

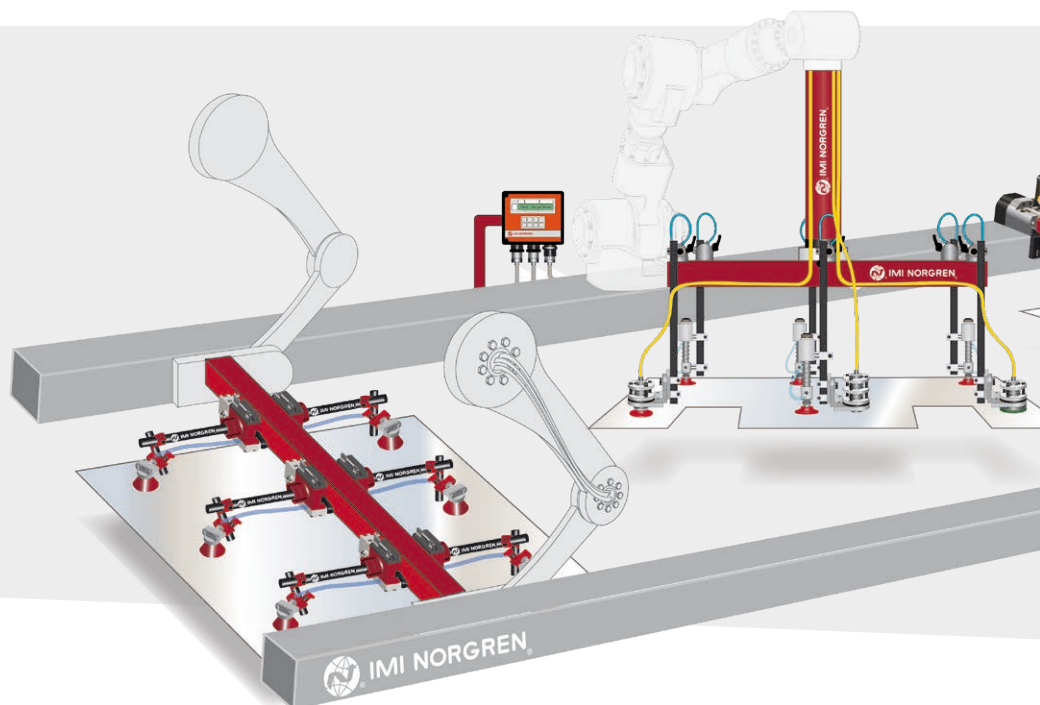
Engineering  
GREAT Solutions

# Double Blank Detection



# Contents

1		SELECTING A DOUBLE BLANK SYSTEM	12	Fast Find Guide
2		CONTACT DOUBLE BLANK DETECTION (STATIC)	20	Fast Find Guide
3		PASS-THROUGH DOUBLE BLANK DETECTION (DYNAMIC)	44	Fast Find Guide



# Engineering GREAT solutions

**IMI Precision Engineering** is a world leader in motion and fluid control technologies. Wherever precision, speed and engineering reliability are essential, we deliver exceptional solutions which improve the productivity and efficiency of our customers' equipment.

*We deliver **GREAT** solutions for our customers tackling the world's most demanding engineering challenges.*

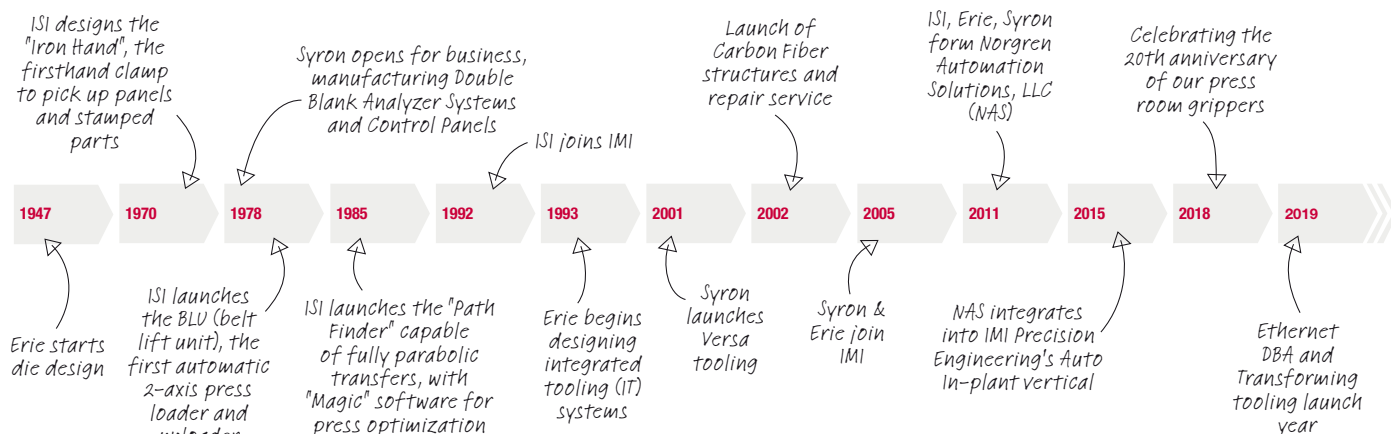
Part of IMI plc, (listed on the London Stock Exchange since 1966), IMI Precision Engineering has \$1,214m in sales generated from a sales and service network in 75 countries, as well as manufacturing capabilities in the USA, Germany, China, UK, Switzerland, Czech Republic, Mexico and Brazil. We support this with our global centers of technical excellence and facilities for CFD design and R&D testing. We employ a dedicated team of field engineers, sector specialists and key account managers – all committed to providing excellent service to our customers.

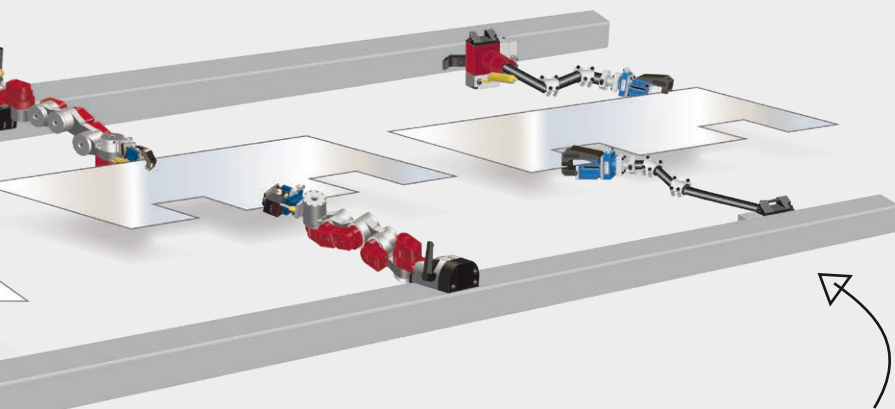
As a business, we aim to UNDERSTAND our customers' challenges. We then CONNECT our products, people and expertise in order to DELIVER exceptional

service and solutions. Together these actions IMPROVE the performance of our customers' machinery.

We call this Engineering Great. We deliver it to customers through a world-class portfolio of high performance products, and strong partnerships for problem-solving utilizing our global network of support.

**The Norgren Automation Solutions (NAS) Team creates capacity by designing and manufacturing automation and tooling that optimize production throughput in the press room and other material handling applications.**





*Made in the USA!*

# How we deliver value to our customers

## Partnerships & problem solving

We have a global team of key account managers and over 400 highly experienced engineers – many with in-depth expertise of key industry sectors.

We recruit and develop the industry's top talent, offering the best training and exposure to world-class products and technologies with some of the world's leading businesses. The deep and combined experience this gives us means we have the skills, confidence and know-how to get closer to our customers, enabling us to understand their exact challenges and resolve them **precisely**.

Because of this our problem-solving is more effective, our solutions more targeted, our partnerships more productive.

## High performance products

Our world-class products improve performance and productivity.

We have global manufacturing capability and technical centres of excellence, each dedicated to developing and rigorously testing new high performance products to meet **precise** industry and application needs. Helping improve performance and reduce downtime and energy consumption on production lines across the world, our world-class portfolio includes IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal. Having proven their value over years, they stand amongst the most trusted names in fluid and motion control. We are continuously adding to this portfolio through a programme of innovation and new product development.

Because of this, we're able help our customers solve the world's greatest engineering challenges – reliably, safely and efficiently.

## Reliability

We deliver and support our high quality products through our global service network.

We have world-class manufacturing and sales and service operations in 75 countries, supported by investment in robust project management systems and lean localised production. Together, with our integrated supply chain, and the speed of our Express service we have the systems, processes and support to deliver quality products and aftersales service **precisely**, reliably, in full and on time, anywhere.

*We get closer to our customers to understand their exact challenges*

# Our global reach

With established manufacturing facilities globally, we have the capability to cope with the most demanding of international projects. With a sales and service network in 50 countries, we have the reach and capability to ensure continuity of supply and local support where it is needed.



Engineering  
GREAT Solutions



## GLOBAL LOCATIONS AND PARTNERS

### ● IMI Precision Engineering – Auto In-plant Locations

#### USA

##### **Norgren Automation Solutions, LLC (NAS)**

2871 Bond Street  
Rochester Hills, MI 48309 USA

Tel: 1-800-272-4511  
Fax: 1-734-429-2981  
Email: NASInsideSales@imi-precision.com  
Web: [www.imi-precision.com/autoinplant](http://www.imi-precision.com/autoinplant)

#### USA

##### **Norgren Automation Solutions, LLC (NAS)**

1325 Woodland Drive  
Saline, MI 48176 USA

Tel: 1-800-272-4511  
Fax: 1-734-429-2981  
Email: NASInsideSales@imi-precision.com  
Web: [www.imi-precision.com/autoinplant](http://www.imi-precision.com/autoinplant)

#### Mexico

##### **Norgren S.A. de C.V.**

Av. La Montaña No.120  
Parque Industrial Querétaro  
Sta. Rosa Jáuregui, Querétaro  
Mexico 76220

Tel: +52 442 229 50 00  
Email: [nas.mexico@imi-precision.com](mailto:nas.mexico@imi-precision.com)

#### Brazil

##### **IMI Norgren Brazil**

Av. Eng. Alberto de Zagottis 696  
04675-085 - São Paulo - Brazil

Tel: +55 11 5698 4000  
Fax: +55 11 5698 4001  
Email: [vendas@imi-precision.com](mailto:vendas@imi-precision.com)

#### China

##### **Norgren Co., Ltd**

埃迈诺冠商贸（上海）有限公司.

Tel: +86 21 24161800  
[sales@imi-precision.com.cn](mailto:sales@imi-precision.com.cn)

#### India

##### **IMI Norgren Herion Pvt. Ltd.**

A-62, Sector 63,  
Noida- 201301  
Uttar Pradesh  
India

Tel: +91 (0) 120 4089500  
Fax: +91 (0) 120 4089599  
Email: [india@imi-precision.com](mailto:india@imi-precision.com)

#### Spain

##### **IMI Norgren S.A.**

Colom, 391, 2º - Edificio Tecno  
08223 Terrassa

Tel: +34 937489800  
Email: [spain@imi-precision.com](mailto:spain@imi-precision.com)

#### Thailand

##### **Norgren Co., Ltd**

120/34 M. 12 Rachadhewa, Bangplee  
Samutprakarn  
10540 Thailand

Tel: +66 (0) 2 2750 3598  
Fax: +60 (0) 2 750 3855  
Email: [THSales@imi-precision.com](mailto:THSales@imi-precision.com)



## ● Value Added Resellers (VARs) and Distributors

### USA

#### **Kamco, Inc.**

326 Park St.  
Troy, MI 48083

Tel: 248-585-7400  
Fax: 248-585-7751  
Email: sales@kamcocontrols.com  
Web: www.kamcosales.com

#### **Mosier Fluid Power**

2475 Technical Drive  
Miamisburg, OH 45342

Tel: 905-567-4157  
Fax: 905-567-4158  
Email: sales@mosierohio.com

#### **Motion Industries**

1605 Alton Road  
Birmingham, AL 35210

Tel: 800-526-9328  
Web: www.motionindustries.com

#### **Nicholas Press Sales, Inc.**

3077 Nationwide Parkway  
Brunswick, OH 44212

Tel: 440-652-6604  
Fax: 440-389-8666  
Email: sales@nicholaspress.com  
Web: www.nicholaspress.com

#### **Production Resources**

118 Seaboard Lane #106  
Franklin, TN 37067

Tel: 800-863-3164

#### **Sunsource**

2301 Windsor Ct  
Addison, IL 60101

Tel: 888-786-7723

#### **Wyco**

1310 Garlington Road, Suite L  
Greenville, SC 29615

Tel: 1-864-458-8000  
Fax: 1-864-458-8256  
Email: info@wyconet.com

### Canada

#### **Dyak Systems Inc.**

6810 Kitimat Road, Unit 8&9  
Mississauga, Ontario L5N 5M2  
Canada

Tel: 905-567-4157  
Fax: 905-567-4158  
Email: salesdesk@dyaksystems.com

### Mexico

#### **ART Robotics**

Pioneros del Cooperativismo N° 136  
México Nuevo Atizapán de Zaragoza  
Estado de México C.P 52966

Tel.: (52) (55) 5077 5603  
(52) (55) 5077 5604  
(52) (55) 5077 5605  
Fax: (52) (55) 5825 9739  
E-mail: mexico@artrobotics.com  
Web: www.artrobotics.com

### United Kingdom

#### **Coremo Automation Ltd**

Unit 9A – Three Springs Trading Estate  
Vincent Road  
Worcester  
WR5 1BW  
U.K.

