





## About Spirit Medical Systems Group

Spirit Medical Systems Group was officially established in Jonesboro, Arkansas, USA in February of 2012.

SMSG is rooted in a long-term commitment to excellence that dates back almost 25 years. Our parent company, Dyaco International, was established in 1989 and quickly evolved into one of the world's most respected leaders in the design, manufacturing, and distribution of commercial and residential fitness equipment. Dyaco complies to international regulations such as UL, CE, CSA and more. Its factories have obtained both ISO9001 and ISO13485 certifications. We maintain R&D and manufacturing facilities on multiple continents and currently employ over 1100 associates.

Featuring products which allow for increased clinical versatility and patient care capabilities, the success of Spirit Medical Systems Group will be driven by: enhancing patient outcomes, addressing clinical needs, and improving cost-effectiveness of treatments.

01

# CONTENTS

## About

About Spirit Medical Systems Group 01

Design Concept 01-2

## Product

MU100 Upright Lower Body Ergometer 03

MR100 Semi-Recumbent Lower Body Ergometer 05

MA900 Rehabilitation Adjustable Crank 07

MA901 Neurological Pedal Set 08

MS300 Semi-Recumbent Total Body Stepper 09

MA902 Seated Stepper Calf / Hand Accessories Set

Bi-Lateral Calf Support Component 09-1  
Hand/Wrist Stabilization Component 09-2

MT200 Bi-Direction Treadmill 11

## Symmetry Program

Bilateral Symmetry Monitoring Program Introduction 13



Spirit Medical Systems Group has obtained numerous ISO certifications, the RoHS, and the IEC 60601-1-2. Our products are also listed with the FDA of the United States. Reveal this page for more details.





## Design Concept

Spirit Medical Systems Group (SMSG) understands that as a healthcare provider, your business's success is a financial balance between high-quality patient care and a cost-effective delivery of that service.

With this understanding, Spirit Medical Systems is driven to design and manufacture rehabilitation products that can meet and exceed our customers' expectations. Through continued and evolving improvements in quality and design, Spirit Medical Systems build high quality products that produce lasting customer relationships that endure and pass the test of time.



Rehabilitation strategies and technologies that address a multitude of patient deficiencies are the focus of our efforts. From range-of-motion (ROM) deficits, neuromuscular disorders, therapeutic exercise, to orthopedic dysfunctions and gait training – we use our experience, expertise, extensive academic partnerships, and clinical collaborations to help improve treatment efficiencies.

A key part of our mission is driven by the passion and commitment to excellence that our employees demonstrate – from our senior management team, through all departments, manufacturing stages, processes, and beyond.

We are fully dedicated to the basic and time-honored principle that service matters too. Maintaining your products is an equally high priority to us as manufacturing them. Throughout our entire distribution network, you will find an outstanding team of sales professionals and service engineers across the globe – people and products you can always rely on.

Spirit Medical Systems Group has obtained the following certifications pertaining to product safety and overall manufacturing practice:

- The ISO 13485 for the design and manufacturing of medical devices.
- The ISO 14971 for the risk management of medical device safety.
- The ISO 15223-1 for meeting medical device labeling requirements.
- The RoHS requirement that comply European laws as part of their material restrictions, waste, and recycling directives.
- The IEC 60601-1-2 that fulfills safety standards of medical electrical devices.
- The CE mark and the CSA mark.

SMSG products are also listed with the FDA of the United States.



Copyright © 2015 by Spirit Medical Systems  
All rights reserved. This book or any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of the publisher except for the use of brief quotations in a book review.



# MU100

## Upright Lower Body Ergometer

The MU100 addresses lower-body conditioning with advanced options for optimal knee positioning. Clinicians may input desired knee flexion angles and the software will suggest the pedal and the seat's fore/aft position. Variables such as body symmetry and limb length can be taken into account for clinicians to finely tailor to every patient's needs.

The MU100 is equipped with the standard MA900 Rehabilitation Adjustable Crank, allowing clinicians to address lower extremity range of motion differences by individual positioning of the pedals.

