

DVT prevention system
DVT-2600



DOCTOR LIFE®
TOTAL SOLUTION BRAND SINCE 1986

DS MAREF has been the leader in research & development, manufacturing, and sales of Intermittent Pneumatic Compression (IPC) system carrying the brand name of 'DOTOR LIFE healthcare' in Korea since 1986.

Our wide range of various pneumatic application medical systems which includes DVT prevention system, Lymphatic drainage systems, and Hand rehabilitation system are sold and utilized by the Medical, Esthetic, and Home Care.

In the view of sales power, we rank No. 1 in sale domestically, holding around $80\sim90\%$ of the market share. Internationally, DOCTOR LIFE IPC systems are being exported in 60 countries with rapid growth for further expansion. We are committed to on-going product research and development at our nationally recognized DS MAREF R&D laboratory to produce the highest quality products using cutting edge technology. Our vision is to become the leading producer of the Intermittent Pneumatic Compression (IPC) system around the world.



What is DVT(Deep Vein Thrombosis)?

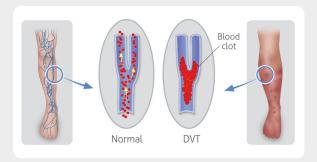
Deep vein thrombosis (DVT) is the formation of a blood clot ('thrombus') in a deep vein, most commonly of the calf and pelvis. Therefore, DVT and PE can arise mainly from knee or pelvis operation besides the internal, neurological or other operations.

Healthy body keeps suitably the balance of the clotting system and the fibrinolytic system but thrombus can arise when this balance breaks from several medical conditions that can lead to DVT, such as physical trauma, cancer, older age (the strongest risk factor), varicose vein, antiphospholipid syndrome, surgery, immobilization (as with bed-rest, orthopedic casts, or during long-haul flights), heavy smoking, obesity, certain drugs and inborn tendencies to form clots known as thrombophilia.

Virchow's triad, named after German physician Rudolf Virchow (1821-1902), describes the 3 categories of factors (1) Stasis of blood circulations (2) Damage of blood vessel (3) Hypercoagulability that are thought to contribute to venous thrombosis. (Browse NL, Leathomas M: Source of non-lethal pulmonary emboli, Lancet, i: 258-259, 1974)

- (1) Stasis of blood circulations (Hemodynamic changes) decreased flow rate of the blood
- (2) Damage of blood vessel (Endothelial injury/dysfunction) damage or activation of the blood vessel wall
- (3) Hypercoagulability an increased tendency of the blood to

The formation process of DVT is that if the muscular part of calf with slow blood velocity or the endothelium of blood vessel is damaged, the coagulant starts by making the platelet bolus hardly by fibrinolytic system. If the coagulant thrombus becomes bigger, this thrombus is separated from blood vessel by the fibrinolytic system and can cause Pulmonary Embolism seriously.



What is Pulmonary Embolism?

Pulmonary embolism (PE) can be arisen mainly when DVT is delivered from dismal part to the proximal part, lung without suitable preventive treatment. Generally, 20% of thrombus generated in the deep vein of dismal part of body is transferred to proximal part. The ratio that PE can arise is $40 \sim 50\%$. Therefore, PE is discovered from patients with DVT of $50 \sim 60\%$.

Treatment / prophylaxis

- Anticoagulants
- Graduated compression stockings
- Intermittent Pneumatic Compression (IPC) System DVT-2600





DVT prevention system DVT-2600





Specification

• Free voltage: AC/100 – 24V, 50/60Hz

• Power Consumption: 25W (35VA)

• Automatic pressure/interval setting:

- Thigh/Calf - 40mmHg / interval time 48 seconds

- Leg - 120mmHg / interval time 60 seconds

• Pressure Range (mmHg):

- Thigh/Calf - 20, 30, 40, 50, 60

- Leg - 120, 130, 140

• Interval time range: 24, 48, 60 seconds

• Main size (mm): 200(W) x 170(D) x 190(H)

• Weight: 3.5kg (including battery)

• Battery use time: 6-8 hours

System Features

- Auto Optimum operation is started automatically by Start/Stop button
- Auto Optimum operation based on cuff selection
- Auto pressure setting
- Auto battery backup system during power outage
- Safety Alarm System : Cuff, Power supply, Pressure, Battery
- Selectable Manual operation : Pressure, Interval, Time
- LCD screen
- Built in Battery: 6-8 hours

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DVT-2600 Cuff features



- Superior Eco friendly materials used
- Special finishing coating for the prevention of any pollution
- Safe attachments designed to prevent bodily scratch
- Gentle to skin
- Maximum use per cuff 2 month
- High perspiration absorption to maintain freshness

All the cuffs are high quality products endured 2 months more under wore conditions of 60mmHg and interval 24seconds than regular operation setting values.