Tel: +44 (0) 1905 360707  
Fax: +44 (0) 1905 360708  
Email address: sales@coremo.co.uk

### Japan

#### **Taihei Boeki Co., Ltd.**

Nikken-Sumisei bldg, 4-15-32  
Sakai, Naka-ku, Nagoya, 460-0008  
Japan

Tel: +81-(0)52-261-5517  
Fax: +81-(0)52-261-2017  
Email: nagoya@taiheiboeki.co.jp

### Spain

#### **Sankyo Desarrollos Tecnicos S.L.**

Calle Manisitu, 5 Bj Pabellón A, 01240,  
Álava, Spain

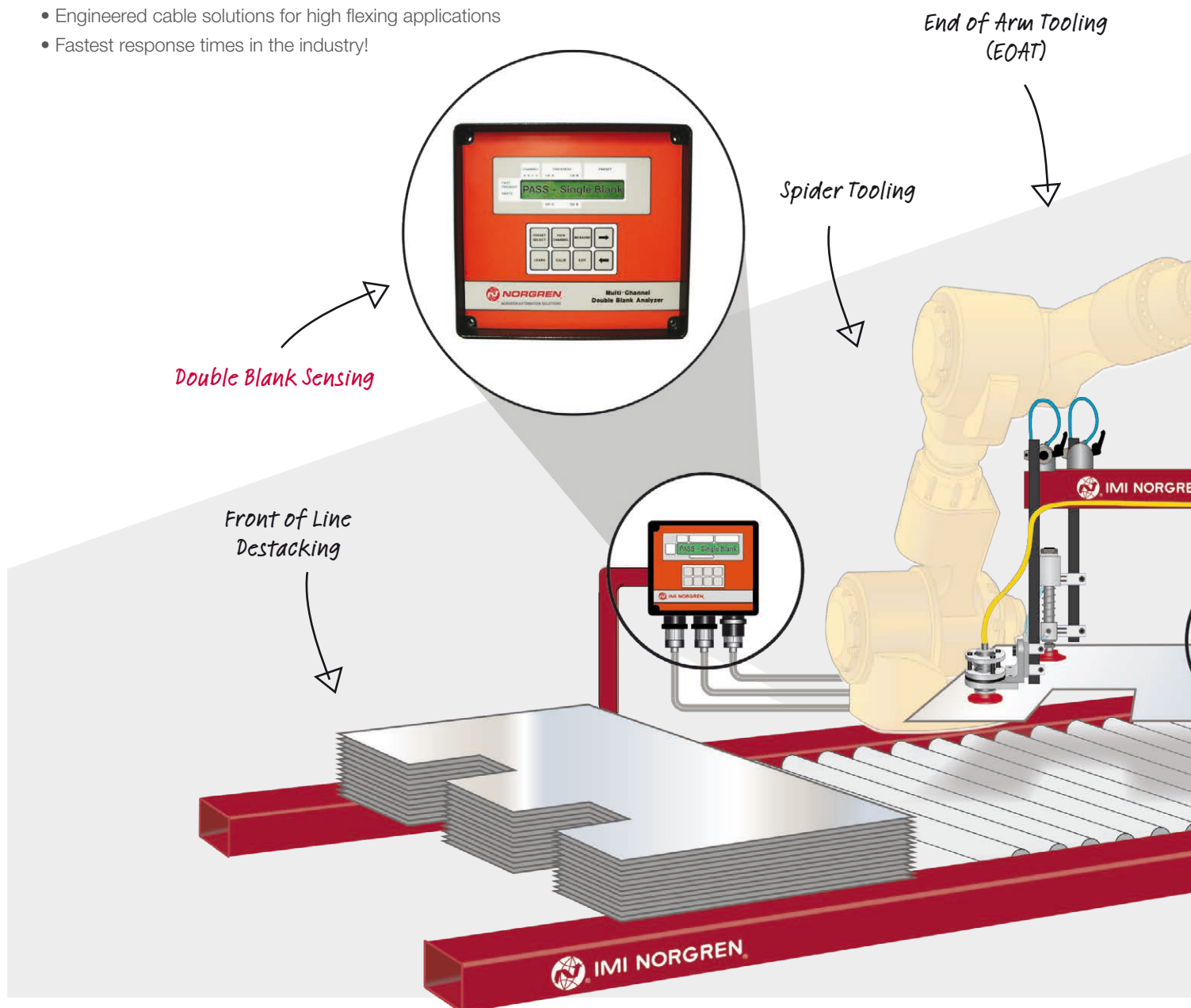
Tel: +34 945 420 840  
Fax: +34 945 420 841  
Email: info@sankyo-sdt.com  
Web: www.sankyo-sdt.com

# Creating Capacity Since 1947

For over 65 years, Norgren Automation Solutions (NAS) has been a partner to automotive OEMs and Tier suppliers, solving pressroom automation problems and increasing press profitability. We focus on automation design, modular tooling and tooling integration for Tri-axis, Tandem and Crossbar presses, as well as welding operations.

## > Why Choose NAS Double Blank Detection Systems?

- Industry's most durable systems, true steel face sensor!
- Sensors have the detection capability of multiple material types
- Engineered cable solutions for high flexing applications
- Fastest response times in the industry!



### > Intelligent Systems

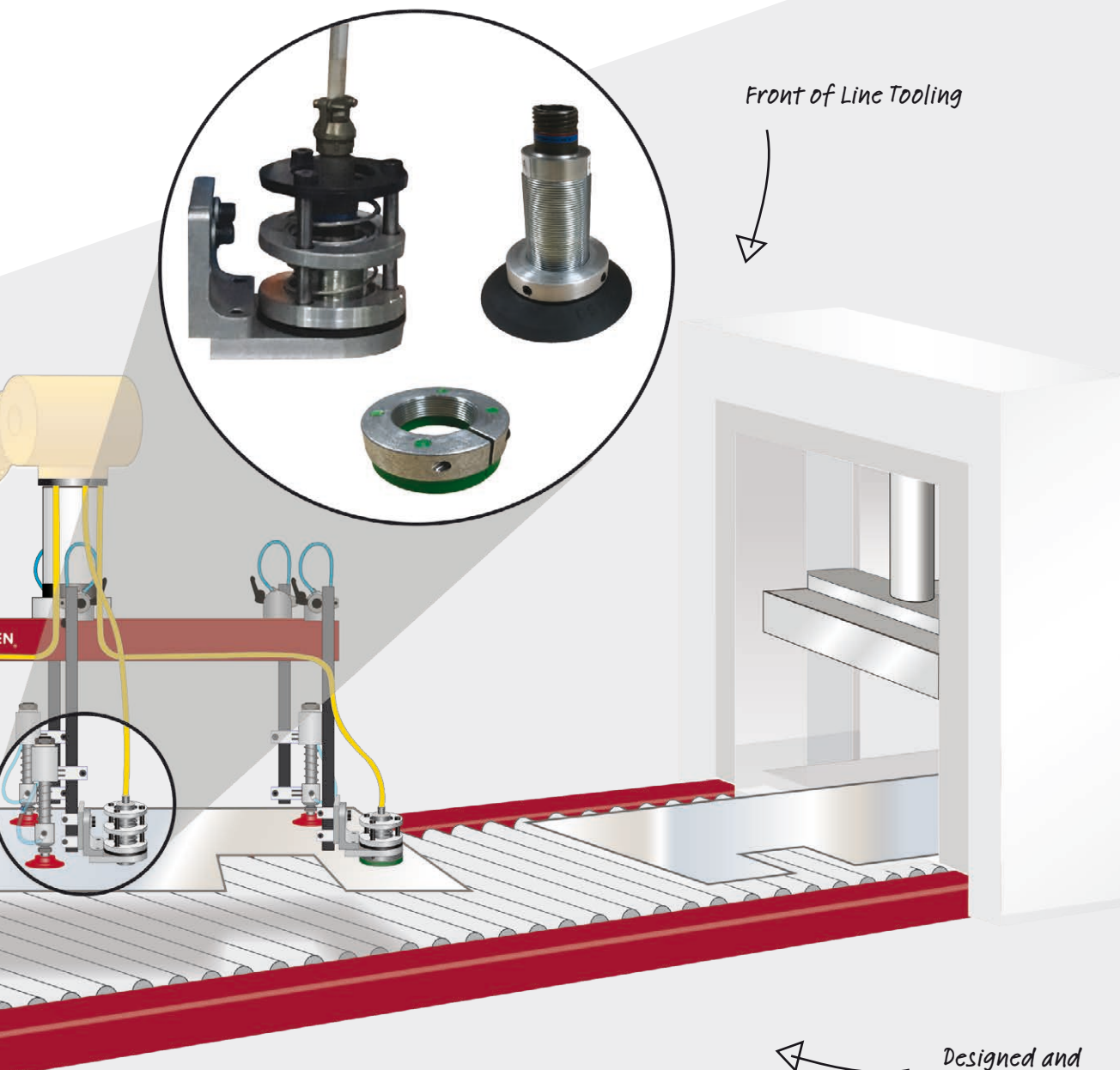
World class press automation requires integration of SMART sensing solutions. From increasing strokes per minute (SPM) to improving ergonomics and safety, IMI Norgren's intelligent systems increase productivity in the pressroom.

### > Made and Serviced in the USA

From front of line to end of line, our sensors, grippers, carbon fiber components, finger tooling and vacuum cup solutions are designed and built to last in the most challenging press environments all in the USA!

### > Engineering Solutions

Engineering GREAT solutions for our customers is at the heart of everything we do. We help customers gain an advantage through increased output or capacity, reduced energy usage, and lower cost of ownership.



# SELECTING A DOUBLE BLANK SYSTEM


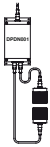

## Selecting the right Double Blank Detection system is now an easy task!

- > Simply follow the decision guides provided on the next few pages to create a system ideal for your application needs
- > Use the worksheet on page 13 to create a Bill of Material for a complete system that meets your application needs
- > Don't forget to consider sensor accessories and junction boxes to improve the serviceability of your systems!
- > For assistance in selecting your system or to answer any questions you have, please contact our Double Blank Detection experts at 1-800-272-4511
- > For assistance with other types of Material Thickness Measurement systems please contact us at 1-800-272-4511





Type of Application

<b>Contact (Static)</b>  Pages 20-27	<b>Pass-through (Dynamic)</b>  Pages 44-49	<b>Sensors, Mounts, Cables &amp; Accessories</b>  Pages 28-43
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BILL OF MATERIALS

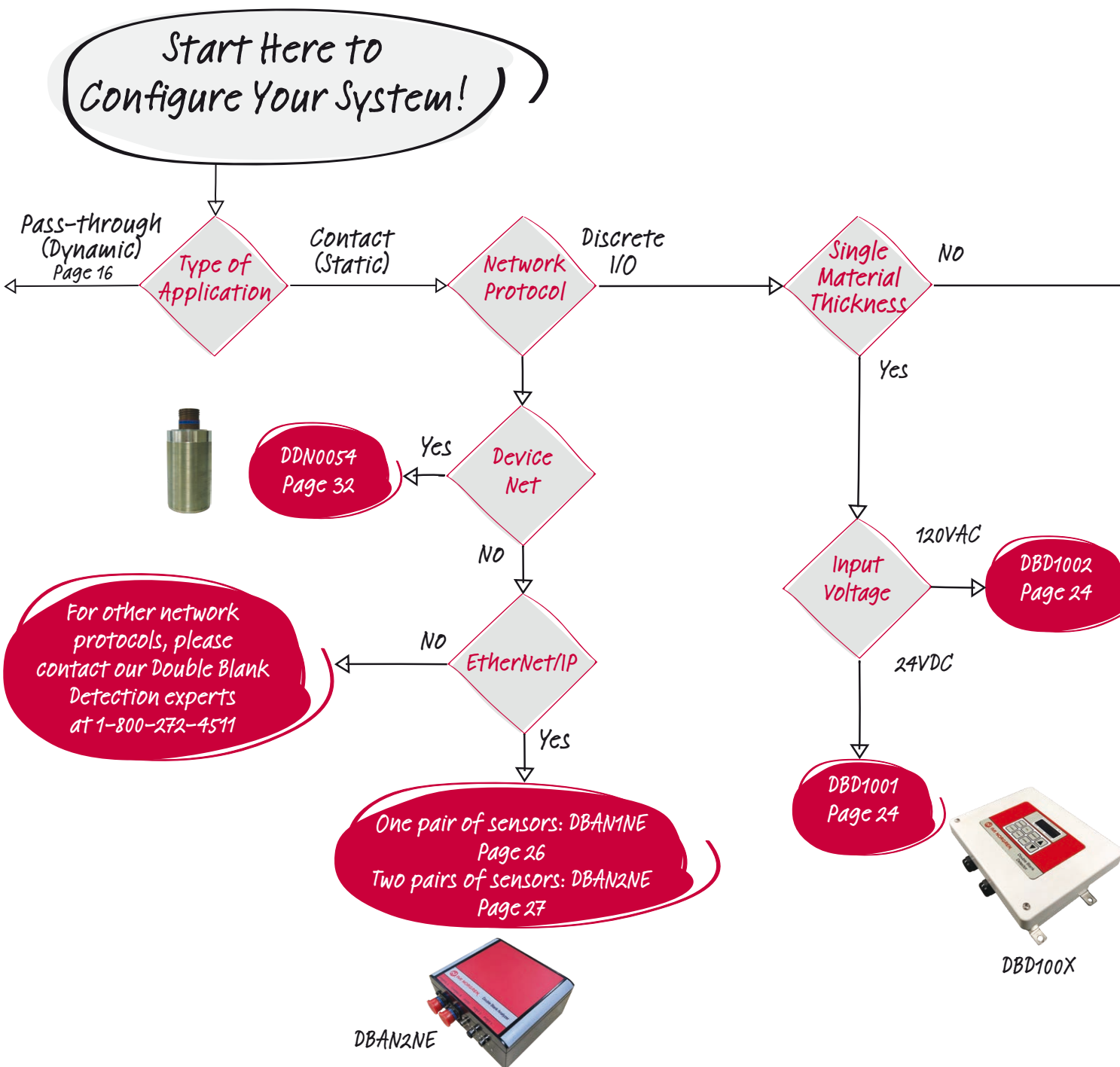
Type	Part Number	Quantity
Controller		
Sensors		
Control Cable		
Sensor Cables(s)		
Sensor Cables(s)		
Sensor Mount		
Sensor Accessories		
Sensor Accessories		
Sensor Accessories		