### Specifications

<b>POWER</b>	90 to 240 volts AC	<b>NET WEIGHT</b>	136.5 lbs (62 kg)
<b>OVERALL DIMENSIONS</b>	57"L x 21.25"W x 53.25"H 145cm x 54cm x 135cm	<b>MAX USER WEIGHT</b>	440 lbs (200 kg)

### Key Features



#### Adjustable Pedal Cranks

enable a clinician to accommodate a patient's knee range-of-motion capabilities with single side or bi-lateral adjustments from as small as 15° to full range.



#### Bi-Directional Resistance

applies to both forward and reverse pedaling for instantaneous retro-cycling.



#### Multiple Seat Adjustments

include up/down detents, fore/aft positioning, and hand-tight positive locking knobs.

### Console Interface and Software

#### Software Programs

The MU100 features 11 programs, including Quick Start, Manual, Hill, Plateau, Interval, Custom, VO2 sub-max YMCA protocol, Constant Power, Heart Rate, Isokinetic, and Symmetry program. See page 14 for more Symmetry program details. Programs' visual biofeedback promotes biomechanical and neuro-muscular symmetry. Both the Constant Power and the Isokinetic program automatically adjust resistance based on users' pedaling speed. Meanwhile, the Constant Resistance mode is available in all other programs.

#### Easy-to-read Display Feedback

Real-time feedback is shown through the LED display, including Time, Watts, Calories, METs, Heart Rate, Power, and more. Additionally, the Isokinetic program indicates RPM in scale format. The Symmetry program respectively articulates left and right leg exercise watt input through visual biofeedback.

#### Patient Data Entry

Programs can interactively adapt to patients' characteristics, using input info such as weight and gender as the basis to maximize their rehabilitative regimen. The unique knee angle data input allows seat and pedal crank settings according to desired ROMs.

### TARGETED CLINICAL APPLICATIONS

The MU100 benefits patients with: patella femoral conditions, total knee replacements, ACL, MCL, and PCL repairs, other ligamentous repairs, arthritic conditions, tendonitis, and more.



# MR100

## Semi-Recumbent Lower Body Ergometer

The MR100's recumbent design pays particular attention to hip and lower-body joint mobility, allowing optimal rehabilitation at a relatively relaxed posture. Users may input desired knee flexion angles and the software will suggest the pedal and the seat's fore/aft position. Variables such as body symmetry and limb length can be taken into account for clinicians to finely tailor to every patient's needs.

The MR100 is equipped with the standard MA900 Rehabilitation Adjustable Crank, which operates in a closed-kinetic chain environment. It is safe, impact free, and pain free within the patient's ROM.

### Specifications

<b>POWER</b>	90 to 240 volts AC	<b>NET WEIGHT</b>	158.5 lbs (72 kg)
<b>OVERALL DIMENSIONS</b>	57"L x 30"W x 51"H 145cm x 77cm x 130cm	<b>MAX USER WEIGHT</b>	440 lbs (200 kg)

### Key Features



#### Adjustable Pedal Cranks

enable a clinician to accommodate a patient's knee range-of-motion capabilities with single side or bi-lateral adjustments from as small as 15° to full range.



#### Bi-Directional Resistance

applies to both forward and reverse pedaling for instantaneous retro-cycling.



#### Multi Seat Adjustments

feature 6 position recline seat back for hip angle adjustments, 8 position swiveling, and fore/aft adjustments.

### Console Interface and Software

#### Software Programs

The MR100 features 11 programs, including Quick Start, Manual, Hill, Plateau, Interval, Custom, VO2 sub-max YMCA protocol, Constant Power, Heart Rate, Isokinetic, and Symmetry program. See page 14 for more Symmetry program details. Programs' visual biofeedback promotes biomechanical and neuro-muscular symmetry. Both the Constant Power and the Isokinetic program automatically adjust resistance based on users' pedaling speed. Meanwhile, the Constant Resistance mode is available in all other programs.

#### Easy-to-read Display Feedback

Real-time feedback is shown through the LED display, including Time, Watts, Calories, METs, Heart Rate, Power, and more. Additionally, the Isokinetic program indicates RPM in scale format. The Symmetry program respectively articulates left and right leg exercise watt input through visual biofeedback.