Thigh cuff - 3 air chambers



Calf cuff - 3 air chambers



Boots cuff - 3 air chambers



Foot cuff - 1 air chamber



Calf and Foot cuff application image

Clinical results

• Average cycle time :

Average cycle time: 60 seconds

International refilling time: 48 seconds (human refilling time range: 24~60 seconds)

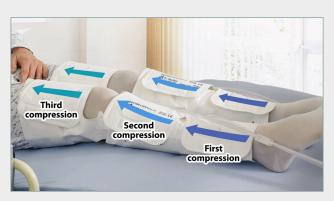
Inflation time: 12~15 seconds

Our system keeps stable inflation cycle regardless of any internal or external change

Regardless of environmental change

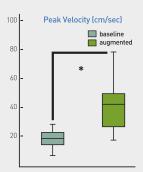
• DVT-2600 Simultaneous compression:

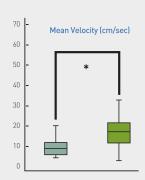
We proved through our recent clinical study, "Comparison of different Intermittent Pneumatic compression devices for deep vein thrombosis" that DVT-2600 simultaneous compression has been superior effects of DVT prevention in the peak velocity, mean velocity, total volume flow and peak volume flow. This study is designed to compare clinical efficacies as well as venous hemodynamic improvements between Simultaneous bilateral compressions with fixed venous refill time versus alternate compression with adjusted refill time and is registered to the U.S. National Institutes of Health on April 24 2013. (ClinicalTrials.gov Identifier: NCT01779648)

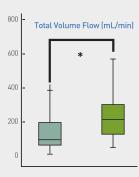


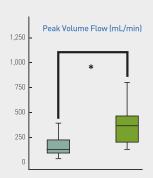


Venous Return – Hemodynamics results post DVT-2600 usage









As shown above, post DVT-2600 use results indicate significant increases of doubling or more in numbers when compared with the baseline peak velocity, mean velocity, total volume flow, and peak volume flow.

• Hemodynamic Parameter Comparison using Duplex High Frequency Device

Baseline (34 limbs)	Augmented (34 limbs)	
23.6±6.3	46.7±17.5	<0.001
9.1±4.4	17.4±10.9	<0.001
150.5±95.9	359.0±193.1	<0.001
132.7±91.3	237.4±142.0	<0.001
our)*		60
c)	12	
	2.2±1.2	0.696
	2.4±2.1	0.500
	3.5±2.9	0.454
	2.6±2.2	0.519
	(34 limbs) 23.6±6.3 9.1±4.4 150.5±95.9 132.7±91.3 our)*	(34 limbs) (34 limbs) 23.6±6.3 46.7±17.5 9.1±4.4 17.4±10.9 150.5±95.9 359.0±193.1 132.7±91.3 237.4±142.0 our)* 22±1.2 2.4±2.1 3.5±2.9

Above mean + standard deviation chart is prepared based on the statistical analysis of pair t – test performed. The PV (Peak velocity), MV (Mean velocity), PVF (Peak volume flow), TVF (Total volume flow), ETVdml total volume, and peak volume is derived while maintaining 60 second interval/cycling time using DR. LIFE DVT prevention system. (Ratio = augmented value/baseline value)

- Study title: Clinical and physiologic comparison of pneumatic compression devices
- Authors: Jae-Sung Choi, MD1, PhD, Jae Hyun Kwon, MD2, Coo Ki Hyoung, MD, PhD3, Ji Hyun Ahn, Md, PhD3, Keun-Tae Cho, MD4, PhD Hong-Yup Ahn, PhD5



DVT-2600 Certificates

- 2012 USA FDA registration
- 2011 China SFDA registration
- 2011 Europe CE registration
- 2010 Korea KFDA registration
- 2009 Australia TGA registration

History & Certificates

- 2011 President Award
- 2010 Anvisa in Brazil
- 2007 Authentication of Merit certificate
- 2006 Innovation management awards
- 2006 KOTRA B2B e-Trade awards
- 2006 KFDA awards by Prime minister
- 2006 KGMP registration
- 2004 The 34 precious Technique bronze awards
- 2004 Korean World class products award
- 2004 Vice president award
- 2004 SFDA in China
- 2003 Success Design product
- 2003 FDA in USA
- 2002 ISO9001/EN13485
- 2002 CE marks (DL / MK series, DL1200, DVT-2600)
- 1986 DS MAREF is established

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