# SELECTION PROCESS FOR A DOUBLE BLANK DETECTION SYSTEM

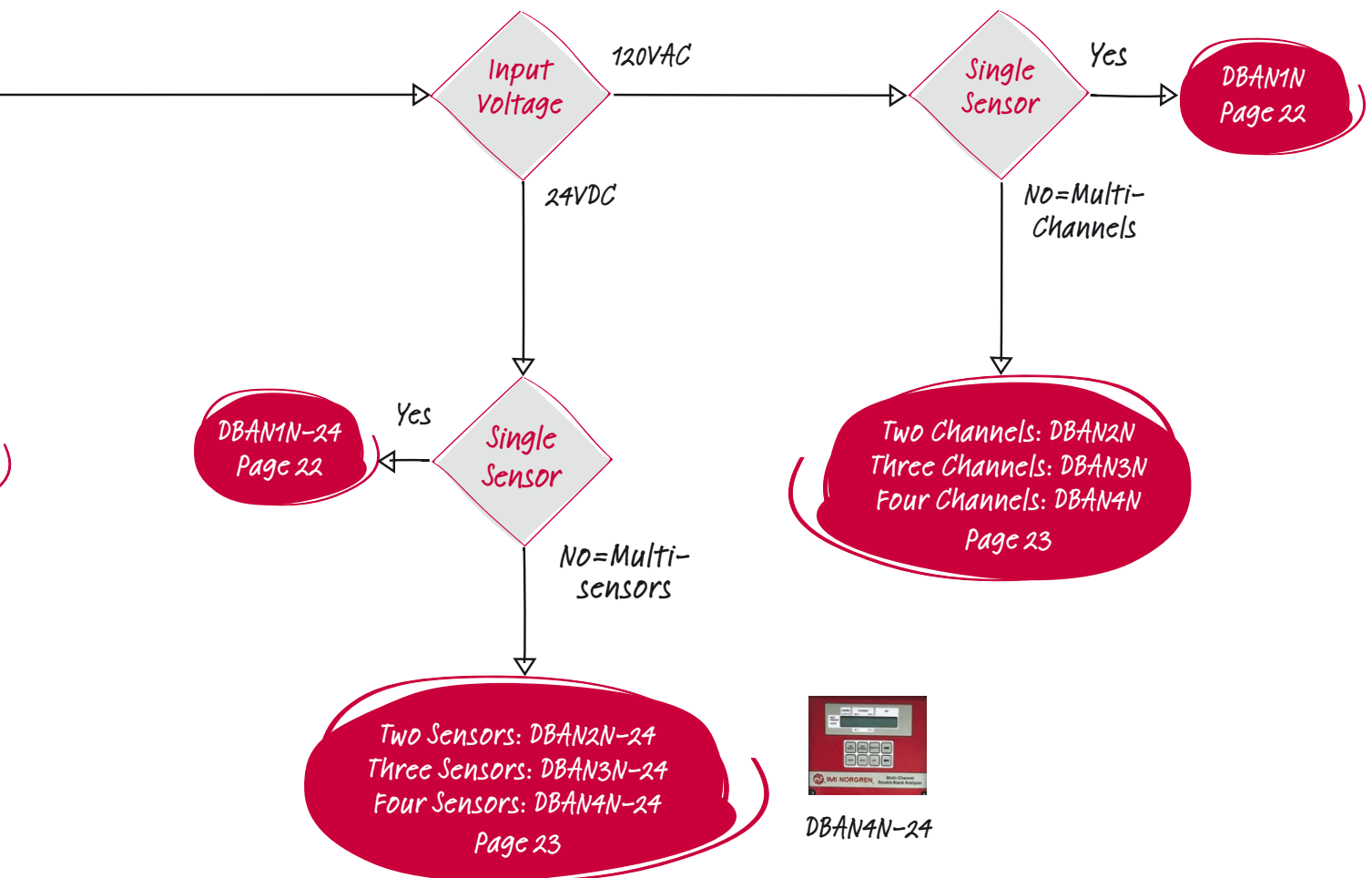
## Step 1: Selecting the Controller

IMI Norgren's Double Blank Detection Systems offer solutions for both contact (static) and pass-through (dynamic) blank detection.

The two detection methods have the capability for both ferrous and non-ferrous applications.



Notes: For non-magnetic sheet metal applications, please contact our Double Blank experts at 1-800-272-4511



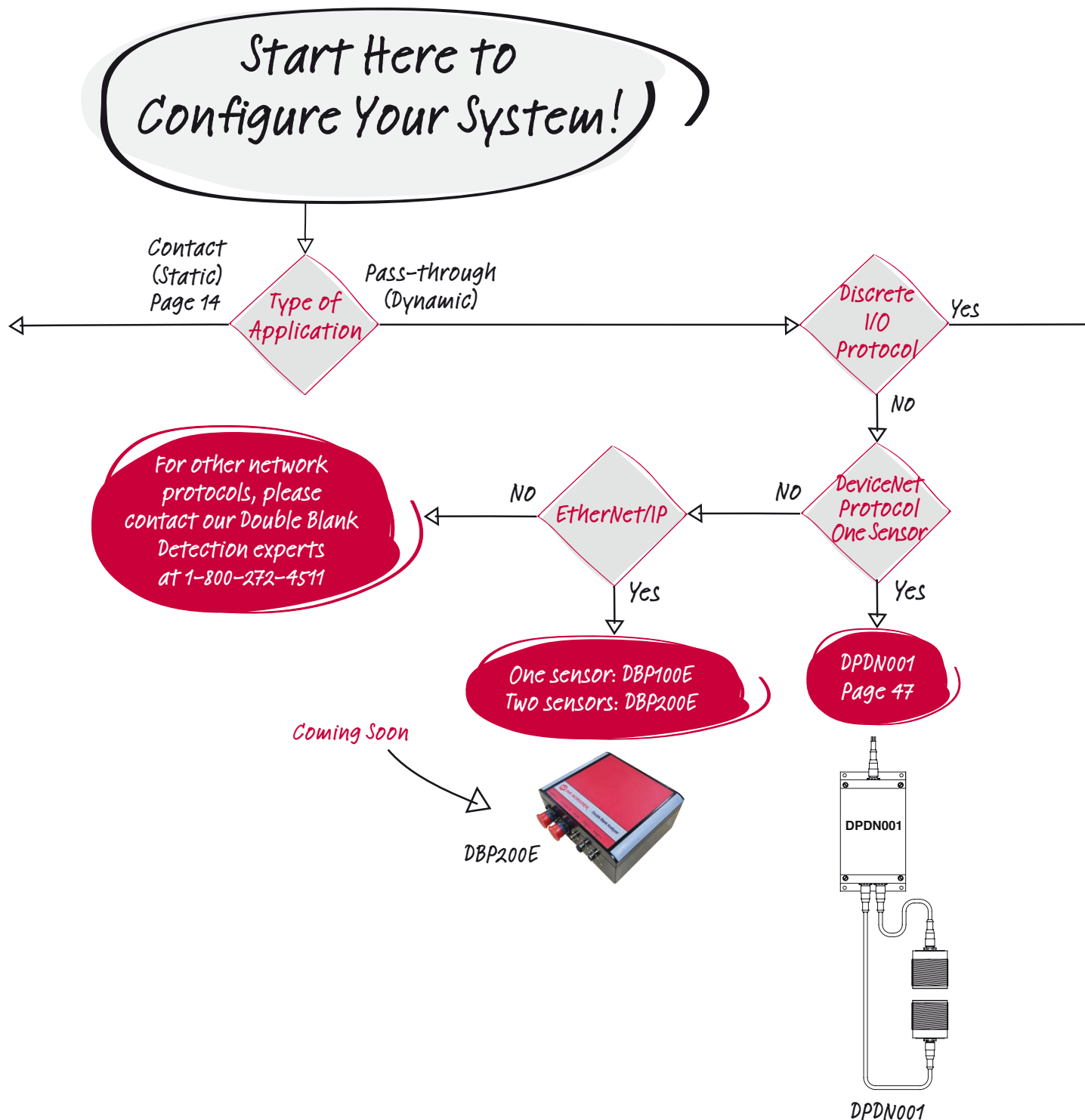


# SELECTION PROCESS FOR A DOUBLE BLANK DETECTION SYSTEM

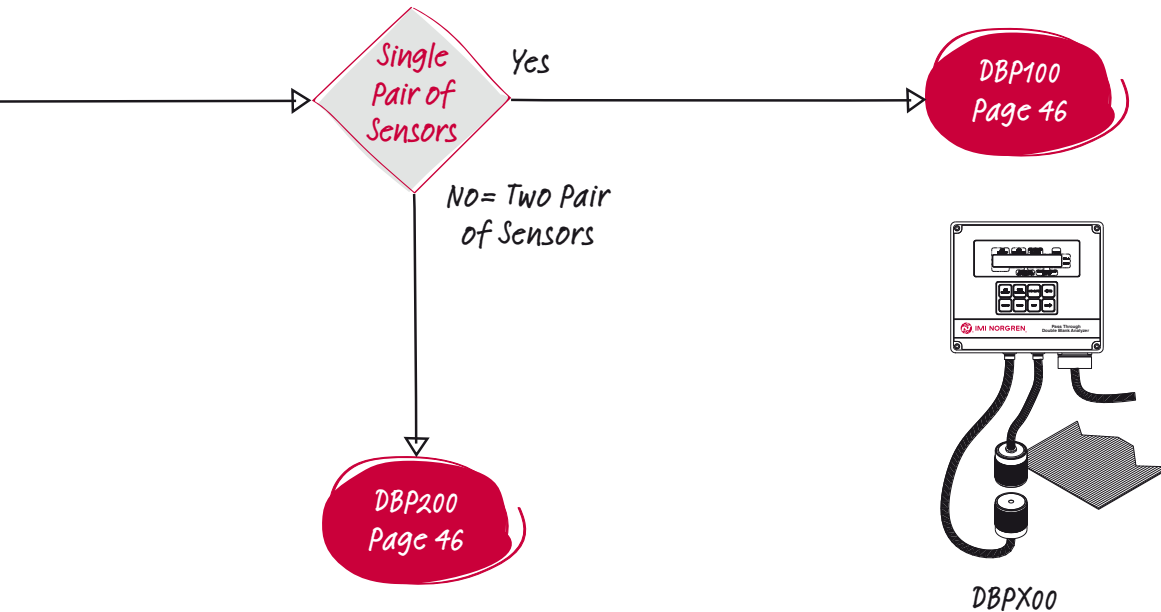
## Step 1: Selecting the Controller, continued (Pass-through Sensing)

IMI Norgren's Double Blank Detection Systems offer solutions for both contact (static) and pass-through (dynamic) blank detection.

The two detection methods have the capability for both ferrous and non-ferrous applications.

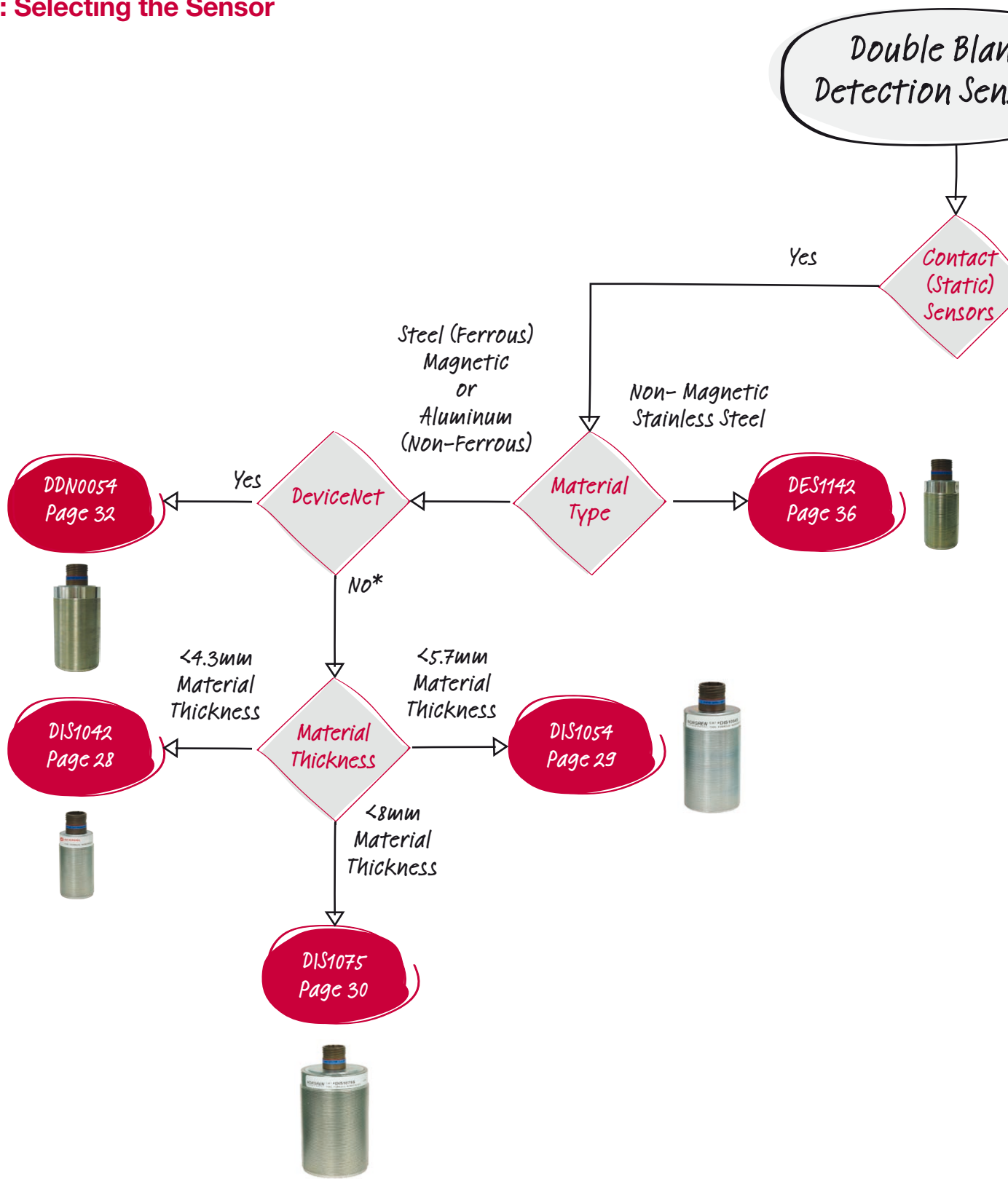






# DOUBLE BLANK DETECTION SENSORS PROCESS MAP

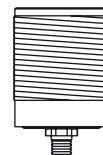
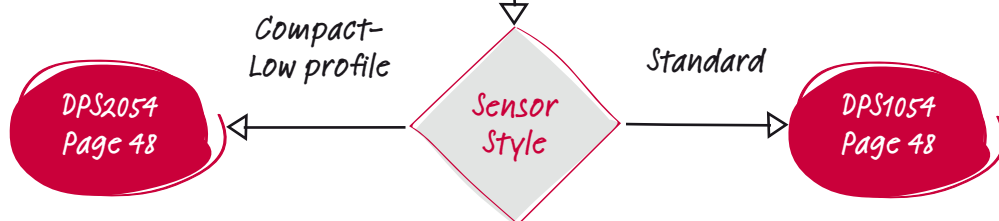
## Step 2: Selecting the Sensor



Notes: For aluminum applications, DIS10XX sensors family measures material thickness up to 4 mm  
 For aluminum applications, DDN0054 measures material thickness up to 2.3 mm  
 \*Discrete I/O, EtherNet/IP or other Network Protocols

Blank  
sensors

NO = Pass-through (Dynamic) Sensors



# CONTACT DOUBLE BLANK DETECTION (STATIC)

## Protect press automation and dies from damage!

Increase productivity in the pressroom by detecting double blanks of all material types.



Capable of up to 127 jobs

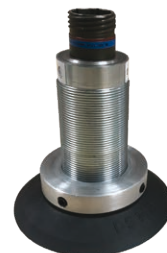
Faster response times

In the field for 30 years!

Detecting material thickness up to 8mm for steel panels and 4mm for aluminum



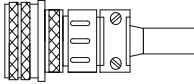
Complete Steel Housing - No Plastic!