#### Patient Data Entry

Programs can interactively adapt to patients' characteristics, using input info such as weight and gender as the basis to maximize their rehabilitative regimen. The unique knee angle data input allows seat and pedal crank settings according to desired ROMs.



### TARGETED CLINICAL APPLICATIONS

The MR100 benefits patients with: patella femoral conditions, total knee replacements, ACL, MCL, and PCL repairs, other ligamentous repairs, arthritic conditions, tendonitis, and more.



## MA-900 Rehabilitation Adjustable Crank

The MA900 flexibly accommodates patients by its incrementally adjustable cranks, from as little as 15°. Smaller degrees render smaller circular lower body motions. As a result, patients with limited ROM can start therapy earlier than by using other rehab equipment. Ultimately, patients acquire passive and active mobilization for hips, knees and ankles.

Other training merits with the MA900 include:

- Isolated closed kinetic chain exercising for quads and hams.
- Exercising in the pain-free parts of the body, thereby reducing patient's discomfort and fear.

The MA900 can replace most existing 9/16" threaded bike cranks. Your standard exercise bike becomes a clinically effective rehabilitation tool.



Applicable models for MA900 and MA901:  
**MR100 · MU100**

### TARGETED CLINICAL APPLICATIONS

The MA900 benefits: total knee replacements, total hip replacements, ACL, MCL, & PCL repairs, ligamentous tears, patella femoral conditions, tibial stress injuries, tendonitis, and other arthritic, neurological, and muscular conditions.

## MA-901 Neurological Pedal Set



The MA901 enables patients with neurological dysfunctions to exercise in a closed kinetic chain environment. This is achieved by having patients' feet secured to the pedal with a heel cup and 2 straps.

Training merits with the MA901 include:

- Motor learning, range of motion, strength exercises, and skill building are the results of hours of practice with this pedal set.



The adjustable tightness ensures that the feet do not move during closed kinetic chain exercise.



The MA901 can replace most existing 9/16" threaded bike cranks. Your standard exercise bike becomes a clinically effective rehabilitation tool.

### TARGETED CLINICAL APPLICATIONS

The MA901 accommodates: patients with hemiparesis, cerebral palsy, and other neurological disorders.



# MS300

## Semi-Recumbent Total Body Stepper

The MS300 facilitates full body exercise in coordinated, linear, natural 1:1 leg and arm motion. Self-adjustable stroke length accommodates patients' specific range of motion capabilities, providing low impact movement for knees, ankles, and hips in a safe semi-recumbent position.

Versatile for different training emphasis, MS300's unique quadrilateral exercise pattern allows users to selectively distribute different extent of exercise efforts across their four limbs. Limbs that input more force can efficiently lead less involved limbs to functional movements and maintain elevated heart rate. A low inertia starting at 5 watts translates to smoothness; the work rate can increase up to 750 watts, accompanied by different step speeds of the user's choice.

### Specifications

<b>POWER</b>	90 to 240 volts AC	<b>NET WEIGHT</b>	242 lbs (110 kg)
<b>OVERALL DIMENSIONS</b>	67"L x 30"W x 48"H 172cm x 77cm x 122cm	<b>MAX USER WEIGHT</b>	440 lbs (200 kg)

### Key Features



#### Multiple Seat Adjustments

include 8-position swivel seat for easy access, 6-position back recline for hip angles, and fore/aft positioning.



#### Cushioned Footplates

enhance user comfort. The ankle straps and the velcro foot straps are easily adjustable to secure feet.



#### Adjustable Handles

with rotatable hand grips allow wrist patients to comfortably use their upper body.

### Console Interface and Software

#### Software Programs

The MS300 features 9 programs, including Quick Start, Manual, Hill, Plateau, Cardio, Interval, Custom Facility, Heart Rate, and Symmetry program.

#### Accommodating Isokinetic Resistance

Throughout the entire range of motion, patients can safely determine resistance.

