully electric with all vital units are controlled and steered by Mitsubishi servo drives.

Optima is high advanced and reliable blower for production of high quality PET bottles in various shapes.

Other blowers basing on frame & closing unit of classic

Optima 4 NT:

- **Optima 2MAX** – with nominal working speed 3600 bph of 1l, suitable for bottle 200ml – 5l
- 2 cavity **JAR** version



Optima 4 NT	
Bottle size	0,2 – 2,5 L
Output	ca. 7 200 bph (0,5 – 1,0 L) ca. 6 000 bph (1,5 L) ca. 5 000 bph (2,0 L)
Power installed	110 kW
Effective power	20,2 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 3,7 Nm ³
Number of cavities	4

Optima 2 MAX	
Bottle size	1,0 – 5,0 L
Output	ca. 3 600 bph (1,0 L) ca. 3 400 bph (1,5 L) ca. 3 000 bph (5,0 L)
Power installed	110 kW
Effective power	43,2 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 10,5 Nm ³
Number of cavities	2

version for JAR available



Optima 8 turbo

Optima 8 turbo	
Bottle size	0,2 – 2,0 L
Output	ca. 14 000 bph (0,5 – 1,0 L) ca. 12 000 bph (1,5 L) ca. 10 000 bph (2,0 L)
Power installed	160 kW
Effective power	39,2 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 6,9 Nm ³
Number of cavities	8

Optima 10 turbo	
Bottle size	0,2 – 0,6 L
Output	ca. 17 000 bph (0,2 L) ca. 16 000 bph (0,6 L)
Power installed	160 kW
Effective power	47,6 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 8,4 Nm ³
Number of cavities	10

Optima 4 MAX	
Bottle size	1,0 – 6,0 L
Output	ca. 7 000 bph (1,5 L) ca. 6 500 bph (5,0 L)
Power installed	210 kW
Effective power	93,6 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 22,8 Nm ³
Number of cavities	4

version for JAR available

Optima 6 MAX	
Bottle size	1,0 – 3,0 L
Output	ca. 10 000 bph (1,0 L) ca. 9 000 bph (3,0 L)
Power installed	160 kW
Effective power	86,4 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 19,5 Nm ³
Number of cavities	6

Optima 16	
Bottle size	0,2 – 2,0 L
Output	ca. 28 000 bph (0,5 – 1,0 L) ca. 24 000 bph (1,5 L) ca. 20 000 bph (2,0 L)
Power installed	320 kW
Effective power	78,4 kW (0,5 L bottle)
Working air quantity (10 bar)	0,0 Nm ³ with recuperation
Working air quantity (40 bar)	for 0,5 L 13,8 Nm ³
Number of cavities	16

MAX version for 3L and 6L bottles available as well as 20 cav version for bottles up to 600ml