Most durable sensors




# Fast Find Guide

## ● Discrete I/O

Controllers	Sensors	Cables
		
Page 22	Page 28	Pages 31, 40

## ● Industrial Ethernet

Controllers	Sensors	Cables
		
Page 26	Page 28	Page 41

## ● Accessories

Accessories

Pages 39, 42

# DBNXN DBA CONTROLLERS



## Single Channel Double Blank Analyzer

The Double Blank Analyzer (DBA) system protects dies and stamping machinery by detecting multiple blanks during the load sequence

- Capable of sensing ferrous and non-ferrous materials
- Enclosure seal: IP65
- Direct replacement for DBAXOX single channel systems
- Up to 127 different jobs storage
- Measurement times as low as 32ms, regardless of how many channels are active\*
- PLCs with isolated 24VDC I/O

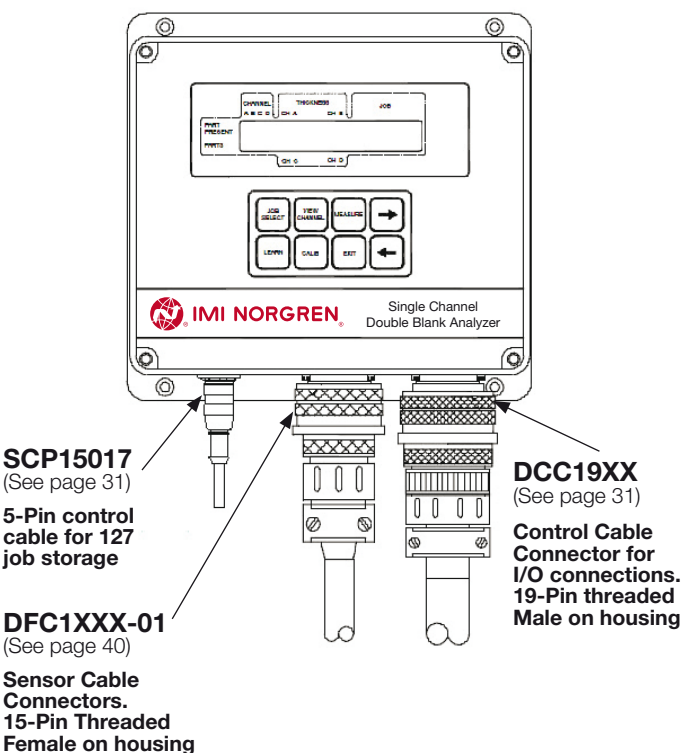
### ● Order information

#### DBAN1N-XX (127)

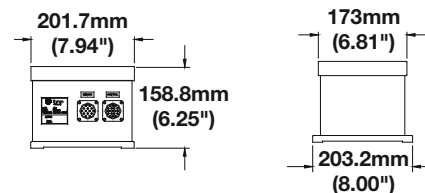
Jobs	Code
12	Leave Blank
127	(127)

Voltage Input	Code
120VAC	Leave Blank
24VDC	24

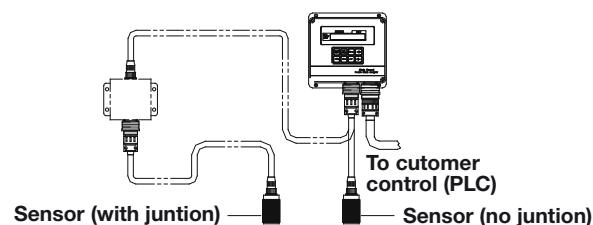


### Single Channel Control



DBAN1N\* (120VAC)  
DBAN1N-24\* (24VDC)

\*Add "(127)" to part number to go from 12 to 127 job storage.



\*For information on stainless steel applications please contact our Double Blank experts at 1-800-272-4511.

Dimensions are for reference only

# DBNXN DBA CONTROLLERS



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 23

## Multi Channel Double Blank Analyzer

- Capable of sensing ferrous and non-ferrous materials
- Enclosure seal: IP65
- Direct replacement for DBAXOX multi-channel systems

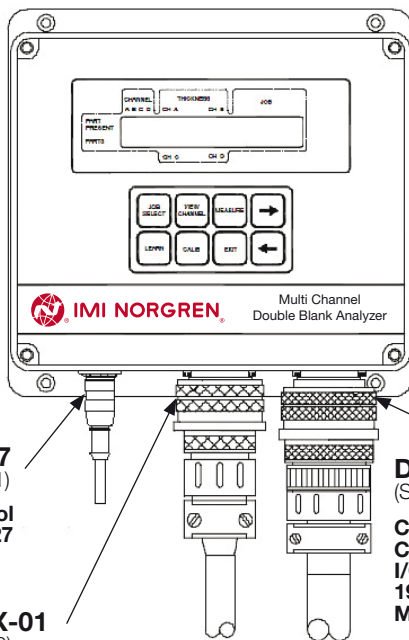
### ● Order information

#### DBANXX-XX (127)

Number of Channels	Code
2	2
3	3
4	4

Jobs	Code
12	Leave Blank
127	(127)

Voltage Input	Code
120VAC	Leave Blank
24VDC	24



**SCP15017**  
(See page 31)

5 Pin Control  
cable for 127  
job storage

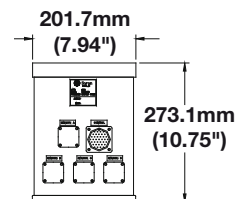
**DFC1XXX-01**  
(See page 40)

Sensor Cable  
Connectors.  
15-Pin Threaded  
Female on housing

**DCC37XX**  
(See page 31)

Control Cable  
Connector for  
I/O connections.  
19 Pin Threaded  
Male on housing

### Multi-Channel Control

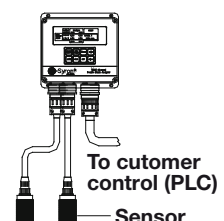
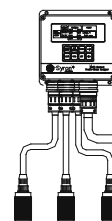
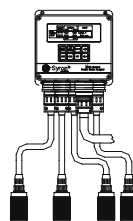


**DBAN4N\***  
**DBAN4N-24\***

**DBAN3N\***  
**DBAN3N-24\***

**DBAN2N\***  
**DBAN2N-24\***

\*Add "(127)" to part number to go from 12 to 127 job storage.



Dimensions are for reference only

# DBD100X CONTROLLERS



## Double Blank Detector

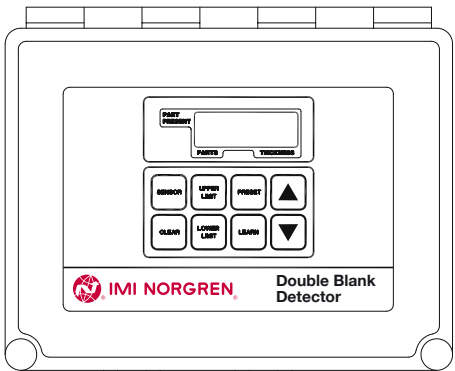
Double Blank Detectors protects dies and other applications by detecting part presence

- Capable of sensing ferrous and non-ferrous materials
- Enclosure seal: IP66

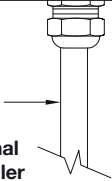
### ● Order information

#### DBD100X

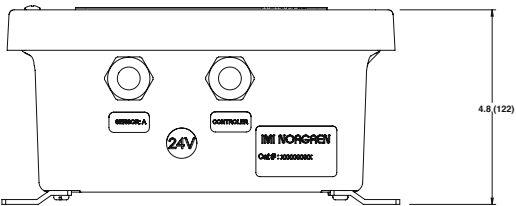
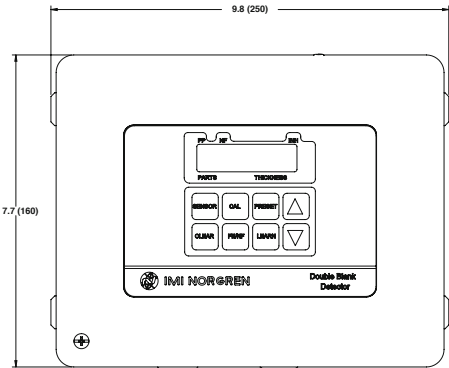
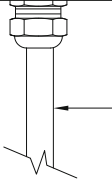
Voltage Input	Code
120VAC	2
24VDC	1



**DFP1XXX-01**  
Sensor cable 15  
conductor cable  
connects to terminal  
strip inside controller



**DCP19XX**  
Control cable 17  
conductor cable  
connects to terminal  
strip inside controller



Dimensions are for reference only



# CABLES FOR THE DBD100X



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 25

## ● Sensor cables

### DFP14XX-01

Lengths (m)	Code
2 m	02
5 m	05
10 m	10
15 m	15
20 m	20

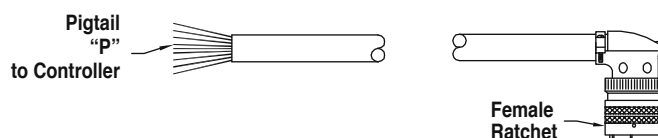
Sensor cables with straight ratchet style connector



### DFP15XX-01

Lengths (m)	Code
2 m	02
5 m	05
10 m	10
15 m	15
20 m	20

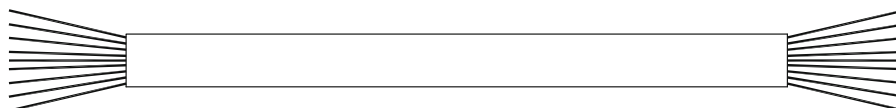
Sensor cables with right angle ratchet style connector



## ● Control cable

### DCP19XX

Lengths (m)	Code
5 m	05
15 m	15



Dimensions are for reference only

# DBANXNE DBA CONTROLLERS



## Single Channel Double Blank Analyzer

**DBA Controller with EtherNet/IP Interface**  
**One Channel Capability**

- Enclosure seal: IP67
- EtherNet/IP interface
- Vibration tolerant up to 4g
- 24VDC
- Maintains log files for diagnostic use
- Weight: 4.8 lbs (2.1 kg)
- Measurement times as low as 32ms

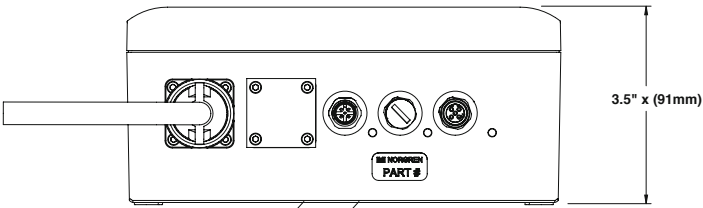
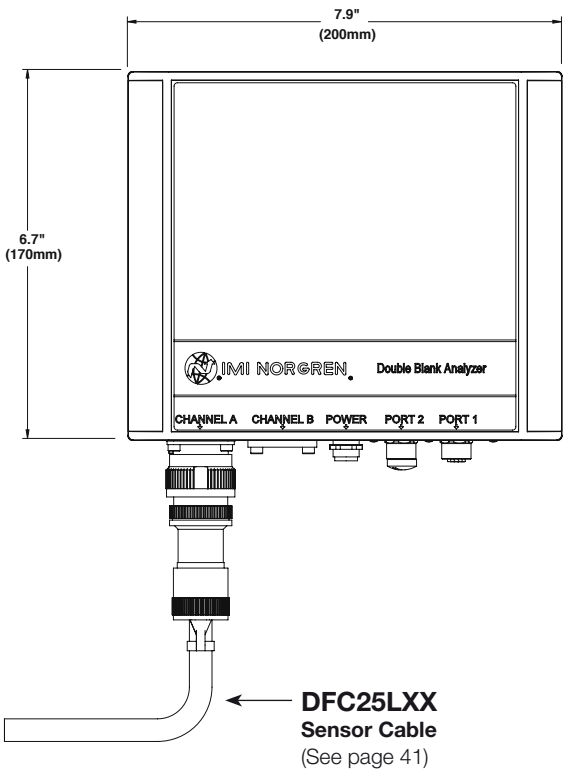
### ● Order information

**DBAN1NE**

### ● Sensor cable styles used

**DFC25LXX, DFC22LXX, DFC23LXX**

### ● DBA controller dimensions



Dimensions are for reference only

# DBANXNE DBA CONTROLLERS



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 27

## Two Channel Double Blank Analyzer

**DBA Controller with EtherNet/IP Interface**  
**Two Channels Capability**

- Enclosure seal: IP67
- EtherNet/IP interface
- Vibration tolerant up to 4g
- 24VDC
- Maintains log files for diagnostic use
- Weight: 4.6 lbs (2.0 kg)
- Measurement times as low as 32ms

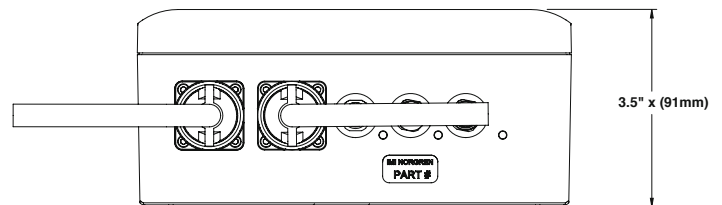
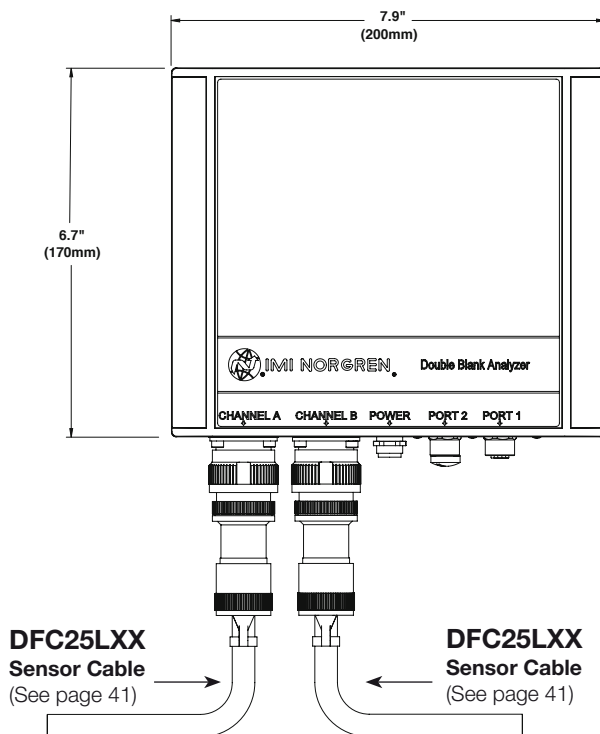
### ● Order information