#### Easy-to-read Display Feedback

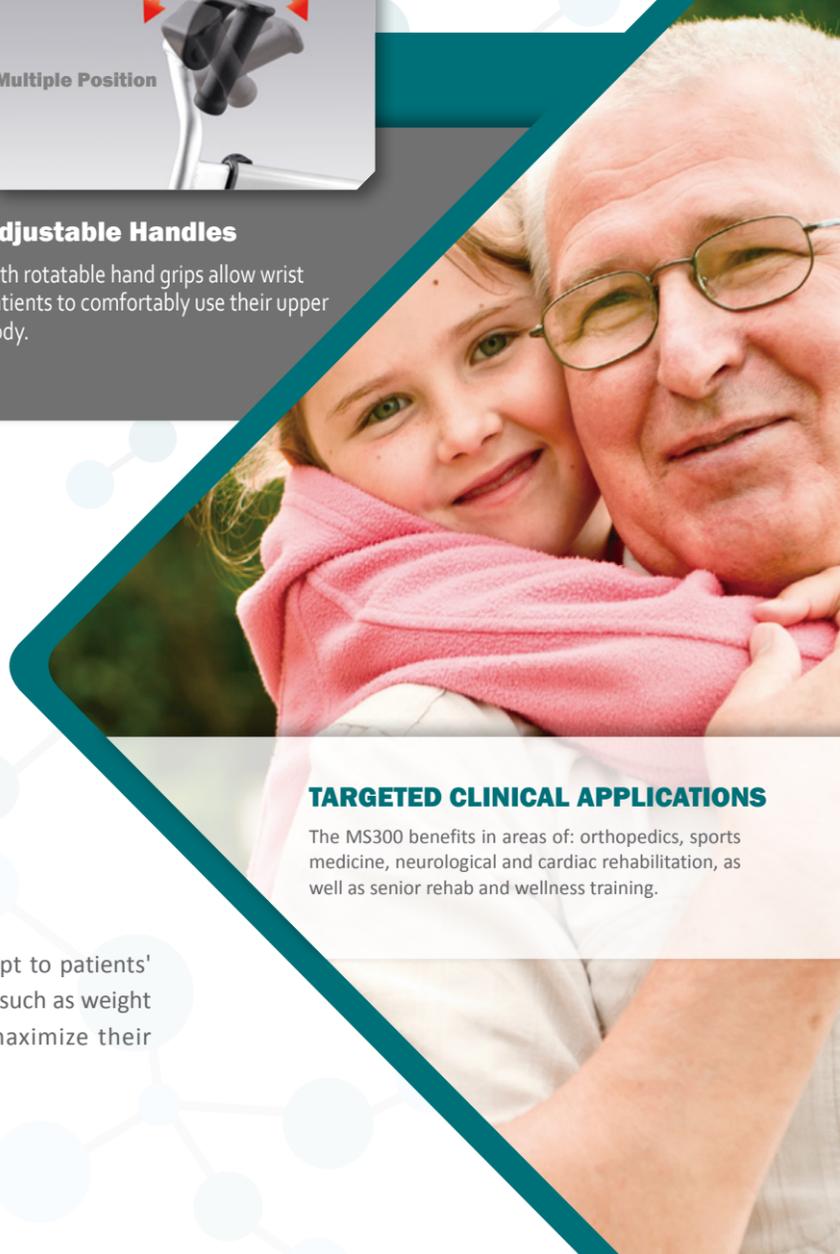
Real-time feedback is displayed through the LCD screen, including Time, Steps per minute, Steps count and length, Watts, METs, Heart Rate, Resistance, and more. The Symmetry program respectively articulates left and right leg exercise watt input through visual biofeedback.

#### Patient Data Entry

Programs can interactively adapt to patients' characteristics, using input info such as weight and gender as the basis to maximize their rehabilitative regimen.

### TARGETED CLINICAL APPLICATIONS

The MS300 benefits in areas of: orthopedics, sports medicine, neurological and cardiac rehabilitation, as well as senior rehab and wellness training.