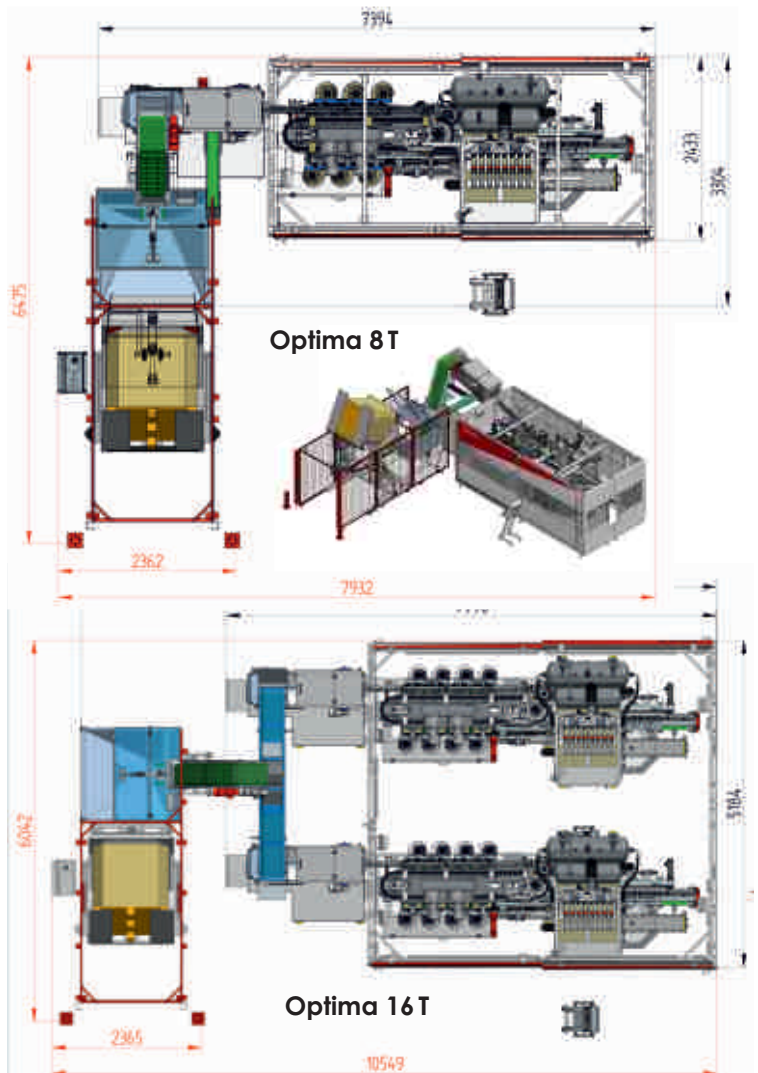


Optima 8 Turbo is a 8-cavity, automatic machine with nominal working speed 14000 bph of 500ml. Ready bottles are discharged in upright position. Classic version **Optima 8** is designed for bottles from 200ml up to 2000ml but different configuration of the closing unit & cavity numbers allows for production 6L bottles with speed 6500 bph. This modern machine is fully electric with all vital units are controlled and steered by Mitsubishi servo drives. **Optima** is high advanced and reliable blower for production of high quality PET bottles in various shapes.

Other blowers basing on frame & closing unit of classic **Optima 8 turbo**:

Optima 8 turbo:

- **Optima10** – with nominal working speed 17000 bph of 0,2l, suitable for bottle 200ml – 600ml
- **Optima 6MAX** – with nominal working speed 10000 bph of 1l, suitable for bottle 1 L – 3 L
- **Optima 4MAX** – with nominal working speed 7000 of 1L, suitable for bottle 1 L – 6 L
- 4 cavity **JAR** version



Optima is a family of modern, innovative and very flexible linear blow moulding machines. With more than 15 members (types of Optima machines), our **Optima** family offers solutions for most demanding clients. Optima can be answer for a high-speed production (**Optima 20** - with nominal working speed 34 000 bph) , medium speed 7000-14 000 bph as well as for low-speed but flexible PET production system which allows to produce small and big bottles on one machine. Special VCN **Optima 2** is a new machine available in the series, allows the number of cavities to be intelligently adapted to the product to be manufactured. In practice, this means that 200ml containers and big-volume bottles up to 7L could also be produced on this machine.

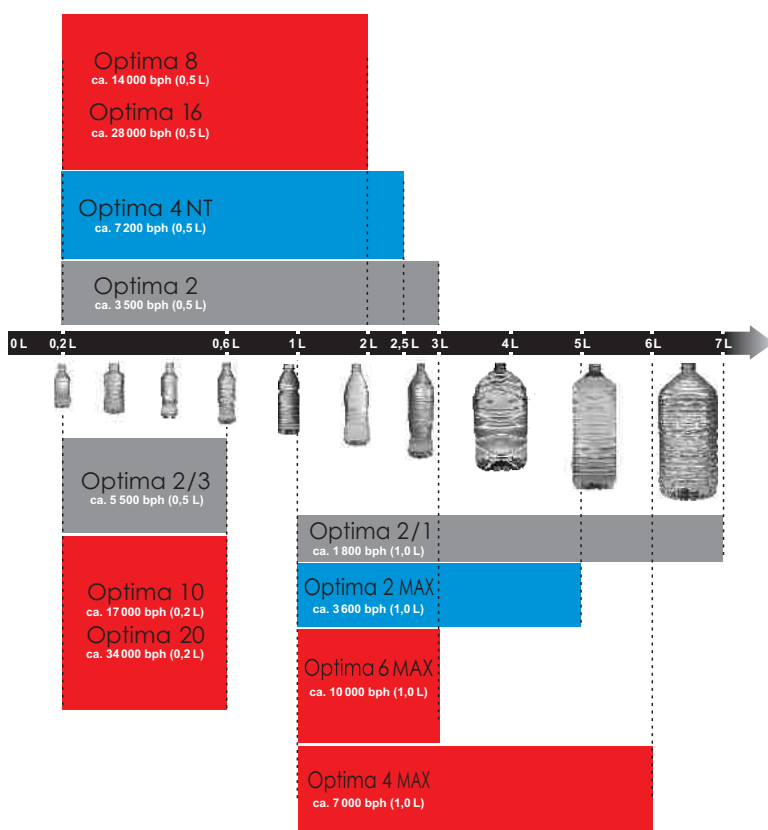


Optima machines can be equipped with HOT-FILL kit (for juice filled in 85°C), ultra-clean system (for ESL milk installation) as well as preferential heating (for complicated bottles with irregular shape). Compact size of **Optima** and the discharge of bottles in upright position (ready bottles are transported directly on the air conveyor to the filling machine) gives a possibility to fit a complete line in very limited space. With quick neck format change kit, it is also possible to work with two or more different neck type on one machine