**DBAN2NE**

### ● Sensor cable styles used

**DFC25LXX, DFC22LXX, DFC23LXX**

### ● DBA controller dimensions



Dimensions are for reference only

# DBA SENSOR (42 MM)

DIS1042S



- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Full steel faceplate
- Ferrous single blank thickness range from 0.5 mm-4.3 mm  
Non-ferrous single blank thickness range from 0.5 mm - 4.0 mm
- Shock resistant design
- Self identifying
- Furnished with 15 pin ratchet style connector
- Fastest measurement time of any contact style sensor

## Order information

Part number	Connector type
DIS1042S	Straight

## Technical Data

### Power/Sensor connector

15 pin straight connector

### Operating temperature range

10°C to 40°C (50°F to 104°F)

### Weight

DIS1042S: 541 gm (1.2 lbs)

### Target material

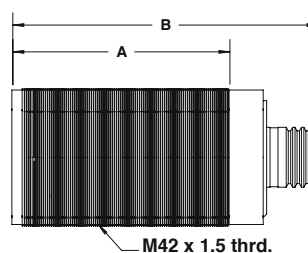
Steel/Aluminum and Ferrous grades of Stainless Steel

### Seal

IP67

### Application

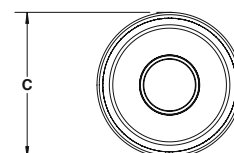
- > Contact sensor for ferrous and non-ferrous materials.
- > Used with DBANXN controllers
- > Used for Double Blank Detection in destackers, centering stations, and pre-load stations
- > Used for hidden part detection
- > Used for missing part detection
- > Contact the factory for application assistance with non-ferrous grades of stainless steel



DIM	DIS1042S	
	mm	Inches
A	66.3	2.61
B	99.1	3.90
C	42.0	1.65

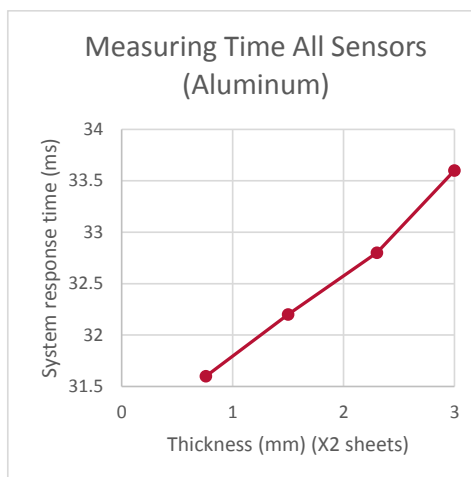
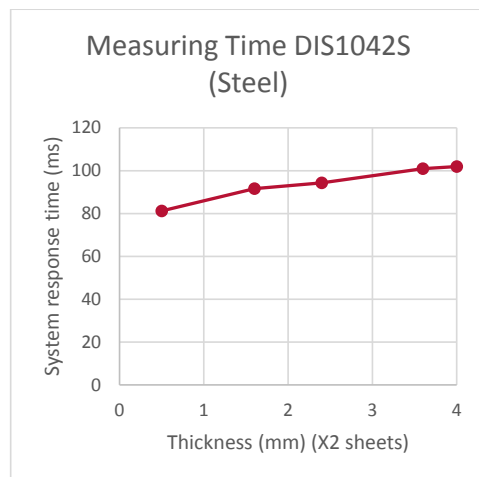


DIS1042S (Shown)



## Sensor response for ferrous and non-ferrous blanks

- Response times are not affected when using multiple channels
- In fast measurement mode, expect a 25-30% decrease in response time



Dimensions are for reference only

# DBA SENSOR (54 MM)

DIS1054 S or R



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 29

- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Full steel faceplate
- Ferrous single blank thickness range from 0.5 mm-5.7 mm  
Non-ferrous single blank thickness range from 0.5 mm - 4.0 mm  
(When used as a Double Blank Analyzer)
- Shock resistant design
- Self identifying
- Furnished with 15 pin ratchet style connector
- Fastest measurement time of any contact style sensor



DIS1054S (Shown)

## Order information

Part number	Connector type
DIS1054S	Straight
DIS1054R	Right angle

## Technical Data

### Power/Sensor connector

15 pin straight or 90°  
ratchet style connector

**Operating temperature range**  
10° C to 40° C (50°F to 104°F)

### Weight

DIS1054S: 1114 gm (2.46 lbs)

DIS1054R: 1260 gm (2.78 lbs)

### Target material

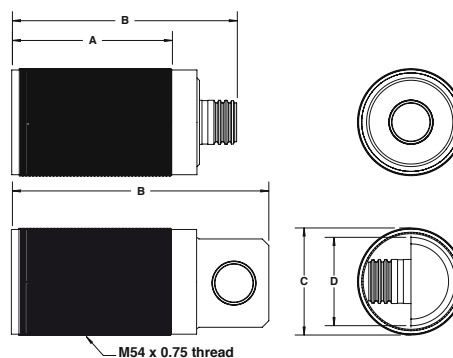
Steel/Aluminum and Ferrous  
grades of Stainless Steel

### Seal

IP67

### Application

- > Contact sensor for ferrous and non-ferrous materials
- > Used with DBANXN controllers
- > Used for double blank detection in destackers, centering stations, and pre-load stations
- > Used for hidden part detection
- > Used for missing part detection
- > Contact the factory for application assistance with non-ferrous grades of stainless steel



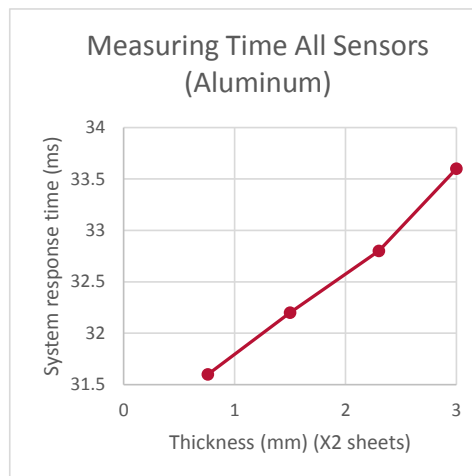
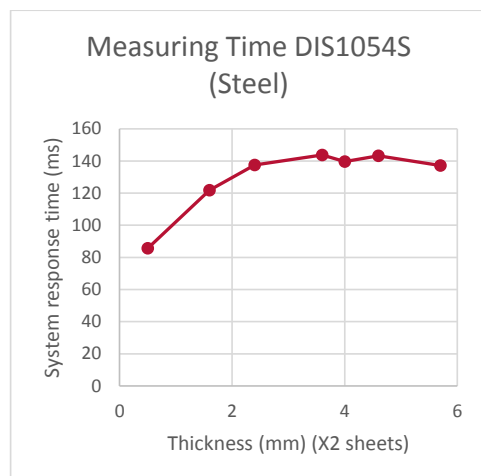
DIS1054S

DIS1054R

DIM	DIS1054S		DIS1054R	
	mm	Inches	mm	Inches
A	80.5	3.17	80.5	3.17
B	133.3	4.46	129	5.08
C	54.1	2.12	54.1	2.13
D	—	—	44.5	1.75

## Sensor response for ferrous and non-ferrous blanks

- Response times are not affected when using multiple channels
- In fast measurement mode, expect a 25-30% decrease in response time



Dimensions are for reference only

# DBA SENSOR (75 MM)

DIS1075 S or R



- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Full steel faceplate
- Ferrous single blank thickness range from 0.5 mm - 8.0 mm  
Non-ferrous single blank thickness range from 0.5 mm - 4.0 mm
- Shock resistant design
- Self identifying
- Furnished with 15 pin ratchet style connector
- Fastest measurement time of any contact style sensor

## Order information

Part number	Connector type
DIS1075S	Straight
DIS1075R	Right angle

## Technical Data

### Power/Sensor connector

15 pin straight or 90° ratchet style connector

### Operating temperature range

10° C to 40° C (50°F to 104°F)

### Weight

DIS1075S: 2258 gm (4.98 lbs)

DIS1075R: 2430 gm (5.36 lbs)

### Target material

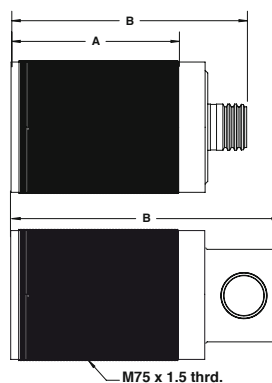
Steel/aluminum and ferrous grades of stainless steel

### Seal

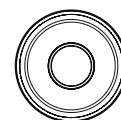
IP67

### Application

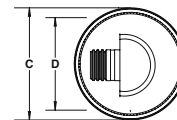
- > Contact sensor for ferrous and non-ferrous materials
- > Used with DBANXN controllers
- > Used for double blank detection in destackers, centering stations, and pre-load stations
- > Used for hidden part detection
- > Used for missing part detection
- > Contact the factory for application assistance with non-ferrous grades of stainless steel



DIS1075S (Shown)



DIS1075S

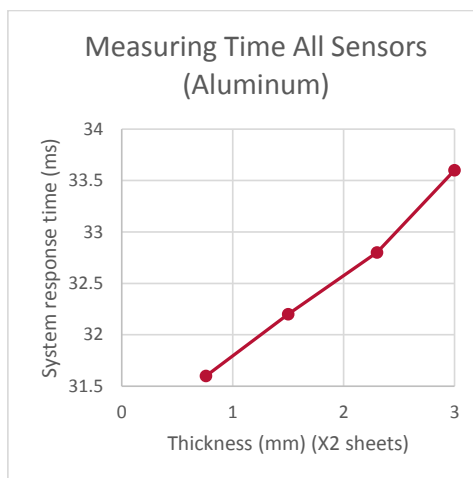
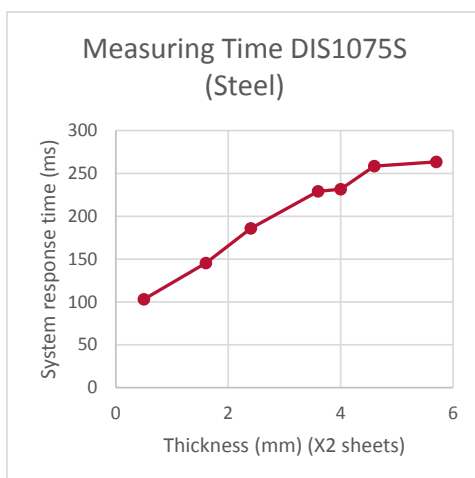


DIS1075R

DIM	DIS1075S		DIS1075R	
	mm	Inches	mm	Inches
A	97.5	3.847	97.5	3.84
B	132.6	5.22	148.6	5.85
C	75	2.95	75	2.95
D	—	—	44.5	1.75

## Sensor response for ferrous and non-ferrous blanks

- Response times are not affected when using multiple channels
- In fast measurement mode, expect a 25-30% decrease in response time



Dimensions are for reference only

# CONTROL CABLES



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 31

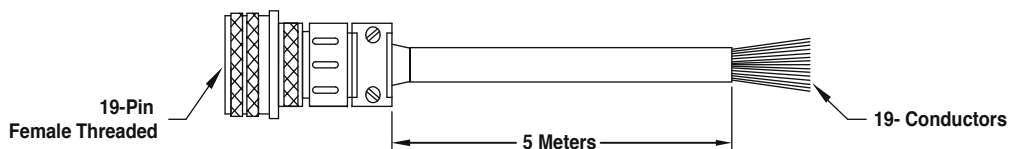
## ● Control cable for single channel DBA

### DCC1905

5M (16.4') Cable (Pigtail)  
with 19 Pin AMPH plug

### DCC19LXX

Customer specified length  
in meters



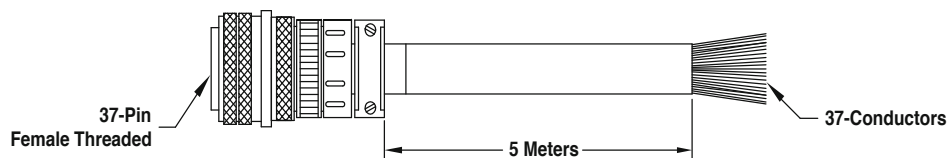
## ● Control cable for multi channel DBA

### DCC3705

5M (16.4') Cable (Pigtail)  
with 19 Pin AMPH plug

### DCC37LXX

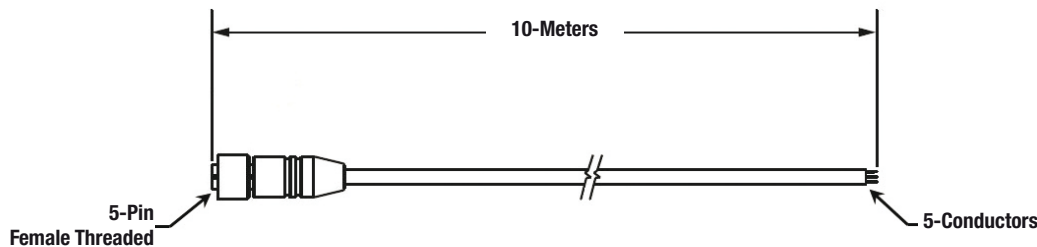
Customer specified length  
in meters



## ● Control cable for 127 job storage

### SCP15017

10M (32.8') Cable



Dimensions are for reference only

# DEVICENET DBA SENSOR (54MM)

DDN0054



- Abrasion, impact & shock resistant
- Digital data transmission
- Solid steel face (no prox)
- Threaded housing
- Impervious to contamination from coolants and oil
- DeviceNet wiring (5 wires)
- Bus with T-Junctions as drops
- Fewer cable runs
- Flat edges on adapter ring for easy installation
- CE tested



DDN0054 Shown

## ● Order information

Part number	Connector type
DDN0054	Ratchet style

## Technical Data

### Measurement range

(FE) Ferrous:

0.0-4.0 mm (0.0-0.157)

(NF) Non-ferrous:

0.0-3.0 mm (0.0-0.118)

### Single blank thickness range\*

(FE) Ferrous:

0.5-3.0 mm (0.019-0.118)

(NF) Non-ferrous:

0.5-2.3 mm (0.019-0.091)

\*When used as a Double Blank Analyzer

### Power/Sensor connector

15 pin ratchet style connector

### Operating temperature range

10° C to 50° C (50°F to 122°F)

### Weight

1120 g (2.47 lbs)

### Target material

Ferrous/non-ferrous

### Seal

IP67

### DeviceNet Communication

#### Supply voltage range

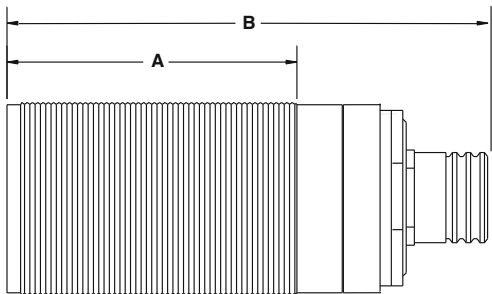
30VDC to 36VDC

#### Input current

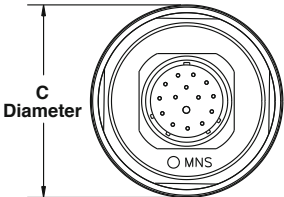
2A peak

### Application

- > Contact sensor for ferrous/non-ferrous material
- > Used with DeviceNet controller cards
- > Used for double blank detection in destackers, centering stations, pre-load stations.
- > Used for hidden part detection
- > Used for missing part detection