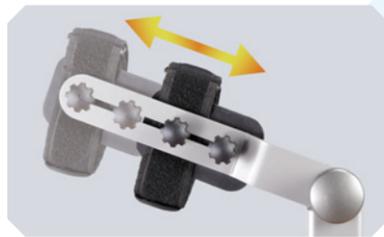


## MA-902 BI-LATERAL CALF SUPPORT COMPONENT

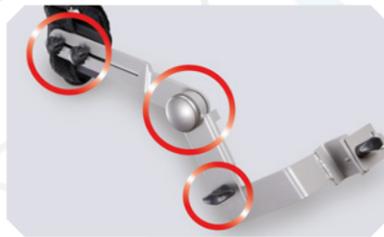
As a part of the MA902, the Bi-Lateral Calf Support Component offers advanced support for patients experiencing lower body deficiencies or weaknesses that require additional leg and foot alignment to achieve maximal results. This accessory complements the MS300 Semi-Recumbent Total Body Stepper.

This newly designed calf support component offers:

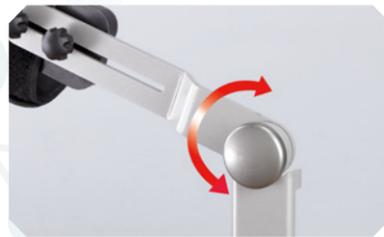
- Minimized lower limb adduction or abduction.
- Easy attachment and removal on footplate assembly.
- Lightweight construction.



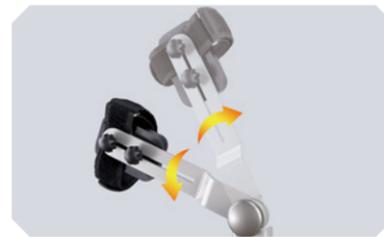
This set features attachment just below the knee, thereby eliminating any knee torque.



The Bi-Lateral Calf Support is fully adjustable to keep the lower limb in proper alignment.



Calf support pivoting allows the ankle to move freely in its normal path.



## MA-902 HAND/WRIST STABILIZATION COMPONENT

An additional part of the MA902, the Hand/Wrist Stabilization Component allows users with limited or no hand strength to enjoy the benefits of the MS300. Patients with hand and wrist deficiencies will find comfort and security in maintaining a stable hand position throughout the exercise session.

This newly designed hand/wrist stabilization component offers:

- Stable and correct hand position throughout the workout.
- Support for the wrist while minimizing wrist flexion.
- Reduction in pressure points.
- A full and natural range of motion for the upper body movement.



This set offers the ability to keep the hands in place during exercise.



The set allows easy attachment and removal on the pivoting handgrips.





# MT200

## Bi-direction Treadmill

The MT200 features one speed control motor, an incline motor, and a decline motor. Three motors together help users to achieve bi-directional training in combination with uphill or downhill protocols. Adding more versatility to exercise and therapy options, the parallel bars, deck height, and belt speed acceleration are adjustable in small and precise increments.

Biofeedback is offered for clinicians to accurately assess user gait performance. Feedback includes the symmetry index, which is particularly outstanding for clinicians to condition users' step and cadence. As a result, this treadmill is ideal for pediatric exercises, neurologically impaired patients, and other populations.

### Specifications

<b>POWER</b>	90 to 240 volts AC (Optional)	<b>STRIDE SURFACE</b>	60"L x 22" W (152.5cm x 56cm)
<b>OVERALL DIMENSIONS</b>	94"L x 36"W x 56.5"H 239cm x 91cm x 144cm	<b>NET WEIGHT</b>	506 lbs (230 kg)
<b>MOTOR</b>	HP continuous duty Self-lubricating Belt/Deck	<b>MAX USER WEIGHT</b>	440 lbs (200 kg)
		<b>STEP-UP HEIGHT</b>	to step: 4" (10cm) to deck: 9.5" (24cm)

### Key Features



#### Adjustable Full Length Handrails

accommodate a wide variety of populations. Height ranges from 24.5 to 34.5 inches; width ranges from 19.5 to 31 inches for a comfortable exercise area.