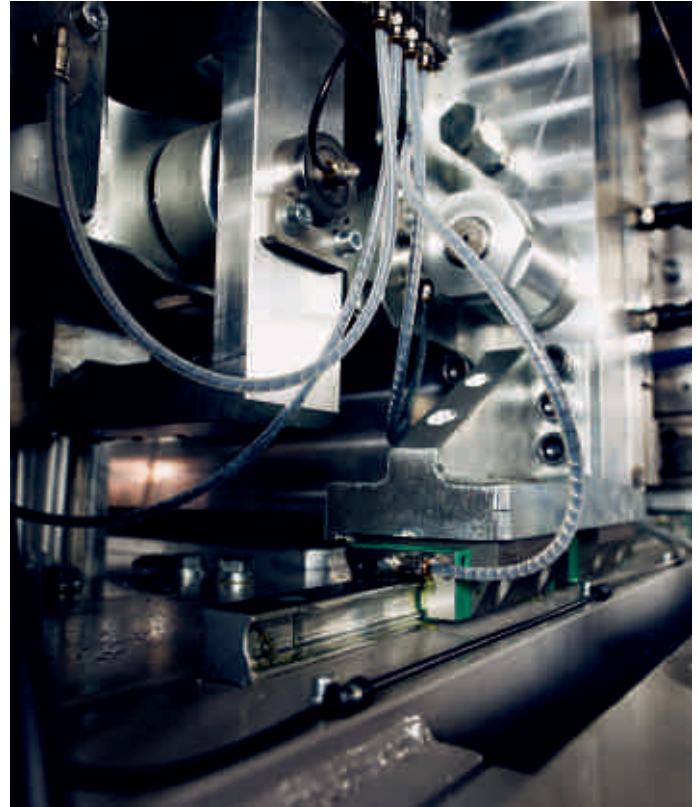
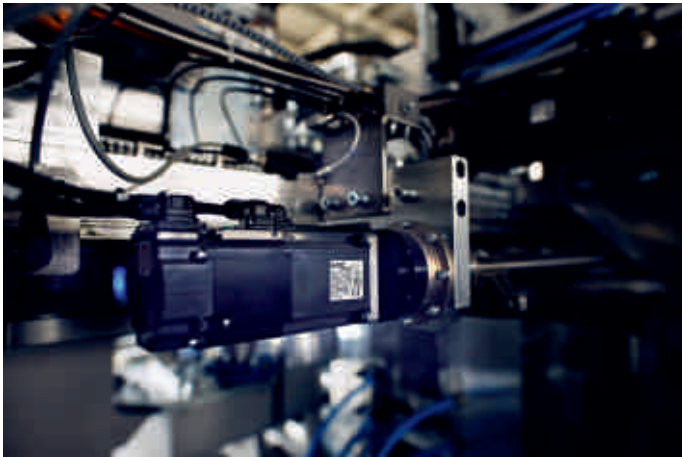
Our **Optima** Family is reliable solution which will work in your factory for many years. Thanks to servo motors which are used for all main systems as well as special construction of the closing unit (5 year guarantee) and top brand components (Mitsubishi, Omron, EATON, Lutze, Phoenix contact, Allan Bradley, Weidmuller, Balluff, Wenglor, Cosmotec Stulz, eWon, Harting, Celduc, Toshiba, Lapp Kabel, other reputable brands). **Optima** machines are designed for long-term use and operating 24h/ day.



We want you to enjoy working on our **Optima** thanks to 15" colorful operating panel connected to router for easy on-line support from SMF. Mould changeover can be easy handled by one person within 10 minutes. Central lubrication system allows easy, fast and precise application of lubricant. For easy operation, our **Optima** is equipped with Power Wizard system which is based on pyrometers and allows for self-adjustment process of heating depending on preform temperature and temperature in the environment. For our machines we offer also fully integrated preform dumper. Thanks to this solution, preforms are placed into preform hopper automatically. Handling is limited to changing the pallet with octabin filled with preforms. **Optima** has also got a system of detecting and rejecting cracked bottles to be sure that only correct bottles are delivered to the filling line. 40 bar blowing pressure allows to blow complicates designs of bottles and pressure compensation system on closing unit plates reduces the stitches on bottles' walls .