Note 1



Dimensions	mm	Inches
A	81.3	3.20
B	129.0	5.08
C	54.0	2.12

Note 1: Threads M54 X 0.75

Dimensions are for reference only



# DEVICENET DBA SENSOR DROP CABLES

DFC20X



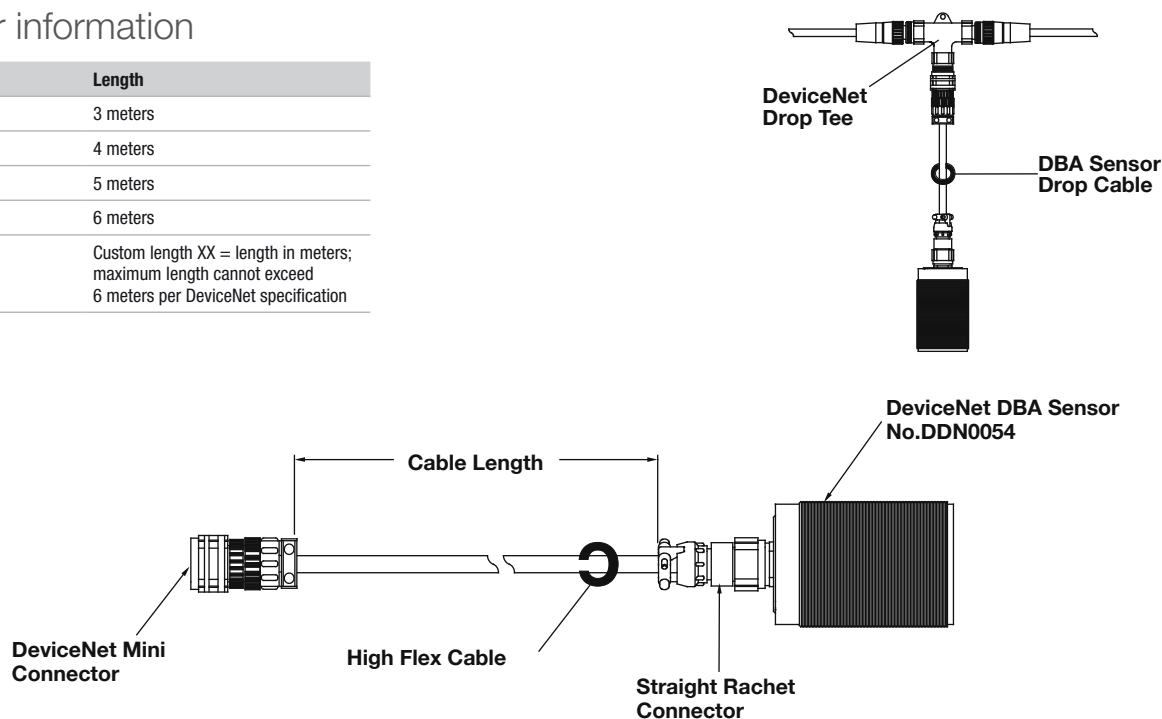
2

CONTACT DOUBLE BLANK DETECTION (STATIC) 33

## Straight Cable

### ● Order information

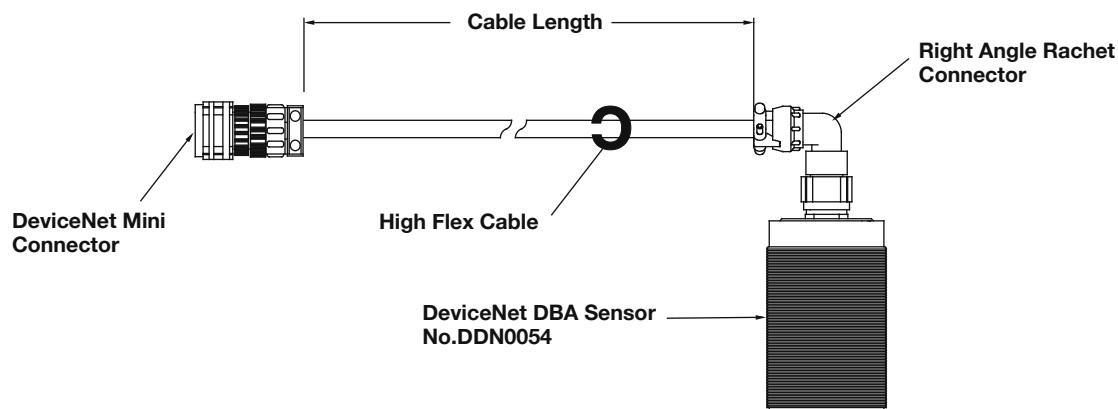
Part number	Length
DFC2003	3 meters
DFC2004	4 meters
DFC2005	5 meters
DFC2006	6 meters
DFC20LXX	Custom length XX = length in meters; maximum length cannot exceed 6 meters per DeviceNet specification



## Angled Cable

### ● Order information

Part number	Length
DFC2403	3 meters
DFC2404	4 meters
DFC2405	5 meters
DFC2406	6 meters
DFC24LXX	Custom length XX = length in meters; maximum length cannot exceed 6 meters per DeviceNet specification



Dimensions are for reference only

# CONFIGURATOR FOR DDN0054 SENSORS

DDN3B64

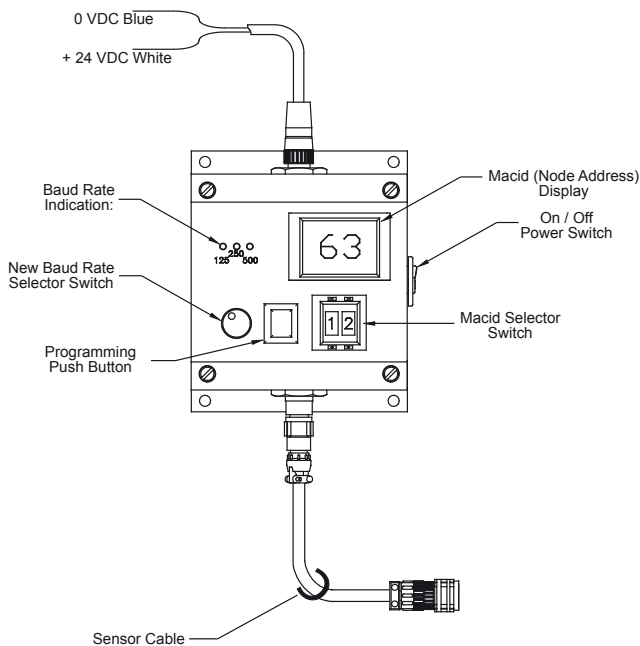
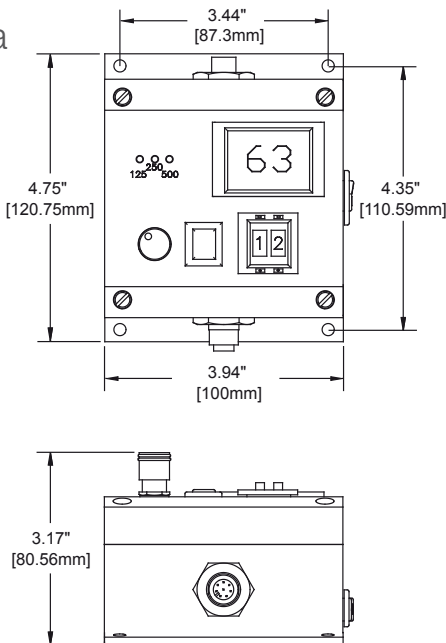
- Bypasses DeviceNet circuitry to communicate directly with the microprocessor in the sensor
- Reads and displays baud rate and Macid (node address) of sensor removed from the network
- Programs baud rate and Macid (node address) into replacement sensors to ensure compatibility with network
- Connect to 12-36VDC remote power supply
- 60ma current draw at 24VDC

## Order information

DDN3B64

### Technical Data

Weight  
621 gm (1.37 lbs)



### Application



Dimensions are for reference only

# LEGACY DBA SENSOR (42MM)

DIS0242-01



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 35

- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Shock resistant design
- Self identifying
- Furnished with 15 pin ratchet style connector
- Threaded housing

## Order information

Part number	Connector type
DIS0242-01	Ratchet style



DIS0242-01 Shown

## Technical Data

### Measurement range

0.0-0.118 (0.0-3.0 mm)

### Single blank thickness range\*

0.019-0.091 (0.5-2.3 mm)

\*When used as a Double Blank Analyzer

### Power/Sensor connector

15 pin ratchet style connector

### Seal

IP67

### Operating temperature range

10° C to 50° C (50°F to 122°F)

### Weight

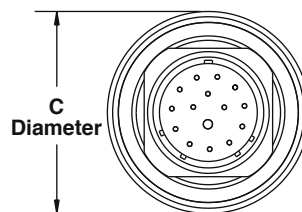
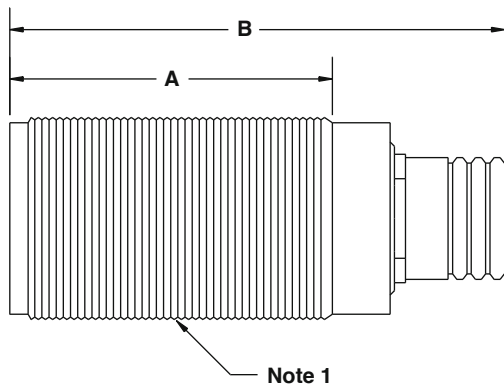
611 g (1.35 lbs)

### Target material

Ferrous

### Application

- > Contact sensor for ferrous material
- > Used with DBD, DHP, and DBA controls
- > Used for double blank detection in destackers, centering stations, pre-load stations
- > Used for hidden part detection
- > Used for missing part detection



DIM	mm	Inches
A	67.0	2.64
B	102.8	4.05
C	42.0	1.65

Note 1: M42 X 1.5

Dimensions are for reference only

# LEGACY DBA SENSOR (42MM)

for use with non-ferrous material and non-magnetic stainless steel  
DES1142



- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Shock resistant design
- Non-ferrous single blank thickness range from 0.5 mm - 2.3 mm material thickness
- Self identifying
- Furnished with 15 pin ratchet style connector



DES1142 (Shown)

## ● Order information

Part number	Connector type
DES1142	Ratchet style

## Technical Data

### Measurement range

0.0-3.0 mm

### Single blank thickness range\*

0.5-2.3 mm

\*When used as a Double Blank Analyzer

### Power/Sensor connector

15 pin ratchet style connector

### Seal

IP67

### Operating temperature range

10°C to 50°C (50°F to 122°F)

### Weight

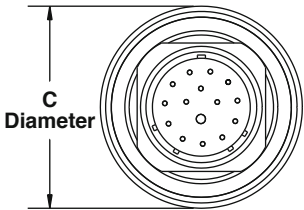
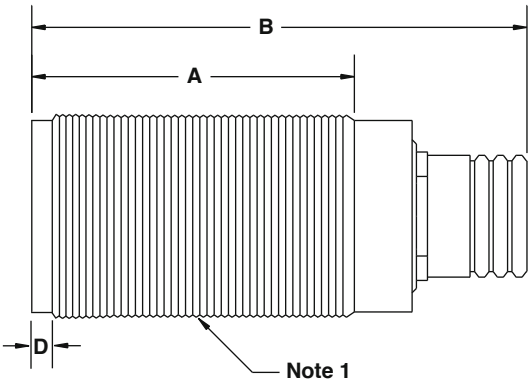
611 g

### Target material

Non-ferrous

### Application

- > Contact sensor for non-ferrous material
- > Used with NAS DBA001 DBA controller only
- > Used for double blank detection in destackers, centering stations, pre-load stations
- > Thickness sensing technology DOES NOT allow the use of a vacuum cup mounted directly to the end of sensor



Dimensions	mm	Inches
A	67.0	2.64
B	102.8	4.05
C	42.0	1.65
C	4.0	0.16

Note 1: M42 X 1.5

Dimensions are for reference only

# LEGACY DBA SENSOR (54MM)

DIS0254-01



2

CONTACT DOUBLE BLANK DETECTION (STATIC) 37

- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Shock resistant design
- Self identifying
- Furnished with 15 pin ratchet style connector
- Threaded housing

## Order information

Part number	Connector type
DIS0254-01	Ratchet style



DIS0254-01 (Shown)

## Technical Data

### Measurement range

0.0-4.0 mm (0.0-0.157)

### Single blank thickness range\*

0.5-3.0 mm (0.019-0.118)

\*When used as a Double Blank Analyzer

### Power/Sensor connector

15 pin ratchet style connector

### Seal

IP67

### Operating temperature range

10° C to 50° C (50°F to 122°F)

### Weight

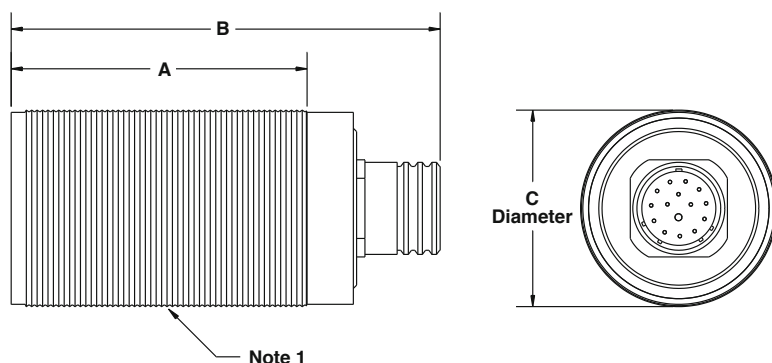
1117 g (2.46 lbs)

### Target material

Ferrous

### Application

- > Contact sensor for ferrous material
- > Used with DBD, DHP, and DBA controls
- > Used for double blank detection in destackers, centering stations, pre-load stations
- > Used for hidden part detection
- > Used for missing part detection



Dimensions	mm	Inches
A	81.3	3.20
B	117.8	4.64
C	54.0	2.12

Note 1: M54 X 0.75

Dimensions are for reference only

# LEGACY DBA SENSOR (75MM)

DIS0275-01



- Abrasion and impact resistant
- Impervious to contamination from coolants and oil
- Shock-resistant design
- Self identifying
- Furnished with 15 pin ratchet style connector
- Threaded housing

## Order information

Part number	Connector type
DIS0275-01	Ratchet style



DIS0275-01 (Shown)