#### Removable Patient Step-up

lowers the step-up height to 4 inches. In Deck Lift Mode, the deck, step-up, and hand rails can be set parallel to the floor for stepping and PNF/PTA exercises.



#### Independent Motors

provide true incline and decline. Front incline ranges from 0 to 15% grade; rear decline ranges from -10% to 0 grade.

### Console Interface and Software

#### Software Programs

The MT200 features 11 programs, including Quick Start, Manual, Plateau, Interval, Custom Facility, VO2 sub-max Gerkin protocol, Heart Rate, Symmetry, and the Deck Lift program. The unique Deck Lift program offers 30 levels of step height in 0.25-inch increments, increasing precision for step-up training.

#### Easy-to-read Display Feedback

Real-time feedback is shown through the LED display, including Time, Incline grade, Distance, Speed, Pulse, METs, Calories, Pace, Step Cadence and Length. The Symmetry program shows left and right gait information through biofeedback graph and a numeric window.

#### Patient Data Entry

Programs can interactively adapt to patients' characteristics, using input info such as weight and gender as the basis to maximize their rehabilitative regimen.

### TARGETED CLINICAL APPLICATIONS

The MT200 benefits in areas of: orthopedic, sports medicine, cardiopulmonary exercise, neurological rehab, and other athletic training especially advantageous for older adults and children.



## Bilateral Symmetry Monitoring Program Introduction

### Muscle Symmetry

Evenly balanced standing, walking or running shows that the body is healthy and efficiently at work.

The more symmetrical the left and right sides of the body are, the faster, stronger, and more consistent your musculature performance will be. It is observable that symmetry is important for endurance and performance, from the elite athlete to the chronic or acute patients; and from sports specific performance to activities-of-daily-living (ADL.)

Clinicians should encourage symmetry of strength and performance in order to minimize the requirement for compensatory strategies in their patients or clients. It is with this goal in mind that we developed the Symmetry Program offered across the Spirit Medical Systems Group product line.

### Bi-lateral Symmetry Monitoring Program

This program aims to resolve limb deficiencies and walking gait by encouraging users through biofeedback and enables clinicians to minimize the requirement for compensatory strategies in their patient or client care.

When pedalling efforts are uneven between the two legs, users will be given immediate feedback that shows the extent of user's asymmetrical movement.



### MU100 and MR100 – Upright and Recumbent Bikes Ergometers

The symmetry program on both the MU100 and the MR100 monitors, measures, and displays power around the pedal rotation. It provides both graphical and numeric biofeedback to encourage patients/clients to maintain equal power between right and left leg, thereby achieving a more balanced and symmetrical pedal stroke.

### MS300 – Semi-Recumbent Stepper

The MS300 Semi-Recumbent Stepper's symmetry program monitors, measures, and displays power throughout the pedal/arm stroke and provides biofeedback to motivate patients to maintain power between the right and left side efforts. The stepper's symmetry program aids the user in achieving a more balanced exercise stroke, especially for patients with bi-lateral deficiencies, such as stroke and post-op knee patients.

Further, by engaging the exercise with either just the lower limb/footplate performance or the upper body arms only, it will provide similar feedback for performance in those isolated movements.

### MT200 – Treadmill

The MT200 features sensors that measures gait length. Its symmetry program provides gait information in numeric and bio-feedback graphs format. The program monitors and measures the user's Cadence, Left and Right Step Length, and displays the numeric feedback in a message window along with the Symmetry Index. Cadence biofeedback, in particular, is beneficial for clinicians assist patients to achieve faster turnover.

The program will end either when the exercise set-time reaches zero or by pressing the Stop twice. A full summary of performance will be shown in the message window.

### TARGETED CLINICAL APPLICATIONS

The Symmetry Monitoring Program is available on all 4 SMSG Rehabilitation models, targeting a wide range of conditions.





**SPIRIT** MEDICAL  
SYSTEMS GROUP  
*A Heritage of Quality | The Spirit of Innovation*

©Brochure #2 All Rights Reserved.  
[www.spiritmedicalsystems.com](http://www.spiritmedicalsystems.com)