Optima family



Optima machines is environment friendly solutions allows to reduce air, power consumptions but also weight of the bottles. Our heating process is energy efficient thanks to use NIR lamps instead of traditional IR radiation. Electromagnetic radiation allows to reduce energy consumption and number of the lamps and total size of ovens. IR lamps allows also to reach shorter reaction time needed to start production after any stop so whole bottles production process is more fluent and more efficient.

We reduced also air consumption and air dead volume thanks to air collectors, using special type of valves used and system of air recuperation which allows to collect and re-use air from bottles blowing process. Low pressure air is taken from recuperation system.

Optima machines are designed for customers interested in high advanced and reliable blower for round, square, oval, asymmetric, trigger, flask or flat bottles – for water, CSD, beer, spirits, detergents, dairy drinks or edible oil – we would like to welcome to cooperation with SMF!



	Optima 2/1	Optima 2	Optima 2/3	Optima 4 NT	Optima 2 MAX	Optima 8 turbo	Optima 10 turbo	Optima 6 MAX	Optima 4 MAX	Optima 16
	OP 2/1	OP 2	OP 2/3	OP4 NT	OP2 MAX	OP 8 NT	OP 10 NT	OP 6 MAX	OP 4 MAX	Optima 16
cav	1	2	3	4	2	8	10	6	4	16
blowing pressure	up to 40 bars									
bottle size	1,0–7,0 L	0,2–3,0 L	0,2–0,6 L	0,2–2,5 L	1,0–5,0 L	0,2–2,0 L	0,2–0,6 L	1,0–3,0 L	1–6 L	0,2–2,0 L
output	ca. 1800 of 1 L	ca. 3500 of 0,5–1 L	ca. 5500 of 0,2 L	ca. 7200 of 0,5–1 L	ca. 3600 of 1,0 L	ca. 14000 of 0,5–1 L	ca. 17000 of 0,2 L	ca. 10000 of 1,0 L	ca. 7000 of 1,5 L	ca. 28000 of 0,5–1 L
	ca. 1500 of 5 L	ca. 3200 of 1,5 L	ca. 5500 of 0,5 L	ca. 6000 of 1,5 L	ca. 3400 of 1,5 L	ca. 12000 of 1,5 L	16000 of 0,6 L	ca. 10000 of 1,0 L	ca. 7000 of 1,5 L	ca. 2400 of 1,5 L
	ca. 1300 of 7 L	ca. 2500 of 3,0 L	ca. 5500 of 0,5 L	ca. 5000 of 2 L	ca. 3000 of 5,0 L	ca. 10000 of 2 L	ca. 10000 of 2 L	ca. 9000 of 3 L	ca. 6500 of 5 L	ca. 20000 of 2 L
max diameter of the bottle	170 mm	140 mm	75 mm	105 mm	170 mm	90 mm	75 mm	120 mm	180 mm	90 mm
max height of the bottle	340 mm	340 mm	340 mm	340 mm	340 mm	340 mm	340 mm	340 mm	360 mm	340 mm
max neck diameter	42 mm	42 mm	42 mm	42 mm	42 mm	42 mm	42 mm	42 mm	42 mm	42 mm
max power installed	65 kW	65 kW	63 kW	110 kW	110 kW	160 kW	160 kW	160 kW	210 kW	320 kW
effective power for 1L	13,2 kW (for 5 L bottle)	10,4 kW (for 0,5L bottle)	13,2 kW (for 0,5L bottle)	20,2 kW (for 0,5L bottle)	43,2 kW (for 0,5L bottle)	39,2 kW (for 0,5L bottle)	47,6 kW (for 0,5L bottle)	86,4 kW (for 0,5L bottle)	93,6 kW (for 0,5L bottle)	78,4 kW (for 0,5L bottle)
working air qty (10bars)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)	0,0 Nm ³ (with recuperation)
working air qty (40bars)	5,3 Nm ³ (for 0,5L bottle)	1,9 Nm ³ (for 0,5L bottle)	3,0 Nm ³ (for 0,5L bottle)	3,7 Nm ³ (for 0,5L bottle)	10,5 Nm ³ (for 0,5L bottle)	6,9 Nm ³ (for 0,5L bottle)	8,4 Nm ³ (for 0,5L bottle)	19,5 Nm ³ (for 0,5L bottle)	22,8 Nm ³ (for 0,5L bottle)	13,8 Nm ³ (for 0,5L bottle)

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