## Technical Data

### Measurement range

0.0-6.0 mm (0.0-0.236)

### Single blank thickness range\*

0.5-4.6 mm (0.019-0.118)

\*When used as a Double Blank Analyzer

### Power/Sensor connector

15 pin ratchet style connector

### Seal

IP67

### Operating temperature range

10° C to 50° C (50°F to 122°F)

### Weight

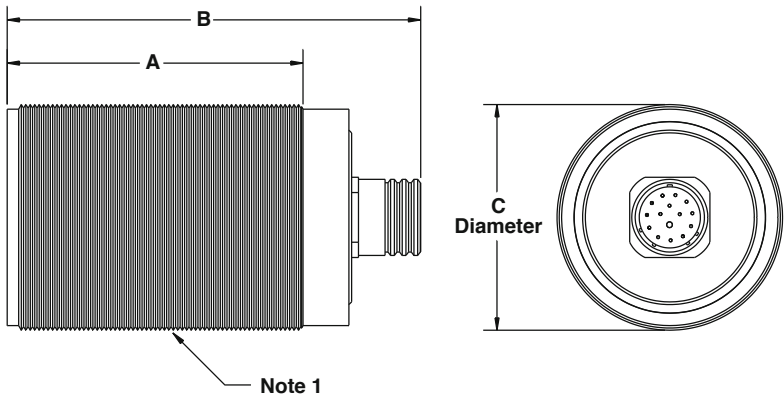
2959 g (6.52 lbs)

### Target material

Ferrous

### Application

- > Contact sensor for ferrous material
- > Used with DBD, DHP, and DBA controls
- > Used for double blank detection in destackers, centering stations, pre-load stations
- > Used for hidden part detection
- > Used for missing part detection



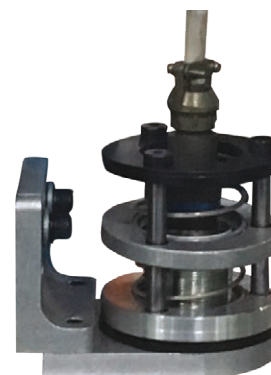
DIM	mm	Inches
A	98.3	3.87
B	137.4	5.41
C	75.0	2.95

Note 1: Threads M75 X 1.5

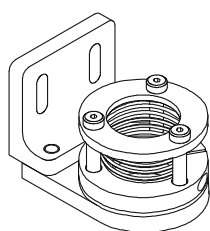
Dimensions are for reference only

## Sensor Spring Mounts

- All sensor cable connections at the DBA controller and one side of the sensor junction box use threaded connectors
- All sensor cables have a threaded connector on one end
- We recommend the use of ratchet type connectors on the sensor because of its superior resistance to vibration
- We recommend the use of a short extension cable to the sensor. The extension cable improves the serviceability of the DBA System as shown in the example below



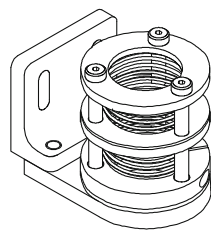
## Sensor Spring Mounts



**DSM3601**  
Standard Spring mount for 42 mm sensor

**DSM3602**  
Standard Spring mount for 54 mm sensor

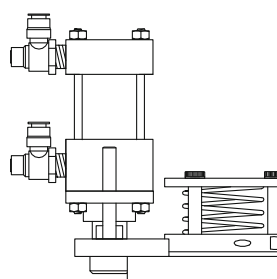
**DSM3603**  
Standard Spring mount for 75 mm sensor



**DSM3611**  
Extended travel Spring mount for 42 mm sensor

**DSM3623**  
Extended travel Spring mount for 54 mm sensor

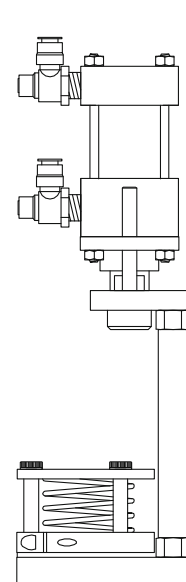
## Spring Mounts with Air Cylinder



**DSM3607**  
42 mm low profile

**DSM3608**  
54 mm low profile

**DSM3609**  
75 mm low profile



**DSM3604**  
42 mm extended reach

**DSM3605**  
54 mm extended reach

**DSM3606**  
75 mm extended reach

## CAUTION:

Contact type sensors must come in contact with the blank to take a measurement. Air gaps up to .003 inch are acceptable, if this gap stays consistent from measurement cycle to measurement cycle. Sensor bumpers and vacuum cups can interfere with the sensor face contact with the blank. Failure to install and adjust properly can result in double sheets not being detected.

**Note:** The maximum single blank thickness rating of the DBA sensor must be lowered to 85% of its normal rating if bumpers or vacuum cups are mounted on the sensor.

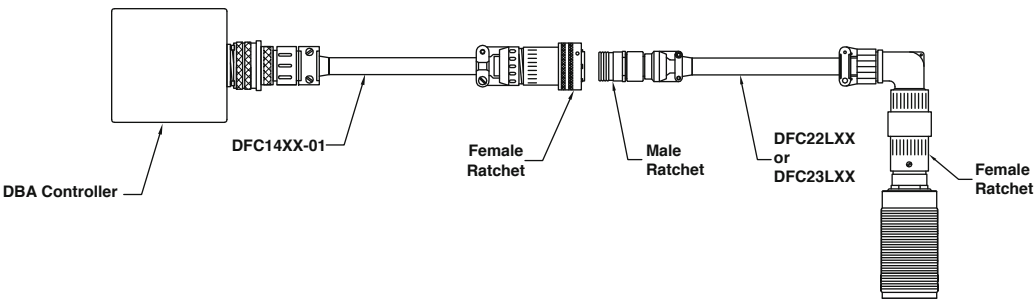
Dimensions are for reference only

# DBA SYSTEM SENSOR CABLE ASSEMBLIES AND JUNCTION BOXES



- All sensor cable connections at the DBA controller and one side of the sensor junction box use threaded connectors
- All sensor cables have a threaded connector on one end
- We recommend the use of ratchet type connectors on the sensor because of its superior resistance to vibration
- We recommend the use of a short extension cable to the sensor. The extension cable improves the serviceability of the DBA system as shown in the example below

## Sample Layout



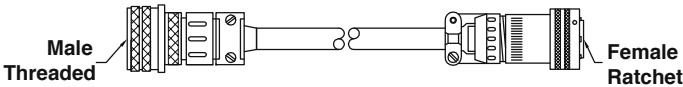
## ● Order information

### Sensor Cables

#### DFC14XX-01

Length in meters	Code
2 meters	02
5 meters	05
10 meters	10
15 meters	15
20 meters	20

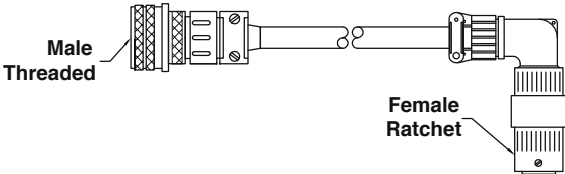
Sensor cables with straight ratchet style connector



#### DFC15XX-01

Length in meters	Code
2 meters	02
5 meters	05
10 meters	10
15 meters	15
20 meters	20

Sensor cables with right angle ratchet style connector



Dimensions are for reference only



# DBA SYSTEM SENSOR CABLE ASSEMBLIES AND JUNCTION BOXES



2

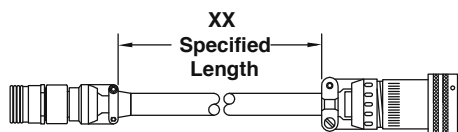
CONTACT DOUBLE BLANK DETECTION (STATIC) 4-1

## Sensor Extension Cables

### DFC22LXX

Length in meters	Code
2 meters	02
5 meters	05
10 meters	10
15 meters	15
20 meters	20

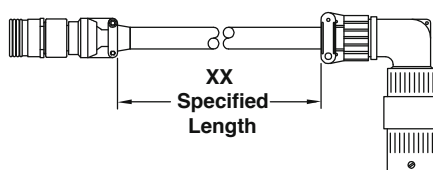
Straight male ratchet to straight female ratchet



### DFC23LXX

Length in meters	Code
2 meters	02
5 meters	05
10 meters	10
15 meters	15
20 meters	20

Straight male ratchet to right angle female ratchet



## Sensor Cable for DBANXNE and Automatic Tool Changers

### DFC25LXX

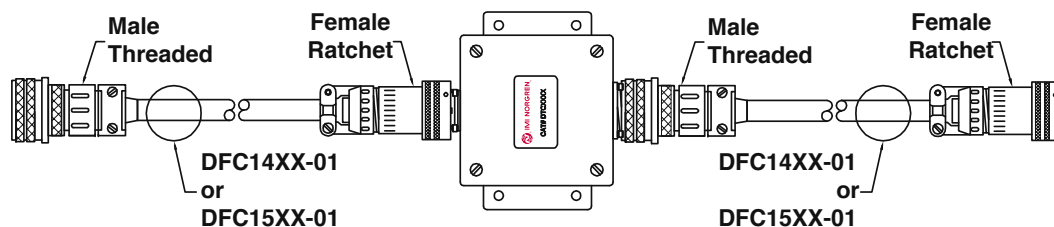
Length in meters	Code
2 meters	02
5 meters	05
10 meters	10
15 meters	15
20 meters	20



## Sensor Junction Box

### DTC1400-01

Sensor junction box with ratchet style connector



Dimensions are for reference only

# DBA SYSTEM ACCESSORIES & MOUNTS



## ● Sensor Bumpers

- Threads on sensor to prevent blank surface marring

⚠ See cautions listed below.

### 66.0020

Bumper assembly for  
42 mm sensor

### 66.0019

Bumper assembly for  
54 mm sensor

### 66.0199

Bumper assembly for  
75 mm sensor



## ● Sensor Mounted Vacuum Cups

- Thread on sensor to hold blank firmly against face of sensor
- Cup can protect blank from surface marring

⚠ See cautions listed below

### DSM3613

Vacuum cup for  
42mm sensor

### DSM3614

Vacuum cup for  
54 mm sensor  
75 mm version not available



## ⚠ CAUTION:

Contact type sensors must come in contact with the blank to take a measurement. Air gaps up to .003 inch are acceptable, if this gap stays consistent from measurement cycle to measurement cycle. Sensor bumpers and vacuum cups can interfere with the sensor face contact with the blank. Failure to install and adjust properly can result in double sheets not being detected.

**Note:** The maximum single blank thickness rating of the DBA sensor must be lowered to 85% of its normal rating if bumpers or vacuum cups are mounted on the sensor.

Dimensions are for reference only



## ● Vacuum Cup Mounting Bracket

- Bracket positions cups on both sides of sensor for precise presentation of sensor face against blank
- Compressing motion of cups during vacuum provides 6 mm to 8 mm of sensor mount spring compression

### DSM3625

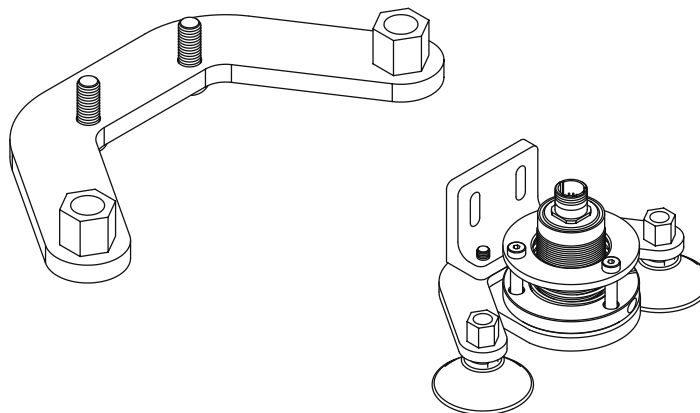
No Cups, No Venturi

### DSM3625-01

With Cups, No Venturi

### DSM3625-02

With Cups, With Venturi



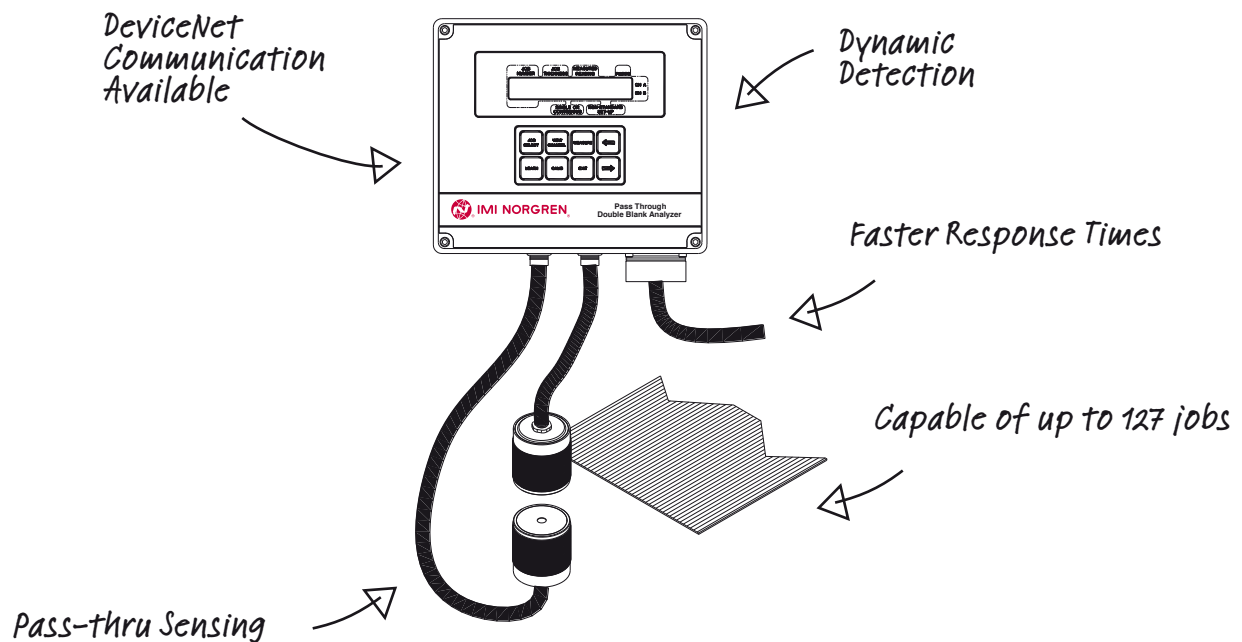
## ⚠ CAUTION:

Contact type sensors must come in contact with the blank to take a measurement. Air gaps up to .003 inch are acceptable, if this gap stays consistent from measurement cycle to measurement cycle. Sensor bumpers and vacuum cups can interfere with the sensor face contact with the blank. Failure to install and adjust properly can result in double sheets not being detected.



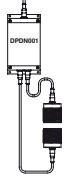
**Note:** The maximum single blank thickness rating of the DBA sensor must be lowered to 85% of its normal rating if bumpers or vacuum cups are mounted on the sensor.

Dimensions are for reference only

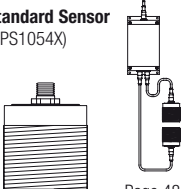
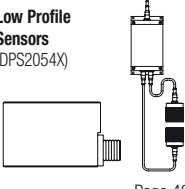
# PASS-THROUGH DOUBLE BLANK DETECTION (DYNAMIC)



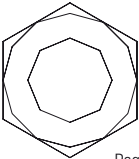
## ● Controllers

<b>Pass Thru DBA Single Channel</b> (DBP100)  Page 46	<b>Pass Thru DBA Two Channel</b> (DBP200)  Page 46	<b>DeviceNet Pass Thru DBA Single Channel</b> (DPDN001)  Page 47
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## ● Sensors

<b>Standard Sensor</b> (DPS1054X)  Page 48	<b>Low Profile Sensors</b> (DPS2054X)  Page 48
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## ● Accessories

<b>Accessories</b>  Page 49
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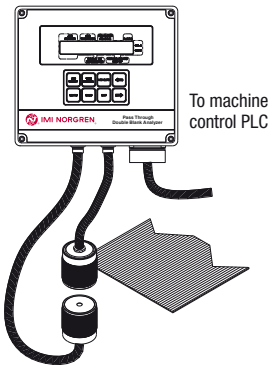


# DOUBLE BLANK PASS THRU CONTROLLERS

DBP100 / DBP200

- Controllers with single or two channel inputs
- Compatible with both ferrous and non-ferrous material
- All I/O source with PLC are 24 VDC from internal or separate power that can be wired as a current sink or a current source
- Up to 127 job storage
- 120 VAC

## Technical Data



### Maximum single sheet thickness measurement

Ferrous: 3.3 mm

Non-ferrous: 3.3 mm

### Typical measurement time\*

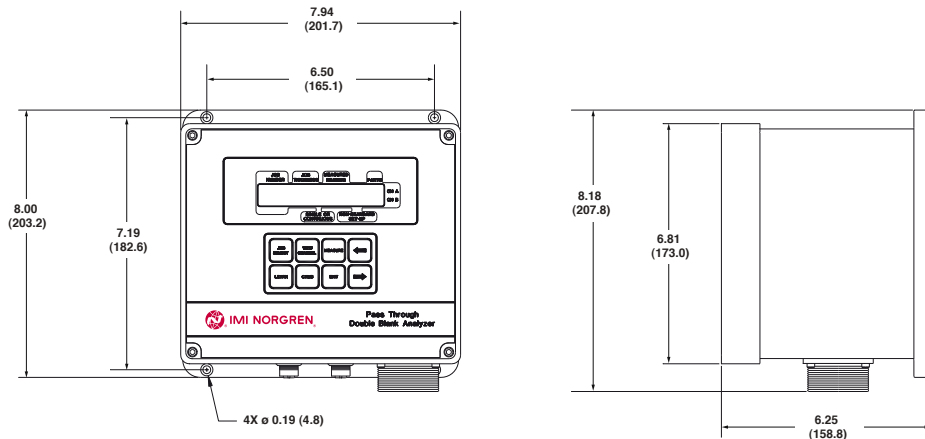
Less than 70 milliseconds

\*Note: Sensor faces must be totally covered by material for a minimum of 16 milliseconds

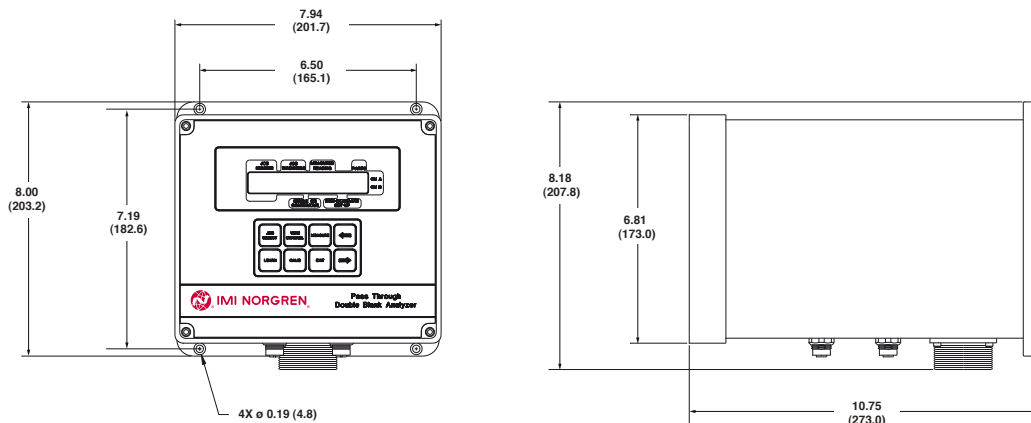
### Application

- > Ferrous or non-ferrous materials transmit through two pass sensors placed between 1" (25 mm) and 2" (50 mm) apart
- > DBP controllers store up to 127 jobs
- > Through a PLC or keypad input, job setup includes material type and thickness selection
- > One and two channel controllers are available
- > Each channel has independent measurement capabilities

## ● Single Channel DBP100 DBA Controller Dimensions



## ● Two Channel DBP200 DBA Controller Dimensions



Dimensions are for reference only

# DEVICENET PASS-THRU CONTROLLER

DPDN001



3

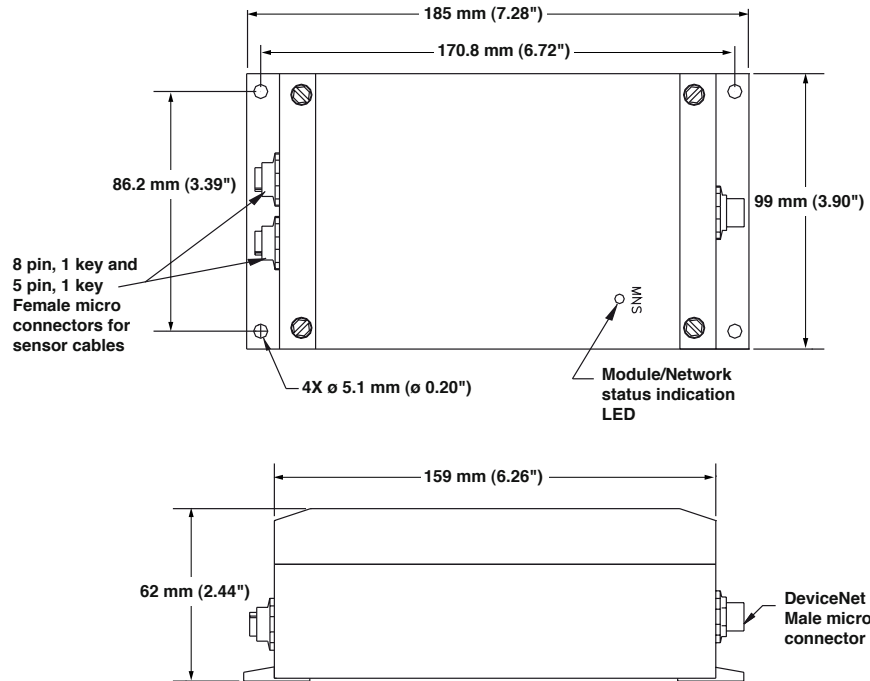
PASS-THROUGH DETECTION (DYNAMIC)

47

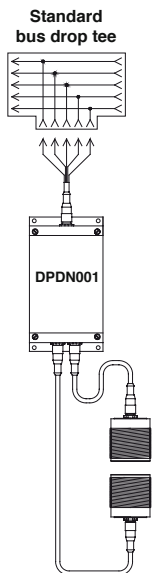
## Order information

Part number

DPDN001



## Technical Data



**Weight**  
830 g (1.8 lbs)

### Application

- > Painted aluminum enclosure rated oil tight Nema12 or IP65
- > Operating temperature 20°C to 50°C (69°F to 122°F)
- > Acts as interface module between pass-thru double sheet detection sensors and DeviceNet network
- > Compatible with DPS1054T /DPS1054R standard mount and DPS2054T / DPS2054R low profile sensor pairs

- > Input power-24VDC from DeviceNet cable 160ma current draw when measuring ferrous material 100ma current draw when measuring non-ferrous material

Dimensions are for reference only

# DOUBLE BLANK PASS THRU SENSORS

DPS1054T / DPS1054R / DPS2054T / DPS2054R

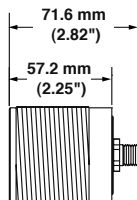


## Order information

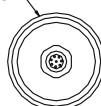
Part number	Mount type
DPS1054T	Standard mount transmit sensor
DPS1054R	Standard mount receive sensor

Weight  
490 g (1.1 lbs)

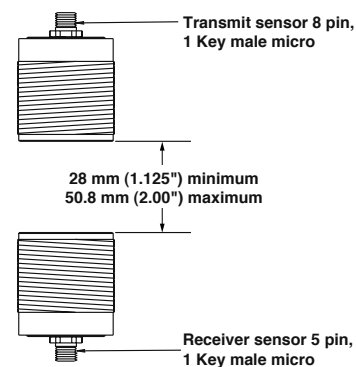
### SENSOR HOUSING



Threads M54 X 0.75-6g



### SENSOR GAP

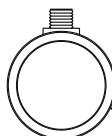
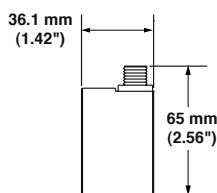


## Order information

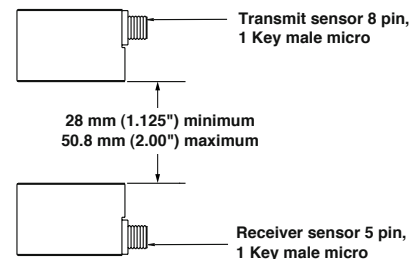
Part number	Mount type
DPS2054T	Low profile transmit sensor
DPS2054R	Low profile receive sensor

Weight  
305 g (0.67 lbs)

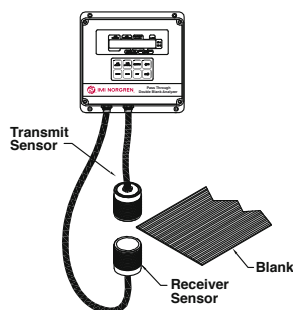
### SENSOR HOUSING



### SENSOR GAP



## Application



**Measurement range**  
 (FE) Ferrous: 0.0-4.3 mm  
 (NF) Non-ferrous: 0.0-3.0 mm  
**Single blank thickness range\***  
 (FE) Ferrous: 0.5-3.3 mm  
 (NF) Non-ferrous: 0.5-3.3 mm  
 \*When used as a Double Blank Analyzer

- > 304SS body with plastic face
- > End cap-galvanized steel or epoxy
- > Pressure spray resistant - Nema 4 or IP68
- > Operating temperature 20°C to 50°C (68° to 122°F)
- > Compatible with series DBP controller or series DPDN DeviceNet interface module

Dimensions are for reference only



# PASS-THROUGH DBA CABLES AND ACCESSORIES



3

PASS-THROUGH DETECTION (DYNAMIC)

49

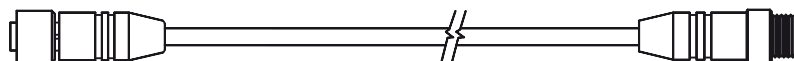
## ● Sensor cables

- Must use one transmit and one receive cable per sensor set

### Transmit Cables

#### DPC10TXX

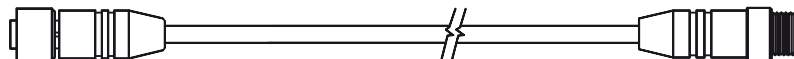
Length in meters	Code
2 meters	02
6 meters	06
10 meters	10
20 meters	20



### Receive Cables

#### DPC10RXX

Length in meters	Code
2 meters	02
6 meters	06
10 meters	10
20 meters	20



Note: Transmit and receiver cables are not interchangeable

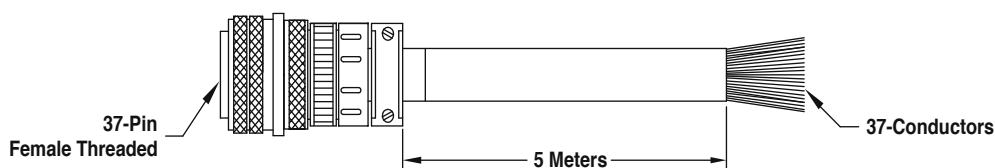
## ● Control cable for DBP100 & DBP200 DBA

### DCC3705

5M (16.4") Cable (Pigtail)  
with 19 Pin AMPH plug

### DCC37LXX

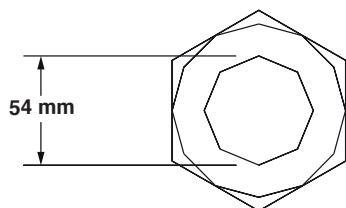
Customer specified length  
in meters



## ● Sensor mounting accessory

### 42.7016

Sensor jam nut



Dimensions are for reference only

## NOTES

50

## Warning

These products are intended for use in industrial systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.

Before using these products with fluids other than those specified, for nonindustrial applications, life-support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided. System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products, or posted on the Norgren website under "Downloads." System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by Norgren. Norgren's reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

**Proposition 65:** These products may contain chemicals known to the state of California to cause cancer, or birth defects, or other reproductive harm.

## Warranty

Items sold by Norgren are warranted to be free from defects in materials and workmanship for a period of two years\* from the date of invoice, provided said items are used according to Norgren's recommended usages. NORGREN'S LIABILITY IS LIMITED TO THE REPAIR OF, REFUND OF PURCHASE PRICE PAID FOR, OR REPLACEMENT IN KIND OF, AT NORGREN'S SOLE OPTION, ANY ITEMS PROVED DEFECTIVE, PROVIDED THE ALLEGEDLY DEFECTIVE ITEMS ARE RETURNED TO NORGREN PREPAID. THE WARRANTIES EXPRESSED ABOVE ARE IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, EXCEPT AS STATED HEREIN.

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Norgren reserves the right to discontinue manufacture of any product or change product materials, design, or specifications.



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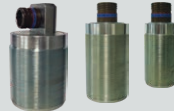
1

## SELECTING A DOUBLE BLANK SYSTEM



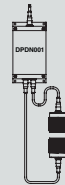
2

## CONTACT DOUBLE BLANK DETECTION (STATIC)



3

## PASS-THROUGH DOUBLE BLANK DETECTION (DYNAMIC)



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15834SP us/02/2020

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